THE INTERNATIONAL CONFERENCE AND CALL FOR PAPER ON TRADE
“A NEW PARADIGM IN TRADE GOVERNANCE TO INCREASE DOMESTIC EFFICIENCY AND TO STRENGTHEN GLOBAL COMPETITIVENESS”

Jakarta, 5-6 September 2017

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INVESTMENT POLICY REFORMS TO IMPROVE THE EFFICIENCY OF INDONESIA’S TRADE LOGISTICS COST TO ASEAN REGION

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Abstract
ASEAN Economic Community (AEC) was established to create an integrated and competitive economic region in South East Asia. However, connectivity problems are still a constraint in most member countries to achieve the AEC goals. Port infrastructure and sea transport become crucial to be developed in order to facilitate the flow of efficient logistics in this region. This study pursues to define how foreign investor can contribute more to the logistics performance by increasing investment on sea transport in Indonesia. Descriptive analysis is conducted by utilizing LSBCI and LPI to describe how competitive Indonesian logistics compared to other ASEAN countries. Moreover, the Hoekman Index is used to measure the openness level of each member country toward foreign investment. The result concludes that Indonesia is relatively open to foreign investment. However, Indonesia cannot take advantage to attract more investment in the international sea transport services in Indonesia. There are several factors that are identified as the distractions of foreign investment in Indonesia, such as national investment policies that are not in accordance with Indonesia’s commitment in ASEAN, low perception on ease of doing business, as well as interest rates and tax rates are relatively higher than the other ASEAN countries.

Keywords: Trade in Services, Foreign Direct Investment
JEL Classification: F13, F21, R42

INTRODUCTION
ASEAN Economic Community (AEC) is a mutual commitment to make ASEAN as an integrated and competitive region through minimizing barriers of trade, investment, skilled labors, and capital flows among ASEAN countries. In order to achieve that goal, connectivity becomes an important issue for ASEAN in which the availability of adequate infrastructure, such as port infrastructure, becomes critical to link each of the member countries. Furthermore, the existence of an advanced overseas transport is really expected to improve logistics efficiency, reduce transaction costs and promote greater flow of trade, either goods or services, in this region.

Indonesia should improve its connectivity because it could hold back the economic development. Refer to ASEAN Investment Report 2015, the overcrowded ports and the poor connectivity have led to high logistics costs in Indonesia. By adequate infrastructure, it is estimated that

1ASEAN Economic Community Blueprint 2025
Indonesia’s GDP could grow at a rate between 7% and 9% annually, instead of 6% to 6.5% in the same period. On the other side, the development of infrastructure has also to be supported by the investments in international sea transport services. The increasing capacity of transport services is expected to decrease the cost of transfer from Indonesia to abroad. Therefore, the improvements on these two supporting-connectivity elements could increase the competitiveness of Indonesia and its participation to regional value chain due to the efficiency on logistics cost.

This study pursues to define how foreign investment in sea transport can contribute more to the logistics performance of Indonesia. Even though Indonesia has been actively involved to trade negotiation in ASEAN, Indonesia is perceived not take advantage to attract more foreign investment from ASEAN. At the end, the results of this study would be expected to deliver few recommendations about how to improve Indonesia’s trade logistics to ASEAN region through investment policy reforms.

METHODS

This is a descriptive analysis that utilizes data and information published by the UNCTAD and the World Bank and any documents in regard to the ASEAN Framework Agreement on Services. It refers to the Liner Shipping Bilateral Connectivity Index and Logistics Performance Index to figure out how competitive Indonesian logistics compared to other ASEAN countries. Moreover, the Hoekman Index is also used in this study to measure trade openness of Indonesia toward foreign investment. The service sector that becomes the subject of this study is the international freight transport service that classified as code 7212, based on the Central Product Classification (CPC). Meanwhile, the coverage of analysis is only limited to the ten countries of ASEAN.

The Liner Shipping Bilateral Connectivity Index (LSBCI) defines the connectivity condition of Indonesia compared to the other ASEAN countries. Hoffmann et. al. (2014) first propose the LSBCI which is an extension of UNCTAD’s country level Liner Shipping Connectivity Index. It indicates how well the sea transport connectivity of two countries that also

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2ASEAN (2015b) illustrates that the overcrowded ports and poor connectivity have led to high logistics costs of about 24% of GDP in Indonesia, as compared with only 16% in Thailand.
reflects the trade relation between the two countries (country A and country B) on a bilateral basis. Then, based on Fugazza and Hoffmann (2016), there are several components that construct the index of the LSBCI, as follows the number of transshipments, the number of direct connections, the geometric mean of the number of direct connections, the level of competition on services, and the size of the largest ships.

Furthermore, the Logistics Performance Index (LPI) by the World Bank describes how connectivity condition is aligned with the logistics performance of Indonesia. The LPI is an interactive benchmarking tool that created to help countries identify the challenges and the opportunities they face in their performance on trade logistics and what they can do to improve their performance. The LPI consists therefore of both qualitative and quantitative measures and helps build profiles of logistics friendliness for these countries. There are several dimensions that construct the index of the LPI, as follows customs, infrastructure, international shipments, logistics competence, tracking & tracing, and timeliness. Therefore, because the LPI corresponds to the performance of a country logistics, it can be concluded that a country which has higher performance is considered more competitive.

To determine the acceptance of a country toward foreign investment, an indexing method is used to interpret a country’s openness level compared to other member countries on a cooperation framework. Or in other words, how liberal a country compared to the others. Hoekman (1995) first proposes the such index to measure the level of GATS-style commitment in the service sector so it is then called Hoekman Index (HI). Then, Ishido (2011) defines, if a country has committed to its schedule of commitment to none, it means such country is fully disclosed without any restrictions then the index value comes to 1. Then, if the country is disclosed with limitation, the value of index is 0.5. And, if not committed at all (unbound), then the value of index is 0. Schedule of commitment consists of two columns and four modes of supply for each column, then an indexing method is conducted to get a simple average value as the value of HI.
Table 1. Hoekman Index

<table>
<thead>
<tr>
<th>No.</th>
<th>Commitment</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>None (fully disclosed)</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Limitation (disclosed with restrictions)</td>
<td>0.5</td>
</tr>
<tr>
<td>3.</td>
<td>Unbound (closed)</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Ishido (2011)

RESULTS AND DISCUSSION

Connectivity is really required to advance the economy of a country and the creation of an integrated region. It is because the role of connectivity in connecting one region with other areas. The availability of adequate infrastructure, such as transportation, becomes crucial to increase the efficiency of logistics, reduce transaction costs, and stimulate the flow of trade and greater investment into an area, from one country to the others through to the destination country. Academically, recent literature has emphasized this issue in which the infrastructure and transportation costs become two most important things in explaining trade and access to international markets. Anderson and Wincoop (2003), based on the estimation of a gravity model using US data, found that transport costs correspond to an average ad valorem tax equivalent of 21%. Using a similar empirical approach, Clark et. al. (2004) estimates reveal that for most Latin American countries, transport costs are a greater barrier to U.S. markets than import tariffs.

In line with that issue, an advanced maritime transport now becomes crucial to promote international trade in goods. Based on UNCTAD (2008) in on Fugazza and Hoffmann (2016), around 80% of volume of goods exchanged in the world is transported through sea. The predominance of maritime transport is reflected by an intensification of containerized transport services over the past decades. The share of general cargo that was containerized steadily grew and is now above two-thirds of total general cargo transport. In terms of value, containerized general cargo even exceeds 90% of all general cargo. Basically, all countries are today connected to each other by a network of regular container shipping services with transshipment operations. However, despite a growing participation of developing countries in seaborne trade, evidence on maritime connections suggests that, except for a few of them such as China, they may have not reached their full potential.

Currently, the connectivity of some ASEAN countries is considered not
optimal reflected by its low LSBCI. The range of the index is between 0.1691 to 0.8590 in which the highest index occurs in the pair country of Singapore and Malaysia. Meanwhile, the lowest index is acknowledged by the pair country of Myanmar and Cambodia. Or in the other words, the trade relation between Singapore and Malaysia is the most connected on a bilateral basis than the relationship of another pair country, and the trade relation of Myanmar and Cambodia is reversed.

Table 2. ASEAN’s Liner Shipping Bilateral Connectivity Index (LSBCI)

<table>
<thead>
<tr>
<th>Partner</th>
<th>Brunei Darussalam</th>
<th>Cambodia</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Myanmar</th>
<th>Philippines</th>
<th>Singapore</th>
<th>Thailand</th>
<th>Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>-</td>
<td>0.1801</td>
<td>0.1998</td>
<td>0.2845</td>
<td>0.1763</td>
<td>0.1945</td>
<td>0.2758</td>
<td>0.2039</td>
<td>0.2046</td>
</tr>
<tr>
<td>Cambodia</td>
<td>0.1801</td>
<td>-</td>
<td>0.2164</td>
<td>0.3012</td>
<td>0.1691</td>
<td>0.2752</td>
<td>0.3072</td>
<td>0.2906</td>
<td>0.2880</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.1998</td>
<td>0.2164</td>
<td>-</td>
<td>0.4705</td>
<td>0.2114</td>
<td>0.3548</td>
<td>0.4866</td>
<td>0.3972</td>
<td>0.3820</td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.2845</td>
<td>0.3012</td>
<td>0.4705</td>
<td>-</td>
<td>0.2897</td>
<td>0.3771</td>
<td>0.8590</td>
<td>0.5389</td>
<td>0.5441</td>
</tr>
<tr>
<td>Myanmar</td>
<td>0.1763</td>
<td>0.1391</td>
<td>0.2114</td>
<td>0.2897</td>
<td>-</td>
<td>0.2037</td>
<td>0.2977</td>
<td>0.2169</td>
<td>0.2175</td>
</tr>
<tr>
<td>Philippines</td>
<td>0.1945</td>
<td>0.2752</td>
<td>0.3548</td>
<td>0.3771</td>
<td>0.2037</td>
<td>-</td>
<td>0.4157</td>
<td>0.3763</td>
<td>0.3763</td>
</tr>
<tr>
<td>Singapore</td>
<td>0.2758</td>
<td>0.3072</td>
<td>0.4866</td>
<td>0.8590</td>
<td>0.2977</td>
<td>0.4157</td>
<td>-</td>
<td>0.5761</td>
<td>0.5762</td>
</tr>
<tr>
<td>Thailand</td>
<td>0.2039</td>
<td>0.2906</td>
<td>0.3972</td>
<td>0.5389</td>
<td>0.2169</td>
<td>0.3763</td>
<td>0.5761</td>
<td>-</td>
<td>0.5103</td>
</tr>
<tr>
<td>Vietnam</td>
<td>0.2046</td>
<td>0.2890</td>
<td>0.3820</td>
<td>0.5441</td>
<td>0.2175</td>
<td>0.3763</td>
<td>0.5762</td>
<td>0.5103</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: UNCTAD (2016)

Furthermore, the connectivity of Indonesia is relatively low compared to other developed ASEAN countries. Based on LSBCI, Indonesia is the most connected with Singapore (0.4866), followed by Malaysia (0.4705), and Thailand (0.3972). That is, Indonesia has a better trade relation with those three countries compared to other ASEAN countries. Meanwhile, Indonesia is the least connected with Brunei Darussalam (0.1998). Nevertheless, compared to other ASEAN countries such as Singapore, Malaysia, Thailand, and Vietnam, Indonesia is still considered not well connected with ASEAN countries. The low LSBCI of Indonesia can be interpreted that the Indonesian sea transport is less competitive than the others due to its connectivity. At the end, it would affect the competitiveness of products and the involvement of Indonesia into regional value chain in the ASEAN region.

Moreover, as a part of logistics cost, sea transport is often associated to transfer cost or charged fees for distributing activities of input-output production, which overall affects a country’s competitiveness and the attainment of integrated region. Nevertheless, the logistics performance of Indonesia is still far from expectations to be categorized as a producing
country. According to World Bank study, the LPI of Indonesia is still moderate and should be improved continuously. Overall, in the year 2016 Indonesia ranks 63rd out of the total 160 assessed countries (rank 53rd in year 2014), or ranks 4th out of the ASEAN countries, below Singapore (rank 5th), Malaysia (rank 32nd), Thailand (rank 46th).

Indonesia should improve its logistics performance in few dimensions.

### Table 3. ASEAN’s Logistics Performance Index

<table>
<thead>
<tr>
<th>Country</th>
<th>Overall Rank</th>
<th>Customs</th>
<th>Infrastructure</th>
<th>International Shipments</th>
<th>Logistics Competence</th>
<th>Tracking &amp; Tracing</th>
<th>Timeliness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>5</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>6</td>
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<tr>
<td>Malaysia</td>
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<td>33</td>
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<td>155</td>
<td>148</td>
<td>144</td>
<td>156</td>
<td>133</td>
</tr>
<tr>
<td>Brunei</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>


As described on Table 3, consistent with the previous illustration on LSBCI, the unconnected infrastructure (ranks 73rd) is still a major constraint in reducing logistics cost in Indonesia. Then, in terms of the ease of obtaining competitive shipping rates (International shipments), Indonesia is less competitive (rank 71st) or in other words transport cost from Indonesia is perceived to be more expensive compared to other ASEAN countries. Moreover, the efficiency of clearance process by customs agencies (rank 69th) needs to be improved, and also with timeliness (rank 62nd), logistics competence (rank 55th), and tracking and tracing (rank 51st). Singapore is still a benchmark for the logistics development in the region in which all dimensions on LPI are the highest compared to all ASEAN countries. Or, it means Singapore considered more competitive in terms of logistics process than the others.

### The Development of Connectivity in Indonesia

Based on Kementerian Perdagangan (2016), some ports in Indonesia have been revitalizing and improving their quality of services, such as Tanjung Priok, Tanjung Perak,
Makasar, Samarinda, and the other ports. The port revitalization includes the improvement on a deep water channel entry, berthing dock, container terminal, and other supporting facilities that comply with the international ship and port facility under international maritime standards. The investment in port infrastructure is intended to anticipate the number of freight and the waiting time for berthing schedule that continually increased in recent years.

The port infrastructure development in Indonesia should be supported by adequate and efficient sea transport services due to several reasons. First, Indonesia is an archipelago that consists of more than 17 thousand islands and more than two-thirds of its area is an ocean. Sea transport becomes indispensable to connect those islands and links inputs from producer to manufacturing sectors for further process. Second, the increasing trend flow of goods in the ASEAN region, which currently becomes the world’s production base. Sea transport is really expected to support the movement of goods between member countries. However, sea transport in Indonesia is still dominated by foreign transport fleets. Out of the total freight 952.7 million tons in year 2012, the Indonesian transport fleet is only able to control 43% market share. In addition, the share of overseas sea freight, the Indonesian transport fleet is only able to grab 10% market share while 90% shares are controlled by foreign transport fleets. It is because the cost of using the Indonesian transport fleet is considered to be more expensive than the foreign transport fleet due to the low connectivity and its capacity. Therefore, investment in sea freight services in Indonesia is really important in the context of building connectivity and enhancing Indonesia’s competitiveness.

**Alternative of Investment Fund**

The infrastructure investment needs of the ASEAN region until 2025 are huge. Given the current spending by member states, the infrastructure investment gap needs to be filled by various alternative resources to meet the future demand. In Indonesia, refer to the RPJMN 2015 – 2019, the investment needs are more than IDR 5,500 trillion that are intended to develop infrastructure in areas all over Indonesia. The development of port infrastructure becomes one of the main government’s focuses that requires

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3 Presented by the Ministry of Transport at Jakarta 2014

4 Based on ASEAN (2015b), it will be needed at least USD 110 billion a year for infrastructure investment covering power, transport, ICT, and water and sanitation.
investment fund amounted to IDR 900 trillion, or the two biggest after the investment needs of electricity as much as IDR 980 trillion.\textsuperscript{5} There is a need for a more concerted effort by all stakeholders to mobilize and to channel additional potential resources to infrastructure investment in the region, especially in Indonesia.

The private sector can play a greater role to help bridge the investment gap through a number of modalities such as foreign direct investment (FDI). Initially, developing countries often rely on national saving and debt to finance the project investment. However, due to some reasons, the investment fund is not used properly so they are difficult to manage debt and to meet their obligations. This condition leads to an increase in debt that ultimately has an adverse effect on the economy of the country. Later, FDI becomes one alternative financing of the project investment which the approach is not considered aggravating the burden of government spending.

In addition, refer to De Gregorio (2003), FDI is also considered to have a positive effect on economic growth for the invested countries. FDI may allow a country to develop its technology and knowledge that are not readily available from domestic investors, and in this way increases productivity growth through the economy. Thus, based on De Mello (1997) and De Mello (1999), by transferring knowledge in the host country, FDI will increase the existing stock of knowledge through labor training, transferring of skills, and the transfer of new managerial and organizational practice. Also, it can promote the use of advanced technology by capital accumulation in the host country. Accordingly, FDI related to technological spillover offsets the effects of diminishing returns to capital and keeps the economy on a long-run growth path. Therefore, FDI from way of capital accumulation and knowledge spillover may play an important role in economic growth.

The Liberalization of Trade in Services

In international trade, liberalization means the removal of policies and regulations that inhibit trade. The policy or rule applies, both tariff and non-tariff policy, to the trade in goods and services. In the trade of goods, trade liberalization means reducing the barriers of imports of goods from abroad to more freely enter to the destination

\textsuperscript{5}The RPJMN is a medium-term, inclusive national development strategy created by the Government of Indonesia that aims for wealth creation at all levels of society, based on equity, justice and diversity.
country, and vice versa, reducing barriers to export of goods to other countries provided by the partner countries. In other words, the removal of trade barriers can be said to be an incentive for trade activities that can lead to intensive trade between countries.

In terms of trade in services, a limitation of foreign equity participation (FEP) becomes a form of trade barriers that is arranged in every trade agreement. In general, for a country that incorporated in the World Trade Organization, the regulatory scheme refers to the WTO’s General Agreement on Trade in Services (GATS) in which each country commits its trade openness to any form of trade in services consisting of four modes, inter alia cross border supply (Mode 1), consumption abroad (Mode 2), commercial presence (Mode 3), and movement of natural persons (Mode 4). Specifically, in the commercial presence (Mode 3), foreign investment is regulated in terms of the freedom of foreign companies to attend and establish their business entities in other countries. Those countries create a trade barrier by establishing a FEP restriction measure in accordance with their commitments in GATS. Regardless of the view of liberalization, inward looking or outward looking, and economic conditions in a country, the FEP provision is considered as an investment attractive. Therefore, the greater the limitation, the smaller the investment attractiveness because the country is considered more restricted to foreign investment.

In the ASEAN region, ASEAN Framework Agreement on Services (AFAS) has been established as a framework to continuously liberalize trade in services by each country to achieve AEC goals. One of the most important issues of the liberalization agreement in AFAS is the flow of capital through FEP. Since its first signing in 1996, a number of AFAS commitment packages have been successfully completed and signed by all ASEAN member countries. Currently, ASEAN countries have reached the stage of AFAS-10 negotiations before they will be fully implemented in ASEAN Trade in Services Agreement (ATISA). Therefore, the more open the member countries on trade in services, capital flows through FEP among ASEAN members are expected increase in order to support economic growth in each country.

In terms of indexing valuation to determine the trade openness in a service sector, the author refers to the
member’s commitment on sea transport service based on AFAS-8. It is because Indonesia does not ratify the agreement except Brunei Darussalam and Laos which do not differ in their commitments in AFAS-8, neither cabotage or not. Cabotage is the right of each member country to arrange the domestic shipping only for domestic service providers. In other words, almost the ASEAN countries recognize the cabotage principle so the domestic sea transport service is not part of their ASEAN’s liberalization commitments. Therefore, the coverage HI analysis in this paper is limited only to international sea transport service.

In general, based on HI analysis, Indonesia’s sea transport service is quite open/unrestrictive than the other ASEAN countries (Table 4). It is reflected by its HI on this sector as measured 0.75. In the other hands, the other ASEAN countries that have been recognized more advanced tend to be slightly closed than Indonesia, such as on AFAS-9. On AFAS-8, almost the member countries commit the sea transport service exclude cabotage, Singapore (0.63), Malaysia (0.69), and Thailand (0.63). The most unrestricted ASEAN countries in this sector is the Philippines as measured 0.94.

Based on mode of supply, almost all the ASEAN countries have disclosed Mode 1 and Mode 2. It is because the two modes are practically difficult to be regulated. For example, Thailand entities buy a product with term of delivery FOB in Indonesia. Then, those entities decide to use a domestic supplier in Indonesia to move the product from Indonesia to their own country, either they consume the service as cross-border supply, or come to Indonesia directly as consumption abroad. There is only one country, Cambodia, that has not fully disclosed its Mode 1 on this sector. Therefore, the member countries are more intensive to regulate Mode 3 and Mode 4.

Table 4. The Trade Openness in International Freight Service Sector Among ASEAN Countries

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Hoekman Index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>IND</td>
</tr>
<tr>
<td>1.</td>
<td>Overall</td>
<td>0.75</td>
</tr>
<tr>
<td>2.</td>
<td>Mode 1</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Mode 2</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Mode 3</td>
<td>0.5</td>
</tr>
<tr>
<td>5.</td>
<td>Mode 4</td>
<td>0.5</td>
</tr>
</tbody>
</table>

| FEP (in %) | 60 | 100 | 51 | 51 | 49 | 100 | 100 | 100 | 51 | 100 |

Source: Schedule of Commitment AFAS-8, author’s calculations.
Furthermore, the ASEAN countries tend to disclose Mode 3 with a limitation. Based on HI analysis, Indonesia has disclosed this mode as measured 0.5. Malaysia and Vietnam are more open as measured 0.75, and the rest member countries disclose this mode as much as 0.5. The Philippines is the only one country which has fully disclosed with the amount of index 1. Nevertheless, the level of openness of a country in a commitment does not determine whether the country is definitely open to foreign investment or not due to its regulation on FEP. Based on the limitation of foreign investment, the ASEAN’s foreign equity participation ranges from 49% to 100%. The provision of Indonesia allows FEP as much as 60%, more liberal than Malaysia 51% (HI: 0.75) and Vietnam 49% (HI: 0.75). In a different situation, Singapore, Cambodia, Myanmar, and Lao allow foreign investment as much as 100% whereas their HI are only 0.5. Singapore, the Philippines, Cambodia, Myanmar, and Lao are the most unrestrictive countries to foreign investment that allow FEP as much as 100%. In the other hands, Vietnam is the most restrictive country in the ASEAN that allows foreign investment as maximum as 49%. The Philippines is the only country considered fully disclose and in line with its foreign investment policy that allows 100% foreign ownership.

On Mode 4, the ASEAN countries tend to fully restrictive. In other words, the ASEAN countries choose their respective economic interests, where domestic labor is still preferred over foreign workers. Although there is an AFAS roadmap that periodically encourages liberalization of this mode, each country tends to maintain a low commitment. Only the Philippines (HI: 0.75) is the most open in this mode, while Indonesia (HI: 0.5), Myanmar (HI: 0.5), and Brunei Darussalam (HI: 0.5) are open with more restrictions.
The Progress of FDI from ASEAN to Indonesia

Indonesia should take advantage of its commitment in AFAS to increase investment in the transport service sector. Based on data from the Investment Coordinating Board, the FDI from ASEAN to the service sector in Indonesia is increasing, both FDI on domestic sea transport and overseas sea transport (Graphic 1). Accumulated, from 2010 to 2015, FDI flows in these two sub-sectors amounted to USD 1,676.9 million. Total FDI in the domestic sea transport service reached USD 1,614.3 million, of which the value increased significantly in 2014 in the amount of USD 964.58 million. However, it was a different situation with the investment flows in the overseas sea transport service that considered stagnant. The value of FDI in this sub-sector was only USD 62.6 million, whereas the increasing FDI in this sector was really needed to improve the logistics cost of Indonesia to the ASEAN region.6

Domestic Regulations and Investment Climate

Although Indonesia (overall HI: 0.75) relatively discloses its market access on sea transport service sector, but Indonesia is not quite open in Mode 3 (HI: 0.5). In addition, Indonesia just sets the committed FEP limitation on AFAS-8 as maximize as 60%, whereas few other ASEAN countries have been more liberal in their FEP policy. At the same time, foreign investors regard the FEP restriction as a form of trade barriers that inhibits the entry of investment into Indonesia. However,

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6 The Investment Coordinating Board is a governmental institution which is responsible to manage and to monitor either foreign or domestic investment activities in Indonesia.
based on Presidential Regulation No. 44 of the year 2016 regarding the Negative List of Investment, the FEP on international sea transport service is more liberal which the sector may be owned by foreign investors up to 70%. In other words, although Indonesia just sets a 60% FEP limitation in accordance with its commitment in AFAS-8, but Indonesia has a more unrestrictive domestic regulation.

Indonesia shall comply with the AEC target to liberalize its service sectors. Now, the AFAS negotiation rounds have reached the final round of AFAS-10 negotiation in which the committed outcome will be a fundamental of the ATISA. In the implementation of the ATISA, the member countries are expected to achieve a minimum target of ASEAN liberalization, which sets the FEP limitation at least by 70%. Regard to the progress of AFAS negotiation, Indonesia has not yet ratified AFAS-9, even the FEP limitation is still set equal to 60%. The member countries that have met the requirement of FEP liberalization in the implementation of ATISA are Singapore, the Philippines, Cambodia, Myanmar, and Lao PDR.

Moreover, a supporting investment climate is needed to attract more FDI to Indonesia. There is a presumption by foreign investors that it is difficult to conduct business activities in Indonesia due to many procedures and requirements that must be complied. Based on Ease of Doing Business 2017, Indonesia ranked 91st in the world, better than the previous year ranked 106th. However, compared to the other ASEAN countries, Indonesia ranked the sixth after Singapore (rank 2nd), Malaysia (rank 23rd), Thailand (rank 46th), Brunei Darussalam (rank 72nd), and Vietnam (rank 82nd). Therefore, Indonesia needs to continually reform the investment bureaucracy by facilitating foreign investors to invest in Indonesia.

From the business perspectives, there are several factors that considered by foreign investors to invest in sea transport business in Indonesia. First, compared to the other member countries, the interest rate is relatively high in Indonesia as a major consideration for the investors to invest on ship procurement in Indonesia. As of Table 5, the interest rate in Indonesia (5%) is relatively higher than the average interest rate of ASEAN countries (4.1%). Otherwise, Malaysia, Thailand and Singapore that have advanced sea transport services are more competitive. It can be concluded,
based on that, a foreign investor will choose the three countries as a destined investment country than Indonesia. The interest rate of Indonesia is only considered better than Vietnam, Myanmar, and Brunei Darussalam.

Table 5. Comparison of Interest Rate and Income Tax Rate in ASEAN

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>ASEAN Countries</th>
<th>Average ASEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>IND SIN MAL THA VIE PHI CAM MYN BRU LAO</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Interest Rate (%)</td>
<td>5 0.38 3 1.5 6.5 3 1.45 10 5.5 4.5 4.1</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Income Tax Rate:</td>
<td>25 17 25 20 20 30 20 N/A 20 N/A 22</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Personal (%)</td>
<td>30 22 26 35 35 32 20 N/A 0 N/A 25</td>
<td></td>
</tr>
</tbody>
</table>

Source: from various sources (2016)

Second, an investor prefers to choose a destined investment country that imposes a better tax rate. Based on available information, corporate income tax rate in Indonesia (25%) is higher than the average corporate income tax rate of ASEAN countries (22%). In addition, the individual income tax rate in Indonesia (30%) is also higher than the average of individual income tax rate in the ASEAN (25%). In general, Singapore has the most favorable income tax rates because the tariffs are relatively lower than the other ASEAN countries.

Therefore, both interest rate and income tax rate may become one of many reasons that a shipping company is likely to invest vessels in Singapore instead of in Indonesia. By the business point of view, it is more efficient and more profitable, especially for international sea transport services.

Based on UNCTAD Stats 2016, the total capacity of vessels registered as Indonesian ownership is 17.3 million DWT and 12.4% of them are registered as the flagship of other countries, one of them is Singapore. Such kind of investors are only likely to appoint and assign a general agent in Indonesia to take care of their business interests.

INDONESIA’S REFORM AGENDA ON LOGISTICS

Now, Indonesia has a grand strategy to develop its logistics system. On June 2017, the Government of Indonesia released its 15th package of economic policy to encourage the improvement on the logistics sector. The package was really important because the share of logistics cost had contributed to 40% of product price, in which the 72% of it was the cost of transport. There are four issues that
become the focus in the package. In regard to the development of sea transport in Indonesia, the Government of Indonesia committed to giving simplicity on investment procedures, ease of doing business, and also cost reduction for logistics service providers in Indonesia. Nevertheless, the effect of a policy is not instantly at the moment. A policy needs to be followed by concrete steps with supporting regulations and a good economic condition to attract the investment.

CONCLUSION AND POLICY RECOMMENDATION

The result concludes that the connectivity of Indonesia is not optimal compared to some ASEAN countries. Based on LSBCI and LPI, the connectivity is still below than Singapore, Malaysia, Thailand, and Vietnam. Notwithstanding the foregoing, the lack of connectivity encourages inefficient logistics from Indonesia to overseas, and vice versa. It causes Indonesia’s export products not competitive due to the high cost of logistics, and also for the manufacturing import products. This condition is then considered to be an obstacle for Indonesia to engage more on the regional value chains and to achieve the objective of integrated ASEAN.

Indonesia is now working to improve its connectivity by a series of developments on port infrastructure. Despite the improvement on supporting logistics infrastructure, it should be followed by providing the adequate and efficient marine transport. Given the current spending by member states, the investment gap needs can be filled by FDI to meet the future demand of transport services. Based on HI analysis, the trade openness of Indonesia is quite open for FDI from ASEAN. However, Indonesia cannot take advantage of its commitment in AFAS to increase foreign investment in the international sea transport service. There are three factors that have been identified as the cause of such situation, inter alia, the national investment policy is not in accordance with Indonesia’s commitment in ASEAN, ease of doing business in Indonesia is perceived low, as well as the interest rate and the tax income rates are relatively higher than the other ASEAN countries.

Now, Indonesia has a grand strategy to improve its logistics system. However, the effect of a policy is not instant and needs to be followed by concrete steps with supporting regulations and a good economic condition to attract the investment. As a policy recommendation, in order to
improve the efficiency of Indonesia’s trade logistics cost to the ASEAN region, Indonesia should:

1. Continuously disclose the market access on international sea transport service by increasing its FEP commitment from 60% to at least 70%, as of ATISA implementation target and in line with the national provision as on Presidential Regulation No. 44 of the year 2016;

2. Continuously create an investment-friendly conditions due to a low perception about doing business in Indonesia;

3. Decrease interest rate and tax income rate in order to attract more investment to Indonesia.

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ANALYSIS OF THE EFFICIENCY OF PORT INFRASTRUCTURE AGAINST
INDONESIAN-APEC BILATERAL TRADE FLOW

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Abstract
Total trade between Indonesia with APEC countries reached 70% of total trade Indonesia to the World, it indicates that APEC is a potential market for Indonesia. During the period 2007-2014 Indonesian trade flows from and to the APEC countries predominantly transported via sea transport mode so that the efficiency of port infrastructure can increase the volume of trade between Indonesia and APEC countries. Gravity model panel data are used to estimate the relationship of the efficiency of port infrastructure variables against total bilateral trade flows of Indonesia in APEC. The variables used in this study are the per capita gross domestic product (GDP) of Indonesia, economic distance, quality of port infrastructure (QPI), container port traffic (CPT), cost to export, and burden of custom procedure (BOCP). The estimation results of the gravity model of approach shows that the variables significantly positively influence the trade are Indonesia’s per capita GDP, economic distance, QPI, and CPT. While BOCP variables and cost to export significantly negatively influence the trade. The government has made plans for improvements national ports that are expected to improve the quality of port infrastructure in order to boost trade performance.

Keywords: APEC, Bilateral Trade, Gravity Model, The Efficiency of Port Infrastructure.

JEL Classification: F13, F14, F15

INTRODUCTION
Globalization encourages trade liberalization, Krugman (2002) says that trade liberalization and declining trade costs, especially transportation costs, are factors driving the growth of world trade. To increase trade, countries in the world form economic integration.

The benefits of economic integration are the creation of economic efficiency in an economic region, the development of local industry, and increased trade (Meir, 1995). In 1989 economic cooperation in the Asia Pacific region known as the Asia Pacific Economic Cooperation (APEC) was officially established in Canberra-Australia and currently consists of 21 countries.

Figure 1. Total GDP of APEC Countries in 2007-2014
Figure 1 shows the countries with the highest total trade value with Indonesia in the APEC region. The total GDP of 11 APEC member countries always increases every year. The 11 countries accounted for 63% of total GDP with the largest contributors to GDP being the United States at 39.8%, China 21.1%, and Japan at 13.6%.

The objectives of Indonesia included in APEC are to establish cooperation in trade, investment, employment, poverty alleviation, and reduction of development gaps (APEC, 2003). Based on data released by APEC Secretariat, the total population in the APEC region reaches 2.6 billion people out of 6 billion people worldwide or 40% of the total world population with total GDP reach 57% of the world's gdp.

It makes economic cooperation in the Asia Pacific region a strategic value that is profitable for Indonesia, and it is a very potential market for Indonesian export products because 47% of world trade takes place in the APEC region. Based on APEC statistics, Indonesia's total trade to APEC is more than 70% of Indonesia's total trade to the world.

<table>
<thead>
<tr>
<th>Home Country</th>
<th>Export 2013</th>
<th>Export 2014</th>
<th>Import 2013</th>
<th>Import 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>15,691</td>
<td>16,530</td>
<td>9,065</td>
<td>8,170</td>
</tr>
<tr>
<td>AUS</td>
<td>4,370</td>
<td>4,948</td>
<td>5,038</td>
<td>5,647</td>
</tr>
<tr>
<td>CHN</td>
<td>22,601</td>
<td>17,605</td>
<td>29,849</td>
<td>30,624</td>
</tr>
<tr>
<td>PHL</td>
<td>3,816</td>
<td>3,887</td>
<td>777</td>
<td>699</td>
</tr>
<tr>
<td>HKG</td>
<td>2,693</td>
<td>2,777</td>
<td>2,092</td>
<td>1,848</td>
</tr>
<tr>
<td>JPN</td>
<td>27,086</td>
<td>23,117</td>
<td>19,284</td>
<td>17,007</td>
</tr>
<tr>
<td>KOR</td>
<td>11,422</td>
<td>10,601</td>
<td>11,592</td>
<td>11,847</td>
</tr>
<tr>
<td>MYS</td>
<td>10,666</td>
<td>9,730</td>
<td>13,322</td>
<td>10,855</td>
</tr>
<tr>
<td>SGP</td>
<td>16,686</td>
<td>16,728</td>
<td>25,581</td>
<td>25,185</td>
</tr>
<tr>
<td>THA</td>
<td>6,061</td>
<td>5,783</td>
<td>10,703</td>
<td>9,781</td>
</tr>
<tr>
<td>VNM</td>
<td>2,400</td>
<td>2,451</td>
<td>2,722</td>
<td>3,417</td>
</tr>
</tbody>
</table>

Source: Ministry of Trade RI (2015)

Indonesia is a developing country that embraces an open economy. Table 1 shows that the value of Indonesia's import-export to APEC countries is very high, the value of Indonesia's largest import-export to Japan, China, Singapore and the United States. Trade facilitation is one of the main pillars of APEC formation that plays a role in the smoothness of trade. One of these trade facilitation is port efficiency which is shown from the quality of port infrastructure. Good quality of transport infrastructure can reduce the effect of distance between countries and between regions and can reduce trade costs that will affect trade and economic performance (Kelejjian and Robinson,
Efficiency of ports is also an important factor to stimulate port competitiveness and increase regional development (Brand and Dang, 2012). Indonesia's import and export activities are still dominated by sea transportation, so port infrastructure is very important for trade performance. Nearly 80% of the total international trade taking place in the world is done through sea transportation mode.

Based on the statistics Indonesia, loading and unloading activities at Indonesian ports both between islands and abroad tend to increase every year. This further indicates that the role of the port is crucial to Indonesia's trade flows.

Indonesia has the fourth longest coastline in the world (95,181 km). In addition two-thirds of Indonesia is the waters and is located on the stop of world trade routes. This condition will be very beneficial for Indonesia if the existing port is performing well. Freight transport is the main object transported by sea transportation mode. Nearly 95% of freight transport for import-export destinations uses this mode. Data from statistics Indonesia shows that the development of loading and unloading of goods at home and abroad still rests on the island of Java.

<table>
<thead>
<tr>
<th>Quality of Infrastructure</th>
<th>IDN</th>
<th>HKG</th>
<th>SGP</th>
<th>JPN</th>
<th>MYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>72</td>
<td>2</td>
<td>5</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>(4.2)</td>
<td>(6.5)</td>
<td>(6.3)</td>
<td>(6.2)</td>
<td>(5.6)</td>
</tr>
<tr>
<td>Road</td>
<td>73</td>
<td>3</td>
<td>6</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>(4.2)</td>
<td>(6.5)</td>
<td>(6.3)</td>
<td>(6.2)</td>
<td>(5.6)</td>
</tr>
<tr>
<td>Railroad</td>
<td>41</td>
<td>3</td>
<td>8</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>(3.7)</td>
<td>(6.4)</td>
<td>(5.7)</td>
<td>(6.7)</td>
<td>(5.0)</td>
</tr>
<tr>
<td>Port</td>
<td>77</td>
<td>5</td>
<td>2</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>(4.0)</td>
<td>(6.5)</td>
<td>(6.7)</td>
<td>(6.7)</td>
<td>(5.0)</td>
</tr>
<tr>
<td>Air Transport</td>
<td>64</td>
<td>3</td>
<td>1</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>(4.5)</td>
<td>(6.6)</td>
<td>(6.8)</td>
<td>(5.6)</td>
<td>(5.7)</td>
</tr>
</tbody>
</table>


The data in table 2 informs that in Indonesia, the quality of port infrastructure is the lowest compared to other infrastructure. Based on Global Competitiveness Report 2014 the quality of Indonesian ports is ranked 77th out of 144 countries. The quality of Indonesian ports has increased from previous years, in 2012 ranked 104 and in 2013 at rank 89. But the position of Indonesia is still far behind other APEC countries. The low quality of Indonesian ports is due to the quality of infrastructure and superstructure, high logistics costs, high transportation costs, lack of resources, and the maintenance of old customs documents (Novianti, 2013).

The port ratio of Indonesia to the total area of Indonesia is 2.93 km²/port,
while Japan is 0.34 km²/port and Philippines 0.46 km²/port. So far, 80-90% of Indonesia’s export-import activities have to go through ports in other countries. For import export purposes, foreign ships choose to dock in Singapore and Malaysia. As a result, foreign exchange potential flows to other countries (Sinulingga, 2012). The contribution of sea transport in international trade was 77%, land transportation 16%, piping 6.7%, and air transportation 0.3%. The results of LPEM UI (2005) showed that the cost of sea transportation in Indonesia is very inefficient. The high cost of sea transportation is caused by logistical conditions that are also less support, including the quality of transportation infrastructure.

From the above problem, this paper aims to describe the general condition of bilateral trade between Indonesia and APEC countries and to know the factors that affect the efficiency of port infrastructure in bilateral trade of Indonesia-APEC.

METHODS

This research uses descriptive analysis and estimated with gravity model panel data. This study uses secondary data in panel dataset that consists of both time series and cross-sectional data. The number of an observational period as the time series data are 8 years, from 2007 to 2014. The cross-sectional data consists of 11 countries, such as Australia, Japan, Korea, Malaysia, Philippines, Singapore, Thailand, USA, China, Hongkong, and Vietnam. The data used in this study comes from several sources, namely UN Comtrade, World Bank, and CEPII.

Table 3. Variables used in the model and sources

<table>
<thead>
<tr>
<th>Variables / unit</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>XM / US$</td>
<td>This is the dependent variable in the model referring to the value of total exports and imports from Indonesia to APEC countries in year t.</td>
</tr>
<tr>
<td>GDP / US$</td>
<td>Gross domestic product Indonesia in year t.</td>
</tr>
<tr>
<td>DIST / Km</td>
<td>Economic distance calculated by the formula as suggested by (Li et al. 2008): geographic dist * GDP/Total GDP</td>
</tr>
<tr>
<td>QPI / Scale: 1 (underdeveloped)-7 (developed)</td>
<td>The quality of port infrastructure measures business executives’ perception of their country’s port facilities</td>
</tr>
<tr>
<td>CPT / TEU: 20 foot equivalent units</td>
<td>Container port traffic measures the flow of containers from land to sea transport modes., and vice versa,</td>
</tr>
<tr>
<td>CostEx / US$/ per container</td>
<td>Cost measures the fees levied on a 20-foot container</td>
</tr>
</tbody>
</table>
in U.S. dollars. All the fees associated with completing the procedures to export or import the goods are included.

Burden of Customs Procedure measures business executives’ perceptions of their country’s efficiency of customs procedures.

The dependent variable of this study is Indonesian’s total trade, meanwhile the independent variables are the GDP per capita of Indonesia, the economic distance between countries, the quality of port infrastructure, the container port traffic, burden of customs procedure and cost to export. To capture the effect of the efficiency of port infrastructure against Indonesian-APEC bilateral trade flow, this study uses cross-section gravity model as follow:

$$\ln X_{ijt} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln DIST_{ijt} + \beta_3 QPI_{it} + \beta_4 \ln CPT_{ijt} + \beta_5 \ln CostEx_{ijt} + \beta_6 BOCP_{jt} + \varepsilon_{ijt}$$

where i refers to Indonesia, j refers to APEC countries, and t refers to time (year from 2007-2014), $\varepsilon$ is random error, $\beta_0$ is intercept, and $\beta_n$ is coefficient. We expect that $\beta_1, \beta_3, \beta_4, \beta_6>0$ and $\beta_2, \beta_5 < 0$. Details of each variable used in the model are explained in Table 3.

### Table 4. Result of Model Estimation

<table>
<thead>
<tr>
<th>Model estimation test</th>
<th>Prob</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chow Test</strong></td>
<td>0.0000</td>
<td>Reject $H_0$ FEM</td>
</tr>
<tr>
<td><strong>Hausman Test</strong></td>
<td>0.5511</td>
<td>Accept $H_0$ REM</td>
</tr>
</tbody>
</table>

The panel data regression has three regression models as the results, such as pooled least square (PLS), fixed effect model (FEM), and random effect model (REM). The best model of panel data regression is selected using Chow test (test for choosing model between PLS and FEM), Hausman test (test for choosing model between FEM and REM), and Lagrange Multiplier test (test for choosing model between REM and PLS). The selected regression model has to meet the classical assumptions based on Gauss-Markov theory, to get the best linear unbiased estimator. The heteroskedastic test and the autocorrelation test are not necessary if the best model was REM because it is already using GLS technique in the model (Oktaviani R, et al. 2015).
RESULTS AND DISCUSSION

Conditions of the Bilateral Trade of Indonesia with APEC Countries

Some APEC member countries become the center of the world economy and become the world's highest economy such as the United States, China, Japan, Russia and Indonesia (IMF, 2016). The economic growth of these countries will certainly affect other countries. APEC integration provides many benefits.

The total value of Indonesian trade with APEC countries reached 140 billion US dollars where the non-oil sector is the sector that contributed the most to the total trade value of 103 billion. Leading non-oil commodity sector is rubber and palm oil. While the commodity of non oil and gas sector is natural gas, oil and coal. The high value of this trade indicates APEC is still a promising market for Indonesia.

Figure 2. Indonesia's trade balance by country of destination in 2014

Source: APEC Secretariat (2014), processed

Figure 2 shows the percentage of Indonesia's trade balance with APEC countries. Since APEC is formed total export and import this area keep increasing every year. This trade will affect Indonesia's foreign exchange. The highest total trade transactions of Indonesia are to China, Singapore and Japan at 13.62%, 11.84% and 11.33%.

Figure 3. Total trade between the Indonesia-APEC period 2007-2014

Source: UN Comtrade (2014)

Figure 3 shows that the development of Indonesia's trade balance with APEC during the period 2007-2014 fluctuated. This could be due to factors such as declining export value, rising trade costs, falling demand, competing and trade cases both tariff and non-tariff.
Classical Test Result of Econometrics

The panel data was estimated by using random effect model (REM) as presented in Table 4. The estimated model has an R-squared at 0.7816, showed that 78.16% of the variation of dependent variable can be explained by its independent variables. While 21.84% of the change can be explained by other factors outside models.

As explained previously, the model is specified in log-log form; therefore, the coefficient estimates show elasticity estimates with respect to various continuous variables in the model. For the variables measured in scale are included as level variables. For example, QPI and BOCP are a scale ranging from 1 to 7 and once multiplied by 100, it will show percentage change in the value of total trade due to one unit change in the QPI and BOCP (Weerahewa 2009).

Tabel 5. Results of The Econometric Estimation

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1.92127</td>
<td>0.3611</td>
</tr>
<tr>
<td>lnGDPX</td>
<td>0.96956 ***</td>
<td>0.0007</td>
</tr>
<tr>
<td>lnDIST</td>
<td>0.28018 *</td>
<td>0.0637</td>
</tr>
<tr>
<td>QPI</td>
<td>0.31797 **</td>
<td>0.0102</td>
</tr>
<tr>
<td>lnCPT</td>
<td>0.77441 ***</td>
<td>0.0000</td>
</tr>
<tr>
<td>lnCostEx</td>
<td>0.11347 *</td>
<td>0.0704</td>
</tr>
<tr>
<td>BOCP</td>
<td>-0.20928 ***</td>
<td>0.0033</td>
</tr>
</tbody>
</table>

Weighted Statistics

<table>
<thead>
<tr>
<th>R-square</th>
<th>0.7816</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prob(F-statistic)</td>
<td>0.0000</td>
</tr>
<tr>
<td>Sum squared resid</td>
<td>1.6422</td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
<td>1.4114</td>
</tr>
</tbody>
</table>

Unweighted Statistics

<table>
<thead>
<tr>
<th>R-square</th>
<th>0.4715</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum squared resid</td>
<td>40.466</td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
<td>0.0573</td>
</tr>
</tbody>
</table>

Note: n=88 (consisted of 8 years and 11 countries) Significant at 1% (***) ; 5% (**); 10% (*)

As expected the efficiency of port infrastructure affects the performance of Indonesia-APEC trade. All the variables describing port infrastructure efficiency significantly affect the total export-import of Indonesia-APEC, only the export cost and BOCP variables that negatively affect the dependent variable.

Among variables, the coefficients of QPI have the largest effect on trade. Coefficient estimates for the QPI suggest that one point increase in the QPI scores would increase Indonesia’s total trade by about 31.7. This result is consistent with previous literature (Clark, et al. 2004; Park and De 2004). The results reveal that better quality of port infrastructure can provide more opportunity for Indonesia’s trade because when the port becomes more efficient, transportation costs getting cheaper, it means that the country more competitive and can increase the trade value. Other than that, better quality of port can increase productivity of the main factors of production labor and
capital and feasibility units of production. This will encourage production to a greater extent. Efficiency in port systems improves a nation's access to international markets, leading to increased trade and the potential for higher revenues. As discussed previously, the QPI index in Indonesia in 2014 was only 4.00. Therefore, there will be more room for Indonesia QPI as the highest score for QPI is 7.00. Improving the score of QPI can be achieved by increasing efficiency in the Speed up dwelling time, container to accommodate more, and efficient delivery process for low cost.

As expected, the variable of CPT has significant impact on Indonesian's total trade. 1% increase in the CPT scores would increase Indonesia’s total trade by about 0.77%, This result is consistent with previous literature (Merk and Dang 2012; Dundovic dan Hess 2005). Terminal capacity is highly dependent on the port equipment's ability for dwelling time, less dwelling time will make the cost cheaper and increase the total trade.

GDP per capita of Indonesia has significant impact on Indonesian’s total trade. 1% increase in the GDP scores would increase Indonesia’s total trade by about 0.96%, This result is consistent with previous literature (Neary, et al. 1999; Wilson, et al. 2003). Increased GDP per capita of the exporting country will increase the country's production capability and when GDP per capita of importing countries increase, it shows the purchasing power of the specific goods and services become higher.

Contrary to expectations, economic distance has positive significant impact and BOCP has negative significant impact on the Indonesia’s total trade. According to the results in Table 5, an increase in economic distance by 1% will increase its value of total trade by 0.28%. The result can be explained by previous literature (Meiri, et al. 2013; Hazemi 2013). This case occurs in the trading of coffee commodities. The long distance between Indonesia and America does not decrease the value of trade. This is because the selling price of coffee in the United States is the highest, so that the impact on the national income of foreign exchange becomes greater. In addition to high coffee prices in the United States, Americans' interest in Indonesian coffee is also high.

Coefficient estimates for the BOCP suggest that one point increase in the BOCP scores would decrease
Indonesia’s total trade by about 0.20. This result is consistent with previous literature (WCJ 2013). The fact is that in Indonesia there is often a delay so that the dwelling time on traded goods becomes longer. Procrastination may force merchants to incur additional costs such as storage costs that will be passed on to the price of the goods thus making them less competitive in the market and will ultimately lower total trade. It is evident that the United States must pay an additional US$ 3,000 bunkers fee and charter vessel fee of US$ 6,000 per day due to queuing and long loading time.

Cost to export has negative significant impact on the Indonesia’s total trade. According to the results an increase in cost to export by 1% will decrease its value of total trade by 0.11%. The result can be explained by previous literature (Limao, et al. 2000; LV 2001). Inefficient port function will affect the cost of import and export of goods, thus giving a negative effect on the competitiveness of a country.

CONCLUSION AND POLICY RECOMMENDATION

The value of Indonesian trade with trading partner countries in the APEC region is very high and dominates. Total trade comprising the sum of exports and imports fluctuates every year meaning that the total trade of Indonesia-APEC does not always increase. This can be due to various things, one of which is infrastructure facilities associated with the delivery of goods. The quality of the Indonesian port is still far behind with other APEC countries proved Indonesian ports often experience congestion resulting in long queues at the port. To improve port performance, it is necessary to build a special port line and the government needs to implement policies to encourage port authorities to accelerate loading and unloading activities.

This paper focused on efficiency of port infrastructure. The government continues to improve the performance of domestic ports. This can be seen from the Indonesian port quality index which increases every year. The mode of sea transportation becomes the main mode for transportation of goods because 95% of Indonesia’s import-export activities are still through this mode. The Government has devised various ways to improve the performance of national ports, one of which is through the development of sea toll roads that are expected to reduce costs and achieve efficiency in the delivery of goods. The
government and the private sector should operate a small transport fare for bilateral trade by deregulating transport and expanding ports to increase capacity.

At the same time, government should also focus on how to reduce processing time and cost by reengineering process to eliminate unnecessary steps. Since information technology is also important, government should also introduce advanced information technology including electronic custom clearance, documentation flows and advanced scanning technologies to shorten cargo inspection times. The development and improvement of infrastructure requires high costs and large GDP. To realize the development of the government is expected to open up to increase the entry of foreign investment.

All these efforts might facilitate Indonesian government to improve quality of port. This requires good cooperation between government and the private sector in Indonesia.

This study only examines the relationships between the efficiency of port infrastructure and the value of total trade in Indonesia for 11 countries in the eight years. Further study should use the time period of data in order to test the relationships.

ACKNOWLEDGEMENT

We wish to thank Wiwiek Rindayati and Muhammad for having corrected and provided feedback on this paper. All views, interpretations and conclusions expressed are those of the authors based on previous literature.

REFERENCES


IS INDONESIA IMPORT CHANNELING MANAGEMENT APPROPRIATE?

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Abstract

World Bank showed that Indonesia’s logistic performance index (LPI) decreased from 2014 to 2016. This indicates that Indonesia’s competitiveness weakened due to increasing logistic costs. The Directorate General of Customs and Excise has an important role to logistics. Customs carries out physical inspections on imports of goods selectively based on risk management. Import channeling is an important step in customs checking in which the parameters are measurable, effective and efficient. Researcher examines import channeling management whether it is efficient or not. Besides, it can contribute to the private sector in order to increase business certainty and to minimize costs. This research focuses on the impacts of an incorrect amount, number and/or classification of goods, and inappropriate tariff/classification and value of customs from imports of goods declaration (PIB) in red and green channels which are subject to inspections. The import data from 2015 to 2016 were analyzed by using a quantitative analysis of multiple regressions. The results show that the red and green channels are significant determinants, but with small coefficients. It means that if the current channeling management is operated daily, it would require great efforts and lead to inefficiency. Therefore, it should be managed to obtain an optimum result.

Keywords: Risk Management, Import Channeling Management, Logistic.

INTRODUCTION

Facing the challenges of global economic competition requires a smart strategy to win the competition. According to Michael Porter in his book Corporate Financial Management (1994) stated that competitive advantage is determined by cost advantage. Porter proposes competitive advantage theory that productivity becomes the main factor in international business competition. The five pillars of competitiveness are infrastructure, logistic, investment, small and medium enterprises, and trade (Fiscal Policy Agency Research, PKRB BKF, 2014). This study focuses on the logistic business in which the Directorate General of Customs and Excise (DGCE) is an institution that is closely related to logistics, particularly import logistics granted by the state to handle import clearance issues, so it can be a prime mover for the direction of national import policy, if empowered properly effective and efficient (Mansoor, 2014).
Modern customs administration needs a modern management to carry a wide variety of complex problem and wide span of control with resources are limited. There should be the continuous improvement with a strategic management in order to be effective and efficient.

According to Wheelen and Hunger, (2008) in the Strategic Management Model argued that there needs to be an evaluation and control in the strategic management described in Figure 1. Starting from environmental scanning→strategy formulation→strategy implementation→evaluation and control.

To clarify that evaluation and control for policy or compliance, there are tools to measure effective or efficient regulation (Hale, 2002):
1. Impact of policy or government regulation.
2. The power of magnitude problem in government service.

Table 1. Logistic Performance Index (World Bank 2016)

<table>
<thead>
<tr>
<th>Country</th>
<th>Customs</th>
<th>Infrastructure</th>
<th>International Shipments</th>
<th>Logistics Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Germany =</td>
<td>4.12</td>
<td>4.44</td>
<td>3.86</td>
<td>4.28</td>
</tr>
<tr>
<td>2. Luxembourg ↑</td>
<td>3.90</td>
<td>4.24</td>
<td>4.24</td>
<td>4.01</td>
</tr>
<tr>
<td>3. Sweden ↑</td>
<td>3.92</td>
<td>4.27</td>
<td>4.00</td>
<td>4.25</td>
</tr>
<tr>
<td>5. Singapore =</td>
<td>4.18</td>
<td>4.20</td>
<td>3.96</td>
<td>4.09</td>
</tr>
</tbody>
</table>
From the table shown global logistic competitiveness among several ASEAN countries, the performance of Indonesia logistics in the second lowest position.

At the operational level in import activities, DGCE conducts selective examination based on risk management. Customs declarations submitted by self-assessment are analyzed based on risk management through two types of examination: administrative document checking and physical inspection.

Customs considers two things before the decision to make in import channeling, these are a combination of importer profile and commodity profile.

According to Instruction Director General of Customs and Excise
Number-06/BC/2010 about Import Channeling Decision, Updating Profile of Importer and Profile of Commodity for Service and Control, import channeling is substantially classified into two:

1. Not require physical examination in general (the priority channel, green channel, and yellow channel).
2. Require physical examination (the red channel; the priority channel, green channel, and yellow channel which have randomly selected for physical examination by DGCE computer system or based on intelligence information).

On the other hand, the implementation of targeting to determining object must be based on the appropriate and measurable considerations. Specified in risk management through process and stages of risk management as shown in Figure 2.

Figure 2 Risk Management Process

The process of risk management begins with a determination of the context and ends with the determination/selection of appropriate and measurable risk as stipulated in Minister of Finance regulation. Whereas terms of import channeling are regulated by Director General of Customs and Excise.

This condition initiates the researchers to conduct a research with the following objectives:

1) To discover the relationship between the variables studied and the variables affected.
2) To find out the power of the magnitude of the relationship.
3) To get the value of research significance and to analyze the value of coefficient value.
4) Provide recommendations for policy makers.
5) For the private sector can be used to determine the cost efficiency.
6) Worthed as a good synergy between the government and the private sector.

Previously Studies

This may cause by import channeling policy differences in each country. Some previous studies are as follows in Table 3:

Table 3: Previously Published Studies

<table>
<thead>
<tr>
<th>No</th>
<th>Researcher</th>
<th>Title</th>
<th>Result</th>
</tr>
</thead>
</table>
| 1  | Rinaldi, D. T    | Analysis of the Implementation of Risk Management Red Channel System on DCGE | - Need improvement in monitoring and review risk management
- The ideal amount of Red channels is 10-15%
- Need a parameter in profiling importer and commodity |
| 2  | Sarfras, S.      | Red, Yellow and Green Channels : New                                   | New customs policy in Bangladesh classified into 5                       |

METHODS

The research study in this paper employs multiple quantitative regression analysis methods, by involving: 1. the number of import declarations using red and green channels which are examined physically; the amount of import tariff, import tax, and import values; as a independent variables; 2. whereas the dependent variable are the number of physical and value and/or classification false import declaration. The basic structure of the equation in this researchs are shown as below:

\[
Y_1 = C + b_{11} H + b_{21} M + b_{31} BM + b_{41} NP + b_{51} PDRI + e
\]
\[ Y_2 = C + b_{12} H + b_{22} M + b_{32} BM + b_{42} NP + b_{52} PDRI + e \]

The explanation of each variable denotation

\( C \): constant
\( b \): coefficient
\( Y_1 \): number of physical false import declaration
\( Y_2 \): number of value and/or classification false import declaration
\( H \): number of green channel importers which is checked physically
\( M \): number of red channel importers which is checked physically
\( BM \): amount of customs duty which is paid by importers
\( NP \): value of goods which are imported
\( PDRI \): amount of import tax which is paid by importers
\( e \): error term

**Research Objects and Time Frame**

This research observes Indonesian import data which is physically checked by customs authority and used in 2015 – 2016 time frame periods.

**Type of Data**

This paper uses secondary data which list below:

1. The number of imported declaration which has physical false. The data is obtained from Directorate General of Customs and Excise. The variable will be showed as \( Y_1 \).
2. The number of imported declaration which has value and/or classification false. The data is obtained from Directorate General of Customs and Excise. The variable will be showed as \( Y_2 \).
3. The amount of green channel importers which is checked physically. The data is obtained from Directorate General of Customs and Excise. The variable will be showed as \( H \).
4. The amount of red channel importers which is checked physically. The data is obtained from Directorate General of Customs and Excise. The variable will be showed as \( M \).
5. The amount of tariff paid which is paid by importers. The data is obtained from Directorate General of Customs and Excise. The variable will be showed as \( BM \).
6. The amount of value of goods which is imported. The data is obtained from Directorate General of Customs and Excise. The variable will be showed as \( NP \).
7. The amount of import tax which is paid by importers. The data is obtained from Directorate General of Customs and Excise. The variable will be showed as \( PDRI \).
Data Analysis

Customs inspection is a part of import procedure which has to be passed by importers. One type of this activity is physical examination. It is take time and require cost. In order to reduce time and cost in import procedure, Customs authority create channeling to separate good importer from the bad one. Then, the bads are attributed as red channel. In addition, the goods one, which are called green channel, also have to pass the random physical inspection. This condition is needed to maintain the compliance of the good importers.

In order to study how the customs authority manages the channel attribution the authors try to find the best approach to answer this question. This paper will use two approach in order; defining and measuring: false import declaration, channeling, tariff, import value, and PDRI; next, formulate methodology to predict the effect of channeling, tariff, import value, and PDRI to the false import declaration.

First, channels are defined as the number of red or green channel importers which is checked physically.

Tariff, import value, and PDRI are defined as the amount of tariff paid by importers, the import value, and the amount of import tax paid by importers respectively. The false import declarations are identified as the number of physical and value and/or classification false import declaration.

Second, choose the suit model. An Ordinary Least Squared (OLS) regression model is considered the bes approach to estimate the relationship between independent and dependent variables.

RESULT AND DISCUSSION

Creating Channeling Indicators

The green and red channel importers are expressed in number and consist of H and M. While, tariff, import value, and import tax indicators are valued in rupiah and consist of BM, NP, and PDRI. The number of import false import declaration are showed in number and declared in Y1 and Y2. All of the variables are computed for specific month in 2015-2016. This process results a single value for each indicators in 24 months.

There are some precious information from examining inappropriate declaration and
channelling indicators. The statistics summary views the range of the highest and the lowest in channeling area among period of time. This identification is valuable for the recommendation section in this paper.

Table 4. Summary Statistics for Channeling Data

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Period Observation</th>
<th>Max</th>
<th>Period Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1</td>
<td>88,213</td>
<td>167</td>
<td>7</td>
<td>497</td>
<td>14</td>
</tr>
<tr>
<td>Y2</td>
<td>817,27</td>
<td>2.958</td>
<td>6573</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>9.947,32</td>
<td>41.505</td>
<td>7</td>
<td>84.140</td>
<td>23</td>
</tr>
<tr>
<td>M</td>
<td>4.511,88</td>
<td>17.969</td>
<td>22</td>
<td>32.820</td>
<td>12</td>
</tr>
<tr>
<td>BM</td>
<td>224.249</td>
<td>1.579.408</td>
<td>7</td>
<td>2.518.580</td>
<td>24</td>
</tr>
<tr>
<td>NP</td>
<td>35.415.602</td>
<td>196.037.485</td>
<td>7</td>
<td>354.528.958</td>
<td>24</td>
</tr>
</tbody>
</table>

Note: Std. Dev. (standar deviation); Min (minimum); Max (maximum). BM, NP, and PDRI are presented in million rupiahs.
Source: Author’s computation based on data from indicated sources.

Ordinary Least Square (OLS) Regression Processing

This paper uses ordinary least square regression process and the data is in time series order. The OLS regression shows satisfying result for both models. The value of adjusted $R^2$ for $Y_1$ model is 0.661, while the $Y_2$ is 0.701. We can conclude that the first and second model able to estimates 66.1% and 70.7% of the changing in independent variables. The rest percentage is explained by others that are not observed in this research. This condition shows satisfying result.

All four required classical assumption has passed by the model. Those are normality test, multicollinearity test, non-autocorrelation test, and non-heteroskedastisitas test, showing the validity of all variables.

Table 5 shows that in $Y_1$ condition, three out of five indicators are statistically significant, while in $Y_2$ estimation, three out of five indicators are also statistically significant. Each
indicator coefficient relates to the estimated elasticities false import declaration with respect to the specific situation. It estimates that different form of independent variables will impact the dependent variable.

Table 5. The Result for Regression of the effect of Customs Channeling

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient Y1</th>
<th>Coefficient Y2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>280,0874</td>
<td>-363,134</td>
</tr>
<tr>
<td>H</td>
<td>0,0064***</td>
<td>0,038**</td>
</tr>
<tr>
<td>M</td>
<td>0,0153***</td>
<td>0,095***</td>
</tr>
<tr>
<td>BM</td>
<td>163,20</td>
<td>-160,5</td>
</tr>
<tr>
<td>NP</td>
<td>-0,677</td>
<td>13,392**</td>
</tr>
<tr>
<td>PDRI</td>
<td>-71,77***</td>
<td>-191,52</td>
</tr>
</tbody>
</table>

Number of Observation 24 24

Adjusted R-squared 0,661 0,701

*Significant at the 10% level.
**Significant at the 5% level.
***Significant at the 1% level.

Source: Author’s computation based on data from indicated sources using Eviews.

In general, channeling affects the false import declaration. Both channeling (red and green), which have physically checked by customs, have significant result. In addition, the other variables, have significant and non significat results. In the Y1 situation, the significant variables are green, red, and PDRI. On the other hand, in the Y2 condition, the significant variables are green, red and NP.

An interesting result when we examine deeper the coefficient, the number of a coefficient for green and red are disappointing. It is range from 0,0064 to 0,0153 for Y1 and 0,038 to 0,095 for Y2. This situation means, from 1000 physical inspections, only six to 15 are physically false. In addition, for value and/ or classification false declaration, for 1000 physical check, only 38 to 95 are wrong. We could conclude that the effort to find the false declaration is enormous, especially in physical form. The Customs Authority has to improve his channeling and physical inspection management, because it is timely and costly from importers perspective. Efficiency and effectiveness of policies and the creation of a strategic vision-the institutions use the available resources in the best way to achieve results that meet public needs (Kresnaliyska G, 2015).
On the other hand, non channeling variables show variant results. The tariff has a positive sign in Y1 and negative sign in Y2. Unfortunately, it has non significant result, so it is not relevant in estimation. Import value has negative non significant result in Y1, while in Y2 has positive significant result. This means for Y1 is not relevant to interpret further, while in Y2, the increasing of 1 point of import value, it estimate to raise the number of value and/or classification false declaration. For the import tax variable, it has negative significant result for Y1 and negative non significant in Y2. It means in physical false declaration, when there is an increasing in import tax value, the it is predicted the number of error will low. In Y2 situation, this variable is not relevant to interpret because non significant sign.

CONCLUSION AND POLICY RECOMMENDATIONS

Based on this research, channeling in import procedures are effect the false import declaration. Unfortunately, the amount of the coefficients are not essential and shows the enormous effort to find the error. The other channeling variables showed variant result. The result are ranged from negative significant to positive significant, and negative non significant to positive non significant. The significant variables are import value and import tax.

To sum up, this research is able to answers above research questions. First, channeling is affected the false import declaration. Second, unfortunately, the magnitude of effects are inessential and shows the huge effort to find the error.

In the future, an import channeling must be manage effectively and efficiently although the government are not famous for efficiency.

Some suggestions dealing with mandatory physical inspection require studied afterward. Our recommendation is the customs authority must be aware the composition of other variables. It can be changed, such as how to manage up and down proportion of green channel or inappropriate value and/or tariff/classification false import declaration subject to physical inspection.
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TOTAL FACTOR PRODUCTIVITY GROWTH (TFPG) OF INDONESIAN MANUFACTURING INDUSTRY IN INDONESIAN PROVINCES: TIME-VARYING TECHNICAL EFFICIENCY - STOCHASTIC FRONTIER ANALYSIS

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Abstract

Indonesian manufacturing industry has grown fast since 3 decades ago. Using time varying technical efficiency – Stochastic Frontier Analysis, this study investigated TFPG performance of Indonesian manufacturing industry in 23 sub sectors and 32 provinces from 1991 to 2014. This study classified the time periods into five groups based on general Indonesia economic and political condition; 1991 - 1996; 1997 - 1998; 1999 - 2006; 2007 - 2008; 2009 - 2014. The study shows Jawa Barat and Jawa Timur dominated the highest TFPG of each sub sector of Indonesian manufacturing industry over the periods of interest. In cross, sectoral-provincial level analysis, Chemicals, and Chemical Products dominated the highest TFPG of Indonesian manufacturing industry in the first period. Meanwhile, In the upcoming periods, Food Products and Beverages became the sub sector with the highest TFPG in the most provinces. In terms of technology intensity, low technology industries were still dominant over the periods. However, there is a hope to increase the role of higher technology industries as the proportion of medium-low-technology industries increased in the 25th percentile of TFPG spatial distribution. To develop national technology capability, the government should focus on developing medium and high technology based industries and distributed equally across provinces.

Keywords: TFPG, Manufacturing Industry, and Indonesian Provinces

JEL Classification: C13, C18, C40, D24, E23, O18, R11, N70

INTRODUCTION

Geographically, Indonesia is a large country with total mainland and ocean area of 1,922,570 km² and 3,257,483 km², respectively. It has 34 provinces1 dispersed in six main regions namely Sumatra, Java, Nusa Tenggara and Bali, Kalimantan, Sulawesi, Maluku and Papua. It is positioned between Asia and Australia continents and between two oceans, India and Pacific Oceans. This bridging position considerably has a

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1 It is based on the total number of provinces in 2017.
Each province’s name is Daerah Istimewa Aceh (11), Sumatra Utara (12), Sumatra Barat (13), Riau (14), Jambi (15), Sumatra Selatan (16), Bengkulu (17), Lampung (18), Kepulauan Bangka Belitung (19), Kepulauan Riau(21), Daerah Khusus Ibukota Jakarta (31), Jawa Barat (32), Jawa Tengah(33), Daerah Istimewa Yogyakarta (34), Jawa Timur (35), Banten (36), Bali (51), Nusa Tenggara Barat(52), Nusa Tenggara Timur(53), Kalimantan Barat (61), Kalimantan Tengah(62), Kalimantan Selatan (63), Kalimantan Timur(64), Kalimantan Utara, Sulawesi Utara(71), Sulawesi Tengah(72), Sulawesi Selatan(73), Sulawesi Tenggara(74), Gorontalo(75), Sulawesi Barat, Maluku(81), Maluku Utara(82), Papua Barat(91), and Papua(94). However, two provinces will not be included in this study which are Sulawesi Barat and Kalimantan Utara since both provinces are relatively new. Those provinces are established in 2004 and 2012, respectively.
strategic position to induce bilateral as well as multilateral international trade relations. In addition, Indonesia is also passed by one of the strategic straits in the world which is Malacca Strait (Qu & Meng, 2012). This strategic geographic position has the advantage to attract direct investment (Dunning, 2012). Indonesia has a potential demographic advantage to generate its economic growth. Indonesia was one of the most densely populated countries in the world with its projected total population of 252.2 million and its growth of 1.22% in 2014\(^2\). It was the fourth largest population in the world after China, India and United States, sequentially\(^3\). The proportion of productive age\(^4\) showed increasing trend each year, from 59.78% in 1990 to 67.19% in 2016. The large number of population results in a potentially large domestic market which benefits for industrialization (Murphy, Shleifer, & Vishny, 1989). Both demographic and geographic advantage should be converted into successful economic growth as well as sustainable national prosperity.

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\(^2\) The population number data is the result of Indonesia Population Projection 2010-2035. It is obtained from Statistik Indonesia 2017 yearly book provided by BPS. Meanwhile, population growth in 2014 is taken from [http://data.worldbank.org](http://data.worldbank.org).


\(^4\) According to OECD the productive age is between 15 and 64.
It is acknowledged that one of the contributions of manufacturing industry to GDP is through Total Factor Productivity (TFP). According to Krugman (1994), TFP can sustain the output growth in one economy. Total factor productivity is considered one of the indicators showing the role of management and human capital when the value added cannot be explained by input factors such as the number of labors, the number of capital and the number of material used in production function (Margono & Sharma, 2006).

According to Grosskopf (1993), as cited in Rogers (1998), TFP is also considered as the measurement of the changes in efficiency and the best practice that affects the output.

TFP calculation has been widely studied around the world. Some of the studies conducted in Turki, Korea and across country analysis. In Turki, using time varying technical efficiency – Stochastic Frontier Analysis, A, Deliktas, and Lenger (2003) calculated TFP in manufacturing industry in each province by decomposing it into technical efficiency and technical change and found that positive TFP is determined mainly by technical change, meanwhile, technical efficiency change showed a negative trend. In Korea, using sectoral level
analysis with SFA, Jung and Pyo (2009) revealed that TFP in all sectors except service sector is negative. Using across country data with Data Envelope Analysis (DEA) technique, the study conducted by Coelli and Rao (2005) shows the technical change has more contribution to TFP formation than technical efficiency change.

In Indonesia, TFP measurement related studies have been applied mostly in sectoral level (Makki & Ferrianta, 2012; Nicholas E Rada, Buccola, & Fuglie, 2010; N. E. Rada, Buccola, & Fuglie, 2011). Some of them used specific sub sector as a level of analysis and some of them used aggregate sector. One the studies using provincial economy level as a unit analysis has been done by Margono, Sharma, Sylwester, and Al-Qalawi (2011). The results of these studies vary depends on the level of analysis and the chosen TFP calculation techniques. However, there is no study related to TFP measurement in Indonesian using cross level analysis between manufacturing and provincial level.

Since Indonesia is the largest archipelago state which consists of 34 provinces lying within 13,466 islands and applied decentralized governance system, it is interesting and necessary to calculate TFP of manufacturing industry in each Indonesia province. The different geographic factors considerably affect the output of manufacturing industry. Knowing spatial distribution of TFPG of Indonesian manufacturing industry can map the role of each sub sector in each Indonesian province and reveal the level of technology acquisition of Indonesian manufacturing industry across provinces. This study will fill this gap and contribute to analysing the TFPG of Indonesia manufacturing industry through cross-level analysis between manufacturing and provincial level. The outcome of this study is expected to support related policy makers in designing the spatial distribution of industrial development policy and helps investors in providing information related to potential location and business preferences.

**Literature Review**

The production function is used to calculate the maximum output given a certain bundle of input. It was being a concern that production function is not necessary always gives the maximum output. It is Farrell (1957),
who considered and did empirical testing about the presence of efficiency in the production function. The idea that in reality production function does not always give optimum amount of output prompted the emergence of parametric frontier production function which had been applied firstly by D. J. Aigner and Chu (1968). This study's result continued to be tested theoretically using mathematical technics by Afriat (1972). Finally, the idea of Stochastic Frontier Analysis firstly emerges when D. Aigner, Lovell, and Schmidt (1977) introduce the separate normal random disturbance and additional error term which represents negative half normal distribution.

There are three approaches to calculate total TFP; neo classical, growth accounting and the decomposition of TFP. The neoclassical approach defines total factor productivity as the residual of the regression of production function. The growth accounting approach defines TFP as technological progress. Meanwhile, the decomposition of TFP approach defines TFP as the accumulation of three sources of productivity which are a technical change, technical efficiency change and scale efficiency change (Margono & Sharma, 2006). The technical change represents the shift in production frontier showing the changes in output between two periods as a result of the marginal output of each input. The technical efficiency change measures the improvement of the relative position of each firm from its production frontier given the same input or input minimization management with the same output. The scale of efficiency change explains the economics of scale of each firm. It shows how much the benefit of the firm which can be seen from the increase in value added when the number of input increase (Ikhsan-Modjo, 2006; Sari, Khalifah, & Suyanto, 2016). Technical efficiency calculation in this study use output oriented-approach which means for the given input can produce the maximum output (Kumbhakar, Wang, & P.Horncastle, 2015).

In decomposition of TFP approach, the frontier productivity measurement is commonly used. There are two types of frontier productivity measurements; parametric approach and nonparametric approach. The former uses
econometric methods to calculate frontier productivity. This method uses standard econometric assumption such as linear function and normal distribution of random disturbances. The latter use distance function from the frontier to calculate technical change, scale efficiency change, and technical efficiency change. One of the nonparametric methods in the frontier productivity measurements is Data Envelope Analysis (DEA) or nonlinear programming model (Charnes, Cooper, & Rhodes, 1978; Kathuria, Raj, & Sen, 2013; Kumbhakar et al., 2015; Rogers, 1998).

In Indonesia, there are several previous studies related to TFP measurement. Most of them use growth accounting method to calculate TFP growth in Indonesian manufacturing industry. Using two digit ISIC, the study conducted by Vial (2006) showed the range of TFP growth rate in Indonesian manufacturing industry from 1975 to 1995 was from -8.30 % to 25.43 %. The other study using growth accounting is conducted by Aswicahyono, Bird, and Hill (1996). The study showed the average of TFP growth in liberalization period (1986-1991) was 2.1%. Meanwhile, Osada (1994) uncovered that TFPG growth rate of Indonesian manufacturing industry in period 1987-1990 was 7.5%. Using growth accounting method, the study conducted by Timmer (1999) showed the average TFP growth in Indonesian manufacturing industry for period 1975 to 1995 was 3%. He argued that its growth was mainly contributed by the growth of capital stock. Meanwhile, the contribution of TFP growth was only 22% of growth accounting.

Other studies used frontier approach to calculate TFP growth in Indonesian manufacturing industry. This approach consists of parametric and nonparametric technique. Using nonparametric - Data Envelope Analysis, Suyanto and Salim (2013) revealed that the average TFP growth in Indonesian pharmaceutical sector in period 1990-1995 was 0.970. Meanwhile, Ikhsan-Modjo (2006) using parametric technique revealed that TFP growth in Indonesia manufacturing industry in the period 1988-1992, 1993-1996, and 1997-2000 was 2.70%, 2.99%, and -0.56%, respectively. However, those studies and Vial (2006) used a constant value of capital which affects the result of TFPG measurement. The used of
constant capital lead to bias TFPG estimation since the available capital data is the capital replacement. The additional data using constant capital replacement assume the firms have additional capital stock every year. Therefore it affects the marginal output of capital.

**METHODS**

*Data Sources and Variable Selection*

The study uses annual survey of Indonesian manufacturing industry conducted by Indonesian Central Bureau of Statistics (BPS). It is unbalanced panel data from 1990 until 2014\(^5\) covering 23 sub sectors in all provinces in Indonesia\(^6\). Those periods are chosen since the standard measurement of capital replacement is available from 1990 and the last year available data was 2014. Value added capital replacement and material data are deflated using whole sale price index in 4 digit ISIC. Meanwhile, energy is deflated using CPI for fuel and electricity. Those data are provided by BPS\(^7\).

To avoid the bias estimates caused by outliers, Chebyshev theorem is used to identify the outliers of variables in the model (Amidan, Ferryman, & Cooley, 2005). Table 1 shows the result of outlier detection using Chebyshev theorem. The result shows that there is no outlier in each variable’s data observation\(^8\). Therefore, the available data observation can be used to calculate TFPG.

The method used in this study differs from the previous studies in several ways. Firstly, the range of the year in this study is longer than that of in previous studies. Secondly, before calculating TFPG, several models of regression are tested by Bayesian Information Criteria (BIC) using Generalized Linear Model (GLM)\(^9\). The model which has the lowest BIC will be chosen. Thirdly, TFPG calculation is based on 4 digits ISIC that has been grouped into 2 digits ISIC classification.

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\(^5\) The total number of observation is 550.901.

\(^6\) For province code, the standard BPS code is used. Meanwhile, the code for each sub of manufacturing used written code that based on 2 standard ISIC code revision 3.1.

\(^7\) Since the covered periods of observed data are from 1990 to 2014, the year 2000=100 is chosen as a base year and all the index is adjusted into that base year.

\(^8\) It has been converted using natural logarithm for each variable

\(^9\) GLM is weighted the result of BIC by the number of observations.
before analyzing TFPG spatial dispersion. Fourthly, this study does not divide the years into several groups of the time period before measuring TFPG\textsuperscript{10} in whole years\textsuperscript{11}. Fifthly, this study used a combination of inference statistics and descriptive statistics in analyzing the result of the study. Lastly, this study does not replace original capital stock replacement data by constant capital replacement growth.

Table 2 shows the results of variable selection process using GLM focusing on the lowest BIC number. Translog production function is used as it is the basic model to calculate TPFG in this study. There are three optional models to calculate TFPG. The first model uses capital and labor as input factors. The second model adds material into the first model. Meanwhile, the third model adds one more variable which is energy into the second model. The result shows that the model 1 has the lowest number of BIC\textsuperscript{12}. Therefore, the first model is chosen as the input variables to construct TFPG. Table 3 shows the summary of the selected variables and the description of these variables.

---

\textsuperscript{10} Several groups of time periods of the study are defined after calculating TFPG

\textsuperscript{11} The time period of interest is from 1991 to 2014

\textsuperscript{12} BIC is more robust than AIC in the large sample of observation
### Table 1. Outlier Detected Results Using Chebyshev Theorem

<table>
<thead>
<tr>
<th>Variable</th>
<th>Shape</th>
<th>Lower Limit</th>
<th>Upper Limit</th>
<th>Minimum Values of Data Points</th>
<th>Maximum Values of Data Points</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value Added</td>
<td>non unimodal</td>
<td>-6.58874</td>
<td>37.94806</td>
<td>3.079114</td>
<td>26.80349</td>
<td>no outliers</td>
</tr>
<tr>
<td>Capital</td>
<td>non unimodal</td>
<td>-7.01154</td>
<td>38.0645</td>
<td>1.52326</td>
<td>32.41094</td>
<td>no outliers</td>
</tr>
<tr>
<td>Labour</td>
<td>non unimodal</td>
<td>-0.295</td>
<td>22.45616</td>
<td>9.305651</td>
<td>18.56955</td>
<td>no outliers</td>
</tr>
<tr>
<td>Material</td>
<td>non unimodal</td>
<td>-10.26859</td>
<td>41.72159</td>
<td>1.52326</td>
<td>26.87803</td>
<td>no outliers</td>
</tr>
<tr>
<td>Energy</td>
<td>non unimodal</td>
<td>-10.10781</td>
<td>36.99939</td>
<td>1.66305</td>
<td>25.90105</td>
<td>no outliers</td>
</tr>
</tbody>
</table>

Source: BPS (2016), processed by authors

### Table 2. BIC-GLM Result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y=Value Added</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIC</td>
<td>3.636945</td>
<td>3.471072</td>
<td>3.433794</td>
</tr>
<tr>
<td>BIC</td>
<td>-3945309</td>
<td>-3775936</td>
<td>-3722281</td>
</tr>
</tbody>
</table>

Source: BPS (2016), processed by authors

### Table 3. Statistics Summary of Data/Variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observation</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value Added</td>
<td>550,877</td>
<td>15.68506</td>
<td>2.265503</td>
<td>3.079114</td>
<td>26.80349</td>
</tr>
<tr>
<td>Labour</td>
<td>550,901</td>
<td>11.10864</td>
<td>1.186414</td>
<td>9.305651</td>
<td>18.56955</td>
</tr>
<tr>
<td>Capital</td>
<td>372,094</td>
<td>15.53696</td>
<td>2.342843</td>
<td>1.52326</td>
<td>32.41094</td>
</tr>
</tbody>
</table>

Source: BPS (2016), processed by authors

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13 After converting into natural logarithm
**TFPG Construction and Analysis Method**

This study employs stochastic frontier analysis for several reasons. Firstly, SFA can control the noise that affects production function. Secondly, it can deal with unbalanced data which is appropriate for the characteristics of the data used in this study. Thirdly, the elasticity of output can be defined if SFA applied (Arazmuradov, Martini, & Scotti, 2014). Fourthly, the stochastic frontier technique is better to be applied than other techniques of productivity measurement especially when TFP decomposition method is used (Kumbhakar et al., 2015; VanBiesebroeck, 2007).

This study follows the model used by Kumbhakar et al. (2015) to calculate TFPG.

\[ y_{it} = f(x_{jt}, t) \exp(-u_{it}) \]  \hspace{2cm} (1)

\[ y_{it} = f(L_{it}, K_{it}, t)\exp(-u_{it}) \]  \hspace{2cm} (2)

The output \( y_{it} \) is the function of \( x_{jt}, \) \( t \) and \(-u_{it}\). Where \( Y_{it} \) is value added of the firm \( i = 1, \ldots, N \) in period \( t = 1, \ldots, T \). \( x_{jt} \) is a vector of \( j \) inputs \( (j = 1, \ldots, k) \). \( t \) is the time variable to control a trend and \( u_{it} \) is output oriented technical inefficiency with constraint \( u_{it} \leq 0 \). The vector of input \( (x_{jt}) \) consists of \( L_{it} \), the number of labour, and \( K_{it} \), capital replacement. Each of them represents firm \( i = 1, \ldots, N \) in period \( t = 1, \ldots, T \).

\[ y_{it} = \alpha_0 + X_{it}\beta + v_{it} - u_{it} \]  \hspace{2cm} (3)

The function (2) become standard linear regression model (3) with the parameter of \( \alpha \) and \( \beta \). Where \( \alpha \) represents a constant parameter. \( \beta \) shows the marginal output of \( y_{it} \) relative to \( X_{it} \). \( v_{it} \) is the normal random disturbance. Meanwhile, \( u_{it} \) is a half normal error term describing technical inefficiency.

\[ TC_{it} = \beta_t + \beta_{tt}t + \sum j \sum k \beta_{jt} \ln x_{jt} \]  \hspace{2cm} (4)

\[ TC_{it} = \frac{\partial \ln f(L_{it}, K_{it}, M_{it}, t)}{\partial t} \]  \hspace{2cm} (5)
Technical change (TC) in formula (5) can be obtained by deriving each input factor and time itself with respect to time.

\[ RTS_{it} = \frac{\partial \ln f(L_{it},K_{it},M_{it},t)}{\partial \ln L_{it}} + \frac{\partial \ln f(L_{it},K_{it},M_{it},t)}{\partial \ln K_{it}} + \frac{\partial \ln f(L_{it},K_{it},M_{it},t)}{\partial \ln M_{it}} \] .................................................. (6)

\[ \sum \lambda_{it} = \left( \frac{\partial \ln f(L_{it},K_{it},M_{it},t)}{\partial \ln L_{it}} / RTS \right) \frac{L_{it} - L_{i(t-1)}}{(L_{it} + L_{i(t-1)})/2} + \left( \frac{\partial \ln f(L_{it},K_{it},M_{it},t)}{\partial \ln K_{it}} / RTS \right) \frac{K_{it} - K_{i(t-1)}}{(K_{it} + K_{i(t-1)})/2} + \]

\[ = \left( \frac{\partial \ln f(L_{it},K_{it},M_{it},t)}{\partial \ln M_{it}} / RTS \right) \frac{M_{it} - M_{i(t-1)}}{(M_{it} + M_{i(t-1)})/2} \] .......................................................... (7)

\[ SEC = (RTS - 1) \sum \lambda_{it} \] ........................................................................................................... (8)

To calculate the scale of change, SEC, each marginal input with respect to time is added up resulting in RTS, return to scale, then obtaining the proportion of each marginal input relative to RTS.

\[ TEC_{it} = \left[E(\exp(\eta_{it} u_{i}), t) \right] \] ........................................................................................................... (9)

\[ TEC_{it} = \frac{\partial \ln u_{it}}{\partial t} = \hat{\eta}_{it} u_{i} \exp (-\eta (t - T)) \] ........................................................................................................... (10)

Where \( \hat{\eta}_{it} \) is the predicted parameter of technical inefficiency. The technical inefficiency is non-positive random variable that has characteristics as half normal distribution.

\[ TFP_{it} = TC_{it} + SEC_{it} + TEC_{it} \] ........................................................................................................... (11)

Finally, the TFPG can be obtained by adding up technical change, scale efficiency change, and technical efficiency change. In other words, it is the additional result of formula (5), (8) and (10).

To map TFPG of Indonesian manufacturing industry across provinces, standard descriptive statistics such as percentile, mean and mode are used. According to Doane, D.P & Lori E. Seward (2013) the function of percentile is being a
benchmark to assess the performance of the firms by comparing it with another firms. Therefore, it can be used to know the performance of each sub sector of manufacturing industry based on TFPG performance in each sub sector in each province. Its TFPG is divided into 4 groups using standard three quartiles, which are quartile 1 (Q1), quartile 2 (Q2) and quartile 3 (Q3). Each quartile represents 25th percentile, 50th percentile and 75th percentile\(^{14}\), respectively. Meanwhile, the standard central tendency measurement such as mean and mode is used to find the average TFPG of each sub sector and each province (mean) and to know the highest TFPG of each sub sector in each province (mode).

**RESULTS AND DISCUSSION**

The TFPG in this study is calculated per each sub sector\(^ {15}\) of manufacturing industry. According to Kumbhakar et al. (2015) the technical inefficiency measurement, which affects TFPG calculation, depends on production frontier which requires relatively homogenous production technology. It means the calculation of TFPG should consider the technology used in production activities. Therefore, to minimize the heterogeneity, the TFPG is calculated in the industrial level before analyzing in provincial level.

The figure 2 shows that the trend of average TFPG in Indonesian Manufacturing Industry from 1991 to 2014 was fluctuated. In general, there were five period classifications; 1991 – 1996; 1997 – 1998; 1999 – 2006; 2007 – 2008; 2009 – 2014 based on general national and international economic as well as political situation. At the first period, its TFPG showed a negative trend. In 1991, TFPG reached a peak of 12.2 % and it's going to decrease and reached the bottom of 7.1 % in 1996. The decline in manufacturing export in 1993 – 1996\(^ {16}\) was one of the factors that considerably contribute to TFPG trend in this period. At the second period, 1997 – 1998, TFPG dropped significantly to -2.9% in 1998 before it recovered to 1.5% in 1999. This period was affected by Asian economic crises started in 1997. Since then it turned back to decrease and

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\(^{14}\) This study used 25th percentile in analysis to focus on the proportion having relatively high value of TFPG.

\(^{15}\) The firms are grouped based on 2 digit ISIC before calculating TFPG in every single firm.

\(^{16}\) This information is obtained from (Ikhsan-Modjo, 2006)
reached a bottom of -2.7% in 2005 before it returned to rise slightly to -1.2% in 2006. The third period was experienced the dramatic increase of international oil price started in 2000 and unstable Indonesian economic and political condition post-economic and political reforms in 1998. At the next period, 2007 – 2008, it was back to fall to -2.3% and -2% in 2007 and 2008, respectively. The global financial crises considerably affect Indonesia manufacturing industries' performance in this period. In the last period, the trend was positive and reaches a peak of 22.6% in 2014. The last period was relatively more stable in terms of economic and political condition than previous three consecutive periods. It is expected that in the following years, the trend is continuing to increase. The investigation of the factors behind the trend is beyond this study’s scope.

The Provinces in Java Island dominated the highest TFPG per sub sector per year. The highest TFPG of each sub sector mostly belong to the firms in Java Island especially Jawa Barat and Jawa Timur. Jawa Barat become the province with the most often occur for the highest TFPG in sub sectors; Textiles; Wearing Apparel; Dressing and Dyeing of Fur; Paper and paper products; Chemicals and chemical products, Other non-metallic mineral products; Fabricated metal products, except machinery and equipment; Machinery and Equipment; Office, accounting, and computing machinery; Electrical machinery and apparatus n.e.c; Radio, television, and communication equipment and apparatus; Motor vehicles, trailers, and semi-trailers; and Other transport equipment. Meanwhile, Jawa Timur experienced the most often occur for the highest TFPG in sub sectors; Food products and beverages; Tobacco Products; Tanning and Dressing Leather; Coke, refined petroleum products and nuclear fuel; Rubber and Plastics Products; Basic Metals; Medical, precision and optical instruments, watches and clocks; Furniture; and Recycling. Furthermore, Jakarta dominated the most frequently occur for the highest TFPG in Publishing, Printing, and Reproduction of Recorded Media and only Jambi, the province outside Java Island that recorded the most often occur in sub sector Wood and of Products of Wood and Cork, except furniture.¹⁷

¹⁷ The distribution of the provinces with the highest TFPG in each sub sector per period is available at appendix
Figure 2. The TFP Growth of Indonesian Manufacturing Industry
Source: BPS (2016), processed by authors

In terms of technological level, OECD (2011) has classified manufacturing industry in 2 digit ISIC revision 3 into four groups; high technology industries, medium-high-technology industries, medium-low-technology industries, and low technology industries.

Radio, television, and communication equipment and apparatus become the highest average TFP in all periods of interest, 1991-2014, with TFPG of 17.6%. It is followed by tobacco products; motor vehicles, trailers and semi-trailers; and basic metals with average TFPG of 10%, 8.4%, and 7.2%, respectively.

The high-technology industries dominated the highest average TFPG during the period of interest. It is followed by low-technology industries, medium-high-technology industries and medium-low-technology industries, sequentially.

In cross sectoral-provincial level, Chemicals and Chemical Products become the most often occurred sub sector with the highest TFPG across provinces in the first period, 1991-1996. This sector

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18 The list of sub sectors in each group of technical level has been adjusted to the available sub sectors in this study.

19 The highest TFPG in each sub sector in each sub sector can be seen at Appendix
dominated in 6 provinces; Sumatra Selatan, Nusa Tenggara Timur, Kalimantan Selatan, Kalimantan Timur, Sulawesi Utara and Maluku, or 23% of total province number. In the upcoming periods, Food Products and Beverages became the sub sector with the highest TFPG in the most provinces with proportion of 27 %, 31.2%, 50%, and 43.8% of total province number in the second, third, fourth, and fifth period, respectively. This sector was dominant consistently in Riau and inconsistently in Jambi, Sumatra Selatan, Bengkulu, Jawa Tengah, Banten, Nusa Tenggara Timur, Kalimantan Barat, Kalimantan Tengah, Kalimantan Selatan, Kalimantan Timur, Sulawesi Utara, Sulawesi Tengah, Sulawesi Selatan, Sulawesi Tenggara, Gorontalo, Maluku Utara, Maluku, Papua Barat and Papua.

In spatial distribution of technology intensity, the low technology industries were still dominant over the periods of interest. Food products and beverages; and Wood and of Products of Wood and Cork, except furniture, dominated the highest proportion of 25th percentile spatial distribution of TFPG in the first, the second, and the third period. Since then, the domination of Wood and of Products of Wood and Cork, was decreasing except in Kalimantan Tengah. Another indicator of low level of technology acquisition in aggregate Indonesian manufacturing industry over the periods was a negative average of technical change with average of -14.6% compared to technical efficiency change and scale of efficiency change with average of 18.9% and 1.4%, respectively. It means the positive TFPG mostly attributed to technical efficiency change.

Some provinces experienced the shifting process of TFPG domination in 25th percentile. Kalimantan Timur, Kalimantan Selatan, Kalimantan Barat, Sulawesi tengah, Sulawesi Tenggara, Maluku, Riau, Jambi, Sumatra Selatan, Nusa Tenggara Timur, became the provinces dominated by Food products and beverages when previoulsy these provinces were dominated by Wood and of Products of Wood and Cork, except furniture. Meanwhile, Jawa Barat and Yogyakarta transformed from textile domination in the first period into Other non-metallic mineral products in the last period. The other provinces that shifted its domination
into Food products and beverages are Kepulauan Bangka Belitung, Bali, and Papua.

Some provinces consistently dominated by one sub sector in all periods of interest. Aceh, Sumatra Utara, Sumatra Barat, Bengkulu, Lampung, Jawa Tengah, Jawa Timur, Sulawesi Utara, Sulawesi Selatan, Gorontalo, Maluku Utara\textsuperscript{20}, and Papua Barat are regularly dominated by Food products and beverages. Jakarta was steadily lead by Wearing Apparel: Dressing and Dyeing of Fur. Banten was regularly dominated by Rubber and Plastics Products. Meanwhile, Kepulauan Riau was steadily lead by Radio, television, and communication equipment and apparatus\textsuperscript{21}.

Even though Indonesian manufacturing industry was still dominated by the low-technology industries in 25th percentile spatial distribution, its proportion became decreasing as the emerge of Rubber and Plastics Products and Other non-metallic mineral products in the last two periods. It means there was a transition process from low-technology based industries into the medium-low-technology based industries.

CONCLUSION AND POLICY RECOMMENDATION

Mapping the distribution of TFPG in Indonesian manufacturing industry across provinces is important for policy makers, government and private sector, to investigate industrial development as well as technology development in each Indonesian province. This study corrected TFPG calculation procedures from previous related studies in Indonesia to produce more robustness result. This study differs from previous studies in several ways; Firstly, this study use original data rather than using constant capital replacement value; Secondly, this study applied selected variable procedure using GLM before measuring TFPG; Thirdly, this study used longer time series data, 25 years, and calculated TFPG directly for the whole years in each sub sector; Fourthly, the outlier detected procedure was applied before selecting variables; The last but not the least, this is the first study using cross sectoral and provincial level analysis with SFA-time varying

\textsuperscript{20} In the third period it was dominated by other transport equipment in terms of spatial distribution of TFPG of Indonesian manufacturing industry.

\textsuperscript{21} Only in the third period, this sub sector was dominated by Rubber and Plastics Products
technical efficiency approach in Indonesian manufacturing industry.

During all periods, 1991-2014, Radio, TV and communications equipment and apparatus recorded the highest TFPG across industries followed by Tobacco Products, Motor vehicles, trailers and semi-trailers, and Basic Metals, sequentially. However, Chemicals and chemical products experienced the highest TFPG in the most provinces in the first period and Food Products and Beverages became the sub sector with the highest TFPG in the upcoming periods.

West Java and Jawa Timur experienced the most frequently occurred with the highest TFPG across sub sectors from 1991 to 2014 with the share of 52% and 39%, respectively. It was Jambi the only one province outside Java island that recorded the most often occurred with the highest TFPG in Wood and of Products of Wood and Cork, except furniture. Meanwhile, Jakarta was the province with the highest TFPG in Publishing, Printing, and Reproduction of Recorded Media.

In terms of technology level, the Low-technology industries dominated the share of TFPG in all periods in all provinces except Kepulauan Riau. Until third period, Food Products and Beverages together with Wood and of Products of Wood and Cork, except furniture dominated the 25th percentail of spatial distribution. In the last two periods, Food Products and Beverages become the only one sub sector reaching the highest share except for Jakarta and Kepulauan Riau. Jakarta was dominated consistently by Wearing Apparel: Dressing and Dying of Fur. Meanwhile Kepulauan Riau steadiliy lead by Radio, TV and communications equipment and apparatus.

In the future, the government should pay more intention in developing higher technology based industries than low-technology based industries equally across regions. It was expected that the last two periods became the transition periods to develop the medium-low-technology industries. Hence, there were improvement process in terms of technology acquisition even though it was not the high technology industries.

REFERENCES


Appendix

Table 3. The Province with The Most Frequently Occur For The Highest TPFG in Each Sub Sector

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Source: BPS (2016), processed by authors

Table 4. The highest TFPG in each sub sector in each sub sector

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<td>High-technology industries</td>
<td>Radio, television, and communication equipment and apparatus</td>
<td>17.6%</td>
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<td>Medium-high-technology industries</td>
<td>Motor vehicles, trailers, and semi-trailers</td>
<td>8.4%</td>
<td>12.6%</td>
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<td>Medium-low-technology industries</td>
<td>Basic Metals</td>
<td>7.2%</td>
<td>12.4%</td>
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<td>0.55%</td>
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<td>Low-technology industries</td>
<td>Tobacco Products</td>
<td>10%</td>
<td>13.7%</td>
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<td>6.35%</td>
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<td>80</td>
<td>18.11, 16.11</td>
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<td>81</td>
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<td>82</td>
<td>18.11, 16.11</td>
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<td>83</td>
<td>18.11, 16.11</td>
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<td>84</td>
<td>18.11, 16.11</td>
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</tr>
</tbody>
</table>

Source: BPS (2016), processed by authors
FOOD PRICE POLICY ON LIVESTOCK PRODUCT IN INDONESIA

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Abstract
Price stabilization of food policy is one of the issues in government policy. Various regulations emerged that the essence was to keep the price increases manageable and stable and have minimal impact on inflation. Similarly, for pricing policies related to livestock-based food commodities. This paper aims to analyze the possibility of applying pricing policies on basic commodities in Indonesia for livestock-based food products. The method used is descriptive quantitative to study (producer side): profitability of farming and production growth; (consumer side): the role (share) of public spending on commodities, commodity share on inflation and price variations at the consumer level. The results of analysis show that not all food commodities get the same pricing policy and need to look at strategic aspects of the commodity such as its role to inflation, the large share of public expenditure on food and the fluctuation of commodity prices. The price policy on livestock-based food commodities is precisely on the commodity of beef reference price at farmer and consumer level; The policy of reference prices on the chicken and chicken egg commodities specified is the reference price at the producer level by improving the market structure through market segmentation and institutional improvement as well as special pricing policies for livestock products. Meanwhile, special price policies are applied to beef, chicken meat and eggs only at the time of and during National Religion Celebrate (HBKN). Therefore, it is necessary to have an institution that plays a role in monitoring and evaluation and enforcement of legal sanctions explicitly written in a technical regulation at the ministry level to reduce speculation actions that can create inefficiency in the market.

Keywords: Food Policy, Livestock Product, Price Fluctuation
JEL Classification: E31, Q13, Q18

INTRODUCTION
Livestock sector is one of strategic sectors in Indonesia as its contribution to household income is about 50% (FAO, 2011 in Soedjana, 2013). One of the main issues on livestock products is high and unstable prices, especially during the National Religion Celebration (HBKN). The increase in food prices before fasting and Eid is on average between 10-15%. Livestock products (e.g.: beef, chicken meet and chicken eggs) are part of a staple food product that has high protein content and is widely consumed by the community. Currently, the affordability of public access to these products is disrupted due to high prices. According to Soedjana (2013) that consumption participation rates for livestock products in 2011 were beef by 15.24%; chicken meat (48%) and chicken eggs (52-75%). Due to this factor, price stabilization has become priority to government's policy agenda. A stable and controllable price will have positive
contribution to manage inflation as well as national economy. According to Ilham (2006) and Besanko & Braeutigam (2011) there is several factors that need to be considered in determining the pricing policy. There are the selection of priority commodities, supporting policies (buffer stock, market operations and export/import), and institutional. Currently, an increasingly open world on food trading system has caused domestic food products to be difficult to manage as a result of the transmission of international price situations, such that also happen on livestock products. Various problems that occurs in the country such as production and distribution problem has also caused food prices, in particular staple food such as beef, chicken meat and chicken eggs become unstable. In addition, the annual occasion of National Religion Celebration (HBKN) raises the price speculation that causes the price of livestock products every year tend to rise. Theoretically, food prices including the price of livestock products are determined by supply (local and/or imported), demand, price situation in the international market.

In recent years, various regulations had been issued in Indonesia to keep food prices within the country under control and stable and contribute to small inflation. Price of policy has been regulated by UU No. 7/2014 about Trading and Presidential Regulation No. 71/2015 about definition and storage of staple goods and necessary goods. Beside that, there is regulation on the livestock sector has also been issued for example the regulation of the Minister of Trade, Permendag No.59/M-DAG/8/2016 about the provision of export and import of animals and animal products. This regulation has aims to price stabilizarion in domestic market. How are the regulation can be implemented to manage food price. Therefore, this paper aims to (a) analyze the application of price policies on livestock products and (b) formulate the price policy that can be proposed on livestock products.

METHODS

This paper utilises descriptive quantitative analysis to assess the profitability of farming and production growth; the role (share) of public spending on commodities, the share of commodities on inflation and variations in commodity prices at the consumer level. The analysis is conducted simultaneously because this research is
closely related to social dynamics such as policy and dynamics of numerical variables such as price development, the share of public expenditure for food, the share of food inflation, price fluctuations and fluctuations in production.

In theory pricing policy needs to pay attention to the interests of producers and consumers. The selection of commodities also need to consider both producers and consumers perspective. The selection of commodities according to producer side need to consider farming profitability, price fluctuations at the producer level and production growth. Selection of commodities from the consumer side by considering the share of public expenditure, contribution to inflation, price fluctuations at the consumer level and government policy (publication). Considering the completeness of the data required and its urgency, this paper mainly focuses only on selection of commodities from the consumer perspective. Therefore, the required variables are the expenditure share as well as the share of staple food commodity on the inflation which are available in the publication of BPS. The analysis is conducted to calculate price fluctuations. Volatility/Fluctuation is a temporal variation. One of the simplest, but commonly used quantitative measures, is the standard deviation and coefficient of variation.

The standard deviation formulations are:

**Standard deviation is:**

\[
STDEV = \sqrt{\frac{n\sum P_i^2 - (\sum P_i)^2}{n(n-1)}}, \quad \cdots \cdots \cdots \cdots \quad (1)
\]

\(n\) : Number of observations

While the coefficient of variation (CV) is:

\[
CV = \frac{STDEV}{Mean} \quad \cdots \cdots \cdots \cdots \quad (2)
\]

Then the volatility / price fluctuations can be calculated as follows:

**Price volatility \((VH_n)\)**

\[
VH_n = \frac{\sum_{i=1}^{n} Coef. of var_i}{n} \quad \cdots \cdots \cdots \cdots \quad (3)
\]

Where:

\(VH_n\) : average rate of price volatility in \(n\) years unit (%)

\(n\) : number of years from \(i\) up to \(n\)

\(Coef. of var\) : Coefficient of variation = (standard deviation / average)

Selection of commodity priorities use a matrix to map the commodity base on same variables and then identified priority of commodi
Table 1. Commodity Identification Matrix

<table>
<thead>
<tr>
<th>No.</th>
<th>Commodity</th>
<th>$V_{H_i}$</th>
<th>$K$</th>
<th>$E$</th>
<th>$inf$</th>
<th>Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>$\sum \frac{rank_k}{4}$</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>$\sum \frac{rank_k}{4}$</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>$\sum \frac{rank_k}{4}$</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>(ranking: ...)</td>
<td>$\sum \frac{rank_k}{4}$</td>
<td></td>
</tr>
</tbody>
</table>

The next stage is determining the type of price policy on these commodities using both fundamental and price approach. Fundamental approach aims to calculate the fluctuation of production, while price approach aims to calculate the price fluctuations of each commodity.

Data

This paper uses secondary time series data for period of 2009-2016. The data is obtained by Statistics Indonesia (BPS), Ministry of Agriculture, Ministry of Trade and other literature sources. The data includes price of livestock product, the share of livestock product to inflation (BPS publication), the share of household expenditure (rural and urban) which divided into low-income households (40%), moderate (40%), high (20%) (Susenas, 2012), livestock production and cost structures. Livestock commodities refer to the commodities listed under the Presidential Regulation No. 71/2015 on staple food which covers beef, chicken meat, and chicken eggs.

RESULTS AND DISCUSSION

Characteristic of Livestock Product Consumption to Food expenditure

Livestock product commodity generally is a staple food of society. As a staple food, this commodity certainly has an important role especially for the intake of animal protein. Therefore, the consumption patterns replace each other when one of them experienced a high enough price increase, such as beef replaced with chicken meat and or chicken eggs. In certain conditions, there was an increase in consumption was quite high, especially before the fasting and Eid month.
The pattern of public consumption of livestock products would affect the amount of public spending on food. Within 10 years, there was a change in the characteristics of food consumption to expenditure as reflected in the share of public expenditure on food. There was an increase in the percentage of public expenditure on food both villages and cities from 66.06% (2002) to 68.04% (2012). People with income in the income group 1-4, the share of food expenditure increased from 2002 to 2012. Meanwhile, people with income in groups of 5-8 (middle income) and groups of 9-10 (high income) share of food expenditure decreased and Switch on non food. The implication, the price of livestock commodity products that continue to increase would have an impact on the community, especially income groups category 1-4 (low income).
Table 2. Share Household Expenditure of Food Base on Income groups

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>61.30</td>
<td>67.40</td>
<td>66.06</td>
<td>62.18</td>
<td>68.73</td>
<td>68.04</td>
</tr>
<tr>
<td>2</td>
<td>60.31</td>
<td>67.33</td>
<td>65.48</td>
<td>62.69</td>
<td>69.67</td>
<td>67.75</td>
</tr>
<tr>
<td>3</td>
<td>59.41</td>
<td>66.97</td>
<td>64.70</td>
<td>61.08</td>
<td>70.11</td>
<td>66.08</td>
</tr>
<tr>
<td>4</td>
<td>58.42</td>
<td>66.47</td>
<td>63.59</td>
<td>59.09</td>
<td>67.06</td>
<td>63.76</td>
</tr>
<tr>
<td>5</td>
<td>57.19</td>
<td>65.69</td>
<td>62.40</td>
<td>57.13</td>
<td>64.93</td>
<td>61.80</td>
</tr>
<tr>
<td>6</td>
<td>55.68</td>
<td>64.67</td>
<td>60.92</td>
<td>54.58</td>
<td>63.10</td>
<td>60.04</td>
</tr>
<tr>
<td>7</td>
<td>53.73</td>
<td>63.27</td>
<td>58.96</td>
<td>52.32</td>
<td>61.53</td>
<td>57.89</td>
</tr>
<tr>
<td>8</td>
<td>50.88</td>
<td>61.37</td>
<td>56.52</td>
<td>49.61</td>
<td>59.90</td>
<td>55.40</td>
</tr>
<tr>
<td>9</td>
<td>46.78</td>
<td>58.69</td>
<td>52.25</td>
<td>45.22</td>
<td>57.55</td>
<td>50.84</td>
</tr>
<tr>
<td>10</td>
<td>30.79</td>
<td>43.94</td>
<td>35.31</td>
<td>30.69</td>
<td>43.29</td>
<td>34.95</td>
</tr>
</tbody>
</table>

Sources: Susenas-BPS (2012), processed

Performance and Price Stability
Livestock Product

Price is one of the factors that influence the society osdalam doing food consumption (livestock product). Livestock products (beef, chicken and egg) are substituted or even complementary food. During 2009-2016, commodity prices of livestock products at retail level tend to be positive trend. In the beef, since mid-2012 prices began to rise and continue to increase until now. Price increases in beef will certainly have an impact on the demand for beef and eggs are also high, because these two commodities as a substitute for animal protein from beef. Psychologically, the high demand on chicken meat and eggs causes prices to rise too. The pattern of price movement in chicken meat and chicken eggs is slightly different from the price movement in beef (Figure 3). In general, the factors that influence the price increase on the commodity are due to lack of supply. In beef, price increases are due to (i) beef self - sufficiency programs established since 2010 are considered unsuccessful and (ii) the acceleration of slaughter of ready-to-cut cattle resulting in scarcity. This condition encourages the importation of cattle and beef continues to increase. In chicken meat and eggs, the price increase due to lack of supply is caused by (i) the production of chicken meat and eggs many, but many are dominated by big companies (from the upstream side) which tend to oligopoly while the cultivation is mostly done by small farmers, (ii) rising food prices due to the scarcity of corn raw materials, and (iii) limited land resources in the development of poultry. In addition to the factors
mentioned above, the dynamics of prices in international markets and government regulations also affect the instability of the price of livestock products. According to Boussard, et al. (2006), the factors affecting price instability can be factors derived from the endogenous instability associated with the excessive expectations of commodity market participants.

![Livestock Product Price Development](image)

**Figure 2. Livestock Product Price Development**

In the current conditions, unstable price can not be avoided. The stable/controlable price and the relatively cheap price level become the ideals of government, business actors and society. According to Byaerlee, *et al.* (2005); Boussard, *et al.* (2006) and Boussard, (1996), pricing factors as well as international issues and market expectations beyond government control often indirectly affect domestic price stability. The movement of price fluctuations of basic food commodities between time during the year 2011-2016 looks smaller, but still at a high price level. In certain period of movement of price fluctuation of livestock product is high enough that during year 2013 and beginning and middle of 2015, beginning of year 2016 price fluctuation start to shrink.
Determination of Livestock Product Price Policy

Food price policies based on livestock products could be determined by considering the interests of consumers and the interests of producers. Consideration of consumer interest in principle to maintain the purchasing power of consumers, while the consideration of the interests of producers associated with maintaining profitability of farming/livestock so as to remain farming/livestock. In determining commodities based on the interests of consumers there are three things that need to be considered, namely the share of inflation, coefficient of variation in commodity prices at the consumer level and share of household expenditure. Inflation share and share of household expenditure as a combination factor to describe the level of people's purchasing power.

Table 3. Inflation Contribution, Coefficient of Variation and Share of Household Expenditure on Livestock Products, 2009-2016

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Share to Inflation (%)</th>
<th>Coefisien of Variation (%)</th>
<th>Share to Household Expenditure(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>0.08</td>
<td>4.14</td>
<td>0.76</td>
</tr>
<tr>
<td>Chicken meat</td>
<td>0.10</td>
<td>8.00</td>
<td>2.23</td>
</tr>
<tr>
<td>Chicken Egg</td>
<td>0.04</td>
<td>5.77</td>
<td>2.35</td>
</tr>
</tbody>
</table>

Source: BPS, processed

An important source of animal protein commodities for consumers is chicken meat. In terms of inflation share, its value was greatest after beef, even the price fluctuation rate was quite high. While from the share of household expenditure, relatively high level of both livestock products. When
compared with the share of expenditure for chicken eggs did not vary much and with higher beef. The condition showed the commodity of chicken meat had the urgency to get attention in price stability, then chicken egg and beef.

During 2009-2016, the share of food-based livestock food commodities, especially beef, chicken and chicken eggs were quite high. This commodity was part of volatile food in national inflation grouping. Price fluctuations of the commodity with substantial share means that it should be kept so high that price control policies were important in order to minimize their impact on national inflation. One of the roles of price stabilization policy was the controlled commodity prices and the smooth supply and distribution channels.

Fluctuations in food commodity prices were influenced by increased consumption/demand patterns especially on religious holidays, culture in the community as well as production/supply quantities. The effect of increased demand on National Religion Celebrate (HBKN) was more dominant in the prices of livestock products, especially beef. The demand for beef, chicken meat and chicken eggs during fasting and Eid will increase about 20-25% (Gapuspindo, 2016)

High price fluctuations, especially in the price of chicken meat and chicken eggs, caused by the pattern of production and stock of the commodity that fluctuates. In addition, production and consumption centers were also a factor in the distribution of these commodities. The sharp inter-season production and supply fluctuations due to the less-distributed production centers spread across the region and the high consumption of chicken and chicken eggs is one of the substitutes of animal protein intake at a time when the price of beef was more expensive. It could be seen from the share of expenditure and the share of inflation for chicken meat and chicken eggs was quite high (Table 3). The more fundamental issues are actually on the production side, especially those associated with the very low incentives experienced by small independent farmers. This was related to the price of feed that increased significantly, while the selling price of its products did not increase significantly because the increase in price of chicken meat at the retail level was not transmitted
properly to the price of chicken in the level of small farmers (farm gate price).

The control of commodity prices means that to minimize the fluctuation of the price that occurs at a certain tolerance limit that did not harm consumers or producers and keeps fluctuating all the time. Price of commodity that controlable had an effect on the intermediate price changes between time being minimal and contribute to low inflation. The fluctuation of commodity prices could be minimized through the regulation of production and the time of imports in meeting the demand that the numbers tend to increase, in the medium and long term could reduce the role of these commodities in inflation. The supply of beef commodities in the country still needs additional supply from imports so that the timing of imports was very important to maintain domestic price fluctuations, especially to keep supplies during fasting and Eid period.

Based on the results of analysis from the producers and consumers side, it was found that the policy of chicken and chicken egg prices was more on the reference price policy at the farmer level by taking into account the institutional aspect by encouraging large scale farmers to play more in the export market. While independent small-scale farmers needed a policy that allowed the development of breakthroughs to be able to reduce the cost of procurement of feeds through the utilization of local resources.

The policy for beef commodities that must be taken was the determination of the right price level as a reference in determining the import and the highest retail price at the consumer level, especially in the lead up to the National Religion Celebrate (HBKN). In line with the policy, the existence of a conducive policy in encouraging people's consumption pattern from fresh beef to frozen beef.

Table 4. Implementation of Special Price Policy at HBKN

<table>
<thead>
<tr>
<th>No</th>
<th>Commodity of Presidential Regulation No. 71/2015</th>
<th>Control</th>
<th>Law Enforcement</th>
<th>Exploration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The commodities traded are diverse, including food items in accordance with Presidential Regulation No. 71/2015</td>
<td>√</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Tradition Market

- It is difficult because: The number of traders in the market people are very much. Traders are worried about not getting special pricing information.
- Generally traders in the market people do not have a business license, making it difficult to apply sanctions.
- Sanctions not settle yet.

Modern Market

- Special pricing information can be conducted in all regions in Indonesia
- Has a business license that is a modern retail business license (Ijin Usaha Ritel Modern or IUTM).
- Easier application of sanctions, such as revocation of business permits.

Sources: Discussion Result

According to Table 4, show that the special price should be implemented in modern retail/modern
market. It is easier to monitoring than traditional market.

Price control by the government had been done by many countries in order to maintain the availability of important food and prevent price fluctuations in the shortage (Thuraiisingham, 2010). Developed and developing countries had laws and regulations concerning price regulation. Malaysia had the Price Control Act 1946 and the Control of Supplies Act 1961; The Philippines had The Price Act (Republic Act 7851); Singapore with the Price Control Act, Chap 244; Thailand the Price Fixing and Anti Monopoly Act 1979 and the 'Price Lists' of the Ministry of Commerce and Internal Trade Departments; Bangladesh with The Essential Articles Act 1953. Price control in Indonesia refers to under regulation UU No. 7/2014 about Trading and Presidential Regulation No. 71/2015 about definition and storage of staple goods and necessary goods.

Institution refered to in this research was from the aspect of the rules of game. Institutional was a factor supporting the effectiveness of a pricing policy. In previous experience, the pricing policy had not been accompanied by an adequate institutional system, therefore the impact of the policy was short term

![The Role of Institution in Food Price Policy](image)

Figure 4. The Role of Institution in Food Price Policy

only. According to Ostrom (2011) in the implementation of price policy has at least an institutional function of policy formulation, monitoring, coaching, data processing & the implementation of food information. The most important function was the monitoring function. The function of monitoring had an important role in the implementation of policy. Next, is the function of coaching and function of policy was makers. These functions are inter-related and require solid coordination in building a more implementative policy. Discussion results showed that the implementation of price policy was still weak because it had not been
supported by monitoring function, coaching and policy formulation. Price policy also needed to be supported by accurate data and food information and function of the implementer. It also needed to be supported by law enforcement from the side of the rules enforced by the government in written technical regulations.

CONCLUSION AND POLICY RECOMMENDATION

Price policy can reduce fluctuations in the price of high animal products. Considering the some factors that affecting the price policy on livestock products are the pattern of production and consumption, price fluctuation, production fluctuation, the share of public expenditure on food, and share to inflation. It is hoped that the application of price policy on livestock products will be more effective. Food price policy can be applied to livestock product commodities are the reference price and the special price. The reference price policy on the producers and consumers is applied to the chicken meat and the chicken eggs. The reference price for beef commodity is the reference price for consideration of the time to import. Meanwhile, the special price policy are can be applied to the beef, meat and chicken eggs. The implementation of this policy during National Religion Celebration (HBKN). The price policy of livestock products also needs to be supported by monitoring functions, coaching and policy formulation. Therefore, it is necessary to monitor price periodically to provide market information system / price, market operation and enforcement of legal sanction by clarifying the rules of game from existing regulations.

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EVALUATION OF THE BENEFITS OF BONDED LOGISTIC CENTER IN SUPPORTING INDUSTRY COMPETITIVENESS

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Abstract

This study aims to analyze the extent of benefits obtained by PLB users in terms of efficiency of time and logistics costs. The comparison of cost and time is viewed from transportation, inventory and administration aspects obtained from surveys and interviews with companies that already utilizing PLB facilities. The result of the analysis shows that in general PLB gives improvement in logistics cost and time in terms of: delivery of goods to warehouse, delivery of goods from warehouse to industry, and the raw material storage time. Based on the interviews with the PLB users, there are still obstacles in the implementation of the utilization of PLB, especially from the administration or the handling of licensing documents related to the restriction rules. The analysis shows that PLB is potential to improve the future of logistics performance.

Keywords: Bonded Logistic Center, Logistics Cost, Efficiency

JEL Classification: F14, L81, L8

INTRODUCTION

The Government of Indonesia has launched the operation of the Bonded Logistics Center (PLB) in March 2016 as part of the Second of Economic Policy Package in September 2015. The PLB facilities and incentives are expected to reduce the national logistics costs by decreasing the seaport dwelling time and creating closer proximity between raw material warehouse and the industry (Haryana, 2016). The government believe that shortening the distance for material procurement will decrease the logistics cost and time, but the research or analysis about this issue haven't been done. Ideally, every government policy should be based on some research or analysis and the implementation of the policy should be monitored and evaluated. So, it's crucial to know the extent of benefits of this policy from the perspective of industry as the beneficiary of the PLB policy.

PLB is one the type of bonded stockpile (TPB) which its function is developed and expanded. According to Supomo (2016), the definition of PLB is a Bonded Stockpile to store goods originating outside customs areas and / or goods originating from elsewhere in customs areas, may be...
accompanied by one or more simple activities within a certain period of time before they are moved to another place either domestic or overseas. Before the PLB’s incentive policy was launched, there were already other types of PLB which also received tax and import duty facilities as regulated in Government Regulation No.85 of 2016 on Amendment to PP: 32 of 2009 concerning Bonded Stockpile: Bonded Warehouses, Bonded Zones, Bonded Exhibition Places, Customs Free Stores, Bonded Auction Sites and Bonded Recycling Zones. The purposes of this study are to analyze the benefits of the implementation of PLB in terms of efficiency of time and logistics costs especially on the process of procurement of raw materials by industry.

In Indonesia, the logistics cost component consists of transportation costs, administrative costs and inventory costs (World Bank, 2013). During 2004-2011, Indonesia's logistics costs decreased by 2.97 percent. In 2004, logistics costs reached 27.61 percent of GDP and in 2011 fell to 24.64 percent of GDP. The largest component of logistics costs is in transport costs contributing 12.04 percent of GDP, followed by inventory costs (9.47 percent of GDP) and administrative costs (4.52 percent of GDP). The largest component in freight costs is dominated by land transportation, which is 72.21 percent and rail transport contributes the lowest at 0.51 percent. In the same report, the largest component in the administrative cost is storage cost / holding cost about 49.37 percent (World Bank, 2013).

Although the performance of national logistics costs during the period 2004-2011 decreased, however, logistic costs in Indonesia are still higher than some other countries, especially at the ASEAN level, such as Singapore (8 percent of GDP), Malaysia (13 percent), Thailand (20 percent) and Vietnam (25 percent). The cost of logistics in the structure of Indonesian economy is still high. Therefore, identification of the logistics cost components is important to facilitate the process of creating an efficient logistics performance. In operational level, logistic cost indicators can be used to identify the reduction of operational costs and the improvement of logistics services. Further more it can enhance the flow of goods, reliability, and cheaper to improve business competitiveness.

To support the development of efficient logistics costs, the
government issued PLB policy. PLB has functions to prepare inventory for industries that need raw materials and auxiliary materials in order to stabilize prices, ensure supply and speed up supply to the industry so that production planning and fulfillment of consumer orders can be more timely. In the end, the supply of industrial goods and raw materials through bonded logistics centers becomes more efficient and can lower logistics costs. The bonded logistics center is the government's concrete program in accelerating the supply of goods. However, the speed at which these goods are supplied depends on the coordination plan and port operational performance (Setiawan & Sangian, 2016).

METHODS
The sampling method used in this research is purposive sampling which is one kind of non-probability sampling. The sampling here is confined to specific type of people who can provide desired information because they are conform some criteria set by researcher (Sekaran, 2003). The respondent's target in this research is the beneficiaries of PLB's incentive policy, i.e companies that take raw materials and auxiliary materials from PLB and / or companies that stocks raw materials / auxiliaries / finished goods in PLB which will be exported. Previously note that business actors PLB based on Regulation of the Minister of Finance No. 272 of 2016 can be divided into three types:

1. PLB Operator (*Penyelenggara PLB*), is a legal entity that performs activities of providing and managing the area for the activities of PLB.
2. PLB Entrepreneur (*Pengusaha PLB*), is a legal entity that carries out PLB's business activities in which its status is the same as business entity.
3. Entrepreneurs in PLB (*Pengusaha Dalam PLB*) who are concurrently operators within PLB, called PDPLB, are business entities that carry out PLB's activities in PLB owned by PLB operators with status as different business entities.

Respondents in this research are those who utilize the three types of PLB above. Thus the main target of respondents in this research are:

1. Companies utilizing PLB facilities managed by PLB operators, PLB entrepreneurs, or PDPLBs where the companies are not PLB or PDPLB entrepreneurs.
2. PLB Entrepreneur or in other words is an entrepreneur who utilizes his own PLB facility.
3. PDPLB or in other words Entrepreneurs who utilize its own PLB facilities, but the PLB is located in the PLB of other companies with different permits.

Survey areas in this study is chosen based on the number of PLBs that already operating in the area. Since the launched of the first PLB in March 2016 there are already 11 PLB operators in 13 locations. The number of organizers and the location of PLB warehouse is increasing from time to time. In 2017 the number of PLB providers and locations has grown to 34 PLB operators in 42 locations spread across various regions of Indonesia with various supported industry focus as shown in Figure 1.

![PLB/PDPLB Location](source: Dirjen Bea dan Cukai, 2017)

The survey was conducted for approximately 2 months starting from the end of February to mid-April 2017 in six survey areas. Based on the distribution of the existing PLB at the time of the survey, the selected survey areas were: 1) Bekasi and Cikarang, 2) Karawang and Bandung, 3) Banten Province, 4) Bali Province, 5) East Kalimantan Province and 6) DKI Jakarta Province.

The approach used in this study is to compare cost and time components in the procurement of raw materials before and after the utilization of PLB at the level of industries or users of PLB incentives and facilities. This research tries to
evaluate PLB performance which has been applied for about one year. The types of impacts that being evaluated are immediate impact by comparing the cost and procurement time of raw materials between before and after the utilization of PLB by the industry. The Framework of the analysis of the benefits of PLB shown in Figure 2.

<table>
<thead>
<tr>
<th>Element of Logistics Efficiency</th>
<th>Unit</th>
<th>Before PLB</th>
<th>After PLB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation cost</td>
<td>Rupiah/</td>
<td>...........</td>
<td>...........</td>
</tr>
<tr>
<td></td>
<td>product</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventory cost</td>
<td>Rupiah/</td>
<td>...........</td>
<td>...........</td>
</tr>
<tr>
<td></td>
<td>product</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration cost</td>
<td>Rupiah/</td>
<td>...........</td>
<td>...........</td>
</tr>
<tr>
<td></td>
<td>product</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logistics Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>supplier –</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>user’s</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>warehouses</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>day</td>
<td>...........</td>
<td>...........</td>
</tr>
</tbody>
</table>

**Figure 2. Research Frameworks**

The cost of logistics is an important part for measuring national logistics performance. The components of logistics cost itself consists of transportation costs, inventory costs and administrative costs. According to Rushton, Croucher, & Baker, (2006) and (Pishvaee, Basiri, & Sajadieh, 2009) mentioned that logistics costs consist of carrying / holding costs, landfill costs, packing costs, consolidation costs, transportation costs, inventory costs, information and monitoring costs. Another opinion says that logistics costs include transportation
costs, storage costs, administrative costs, taxes, risks and damages, handling fees and packing costs Zeng & Rosetti, (2003) In its implementation, the logistics cost component in each country varies depends on the availability of data so that it will produce different models and methods in calculating logistics costs.

This analysis used model that refers to the World Bank (2013) research where logistic cost measurement models from several countries are calculated (United States, South Korea and South Africa). Although in this study logistics cost measurement is not conducted to compare on country level, the World Bank (2013) model can still be used because the logistics cost calculation component is basically not different, i.e. transportation cost, inventory cost and administration cost. Considering that the study object of World Bank (2013) research is at the country level, which is conducting a nationwide survey is very difficult, the calculation of logistics costs is approximated by various secondary data proxies. Even sectoral data are used when secondary data are not obtained. To provide an overview, the calculation of logistics costs with the World Bank model (2013) is presented in Table 1.

<table>
<thead>
<tr>
<th>Logistics Cost</th>
<th>Sub-criteria</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation Cost</td>
<td>Primary transportation Cost</td>
<td>Survey and database of truck transportation from factory to warehouse</td>
</tr>
<tr>
<td></td>
<td>Secondary transportation Cost</td>
<td>Survey and database of truck transportation from distributors’ warehouse to consumer</td>
</tr>
<tr>
<td></td>
<td>Land transportation cost</td>
<td>Revenues from companies engaged in the land transportation sector</td>
</tr>
<tr>
<td></td>
<td>Marine transportation cost</td>
<td>Revenues from companies engaged in the marine transportation sector</td>
</tr>
<tr>
<td></td>
<td>Air transportation cost</td>
<td>Revenues from companies engaged in the air transport sector</td>
</tr>
<tr>
<td>Inventory cost</td>
<td>Storage cost</td>
<td>Estimated bank interest earned from total inventory assets</td>
</tr>
<tr>
<td></td>
<td>Inventory tax</td>
<td>Tax costs on the value of inventory assets</td>
</tr>
<tr>
<td></td>
<td>Inventory Insurance</td>
<td>Insurance costs of inventory assets</td>
</tr>
<tr>
<td></td>
<td>Inventory damage</td>
<td>Proportion of defective inventory assets</td>
</tr>
<tr>
<td></td>
<td>Warehousing cost</td>
<td>Proportion of Transportation and Storage Costs</td>
</tr>
<tr>
<td>Administration cost</td>
<td>Administration cost</td>
<td>Proportion of Transportation and Storage Costs</td>
</tr>
</tbody>
</table>

Although not exactly similar, the calculation model of World Bank (2013) can be used as a reference to determine the formula for calculating
the cost of national industrial logistics after the enactment of PLB. The essence of the calculation is presented in Table 2.

**Table 2. Calculation of Logistics Costs for National Industry**

<table>
<thead>
<tr>
<th>Logistics Cost</th>
<th>Sub-criteria</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation Cost</td>
<td>Primary Transportation Cost</td>
<td>Survey the cost of shipping goods from supplier to storage warehouse</td>
</tr>
<tr>
<td></td>
<td>Secondary Transportation Cost</td>
<td>Survey of freight costs from storage warehouse to industrial site</td>
</tr>
<tr>
<td>Inventory Cost</td>
<td>Storage Cost</td>
<td>Estimated bank interest from total inventory assets</td>
</tr>
<tr>
<td></td>
<td>Damage Cost</td>
<td>Estimated amount of damage to the goods to the total asset inventory</td>
</tr>
<tr>
<td></td>
<td>Warehousing Cost</td>
<td>Survey of storage warehouse rental cost</td>
</tr>
<tr>
<td>Administration Cost</td>
<td>Cost of ordering raw materials</td>
<td>Survey of costs incurred to order goods made by a third party</td>
</tr>
<tr>
<td></td>
<td>Cost of document processing, communication, and others</td>
<td>Survey of costs incurred to take care of documents, communications, and others</td>
</tr>
</tbody>
</table>

In logistics, in addition to the cost logistics, there is also the logistics time to be considered in order to know how efficient the implementation of logistics. The criteria in this study to measure logistics time can be seen in Table 3.

**Table 3. Calculation of Logistics Time for National Industry**

<table>
<thead>
<tr>
<th>Logistics Time</th>
<th>Sub-criteria</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery time</td>
<td>Delivery time from supplier to destination port</td>
<td>Survey of the delivery time of the required goods from the supplier to the destination port</td>
</tr>
<tr>
<td></td>
<td>Delivery time from port to storage</td>
<td>Survey of goods delivery time from unloading ports to temporary storage or PLB</td>
</tr>
<tr>
<td></td>
<td>Delivery time from temporary storage to industry</td>
<td>Survey on the delivery time of goods from four temporary storage or PLB to the buyer/industry</td>
</tr>
<tr>
<td>Storage time</td>
<td>Storage time</td>
<td>Survey on the length of time store goods in temporary storage to the buyer / industry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Survey on the length of time store goods in PLB to the buyer / industry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Survey on the length of time store goods in industrial warehouse before use</td>
</tr>
</tbody>
</table>
Based on the data collected from the questionnaires, data analysis is done to interpret the results and answer the research objectives in accordance with the proposed methodology.

RESULTS AND DISCUSSION

After the launched of PLB on March 10, 2016 which is comprises of 11 PLB, within a period of about one year the number of PLB has increased to 34 PLB serving different types of Industry. The survey results show that the existence of PLB has increase the area of warehouse to serve its clients. For example, the PLB of PT. Agility International currently 10,000 m² of PLB warehouse will expand its warehouse to 30,000 m². The PLB of PT. Cipta Krida Bahari (CKB) where on March 2016 has managed PLB of 74,000 m², by 2020 they has targeted to build and operate PLB up to 300,000 m² in Indonesia.

From the PLB / PDPLB which has been operated untill 2017, the growth of imported goods into PLB / PDPLB has improved and the development is quite good, thus the interest of the client to use PLB is relatively high. Figure 3 shows the development of imported raw and auxiliary material stored in PLB for the top 20 PLB.

![Figure 3. The Growth of Imported Materials Stored in PLB for The Top 20 PLB](image)

Based on the actual survey data the results are still not in accordance with expectations. On each question item, data cannot be calculated more than fifty percent. This resulted in data processing using inferential statistical methods to be unrepresentative. However, data processing can still be done using descriptive statistics method, to describe the profile of PLB in general. Results of surveys conducted on users of PLB are summarized in Table. 4

Table 4 is the calculations of cost and logistic time before and after the implementation of PLB based on descriptive statistics method. Based on these methods, the results obtained that the PLB has been able to improve the performance of national logistics. For the category of delivery time from
supplier to port and from warehouse to final consumer, the decline is quite significant. This will certainly result in reduced costs and increased efficiency. Anomalies occur at the time of delivery wherein from the port to the warehouse is rising, possibly occurring for products on the green/priority lane. But overall, there is still an increase in performance for aspects of delivery time.

The number of stored products decreased, so did the storage time. These two indicators have a positive impact, because the industrial capital of the raw material users can be used for other business activities. This allegation is also supported by the decline of logistics costs involved.

In accordance with the research methodology, it should be remembered that the actual presentation of the results of data processing descriptively cannot really be the basis for drawing a conclusion. Empirical facts can be taken if already through testing using inference statistics. However, the least available data makes inference testing also vulnerable to invalidity.

<table>
<thead>
<tr>
<th>Components</th>
<th>Before PLB</th>
<th>After PLB</th>
<th>Decrease/increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time delivery of raw material from supplier to warehouse</td>
<td>24 days</td>
<td>17 days</td>
<td>↓29%</td>
</tr>
<tr>
<td>Time delivery from the port to the warehouse</td>
<td>3.06 days</td>
<td>3.5 days</td>
<td>↑14.3%</td>
</tr>
<tr>
<td>Estimated shipping cost from supplier to warehouse</td>
<td>Rp 9.981.650</td>
<td>Rp 8.963.650</td>
<td>↓10.2%</td>
</tr>
<tr>
<td>Time delivery from warehouse to Industry / user</td>
<td>7 days</td>
<td>5 days</td>
<td>↓29%</td>
</tr>
<tr>
<td>Estimated shipping cost from warehouse to Industry / user</td>
<td>Rp 2.203.889</td>
<td>Rp 2.016.667</td>
<td>↓8.5%</td>
</tr>
<tr>
<td>Number of raw material shipped from supplier</td>
<td>93750 kg</td>
<td>78541 kg</td>
<td>↓16%</td>
</tr>
<tr>
<td>Raw material storage time</td>
<td>47 days</td>
<td>11 days</td>
<td>↓77%</td>
</tr>
<tr>
<td>Estimated value of raw material inspection (by authorities)</td>
<td>Rp 7.555.417</td>
<td>Rp 5.400.00</td>
<td>↓29%</td>
</tr>
</tbody>
</table>

Figure 4. The Comparison of Time and Cost of Logistics Between Before and After PLB Implementation

CONCLUSION AND POLICY RECOMMENDATION

Within one year since the launched of PLB, the number of PLB operators has increased to 34, where at the time of the launched there were only 11 PLB. Such conditions indicate that PLB is beneficial to the industry because the addition of the number of PLB is an indicator of the potential benefits for the industry or companies that import raw materials and/or auxiliary materials used to produce their products.
Based on the questions listed in the questionnaire related to logistics time, logistics cost, and inventory administration, there are 6 points that have improved in terms of time and cost: (1) time delivery of raw material from supplier to warehouse (temporary storage or PLB warehouse), (2) estimated shipping cost from supplier to warehouse, (3) Time delivery for raw materials from warehouse to industry, (4) estimated shipping cost from warehouse to industry (5) number of raw material shipped from supplier and (6) Raw material storage time.

Although there is a lack of data during the evaluation of the benefits of bonded logistic center in supporting industry competitiveness the existing formulas can serve as models and references to evaluate the benefits of PLB. This research recommends the importance of more intensive socialization of the benefits of PLB for industry through cross-ministries and departments to accelerate the reduction targets of logistics costs and improve the competitiveness of national industries.

REFERENCES


ANALYSIS OF LOCAL GOVERNMENT POLICY TO SUPPORT SMALL-MEDIUM FARMERS ON POULTRY SECTOR

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Abstract
The broiler sector in Indonesia is experiencing severe conditions due to industrial structure that is increasingly dominated by integrated industry and marginalize the existence of small farmers. This condition subsequently caused small medium farmers suffer from lost in their profits. In the last four years, price of chicken broiler in farmer level continuously decreased that cause severely losses. While the small medium farmers have to survive to support their livelihood. Local government initiate regulation and policy to support the farmers and their business continuity. This study aims to analyze how local government policy can effectively support business in poultry sectors particularly in small medium scale. Using the quantitative and qualitative analytical methods as well as profit margin analysis, this study concludes that the local government policy especially in West Sumatera (Indonesia) has been effective in creating conducive environment so that the farmers can maintain their profit. This study suggests that local government policy to shorten distribution chain could accommodate small medium farmer to have same level of playing field of business.

Keywords: Broiler Sector, Policy and Regulation, Small Medium Farmers

JEL Classification: D43, O13, Q13

INTRODUCTION
The production growth of chicken broiler is quite prospective and progressive. This can be seen from the production growth that tends to increase from year to year. In 2014, the production of chicken broiler from large companies (integrator) that controls the market of more than 85% has reached more than 2.5 million tons (GPPU, 2014). Meanwhile, the need only 2.3 million tons. This means the needs of broiler chicken meat can be provided self sufficiently. From the demand aspect, the level of public demand for poultry products, especially chicken meat tends to rise with average about 9.3% per year (Susenas, 2013).

Although the growth is quite great, but the condition of the chicken broiler industry in Indonesia have not reached the stage of competitive advantage compared to other Asian countries such as Thailand, Malaysia and South Korea. Indonesia is also still a net importer for poultry input products such as DOC (day old chick) seeds, feed ingredients and medicines.
However, productivity in the poultry sector can still be improved. Sources of poultry industry productivity growth are technological change, improvement in efficiency and the development of business scale (Coelli et al., 1998). These three things can be done through integrated chicken broiler industry system, either vertical integration by chicken broiler company (integrator) or through business partnership. In general, chicken broiler industry system through these two patterns has retain more than 85% market share in Indonesia. Meanwhile, only 15% of chicken broiler business are independent farmers.

There is an indication of the imbalance of the market structure in the output market, which in turn puts the independent farmers and plasma farmers in a weak position. Independent farmers and plasma farmers are also faced the increased in input production price and fluctuation of chicken broiler price.

Chickens Broiler business in West Sumatera region has been done hereditary and become a source of local wisdom. The efforts of local governments to develop chicken broiler farmer businesses are trough regional policies such as encouraging modern retailers to provide allocations for products from smallholder farmers.

Large-scale companies are dominating chicken broiler industry in some provinces. It is estimated in West Java around 90-95%, while for East Kalimantan 90%, West Sumatra 85%, Bali 80%, and East Java 70%. Among the five regions, West Sumatra and Bali are provinces where local governments concern to the protection of independent farmer businesses through local policies.

Trade distribution chain of chicken broiler is classified as a long chain. Chicken broiler price is determined by wholesaler or integrator as core companies who are partnering with plasma farmers (Puska PDN, 2016). Independent farmers should also follow the price formed in the same distribution chain. Its a disadvantaged for independent farmers because the production costs are relatively much larger and the scale of business is smaller.

Research conducted by Fitriani et al. (2014) analyzed the market structure of chicken broiler and measuring the impact of market power on the broiler industry in Indonesia, shows that the concentration ratio and entry barrier are higher in the period of 2003-2012. This means that chicken
Broiler industries are quite open but in the long run only efficient companies will be able to survive.

There is a problem arising from the current vertical integration. Fitriani et al. (2014) called the current integration far from perfect because it leads to a form of monopoly or oligopoly.

Chicken broiler farmers must struggle to increase their bargaining power in the chicken broiler market that is not perfectly competitive. In addition, a fairly long distribution channels are very unfavorable to the independent farmers. To end it, the local government has tried to protect the independent farmer business through policies considering that in some areas such as West Sumatra, chicken broiler business has become one of the most reliable source of income.

The aim of this study is analyzing the structure, conduct and performance of the chicken broiler industry. This study also analyzes distribution chain and local government policy to enhance the efficiency of distribution in order to encourage the sustainability of independent farmer business.

METHODS

This study uses descriptive qualitative and quantitative analysis method by using structure conduct performance (SCP) analysis. The data used are primary and secondary data. Primary data is derived from surveys and interviews using a questionnaire. The sample consists of stakeholders including farmers, wholesalers, retail traders, slaughterhouse (RPA), and modern retail in West Sumatera region that are Lima Puluh Kota and Padang. Secondary data were obtained from various reference.

The SCP approach is an analytical approach developed by Edward S. Mason (1949) and Joe S. Bain (1959). Mason and Bain stated that there is a direct and strong relationship between the market structure, business practices and the behavior of market actors and the performance of the industry itself. This model was first developed in industrial organization sector. It is more comprehensive in analysis and the conclusion is much better compared to traditional analysis that has tendency on partial analysis.
1. Causality Relations of Structure, Conduct and Performance

Source: Sayaka B (2006)

**Structure**

Market structure can be divided as perfect competition and imperfect competition. Imperfect competitions are monopoly, oligopoly and monopolistic. The structure of the market can be detecting from three things: the number of companies, types of production and barrier to entry.

1) **Market Share**

   Market share is the ratio between the sales of a company with total sales. Market share reflect the proxy of profit for the company. The large market share usually signifies a large market power in a competition and vice versa. Market share can be calculated in several ways based on value of sales. In homogeneous products such as chicken broiler, market share is measured using units or volume of sales.

2) **Concentration**

   Concentration is often used to measure the level of competition. Concentration is also often used as a tool to analysis market structure, conduct and performance of a firm and as an indirect indicator of collusion behavior. The value of market concentration can indicate the degree of oligopoly. In this study, the concentration is analyzed by the number of business actors involved in a single market.

3) **Barrier to Entry**

   Barrier to entry can be defined as any form of market characteristic that prevents new entrants from competing on the same basis as existing companies. In this definition, the combination of costs and economies of scale can be a barrier to entry. Theoretically, barriers to entry can be analyzed by comparing cost structure, selling price, and profit among business actors in the distribution chain.

**Conduct**

Market behavior is the actions undertaken by companies to achieve certain goals. There are three criteria to look at industry behavior: pricing strategy, entry conditions and product type. Market behavior includes
(Asmarantaka, 2009; Saptana and Saliem, 2015): (a) Pricing and setting the level of output, collectively or price leadership; (b) Behavior in cooperation among business actors can be reflected by interaction patterns and coordination among actors. It can be measured also quantitatively by using market integration (Ravallion, 1986); (c) Product promotion policy, through Commodity Check of Programs and Levy Systems; And (d) Predatory and Exclusiveness, this strategy is illegal as it aims to push a competitor out of the market.

**Performance**

Performance is the result of corporate strength and corporate behavior. Performance is a benchmark of the success of corporate strategy. If the company’s performance is good, then it can be considered a successful company strategy. Market performance emphasizes on market analysis and its effect on the amount of output and prices that occur in the market. Market performance includes the level of marketing efficiency, marketing margins, utilization capacity, innovation and incentive processes (in reducing costs, product improvements, and customer satisfaction). Some key performance indicators are profit and trade margins.

Trade actors are rewarded by the price difference that the producer receives at the price paid by the consumer. This difference in price is known as marketing margin, which consists of marketing costs and profit margins received by trade actors (Tomeck and Robinson, 1990). The formula is:

\[
M = \sum_{i=1}^{m} Ci + \sum_{j=1}^{n} \Pi j \tag{1}
\]

Where:

\(M\) = marketing margin
\(Ci\) = marketing cost \(l (l = 1,2,3, \ldots, m)\)
\(m\) = number of cost types
\(\Pi\) = profit obtained by trade institution \(j (j = 1,2,3, \ldots n)\)
\(n\) = total trade institutions that take part in the marketing process. Using this equation where the average \(Ci\) marketing cost and the profit \(\Pi j\) are collected through the survey, the marketing margin can be calculated. Thus the share received by the farmers from the wholesaler or retailer's price can be determined.

**RESULTS AND DISCUSSION**

**Characteristics of Chicken Broiler Trade in West Sumatra**

Chickens broiler farmers in West Sumatra consist of integrated farmer partners with integrator (internal partnership), farmers with non-
integrator partnerships (external partnerships) and independent farmers. In West Sumatera, the number of independent farmers still exists but many. Independent farmers who survive only farmers who have large capital support with large business scale.

Figure 2. Distribution Chain of Chicken Broiler in West Sumatera

The selling mechanism of chicken broiler from plasma farmer with partnership are wholesalers buy from integrator in the form of DO which then DO will be sent to the farmers. Wholesalers than taking number of chicken from the farmer base on DO. Farmers do not know what the selling price set by the integrator to wholesalers. The farmer only accepts the price based on the contract set by the integrator.

Distribution channels of chicken broiler in West Sumatra region is from farmer sold in kilograms of live weight or per unit. The Partnership farmer sells chickens broiler that have been harvested in the form per kg of live weight or unit to the partner integrator at prices base on agreement. The minimum price in the agreement is set at Rp 16,000 / kg of live weight. If the current market price is Rp 18,000 / kg of live weight, then the farmer will get an incentive of 30% of the price.
difference in the market. However, on the contrary if the market price is lower the farmer does not get incentive. Wholesalers or RPA can buy directly to the integrator through DO. Wholesalers will distribute chicken retailers in traditional markets.

Chicken slaughterhouse (RPA) in West Sumatra serves as a cutting and buying service of live chickens. RPA buys live chickens from integrator rather than independent farmers, because the purchase price at the integrator is cheaper. Then sell live chickens to wholesalers and retailers or household.

Characteristics of household cossumer in West Sumatra prefers to buy live chickens which then directly cut in the market than buy in the form of carcass. This preference makes relatively few chickens in the form of carcasses circulating in traditional markets. In addition, the characteristics of chicken meat sales in West Sumatra are in unit and not sold per kilogram. But for the modern retail market, chicken meat is sold in the form of carcass and parting.

Wholesalers or RPA can directly buy live chickens from the integrator at market prices and then sell live chickens directly in traditional markets to the household consumers. This condition becomes a problem for retailers in traditional markets, because the selling price of wholesaler relatively cheaper than retailer. RPA can also sell the chicken directly to the end consumer. West Sumatera provincial government plans to make regulations related to chicken broiler trading, especially for the arrangement of wholesaler dan RPA in selling live chickens to end consumer.

The increase in chicken meat price in West Sumatra, is one of the biggest contributors to inflation. There are two main companies in West Sumatera as integrator with 60% of market share. There is also an external partnership between farmers and Poultry Shop (PS), and independent farmers. The number of non-partnership farmers (independent) and external partnerships have begun to decrease and about 10% left.

In order to protect the existence of external partnerships and independent farmers, local governments have issued Governor Regulation No. 40 of 2015 on guidelines for the implementation of chicken broiler partnership. Under the provisions of Article 12, the role of government in terms of guidance, control and supervision includes: (i)
providing facilitation to integrator, plasma and all stakeholders in technical and non technical business development, (ii) setting cost of production (HPP) and (iii) facilitate control of feedstock availability, DOC, supply demand and production quotas.

In the implementation of partnership scheme, integrators are expected to be fair in the implementation of the partnership through contract in the distribution of rights and obligations. Furthermore, farmers demand live chicken price setting based on the size specified in the contract.

The description of chicken broiler market structure can be seen in 3 categories: market concentration, freedom of exit-entry market, and product differentiation.

Table 1. Broiler Market Structure in West Sumatra

<table>
<thead>
<tr>
<th>Market Concentration</th>
<th>Freedom Exit-Entry Market</th>
<th>Product Differentiation</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Integrator 65%</td>
<td>b. RPA - medium</td>
<td></td>
</tr>
<tr>
<td>- Contract Farmers eksternal 20%</td>
<td>c. Wholesaler - high</td>
<td></td>
</tr>
<tr>
<td>- Independent Farmer 15%</td>
<td>d. Small Retailer – high</td>
<td></td>
</tr>
<tr>
<td>b. Vertical Integration: partial and horizontal.</td>
<td>e. Big Retailer/ Supermarket – high</td>
<td></td>
</tr>
<tr>
<td>c. Market Structure of input: oligopoly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Output market structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Integrator: Oligopoly leads to cartel form</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Farmers: Oligopsony</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Wholesaler: Oligopoly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Small Retailer: Monopolistic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Big retailer: Oligopsony</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Margin Analysis

Tomeck and Robinson (1990) define marketing margins as: (1) the difference price paid by consumers and the price received by the producer; or (2) the price paid for the marketing services that affected by the demand and supply of the services.

Included in the margin are all marketing costs incurred by marketing agencies ranging from farmers’ gateways to end customers and marketing profits, which is a reward for merit agency services in performing its functions.
The marketing margin of chicken broiler is differentiated according to three marketing channels based on the pattern. There are marketing channels of independent farmers, internal partnership, and external partnership. For the independent livestock businesses pattern the marketing margin is calculated from the level of farmers, contractor/brokers, RPA, wholesalers up to the retailers. For internal partnership scheme is calculated from the farmer level, the integrator (Livestock Company), the agent/broker, RPA, wholesaler and market retailer. For the pattern of the external partnership is calculated from the level of farmer, the financiers, agents/brokers, wholesalers to retailers. The general margin analysis is concluded in Table 2.

### Table 2. Trade Margin of Chicken Chicken Broiler in West Sumatera 2016

<table>
<thead>
<tr>
<th>No</th>
<th>Description</th>
<th>Cost/Price (Rp/Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Farmer</td>
<td>16,500</td>
</tr>
<tr>
<td>II</td>
<td>Contractors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Purchase price of live bird (Rp/Kg)</td>
<td>16.500</td>
</tr>
<tr>
<td></td>
<td>2. Cost</td>
<td>915</td>
</tr>
<tr>
<td></td>
<td>3. Selling price</td>
<td>18.500</td>
</tr>
<tr>
<td></td>
<td>4. Profit</td>
<td>1.085</td>
</tr>
<tr>
<td>III</td>
<td>Contractor/agen/broker</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Purchase price of live bird (Rp/Kg)</td>
<td>18.500</td>
</tr>
<tr>
<td></td>
<td>2. Cost</td>
<td>995</td>
</tr>
<tr>
<td></td>
<td>3. Selling price</td>
<td>20.500</td>
</tr>
<tr>
<td></td>
<td>4. Profit</td>
<td>1.005</td>
</tr>
<tr>
<td>IV</td>
<td>Wholesaler</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Purchase price of live bird (Rp/Kg)</td>
<td>20.500</td>
</tr>
<tr>
<td></td>
<td>Convert to chicken meat (Rp/Kg)</td>
<td>27.300</td>
</tr>
<tr>
<td></td>
<td>2. Cost</td>
<td>1.205</td>
</tr>
<tr>
<td></td>
<td>3. Selling price</td>
<td>29.280</td>
</tr>
<tr>
<td></td>
<td>4. Profit</td>
<td>775</td>
</tr>
<tr>
<td>V</td>
<td>Retailer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Purchase price</td>
<td>29.280</td>
</tr>
<tr>
<td></td>
<td>2. Cost</td>
<td>650</td>
</tr>
<tr>
<td></td>
<td>3. Selling price (Rp/kg)</td>
<td>31.300</td>
</tr>
<tr>
<td></td>
<td>4. Profit</td>
<td>1.370</td>
</tr>
</tbody>
</table>

Based on the cost structure, as well as the purchase price and the selling price, some basic information is obtained: (a) the share of the price received by the farmer equivalent of chicken meat is 70.29%; (b) The total
profit margin of chicken meat equivalent of Rp 9,300,- / kg of chicken meat, consisting of Rp 3,815,- / kg cost of chicken meat and profit margin received by the agent of Rp. 5,485,- / Kg chicken meat; (c) Consecutively the largest profit received by retailers is Rp. 1,370,- / Kg, contractor of Rp. 1,085,- / Kg, agent or broker of Rp. 995,- / Kg, and wholesalers in the market of Rp. 775,- / Kg; (d) the greatest gain is received by the collecting trader / agent / broker and contractor with a much larger sales volume than the collecting and reseller traders. The largest margin earned by wholesalers is proportional to the level of risk.

Responding to the length of broiler chicken distribution channels, local governments are trying to shorten the distribution channels so that the price at the consumer level is not too high. One of the efforts made by the government is through the provision of assistance or subsidies for the construction of Chicken Houses (RPA). It aims to increase RPA production capacity so that it can achieve economies of scale. Folk farmers can directly sell their products to the RPA so that the distribution path becomes shorter. In addition, local governments also encourage RPA to be able to directly sell broiler chickens to retailers or consumers directly.

The local government through its policies has encouraged the modern retailers to be willing to accept supplies from the independent farmers. This is intended to provide space and market access to the farmers to ensure the continuity of their business.

CONCLUSION AND POLICY RECOMMENDATION

Independent chicken broiler farmer in West Sumatera is facing an oligopsonic market structure where prices are more determined by buyers or traders. The market structure faced by brokers and wholesale in Indonesia for large-scale enterprises (integrator) is the oligopoly market structure that leads to cartel form.

The market structure between retailers in traditional markets and the traders above it is monopolistic market. The market structure faced by independent farmer who supply for the big retailer (Hypermarkets) is oligopsony.

The oligopoly market structure leads to the marginalized of independent farmer position.
Therefore, the role of local government is needed to protect the farmers through the policy to cut distribution channels. The policy of West Sumatera Provincial Government to shorten supply chain is considered effective.

The results of margin analysis of each business actor conclude that business profits (per unit output) in marketing of chicken broiler is greater than the cost incurred except for wholesalers where the cost per unit of output is greater than profit. This reflects the high bargaining position of traders.

When compared among the actors in the distribution chain, the greatest profit gained by retailers, contractor/collectors, and agent. Based on the margin pattern of each actor, it can be concluded that broiler marketing is inefficient.

It is recommended shortening the distribution chain through: (a) optimizing the role of poultry slaughterhouse not only limited to the provision of cutting services but also as wholesalers and retailers; (b) give farmers direct access to modern retail (meat shop) stores in consumer centers run by breeder associations (e.g., Indonesian Farmers' Store, House of Pangan Rakyat, BUMD) or private; And (c) build distribution infrastructure in the form of cold storage.

REFERENCES


ASEAN has recognized the importance of SMEs as the backbone of the regional economy. Regional economic integration is expected to encourage SMEs to expand their business beyond their national border. As a result, ASEAN countries committed to realize ASEAN Economic Community (AEC) through which Global Value Chain (GVC) comes into realize regionally, encouraging the expansion of SMEs’ business. ASEAN Value Chain is implemented under the framework of single market and production base accommodated by the AEC. This study reveals the business promotion conducted in collaboration between the Indonesian government and businesses in order to integrate Indonesian SMEs into ASEAN Value Chain. Business promotion is one of commercial diplomacy activities. The manifestation of Indonesia’s commercial diplomacy is observed by using Potter’s commercial diplomacy framework. The result shows that Indonesia’s commercial diplomacy is manifested in different patterns, depend on each targeted object of Indonesia’s business promotions. Referring to Potter’s commercial diplomacy framework, the pattern should be arranged between the two actors’ objectives. The first is government objectives, involving intelligence; networking and public relations; contract negotiator of implementation, problemsolving. While the second is business objectives, involving trade promotion; promotion of FDI; cooperation in science; promotion on tourism; and advocacy for national business community.

Keywords: ASEAN, Global Value Chains, Business Actor, Commercial Diplomacy

JEL Classification: F13, F14, F15

INTRODUCTION

Small and Medium Enterprices (SMEs) play a pivotal role in most economies, particularly in developing counties. Formal SME’s contribute up to 60% total employment and 40% of national income (GDP) in emerging economies. As study from World Bank Group found, there are 365 – 445 million in emerging markets, and this number already play the games the in the global value chains.¹

The spread of global value chains lead the SME’s into the next level, in terms of the opportunities, it is absolutely an enormous matter at how SME’s could grow by tapping to world markets. Participation in value chains exposes SME’s to a large costumer or buyer base, but this also presents huge

challenge for SME’s. However some issue still remains, capacity and knowledge transfer is something necessary to compete within challenging market competition. For sure, resiliency towards the obstacle such as competitiveness and management take a big role on the company’s sustainability.

In Indonesia, SMEs also play an important role to the national economy. What role and what problems. Indonesian SMEs survived in 1997 and 2008 economic crisis despite of the difficulties faced by big industry. The procentage of Indonesian SMEs is 99,99% compared to all bussinesses in Indonesia. Indonesian SMEs contribute 60,34% of GDP and provide about 96,99% of total job opportunities. Indonesian Central Bank Governor Agus D.W. Martowardjo stated that Indonesian creative economy SMEs have a great opportunity. In 2015, its contribution toward Indonesian GDP reached IDR 853 trillion and absorbed 15,9 labour. The sector of fashion, statue art, and cullinary are the greater contribution toward GDP whisch reach 76% of creative economy GDP. Creative economy absorbs 56,38% female labour and 22,6% of woman creative economy entreprenuer work in fashion sector.

Despite of its great role, Indonesian SMEs just contribute 10% of total export. Furthermore, there are just 1,56% of entreprenuer of total Indonesian people while ideally, a good development countries have minimum 2% entreprenuer of the total population as reached by developed countries like Singapore and the US.

The ASEAN Economic Community (AEC) also gives the new dimention toward the development of Indonesian SMEs. The scheme of global value chains is the great opportunity that need to be given great attention in developing SMEs in recent global trade and economic integration. In AEC, GVC is regulated in the priciple of one of its pillars namely ASEAN single market and production base. By this pillars, ideally all industries in ASEAN member countries integrated each other in the vertical or horizontal management in order to reach efficiency. The priciple is that each industry in each member state focuses on producing or working the

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4 op. cit
part of value added chain in which the
country has comparative and
competitive advantage. In this scheme,
member countries are encouraged to
increase the trade relations among other
member states. They do not only focus
on the export but also have to increase
import in order to get the input of raw or
intermediate materials. The point to
reach economic development is that
improving the management of regional
value chains which pay great attention
to each member states’ comparative
and competitive advantage.

ASEAN value chains under the
pillar of single market and production
base is a significant element in AEC as
global value chains is increasing the
importance continuing the the process
of openness to trade both in goods and
services, as well as undertaking
regulatory reform and investing in skills. Most firms in ASEAN are SMEs,
therefore understanding how SMEs
engage in GVCs is critical to spreading
the benefits from participation. The role
of SME’s in GVC, while in old period,
somehow quite frustrating on how SMEs
being able to join in global competition,
but today, it is fast develop with by the
support of internet-based platform that
may bring SME to join to world market.
For example, Alibaba and Amazon, the
leading e-commerce that act as
promotion tools for SMEs to trade. So
the rest things for SMEs is how to make
their product to be ‘eye catchy’.
Moreover, beside talking about how the
internal factor truly essential, so the
question that remains is how about the
external factor.

Cited from Indonesian Ministry of
Industry, the contribution of Indonesian
SMEs toward GDP is increasing from
57.84% to 60.34% in the last five years.
The absorption of labour in this sector is
also increasing from 96.99% to 97.22%
in the same period. However, despite
the contribution toward GDP and the
absorption of labour are increasing, the
access of SMEs sector to the global
value chains is in minimum condition.
The contribution of Indonesian SMEs
into global value chains is just 0.8%.
The expert of economic of Universitas
Padjajaran, Ina Primiana, stated that
most of Indonesian SMEs enterpreneurs
do not have information and access to
the global market. In domestic level, the
growth of this sector is not in line with
the growth of big idustries. It shows that
the development and operation of big

5 OECD, “Trade Policy Note: Making Global Value Chains
Work for ASEAN”
https://www.oecd.org/tad/policynotes/making-gvcs-work-
asean.pdf
industries do not include SMEs contribution.

In ASEAN, the contribution of Indonesian SMEs into global value chains is just little higher than Brunei, Laos, and Myanmar, and Cambodia. The highest contribution of Indonesian SMEs sector in global value chains is 2.7% despite the 9.3% ASEAN contribution into global value chains in the period of 2009-2013. The contribution of Indonesian SMEs sector in 2015 is just 15.8%, which is far lower compared to other South East Asia countries. The contribution of Thailand SMEs toward export is 29.5% and Philippine is 20%. In global level, the contribution of Germany SMEs into export reaches 55.9% and Japan is about 53.8%.6

Beyond financing, continued support is needed to bridge information gaps and allow SMEs to thrive.7 In Indonesia itself, the problem faced by the government in integrating SMEs into global value chains is the facilitation of managing cooperation between SMEs and big industry. For example, Batang regional government already tried to facilitate the cooperation between SMEs and big industry, but the SMEs are unwilling to cooperate because of the difficulties in the process and procedures.8 Talking about the external factor, WTO found there are some problem faced by SME in general that need to be address such as: 1. SME also perceive high tariffs as major obstacle to trade which may affect the price competitiveness; 2. Insufficient access to finance, might strongly inhibit formal SME development and ability to cope with market competition;3. Difficulty in accessing affordable trade finance especially in developing countries.9

The needs of Business to Government (B to G) talks might be the answer due to burdensome obstacle that faced by SME. Some theoretician believe multi approach channel need to be used as path to diminish the hurdle for sure, a nexus between Government & Business, which somehow need to be

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seen as essential key for SMEs to compete across nation border.

This paper mainly focuses on describing the development of Indonesian SMEs in the context of ASEAN value chains. In doing that this paper focuses on describing the commercial diplomacy taken by the government and business actors in integrating Indonesian SMEs in the scheme of ASEAN single market and production base.

As literature review, this paper refers to the several previous researchs. The first research is the research undertaken by Cassey Lee, Dionisius Narjoko, and Sothea Oum June presented in the World Bank Symposium Making GVCs Inclusive for ASEAN 2016 entitled “Small Medium Enterprises (SME) in ASEAN and East Asia Regional Economic Integration”. This research mainly focuses on finding how the SME participation in ASEAN and East Asian regional economic integration. This research takes 200 various SMEs in each ASEAN countries as a sample. The sectors of SMEs taken as sample coverage include the sector of food and beverage, component parts, machinery, textiles and apparel, wood products, rubber products, furniture products, and other important products in ASEAN.

Using quantitative research method, the findings of this research are first exporting propensity differs across industries. Second, size matters in firm participation in exporting. Third, there are main constraint on SME relating to export. Fourth, ICT-variables is significant to support the development of SMEs. Next findings respectively are that there are Outsourcing of foreign sources considering the indicators of size, online sale, online purchase, online payment. Online sale and purchase, only significant for medium and large-sized firms. Small firms face severe constrains in participating in GVCs. For the government variables: 1) Support for participation in events in countries abroad (e.g. fairs and exhibitions); 2) Support for organising meetings with potential partners (e.g. trade partners, R&D partners and networking); 3) Provision of financial support (e.g.grants, subsidies, loans). Exporting intermediate goods policy is the second primary policy for medium-sized firms. Foreign outsourcing is the main policy for medium-sized firms.

Second literature review is the research undertaken by Yohanes B. Kadarusman from Prasetiya Mulya
University in Thammasat Economic Journal, entitled, “AEC 2015 and Beyond: Realizing ASEAN Value Chain”. The findings of this literature respectively are, that the trade performance of the ASEAN demonstrates that its member countries increasingly exchange intermediate goods with each other. Consequently, ASEAN has potential to be a regional production base as stated in the AEC’s objectives. Nevertheless, the metrics of global value chains indicators demonstrate that some the AEC’s member countries have limited integration into global economy. It means the countries rely more on raw materials supplied to and processed further by other countries within the global value chains. Moreover, the countries are least likely to be included in the fragmentation of global production.

Furthermore, the literature finds that having a failure to success of AFTA makes implementation of the AEC challenging. The challenge is not just a matter of the fully implementation by its member countries, but more on the integration into global economy particularly to capture higher value added from its members’ activities. Therefore the implementation of the AEC should be driven toward 1) ensuring social, economic and environmental sustainability through the establishment and implementation of common standards within its member countries, 2) increasing trade in intermediate goods and through an excellent connectivity and division of labor within a borderless region, 3) enhancing capability upgrading and quality human capital through a quality education and training system shared and adopted by its member countries, and 4) capturing higher value added through a movement along GVCs and a shift toward own ASEAN value chain.

All findings in those literatures review are referred in this paper. However, there are several aspect of main focus in this paper that are not covered yet by the literature review. The aspects are the focus on Indonesian SMEs, the focus on AEC pillar on single market and production base, and the focus on Indonesian commercial diplomacy in attempt to integrate Indonesian SMEs into ASEAN value chains under AEC scheme.

In discussing the topic, this paper uses two conceptual frameworks. First conceptual frameworks is global value chains. Value chains refer to “...the full range of activities that firms and workers
perform to bring a product from its conception to end use and beyond. This includes activities such as design, production, marketing, distribution and support to the final consumer."^{10}

Spurred by reductions in ICT and coordination costs, factories are now unpacked across international borders. This has implications for the way we think about trade: No longer one country one product and policy not just market access but about the trade-investment-service-knowledge nexus. One key challenge has been to capture this fragmentation of production. Indicators of GVC participation: Backward Participation: foreign value added content of exports (buying element of GVCs); and Forward Participation: the domestic value added sold to other countries for these to produce exports (selling element of GVCs). A country's position depends on its comparative advantage or the mix of skills and resource endowments it brings to international production, but not limited any longer to one product. Upgrading paths are important (process, product, functional and chain) but all should lead to higher domestic value added in exports. Even as the share of domestic content of exports has fallen its value has grown considerably over the last decade. Ultimately, benefits of engaging in GVCs do not relate to the position held within the value chain, but rather on to the extent to which companies can leverage this position to attain greater efficiency higher value added.

GVCs contribute to development and economic growth in three key ways: 1) Push: high standards of quality, sophistication, timeliness, scale, and efficiency are required to sell in GVCs; 2) Pull: access to imported inputs, capital, technology and skills; 3) Accelerator: minimum scale achievements allow infrastructure upgrading otherwise not economical.^^{11}

In global value chains, the industry in certain country purchase of inputs from the other country & sale of outputs to the other country based on efficiency consideration. Indirect way, the industries are exporting intermediate goods in the scheme of parent-co, sister-co, subsidiary-co, unrelated-co as

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Second conceptual framework used in this paper is commercial diplomacy. Commercial diplomacy is a significant factor in the on-going process of globalization. The application of commercial diplomacy has now increased, shown by the increasing governments spending in business support. Governments are recognizing the importance of commercial diplomacy as a new area of activity.

Generally, the concept of commercial diplomacy is interpreted into two ways. First, macro-level interpretation, in which commercial diplomacy is being a part of economic diplomacy, trade diplomacy, and financial diplomacy, which tend to concern about economic policy issues.

Second, micro-level interpretation, in which diplomacy is referred to the support activities given by the government to the businesses. Between those two concepts, the micro-level interpretation is preferred by academicians or practitioners because it can describe the main idea of commercial diplomacy without being intertwined with other diplomacy concepts.

Commercial diplomacy is perceived as an integral part of a trade promotion program in a study by Rothkopf. The study evaluates the program’s beneficiaries and deals with the controversies surrounding the benefit-sharing within the business community. Governments are reorganizing their diplomatic systems, so that commercial activities are far more centralized. The commercial activities of diplomats are extended, whereby branding of the nation plays a more central role. Therefore, there is a tendency for diplomatic missions to

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16 Ibid, p.8


undertake more and more technical and specialized business-assistance functions and diplomatic staff are increasingly required to engage in partner search, promotion of investments and technology transfer, or advocacy.¹⁹ The trend is encouraged by developments in Information Technology (IT) and low-cost transportation which naturally shift many specialized policy matters away from host country-based diplomats and towards experts located in the capitals of their home countries.

Meanwhile, Potter describes commercial diplomacy as a government service to the business community which aims at the development of socially beneficial international business ventures.²⁰ The spectrum of actors in commercial diplomacy ranges from the high-policy level (head of state or prime minister to ambassador) to the lower level of specialized diplomatic envoys like trade representatives, commercial attachés, or commercial diplomats that are usually staff members of a diplomatic mission or a Trade Promotion Organization (TPO) / Investment Promotion Agency/IPA). They perform their main activities in the host country.

Potter argues that commercial diplomacy is a value-creating activity due to its usefulness in dealing with both managerial and government concerns, each disaggregated into strategically relevant activities.²¹ Two types of activities are distinguished: primary activities (relating to trade and FDI, research and technology, tourism and business advocacy) and support activities which provide the inputs needed for the primary activities to take place (intelligence, networking, involvement in the ‘made-in’ image campaign, support for business negotiations, contract implementation and problem solving).

Figure 1. Commercial Diplomacy
Sumber: E. Potter (2004)

The primary activities of a commercial diplomat are essentially


²¹ Ibid
marketing-related. It is about managing the relationship between sellers and buyers. Trade promotion covers such duties as involvement in trade fairs, exhibitions, trade missions, conferences, seminars, promotion campaigns, etc. Commercial diplomats also become involved in the promotion of tourism and other services such as banking or education. In doing so, they often cooperate with TPOs/IPAs or bilateral chambers of commerce.

The attraction of FDIs is a growing activity because they stimulate the home country’s economic growth and employment in priority sectors or regions, as well as complementing cooperation in science and technology. Advocacy in favor of the national business community means the commercial diplomat’s involvement in public affairs for the benefit of national companies and business associations in their dealings with the host country government, parliament, or main publics. It also signifies that commercial diplomats react to host country proposals for regulations and international trade agreements.

The main support activity of commercial diplomacy is intelligence, which includes information search and dealing with business enquiries from the home and host country firms. Intelligence from commercial diplomats most frequently concerns reporting on opportunities resulting from calls for tenders, development projects or the needs of leading industrial customers, information on changes in regulations affecting exporters, and so on.

Networking is needed to bring together high tech start-ups with venture capitalists or other partners. Public relations are strategic for FDI promotion and may involve ambassadors’ contacts with CEOs of large companies and attendance at business forum in the host country.

Support for national firms involved in negotiations with the authorities or corporations from the host country are an important form of support by commercial diplomacy services, which favor hands-on approach to business. A commercial diplomat’s public relations activities essentially aim at maintaining good contacts with business leaders and authorities and cover advocacy efforts aimed at the protection of the home country’s business interests in public hearings or

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consultations in the host country’s legislative process. The commercial diplomats also act as advisers in contract negotiations, provide support for problem-solving in business or in corporate-government relations, and become involved in dispute settlement cases. The problem-solving activities frequently refer to the protection of intellectual property rights, tax issues, assistance to national companies which have suffered losses, and wish to obtain compensation as well as various forms of support provided as diplomatic protection.

METHODS

The method used in this paper is descriptive method which means that this article describes how the commercial diplomacy undertaken by both government and non-government actors of Indonesia. The time limitation in this research is between 2015 when the AEC firstly implemented until July 2017.

The data used in this paper collected both from primary and secondary sources. The primary sources were interviewing the expert and stake holder related to the topic. The second data collected from various articles, journals, and mass media. All data then analyzed using conceptual framework to get the findings and conclusion.

RESULTS AND DISCUSSION

1. Indonesian SME’s and Beyond

As part of country that consider SMEs as nation building main machine, Indonesia SMEs sector still grappled to overcome a though challenges. The findings, particularly can be seen due to rapid technological development also the regional economic integration which loomed for many years, especially come into sharp focus with the ASEAN Economic Community. No wonder, Indonesian government seems to push the growth of SMEs to cope with the challenges given.

SMEs still become the crucial to Indonesia economy, in terms of sustainable growth and employment. Indonesian SMEs marks a impressive contribution to GDP, since 2015, through the workforce absorption rate and GDP growth.

While Indonesia, under JokoWidodo’s leadership has shown a real commitment to supporting the country’s SMEs, but the attention is something the SME’s should optimize effectively. One of the main areas, in which the Indonesian government tried to pushing Indonesia’s SMEs towards
digitalization, which lead the SMEs into global marketplace faster than yesterday.

With the market and trade in general increasingly becoming digital, going online somehow is an urgent necessity for SMEs to be noticed by market. Based on report from Deloitte, in 2015 only 37% Indonesian SME’s operating online.\(^2\) Means the chance to sold their product aren’t potentially unlocked.

Special treatment from government, such as cost lending to SMEs has been raised repeatedly by Indonesian administration, by giving of massive Kredit Usaha Rakyat disbursement also a special provision for foreign investor to fully owned some of SMEs or just partnered with them.

Indonesia’s SMEs are crucial to the Indonesian economy, which linked with sustainable growth and employment. With the AEC implementation, this surely will be a challenge to Indonesia’s SMEs to be more competitive and innovative in order to survive. One of the example is ‘Magno’, a local brand that utilize woodcraft design on the old fashion radio which able to grab either local and global attention, or some other local brand that mainly driven by creative industry.

In a more bigger scale, the existence of handmade furniture from Jepara which in the old period of time is driven by peer to peer relation basis to enter the global market. Today, the approach to enter the market might increase a lot, some people say the more adaptive you are, the more competitive you will become. Principally, the Indonesian SMEs entrance to the GVC might be same.

The things that the government consider, how to lead the SMEs able to cope with the global changing, that push from government and some private institution to generate SMEs that innovative and able to stable in terms of financial things that may alleviate cash constrains for GVC participation. To be more specific, terms and requirement as stated before, internal and external condition need to be orchestrated well.

Under the current liberalization drive, a total of 19 subsectors have been reserved for small-scale financial cooperative that overhaul significantly the raise of project value threshold for local SMEs to turn it to the SMEs competitiveness and market knowledge

turn to good. Given a strong relation
between online engagement with
business also play a significant role fo
Indonesian SMEs to be more
competitive and search able. Some
projection from Delloitte, offline SMEs
could be boosted the revenue with
Indonesia digitalization by up to $10,700
per year; on a wider scale this could
increase Indonesia’s GDP growth by as
much as two percentage per annum.

There are signs that a drive to
prepare Indonesian SMEs turn to be
positive under AEC scheme, although
the progress tactically still need
improvement. It is a sign Indonesia
SMEs for a more global stage.

2. ASEAN Economic Community and
Single Production Base Pilar as a
form of GVC in ASEAN

ASEAN Economic Community (AEC) is
the economic integration in the South
East Asia region under ASEAN. In the
integration classification AEC is a
common market which means that the
regional integration covers the free
movement of goods, services, finance,
investment, and labour. By this
integration scheme, after the integration
is implemented, there will be no tariff
and non-tariff barrier in the trade of
goods and services. All member states
have to provide the policy that enable
the free and easy access of investment
from ASEAN member states. The
policies of member states have also
enable the easyness of finance and
labour flow in the region. In the other
words, the implementation of AEC will
have the consequences to the economic
liberalization of all aspects.

This integration firstly initiated in
the 13th ASEAN Summit in Singapore
on November 20th, 2007. The aims of
this integration is to make ASEAN as
the common market and single
production base that can compete in
global level. Formerly, AEC was agreed
to be implemented on 2020, but it was
fastened on December 31st, 2015 with
the waiver for the member states who
is not ready with the liberalization. For
the tariff elimination rules, there will be
implemented step by step by reducing
the tariff gradually, based on the
readiness of the commodity to compete
with foreign products.

Member of the ASEAN has a
commitment to start integrating its
economy into community (AEC). The
implementation of AEC follows the AEC
Blueprint agreed in 2007 that sets 4
areas of objective (i.e. 4 pillars): (i) a
single market and production base, (ii) a
highly competitive economic region, (iii)
a region of equitable economic development, and (iv) a region fully integrated into the global economy. Each pillar consists of several core elements, for instance, the objective of single market and production base will be achieved through a free flow not only goods, services, investment and capital, but also skilled labor. As mentioned on the introduction part of this paper, it focuses on the first pillar of the AEC. The first pillar is highly related to the value chains (GVCs) in ASEAN.

GVCs are increasing links within ASEAN and with neighbouring countries. In ASEAN, the share of foreign value added (imports) used to produce exports (the buying element of GVCs) increased from 29% to 33% in the period 1995 to 2011. This has allowed firms in ASEAN countries to develop their competitiveness as exporters. At the same time, the origin of this value added is changing: increasingly, firms in ASEAN are turning to source competitive inputs from intra-regional and neighbouring Asian partners, replacing more traditional sources such as the European Union and the United States. Natural resource rich economies such as Indonesia and Brunei Darussalam are predominantly engaged in sales of raw materials into value chains, while Malaysia, Thailand, the Philippines and Viet Nam have a stronger manufacturing element to their participation, and Singapore is engaged in the sale of high-skill.24

In a world of GVCs, export competitiveness requires openness to imports. Export performance of the domestic market depends strongly on the ability of firms to access more sophisticated and competitively-priced imported inputs. In this sense, the use of imports (foreign value added) is actually a complement to, rather than a substitute for, domestic production of goods and services (domestic value added) in exports. In fact, one of the most important determinants of positive changes in the number of export-related jobs and in the value of domestic value added in exports is the use of foreign inputs. That is, in a world of GVCs, more than ever, export competitiveness requires import openness. Indeed, ASEAN openness to trade and investment has delivered better export performance, particularly in manufacturing and services, but also in agriculture. While ASEAN's successful

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24 OECD, “Trade Policy Note: Making Global Value Chains Work for ASEAN”

integration into GVCs owes much to its ongoing process of regional integration through efforts to establish an ASEAN Economic Community, continued reform is necessary in light of mounting competitive pressures from other countries joining GVCs. ASEAN supplies 17% of global GVC jobs. Importantly, ASEAN exporting success benefits partner countries 14 million workers in other countries provide intermediates that ASEAN. ASEAN and East Asia have explored effective usage of global value chains (GVCs), particularly in machinery industries.

Extensive research has demonstrated the vital role GVCs play in enhancing economic integration and liberalizing trade - the very agenda being pursued under the AEC. Participation in GVCs drives productivity growth, creates jobs and improves living standards. From a GVC perspective, this also means that imports are just as important as exports and products may undertake several ‘value-adding’ journeys across borders before reaching their final markets.

2. Analysis: The Manifestation of Indonesian Commercial Diplomacy in Integrating Indonesian SMEs into ASEAN Value Chain

Indonesian government and businesses (SMEs) are now facing competitive challenges in today’s global economy. In order to face those challenges, they need to find precious chances as a way to survive as well as expanding business. One of such precious chances is by engaging with ASEAN Value Chain, through which both of them can gain greater opportunities.

There is a critical need for the government and SMEs to act together and realize mutual benefits in ASEAN Value Chain. Due to globalization and the need to approach the world as one market, countries can no longer generate enough growth, jobs profits and savings from domestic sources. Government objectives in this context are ultimately to create jobs, increase

25 ibid
tax revenue, and stimulate economic growth. While SMEs need government help to liberalize trade, protect intellectual property, remove regulatory barriers, and encourage continued economic integration.

Commercial diplomacy is an issue of growing concern for Indonesian government and SMEs. The reasons for the growing concern are not hard to find. Government encourages competitiveness of their economies in order to respond to opportunities and threats of global markets and business establishment pressures for beneficiary-orientation and more efficiency of government services. Diplomacy at all should exclusively focus on commercial diplomacy in order to survive in the age of enhanced globalization and competition. Moreover, internet, increased mobility, and emergence of new poles of economic activities call for rethinking and repositioning of many services offered by commercial diplomacy.

For Indonesia, commercial diplomacy brings benefits to various stakeholders. The main direct beneficiaries of commercial diplomacy are SMEs addressing the commercial diplomacy, from the home or host country. Government benefits from commercial diplomacy because image impact goes in both directions: successful companies may improve the country’s and the government’s image, as well a successful government and country impact positively on SMEs’ image. Probably, in the longer term, if international business is developed successfully through commercial diplomacy, the home country’s and very likely also the host country’s economy will benefit from enhanced economic exchange and integration.

Indonesian government realizes that their businesses need to expand internationally as it creates opportunities to grow. Expanding beyond the domestic market can be beneficial for Indonesian government and SMEs of as well as host countries. Meanwhile, SMEs can gain easier access abroad through a sustainable relationship with governments, and governments are interested in economic development. This provides an explanation why Indonesian government support commercial internationalization by means of diplomatic relations abroad.29

Cooperation between government and SMEs is key factor to manifest commercial diplomacy in

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29 EddySatriya. Personal Interview, 23 October 2014
developing integrating into ASEAN Value Chain. Commercial diplomacy in this context is manifested into various patterns based on Potter’s commercial diplomacy framework. Commercial diplomacy activities are mapped into primary activity and supportive activities.

The primary activity is trade promotion. It is conducted by the Indonesian SMEs to the other ASEAN member state’s SMEs. It is a People-to-People (P-to-P) scheme. It is carried out at the seminar, business forum, business expo, workshop, and exhibition held by the government bilaterally or regionally within ASEAN. During this activity, SMEs promote their products as well as building buyer-seller relationship through one-on-one meeting. Trade promotion is conducted by exploring the business side of related commodities. From a business standpoint, profit and loss on business will be calculated here. SMEs present the great profits from the realization of their cooperation.

While, the supportive activities are intelligence, networking and public relations, contract negotiator of implementation, and problem solving, which are conducted by the government to facilitate the achievement of primary activity’s objective.

First, intelligence. It is conducted by the Indonesian government to other ASEAN member states’ government, or in other words is Government-to-Government (G-to-G) scheme. It is about gathering and disseminating commercial information and market research, which is information on existing and potential markets on both a geographical and sectional basis. Through this activity, the government, which consists of representatives of Ministry of Industry and/or Ministry of Trade, gathers information about the opportunities of business cooperation between the countries.

Second, networking and public relations. These activities cover developing business and government contacts in the host countries and introducing the home private sector to these contacts. In these activities, trade promotion tends to be carried out by the government under the promotion of economic cooperation, with the hope that economic cooperation framework will not only accommodate the bilateral and regional relationship between Indonesia and ASEAN member states,

30 Habibulloh. Personal Interview, 29 October 2014

31 Ibid
but also the business relationship between their SMEs due to the trickle-down effect.\textsuperscript{32} Within these activities, the President, Ambassadors, and Ministers maintain good contacts with ASEAN member states’ leaders as well as business companies in those countries. Commercial diplomats provide support for visits of the home country business people and politicians to the host country and offer assistance to encourage the participation of business people in various ways. Also, there is promotion of goods and new products in the host market through the organization of seminars, trade fairs, and direct lobbying.

Third, contract negotiator of implementation. It is an activity through which Indonesian government, represented by Ministry of Trade, negotiates the implementation of economic cooperation, ranging from procedures, rules, laws, and other details to the government of other ASEAN member states. The cooperation built between them should be in accord with the WTO’s provisions in order to ensure the realization of fair trade.

\textsuperscript{32} Rudjimin and Antonius YudiTriantoro. Personal Interview, 23 October 2014

Forth, problem-solving. It is intended to find solutions to a number of problems that may become obstacles for Indonesian SMEs, and also to promote facilitation for other ASEAN member state’s SMEs when they are agree to engage with Indonesian SMEs. The government needs to provide more tangible incentives in empowering SMEs. Instead of turning to protectionism to undermine other countries’ SME products, the government should boost local SMEs’ competitiveness by granting special tax breaks, providing assistance in information technology, offering help in understanding ASEAN product standardization and customs systems, and invigorating the banking system via export-import banks to support market expansion. Commercial diplomats are also involved as facilitators in business conciliation, and dispute settlement. Commercial diplomats may be of direct help for SMEs experiencing business disputes, non-payments, etc. in the host country. Most of the time, commercial diplomats help in order to avoid the judicial path and encourage “out of court” solutions.
CONCLUSION AND POLICY RECOMMENDATION

SMEs play important roles in Indonesian Economic. It survived in Indonesian crisis. Furthermore, Indonesian SMEs contribute to the gross domestic produc and labour absorption. However, despite those roles, Indonesian SMEs just contribute small contribution in total export. Besides, Indonesian SMEs also face small connectedness into ASEAN value chains under AEC pillars of single market and production base.

In solving the problems, this paper recommend commercial diplomacy to be undertaken by government and non-government actors. The primary activity is trade promotion. While, the supportive activities are intelligence, networking and public relations, contract negotiator of implementation, and problem solving, which are conducted by the government to facilitate the achievement of primary activity’s objective.

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AsseSSing role of local government in border area to facilitate smes export: case study of tanjungpinang city’s policy

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Abstract
Various studies have indicated strong government support is needed to facilitate SMEs development into fast-moving enterprises. To the extent that facilitating SMEs has become the monotonous program for every local government in Indonesia, including Local Government of Tanjungpinang City. Despite located and often visited by foreigners from Singapore and Malaysia, SMEs in Tanjungpinang City have not yet shown signs of developing into an export-oriented business. Moreover, international trade has been affecting Tanjungpinang City’s economy since before independence, but recent developments of ASEAN Economic Community (AEC) have not yet begun to take form in helping local SMEs to take part in export. The current condition shows that local SMEs regardless of engaged in international trade, but most are only for domestic market consumption. This paper aims to explain why this situation happens and what role Local Government of Tanjungpinang City plays. By assessing the policy of Local Government of Tanjungpinang City, this paper revealed that there are three domains of policy reform needed to drive Tanjungpinang’s SMEs into export oriented business, namely (1) internal domain, (2) national domain, and (3) international domain. The result of this study will be applicable to other local government, especially in the border area in which international relations are lively.

Keywords: SMEs Policy, ASEAN, ASEAN Economic Community, Border Area Management

JEL Classification: F13, F53, H72

Introduction
Tanjungpinang City lies in the heart of what once known as the highlight of ASEAN’s Economic Cooperation before the ASEAN Community era, which is the Indonesia-Malaysia-Singapore Growth Triangle (IMS-GT). Such highlight was given because the IMS-GT had promised to enhance the economic development in the region, and posed as role model for other sub-regional economic cooperation across Southeast Asia. When the development agreement of Singapore-Johore-Riau (Sijori) was announced in 1989, which later formalised to IMS-GT in 1994, Indonesia saw that by creating special economic zone in Batam, and later in Bintan, it will create new economic development like no other. The main feature of this development is Indonesian Government gives various fiscal incentives for export-driven business. And now, after more than two decades, the Free Trade Zone (FTZ) of
Batam, Bintan and Karimun (BBK) still going strong.

But different story goes for Tanjungpinang. Once an important trade hub in the region, now become a city which depends on government spending as main source of its economy. Since no serious industrialisation effort have been made so far, Tanjungpinang become marginalised in IMG-GT and continues until today in FTZ BBK era.

While industry is never been a strong area in Tanjungpinang City economy, in terms of economic scale, Small and Medium Enterprises (SMEs) is. And the implementation of Regional Autonomy in Indonesia has given opportunity to Local Government of Tanjungpinang City to develop its SMEs in export-driven environment of IMS-GT.

Tanjungpinang become City in 2001, and based on its five years strategic plan of 2003-2007, one of the main strategic target is to develop society based economic potential and local economic potential by expanding access from Tanjungpinang to other development areas in Riau Islands and in Singapore and Malaysia. And after more than a decade, local government’s effort has not shown significance improvement. Thus in reality, most of export from Tanjungpinang City is contributed by large industries.

Given the geographical proximity of Tanjungpinang City to Singapore and to Johore, Malaysia, and accounted history of trade and business relation among these three region, it is important to look at what went wrong in local government’s effort to develop SMEs in Tanjungpinang to become export-oriented enterprises. It might look unfair to put all the responsibility of developing SMEs only to a city level local government. But by studying history of economic interdependence in Sijori region, government plays important role in continuity and discontinuity of economic development. As explained by Xu, Xiaodong (2015)

“…precondition of (sub)regional cooperation depends on the improvement of regional individual competitiveness which is guaranteed by effective administration, favourable policies, effective administration and existing legacies from the perspective of dependency theory.”

Tanjungpinang had enjoyed economic boost from Singapore and
Johore, Malaysia in terms of trades and frequent tourist visits. Despite not having free trade zone status, ports in Tanjungpinang still manage to handle export of US$ 5.9 million to Singapore and US$ 1.4 million to Malaysia in 2016 (BPS Kota Tanjungpinang, 2017a). In total export value from Tanjungpinang in 2016 is US$ 7.3 million or equivalent of 10% of Tanjungpinang City annual budget.

But compared to Gross Domestic Regional Product (GDRP) of Tanjungpinang, which in 2016 has value of 13,206 trillion rupiah, total exports only account 0.72% (BPS Kota Tanjungpinang, 2017b, processed). This paper then suggest that there are problems in Tanjungpinang City Government’s policy on SMEs development.

Rahmana (2015) stated that SMEs can be categorized into four types based on its development perspective, namely:

1. Livelihood Activities
2. Micro Enterprise
3. Small Dynamic Enterprise
4. Fast Moving Enterprise

These category should be used to determined phases in SMEs development policy. Limited export can be done starting in the third category, Small Dynamic Enterprise, while ideally export-oriented SMEs are in Fast Moving Enterprise category.

While LPPI and Bank of Indonesia (2015) stated that in order to develop SMEs, key policies are needed to:

1. Easier access to finance;
2. Infrastructure development;
3. Expansion of business scale;
4. Expansion of business, market, and partnership network;
5. Human resources development;
6. Increasing technological access; and

In order to keep up with regional dynamics, this paper will also use development perspectives from ASEAN Economic Community (AEC) Blueprint for ASEAN SMEs in assessing the role of Local Government of Tanjungpinang City. Objectives of this paper is to understand what roles Local Government of Tanjungpinang City had taken in SMEs development, and then asses them in the context of promoting SMEs export.

METHODS

This paper used descriptive approach on literature review method.
Analysis is done by using ASEAN SMEs Policy Index developed by Economic Research Institute for ASEAN and East Asia (ERIA) in 2014. This index was developed based on ASEAN SME Blueprint, the Strategic Plan, and the OECD. There are eight policy dimensions in this index:

1. Institutional framework;
2. Access to support services;
3. Cheaper and faster start-up and better legislation and regulation for SMEs;
4. Access to finance;
5. Technology and technology transfer;
6. International market expansion;
7. Promotion of entrepreneurial education; and
8. More effective representation of SMEs’ interests.

In total, there are 58 sub-dimensions/indicators, which only some of them are used in the analysis based on the role of local government must or able to play in SMEs development in accordance with the current regulation on local government.

Local Government of Tanjungpinang City SMEs Development Policy

This part describes SMEs development policy carried out by Local Government of Tanjungpinang City based on its development plan documents. Since 2003, SMEs development policy is part of people’s economy (ekonomi kerakyatan) policy. This people’s economy is more political jargon than principle in economic development (Solehudin, 2007).

In Local Government of Tanjungpinang City’s Medium Term Development Planning Plan (RPJMD) 2013-2018, vision number two clearly stated: “Increasing prosperity through empowering local economy which is based on people’s economy.” This vision then become development priorities number one which is: “Poverty alleviation, prosperity and human resources improvement through widening job opportunity and development of self-supporting community empowerment” and number six which is: “Development of trade and fishery potential based on local characteristic, through development of people’s economy based on local potential and growth of creative economy by means of strengthening people’s economy business network and developing local investment.”

From there it is divided into at least 21 programs which is implemented by seven different office
under the administration of Local Government of Tanjungpinang City. By observing the planning document and contrasting it with local regulation on main task and function of each office, it is clear that these programs were separated based on the interpretation of each office's division and sub-division main task and function. So it is not because the programs is were priorities, but more of routine activities. Details on offices and correspondent programs for year 2017 is listed in Table 1.

Those correspondent programs are directly aims for SMEs Development. Total budget spent on these programs is 23,856.43 billion rupiah, or equivalent of 4.34% of total direct spending of Local Government of Tanjungpinang City. This shows the main role taken by Local Government of Tanjungpinang City, in which they have autonomous right and legal basis.

Assessment on these programs has shown typical characteristics of local government bureaucracy problems. First, there are no program which systematically and sustainably develop export-oriented SMEs in Tanjungpinang. Former Head of SMEs Office of Local Government of Tanjungpinang City, Syahrial Evi, once quoted by Antara, saying: “We don’t have high expectation, for Tanjungpinang City’s SMEs product available as tourist souvenir is enough, no need to export.” Second, the program tends to be carried out as routinity, every year offices plan similar programs, only differ in participants, and lacks of strategic improvement.

This problems is common to local government and has been identified by Syarif (2011), which underlined seven problems of SMEs policy of local government in Indonesia. These are: (a) too many different offices dealing with SMEs, (b) no clear concept in SMEs policy, (c) bureaucratic structure does not support strong commitment for SMEs development, (d) Limited participation of local government, (e) lacks of support activities, (f) local government tends to give more favour to medium and big industries, and (g) lack of infrastructures for SMEs development.

And for Tanjungpinang, another dimension is crucial to be accounted for export-oriented SMEs development
policy, which it is geographically very close to Singapore and Johore, Malaysia, and historically there were numbers of cross-border trade and business relations. That is why in next part, assessment on the role of Local Government of Tanjungpinang City will be done in the context of ASEAN SMEs Policy under the ASEAN Economic Community.

Table 1. List of Agencies and Programs of Local Government of Tanjungpinang City SMEs Development Policy in 2017

Source: RKPD Kota Tanjungpinang (2017), processed

<table>
<thead>
<tr>
<th>No</th>
<th>Office</th>
<th>Program/Activity</th>
<th>Budget (billion Rupiah)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Social Office</td>
<td>Development of quality and productivity of workforce</td>
<td>4,591.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Empowerment</td>
<td>578.79</td>
</tr>
<tr>
<td>2</td>
<td>Employment, Cooperative and Micro Enterprise Office</td>
<td>Formation of Conducive SMEs Business Environment</td>
<td>99.54</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Development of SMEs Support System</td>
<td>2,684.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Institutional Quality Improvement for Cooperative</td>
<td>1,200.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Empowerment of Street Vendor</td>
<td>633.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improvement of Conducive SMEs Business Environment</td>
<td>300.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improvement of SMEs Human Resources Competitiveness</td>
<td>550.00</td>
</tr>
<tr>
<td>3</td>
<td>Women Empowerment, Child Protection and Community Empowerment Office</td>
<td>Improvement of gender participation and equality in development</td>
<td>323.47</td>
</tr>
<tr>
<td>4</td>
<td>Industry and Trade Office</td>
<td>Development of Small and Medium Industry</td>
<td>3,378.55</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improvement of Domestic Trade Efficiency</td>
<td>905.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Development of Potential Industrial Centres</td>
<td>339.16</td>
</tr>
<tr>
<td>5</td>
<td>Agriculture, Fisheries and Food Security Office</td>
<td>Community Empowerment in Controlling and Monitoring Marine Resources</td>
<td>260.47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improvement of Agriculture Production</td>
<td>1,963.52</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aquaculture Development</td>
<td>952.31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fishery Development</td>
<td>564.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improvement of Livestock Production</td>
<td>1,560.90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Optimalisation of Management and Marketing of Fishery Product</td>
<td>1,107.98</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Development and Management of Fishery Equipment</td>
<td>1,000.00</td>
</tr>
<tr>
<td>6</td>
<td>Youth and Sport Office</td>
<td>Youth entrepreneurship</td>
<td>420.00</td>
</tr>
<tr>
<td>7</td>
<td>Education Office</td>
<td>Non Formal Education</td>
<td>442.30</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total Budget</strong></td>
<td><strong>23,856.43</strong></td>
</tr>
</tbody>
</table>

Assessment of SMEs Development Policy Using ASEAN SMEs Policy Index

In 2014 ASEAN SMEs Policy Index, Indonesia has total overall score 4.1, above the ASEAN’s average score. In this part this paper assess based on development planning documents from Local Government of Tanjungpinang City as well as other secondary data. This is not aimed to give quantitative score to SMEs Development of Local Government of Tanjungpinang City, but
rather as framework for qualitative assessment.

a. Institutional framework

There are five policy sub-dimensions for a good institutional setting which include: (i) clearly defined and consistent application of SME definition; (ii) good coordination among and within government agencies; (iii) responsive and effective implementation of SME development strategy; (iv) resourceful and effective policy executing agency; and (v) proper measures to address the problem of informality of the SMEs.

In the case of Tanjungpinang City, SME definition differs in almost every office and programs (IKM, UMKM, UKM, KUBE, etc). The main cause is they tend to follow different program originated or inspired by central government ministries. And to make it worse, there is no strong coordination among offices, for example there is no continuity from Social Office’s program which target low income families as beneficiaries to Employment, Cooperative and Micro Enterprise Office’s program which target mainly formal SMEs.

The only “coordination” among these offices is they all shared the same people’s economy principle. Each office tends to maximize numbers of beneficiaries, even though by doing so the quality of program or value of contribution is downgraded. For example the budget for machinery and equipment for start-up is only 15 billion rupiah per beneficiary. Because with annual budget for one activity of 450 billion rupiah, Employment, Cooperative and Micro Enterprise Office target 30 beneficiaries. If only they just target 5 beneficiaries annually, then each will have machinery and equipment with amount of 45 billion rupiah.

Evaluation on these programs is also more on their financial accountability rather than their strategic outcome and impact. Thus, year after year the achievement indicators only associated with number of SMEs as beneficiaries rather than quality of those SMEs. Current most comprehensive data on SMEs in Tanjungpinang City is just published by BPS, based on 2016 Economic Census. Compared to 2006 Economic Census, the number of enterprises in Tanjungpinang City have increased 31.61%, from 14,882 enterprises to 19,568 enterprises.

Over 96% of those enterprises is SMEs, which most of them is still in informal sector. In fact, even BPS does not have data whether they have legal
permit or not. Without comprehensive data, Local Government of Tanjungpinang City will not have proper measures to address the basic problem in developing SMEs: informality.

b. Access to support services

There are two main sub-dimensions for this point: (i) policy framework to provide the support services, which includes: action plan and the visible institution to provide services (business development services (BDSs)); and (ii) promotion of E-services, which includes adopting the legal framework for E-commerce, provision of E-government services, and online portal for SMEs. As explained in point a above, although Local Government of Tanjungpinang City have strategic development plan, be it annual, mid-term (five years), or long-term (25 years), but there are no more than formality. Comparison on the indicators of SMEs program from mid-term plan of 2003-2008 to mid-term plan of 2013-2018 shows similar indicators: number of SMEs as beneficiaries.

As for E-services, even the official website of Local Government of Tanjungpinang City is mediocre. In terms of internet penetration, Tanjungpinang City is second to Batam City in the whole Riau Island Province. But in mid-term plan of 2013-2018 there is no program or plan to set up E-services for SMEs in Tanjungpinang City.

c. Cheaper and faster start-up and better legislation and regulation for SMEs

This dimension is to look system for informal SMEs to become formal enterprise, which will be necessary to be export-oriented business. There are two sub-dimensions, which are: (i) cheaper and faster start-up which includes procedures and costs for business registration and complete process for SMEs’ entry into operation, online access, one-stop-shop for registration, and start-ups; and (ii) due process for legislative and regulatory review and framework for regulatory impact analysis (RIA) to make sure that existing and new legislations and regulations would not impose burden on SMEs.

The assessment of this dimension is quite better because Local Government of Tanjungpinang City has implemented one-stop-service for SMEs to cater their business registration. But not because it is part of local government strategic planning, more of top-down implementation of national level policies. The most significant role of Local Government of
Tanjungpinang City is that it has several various financial or equipment/training services support for SMEs start-ups.

d. Access to finance

Financing is important to ensure SMEs to develop into highly competitive business. Most SMEs, especially start-ups have limited access to financial system. This dimension is built up by two sub-dimensions: (i) development of regulatory framework to deepen the financial sector; and (ii) sound and diversified financial products/markets. Local Regulation of Local Government of Tanjungpinang City No. 10/2005 was made to be basis of creation for PD BPR Bestari, which is a bank owned Local Government of Tanjungpinang City. One of its main business area is to give financial credits to SMEs and empowering them.

In general, Local Government of Tanjungpinang City also made several agreement with other banks in Tanjungpinang to support SMEs Development. But data from Bank of Indonesia (2017) shown that in Tanjungpinang, Tanjung Balai Karimun and Natuna 58.64% of total credit given by bank is for consumption. With SMEs credit only 26.41% and NPL rate of 2.66%.

e. Technology and technology transfer

This dimension has four sub – dimensions: (i) promote technology dissemination which includes strategic approach to innovation policy for SMEs, information on innovation support services, and standards certification; (ii) foster technology cooperation to develop R&D focused on commercialization of knowledge through the development of incubators, technology support in universities, R&D labs and incubators with SME linkages, and the promotion and protection of intellectual property rights (IPRs); (iii) promote clusters and business networks by developing broadband infrastructure to support smooth connection and coordination of knowledge flows in clusters, sciences/industrial parks, competitive clusters and facilities (agglomeration); and (iv) financial incentives for technology development through levies, public R&D grants.

So far Local Government of Tanjungpinang City has no initiative to developm programs in particular to support its role in this dimensions. The only program is to host Effective Technology Contest (Teknologi Tepat Guna/TTG) almost every year, in which students and people compete with their
inventions. But no continuity on this program rather that repetition.

In terms of opportunity, in Tanjungpinang there are several universities, which can be R&D Partner for Local Government of Tanjungpinang City.

f. International market expansion

This dimension has four sub-dimensions: (i) Export promotion programs; (ii) Providing advice and high value information of the international market; (iii) Providing capacity building for potential exporting SMEs; (iv) Financial facilities for SMEs to export; and (v) Reducing costs of custom clearance for exports.

Trade of Tanjungpinang with Singapore and Johor, Malaysia has been built since before colonial period. But today, most of the trade, especially to Tanjungpinang is done illegally. This trade, mostly of basic need even push Mayor of Tanjungpinang City to ask special right to be given by central government, he stated: “it is weird while we are at border area, we can not get basic need goods from neighboring countries.” (inilahkepri.com, 2017).

Access and import/export structure make it hard for SMEs to export its product to Singapore and Johor, Malaysia. While Local Government of Tanjungpinang City only carried out limited and not comprehensive and sustainable programs to enhance SMEs capacity for export.

g. Promotion of entrepreneurial education

Local Government of Tanjungpinang City has the autonomy to set up programs for basic education, both formal and non-formal. Also has the legal basis to cooperate with universities. Entrepreneurial education has been one of the key policies by central government and thus also implemented by local governments.

This dimension consist of five sub-dimensions: (i) entrepreneurial promotion policy; (ii) support of entrepreneurial learning (EL) in basic education; (iii) support of EL in higher education; (iv) business-academe collaboration; and (v) non-formal education on EL and management of SMEs (basic book keeping and business management).

Local Government of Tanjungpinang City has done several programs related to some of those sub-dimensions. But most of them only done as a one-shot project, not with clear strategic plan behind them. There are
no tailor-made curriculum related to Tanjungpinang's position in Sijori, or to prepare students as part of entrepreneur who are ready to face global competition.

Also there are no strategic cooperation between universities and business to enhance entrepreneurial learning. In other hand, each local government still has the obligation to allocate 20% of its annual budget in education.

**h. More effective representation of SMEs’ interests**

BPS (2017c) on the result of 2016 Economic Census, total number of employment by SMEs in Tanjungpinang is 36,619 people. This number represent around 42.76% of economically active workforce in Tanjungpinang. In terms of total population, it is equivalent to 17.88%. So effective representation of SMEs’ interest is important in Tanjungpinang’s economy.

This dimension has two sub-dimensions: (i) role and capacity of SME association, which includes the presence of SME associations, and their technical and research capacities; and (ii) participation in consultations about SME policies with emphasis on the mechanism of the consultations, frequency of the consultations, and formal influence of the consultations.

Based on development plan, there are no SMEs association or representation being acknowledge by Local Government of Tanjungpinang City. This is mainly because the actual orientation of SMEs Development Policy programs only to be done for political reasons. Thus there is no urgency to develop or to cooperate with SMEs representatives.

Also despite having regular meeting with KADIN and APINDO, Local Government of Tanjungpinang City has not yet produce strategic plan to develop SMEs representatives.

**CONCLUSION AND POLICY RECOMMENDATION**

Based on the discussion above, it is clear that the role of Local Government of Tanjungpinang City to develop export-oriented SMEs is minimum and without proper strategic planning. It is regrettable, because Local Government of Tanjungpinang City aware the benefit of its location which geographically very close to Singapore and Johore, Malaysia. It also has enough budget, legal basis, and autonomous power to create such comprehensive export-oriented SMEs Development Policy.
By assessing role of Local Government of Tanjungpinang City with ASEAN SMEs Index, it is shown that in documents and regulation, there are more than enough resources for aspiration to develop Tanjungpinang SMEs as part of fast-moving enterprises who will enjoy greater market access in ASEAN Economy under the ASEAN Economic Community (AEC).

This conclusion then demand comprehensive policy recommendation that can be split into three categories:

1. Internal domain, this domain mainly focused on policy made autonomously by Local Government of Tanjungpinang City. The main principle of People’s Economy has to be break down into more strategic and well-planned indicators, and not given to each offices separately. Also it has to start making affirmative policy by giving positive discrimination to better prepared and formal SMEs larger support than by relying on numbers of beneficiaries without thinking of its policies’ impact;

2. National domain, here the Local Government of Tanjungpinang City has to be able to incorporate various programs by central government agencies and business into its development planning. So far, it’s just wait and see policy if related to programs outside its annual budget. The result most of opportunity to synchronize various efforts with the same goals to develop SMEs is being wasted or done casually; and

3. International domain, Local Government of Tanjungpinang City has to upgraded its human resources and networks into international or at least regional (Sijori) level, without worrying about the fact that diplomatic function is not decentralised by central government. It can tap into relations that has been there and continuously being carried by some of its citizen with foreign parter.

In more general policy recommendation, the case study presented in this paper has shown policy problems shared among Indonesia bureaucracy. Without paying attention to details on factual level, then the policy of SMEs development will only look good on paper, but in reality Indonesia SMEs will still have hard time to compete and gain advantages in ASEAN Market.

REFERENCES
Abstract

Market demand that occurs from product technology, especially the impact R & D, becomes primarily issue to discuss nowadays through patent information. It means the needs of technology development become solutions to meet market demand in the form of appropriate technology. Implementation on Small Medium Enterprises especially in canning technology that link with many variations of uses needs to be extended to ensure capturing on technology to introduce the chance of potential, innovative and efficient strategies for global knowledge. With appropriate technology offers the possibilities for implementation based on reducing tools specification, timing process, and operational budgeting. The purpose of this paper was conducted to find the potential of enterprise development through the production process of canning with the utilization of technology R & D through patent analysis. The method performed with patent analysis using Total Patent software and online WIPO database to see more information related the use of canning technology as potential leading patent-issuing authorities with last search 1.355 document of 113.612.014 patent registered. The results of this study intended as a reference in the utilization for small and medium enterprises which are tailored to the capabilities and capacity to create variants of the product based on market demand.

Keywords: Appropriate Technology, Capturing, Canning Process, Market Orientation, Small Medium Enterprises

JEL Classification: O31, O32, O34

INTRODUCTION

Globalization era in technology development nowadays has become new spirit in liberating new product into the market. This kind of opportunity will enhance more demand from industry to use right appropriate technology as a part of their business strategy. For instance, small medium enterprises (SMEs) that concern of how they can lift up and survive in business competition. Measuring development of SMEs in goals was to promote utilization of technology that has a significant impact on R & D result with the specification in appropriate technology desperately needed to cut of budget estimation in equipment investment. For example, canning technology has a high cost in providing line production on canning process, but there is a solution in which can perform the process through appropriate technology implementation...
for SMEs scale on canning. It formed through a process of acceleration dynamics technology transfer which is on site technology so that it can assist users in applying the technology required. Its optimal technological development can create outer product forms which are not stable and became a crack the entry of competitors in the shape of a superior. Technology transfer process of product development is the alternative way of balancing the high demand market of similar products that have a substantial economic value.

Technology development of canning food is one of a vast number of R & D results which apply by the industry. It is becoming particularly important because technology transfer requires some improvements in the production process especially in the pursuit of customer demand. Definition of Canning technology as a method of preserving food in a sealed container and air, which is heated in such a way, so that the foodstuffs are durable and undamaged physically, chemically, or biologically (Hendrix, 2011). Canning food enough potential to be developed because the production process technology that is appropriate, the increase in market share, attractive packaging that favored consumers and an affordable price. The high value added obtained the perpetrators attempt triggered a competition of agro-industries was further increased both in getting raw materials and processed products marketing (Zulkarnain, 2013).

While the technology can be a solution in the implementation of canning technology, it needs protection to ensure the development becomes authentic in market orientation. For that case requires understanding in the role of intellectual property right (IPRs) tend as a "cost center" and not as "asset center" (McDonald, 2013). Through patent database and the utilization of patent, an analysis is an attempt to do more emphasize to increase competitiveness to open up market access to both national and international. Patent can be inferred that analyzing patents is fundamentally worthwhile to manage the complexities of searching and inter-relating patent information (Bonino et al., 2010). A patent represents an invention in a particular field of technology, and also previous studies portray that a considerable part of the information presented in patents is relatively new (Hunt et al., 2007). In line with patent analysis, regarding canning technology enough potential to be developed because the production process
Defining the needs of product development in global era preserve movement on how a product can optimize from innovation side. Patent as a tool technology often implemented to revised demand on derivative product. Regularly define the concept of "from idea to the invention" and "from invention to innovation," generate a "new resolution of a technical problem," and commercial-oriented. Some organizations are interested in analyzing patents for (a) determining novelty in patents, (b) analyzing patent trends, (c) forecasting technological developments in a particular domain, (d) strategic technology planning, (e) extracting the information from patents for identifying the infringements, (f) determining patents quality analysis for R&D tasks, (g) identifying the promising patents, (h) technological road mapping, (i) identification of technological vacuums and hotspots, and (j) identifying technological competitors (Abbas et al., 2014). Patent analysis is beneficial for organizations in determining the novelty of their inventions, as well as identifying the Intellectual Property (IP) and technological competitiveness (strengths and weaknesses) of the competitors (Abraham et al., 2001).

Relationship with canning technology that is appropriate, the increase in market share, attractive packaging that favored consumers and an affordable price.

The purpose of this paper was to provide information related technologies that can be utilized by users as well as through the implementation of the technology transfer process canning based on patents-patents have been registered. This patent analysis used Software Total Patent with proposing to know the orientation of the development of technology to market through licensing, patent portfolio, status, competition, innovation and market monitoring derived from the database of patents. On the other sides can be useful for policy makers to use as recommendations for stakeholders in choosing alternative technologies that are relevant market oriented.

PATENT ANALYSIS AS SUPPORTING DATA FOR CANNING TECHNOLOGY

Utilization of Information technology patent rarely used as a part of identifying new products development. Patents contain significant information relevant to the quantitative assessment of technological improvement rates (Benson et al., 2015)
technology at first didn't see as a proven knowledge that can accelerate innovation step for general uses. But after many required demand from the market, utilization becomes fundamental for enhancing new product development. Especially in production line using appropriate technology which is most primarily ask industrial sides. Figure1. The global market for packaging sectors has potential in the market overview. Asian's market share has increased from 33.6% to 38.4% since 2010 and contrast with market share in North Amerika, and Western Europe dropped from 23.0% and 24% since 2010 (Smithers Pira, 2017).

![Figure 1. Global Packaging Market Overview](source: Smithers Pira (2017))

Figure 2. Packaging split from the substrate that shows how categories of a product used. Canning included on Metal with 13% utilized in industrial applications (Smithers Pira, 2017).

![Figure 2. Packaging with Categories of Product](source: Smithers Pira (2017))

From sector of ends user, can define context implementation by industries/bulk packaging with largest 39% in 2015, food and beverage dominate almost two-thirds of the total, the strongest growth is in the healthcare and cosmetic sectors (Smithers Pira, 2017) can be seen in figure3.

![Figure 3. Packaging at Ends User Product](source: Smithers Pira (2017))
In assuming patent analysis especially in the field of canning technology precisely the uses was to assist in looking at prospects of developments (trend technology). The scope is of the patent analysis instrumental in building the networking among users and producers into technology transfers field. Such efforts can serve as a reference material in knowing the probability of search results wear software Total Patent (Klapperla, 2006).

Inside canning technology there is a primer method for sterilizing food by heat in hermetically sealed (airtight) containers, with the output allows ready-to-eat foods. All products neither frozen nor dehydrated remain safe and wholesome during months or even years of storage at room temperature. With proper treatment the use of additives or preservatives can be eliminate.

**METHODS**

This paper uses qualitative research method approach by the study of literature through patent analysis searches, documents of the patent database with data mining and information related to the topic of research by focusing on seeking the answer to the problem of investigation. Data mining is one of the method or processes for extracting hidden patterns from a collection of particular data that emphasize data mining is the most important stages that transform data into a patent information (Yanhong et al., 2007). Also refers to the data modeled quantitatively using decision trees (Kim et al., 2012).

With data mining from WIPO database, we can see the direction pattern of technology that was registered. Technology mining is the "application of text mining tools to science and technology information, informed by an understanding of technological innovation processes (Porter et al., 2005). The other approach involves identifying similarities among the patent documents and converting the unstructured patent text into structured patent text using particular text mining techniques (Lee et al., 2013).

Mining database performed with three approaches, such as:

1. Literature
   Tracking information related to the topics and issues from various written sources, such as books, journals, articles or writings of other experts.

2. Analysis of patent database
This approach made by using software Total Patent in the field of canning technology through World Intellectual Property Organization (WIPO) referring to international patent registration. Aims to identify and determine the trend of technology.

3. Interviews and focused discussion
The interviews are intended to deep up information on a research topic of experts associated with the object of research through a discussion.

The result of this paper at the end expected becomes applicative, can be utilized by the user. More specifically, this paper is a process of dissemination of the patent and reverse engineering from a technology patent analysis.

RESULTS AND DISCUSSION
Integration between implementation onward using application for support development of canning technology through patent analysis, give us many opportunities in collecting information especially in the field of possibility of transfer technology. Enhancing product that inline to patent have a significant impact for SMEs entering market demand. Many large companies are using a combination of research and small business alliances as a means to spread their risk and therefore maintain their interests in areas that they may not want to put all their resources (Fairtlough, 1996). In connection with technology, mining describes how SMEs with limited resources have benefited from R & D result at the early stages of innovative development of products or processes.

Description of data retrieved from (WIPO) database derived from USPTO, EPO, WIPO, JPO, KIPO, CPTO, INPI, GPTO, IPO and CIPO. Starting patent registration from 21 June 2007 until 21 June 2017 with assuming based on simple patent period ten years, by using software Total Patent with a keyword "canning technology." The result from the search engine, we can find 1.355 patent documents of 113.041.741. And then we select ten potential patent including registration and certification accumulated in pie chart and matrix combination figure. The result of patent analysis usually was illustrated from mostly interested stakeholders to gather information mention below:

1. Patent Authority, Place and the country in which the patent registered. From data result we can found China have largest patent registration and certification with 435 (33.8%) patent, United States with
200 (15.6%) patent, Germany 163 (12.7%) patent, Taiwan 152 (11.8%) patent, WIPO 88 (6.9%) patent, Japan 85 (6.6%) patent, EPO 66 (5.2%) patent, Korea 59 (4.6%) patent, Canada 26 (2.1%) patent and India 15 (1.2%) patent. Description above can interpret that application of canning technology most commonly used and implemented to give value to production and market especially in China for Asia region and the United States for a continent and Asia Pacific region. The distribution regarding the authority of canning technology can see in figure 4.

2. Inventor Names was a person who makes a creative contribution through the invention as defined by the claims of the patent application. The persons that concern in doing R & D have high value to boost up science and technology development. The result regarding inventor names shows that Blank (individuals who have registered one patent but have great value in canning technology) about 20 (29.8%) patent. Shunpei Yamazaki (Director of Semiconductor Energy Laboratory Co., Ltd.) about 13 (13.9%) patent. Glenn Rolus Borgward (CEO BEI Brands & Products IPR-Holding GmbH & Co.) with number 8 (8.6%) patent. Hiroyuki Fujinuma (Procurement at Kao Corporation) about 8 (8.6%) patent. Barry W. Chapin (Chapin IP Law, LLC Suffolk University) about 7 (7.5%) patent. Leonard K. Parker (Minden Air Corp.) about 6 (6.4%) patent. Steve R. Burghardi (Can Technologies, Inc.) about 6 (6.4%) patent. Amit Kumar (Researcher Jaipur National University) about 6 (6.4%) patent. Jeffrey Scott Smith (Patent Attorney University of Arizona College of Medicine Tucson) about 6 (6.4%) patent and James Furukawa (Project Manager at Rockwell Automation, Illinois Institute of Technology) about 6 (6.4%) patent. Figure 5 below show composition of top 10 inventors in canning technology.
3. Assignee Name, was the 1st user patent nor it person, group or organization that receive the ownership on legal IP. Its means technology was used by the user for business development to support market demand for canning technology, such as Can Technologies Inc. (work in a field of Engineering Services specialized in Information Technology, Control Instrument, Electrical and Mechanical Engineering Solutions to a variety of Industries) Canada with 68 (38.5%) patent. Blank user (identified with a lot of minimum applied for a patent with 32 (18.1%) patent. Semiconductor Energy Laboratory CO., LTD. (R&D process including simulation, design, fabrication, evaluation, analysis, and measurement, and patent acquisition and enforcement) Japan with 28 (15.9%) patent. UNIFRAC I LLC (High-temperature, high-performance specialty products) New York with 16 (9.1%) patent. Apple Inc. (multinational company in fields of design, development, and sale of electronic goods) Base in Silicon Valley United States with 12 (6.8%) patent. Kao Corporation (Industrial of Chemical and Cosmetic with R & D development) in Tokyo Japan with 11 (6.3%) patent and Multi Assignee (corporate user on a patent with multi usage) with 10 (5.7%) patent. Figure 6 show distribution for assignee name for canning technology.

4. Current Assignee, a person, group or organization that receive the ownership of legal IP that used and
implemented for production or concept of development in industries until now. This step was the concern in the area of commercialized under management organization refer in top 10 patent, such as Can Technologies with totally 67 (32.6%) current assignee, Blank indicated random implementation with 65 (31.6%) current assignee, Semiconductor Energy Laboratories CO., LTD. With 28 (13.6%) current assignee, Apple Inc. with 11 (5.4%) current assignee, UNIFRAX I LLC with 9 (4.4%) current assignee. Goldman Sachs Lending Partners LLC (Investment consultant and collateral lending services for corporate transactions) New Jersey the United States with 9 (4.4%) current assignee. Crown Packaging Technology. INC. (supplier of beverage packaging, food packaging, aerosol packaging, metal closures, and specialty packaging products to consumer marketing companies) Located in the Philadelphia United States with 9 (4.4%) current assignee. Cargill Incorporated (a Multinational company in the field of food, agriculture, financial and industrial products and services) located in Minneapolis United Stated with 8 (3.9%) current assignee. From the description above we can see many current assignees came from Canada, Japan, United States because they can read for the potential of the market using canning technology, especially for food industries. Figure 7 shows current assignee of canning technology development.

![Figure 7. Current Assignee for Canning Technology](image)

**Figure 7. Current Assignee for Canning Technology**

Source: Software Total Patent (2017), Processed

5. International Patent Classification (IPC), was a classification symbol for independent patent and utility model in areas of technology. Simplified data gathering process by using the first four-digits of the IPC code in patent analysis used as a proxy for examining the technology scope (Gao et al., 2013). The field technology that refers to canning patent with IPC intended to know hierarchical symbol that mostly use
in technology process and the result find A23K1/16 (A: Section Human Necessities, A23: Foods or Foodstuffs; Their Treatment, A23K: Feeding-Stuffs Specially Adapted For Animals; Methods Specially Adapted For Production Thereof, A23K1/16: supplemented with accessory food factors; Salt blocks) with 14 (12.2%) IPC, H02N2/18 (H: Section Electricity, H02: Generation, Conversion, or Distribution of Electric Power, H02N: Electric Machines not Otherwise Provided For, H02N 2/00 Electric machines in general using piezo-electric effect, electrostriction or magnetostriction, H02N2/18 producing electrical output from mechanical input, e.g. generators with 14 (12.2%) IPC, B65F1/14 (B: Section Performing Operations, B65: Conveying; Packing; Storing; Handling Thin or Filamentary Material, B65F: Gathering or Removal of Domestic, B65F1/00: Refuse receptacles, B65F1/14: Other constructional features) with 12 (10.5%) IPC, B01D50/00 (B: Section Performing Operations, B01: Physical or Chemical Processes or Apparatus in General, B01D: Separation, B01D50/00: Combinations of devices for separating particles from gases or vapours) with 12 (10.5%) IPC, A23K1/00 (A: Section Human Necessities, A23: Foods or Foodstuffs; Their Treatment, A23K: Feeding-Stuffs Specially Adapted For Animals; Methods Specially Adapted For Production Thereof, A23K1/00: Animal feeding-stuff) with 12 (10.5%) IPC, B21D51/26 (B: Section Performing Operations, B21: Mechanical Metal-Working without Essentially Removing Material; Punching Metal, B21D: Working or Processing of Sheet Metal or Metal Tubes, Rods or Profiles, B21D51/00: Making hollow objects, B21D51/26: cans or tins; Closing cans or tins in a permanent manner with 11 (9.6%) IPC, G06F15/02 (G: Section Physics, G06: Computing; Calculating; Counting, G06F: Electrical Digital Data Processing, G06F15/00: Digital computers in general, G06F15/02: manually operated with input through keyboard and computation with 10 (8.7%) IPC, B65D1/16 (B: Performing Operations; Transporting, B65: Conveying; Packing; Storing; Handling Thin or Filamentary Material, B65d: Containers for Storage or Transport of Articles or Materials, , B65D1/00:
General kinds of rigid or semi-rigid containers, B65D1/16: of curved cross-section, e.g. cylindrical) with 10 (8.7%) IPC, **B65D17/00** (B: Performing Operations; Transporting, B65: Conveying; Packing; Storing; Handling Thin, B65D: Containers For Storage or Transport of Articles or Materials, B65D1/00: General kinds of rigid or semi-rigid containers, B65D17/00: Containers ) with 10 (8.7%) IPC and **A61K8/00** (A: Sector Human Necessities, A61: Health; Amusement; Medical Orveterinary Science; Hygiene, A61K: Preparations for Medical, Dental, or Toilet, A61K8/00: Cosmetic or similar toilet preparations) with 10 (8.7%) IPC. From the information above we can resume that IPC in canning technology was used as a part of commercialization scheme to create innovation on product development that has high value in market orientation. Figure 8 show IPC product to generate canning technology.

Figure 8. IPC for Canning Technology
Source: Software Total Patent (2017), Processed

6. The relationship between authority and current assignee, define patent canning technology position when it comes to registration and right to use by the user that need to consider region territory and market through Patent Cooperation Treaty (PCT) where can be registered in countries by filing an international patent application. This step is to make sure that patent cannot be interrupted by another new assignee competitor. The detail corrects the significant finding on data searching such as Taiwan (Semiconductor Energy Laboratory Co., LTD with some occurrences 28 patent user and user with a Blank description with number occurrences 11 patent). Kore

7. a (User with a Blank description with number occurrences 15 patent),
United States (Can Technologies Inc. with number occurrences 11 patent, Goldman Sachs Lending Partners LLC As Administrative Agent with number occurrences 9 patent, and UNIFRAX I LLC with some occurrences 9 patent). Germany (Apple Inc. with some occurrences 11 patent, and Ford Global Technologies, LLC with some occurrences 8 patent). India (with blank users 9 patent). Glenn Rolus Borgward (With a number of occurrences 8 patent).

The record for the relationship can be shown in figure 9.

![Figure 9. Relationship authority and Current Assignee in Canning Technology](image9)

Source: Software Total Patent (2017), Processed

7. The relationship between authority and IPC, define where is the patent was the first time registered and how IPC becomes need to be preserved by industry for implemented in one country especially sector for technology that being applied by industries. The result can be seen **China** dominates with number of occurrences 47 patent from H02N2/18, B65F1/14, G05B19/418, B65F1/00, and B65F1/06, **United States** with number of occurrences 19 patent from B01D50/00, and A61Q5/10, **EP** with number of occurrences 10 patent from G06F15/02, **Japan** with number of occurrences 6 patent from B21D51/26, and **Taiwan** with number of occurrences 6 patent from H01L21/336.

The record for a relationship can be shown in figure 10.

![Figure 10. Relationship authority and IPC in Canning Technology](image10)

Source: Software Total Patent (2017), Processed

**CONCLUSION AND POLICY RECOMMENDATION**

Appropriate technology when it’s comes from R & D result, commonly need to be a reserve with innovation
step due to enhance acceleration knowledge in the scope of bridging industrial sectors. Capturing innovation development from canning technology, for example, has a potential opportunity, through utilization of patent database that link to know how experiences. SMEs performing appropriate technology needs to find the source data that can elaborate their purpose. Through patent analysis can bring the issue in information from database patent.

With exploiting the use of the patent that has duration registered or expired as the freedom to operate currently becomes a strategic opportunity in the effort of developing derivative product diversification that is ready to market. The results of the analysis of the patent can be used, both strategic management and applications, especially in the dissemination of technologies that are appropriate (Hendrix, 2016).

This paper study addressed three issues in technology dissemination: the (i) appropriate stage of the technology life cycle for investment, (ii) diffusion potential of the technology of interest, and (iii) scope of the technology of interest (Altuntas et al., 2015).

The total number 1,355 documents of 113,041,741 patent, not all can be traced in the patent database, that is because there are some drawn or only listed as discoveries have not been utilized by the user.

The result patent database mining of canning technology we can see, the effective implementation have a significant impact on user especially industries assignee. Not only from the food sector, derivatives product that occurs in the area of energy, IT, Control, Electrical and Mechanical Engineering, Chemical and Cosmetic. But opposite from that IPC area significant operate in the field of A (Human Necessities), it means most of the derivative product has implemented to human consumption.

Patent utilization not purely known well enough until this day, the only less innovate user used this method of database mining to fund new technology improvement to enhance their product. The impact from the lack of information, they use to combine potential resource to meet market demand especially for SMEs requirement.

The policy recommendation that can inform from this paper was to require the user to use patent technology database as a starting point to see more availability of technology
can be used to enter market orientation. Initiation government policy, is to make sure awareness dissemination program with enhancement regulation scheme is needed to apply in SMEs.

REFERENCES


STRENGTHENING COMPETITIVE POWER TRADING THROUGH IMPROVEMENT OF NATIONAL LOGISTICS TO SMES EXPORTS IN GLOBAL VALUE CHAIN

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Abstract
Small and Medium Enterprises (SMEs) is the economic sector capable of giving the largest contribution of 60% to Indonesia’s Gross Domestic Product (GDP). SMEs sector consisting of several product producers can be utilized in Global Value Chain (GVC). Benefits of SMEs to the participation of Global Value Chain are to increase competitiveness, increase economic growth, increase employment and income growth. However, Indonesian SMEs have very weak participation in the Global Value Chain (GVC). Weak participation of Indonesia one of them caused by expensive transportation costs. The purpose of this research is to know the role of national logistics on SMEs product exports. The analysis used in this research is quantitative descriptive. The data used were taken from the Badan Pusat Statistik (BPS) in 1997 until 2013. The hypothesis of this research is that Indonesia’s participation in the Global Value Chain will increase if the applied export tariff is relatively low and can be estimated for the entrepreneur. Strengthening the system and competitiveness of logistics service providers can facilitate access to trade between countries, so that there could be an increase in exports of SMEs products as the cost of exports decreased. In addition, the strengthening of logistics service providers is supported by the economic policy 15 released by President Jokowi, the policy is expected to solve problems of logistics, connectivity, and transportation.

Keyword: National Logistics, SMEs Export, Global Value Chain
JEL Classification: F10, F13

INTRODUCTION

The existence of Small Medium Enterprises (SMEs) cannot be doubted because it has been proven that it can survive and become the driving wheel of the economy after the 1998 crisis. However, on the other hand SMEs have problems that are limited working capital, low human resources and low science and technology. The empowerment of SMEs in the globalization era is a challenge, such as improving product and service innovation, human resource and technology development and expansion of product marketing area. The entry of Indonesia in the MEA becomes a challenge for SMEs should be able to compete with overseas products. Therefore, the need for a strategy to protect domestic product.

Small and Medium Enterprises (SMEs) is a very important economic sector, because it can have an impact on the economy such as absorbing
labor. The sector is able to contribute 60% to the Indonesian Gross Domestic Product (GDP) of Indonesia (Ministry of Cooperatives and SMEs, 2016).

The participation of Indonesian SMEs in Global Value Chain (GVC) can be enhanced by determining business scale and maturity, foreign linkage, productivity, innovation and access to financing (Harvie, Nardjoko & Oum, 2010). Based on the results of the Precision study (2014) that the low participation of Indonesia in Global Value Chain (GVC) is due to the lack of optimum factors supporting GVC include infrastructure, efficiency of logistics services and relatively high level of wages.

Along with the development of free trade agreements in the East Asia region since 2000, the final product trade is decreasing and trading of semi-finished goods is increasing. This is due to the growth of production patterns that are carried out separately in some countries even into a network of production chains. The pattern of production is growing rapidly in electronic products and means of transportation (Kimura, 2009).

The involvement of SMEs in the global value chain must face several challenges in order to be able to utilize profits through cooperation with multinational companies (Yuhua and bayhaqi, 2013). In addition, SMEs should be able to deal with changes in business practices to enhance competitiveness in the global value chain (GVC). Enterprise competitiveness and corporate connectivity is one of the tools used by companies to benefit from GVC. National logistics is one thing that can support the improvement of business competitiveness.

Figure.1 Logistic Performance Index Indonesia, 2007–2016

Source: LPI Worldbank (2016), processed

However, in this case, Indonesia to date has not had an integrated logistics system. In 2007 to 2016, Indonesia's LPI score fluctuated. In 2007 the LPI score was 3.01, then
In 2010 it decreased to 2.76. In 2012 and 2014, the LPI score has increased again to 2.94 and 3.08. But in 2016, Indonesia’s LPI score decreased to 2.98. Until now, the national logistics situation has not been coordinated effectively, it is not the focus of commodities that are set as a national commitment so that the volume of import and export trade is not optimal.

Until now, the national logistics situation has not been coordinated effectively, it is not the focus of commodities that are set as a national commitment so that the volume of import and export trade is not optimal.

Improved national logistics should be supported by adequate infrastructure conditions. The current condition, good infrastructure of intermodal or multimodal transport system has not been able to run well. Less optimal infrastructure can lead to lower service quality and expensive logistics services (Yunani, 2017). Therefore, the need for handling of national logistics services in order to improve the competitiveness of trade.

Based on the above problem, how is the condition of Indonesian SMEs in Global Value Chain? Is UMKM Indonesia able to compete with other state SMEs? How does Indonesia strengthen its competitiveness through increasing national logistics in the Global Value Chain?

This study aims to identify Indonesia’s strategy to improve the competitiveness of trade, and to recommend trade competitiveness strategies through improving national logistics.

METHODS

The type of research used in answering some problems is qualitative research. The method used is using quantitative descriptive analysis. The method is used to provide an overview of logistics services to SMEs exports in a global value chain. The data used in this research is secondary data.

Secondary data is data that has been processed and published by various related agencies. The data source was obtained from Indonesian banks, statistical center agencies, LPI, world banks, and journals. Data collection is done by using literature study method is by collecting data from various literature including official publications, journals, articles, and official website of the agency.
RESULTS AND DISCUSSION

Major Factors Affecting MSMEs Competitiveness

Based on literature analysis, secondary data and policies, it can be seen that many can affect the competitiveness of SMEs. Indonesia has a logistic vision 2025. According to Pepres Number 26 Year 2012 on Blueprint Development of National Logistics System is "The realization of locally integrated logistics system, connected globally to improve the national competitiveness and people's welfare (locally integrated, globally connected for national competitiveness and social welfare)."

![Figure 2. Development of national logistics](image-source)

Source: Kementerian Perhubungan Republik Indonesia (2017)

In Figure 2, the integration of local and national networks involves the existence of trade transactions conducted by communities across villages that are then associated with districts. Relations between districts / cities will establish inter-island relations in Indonesia.

National logistics system also has a global network connection that is inter-island trade transaction in Indonesia will establish an international port of Indonesia which will be a place to connect some ports from Africa, Europe, Asia, Australia, and America.

These factors are divided into internal and external factors. Internal factors include aspects that determine the competitiveness of companies related to internal companies such as innovation. The labor productivity of Indonesia is still relatively low (Aswicahyono and Hill, 2014).

The low level of innovation in Indonesia is indicated by the ranking of global innovation index, Indonesia is in position 87 of 143 countries surveyed by Cornell University, INSEAD, and WIPO (2014). In the same index, Malaysia and Singapore are 33 and 7 respectively. Other indicators can be seen through the net amount of products that are no longer being produced and the relatively low number of new products in the manufacturing industry (net add-drop products) in the manufacturing industry. It shows that despite...
innovation, the development and the number of products are still very limited (Precision Indonesia, 2015).

Meanwhile, various external factors also affect and support the competitiveness of SMEs. These factors, among others, are ease of doing business, access to finance and capital, market access, infrastructure, and macroeconomic conditions in general. Initial assessment of SMEs policies in Indonesia indicates that there is currently no comprehensive optimal policy in encouraging or improving aspects of SMEs performance. The current SMEs policies are partial and have weak links between one policy and another. In some ministries programs and activities in order to support SMEs are temporary and unsustainable because they only focus on the targeted sectors of each ministry (ERIA, 2014).

The limited availability of infrastructure (hard and soft infrastructure) and the quality and high cost of logistics services have been the obstacle to overall business growth in Indonesia. The impact of infrastructure and logistic quality on SMEs transaction cost will be bigger than big business because SMEs business transaction scale is relatively smaller. Based on World Competitiveness Report (2015-2016), related to the availability of infrastructure, the quality index is measured with transportation, electricity and telephone (fixed line and cellular) infrastructure, Indonesia is ranked 62. The rating is still lower than Singapore, Malaysia and Thailand Ranking 2, 24 and 44 respectively. Similarly, Indonesia's logistics quality is lower compared to Singapore, Malaysia, Thailand and Vietnam.

Table 1. Data LPI Score and Infrastructure Index ASIAN Countries 2014

<table>
<thead>
<tr>
<th>No.</th>
<th>Country</th>
<th>Logistics Performance index</th>
<th>Infrastructure Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Brunei</td>
<td>2,74</td>
<td>3,2</td>
</tr>
<tr>
<td></td>
<td>Darussalam</td>
<td>2,74</td>
<td>3,2</td>
</tr>
<tr>
<td>2.</td>
<td>Cambodia</td>
<td>3,08</td>
<td>4,2</td>
</tr>
<tr>
<td>3.</td>
<td>Indonesia</td>
<td>3,59</td>
<td>5,5</td>
</tr>
<tr>
<td>4.</td>
<td>Malaysia</td>
<td>2,25</td>
<td>2,1</td>
</tr>
<tr>
<td>5.</td>
<td>Myanmar</td>
<td>3,00</td>
<td>3,4</td>
</tr>
<tr>
<td>6.</td>
<td>Philippines</td>
<td>4,00</td>
<td>6,5</td>
</tr>
<tr>
<td>7.</td>
<td>Singapore</td>
<td>3,43</td>
<td>3,7</td>
</tr>
<tr>
<td>8.</td>
<td>Thailand</td>
<td>3,15</td>
<td>3,8</td>
</tr>
</tbody>
</table>

Indonesia does not yet have an industrial cluster that can effectively synergize with SMEs development strategy. Development of the cluster needs to follow the policies adopted in other countries, even need to be supported with adequate infrastructure and facilities. Support in the form of regulations, regulations, or support from institutions that effectively implement the cluster is a prerequisite to synergize SMEs with larger scale industries. The government can focus on developing existing industrial clusters to improve the competitiveness of SMEs rather than developing new industrial clusters. To increase the probability of success, the government needs to look at industries that have the potential to increase the role of SMEs in large industrial production processes. The existing large industrial clusters, such as the automotive and shipping industries in the Bekasi areas of Cikarang, Batam, and Surabaya can be used as models for the development of the cluster. The industrial cluster development model in Indonesia currently focuses more on Special Economic Zone by prioritizing large companies. It still needs to be done simultaneously because it has the potential to increase the GVC of SMEs sector in the future.

**Strategy To Improve The Competitiveness Of SMEs Through Improvement Of National Logistics**

Increasing cross-country trade volume and enormous production growth, demanding logistics services provide better service with high standards and speed and on time delivery.

Currently the field of supply chain and logistics management is in great demand by companies. This makes the need for qualified professionals in the field is increasing. However, the growth of supply chain management and logistics business is not accompanied by sufficient professional Human Resources (HR) growth. They also have not used much of the technical standards and processes in providing their logistics services to improve process efficiency and effectiveness. In fact, Indonesia still lacks specialists, specialists and professionals in logistics at both managerial and operational levels both in the private and government sectors.

Activities in the logistics sector are regulated in partial regulations in some Ministries and in most cases
they have not fully considered a logistical perspective as a whole. These conditions are the cause of the not optimal performance of the national logistics sector due to the high cost of logistics and services that have not been optimal, thus affecting competitiveness in global markets. While without a strong competitiveness, local logistics companies will be less competitive, even in their own countries.

Logistics handling requires the competence and capability of a logistics service company. From the geographical aspect of Indonesia, the distribution of goods to all regions requires the availability of domestic networks and the facilities and infrastructure. The company must also improve its logistics handling capability based on its commodities. Differences in commodity characteristics require different processes and equipment/logistic handling facilities. Improving the competitiveness of logistics services companies can be done by:

First, an increase competence of human resources, both through formal logistics education as well as training and certification of logistics professionals. Second, the improvement of company competence through the fulfillment of technical and process standardization. Third, the strengthening and expansion of global work network. Finally, the logistics company's capability improvement from basic logistics service providers to 3PL and 4PL.

The use of integrated logistics services should also continue to be driven by the practical demands of business entrepreneurs to meet the various logistics services required, such as transportation, warehousing, inventory management, and so forth. With integrated logistics services, clients will simply submit their logistics activities to a single company.

The integrated management of logistics services also has the potential to offer cheaper cost. This can happen because of the level of efficiency of operational management and the achievement of economies of scale better. This has an impact on the decline in demand for basic logistics services.

**Participation of SMEs in Global Value Chain.**

This strategy has been implemented by other ASEAN countries and can be implemented in Indonesia. Increasing the relevance of
SMEs in GVC provides great benefits to SMEs in terms of product quality improvement and innovation, human resources, and especially sales. Other sectors can also feel the impact as a result of spillover economic effect. As in improving domestic market access, the first step to be taken is the availability of funding to support the strategy. Public Investment, either from the government or other parties, is needed to implement policy that can increase SMEs linkage in GVC. Such programs or policies include:

1. Mapping of the capacity of MSMEs that can be suppliers in the global production network; and
2. Mapping of raw material needs (input) in the production process of medium and large scale SMEs (multinational)

The above mapping needs to be done to identify the factors that can increase the involvement of SMEs in GVC.

Meanwhile, to improve market access for SMEs that have been export directly, the government can support in terms of providing information related to the export destination market. Such information is the result of market intelligence towards export destination countries and aims to explore the potential for increased sales for exported products or for potential new products sold in the country. Information in market intelligence may include key economic sectors, public purchasing power, and the country's export and import structure being targeted.

**Infrastructure**

Improvement of infrastructure carried out by the government of Joko Widodo is needed in overcoming the economic growth congestion of Indonesia. Likewise, efforts to reduce dwelling time in ports and overall logistics costs. It is expected that in the next 3-5 years, the impact of infrastructure and logistics investments will lower transaction costs in general so that in itself will lower the cost of Indonesian SMEs transactions.

Establishing a specific industry cluster for SMEs can significantly improve competitiveness and increase SMEs growth. The infrastructure can also enhance the role of SMEs in GVC through the linkage of SMEs with large companies. Physical infrastructure and integrated facilities for investment, commerce, and manufacturing processes can attract large companies. Meanwhile, the facility of one-stop services for SMEs provides
incentive to occupy the area. Such integration can indirectly serve as a driver to improve product quality and human resource capacity of SMEs. The development of nonphysical infrastructure in the cluster also needs to be developed by the government. Facilitating dialogue and communication within the cluster, between large companies and SMEs is an important factor in aligning the quality and standards of MSME products required by large companies.

CONCLUSION

SMEs have problems that is limited working capital, low human resources and low science and technology. The entry of Indonesia in the MEA becomes a challenge for SMEs should be able to compete with overseas products. Increasing cross-country trade volume and enormous production growth, demanding logistics services provide better service with high standards and speed and on time delivery. Logistics handling requires the competence and capability of a logistics service company. From the geographical aspect of Indonesia, the distribution of goods to all regions requires the availability of domestic networks and the facilities and infrastructure. Public Investment, either from the government or other parties, is needed to implement policy that can increase SMEs linkage in GVC.

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European Foundation for the Improvement of Living and Working Conditions.


THE IMPLEMENTATION OF CROWDFUNDING-BASED OVOB PROGRAM:
AN IMPROVEMENT EFFORT OF GLOBAL COMPETITIVENESS IN MSME OF
INDONESIA

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Abstract

Micro, Small, and Medium Enterprises (MSME) sector in Indonesia is recently developing in a rapid way. However, there are still some obstacles to widen its market and to compete in the field of business. Financial Services Authority (FSA) is legalizing crowdfunding system to be implemented in the MSME funding and start-up business in Indonesia. This study is aimed at offering one solution to deal with funding problems in MSME to efficiently increase domestic sector and to strengthen global competitiveness through crowdfunding-based One Village One Business (OVOB) application. The study applied literature review related to MSME problems and other relevant solutions. The data were collected from varied sources and were analyzed using GAP analysis. The core problems were then concluded. The results of the study show that the solution for this problem is the use of Electric-Business Crowdfunding (E-BC) application. Within the application, there are some complete-specified MSME. Investors and banking are able to access all information contented in the application because both become the funding sources. It is implied that the innovation of this application can be run by MSME or other trading institutions. By implementing the OVOB program, the problems of funding access in MSME can be covered in order to increase the domestic efficiency and to strengthen the global competitiveness.

Keywords: Crowdfunding, E-BC, MSME, Investment, OVOB
JEL Classification: F12, F13, F15, F17

INTRODUCTION

Micro, Small and Medium Enterprises (MSME) significantly contributes to the Indonesian economy. In the last five years, the Ministry of Cooperatives and MSME reports that it elevates the Gross Domestic Product (GDP) from 57.84% to 60.34%. The MSME contributes to the increase of local employees from 96.99% to 97.22% (Tempo.co, 2013). In 2016, the Indonesian President, Mr. Joko Widodo, stated that a competent MSME would be able to support the country's economy, even in a global crisis condition. It has been being the foundation of the Indonesian and ASEAN economy. Approximately 88.8% - 99.9% of ASEAN’s enterprises are in the form of MSME with 51.7% - 97.2% employment (Tempo.co, 2016b). Therefore, the government needs to support the MSME's financially to widen its market. This is because there are
some limitations faced by the MSME entrepreneurs in developing their business such as less capital, lack of management, operation and organization skills, and limited market (Suci, 2017).

Recent issue related to the support of MSME is that there are still many people having an extra fund, but have limited instrument for investment. Seeing this issue, it is potential to raise cooperation between those who have extra fund and the entrepreneurs of MSME who lack funding. The role of financial and non-financial institutions such as Non-Bank Financial Industry has not been maximally utilized to support the funding of MSME. Moreover, being seen as having high risks, MSME lacks funding. Financial Services Authority (FSA) has stated crowdfunding as a solution to this case (Kompas.com, 2017). Recently, crowdfunding system is being explored as a collective financial approach which enables individuals to collect sources as the funding of a project (Barrette, 2011). Crowdfunding applies a group funding system, but it is only for the project. There has not been any use of this in the commercial business because there is no clear regulation for the profit (Marketing.co.id, 2013).

Crowdfunding utilizes the internet to collect the capital to finance private businesses by funding some money from investors having a similar ideology. In the commercial purpose, its system is not good enough to be applied in Indonesia because there is no relevant legal law (Marketing.co.id, 2013). The government might have a crucial role in this system by cooperating with FSA to create the regulation. It is necessarily conducted to minimize the misuse of the funding, especially for the MSME.

This study is aimed at offering a solution to funding problems in the MSME to increase the domestic efficiency and to strengthen global competitiveness through the use of crowdfunding-based One Village One Business (OVOB) application.

The MSME in Indonesia

According to 1945 Constitution of the Republic of Indonesia and TAP MPR NO.XVI/MPR-RI/1998 about Politic and Economic related to Economic Democracy, MSME needs to be explored as an integral part of people’s economy which has a strategic position, role, and potential to create balanced, developed, and fair national economic structure. The notion of MSME is created through the Act no. 9, 1999 and is dynamically changed to the Act no.
20, article 1, 2008 about MSME. The definitions of MSME are as follow.

1) Micro Enterprise is a private productive business or private institution which meets the criteria of Micro Enterprise as regulated in the Act.

2) Small Enterprise is an individual productive business run by individuals or institutions. It is not a branch company owned by or part of Medium or Big Enterprise and meets the criteria of Small Enterprise as regulated by the Act.

3) Medium Enterprise is an individual productive business run by individuals or institutions. It is not a branch company owned by or part of Micro or Big Enterprise. It has annual input as regulated by the Act.

The Notion of Crowdfunding

Crowdfunding is a funding collection technique for a project or intuition by involving common people (Freedman & Nutting, 2015). It is conducted as a practice of project funding by collecting money from some people, commonly through the internet (Prive, 2012). Some types of an enterprise such as product ideas, businesses, and activities apply the crowdfunding system. The people involved in the system have commonly shared the product or service (Young, 2013). Basically, the notion of crowdfunding comes from the concept of microfinance (Morduch, 1999) and crowdsourcing.

The concept of crowdfunding was primarily used in the USA in 2003 through the release of Artistshare. In the site, some musicians tried to collect some funds from their fans to create the work. This event initiated some crowdfunding sites such as Kickstarter which was about creative industry funding in 2009 and Gofundme which was about business funding in 2010. Crowdfunding is internationally known and is predicted to collect USD 16.2 billion in 2014 (Dibrova, 2016). Historically, Benjamin Franklin creates a group named Junto which collects money through sub-script to arrange the first library in the United States (Green, 2014).

Recently, there are some project categories applying crowdfunding. The categorization is used to classify or differentiate each project. According to Hemer (2011), crowdfunding project categories consist of:

1) Commercial background or objectives of initiative or project (Not-for-profit, for profit, and Intermediate)
2) Original organizational embeddedness (Independent and single, embedded, and start up)

Types of Crowdfunding

In some developed countries such as US and England, equity-based and debt-based crowdfunding have been started to develop. The investors gain returns in the form of share or interest from the fund they plant in the project. Freedman and Nutting (2015) opine that crowdfunding can be classified into four types:

1) Donation-Based, the donors who plant their capital do not gain any share from the project. It is purposed to non-profit projects such as building orphanages, schools, and the like.

2) Reward-Based, the proposal creators give a reward as the share in the form of products or services. However, the reward is not the profit gained in the project. It is purposed to creative industry projects such as games in which the donors are given special features of the game.

3) Debt-Based, it is similar to the known debt. The future debts propose the donors to plant capital which is stated as debt with a share in the form of interest.

4) Equity-Based, the concept is similar to stock in which the money will become equity or part of ownership for the company.

METHODS

Examining the emergence of discourse of global crowdfunding and industrial and Indonesian MSME domain in particular in the context of global value chains and MSME policy, this conceptual paper looks at the deficiencies in the present approaches. Drawing upon existing literature on crowdfunding in Indonesia, then analyze the data with GAP analysis, summarize the point of the problem, and propose a crowdfunding system to be applied to the MSME sector in Indonesia.

RESULTS AND DISCUSSION

Recently, some institutions and individuals apply crowdfunding system with inappropriate purpose and procedure. There is no legal regulation related to it in Indonesia. Based on this problem, the implementation of crowdfunding system through GAP1 analysis is conducted. The GAP analysis is depicted in Figure 1.

1Gap Analysis is a comparison of actual and potential or expected work. This method is the business evaluation tool which focus on the gap of recent and targeted work (Hermana, 2015).
Figure 1. GAP Analysis of Crowdfunding

1. Crowdfunding system and procedure have no clear regulation in Indonesia.
2. Some individuals misuse this kind of system by proposing social activities.
3. It is limited to social activities. The MSME sector and start-up business have not applied it yet.
4. There is no clear share for the investors.

1. There is no crowdfunding regulation.
2. Starting to regulate crowdfunding.
3. There are some training and supervision of MSME, but are not maximally conducted.
4. There is no crowdfunding system in MSME.
5. The cooperation between government and related institutions of MSME is not maximally run.

1. The number of Upper-middle class people increases by year.
2. The interest for investment increases.
3. Financial literacy has not been maximized.
4. Funding investment is purposed for profit and benefit.

1. MSME lacks funding, market, and product development.
2. People are not supported maximally by the government to develop MSME.
3. There is a lack of training and supervision in the MSME operation.
4. People’s Business Debt is not effective yet.
5. There is no supportive medium to introduce MSME.

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EXTRA-FUND PARTIES

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DEFICIT-FUND PARTIES

1. There is no clear regulation in the implementation of crowdfunding, so that the safety and fraud can be serious problems.
2. Crowdfunding system is currently for project, not for MSME.
3. Government’s training and supervision towards the MSME operation is not maximally conducted as well as the cooperation with Financial Services Authority and Bank.
4. People’s interest is fairly high, but the MSME still lacks funding, product development, and market. It leads to the low level of competitiveness.
5. MSME funding is limited to the conventional banks with People’s Business Debt which is not effective.

OVOB (ONE VILLAGE ONE BUSINESS)
E-BC application with CROWDFUNDING system

Figure 1. GAP Analysis of Crowdfunding
The OVOB (One Village One Business) is a government’s program which suggests one village to have one business in the form of MSME or startup. The business is expected to support their economic matters. There are some purposes of OVOB as follow; (1) to increase MSME sector through the policy of one village one MSME; (2) to increase people’s micro and macro economy; (3) to increase people’s financial literacy; (4) to develop local potency; (5) to challenge people’s creativity in creating new products to be competitively compared to imported products; and (6) to develop cooperation and relationship between government and people in creating a good economy.

The procedure is about having a coordination of direct cooperation and relationship among the involved parties. Crowdfunding-based OVOB has not been implemented in MSME. For this reason, it is necessarily legalized by the FSA. Some parties involved in the OVOB procedure are Bank of Indonesia, Banking, Ministry of Cooperatives and MSME, FSA, the Indonesian Institute of Accountants (IAI), Investor, and MSME Entrepreneurs from some villages. OVOB is implemented with the basic of entrepreneurship for MSME entrepreneurs to create prosperity. According to Agbim, Oriarewo, and Zever (2014), there are six characteristics of an entrepreneur, namely; need for achievement, locus of control, risk taking propensity, tolerance for ambiguity, innovativeness, and confidence.

Those six characteristics of entrepreneurship can be implemented to the OVOB as the government’s action to increase the entrepreneurship in Indonesia. Indonesia, with its 240 million citizens, is able to gain prosperity if it has at least 4.8 million entrepreneurs. As a matter of fact, it has only 1% entrepreneurs (Ahmad, Trihastuti, & Runtuk, 2013). It significantly leads to the level of prosperity. David McClelland, an American psychologist, opines that a country is prosperous if it has at least 2% entrepreneurs of all citizens (Ciputra, 2008). Figure 2 shows the explanation the framework of the writer’s innovation.
Figure 2. The Relationship Scheme of Crowdfunding Application System
Figure 2 explains how the relationship system in the crowdfunding-based OVOB process. There are extra- and lack-fund people in Indonesia. The extra-fund people can contribute their funding through crowdfunding. They invest funds to MSME through E-BC (Electric-Business Crowdfunding) application run by the institution conducting crowdfunding. The OVOB can be one of the government’s policies, especially in the Ministry of Cooperatives and MSME and the Ministry of Trade towards the increase of MSME sector by educating and training each village to have at least one MSME. Those two ministries play a crucial role in implementing OVOB program so that each village can develop its local potency. Besides, FSA can supervise the OVOB implementation based on its function in supervising and regulating rules related to Non-Bank Financial Industries. It has also the role of legalizing crowdfunding system. The Ministry of Cooperatives and MSME and the Ministry of Trade can cooperate with IAI to support MSME financial report and audit to have detail precise which fits Indonesian Accounting Standards for Non-Publicly-Accountable Entities.

Bank of Indonesia regulates and supervises the banking which supports crowdfunding-based MSME. Basically, the proposed crowdfunding-based OVOB in this study involves extra-fund investors in Indonesia. The crowdfunding system is conducted online using Electric-Business Crowdfunding (E-BC) application. The application is framed and made by some crowdfunding institutions supported by the Ministry of Communication and Informatics. Therefore, FSA can coordinate with the Ministry of Communication and Informatics and directly relate to crowdfunding institutions and MSME entrepreneurs by educating and training them related to the use of the application. The Ministry of Communication and Informatics is able to access the application as supervision. The banking can only use the debt crowdfunding, while the investors are able to use the other four types of crowdfunding.

Electric-Business Crowdfunding (E-BC) is a funding application used to access MSME in developing its business. This application is purposed to support the online funding source of MSME, to facilitate investors to donate or invest in the MSME business or start-up and to increase the role of the
government and other related parties to develop online MSME in facing digital economy era. Figure 3 is an E-BC application design.

Figure 3. The Design of E-BC Application

CONCLUSION AND POLICY RECOMMENDATION

Crowdfunding becomes one of the alternative accesses for MSME funding which consists of donation-based, reward-based, equity-based and debt-based types. Recent problems in MSME are about funding access, low creativity product, and limited market. Seeing this problem, OVOB program can be one of the solutions to support the creativity and to increase MSME. The OVOB is a policy which is supposed to be built by the Indonesian government to regulate villages to have their own MSME. The funding access of MSME proposed in this study is the one which uses E-BC application. The application facilitates the crowdfunding businesses as the access of MSME funding which involves some parties such as the Ministry of Communication and Informatics, banking, accountants, FSA, crowdfunding institutions, and investors. The targets of this application are the investors and banking. FSA and Bank of Indonesia regulate the supervision, while the Ministry of Communication and Informatics, the Ministry of Cooperatives and MSME, and accountants educate the people of crowdfunding institutions.

The implication of this study affects the Ministry of Cooperatives and MSME by adding a policy to increase the number of MSME in Indonesia. Besides, the role of the Ministry of Cooperatives and MSME can be strengthened in contributing the development of MSME or start-up business to create a high level of competitiveness. Its function in “constructing and legalizing policy in the field of cooperatives and small and medium enterprises” can be run well. The E-BC-based OVOB program supports FSA in increasing the financial
and inclusive literacy, especially for the funding access and development of UMKM based on three main pillars of Strategi Nasional Literasi Keuangan (SNLK). Moreover, it supports FSA to provide safety, legalization, and transparency for the investors conducting crowd funding. MSME will benefit the alternative funding to widen its market. Government's support will increase people's motivation, creativity, and intention to create high-level products. The development of MSME will affect the level of Gross Domestic Product in Indonesia. MSME can also contribute to the targeted plan to gain 70% from the national GDP (Tempo.co, 2016a).

The E-BC-based OVOB can be well implemented when the government and the related parties support to legalize crowdfunding and increase MSME. There is a need of serious attention to MSME because it significantly contributes to the national income.

REFERENCES


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2 The level of Indonesian financial literacy is divided into four parts (FSA):  

1. **Well literate** (21.84%): the ones who know and are certain about financial service institutions and the products, including features, profits and risks, and rights and responsibilities related to products and financial services, and possess skills in using it.

2. **Sufficient literate** (75.69%): the ones who know and are sure about financial service institutions and the products, including features, profits and risks, and rights and responsibilities related to products and financial services.

3. **Less literate** (2.06%): the ones who know about financial service institutions and the products and services.

4. **Not literate** (0.41%): the ones who do not know and are not certain about financial service institutions and the products, including features, profits and risks, and rights and responsibilities related to products and financial services, and possess skills in using it.


Undang-Undang Nomor 20 Tahun 2008 tentang Usaha Mikro, Kecil dan Menengah

STRATEGY TO INCREASE THE COMPETITIVENESS OF SMES AND THEIR INTEGRATION INTO GLOBAL VALUE CHAIN

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Abstract

Small and Medium Enterprises is one of economic pillars in Indonesia. However, Indonesian SMEs has not performed well comparing to other ASEAN countries, particularly in terms of participation in global and regional production networks. This study aimed to identify factors causing the low participation of Indonesia SMEs into the Global Value Chain (GVC). This research is conducted with literature study and Internal & External factors analysis. Result shows that the low participation of SMEs and Indonesian companies in GVC is determined by the lack of optimal GVC support factors, namely infrastructure and use of communication and information technology, reliability and efficiency of logistics services, and high trade barriers. The relatively high level of wages is also an obstacle in increasing production efficiency. Likewise, the strict requirements to obtain access of external financing from banks. Another problem faced by SMEs is that most of them do not know where their position in the GVC. Increasing SMEs participation into GVC will automatically improve their competitiveness in the global economy. There are internal and external factors that determine the competitiveness of SMEs. Internal are human resources, marketing strategies, and innovation. Meanwhile, external factors are the ease of doing business in Indonesia, access to finance and capital, market access, infrastructure, and macroeconomic conditions.

Keywords: SMEs, Global Value Chain, Competitiveness

INTRODUCTION

Small and Medium Enterprises are the pillars of the Asian economy. However, this sector in many countries in Asia has not been much developed. This is because of several factors, among others, there is no similar definition of SMEs between developed and developing countries. Whereas about 90% of companies in Asia are SMEs, and 60% of the labor market in Asia works in the SME sector. SMEs become the backbone of the economy. Therefore, SMEs need to be upgraded as an important part of the global trade value chain by formulating proper policy facilitation, effective product marketing, and provision of adequate access to finance. SME development policy is needed in order to become a sector that promotes balanced and inclusive sustainable economic growth.

Some of the challenges includes the lack of common understanding between developed and developing
countries regarding SMEs' "small" and "medium" concepts, barriers to access to financing sources, minimum market access knowledge, lack of integrative work programs, and the absence of Good management on a number of SMEs. SMEs generally have limitations in building industrial and social relationships, resource mobility, access to information, and resource development (Broughton, 2011). The main problem that occurs when SMEs want to be a supplier to multinational companies is how to meet quality standards, supply consistency, and product adaptation. The problem is related to the limited access to capital. SMEs are often unaware that these factors are so important in improving product quality adhering SMEs into suppliers of multinational corporations. The capability of business diversification with the support of larger assets makes medium-sized SMEs have flexibility in anticipating demand fluctuations. Meanwhile, small businesses tend to have only one business unit so that a decrease in demand can lead to the termination of the SME's operational activities. However, in general, SMEs have a higher survivability rate than larger companies.

In viewing ASEAN as a single and gradual production and market base, ASEAN member countries shall free import duties and eliminate other non-tariff barriers for ASEAN member countries if the goods to be traded meet the established requirements jointly. In addition, ASEAN countries also reduce barriers to trade services among ASEAN countries, among others, by increasing the foreign capital limitations. The issue of globalization is one of the external factors that the impact may vary on SMEs. Globalization, opening up domestic market access for partner country's products so as to have a negative impact on SMEs that have low competitiveness. Conversely, positive impacts have their impacts on SMEs with the opening of opportunities to expand the domestic product market to partner countries. Thus, the characteristics of SMEs that can take advantage of opportunities for access to international markets need to be explored. Such characteristics will be useful and become an ideal benchmark for developing strategies to improve the
competitiveness of Indonesian SMEs. Along with the development of the free trade agreement in East Asia since 2000, the final product trade in the region is decreasing and the growing trend of intermediate goods trade. This is triggered by the growth of production patterns that several stages of production are done separately in some countries so that the pattern of regional production network chain, or even global, to produce a product. The literature calls it a regional production network or Global Value Chain (GVC).

According to Tambunan (2008) in Susilo (2010), highly competitive SMEs are characterized by: (1) an increasing trend of growth in production volume; (2) increasing domestic market and or export market; (3) Domestic, not only serving the local market but also nationally, and (4) for the export market, not only serving in one country but also many countries. The competitiveness of UMKM products is closely related to the competitiveness of the companies that produce the products. Some of the indicators used to measure the competitiveness of a product include: (1) export share per year; (2) annual market share per year; (3) annual export growth rate; (4) domestic market share per year; (5) the rate of production growth per year; (6) the value or price of the product; (7) domestic market diversification; (8) diversification of export markets; and (9) consumer satisfaction. In order to engage in GVC There are at least four factors that challenge SMEs to take advantage of profits through cooperation with multinational companies (Yuhua and Bayhaqi, 2013). First, SMEs need to improve their technical and operational capacities to achieve global standards of multinational corporations. Related to this, SMEs need to have adequate capital access in order to invest in the production process. The next challenge is human resources (HR). With the culture and informal working structure and lack of a clear career plan, SMEs are very difficult in improving the quality of human resources or attracting professional human resources. Meanwhile, a change in business practices is the latest challenge for SMEs to enhance competitiveness in the global value chain (GVC). These challenges include efficiency in
company operations as well as consideration of the social and environmental impacts of the production process.

Anton et al. (2015) found that the competitiveness of SMEs stemmed from the level of innovation, entrepreneurship, human capital, financial resources, market potential, and business strategy. SMEs also need government assistance to develop marketing networks and access to financial institutions.

Improvements in communications and the establishment of industrial networks or clusters can help SMEs compete with larger companies. The collaboration will encourage the realization of GVC in an industry cluster that drives efficiency. One example of collaboration within a cluster is the establishment of a joint credit guarantor association, a synergy in promotional strategies, or improvements in the business and worker divisions within a company.

There are two positive impacts that gained if SMEs are part of GVC, which are the increasing profit for SMEs themselves and benefits to the national economy. Positive impact on SME sector is obtained by increasing technical capability. Involvement in GVC requires a high quality standard that automatically improves productivity with technological mastery and production efficiency. Another positive impact of participation is improved access to information and the latest business models. They can improve the image of SMEs so that other positive impacts, such as ease of access to external funding sources (Yuhua and Bayhaqi, 2013).

Furthermore, participation in GVC enhances the contribution of the SME sector to economic growth and employment. Thus, involvement in GVC will assist SMEs in exploiting opportunities in other countries and competing in the domestic market by increasing competitiveness.

**METHODOLOGY**

Qualitative method was used as an analysis tool in this research. Qualitative method is research procedure that produce descriptive data. The type of qualitative research used in this research is Action research, one form of research design in which the
The researcher describes, interprets and explains a social situation at the same time by making changes or interventions for the purpose of improvement or participation.

RESULTS AND DISCUSSION

The result of the research is explained by the exposure on the analysis of internal and external factors of SMEs and the recommendation of competitiveness improvement strategy. These factors are divided into internal and external factors. Internal factors include strengths and weaknesses that can determine the competitiveness of SMEs. Besides, various external factors influence and support the competitiveness of SMEs as well.

A. Internal factors

Currently, the human resources factor of Indonesian SMEs is one of the factors that adhere to the performance of SMEs. Some aspects that reflecting the weakness of human resources in the SME sector include the following:

1. Low technological mastery, especially for micro and small enterprises. Use of the website and e-mail utilization can improve the operational efficiency and sales volume of SMEs through a wider market coverage.

2. Awareness to expand the reach of marketing through e-commerce. The marketing outreach of the majority SMEs is limited to the domestic sphere of its own environment, which is limited by the region and the environment of friendship or family. Limitations on the mastery of technology to reach new potential buyers environments can be improved through e-commerce. This has been done by some existing e-commerce website. Many products that are marketed are SME products. Therefore, an introduction to this method is necessary to expand the reach of product marketing.

3. Low ownership of international or national certification (SNI). Certification is generally related to the production process and packaging of a product. The existence of standardization in accordance with the certification can increase productivity and
encourage SME innovation. In addition, there is a low level of expertise between the demand for SMEs and the supply of Vocational High School is still weak. Non-compliance with labor criteria is much complained by SMEs, especially those who need special skills to run their business. Generally, SMEs should provide their own training so that SMK (Vocational High School) graduates can be directly involved in the production process and company operations. Giving curriculum related to soft-skills also needs to be done related to direct and indirect communication as well as expertise on product marketing strategy.

Comparing to countries such as Malaysia, Singapore, and Thailand, it is seen that the productivity of Indonesian SMEs is still relatively lower. Improvements in the level of education and managerial skills are very influential in increasing SME productivity. Education in this case includes formal and non-formal education that can improve the skills of SME workers. Meanwhile, managerial expertise is essential so that resources can be utilized efficiently and also will increase the scale of business. Equally important is the facilitation of standard and certification management required by SMEs in order to enter the export market. Knowledge of the standard in the target country and the cost of standard and certification management is relatively expensive if borne by micro and small businesses individually and the cost is sunk cost. Assuming that the government facilitates SMEs to have access to the fund, it will lower the transaction costs of SMEs.

Besides, assistance to micro and small enterprises is needed so that the operational of the business can run efficiently and its productivity increases. Some banks and foundations that specifically distribute micro business loans and provide micro business assistance as a form of corporate social responsibility (CSR) recognize that the provision of credit and / or financial assistance for micro and small enterprises will be better for business growth if there are some consultant to
ask for some advice whenever there are problems encountered in the business, for example creating a business plan when applying for a loan to the bank, making financial statements, understand simple contracts, and export.

B. External Factors

1. Ease of Doing Business

SMEs can choose some form of business entity (legal entity), such as individual business entities, limited partnership (CV), firms or limited companies (PT), for example, UKM in Indonesia is a business or a sole proprietorship in the form of trading business (UD). However, the majority of SME owners in Indonesia prefer not to formalize or legalize their business. Simple organization, ease of running a business, and complicated taxation procedures are the main reasons for maintaining status as an informal business. These considerations can be described as follows:

a. The number of procedures and time that must be passed. To start a business, from the establishment of a business entity to the registration of operational permit (Corporate Registration Certificate and Trading License), it takes more than 10 procedures with a total time of more than 1 month. This is certainly a barrier for the SME sector that has limited resources.

b. Limited capital to form a formal business entity. If the SME wants to increase the status of a limited liability company (PT), there is a minimum capital requirement of 50 million rupiah and a paid-up capital requirement of 25% of the authorized capital.

c. Concerns about tax reporting and payments. Many SME owners are unwilling to legalize their businesses because of their complicated tax payment reporting and tax payment procedures. The large number of taxes to be paid is also considered to significantly reduce the operating margin. Although some ministries have facilitated licensing arrangements, the proportion of formal and legalized enterprises is still low.

2. Access to Finance
Some research on SMEs shows that in starting a business, SMEs rely on their own capital or from loans / assistance of their closest people. External sources of funds are needed when SMEs expand.

a. Banking

Although banks are still the largest source of funding, in addition to the feasibility of the business itself, a lot of statements from banks that must be met by SMEs to get funding from banks, especially related to prudential banking aspects as follows:

*Additional collateral for loans disbursed.*

This warranty may be a fixed asset such as land, buildings, and vehicles or assets of the business itself, which is a good operating cash flow.

*The legal status of the company.*

This aspect is important to see the prospects of MSME business and compliance in accordance with the laws and regulations.

Currently the government also has a community business credit program (KUR) to encourage SME lending without requiring a guarantee. KUR is channeled by several banks that have been set by the government with interest rates that have been subsidized, that is equal to 12% per year. Although KUR is available at low interest rate and guaranteed by the government, there are some things that still need to be concerned with banking funding, which are as follows:

**Limited resources of KUR.**

Currently the source of KUR funds comes from the banking itself. The government only provides the amount of interest subsidy fund, which is equal to the difference in the interest rate of general credit less the interest rate of KUR. Therefore, the banking capacity to channel subsidized KUR is limited by the availability of funds in designated government banks.

*The absence of an integrated SME information system that every bank can access.*

The banking sector requires potential SME data to be credited. However, there is currently no database (information system) that can be used by banks as the basis for assessment.

b. Other Financing
In addition to banking, alternative financing through non-bank financial institutions also still need to be improved. Venture capital is an alternative source of financing for new businesses / entrepreneurs who have no guarantees, but have a potential business. Venture capital is a financing with risk to investors so investors (venture capital firms) must understand and understand the business run by the company to be financed. The difficulty of accessing banks and the relatively limited amount of venture capital prompted the government to establish the National Civilized Capital (PNM) in order to assist SME financing. However, PNM requires a good track record for SMEs to be financed. Various other new financing models also arise in difficult conditions accessing financing sources for SMEs. Financing models such as crowd-funding and other micro-financing are already available. SMEs also have access to capital for export financing through banks and the Indonesia Export Financing Institution (LPEI).

However, the percentage of banking credit for exports is very low. Likewise with LPEI, the agency only allocating 10% of the funding portfolio for SMEs. Funding is more done indirectly, namely through venture capital financing. Crowd funding also began to develop as an alternative nonbank financing in Indonesia although still very limited. However, the growth of crowd funding is not as fast in the United States as there is still a lack of 'trust' between investors and borrowers as well as fears of online fraud.

3. Market Access

The ease of market access, both domestic and international, strongly supports the increasing competitiveness of Indonesian SMEs. Due to the weak characteristics of SMEs in the use of technology and innovation, the scope of marketing of SME products in the domestic market is generally limited to the area of SMEs and the scope of marketing also tends to be localized in certain areas. Programs that greatly assist SME market access are often small scale so that the impact is less than optimal. The challenge for the government is to create a larger scale program to have a broad impact. Online programs such as e-catalog and e-marketing need to be the focus of
attention. When entering the global market, SMEs must have other challenges because doing export, not as easy and as cheap as entering the domestic market due to risk factors and higher costs. The cost of obtaining an export market is a sunk cost, i.e. costs that must be issued but could not be withdrawn whenever exports are not realized. The Government through the Ambassador, Trade Attaché, and Indonesia Trade Promotion Center (ITPC) have been trying to get information and connect exporters with buyers abroad. The government also established the Directorate General of National Export Development to help the business world to export. However, the effectiveness of programs and activities undertaken by these institutions is often not maximized. The challenge for governments is how to improve the effectiveness of these institutions in increasing export market access to potential markets.

4. Infrastructure Support

The limited availability of infrastructure (hard and soft infrastructure) and the quality and madness of logistics services have been the obstacle to overall business growth in Indonesia. The impact of the quality of infrastructure and logistics on the transaction costs of SMEs will be greater than the big business because the scale of SME business transactions is relatively smaller. Furthermore, Indonesia does not yet have an industrial cluster that can effectively synergize with SME development strategies. The development of the cluster needs to be supported with adequate infrastructure and facilities. Support in the form of regulations, regulations, or support from institutions that effectively implement the cluster is a prerequisite for synergizing SMEs with larger scale industries. The current industrial cluster development model in Indonesia is more focused on the Special Economic Zone by prioritizing large companies. It still needs to be done simultaneously because it has the potential to increase the GVC of SME sector in the future.

That SMEs are reluctant to be a formal enterprise is a problem that needs to be prioritized for attention by the government. Based on empirical studies the legality aspect is very helpful in
accessing external funding sources. Therefore, the licensing arrangements for SMEs need to be facilitated and free of charge (cost free). The granting of access and special facilities for SMEs for licensing arrangements throughout the One Stop Service Integrated Agency throughout Indonesia needs to be initiated by the government. However, such facilities need to be followed by other policies, such as ease and tax incentives to encourage SMEs to become formal business entities. For SMEs that have been established for more than two years, the provision of incentives or reduction of income tax for a certain period of time accompanied by compliance tax compliance may be considered to enhance the competitiveness of SMEs. The ease and incentives of such taxation are expected to encourage the increased legalization of SME entities. The government also needs to treat specifically the SME sector with regard to the process and the amount of costs that must be incurred in the legalization process. The government can provide an investment license registration facility that cuts the number of procedures and reduces the number of days required for a given MSME.

With regards to capital, the government-run KUR program is a significant facility to help SMEs access capital. However, based on the experience of banks that distribute microcredit, assistance is needed by KUR receivers so that the utilization of KUR is more effective. The limited capacity of banks to channel credit needs to be sustained by opening access to capital markets for SMEs as well as removing barriers to the development of nonbank financial institutions, such as venture capital and crowdfunding. As for market access, the government has facilitated SMEs to get the market in the country. However, the scale of assistance that can be provided is very limited. Governments need to use innovative new methods to help SMEs get the market so that with the same budget more SMEs can be facilitated. For example, synergize with local government (cost-sharing) and activate e-catalog and other online promotions.

In terms of facilitation of promotion to the international market, the government also needs to further enhance the role of
Indonesian representatives abroad as a market intelligent to obtain information related to potential markets (potential demand, trade barriers, including required standards and certification, as well as procedures for entry into the country). In addition, good cooperation with technical ministries is needed to match-making market intelligent information on potential markets with the ability of producers to meet the market, including facilitation to obtain certification and standard management so as to be accepted in the destination market.

**Conclusions and Recommendations**

**Conclusion**

Based on the results and discussion above can be concluded several things as follows:

1. The development of SMEs is an integral part of the economic unification among ASEAN member countries. Various cooperative initiatives for improving the performance of SMEs still need to be done even if Indonesia is late or not optimally utilize the initiative, especially in the implementation of domestic policy.

2. In general, the performance of Indonesian SMEs is still relatively low compared to countries with relatively similar levels of development, especially in terms of products, contribution to exports, participation in global and regional production networks, and contribution to added value.

3. The current government approach to SME development is more towards social welfare by promoting social justice objectives as well as the balance of development between city and village as well as between regions. SMEs are seen as vulnerable entities that need to be protected. As a result, many policies and programs that are developed and implemented are not based on business orientation, but are more sociable. The social approach will not result in competitive Indonesian SMEs.
4. The ability of SMEs to compete in the global era depends on several things, namely internal factors such as business scale, stakeholders, educational background and corporate culture that can be reflected from the level of productivity and innovation of the company, as well as external factors such as access to capital and the policy environment.

**Recommendation**

Increasing the involvement of SMEs in GVC provides great benefits for SMEs in terms of quality improvement and product innovation, human resources, and especially sales. Other sectors can also feel the impact as a result of spillover economic effect.

As in improving domestic market access, the first step to be taken is the availability of funding to support SMEs in GVC. Public Investment, either from government or other parties, is needed to implement policy that can increase SME linkage in GVC. Specifically there are five policy recommendations that can be submitted to increase the participation of Indonesian SMEs in global production:

1. GVC is a phenomenon of new production system that has not been much experienced by Indonesian businessmen. Therefore, it is important for the government to introduce and disseminate information about this GVC.

2. Policies that can encourage business actors to improve the productivity of the usa-only need to be applied, such as incentives to improve production technology. Issues related to connectivity, logistics and licensing need to be addressed so as not to become an obstacle to the performance and efficiency of Indonesian companies. The government also needs to encourage SMEs to be export-oriented to overseas markets. Coordinated and unidirectional policies are also important to increase Indonesia's participation in global production networks.

3. Trade barriers such as the quality of public infrastructure and
special trade such as ports and customs and logistics services that have not been efficient and reliable need to be addressed immediately. Equally important, trade barriers in the form of tariffs and non-tariffs need to be considered as well. GVC shows that international trade is no longer merely an end-product trade but also intermediate goods that support domestic production. Therefore, the strategies and programs that the government should conduct are:

1. Mapping of the capacity of SMEs that can be suppliers in a global production network; And the need for raw materials (input) in the production process of SMEs medium scale and large companies (multinational). Mapping needs to be done to identify factors that can increase MSME involvement in GVC.

2. The establishment of a specific industry cluster for SMEs can significantly improve competitiveness and increase SME growth. Meanwhile, the facility of one-stop services for SMEs provides incentives to occupy the area. Such integration can indirectly serve as a driver to improve the quality of SME human resources products and capacities. The development of nonphysical infrastructure in the cluster also needs to be developed by the government. Facilitating dialogue and communication within clusters, between large and SMEs is another important factor for improving efficiency and aligning the quality and standards of SME products required by large enterprises.

3. Develop partnerships with government / private / universities / other institutions for SME development programs, such as: business management, human resources, entrepreneurship, business plan, product development, financial management, Information Technology literation, et ce tera.

4. Provide training, especially about basic skills in the rapidly evolving digital age of today and
entrepreneurship skills for business operations to be efficient

5. Provide assistance for each SME so that business operations can run efficiently and productivity increases.

6. Facilitate investment licensing for potential SMEs (a fast-track investment licenses): Reduce procedures and licensing arrangements.

7. Expansion of local trade forums or establishment of national trade forums for the SME sector

8. Encourage collaboration between modern retail and SMEs

9. E-commerce: establish e-catalog platform and expand e-marketing implementation

10. Increase telecommunication infrastructure coverage and quality, especially fast internet needed for business in the digital age, including linkage in GVC.

11. Diversify domestic and overseas market

12. Improving SME access to information for new innovations

13. Increase activities stimulating new innovations (workshops, interaction with academician and visits/benchmark to other innovative similar companies in other countries)

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Abstract

The involvement of Small Medium Enterprises (SMEs) in Global Value Chain (GVC) is an essential dimension of the globalization process. An emerging opportunity to reap the potential benefits of global trade is represented by the integration of SMEs into global chains of production at various stages of added value, through the establishment of linkages with larger firms and foreign affiliates. Such GVC scheme provides Indonesian SMEs a precious way to gain bigger profit, in particular through specialization based on their comparative advantage. Beside of cheap labor, the comparative advantage of Indonesian SMEs is also made up from abundant natural resources. The higher the productivity of Indonesian SMEs under the GVC scheme, the higher the possibility of natural-resource exploitation happens in Indonesia. Considering the rise of global-warming issue, it is important to note that human activity should respect for the sustainability of natural resources. Therefore, the term “sustainable development” is now being promoted worldwide. This study questions strategies used by Indonesian SMEs to increase their export under the GVC scheme without disregarding the sustainability of Indonesian natural resources. The result reveals that the business activities of Indonesian SMEs should not only uphold economic approach, but also environmental and social approach.

Keywords: Global Value Chain, Small Medium Enterprises, Sustainable Development.

INTRODUCTION

Nowadays, global flows of goods, services, and capital reach an ever rapid growth of economies worldwide. An initial trigger has been the integration of China, India, and Russia, which added new massive product and labor markets that had been marginal to the multilateral trading system before 1989. The integration of these countries into the world economy nearly doubled the scope of play for globalization. As the activities of trade become internationalized, the emergence of global value chain (GVC) as production processes is inevitable.

Globalization of value chains is motivated by numbers of factors, which enhancing efficiency is considered to be the most important. One way of
achieving that goal is to source inputs from more efficient producers, either domestically or internationally and either within or beyond the firm’s boundaries. Efficiency is expected by outsourcing the one or several chain of production. Other factor is to increase the control of outcomes. To some extent, conflicting goals and interests between the firm and its employees may lead to productivity losses. To avoid inefficiencies occur, firms can outsource some of its activities to an external producer and control the producer’s output or effort.

Within GVC, multinational enterprises (MNEs) play a prominent role, as their global reach allows them to coordinate production and distribution across many countries and shift activities according to changing demand and cost conditions. Nevertheless, the development of global value chains also welcomes small and medium-sized enterprises (SMEs) new opportunities by enabling them to expand their business opportunities across borders. GVC are about linking local producers from developing countries to international markets. While participation in GVC may provide stability and improve productivity, the real challenge is how SMEs upgrade their management, financing and technology within the framework of sustainable development.

This study questions strategies used by Indonesian SMEs to increase their export under the GVC scheme without disregarding the sustainability of Indonesian natural resources. The result reveals that the business activities of Indonesian SMEs should not only uphold economic approach, but also environmental and social approach.

METHODS

A literature review and desk-based analysis was conducted on this study. Data were gathered from various sources to take into account that globalization affects global production through value chain and its environmental impact on Indonesian SMEs sectors.

5 Pieter van Dijk and Trienekens. 2012. Global Value Chain, Linking Local Producers from Developing Countries to International Markets. Amsterdam University Press.
Global Value Chain (GVC)

Value Chain as Production Process

By definition, value chain is the simple notion of different economic activities that are required to bring a good/service from conception, through different phases of production, to final delivery to consumers, adding value at each stage\(^6\). It is a succession of acts that successfully add value to an item as it is transformed from a raw material or input stage to a finished product or service\(^7\). It comprises different phases of production (a combination of physical transformation and the input of various producer services), delivery to final customers, and final disposal after use. Porter emphasizes that value chain helps determine which specific activities give firms a competitive advantage and build their value\(^8\).

The activities in value chain are divided into primary activities and support activities. Primary activities are the activities that enable the firm to fulfill its role in the industry value chain and hence satisfy its customers. It regards to the design, creation, and delivery of the product, marketing, and its support and after-sales service. Primary activities are divided into four functions: research and development, production, marketing and sales, and customer service. Support activities are the activities which are necessary to control and develop the business over time and thereby add value indirectly. It provides inputs that allow the primary activities to occur\(^9\). Support activities are also divided into four functions: information system, logistics, human resources, firm’s infrastructure (organizational structure, control system, and culture of the firm).

Apart from its label, both activities are equally important. The model of value chain has been extensively used by strategic practitioners and researchers to draw the linkages and networks at the firm and industry level, as well as to analyze where value resides at these two levels.

A highlight feature of international business today is that many firms do not perform the production activities comprising the value chain in which they are involved by themselves. Rather,


they might seek external partners to take responsibility for certain activities. Therefore, it is more accurate to represent international value chains as the sum of several intermediary value chains. From economic perspective, the realization of this customization can be rooted from Adam Smith’s ideas that efficiency comes from specializing in certain operations.

Figure 1. Model of Value Chain
Source: Sitkin and Bowen (2013)

**The Globalization of Value Chains**

The development of GVC is closely related to the evolution of global trade. The acceleration of outsourcing and the development of global production networks during the 1980s and 1990s were facilitated by trade liberalization and particularly by an increase in intra-industry trade in intermediate goods\(^\text{10}\). The GVC revolution has transformed trade, leading to changes in trade-growth development links, trade-competitiveness links, and trade-governance options\(^\text{11}\). Production processes have become increasingly fragmented and spans across countries and continents. Trade in intermediates has now surpassed trade in final goods and services, and global trade is increasingly conducted in the form of trade in tasks\(^\text{12}\). Firms extend their value chains beyond their national borders in order to escape institutional constraints in their home countries, or to seek alternative institutional arrangements more compatible with changed strategic objectives\(^\text{13}\).

Value chains are said to be “global” when they compose steps, processes, and actors from at least two countries\(^\text{14}\). It can be regional if the scope of production takes place within the same geographic region. GVC identifies a production structure in which

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\(^{10}\) Lane and Probert. *Op. Cit.*


\(^{12}\) Ibid.

\(^{13}\) Lane and Probert. *Op. Cit.*

tasks and business functions are distributed among several companies, globally, or regionally. GVC integrate the know-how of lead firms and suppliers of key components along all the stages of production and in multiple companies and offshore locations. Mostly coordinated by lead firms, GVC involve international trade flows within their networks of foreign affiliates (FDIs), contractual partners (non-equity modes of investment), and arm’s-length external suppliers.

**Figure 2. Network Representation of Value-added Trade, 2011**

Source: Taglioni and Winkler (2016)

Governments as regulator must understand that a compact set of policies are needed to achieve an efficient and effective GVC strategy. In order to do that, governments must identify key binding constraints and design the necessary policy and regulatory interventions—as well as infrastructure and capacity building—which allow them to achieve distinct objectives and address specific challenges, according to which stage a country’s involvement in GVC. At entry level, governments must attract foreign investors and facilitate potential domestic firms. When countries expanding and strengthening their GVC participation, promotion of economic upgrading and densification, and strengthen domestic firms’ absorptive capacity are considered to be the visible strategy. Lastly, to turn GVC participation into sustainable development, governments need to ensure any skill upgrading, social upgrading, and equitable distribution of opportunities and outcomes while promoting environmental sustainability.

While some scholars prefer to use ‘global production network (GPN)’ instead of ‘global value chain (GVC)’, the concept of both concepts can be utilized interchangeably. In this paper, the similar concept that captures the

15 Ibid.

16 Ibid.
phenomenon of globalization of production is allowed, such as ‘the production process as a set of value-adding activities performed by separate entities’; ‘the fragmentation of activities across multiple firms and countries’; and ‘the distribution of productive tasks along the chain’.

**Sustainability Development**

In 1987, the UN-Report “Our Common Future”, also known better as Brundtland Report, defined sustainable development as development that meets the needs of current generations without compromising the ability of future generations to meet their needs and aspirations. Sustainable development is a dynamic process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs. The report also pinpointed sustainable development as an integrative concept aiming to balance environmental and economic issues in a mutually beneficial way. It is crucial to economic considerations and sector policies and should be integrated as part of energy decisions, social issues, and other aspects of development work.

Extended over time, the scope of sustainable development was broadened and deepened. The concept addressed from environmental to economic and social issues; expanded from the macroeconomic to the microeconomic and individual level. Three areas of sustainable development are important: macroeconomic sustainability, social sustainability, and environmental sustainability. However, this paper focuses only on social and environmental sustainability.

The social dimension of sustainable development is about equity within the present generation (i.e. intra-generational equity) and between the present and future generations (i.e. inter-generational equity). While the issue of equity within a corporation refers to income disparities and wage levels within a company’s branch in a certain country, international equity

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issues refer to a company’s impact on the distribution of income and wealth between different countries, especially between industrialized and developing ones. The environmental dimension of sustainable development composes of resource exploitation, emissions and environmental damages and risks. Each of the three issues deals with human pressure on the environment in one way or another. The issue of resources is about a responsible use of non-renewable and renewable natural resources throughout the production cycle, such as in procurement, product design, production, distribution/logistics and consumption. A key difference here is that between the substitution of non-renewable with renewable resources on the one hand, and the substitution of natural resources with human or manmade capital on the other 20.

Development of Indonesian SMEs

In Indonesia, the Law No. 9 of 1995 defines small enterprises to be those owned by Indonesian citizens; independent and unaffiliated with large enterprises; and individual businesses, with or without legal licensing, including cooperatives. According to classification by asset size and sales volume, Small Enterprise’ assets are <Rp 20 million (excluding land and building) and annual sales volume is <Rp 1 billion. While Medium Enterprise’ assets are >Rp 20 million but <Rp 10 billion and annual sales volume is >Rp 1 billion. 21

SMEs in Indonesia have historically been the main player in domestic economic activities, especially as a large provider of employment opportunities, and hence a generator of primary or secondary source of income for many households. 22 For low income or poor farm households in rural areas, Small Enterprises (SEs), i.e. units of less than 20 workers, in non-farm activities are especially important. These enterprises have also been playing as an important engine for the development of local economies and communities.

In fact, SMEs are the biggest dominant form of business entities in Indonesia and represent more than 99% of the total number of enterprises in Indonesia, account for up to 97% of employment, and contribute to 58% of country’s overall GDP. The three largest sector of SMEs in Indonesia are first, agriculture; second is trade, hotel and restaurants; and third, manufacturing industry. The other sectors are simple traditional manufacturing activities such as wood products, furniture, textiles, garments, footwear, and food and beverages.

SMEs in Indonesia give significant roles to this country’s economic development. Tambunan identifies five characteristics of SMEs in Indonesia which makes these businesses important for this country’s economic development. First, SMEs in Indonesia are mainly owned by local people and they absorb millions of workforce in the country. Second, SMEs are very common in rural areas, and their business based on agriculture, thus they are become important for rural economic development. Third, SMEs are labor intensive, with many less-educated and youngsters involved in the business. Fourth, SMEs in Indonesia obtain their financial operations from personal savings. Fifth, these businesses produce simple consumer goods. They serve domestic market and targeted on low income consumers. Tambunan also clarifies that SMEs in Indonesia include micro business small to medium enterprises have learned from 1998 economic crisis. In fact, the revival of Indonesian SMEs is a result of the 1998 financial crisis. During 1998 financial crisis, SMEs become the last social safety network. In 1998, the unemployment rate in Indonesia was increasing rapidly. There’s almost 12 million people considered open unemployment or else 11 percent of labor force in Indonesia are unemployment.

In sectors like agriculture and services, SMEs are more capable to expand their domestic market share.
than in manufacturing industry. In the latter sector, SMEs have to compete with Large Enterprises (LEs) and increasingly imported goods. In foreign market, SMEs’ exports are limited, and their export are mainly wood products, including furniture, food and beverages, tobacco, fertilizers, chemicals and goods made from rubber. The majority of those who do export, they do not export directly, but indirectly through intermediaries such as traders, exporting companies, or trading houses.

Recently, the SMEs as a group in the country has been recognized to have another important role to play, namely as an important engine for development and growth of exports of non-oil and gas, particularly in manufacture. This stems from evidence showing that the most successful cases of SMEs development in East and Southeast Asian countries like South Korea, Taiwan, Hong Kong, and Singapore, have directly related to trade and the adoption of export-oriented strategies. The experiences of these countries indicate that SMEs can compete effectively in both domestic and international.

Also, SMEs could also play a powerful role in energizing agriculture through the development of high competitive agricultural-based (agro) industry. Agricultural-based production is a clear area where the country has enormous room for development, simply because Indonesia is a large agrarian economy owning a huge variety of agricultural commodities. Unfortunately, until know this country’s potential has not yet been exploited very well, as compared to its regional and international counterparts. Even, in the last few years Indonesia has become an important importing country for many agricultural commodities including rice and a variety of vegetables and fruits.

Expansion of Indonesian SMEs’ under GVC Frameworks

Recently, GVC have expanded towards developing and emerging economies, where the portions of SMEs that have been benefited from the growth of the global economy are smaller than in the developed world. With the majority of the members of APEC being categorized as developing

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26Tulus Tambunan. 2006. SME Capacity Building in Indonesia. Kadin Indonesia-JETRO
and emerging economies, promoting SMEs’ integration into GVC is linked to the issue of growth and development of APEC economies. SMEs make up 97% of enterprises and employ more than half of the domestic workforce in many APEC economies.

From a theoretical point of view, many factors suggest that the integration of SMEs in global value chains, under specific conditions, is for the benefit of these firms. During the interviews, SMEs were asked about their perception or experience of participation in GVC. The main findings can be summarized into two points. First, overall, the answers by the SMEs in all sectors support the argument that the participation in global value chains brings benefits to SMEs or is expected to bring them. Firms that have successfully integrated in one or more value chains have been able to gain stability or expand their business. Even those SMEs, who have chosen to remain at the margins of the global value chain, recognize the potential for growth associated with participation in GVCs. Second, one key factor of successful integration is co-operation within the network, coordination of work with partners upstream and downstream increases the chances of success due to substantial benefits in terms of information flow, access to superior technology and learning opportunities.

In spite of the proportion of Indonesian SMEs among businesses, it is widely recognized that Indonesian SMEs are at a disadvantage due to size and limited access to resources. Their small size restricts their capacity for economies of scale, and limited access to finance, investment information and technology prevents them from achieving a higher level of growth potential. GVC can be a key to solving these essential problems of Indonesian SMEs and allowing them to overcome some of these constraints. To facilitate the GVC system and Indonesian SMEs, trade liberalization plays an important role. Under the GVC system, the relationship between exports and imports is not substitutive but complementary. Through participation in GVC accompanying exports and imports of materials and intermediate inputs, Indonesian SMEs can achieve a level of value-added that would be impossible if
they do business only with domestic sources in the domestic market. Larger firms also rely more on foreign value-added for export production than SMEs. Therefore, possible constraints in accessing imported inputs obstruct the growth of value and must be removed to promote GVC in the global economy. As buyers of products, Indonesian SMEs can have wider access to more to promote the SMEs’ participation in GVC, indirect linkages of SMEs with larger domestic firms are important (particularly in sectors which require scale). SMEs’ participation in GVC is likely to depend not just on traditional policy measures such as tariffs, market access and trade facilitation policies or on tackling resource constraints but also on the extent to which domestic linkages can be nurtured.

In most industries, the share of Indonesian SMEs’ value-added in exports is greater than the share of Indonesian SMEs in export sales. SMEs use less foreign value-added than larger firms, while relying on larger firms for inputs. On the other hand, larger firms rely more on foreign value-added for export production than SMEs. Therefore, possible constraints in accessing imported intermediates may limiting the benefits that they can draw from GVC on the input side. Policies aimed at enhancing these linkages may benefit both SMEs and larger firms.

Environmental Problems Caused by the Integration of Indonesian SMEs into GVC

Before knowing how GVC framework causes natural damage, it is important to note the driving factors of GVC first. As commercial entities, firms within GVC seek growth in such areas as market share, turnover, profit, and size, among others. To achieve this, they typically make their corporate decisions or manage their GVCs based on three broadly defined factors: resource endowment, efficiency maximization, and market access.  

First, commercial firms, by nature, seek to access key resources, such as low-cost labor, scarce materials, and well-developed infrastructure, as well as advanced technologies, within a nation and across the globe. Location advantages derived

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from availability of labor, materials, and infrastructure (e.g., multimodal logistics) can reduce costs of production and distribution, due to decreased perceived distance and improved controllability.

Second, efficiency maximization primarily aims to reduce costs within an enterprise or the overall supply chain for high productivity. Concepts of supply chain management, such as zero inventory, just-in-time movement of goods, and outsourcing and offshoring, have indeed intended to reduce total supply chain costs. Production agglomeration (e.g., industrial or SME clusters) and consolidated operations (e.g., supplier or logistics consolidation) can also reduce total supply chain costs, through achieving low transaction costs and economies of scale.

Third, firms are generally motivated to enter into new markets to seek growth opportunities. In many economies with limited domestic opportunities in a certain sector, diversifying the firm’s products and operations for a new market, or entering into a foreign market, plays a crucial role in achieving growth. Success factors for market access include, but are not limited to, an enabling business environment, low entry barriers, adequate provision of market information, solid distribution channels, and reliable logistics systems. Since the end of the 1980s, multinationals have aggressively invested in Asia to develop supply chains, built on national export-oriented development strategies, combined with trade liberalization, low-cost logistics systems, and advanced information and communication technology (ICT) applications. Increased regional flows of foreign direct investment (FDI) during the 1990s and 2000s have accelerated the development of GVC.

From the given explanation above, the use of natural resources is involved in the first driving factor of GVC. Means, it is the basic factor to bring success whenever Indonesian SMEs integrate into GVC. Reason behind why it should be the basic factor of GVC is because abundant natural resources is one of the ways how Indonesian SMEs can increase their comparative advantage\(^{28}\). The greater

\(^{28}\) Comparative advantage is the benefit or advantage of an economy to be able to produce a commodity at a lesser opportunity cost than other entities.
the comparative advantage, the greater the possibility of Indonesian SMEs to gain much profits and to overthrow their competitors.

Despite the borderless character of GVC, natural resources exploitation concerns individual states.\textsuperscript{29} Exploitation may generate important revenue, but problems occur. For example, mineral extraction causes severe environmental damage and mono-cropping results in loss of biodiversity and soil erosion. Although international instruments such as the UN Global Compact and the Guidelines for Multinationals Enterprises are designed to prevent abusive corporate behavior, these instruments are soft law and do not actively promote the positive benefits of GVC whilst moderating potential environmental harm and human rights abuses.

Today, more and more products and services pass through GVC to reach the end consumer.\textsuperscript{30} The goal of optimizing productivity at each level of the chain anywhere in the world is to impact on natural resource use at different stages. It is through value chains that resources ultimately ‘start’, as they are transformed or used as inputs, like energy and water, and ‘end’, back in the same natural environment through final disposal and pollution. Thus, value chains, just like natural resource use, are no longer conceived in linear terms and as local processes, but instead viewed as circular and operating at a global scale.

**Eco-Friendly GVC to Maintain Business as Well as Sustainable Development**

In order to achieve sustainable development, Indonesian SMEs should recognize three aspects. First, economic approach. An economically sustainable system must be able to produce goods and services on a continuing basis, to maintain manageable levels of government and external debt, and to avoid extreme sectoral imbalances which damage agricultural or industrial production. Second, environmental approach. An environmentally sustainable system must maintain a stable resource base, avoiding over-exploitation of renewable resource systems or environmental sink


\textsuperscript{30}Donor Committee for Enterprise Development. 2012. Green Value Chains to Promote Green Growth.
functions, and depleting non-renewable resources only to the extent that investment is made in adequate substitutes. This includes maintenance of biodiversity, atmospheric stability, and other ecosystem functions not ordinarily classed as economic resources. Third, social approach. Socially sustainable system must achieve distributional equity, adequate provision of social services including health and education, gender equity, and political accountability and participation.\textsuperscript{31}

Recognizing those aspects, integrating in GVC means Indonesian SMEs would meet the economic approach due to their contribution to economic development (employment, GDP). Then, to make their business expansion meet the requirement of sustainable development, this economic approach should also be balanced with environmental and social approach too. Indonesian SMEs should achieve greater prosperity in an inclusive manner within the capacity of the Earth’s life support system. Human well-being and social and economic functioning ultimately depend upon responsible management of the planet’s finite resources. Growth can be decoupled from increasing material and resource use, and from the environmental and social impacts of unsustainable consumption and production, through a shift towards an inclusive and resilient green economy.\textsuperscript{32}

Many initiatives already provide solutions, and all require that they do more and better with less (decrease material intensity of products and waste, and eliminate harmful and adverse subsidies and incentives), responsibly manage the planet’s finite natural resources, consume better and safer, stimulate innovation in sustainability, move away from a “throw-away” behavior, and address over-consumption.

Investment is needed now to provide the means to achieve the multiple aspirations of sustainable development for today and secure the assets of future generations. This would also ensure resilience to social,

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economic, political and environmental shocks and disruptive change. These investments must produce more and better natural capital (through ecological restoration), social capital (e.g. knowledge, skills, societal cohesion) and economic capital (e.g. sustainable infrastructure, efficiently built environments and longer-lasting economic assets).

A kind of eco-friendly GVC can be found in Green Value Chain. As described by the Donor Committee for Enterprise Development (DCED), Green Value Chain Development is a systemic approach, integrating environmental support functions, environmental rules and regulations and market players in greening the value chain. It transforms the conventional linear view of value chains into a cyclical system view in which value chains operate in the natural environment on which they depend and which they also affect.

The environment in broad terms, or environmental goods and services in a more narrow perspective, is integrated in the value chain approach as the starting point of products’ and services’ conception and as the final recipient of end products, besides functioning as a recycler and a supplier of renewable resources.

The development of green and greening value means optimizing the economic and social outcomes within a closed loop system in an environmentally sustainable manner. It takes its inspiration from biological ecosystems in which natural resources are used in an equilibrium with supply and absorption capacity, in which one organism’s waste is food for another organism and in which the total number of value chains aggregates to a global life cycle economy.

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In its simplest form, Green Value Chain Development aims to improve the overall natural sustainability of the entire chain by optimizing links between actors. At every stage efforts focus on rationalizing the natural inputs into the value chain and controlling the outputs affecting the natural environment. In relation to inputs, this includes improving efficiency and renewable capacity in terms of water, energy, material, building, land and tools. In relation to outputs, the approach focuses on wastage and pollution, drawing on methods of pollution control, cleaner production, eco-efficiency, life cycle assessment, closed loop production and industrial ecology.

Green Value Chain Development also refers to the promotion of green market opportunities, where economic benefits from the use of renewable resources are maximized while environmental harm is minimized. Green value chain interventions also include supporting the creation of an enabling environment for green investment, skills training in green technologies, green entrepreneurship and business development, and greening the workplace. A mix of policy instruments including eco-labeling, green public
procurement, green cluster networks, environmental taxes, tradable permits, subsidy reform, green regulations, norms and standards are promoted.

CONCLUSION

As the activities of trade become internationalized, the emergence of global value chain (GVC) as production processes is inevitable. The involvement of Small Medium Enterprises (SMEs) in GVC is an essential dimension of the globalization process. An emerging opportunity to reap the potential benefits of global trade is represented by the integration of SMEs into global chains of production at various stages of added value. While efficiency becomes the most relevant motivation, the real challenge is how SMEs upgrade their management, financing and technology within the framework of sustainable development.

Integrating in GVC means Indonesian SMEs would meet the three sustainable development approaches respectively, in order to make their business expansion meet the requirement of sustainable development. The requirement can be found in Green Value Chain, a kind of GVC that integrates in the value chain approach as the starting point of products’ and services’ conception and as the final recipient of end products, besides functioning as a recycler and a supplier of renewable resources.

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THE EFFECT OF INDONESIA SMEs PARTICIPATION IN GLOBAL VALUE CHAIN TO ENHANCE COMPETITIVENESS

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Abstract
AEC (ASEAN Economic Community) has been in effect since 2016. Of course, requires the micro, small, and medium enterprises (SMEs) Indonesia to compete with entrepreneurs from other ASEAN countries. Meanwhile, the contribution of micro, small, and medium to the gross domestic product (GDP) increased from 57.84% become 60.34% in the last five years. Labor absorption in this sector also increased from 96.99% to 97.22% during the same period. Although the indicators contributed to GDP and employment increased uptake, SME access to global supply chain production was minimal. The contribution of SMEs in Indonesia to the Global Supply Chain (GVC) is only 0.8%. In ASEAN, Indonesia SMEs contribution to the GVC production was only slightly higher compared with Brunei, Laos, Myanmar, and Cambodia. The largest supply chains of global production contribution to the SMEs sector is 2.7% reached. In fact, ASEAN contributing to the GVC production in 2009-2013 is 9.3%. In this study, will be used secondary data related to the level of participation of Indonesian SMEs in the GVC, and data related SMEs a competitiveness is productivity of Indonesia SMEs. Meanwhile, data analysis using Partial Least Square approach to measuring the impact of Indonesian SMEs participation in GVC to increase their competitiveness. In general, the performance of Indonesian SMEs is still relatively small when compared with the ASEAN countries with relatively similar levels of development, especially regarding productivity, contribute to exports, participation in global and regional production networks, as well as the contribution to value added. Also, the low turnout of Indonesian SMEs in the GVC also caused by factors supporting to GVC is not optimal, namely infrastructure and the use of information and communication technology, reliability and efficiency of logistics services, and high trade barriers. To improve the competitiveness and to increase the participation in the GVC of Indonesian SMEs is depend on of internal and external factors. Determine of the competitiveness of Indonesian SMEs and the level of involvement in GVC should be a concern of the government. Internal factors include aspects that can improve the productivity of Indonesian SMEs, namely human resources, marketing strategy, and innovation. Meanwhile, external factors are beyond the various aspects of Indonesian SMEs which can affect and support the competitiveness of Indonesian SMEs. These factors are the "ease of doing business" in Indonesia, access to finance and capital, access to markets, infrastructure, and macroeconomic conditions.

Keyword: Competitiveness, Global Value Chain, Participation, SMEs

INTRODUCTION
The global value chains (GVCs) development has led to increased segregation of production processes worldwide. Naisbitt (1994) in his study of "Global Paradox" states that the greater and the opening of global trade make the small and medium enterprises (SMEs) will increasingly dominant. This shift requires a paradigm shift in policy making. Indonesia like many other countries has a great desire to improve
its position in GVC. Several government steps to advance superior local products have made. Efforts to minimize the weaknesses of SMEs such as increased creativity and facilitate capital continues. On the other hand, dependence on imported raw materials, components and spare parts and the lack of connections is still a challenge that needs to be solved.

Meanwhile, the big issue of the current global economy is the development of new economic forces that a significant role in the global economy. This power pushed by largely populated countries such as China, Brazil, India, and several other developing countries. Besides, an increase in production and trade by the development of alternative trading systems including GVC is another issue. The growing recognition by some argues that participation in GVC will increase the added value of the goods and services industries. Of course, this is evidence that GVC can play a role as a trade option for developing countries. The Indonesian government convinced that this global chain could increase competitive advantage in leading export commodities. Indonesia currently has produced ten primary products including textiles, electronics, rubber, palm oil, agro forestry, footwear, automotive, shrimp, cocoa, and coffee. Also, Indonesia has ten potential commodities that are also interested in international markets, such as leather products, medical equipment, medicinal plants, processed foods, essential oils, fish and fishery products, handicrafts, jewelry, spices and office equipment. So the concept of GVC is fundamental as a foundation to enlarge international trade relations for Indonesian SMEs to be able to compete in the global market.

On the one hand, starting in 2015, the ASEAN Economic Community (AEC) is prepared by ASEAN member countries to reach global markets. Meanwhile, the AEC aims to make ASEAN a single base of production and market, a competitive region, a region that promotes equitable development, and an area that integrated with global markets. To realize ASEAN as a production base and a single market, jointly and gradually, ASEAN member countries shall free import duties and eliminate other non-tariff barriers for ASEAN member countries if the goods traded meet the requirements set together. Also, ASEAN countries also reduce barriers to trade services among
ASEAN countries, among others by providing higher foreign capital restrictions. Only stated that based on the AA Blueprint, capital and skilled labor would be freer to move between ASEAN countries. In realizing a competitive region, ASEAN countries will have competition policy, consumer protection, and Intellectual Property Rights (IPR) protection that together build infrastructure, improve taxation systems, and intensify e-commerce. Meanwhile, in realizing equitable economic development, ASEAN countries work together to develop SMEs of ASEAN countries and make various initiatives to achieve integrated areas. In the development of SMEs, ASEAN issued a policy of SME development 2004-2014. The development of SMEs aims to jointly build ASEAN SMEs into competitively, more resilient SMEs and contribute significantly to the ASEAN economy. ASEAN makes economic and trade cooperation agreements with the main partner countries. ASEAN+1 and Regional Comprehensive Economic Partnership (RCEP)1 By promoting ASEAN centrality and increasing participation in global production networks. The development of ASEAN's achievement is reviewed periodically in recent years. Results of an analysis of the performance of the MEA show have not been fully achieved by 2016.

About the above description, what is the condition of Indonesian SMEs to SMEs in other ASEAN countries? Whether Indonesian SMEs have been able to compete with other ASEAN countries' SMEs, whether Indonesian SMEs can take advantage of more open market access, both access to inputs which is more varied and cheaper and access to larger consumers? In this regard, this study aims to map the position of Indonesian SMEs to SMEs in ASEAN, as well as to see the impact of the involvement of Indonesian SMEs in the GVC of the ASEAN region and to identify strategies to improve their competitiveness.

Data and information on the development of SMEs in ASEAN are not sufficient and complete. Many indicators of performance of SMEs that can not be compared to countries in ASEAN equally. Therefore, this study uses a Partnership (TPP), a proposed trade agreement which includes several Asian and American nations but excludes China and India. In 2017, prospective RCEP member states accounted for a population of 3.4 billion people with a total Gross Domestic Product (GDP, PPP) of $49.5 trillion.
gap analysis method, which is to examine the condition of SMEs in Indonesia with SMEs in other ASEAN countries using available secondary data. The study also looks at the literature on factors that can improve the competitiveness of SMEs in other nations. Thus, strategic issues can be identified and mapped as an ingredient of Indonesian SME strategic concepts to engage in GVC and enhance competitiveness.

METHODS

This study was conducted to determine the competitiveness position of Indonesian SMEs compared with ASEAN countries, and also to develop strategies to increase the competitiveness of Indonesian SMEs in facing the AEC. This type of study is qualitative descriptive with secondary data support related to the development of SMEs in ASEAN and Forum Group Discussion (FGD) with business actors. In this study, a gap analysis focused on increasing the competitiveness of Indonesian SMEs in general and increase the involvement of SMEs into GVC, internal and external factors that determine the competitiveness of SMEs and the level of participation in GVC. Internal factors include aspects that can improve the productivity of Indonesian SMEs, namely human resources, marketing strategy, and innovation. Meanwhile, external factors are various aspects outside SMEs that can affect and support the competitiveness of SMEs; these factors are the ease of trying in Indonesia, access to finance and capital, market access, infrastructure, and macroeconomic conditions.

Related to the analysis gap, mapping the characteristics and competitiveness of SMEs is done as a basis for analysis. If the status of Indonesian SMEs is known, benchmarking can be done by comparing ideal conditions and or targets to be achieved within the framework of the AEC. The gap between the present circumstances is based on the mapping results to be the core framework in formulating strategies to achieve the ideal targeted conditions. Some literature studies suggest that the ability of SMEs to be able to compete in the global era depends on several factors. Nicolescu (2009) divides these factors into internal and external factors. Internal factors include indicators such as firm size, stakeholder personality, and educational background (owner and
worker), and corporate culture. Meanwhile, external factors that can affect performance are national culture, a country's economic system, regional economic integration, and people's purchasing power. Furthermore, Nicolescu (2009) states that internal factors influence the performance of SMEs rather than external factors by considering the economic scale of the SMEs. The combination of external and internal factors can be the basis of how it can affect the survivability of SMEs. Medium or medium enterprises tend to have a higher survival rate than small businesses. The capability of business diversification with the support of larger assets makes SMEs at mid-level have flexibility in anticipating demand fluctuations. Meanwhile, small businesses tend to have only one business unit so that a decrease in demand can lead to the termination of the SME's operational activities. Therefore, in general, SMEs have a higher survivability rate than larger companies.

Meanwhile, to understand the competitiveness of SMEs and GVC is based on the pattern of regional production network chain, or even global, to produce a product. There are at least four factors that challenge the SMEs to take advantage of the benefits through cooperation with multinational companies (Yuhua and Bayhaqi, 2013).

![Figure 1. Determinants of SME Activity](source: Nicolescu (2009))

First, SMEs need to improve their technical and operational capabilities to achieve the global standards of multinational enterprises. Related to this, SMEs need to get adequate capital access to invest in the production process. The next challenge is human resources. With an open culture and structure of work and lack of a clear career plan, SMEs are complicated in improving the quality of human resources or attracting professional personnel. Meanwhile, a change in business practices is the latest challenge that SMEs have to face to improve competitiveness in GVC. These
The Asian Development Bank (ADB) conceived in the early 1960s as a financial institution that would be Asian and foster economic growth and cooperation in one of the poorest regions in the world. A free-trade area is a region encompassing a trade bloc whose member countries have signed a free-trade agreement (FTA). Such arrangements involve cooperation between at least two countries to reduce trade barriers –

problems include efficiency in company operations as well as consideration of the social and environmental impacts of the production process. ADB mentions that two factors for success in GVC are company competitiveness and corporate connectivity. Both are a means for businesses to connect with the value chain. Enterprises that have the competitiveness and connect will be able to join and benefit from GVC. Meanwhile, Anton et al. (2015) stated that the competitiveness of SMEs stems from the level of innovation, entrepreneurship, human capital, financial resources, market potential, and business strategy. SMEs also need government assistance to develop marketing networks and access to financial institutions. In the case of Indonesia, Tambunan (2009) states that the competitiveness of SMEs can improve through human resources, working capital, and management and technology expertise. On the one hand, Financing is one of the biggest problems for SMEs in Indonesia to improving competitiveness. In general, SME funding in Indonesia is still dominated by banks. However, financing alternatives in the form of equity financing, such as angel investors, venture capital, or private equity are available without the need for collateral.

About the technical and operational capabilities of SMEs, Agbola (2013) states that the implementation of total quality management (TQM) is significantly related positively to the financial performance of the SMEs. The implication is that governments must create policies that encourage training and development of SME skills. The creation of enabling environments that change the business processes of critical industries. Besides, the government should also ensure that the quality of the goods and services produced meets international standards. It will encourage innovation and product development for domestic and export markets. Improving the quality and quality of SME management will enhance national or international competitiveness.

Arudchelvan and Wignaraja (2015) argue that SMEs play a significant role in determining participation in GVC and Free-Trade Agreement (FTA). Large
SMEs have the economies of scale and the resources needed to address the fixed cost issues at the beginning of SMEs in the supply chain. In addition to business level, the acquisition of licenses for overseas technology and investment in research and development also positively affects the joining of SMEs in GVC. Therefore, SMEs need to continue to innovate in technology, production, and process. SMEs with trade computed from the proportion of exports to sales and the share of imported raw materials also positively influence the participation of SMEs in GVC and FTA. Increasingly exposed to SMEs on international trade, the benefits will be higher because of the FTA preference. However, the lack of information is a primary reason SMEs are less utilizing FTA preferences and less interested in trading with FTA partners. Therefore, it needs counseling and consultation to overcome the lack of information that potentially becomes a barrier to the FTA. Associated with MEA, the existence of FTA among ASEAN member countries and ASEAN FTA and strategic partners opens opportunities for SMEs to become integrated with GVC. According to Tambunan and Chandra (2014), the opportunities for SMEs to be incorporated into the global supply chain one of them stem from the decline in trade tariffs. The loss of tariff barriers can be exploited to increase SME competition and encourage market expansion. The FTA also offers business opportunities for SMEs to participate in supply chains at the regional level, the other ASEAN countries.

The strategy to enhancing the competitiveness of SMEs implemented in several countries such as Thailand, Malaysia, and also some European countries focuses on developing partnerships between SMEs and multinational companies or large industries that already have enough resources to compete globally. Ones
that can use is the development of an existing industrial cluster to connect and use input from smaller businesses and optimize the SME cluster in a particular sector. Switzerland, Germany, and Italy use cluster development strategies to encourage the SME sector. The approach begins with the identification of existing groups and has the potential to become a strategic industry. It can see in the metals and machinery sector in Germany and the formation of high-tech industry clusters (agglomeration) in Silicon Valley, USA. The development of industrial clusters encourages the concentration of some firms which subsequently establish inter-firm networks in the use of technology, increased inter-industry linkages, and decreased product marketing costs. The ultimately drives the achievement of scale in the use of input, technology, and marketing. The development of industrial clusters, including SMEs, can improve productivity, innovation, and enterprise competition. Group networks can also increase the quantity and quality of information flow between large companies and SMEs. The existence of industrial clusters involving SMEs is not enough to improve competitiveness. SMEs have limitations in building industry and social relationships, resource mobility, access to information, and resource development (Broughton, 2011). The main problem that occurs when SMEs want to be a supplier to multinational companies is how to meet quality standards, supply consistency, and product adaptation. The problem is related to the limited access to capital. SMEs are often unaware that these factors are so important in improving product quality that can hamper SMEs into suppliers of multinationals. In this regard, a public-private partnership (private and public-government cooperation) is required to encourage and assist the development of the competitiveness of SMEs. Meanwhile, improvements in communications and the establishment of industrial networks or clusters can help SMEs compete with larger companies. The collaboration will encourage GVCs in industry groups that drive efficiency. One example of cooperation within a group is the establishment of a joint credit guarantor association, synergies in promotional strategies, or improvements in the business and worker divisions within the enterprise (OECD, 2010).

Furthermore, participation in GVC enhances the contribution of the SME
sector to economic growth and employment. Thus, involvement in GVC will assist SMEs in exploiting opportunities in other countries and competing in the domestic market by increasing competitiveness. Harvie et al. (2010) stated that there are some characteristics of SMEs that participate in GVC. First is the scale of business. The larger the size of business, the greater the opportunity to achieve an economic level of production so that ultimately the production cost structure can be suppressed. Second is the age of the company (business maturity). The firm that has been long standing shows that the company already has a relatively high experience, so it is assumed to improve the efficiency of production over time. The business climate that supports the company's survival rate in an industry becomes very important in this variable. The third is foreign ownership, a company whose shares owned by foreigners, especially joint venture companies, is projected to obtain technology transfer and easy access to loans from foreign investors. Fourth is productivity. SMEs need to learn and achieve the quality standards demanded by higher-level companies (upper-tier suppliers) for greater GVC entry opportunities. Fifth is access to financing. Additional capital is necessary for SMEs to expand their business and successfully achieve the required level of productivity following production demand. The challenge is how SMEs deal with collateral issues or financial records requested by financial institutions before providing investment credit. Sixth is innovation, both product innovation, and production process. Research and development are significant to improve the productivity of a company. Also, labor training and the use of new technologies also play a major role in supporting productivity levels. Seventh is the location. Opportunities for SMEs to participate in GVC will be even greater if the business location is close to an industrial estate or export processing zones (EPZs) or ports. If there is now a collection of SMEs far from the region, the government can do by developing logistics infrastructure so that components produced by SMEs can reach the area quickly and on time.
RESULTS AND DISCUSSION

The development of Indonesian and ASEAN SMEs

According to data from the Indonesian Ministry of Cooperatives and SMEs, in 2013 SMEs are able to contribute 5,440 trillion rupiah (at current prices) to the national GDP\(^4\), absorb the labor of 114.14 million people, and attract 1,655.2 trillion rupiahs investment with a total business amount of 57.8 million units. The contribution of SMEs to the national GDP in 2013 was 57.6% (at constant prices) with 30.3% coming from micro businesses; 12.8% of small businesses; and 14.5% came from medium-sized enterprises. With large-scale operations accounting for only 0.11% of the total national business, big business can contribute 42.4% of GDP. Nevertheless, SMEs are still dominant regarding employment. In 2014 SMEs can absorb 96.7% of the total national workforce of which micro enterprises consume 87% of its workforce. SME statistics in 2013 show that SME participation in exports is still relatively small. Large-scale enterprises still dominate non-oil exports. Approximately 84.32% of non-oil/gas exports are contributed by large companies, while micro enterprises accounted for only 1.38%, small businesses 2.76% and medium enterprises 11.54%. It shows that SME export access, especially micro and small business is still weak.

In general, the contribution of SMEs to the national GDP has decreased, from 58.3% in 2008 to 57.6% in 2013. The growth trend of SMEs added value showed an increase from 4.6% in 2009 to 7.2% in 2011 but decreased to 5.75% in 2013. Despite the slowing down, the amount of GDP growth of SMEs is still higher by 0.02% of national GDP growth. Regarding numbers, the workforce working in SMEs has increased from 94 million in 2008 to 123.2 million in 2014. However, when viewed from its contribution to the national employment absorption, the proportion of work in SMEs decreased, from 97.2% in 2008 to 96.7% in 2014. The average growth in employment of SMEs in 2009-2014 is 4.63% per year. The value is still lower when compared with the increase of work of large enterprises and the absorption of the national workforce. The number of micro, small and medium businesses in 2014 increased from 51.4 million in

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\(^4\) Gross domestic product (GDP) is a monetary measure of the market value of all final goods and services produced in a period (quarterly or yearly) or income. Nominal GDP estimates are commonly used to determine the economic performance of a whole country or region, and to make international comparisons.
2008 to 59.3 million in 2014 with 99.9% being SMEs. In general, the growth of the micro business is relatively the same in 2007-2014 with an average increase of 2.37%. The common development of the highest business unit is 6.2%. Meanwhile, the average growth of national business units for 2007-2014 is 2.4% per year.

Meanwhile, the average productivity of SMEs is still far behind compared to large enterprises. In the period 2006-2008, the productivity of SME’s workforce was 12.2 million rupiah and the 2009-2013 period increased to 13.3 million rupiahs. Meanwhile, great business productivity reached 334.8 million rupiahs in 2009-2013, while the average productivity of micro business was only 7.8 million rupiahs. Meanwhile, small-scale businesses still reach 64.7 million and medium-sized businesses of 112.4 million rupiahs in 2009-2013. Indonesia, the proportion of SMEs to all units of activity, was highest compared to other ASEAN countries, which is about 99.9%, then Cambodia and Laos 99.8%. Similarly, regarding employment, SMEs in Indonesia absorb more labor than other ASEAN countries. In Laos, the number of people working in SMEs was 82.9%, Thailand 81%, and Cambodia 71.8%.

### Table 1. Labor Productivity (in Million Rupiahs)

<table>
<thead>
<tr>
<th>Classification</th>
<th>2006-2009</th>
<th>2010-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMEs Everg.</td>
<td>12.2</td>
<td>13.3</td>
</tr>
<tr>
<td>Micro Enterprises</td>
<td>7.4</td>
<td>7.8</td>
</tr>
<tr>
<td>Small Enterprises</td>
<td>62.0</td>
<td>64.7</td>
</tr>
<tr>
<td>Medium Enterprises</td>
<td>104.5</td>
<td>112.4</td>
</tr>
<tr>
<td>Large Enterprises</td>
<td>309.9</td>
<td>334.8</td>
</tr>
<tr>
<td>Ratio Entrep. Large/SMEs</td>
<td>25.3</td>
<td>25.1</td>
</tr>
</tbody>
</table>

Source: Ministry of Cooperatives and SMEs of Indonesia, SMEs Statistics (2015)

Regarding the contribution of SMEs to the national GDP, SMEs in Indonesia can contribute 57.6%, while SMEs in Brunei Darussalam, Malaysia, Philippines, Singapore, and Thailand are 24% respectively; 33%; 36%; 45%; and 37%. However, the contribution of Indonesian SMEs to exports is still relatively small compared to Thailand and Malaysia. Thai SMEs contribute 25.5% of total exports and SME Malaysia about 19%, while SMEs Indonesia contributes to 15.7% of total exports.
Table 2. Comparison of SME Contribution to the Economy in ASEAN Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Business Unit</th>
<th>Job Availability</th>
<th>Gross Domestic Product Contrib.</th>
<th>Export</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Share (%)</td>
<td>Year</td>
<td>Share (%)</td>
<td>Year</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>98.2</td>
<td>2010</td>
<td>59</td>
<td>2010</td>
</tr>
<tr>
<td>Cambodia</td>
<td>99.8</td>
<td>2014</td>
<td>71.8</td>
<td>2014</td>
</tr>
<tr>
<td>Indonesia</td>
<td>99.9</td>
<td>2013</td>
<td>96.9</td>
<td>2013</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>99.8</td>
<td>2013</td>
<td>82.9</td>
<td>2013</td>
</tr>
<tr>
<td>Malaysia</td>
<td>97.3</td>
<td>2011</td>
<td>57.5</td>
<td>2013</td>
</tr>
<tr>
<td>Myanmar</td>
<td>87.4</td>
<td>2014</td>
<td>n/a</td>
<td>2012</td>
</tr>
<tr>
<td>Philippines</td>
<td>99.6</td>
<td>2012</td>
<td>64.9</td>
<td>2012</td>
</tr>
<tr>
<td>Singapore</td>
<td>99.4</td>
<td>2012</td>
<td>68</td>
<td>2012</td>
</tr>
<tr>
<td>Thailand</td>
<td>97.2</td>
<td>2013</td>
<td>81</td>
<td>2013</td>
</tr>
<tr>
<td>Vietnam</td>
<td>97.7</td>
<td>2012</td>
<td>46.8</td>
<td>2012</td>
</tr>
</tbody>
</table>


Statistics on the distribution of SME by sector shows that most of Indonesian SMEs, which is around 48.9% are engaged in primary business (agriculture, animal husbandry, forestry, and fishery). SMEs involved in trading is about 28.8%, while those participating in the manufacturing industry is only 6.4%, and the rest about 2.1% spread in other sectors. This business structure is relatively different from other countries in ASEAN which mostly are in the trade, services and processing industries. More than 40% of Malaysia, Thailand and Philippines SMEs are in the service sector, even for Malaysia the number of SMEs in the service sector reaches 93.1%. SMEs in Cambodia, Laos, and Vietnam are mostly in the trade area with the portion at a pace of 59.6%; 62.9%; and 39.8%. Meanwhile, SMEs in the manufacturing sector in Thailand with a share of 23.7%; the Philippines by 16.6%, and Vietnam by 15.7%.

Based on SME landscape data in Asia SME Finance Monitor 2014 issued by ADB, Indonesia’s labor growth was still below Cambodia in 2014. The increase of employment of SMEs in Cambodia is 16.1%, while Indonesia is only 8%. Meanwhile, for other ASEAN countries, in 2012 the growth of employment of SMEs is the Philippines 27.3%, Malaysia 6.3%, and Vietnam 2.4%.

Meanwhile, the productivity of SMEs workforce in Indonesia is far below the productivity of Thailand and Malaysia. In 2012 SMEs productivity in Indonesia is only $ 1,355, while Malaysian SMEs reach $ 20,609 and Thailand $ 12,263. The average productivity growth for 2009-2012 for Indonesia, Thailand, and Malaysia is 4.9%, 6.1%, and 9.5%, respectively.
Based on data from the World Bank Enterprise Survey (2014), regarding labor force development, the percentage of businesses in Indonesia that provide formal training to the workforce is only in the range of 2.8% for small firms and 13.2% for medium businesses with average coverage training 52.9%. Compared to other countries in the ASEAN region, the percentage is deficient. For example, the number of companies providing formal training in Thailand is 30.9% of small businesses and 63.3% for medium-sized enterprises.

Associated with the mastery of technology and innovation, Indonesian SMEs are still lower than the average ASEAN countries. According to World Bank Enterprises Survey (2014) data, in 2009 the number of small companies that have international quality certificates is only 1.6%, while the medium companies 6.3%. The value is far below the Philippines and Vietnam. In the same year, 8.6% of small businesses and 18.6% of medium-sized firms in the Philippines have international quality certificates. The ownership of international quality certificates in Vietnam for small businesses is 6% and medium enterprises 13.2%. The low utilization of information technology is also a problem for Indonesian SMEs. Ownership of websites and e-mails to small businesses in Indonesia is the lowest in the ASEAN region. Small companies that have their website is only 4.2%, while those using email only 9.4%. This stark contrast with other countries in the region, such as the Philippines and Vietnam. In both countries the ownership of websites in small businesses above 20% and the utilization of e-mail above 40%.

**Indonesian SMEs and Global Production Network**

Indonesia's SME participation in a global production network is still weak (Wignaraja, 2012). Using World Bank Enterprise Survey data (2014) covering 5,900 companies in five ASEAN countries, namely Malaysia, Thailand, Philippines, Indonesia, and Vietnam, that concluded that the number of Indonesian SMEs involved in the global production is only 6.3%. This figure is far below the SMEs of Malaysia, Thailand, Vietnam and the Philippines, respectively the number of SMEs involved in the global production network is 46.2%; 29.6%; 21.4%; And 20.1%. In the same study, the contribution of Indonesian SME exports is the lowest compared to the four other ASEAN countries included in the survey.
The contribution of Indonesian SME exports is only 9.3%, in contrast to SMEs of Thailand, the Philippines, and Malaysia which account for over 28% of total exports. Even the contribution of Indonesian SMEs to total exports still lags behind Vietnam SMEs with a contribution of 16.8%.

Low participation rates in global production networks not only occur in Indonesian SMEs but happen in the whole industry. Indonesia's overall participation in global production networks is small. When viewed from several indicators to measure the level of participation of a country in GVC, Indonesia's participation in GVC is still lower when compared to other countries in the ASEAN region.

Table 3. ASEAN Small and Medium Enterprise Engagement on Global Production Network

<table>
<thead>
<tr>
<th></th>
<th>All Countries</th>
<th>Malaysia</th>
<th>Thailand</th>
<th>Philippines</th>
<th>Indonesia</th>
<th>Viet Nam</th>
</tr>
</thead>
<tbody>
<tr>
<td>PN firms as a percentage of all businesses, %</td>
<td>37.3</td>
<td>59.7</td>
<td>59.3</td>
<td>26.9</td>
<td>14.5</td>
<td>36.4</td>
</tr>
<tr>
<td>SMEs in PN (1-99 employees) as a percentage of all SMEs, %</td>
<td>22.0</td>
<td>46.2</td>
<td>29.6</td>
<td>20.1</td>
<td>6.3</td>
<td>21.4</td>
</tr>
<tr>
<td>Large firm in PN as a proportion of all large enterprises, %</td>
<td>72.1</td>
<td>82.4</td>
<td>91.1</td>
<td>51.1</td>
<td>52.0</td>
<td>64.6</td>
</tr>
</tbody>
</table>


Figure 3. Proportion of Machinery Goods Trade on Manufacturing Goods Trade (2010-2013)

Source: COMTRADE (2014)
If viewed from the proportion of Indonesian machine tool trade value to the total of manufactured goods or the value of trading of parts and component products, Indonesia's participation rate is lower compared to most countries in the region. Similarly, the intraday industry index or the index of GVC participation shows the same result.

The level of participation of a country in GVC widely determined by three things, namely the reliability of communications technology, logistics, and economic openness (trade and investment rules).

Indonesia still lags behind these three aspects, not just those three issues, based on FGD results with some entrepreneurs in Indonesia shows that relatively high wage rates, when compared to neighboring countries, increasing production efficiency. So it is with high-interest rates. Specifically, contractors' involvement in global production networks also hampered by specific factors in their sectors.

Figure 4: Trading Parts and Components (Avg. 2010-2013)

Source: COMTRADE (2014)
For example, the food and beverage industry is experiencing difficulties in (1) meeting international product standards, (2) meeting different product specifications among countries, and (3) obtaining local raw materials by global consumer demand.

**Capitalization of SMEs**

The banking sector still dominates the capital for SMEs in Indonesia. Banking is the largest financial institution that shown by the ratio of the amount of assets and funds that can be channeled by banks than other financial institutions. Only companies that have track records andor have a guarantee andor support from their buyers can access financing from banks. The venture capital is an alternative source of funding for new entrepreneurs who have no guarantee but have a potential business. It's just that the number of venture capital companies is still insufficient, i.e., only 69 companies in 2014 (Direktori Lembaga Pembiayaan, OJK)\(^5\) With total assets of only 9 trillion rupiahs. Venture capital is a financing with risk to investors so investors (venture capital firms) must understand and understand the business run by the company financed.

The difficulty of accessing banking and the relatively limited amount of

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\(^5\) Financial Services Authority of Indonesia (Indonesian: Otoritas Jasa Keuangan or OJK) is an Indonesian government agency which regulates and supervises the financial services sector. The OJK is an autonomous organization designed to be free from any interference, having functions, duties and powers to regulate, monitor, inspect, and investigate. The agency was established in 2011 to replace the role of Bapepam-LK in regulating and supervising the capital market and financial institutions, as well as that of Bank Indonesia in regulating and supervising banks, and to protect consumers of financial services industry.
venture capital prompted the government to establish the Permodalan Nasional Madani (PNM)\(^6\) To assist SME financing. However, PNM requires a good track record for SMEs financed. Various other new funding models also arise in the severe conditions of accessing sources of financing for SMEs. Funding models such as crowd-funding and other micro-financing are already available. Only, the model is still in the early stages of development. SMEs also have access to capital for export financing through banks and the Lembaga Pembiayaan Ekspor Indonesia (LPEI)\(^7\). However, the percentage of banking credit for exports is deficient. Likewise, with LPEI, the agency only allocates 10% of the funding portfolio for SMEs. Funding is more done indirectly, namely through venture capital financing. There are four types of venture capital financing, as follows.

1. Equity financing, which is a venture capital company that invest directly in the company's business partner by taking part of the number of shares owned by the company's business partner.

2. Semi-financial equity, which is a venture capital company that buys convertible bonds issued by the corporation's spouse.

3. The establishment of a new company is a venture capital company together with a business partner company to establish a new business.

4. Profit Sharing, the growth of venture capital in the last five years, is quite high. Funds disbursed increase from 3 trillion rupiahs in 2009 to 6.5 trillion rupiah in 2014. The source of venture capital funds comes from within the company itself in the form of shareholder capital investments, retained earnings reserves, retained earnings, and from outside parties, both Individual investors, loans from banking institutions, as well as from insurance institutions and pension funds.

**ASEAN SME Policy**

The SME policy in ASEAN is one of the implementations of the framework of ASEAN Equitable Economic Development in the pillar of ASEAN Economic Community. Within this context, SMEs are a key component in achieving inclusive growth and poverty

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\(^6\) Is then realized the strategic value of government by establishing PT. Permodalan Nasional Madani (Persero) on June 1, 1999, as a state that the task of specifically empowering Micro, Small, Medium Enterprises and Cooperatives (MSME). Empowerment work through the organization of financial services and management services, as part of the implementation of the government's strategy to promote MSME, especially the contribution to the real sector, to support the growth of new entrepreneurs who have business prospects and ability to create jobs.

\(^7\) LPEI or Indonesia Eximbank is a Financial Institution that provides National Export Financing in the form of Financing, Security, Insurance, and Consultation Services.
reduction. Some guidelines and frameworks have been agreed upon to develop SMEs in ASEAN. ASEAN Policy Blueprint for SMEs Development (APBSD) 2004-2014 which is a guide for policy development to build a competitive, dynamic, and innovative ASEAN SMEs. Various activities to realize these objectives are carried out through the ASEAN Small and Medium Enterprise Agencies Working Group (SMEWG). The ASEAN Policy Blueprint for SMEs Development (APBSD) is then followed by the ASEAN Strategic Action Plan for SME Development (SAP-SMED) 2010-2015. That included specific activities undertaken in the short and medium term, such as broader information dissemination activities Is in the region for SMEs in ASEAN, policy implementation, as well as SME programs, both nationally and regionally. The continuation of SAP-SMED 2010-2015 is post-2015 SAP-SMED. All ASEAN member countries have agreed to compile the ASEAN SME Policy Index to measure eight indicators related to SME policy. The index adopted from the MSME policy assessment method that has by the Organization for Economic Co-operation and Development (OECD).

Although the index is policy-related, the ASEAN SME Policy Index can provide an overview of the competitiveness of SMEs in member countries. Compared to other ASEAN member countries, the strength of the Indonesian SME sector lies in the institutional framework and the ease of starting a business. The Indonesian SME sector has a clear scope and definition, and there are no significant obstacles in starting an SME business in Indonesia. However, at the level of implementation, many things are far below the ideal value, such as policy coordination that often considered failed. In the operational and supporting aspects of activities, SME development institutions in Indonesia are still weak. Many ongoing programs such as Business Development Centers built in 1,096 locations throughout Indonesia are no longer in existence. Likewise, assistance for e-commerce such as online portals for SMEs can not be accessed. In the aspect of Cheaper and Faster Start Up, Indonesia received a score of 4.4 on the ASEAN SME Policy Index. However, based on FGDs with the Indonesian Ministry of Trade, procedures and permit fees have been simplified and no cost, but not all SMEs formalize their business due to limited ministerial socialization, in addition to the SMEs own unwillingness to formalize its activities as one of them is
related to the consequences of tax payment. Regarding access to finance, Indonesia is also not included either. Although Indonesia has good banking, the credit channeled to SMEs is still low. Meanwhile, nonbank financial institutions are also limited. Similarly, access to capital markets, Indonesia has not provided access for SMEs to obtain money from the capital market. Regarding technology and technology transfer, the score for Indonesia is only 3.8. Most initiatives are still in the early stages, such as the construction of science parks. The infrastructure needed for technology development is also not adequate, such as broadband internet and IP protection. In the aspect of the international market, expansion shows that the performance and implementation of policies that support the development of Indonesian SMEs to the global market ranked fifth with a score of 4.2. These overlapping policies and lack of coordination across ministries or agencies related to MSMEs. Also, the lack of resources and capacity of Indonesia Trade and Promotion Center (ITPC) also contributes to the small capacity of market expansion. Regarding promotion of entrepreneurship education, Indonesia's score is 3.9. Entrepreneurship education has not been mainstreaming in Indonesia's education curriculum. In the aspect of the effectiveness of representation of the interests of SMEs, the score of Indonesia is the lowest among the 8 points evaluated. The association representing the national SMEs was established in 2014 after the SME policy index created. Effectiveness in voicing the interests of SMEs still need to be evaluated.

Table 4. ASEAN SME Policy Index

<table>
<thead>
<tr>
<th>No</th>
<th>Indicator</th>
<th>BRN</th>
<th>CAM</th>
<th>IND</th>
<th>LAO</th>
<th>MMR</th>
<th>MYS</th>
<th>PHL</th>
<th>SGP</th>
<th>THA</th>
<th>VNM</th>
<th>ASEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Institutional Framework</td>
<td>2.6</td>
<td>2.6</td>
<td>4.4</td>
<td>2.6</td>
<td>2.9</td>
<td>4.6</td>
<td>3.7</td>
<td>5.4</td>
<td>3.9</td>
<td>3.8</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>Access to Support Service</td>
<td>3.3</td>
<td>2.4</td>
<td>4.0</td>
<td>2.3</td>
<td>2.7</td>
<td>4.8</td>
<td>3.8</td>
<td>5.4</td>
<td>3.8</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>1.2</td>
<td>Cheaper and Faster Start-up</td>
<td>3.1</td>
<td>2.1</td>
<td>4.4</td>
<td>2.7</td>
<td>2.9</td>
<td>4.8</td>
<td>3.0</td>
<td>5.0</td>
<td>4.2</td>
<td>4.1</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>Access to Finance</td>
<td>3.0</td>
<td>2.5</td>
<td>4.3</td>
<td>2.5</td>
<td>2.1</td>
<td>4.6</td>
<td>3.6</td>
<td>5.6</td>
<td>4.3</td>
<td>3.4</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>Technology Transfer</td>
<td>3.2</td>
<td>1.9</td>
<td>3.8</td>
<td>2.0</td>
<td>2.4</td>
<td>4.9</td>
<td>3.6</td>
<td>5.6</td>
<td>4.3</td>
<td>3.6</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>International Market expansion</td>
<td>3.2</td>
<td>3.3</td>
<td>4.2</td>
<td>3.1</td>
<td>3.3</td>
<td>5.0</td>
<td>4.4</td>
<td>6.0</td>
<td>4.7</td>
<td>4.0</td>
<td>4.1</td>
</tr>
<tr>
<td>1.3</td>
<td>Promotion of Entrepreneurial Education</td>
<td>3.0</td>
<td>2.1</td>
<td>3.9</td>
<td>2.3</td>
<td>2.9</td>
<td>4.2</td>
<td>3.7</td>
<td>5.0</td>
<td>3.1</td>
<td>2.9</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>More efficient representation of SME's interest</td>
<td>2.3</td>
<td>2.5</td>
<td>3.0</td>
<td>3.0</td>
<td>4.5</td>
<td>5.7</td>
<td>4.7</td>
<td>5.0</td>
<td>4.4</td>
<td>4.0</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Source: ERIA (2014)
Meanwhile, when viewed from several indicators of SME policy: the definition, the existence of institutions, key sectors of SMEs, and the primary systems of SMEs can be seen that each ASEAN country has different policies. The definition of SMEs between countries is different. In Indonesia, the definition of SMEs not distinguished between one sector and another, as in Malaysia and Thailand. Indonesia is also one of the ASEAN countries that do not have a master plan of SME development policy.

**Affecting Factors of Indonesian SMEs Competitiveness**

Why is the performance of Indonesian SMEs still relatively under the SMEs of several neighboring countries whose level of economic development is relatively the same?. Based on the analysis of literature, secondary data, and FGD results, these factors divided into internal and external factors. Internal factors include aspects that determine the company's internal competitiveness such as productivity and innovation. Aswicahyono and Hill (2014) show that the labor productivity of Indonesia is still relatively small. Several entrepreneurs and associations in the FGD pointed out the problem. The same applies to the low level of innovation. The low level of innovation in Indonesia indicated by the ranking of global innovation index, Indonesia is in position 87 of 143 countries surveyed (Cornell University, INSEAD, and WIPO, 2014). In the same index, Malaysia and Singapore are 33 and seven respectively. Other indicators can see through the net amount of products that no longer produced and the relatively small number of new products in the manufacturing industry (net add-drop products) in the manufacturing sector. It shows that despite innovation, the development and the number of goods are still insufficient (Precision-Indonesia, 2015).

Some factors are very influential on the level of productivity and innovation companies, namely the quality of human resources, corporate culture, educational background of owners and workers, as well as the character of stakeholders in the enterprise. Some mapping indicators confirm the problem. Meanwhile, various external factors also affect and support the competitiveness of SMEs. These factors, among others, are the ease of trying in Indonesia, access to finance and capital, market access, infrastructure, and macroeconomic conditions. Initial assessments of SME policy in Indonesia indicate that there is currently no comprehensive policy in encouraging or
improving the performance aspects of SMEs. The current SME policies are partial and have weak links between one policy and another. In some ministries, programs and activities in support of SMEs are temporary and unsustainable as they only focus on the targeted sector of each department (ERIA, 2014).

In addition to an individual informal business, to conduct business in Indonesia, SMEs can choose some form of legal entity, such as a private entity, a limited partnership, firm or limited company, for example, SMEs in Indonesia is a business or a sole proprietorship in the form of trading business. However, the majority of SME owners in Indonesia prefer not to formalize or legalize their business. The simple organization, ease of running a business, and complicated taxation procedures are the main reasons for maintaining status as an informal business.

**Access to Finance**

Many studies on SMEs show that in starting a business, SMEs rely on their capital or from loans/assistance of their closest people. External sources of funds are needed when SMEs expand. In the meantime, there is also a fundamental problem in the facilitation of export financing. Although banks are still the largest source of funding, in addition to the feasibility of the business itself, many statements from banks that must be met by SMEs to get funding from banks, especially related to prudential banking aspects as follows.

1. Additional collateral for the loan disbursed. This assurance may be a fixed asset such as land, buildings, and vehicles or property of the business itself, which is a good operating cash flow.

2. Legal of a company. This aspect is important to look at the prospects of SME business and compliance following the laws and regulations.

Based on the FGD that we held, there are some important things to note related to banking credits. Thus, the problem of access to financing from banks is particularly faced by:

1. Business/entrepreneur who has no guarantee and not a larger and established company supplier; and

2. a beginner's business (less than six months).

Currently, the government also has a community business credit program to encourage SME lending without requiring a guarantee. The credit program channeled by several banks that have been set by the government with interest rates that have subsidized,
which is equal to 12% per year. The government also provides a guarantee of 70% - 80% of the loans disbursed. Despite the low-interest rate available for the credit program and secured by the government, several things still need to be concerned about banking funding.

**Export Financing**

About export funding for SMEs, the available instruments are still limited. Export credit channeled by banks is not more than 2%. Lembaga Pembiayaan Ekspor Indonesia (LPEI)\(^8\) is the only financing institution specifically to support SME export activities. However, there are still fundamental problems of LPEI, which are as follows:

1. Limited resources of LPEI, both infrastructure and human in reaching SME in potential areas;
2. LPEI has difficulty assisting SMEs conducting export activities;
3. LPEI's capital resources are limited to Anggaran Pendapatan dan Belanja Negara (APBN)\(^9\). Therefore, it is necessary to find alternative sources of export financing from other parties.

LPEI carries out the mandate of SME trading financing and working capital of SMEs conducting export activities. However, from the discussion with the LPEI, the mandate has not been operational due to lack of implementation guidance from the Ministry of Finance. In addition to banking, alternative financing through nonbank financial institutions also still need to be improved. SMEs in other countries, such as South Korea, India, Malaysia, Thailand, and China have gained access to capital markets. In order to provide an alternative funding access for SMEs in Indonesia, the Indonesian financial services authority recently issued a policy to facilitate SME access to the capital market with plans to add individual boards for SMEs, in addition to regular trading boards.

Meanwhile, the source of funds from nonbank financial institutions is also limited. Some of the things that make nonbank financial institutions less developed in Indonesia, among others, are the lack of funds and the legal system that has not been supported, such as the legal basis for venture capital. Crowd funding also began to develop as an

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\(^8\) Incorporated by Law Number 2/2009, LPEI or Indonesia Eximbank is a Financial Institution that provides National Export Financing in the form of Financing, Security, Insurance and Consultation Services

\(^9\) Anggaran Pendapatan dan Belanja Negara (APBN): The Indonesia Budget
alternative nonbank financing in Indonesia although still very limited. However, the growth of crowd funding is not as fast in the United States as there is still a lack of 'trust' between investors and borrowers.

**Market Access**

The ease of market access on domestic and international strongly supports the improvement of competitiveness of Indonesian SMEs. Due to the weak characteristics of SMEs in the use of technology and innovation, the scope of marketing of SME products in the domestic market limited to those in the SMEs, and the marketing sphere also tends to be localized in certain areas. From the FGDs that have conducted, several ministries have implemented programs that support the SME marketing aspect in the domestic market. For example, programs are undertaken by the Ministry of Trade such as the establishment of local trade forums that serve as a liaison between SMEs between regions, SME partnerships with modern retail businesses, and support for implementing online sales systems through e-cataloging or implementing e-marketing. Programs that greatly assist SME market access are often small-scale so that the impact is less than optimal. The challenge for the government is to create a larger scale program to have a broad impact. Online programs such as e-cataloging and e-marketing need to be the focus of attention.

When entering the global market, SMEs must have other challenges because doing export, not as easy and as cheap as entering the domestic market due to risk factors and higher costs. The cost to obtain the export market is sunk cost, which is the cost to be incurred but can not withdraw if the export not realized. The Government through the Ambassador, Trade Attaché, and Indonesia Trade Promotion Center (ITPC) have been trying to get information and connect exporters with buyers abroad. The government also established the Directorate General of National Export Development to help the business world to export. Only, the effectiveness of programs and activities undertaken by these institutions is often not maximized. The challenge for governments is how to improve the efficiency of these establishments in increasing export market access to potential markets.

**Infrastructure Support**

The limited availability of support, quality and high cost of logistics
services have been the obstacle to overall business growth in Indonesia. The impact of the quality of infrastructure and logistics on the transaction costs of SMEs will be greater than the large companies because the scale of SME business operations is relatively smaller. Based on World Competitiveness Report (2015-2016), related to the availability of infrastructure, the quality index measured with transportation, electricity and telephone support, Indonesia is ranked 62. The rating is still lower than Singapore, Malaysia, and Thailand ranking 2, 24 and 44 respectively. Similarly, Indonesia’s logistics quality is lower compared to Singapore, Malaysia, Thailand, and Vietnam.

Indonesia’s logistics costs are still around 27% of GDP, much higher than countries such as Singapore, Malaysia, and Thailand that are in the range of 8% to 20% of GDP. Related to the overall quality of telecommunications, including internet connection and broadband access, Indonesia is also under Singapore, Thailand, and Malaysia. Furthermore, Indonesia does not yet have an industrial cluster that can synergize with SME development strategies. Development of the cluster needs to follow the policies adopted in other countries, even need to be supported with adequate infrastructure and facilities. Support in the form of regulations, rules, or support from institutions that implement the cluster is a prerequisite for synergizing SMEs with larger scale industries.

Table 5. Quality of Logistics and Infrastructure in ASEAN

<table>
<thead>
<tr>
<th>No</th>
<th>Country</th>
<th>Logistics Performance Index 2014</th>
<th>Infrastructure Index (2015-2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Score</td>
<td>Rank</td>
</tr>
<tr>
<td>1</td>
<td>Brunei Darussalam</td>
<td>2.74</td>
<td>83</td>
</tr>
<tr>
<td>2</td>
<td>Cambodia</td>
<td>3.08</td>
<td>53</td>
</tr>
<tr>
<td>3</td>
<td>Indonesia</td>
<td>2.39</td>
<td>131</td>
</tr>
<tr>
<td>4</td>
<td>Lao PDR</td>
<td>3.59</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>Malaysia</td>
<td>2.25</td>
<td>145</td>
</tr>
<tr>
<td>6</td>
<td>Myanmar</td>
<td>3.00</td>
<td>57</td>
</tr>
<tr>
<td>7</td>
<td>Philippines</td>
<td>4.00</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>Singapore</td>
<td>3.43</td>
<td>35</td>
</tr>
<tr>
<td>9</td>
<td>Thailand</td>
<td>3.15</td>
<td>48</td>
</tr>
</tbody>
</table>

The government can focus on developing existing industrial clusters to improve the competitiveness of SMEs rather than developing new industrial clusters. The government needs to look at industries that have the potential to increase the role of SMEs in high industrial production processes. The industrial cluster development model in Indonesia currently focuses more on an exclusive economic zone by prioritizing capital.

Table 6. Economic Growth of ASEAN Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>-2</td>
<td>-2</td>
<td>0.6</td>
</tr>
<tr>
<td>Philippines</td>
<td>8</td>
<td>4</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>6.2</td>
</tr>
<tr>
<td>Indonesia</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>5.8</td>
</tr>
<tr>
<td>Cambodia</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7.0</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>7.8</td>
</tr>
<tr>
<td>Malaysia</td>
<td>7</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>5.8</td>
</tr>
<tr>
<td>Myanmar</td>
<td>10</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>7.9</td>
</tr>
<tr>
<td>Singapore</td>
<td>15</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>6.4</td>
</tr>
<tr>
<td>Thailand</td>
<td>8</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>3.9</td>
</tr>
<tr>
<td>Vietnam</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5.9</td>
</tr>
</tbody>
</table>

Source: ADB (2015)

The national growth and the slowing world economic growth will also affect the SMEs performance, not only in Indonesia but also in all ASEAN countries. The business cycle is not okay that can be utilized to prepare for future economic improvement.

CONCLUSION

SMEs saw as vulnerable entities that need to protect, in the end, many policies and programs are developed and implemented not by business orientation but more social. The social approach will not produce Indonesian SMEs capable of competitiveness. In fact, the Indonesian government’s approach to SME development is more towards social welfare by promoting social justice goals as well as the balance of development between cities and villages as well as between regions. The need to change the perspective of SMEs as a potential source of growth, and not just business entities. Indonesian SMEs are unable to compete with larger and more experienced similar companies. However, SMEs are not social charity objects but are the forerunners of big businesses that are also competitive. Thus, the treatment of SMEs should be different, namely prioritizing facilitation to gain better access to inputs, financing, and markets.
There are several things that the government can do to improve the performance of Indonesian SMEs in this regard, namely Ease of Doing Business. SMEs are reluctant to become a formal enterprise is a problem that needs to be prioritized to be noticed by the government. The legality aspect is beneficial in accessing external funding sources. Therefore, the licensing arrangements for SMEs need to be facilitated and free of charge. The granting of access and special facilities for SMEs for licensing arrangements throughout the One Stop Service Integrated Agency throughout Indonesia needs to be initiated by the government. However, such services need to follow by other policies, such as ease and tax incentives to encourage SMEs to become formal business entities. For SMEs that have established for more than two years, the provision of incentives or reduction of income tax for a period of time accompanied by compliance tax assistance may be considered to enhance the competitiveness of SMEs. The ease and incentives of such taxation are expected to encourage increased legalization of SME entities. The government can provide an investment license registration facility that cuts the number of procedures and reduces the number of days required for a given SME. In the capital aspect, the government business credit program that has been run by the government is a significant facility to help access SME capital. Nevertheless, micro credit banks require mentors by loan recipients. So, credit utilization is more efficient. The limited capacity of banks to channel credit needs to be sustained by opening access to capital markets for SMEs as well as removing barriers to the development of nonbank financial institutions, such as venture capital and crowdfunding. Some of the obstacles to the lack of developing crowd funding are the lack of a clear set of laws and rules regarding crowdfunding and investment security.

Concerning market access, the government has facilitated SMEs to gain market in the country. However, the scale of assistance that can provide is insufficient. The use of innovative new methods to help SMEs get the market so that on the same budget more SMEs can be facilitated, such as synergizing with local government (cost-sharing) and intensifying e-catalogs and other online promotions. Regarding facilitation of development to the international market, the government also needs to enhance further the role of Indonesian
representatives abroad as a market 
intelligent to obtain information on 
potential markets (potential demand, 
trade barriers, including required 
standards and certification, and 
procedures for entry into the country. 
Also, good cooperation with specialized 
ministries needed to match-making 
market original information on potential 
markets with the ability of producers to 
meet the market, including facilitation to 
obtain certification and standard 
management so that it can accept in the 
destination market.

Increasing the relevance of SMEs in 
GVC provides significant benefits for 
Indonesian SMEs regarding quality 
 improvement and product innovation, 
human resources, especially sales. 
Other sectors can also feel the impact 
as a result of spillover economic effect. 
As in improving domestic market 
access, the first step that can make is 
the availability of funding to support the 
move. Such as public investment either 
from the government or other parties, it 
is necessary to implement 
implementation that can increase SME 
linkage in GVC. Steps that can do are 
mapping the capacity of SMEs that can 
be suppliers in a global production 
network, and mapping of the need for 
raw materials (input) in the 
manufacturing process of SMEs 
medium scale and big business. This 
mapping must be made to identify 
factors that could increase the 
engagement of Indonesian SMEs in 
GVC. Meanwhile, to improve market 
access for Indonesian SMEs that have 
exported directly, the government can 
support regarding providing information 
related to export destination markets. 
Such information is the result of market 
intelligence towards export destination 
countries and aims to explore the 
potential for increased sales for 
exported products or potential new 
products sold in the country. Information 
in market data may include key 
economic sectors, public purchasing 
power, and country targeted export and 
import structures in addition to physical 
infrastructure and integrated facilities for 
investment, trade and manufacturing 
processes to attract big business.

The establishment of industry-
specific clusters for Indonesian SMEs 
can significantly improve 
competitiveness and enhance SME 
growth. It can also increase the role of 
SMEs in GVC through the linkage of 
SMEs with large companies. Meanwhile, 
the facility of one-stop services for 
SMEs provides an incentive to occupy 
the area. Such integration can indirectly
serve as a driver to improve the quality of Indonesian SMEs products and capacity. In the short-term strategy aspect to dampen the rate of weakening sales needs to be done, such as diversify the market for export sales and seek opportunities and intensify existing cooperation with multinational companies.

RECOMMENDATION

The performance of Indonesian SMEs is still relatively small compared to countries with relatively similar levels of development, especially regarding productivity, contribution to exports, participation in global and regional production networks, and contribution to added value. The ability of SMEs to compete in the global era depends on internal factors, such as business scale, stakeholder's personality, educational background and corporate culture. That can reflect the level of productivity and innovation of the company, as well as external factors that are factors outside the enterprise such as access to capital and policy environment.

To improve the competitiveness of Indonesian SMEs in general and to increase SME participation in GVC, the factors that determine the competitiveness of SMEs, as well as the level of involvement in GVC, need to be of concern to the government. Several factors that determine the competitiveness of SMEs can group into two major groups, namely internal and external factors. Internal factors include aspects that can improve the productivity of Indonesian SMEs, namely human resources, marketing strategies, and innovation. Meanwhile, external factors are various aspects outside the SME that can affect and support the competitiveness of SMEs. These factors are ease of doing business, access to finance and capital, market access, infrastructure, and macroeconomic conditions. Government policies related to SMEs show that government approach is more social welfare than business approach. The policy has not been able to make Indonesian SMEs more competitive. Different paradigms required in making SME related policies, such as excessive protection to facilitate access. SMEs need access to both cheap and easy inputs (raw materials, human resources, and capital goods), financial or market support for products/services produced. The government needs to improve its role in providing such facilitation, both in enhancing productivity and innovation, offering ease of business, financial
access, and market access, both locally and globally. The weak world and regional market conditions should address as an opportunity to improve the ability of Indonesian SMEs.

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Globalization has an impact on opening of the world free trade market. The commerce and services sectors are the leading sectors of the world free trade market for almost a decade. Since early 2010, China and India have been preparing their human resources to face the modern free trade era. The rapid economic movement and the ease of internet access makes modern society nowadays moving from conventional to modern transaction method. Trading activities will be dominated by online-based transactions, even courier services will be replaced by the role of online transport. This study aims to analyze the effect of online transport mobility on the effectiveness of trade rate in Jakarta. The method used is quantitative approach through survey to the respondents of the users of online and conventional transportation services using convenience sampling technique. The results of the study provide an overview of the Indonesian people response, especially Jakarta citizens, related to the existence of online transportation services. Expected by the existence of online-based transportation services, the citizens can make transaction, commerce, and other trades activities which is more effective, efficient, and competitive.

**Keyword**: Free Trade Market, Online transportation, Citizen, Commerce

**JEL Classification**: 18 P, 2 P, 2 C.

**INTRODUCTION**

Transportation is an inseparable part of modern human activity. Almost all industry sectors depend on the role of transportation services, including the trade sector. To create competitive advantage, companies can no longer rely on traditional ways of distributing their products. Competitive pressures and high consumer demand force companies to create innovations, especially in the delivery and distribution of their products.

Technological innovations and developments push the company to create movement of goods with short delivery times as well as high efficiencies even in a wide delivery network, something much needed by the modern consumer of this century. In most cases, the role of transportation services is very important because it allows products to move from producer to consumer that is often limited by a considerable distance. The courier capability to deliver the product to the consumer on time, in appropriate quantities and in good condition will determine whether the product will eventually be competitive in the market.
The ability to manage distribution and transport network is one component of competitive advantage that is critically important to most trade industries nowadays.

Transport or transportation according to well-known Indonesian professor and author, M. Nasution (2004), is the movement of humans, animals and goods from one location to another destination. Modes of transport include air, rail, road, water, cable, pipeline and space. Therefore, Due to the importance of the activities of goods and human beings. Then, Transport is one of the important sector that can support the activities of the economy (the promoting sector) and the services (the servicing sector) for Indonesian sustainable economic development.

Whereas, transportation function according to Edward Morlok (1984) is a system to move people and goods from one place to another by using certain system for certain purpose. Human or goods transport is not usually the final destination, therefore the demand for transport services can be called derived demand arising from demand for commodities or other services. Thus the demand for new transportation will exist if there are factors pushing it. The demand for transportation services does not stand alone, but is hidden behind other interests.

Research on the effect of transportation role on the trade commerce has been done by many researchers for more than 4 decades. Creghtney (1994), based on his experience in Africa, says that transportation can form a new structure of the economy. The purpose of establishing a new structure (structural adjustment) is to reduce the balance of payments deficit through reducing domestic demand for consumption and investment to balance production and income. Besides, it is also intended to change the level of production that allows outside boundaries by increasing resource allocation and efficient use of resources or increasing the number of inputs. Gregory and Bumb (2006), World Bank (2008), even reported that the impact of transportation is very influential on agriculture in Central Africa, as transportation costs account for one-third of the price of fertilizer. Copra (2010, p380). Transportation is the movement of a product from one location to another that represents the beginning of a series of supply chain to the consumer.
Transport is very important because a product is rarely produced and used in the same location. The demand for goods or services is the beginning of all supply chain activities. Production, delivery, product design and material purchasing activities are carried out in order to meet the needs or demand for goods or services from the consumer.

The emergence of a new idea that became known as the economy neoclassical (neoclassical economy) gives the role of capital and technology in as one of the variables in economic development (Kuznets, 1995). From the transportation perspective, almost no significant change between classical and neoclassical economics. Nevertheless, the use of technology becomes the main thing of the neoclassical model, so that in-tech improvement the transport system plays a role in the process of economic growth.

Rodrigue, Comtois and Slack (2006), states that in efficient transport system then the affected area will receive good economic benefits and opportunities. Otherwise system inefficient transportation will increase economic costs and thus losing the opportunity to develop. The economic impact of transport can be explained by: 1. The immediate impact is related to the change of accessibility in which transport expands the distribution market and reduces cost and time can be saved (time saving). 2. Indirect impacts are as a result of multiple impacts (Multiplier effect), Such as the fall / rise in the price of commodity prices.

Demand for goods and services generally depends heavily on customer income and or prices of those goods and services relative to other prices. For example, the demand for travel depends on the income of the person making travel or trade requests. The demand for a customer-chosen trip depends on several factors such as travel destinations, travel distance, and customer income (Stubbs et al., 1980).

Firman (2008), using the input output analysis method, investigates the impact of the transport sector on agriculture and livestock sectors. Based on the result of input analysis of national output 2005, it can be concluded that the existence of transportation sector strongly support in distributing goods and services. Especially the agriculture and livestock is one of the sector which utilize the output of the transportation
sector in distributing goods and services.

**METHODS**

This research used survey method. The study was conducted in a natural or non-artificial space and the researchers conducted treatment in data collection. As suggested by Sugiyono (2011: 6) that survey method is used to obtain data from a certain place that is natural (not artificial), but researchers do treatment in data collection, for example by distributing questionnaires, test, structured interviews and other relevant.

Because this research is conducted by survey method, the data used in this study are primary data and secondary data. Primary data is obtained directly empirically from people directly involved with the object of research, the data is then collected and processed comprehensively. Secondary data is data that is not directly related to research problem but is supporting data to obtain information. Secondary data were also collected to complement the research information through literature studies on publications of related journals.

This research was conducted in Jabodetabek area, especially Jakarta capital city. The selection of research sites is done purposively with the consideration that the region is the center of the trade activities in Indonesia with big population and its transportation services are growth very rapidly. Data collection conducted in July to August 2017.

The population used as objects in this study is the population who had used online transportation services. The researchers used the Slovin equation in determining the size of the sample because in the sampling, the number must be representative for the results of research can be generalized and the calculation of any data applied simply

\[ n = \frac{N}{1 + Ne^2} \]

Where the \( n \) variable is the sample size / number of respondents, \( N \) is the population size, and the variable \( e \) is the tolerance of the leniency percentage of the accuracy of the sampling error in the intolerable \( (e = 0.1) \). In the equation there is the following provision: Value \( e = 0.1 \) (10%) for large populations Value \( e = 0.2 \) (20%) for small populations. The number of population in this study is 950 people of random online transportation service users, so the percentage of leeway used is 10%. So to know the
Sample research can be determined through the following calculations:

\[ n = \frac{950}{1 + \frac{950(0.1)^2}{90.476}} = 90.476 \]

Based on the calculation above, in this study as many as 90 people, the sample is taken based on the technique of probability sampling or simple random sampling, where researchers provide equal opportunities for each element (member) population to be elected to members of a random sample.

Sampling is done by incidental techniques, as suggested Sugiyono (2011: 85) that incidental sampling is the determination of a sample by chance, ie anyone who accidentally / incidentally meets with the researcher can then be used as a sample, when viewed by the person who happened to meet it is suitable as a data source.

The selection of respondents is determined purposively. The amount of respondent data used in this study were 90 active users of online transportation for business or commerce transactions services. The data obtained include data on the characteristics of respondents, data related to the calculation of the efficiency of online transportation to trade in Jakarta, information related to the mobility of the community before and after the existence of online transport, data related to the calculation of the efficiency of the online transportation (waiting time, travel time and travel expenses), and information on marketing system or institutional of online transportation.

Commonly, in quantitative research, primary and secondary data are needed as a research base. In this study, the primary data source is all data obtained from the questionnaire distributed to users of online transportation services that became participants in this study. Secondary data in this research is in the form of books, documents, articles, internet sites, bibliography, journals in the form of theory and data related to problems in research.

Data aggregation techniques are listed into 3 major scales, there are observation, literature study, and questionnaires. The data obtained are then collected and arranged systematically.

Based on observations of recent market conditions, the transportation system greatly determines the ability of producers to deliver products to the place of consumers with the appropriate amount, the right time, and the condition of a good product. Indicator is a decisive
factor from the competitive side of the product in the product market itself.

Literature study through relevant journals is used as a comparison or to support information relating to research problems. This technique is used to complete the data in order to analyze the problem under investigation. In this case concerns the problem of trust of producers and consumers in using online transportation services for distributing products and comparison of cost and estimated time of courier in delivery of goods. This is done to get input in the form of concepts, principles, and basic theory related to research.

The questionnaire in this study is used to collect data from the respondents who have been determined. The questionnaire contains questions about aspects that are taken into consideration by Jakarta residents in using transportation services as a medium for distributing goods. Questions are prepared by observing the principles of questionnaire writing such as the content and purpose of the questions, the language used, the type and form of questions, the length of the questions, the sequence of questions, etc.

Demand for goods and services generally depends heavily on customer income and on prices of those goods and services relative to other prices. For example, the demand for travel depends on the income of the person making travel or trade requests. The demand for a customer-chosen trip depends on several factors such as travel destinations, travel distance, and customer income (Stubbs et al., 1980).

We have seen that the demand function is a relationship between the amount of demand for an item and the price of the goods being offered. For the same reason, the bidding function (service function) represents the amount of goods offered by the producer at a certain price level, for example the transportation tariff per unit distance (Kilometres), some goods that has a certain selling value. If the demand and supply function of a transport is known, then the concept of demand and supply balance can be applied.

The equilibrium value (equilibrium) is said to be achieved when the factors that affect the amount of demand and also the factors affecting the amount of supply are in the same condition (intersect at the equilibrium point). By knowing the functional form of
travel demand we can forecast travel-volume changes resulting from price changes that occur over a short period of time. One phrase that can explain how far a change in sensitivity to a price change (or other particular factor) is elasticity request \((e_p)\).

If, \(q = \alpha - \beta p \) ....................................(1)

Where \(q\) is the number of requests, \(p\) is the price, and \(\alpha\) and \(\beta\) is the parameters that demand constant, and \(e_p\) = the percentage change in the number of travel requests incurred by a 1% price change, then

\[ e_p = \frac{\delta q}{\delta p/q} = \frac{\delta q}{\delta p} \left( \frac{p}{q} \right) \] ...................................................(2)

Variable \(\delta q\) is the price changes and the number of trips. Substituting the equation above, then obtained the elasticity of the arc price (elasticity of demand).

\[ \frac{\delta q}{\delta p} \left( \frac{p}{q} \right) = \left( \frac{Q_1 - Q_0}{P_1 - P_0} \right) \frac{(P_1 + P_0)/2}{(Q_1 + Q_0)/2} \] ........................................(3)

Each \(Q_0\) and \(Q_1\) is the number of requests for \(P_0\) and \(P_1\). There are many issues related to arc price elasticity because this elasticity will be different from the point elasticity. The deviation will increase when AP or AQ increases.

For a linear demand function, the price elasticity can be determined by finding derivatives from the first equation (1):

\[ e_p = \frac{\delta q}{\delta p} \left( \frac{p}{q} \right) = -\frac{2p}{q} \] ...................................................(4)

After substitute the \(p\) with first equation, obtained elasticity of demand

\[ e_p = 1 - \frac{\alpha}{q} \] ...................................................(5)

The elasticity of demand value is shown in Figure 1.

When the elasticity smaller than -1 (in other words, more negative than -1), then requests be interpreted as demand that is elastic, it is a change in the percentage of the number of trips produced. It would be greater than the percentage of the price. In this case, the demand for relatively sensitive to changes in price. However, when the elasticity is between 0 and 1, then the demand can be interpreted as demand that is not elastic or are not sensitive.
RESULTS AND DISCUSSION

Based on the primary results of a survey from 90 Online transport users and by using Purposive Sampling techniques, it can be seen that most people choose to use Online transport services for reasons of more efficient and faster mobility. It is also supported with a Global Positioning System (GPS) device which makes 68 people choose to use Online transportation services to enhance their trip services, while 32 people still use Conventional transport services for their transportation mobility. The safety factor is also one of the reasons people trust the Online transport services. A total of 56 people choose online transport because of its safety factor. While there are only 34 people who choose Conventional transportation. Transparent costs of the trip make 64 respondents trust Online transportation services, while the remaining 26 people choose Conventional transportation. A total of 47 people still choose Conventional transportation in the ease of booking because without the need to download the applications online, but as many as 43 people still choose online transport. The rest have other reasons for choosing an online or conventional Transport.

Figure 1 (a) The function of demand shown the elasticity on the various Volume.
Meanwhile, secondary data from the following table is from the travel archives of The Nationwide Personal Transportation. Based on data confirming that local trips demand with great distances and delivery of goods continues to grow and increase. Several factors influence this growth: greater vehicle availability, reduced travel costs, rising population, growing economies, and higher consumer revenues.

### Table 1. Aspects That Affects Jakarta Citizens to Use The Transportation Services

<table>
<thead>
<tr>
<th>No.</th>
<th>Services</th>
<th>Online Transportation</th>
<th>Conventional Transportation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobility</td>
<td>68</td>
<td>32</td>
</tr>
<tr>
<td>2</td>
<td>Safety</td>
<td>56</td>
<td>34</td>
</tr>
<tr>
<td>3</td>
<td>Costs</td>
<td>64</td>
<td>26</td>
</tr>
<tr>
<td>4</td>
<td>Ease of Order</td>
<td>43</td>
<td>47</td>
</tr>
<tr>
<td>5</td>
<td>Others</td>
<td>60</td>
<td>40</td>
</tr>
</tbody>
</table>

Source: Primary Observation Data

### Figure 2. Aspects That Affects Jakarta Citizens to Use The Transportation Services

Source: Primary Observation Data
Based on the results of research shown that the demand which has experienced a shift, showing the changes in the quantity of travel that occurs due to variables outside of the price. Usually, at a $p_o$ value can estimate that there will be the quantity of $q_1$, $q_2$, and $q_3$ as of the request of Dr. Lionel Canter was found to Dr and Dr. If the curve to shift to the (from D, to D3), this indicates the existence of an increase in demand. the difference between bearing the vicissitudes of the short term at the quantity of the trip as a result of a change in the price (shown by the movement along the demand curve in Figure. 2-1) with long-term changes due to activity or behavioral variables, as shown by the shift in demand function in Figure. 2-2.

![Figure 2-1 The function of typical demand](image1)

![Figure 2-2 The Demand curves that have shifted](image2)
In general, customers will buy more items than usual when the price drops, and buy less when the price goes up. Some of the factors affecting the elasticity of the price is as follows:

1. If customers to spend his income by the percentage that is big enough, let's say for transportation, they would make greater efforts to find a replacement (substitution) if the costs of transportation.

2. The narrower the definition of an item, it makes more replacement for the goods, so that the demand for goods has become a more elastic. As the demand for Toyota more elastic than demand of cars, and for cars more elastic than demand for transportation.

3. When the customer found that the price and availability of goods, demand for more elastic. They are playing an important role in providing the successor to the customer, In the context of the same, the more time owned by customers to obtain goods, demand will be the elastic.

4. The items are classified by the customer as to be owned by usually have a request that is not elastic, while the items that are considered a luxury hiasanya have a request that is elastic. For example, glasses is seen by a customer as supplies with a little bit of a replacement, while on vacation to Europe is luxury goods with a few things, a replacement.

An item is said to be normal when the demand for the goods increases as consumer income also increases ($e_t > 0$). Most things can be said to be normal. An item is said to be superior when the demand for the goods increases as consumer income increases and the share of expenditure for the goods increases. On the other cases, an item is said to be inferior if the demand for the goods decreases as consumer income increases. In North America, a car is categorized as a superior item, while spending on travel by public transport is often categorized as inferior goods. Luxury food is a superior item, while cheap beer is an inferior good.

The linear demand curve has some interesting properties. Note that downward from the demand curve, the price elasticity of demand will become smaller (in other words, less elastic). In fact, the elasticity at a given point is equal to the length of the demand line segment below that point divided by the length of the line segment above it.
Another noteworthy thing is that the slope of the line is always constant, but the elasticity changes from the \( \infty \) (at the top of the chart, where the request line intersects the vertical axis) to 0 (at the bottom of the graph, where the request line intersects the horizontal axis). Since elasticity changes along the demand curve, we must determine the price range or the amount at which the elasticity is calculated.

The observations to the travel time of the efficiency of transportation on the highway the city can be stated with the equation that presented the functions as follows.

\[
t = 15 + 0.02v ........................................(1)
\]

Where \( t \) is measured in units of minutes and \( v \) in an hourly transport vehicle. The demand function for travel linking trade activities in Jakarta can be expressed by

\[
v = 4000 - 120t ....................................(2)
\]

So that based on the data obtained can first picture the graph of balance time and speed of transport mobility. In addition, the average vehicle speed and movement rate through the Jakarta road segment can be calculated by looking at the static balance table of demand and supply.

So it can be known the value of total revenue (price x output) that may be obtained a trading company if the price of one unit of goods changed its economic value.

\[
e = \frac{\% \text{Change in the number (units) of requests}}{\% \text{Price Changes}}
\]

- If \( e > 1 \), the total price and acceptance have a negative relationship (or demand is elastic)
then the price increase will reduce the total revenue, but the price reduction will increase the total revenue revenue.

- If \( e < 1 \), the total price and acceptance have a positive relationship (or demand is inelastic) then the price increase will increase the total revenue and the decrease in the price will decrease the total revenue.
- If \( e = 1 \), the total revenue does not change, even if the price rises or falls.

**Online transportation versus Conventional transportation Efficiency**

The sample was chosen in case analysis is used to describe one round trip around the city using Online and Conventional transportation with the same time. Through this method then obtained the results of the performance comparison. The indicators which used to compare Online and conventional transportation is the travel expenses and estimated travel time. The purpose of comparing the both transportation is to find out the more efficient transport used for mobility in the city of Jakarta.

**Distance and Travel Expenses**

The calculation of the cost of online transportation and Conventional transportation is different. The advantage of online transport is that consumers can see the cost of the journey from the starting point to the end point of direct stop on the online transport application contained in the smartphone after the ordering process, so that consumers have the option of continuing the trip or switching the online transport service to other cheaper services. Consumers are not aware of the total cost of Conventional transport travel from the starting point to the end point of dismissal, since the transparency of fees is not notified by the driver/driver of Conventional transport. Then, consumers also do not know the total cost of travel because to get to the end of the termination must climb more than one Conventional transportation so that the total cost of travel cannot be expected before. The total payment of the travel online transportation fee is made after the customer has reached the end of the stop and the total cost of the trip is in accordance with the value stated at the time of the booking process. Then, in addition to cash payments consumers
can also make a total payment of online transportation travel expenses by using a debit card account or balance that has been stored previously. Payment of Conventional transportation travel expenses is made after dismissal before proceeding on another Conventional transport to arrive at the point of discharge. Then, the payment of travel expenses Conventional transportation is made in cash and cannot be done by debit. Based on the calculation of Conventional transportation travel cost on a predetermined route, it can be shown in Figure that Conventional transportation has a more expensive travel cost when compared to online transport.

Based on the table below, the average cost of trip around Jakarta city using Transportation shows the cheapest cost is Rp. 14,000 and the most expensive cost is Rp. 27,000.

**Figure 4. Average Transport Expenses**  
Source: Primary Observation Data

**Estimated Travel Time Duration**

The calculation of the Online and Conventional transport duration conducted simultaneously. The calculation begins when the observer begins to travel from the point of waiting or pickup. After making a reservation then the calculation of the duration of travel Online transport and Conventional transportation begins until Online transportation and Conventional transport arrives at the destination point.
Based on the calculation of the travel duration can be shown in Figure 5. Estimated travel time duration when compared to Conventional transportation.

![Estimated Travel Time Each 10 Kilometres (In Minutes)](chart.png)

**Figure 5. Average Estimated Travel Time**

Source: Primary Observation Data

The duration of travel by Conventional transport is longer than the Online transportation, because Online transportation can avoid congestion on the Jakarta busiest district. Meanwhile, Conventional transport cannot avoid the congestion on the streets of Jakarta. Then, based on the observations, the researchers found four reasons why public transport has a longer travel time compared to the online transport that is: Firstly, to arrive at the destination point or the end point of the passenger stop must proceed by taking another transport (transit) so that passengers have to board more than one vehicle to reach the destination or end point of dismissal. To move from one public transport to Public Transport subsequently takes time so as to prolong the length of travel time. Secondly, when on trip, Conventional transport will stop at gas stations to refuel it also result in prolong the length of travel time. Third, Conventional transport stops halfway through the journey to find passengers thereby extending the length of travel time. Fourth, passengers are forced to move conventional transport due to drivers
conventional transportation reasoned that passengers only slightly and will harm him so that the driver will return to rotate the starting point to look for more passengers.

**CONCLUSION AND POLICY RECOMMENDATION**

Based on the research, it can concluded that online and conventional transportation has various advantages and disadvantages. Based on data, many of Jakarta citizens use transportation services for their mobility. The impact of the transportation services emergence, especially online transportation, is very make an impact on economic and commerce activities in Jakarta capital city. Much of modern societies are beginning to move from conventional transportation service to online transportation. The communities need a fast transportation system, it makes the development of online transportation services will increase rapidly. However, there are still some aged people who still use conventional transportation services for everyday activities. Meanwhile, government policy is needed to provide a solution for this dualism transportation competition and both sides get profits equally. Thus, Jakarta capital cities can increase the productivity and overtaking delays in technology from other countries. To reach this goal, the online and conventional transportation companies need to synergize to provide maximum services for transport efficiency in Jakarta and increase the local productivity. This has a positive impact not only in Jakarta but also will be a role model for other regions in Indonesia.

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STUDY ON THE IMPACT OF ICT DEVELOPMENT AND GOVERNMENT EXPENDITURE FOR ICT ON INDONESIAN ECONOMIC GROWTH

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Abstract
Indonesia still lags behind in the developments in the field of Information and Communication technology (ICT) infrastructure and ICT utilization as compared to its neighboring countries. The Networked Readiness Index published by the World Economic Forum's (WEF), in 2012, Indonesia was ranked 80 among 142 countries, and have climbed to position 64 in 2014. This indicates that businesses in Indonesia are adopting ICTs to increase productivity and expand their activities. Capital investment in ICT systems if properly implemented would boost the Indonesian economy. This study is aimed to investigate the impact of ICT index and ICT investment on Indonesian economic growth. The data used consist of ICT index, government expenditure on ICT sector, and economic growth from 33 provinces of Indonesia year 2012-2015. Panel data regression analysis is performed to reveal the change of the impact over time in each provinces. The result shows that the ICT index and ICT investment have a positive effect on the economic growth in all provinces, although the impact is different among the provinces. Profile of provinces with higher and lower impacts ICT on the economy are also discussed.

Keywords: Information and Communication Technology (ICT), Economic Growth, Panel Data Regression

JEL Classification: O12, O33, 038

INTRODUCTION
Nowadays Information and Communication Technology (ICT) has become one of the most important indicators determining the development of economy in a region. ICT has become a catalyst for economic growth which can be seen from the widespread impact of ICT utilization, enabling the application of more efficient methods for the production, distribution and consumption of goods and services.

Indonesia as an archipelago country, ICT should be very potential to be a leading sector and play a role to eliminate these geographical constraints, so that dissemination of information can be done quickly. The role of ICT is needed in order to support the distribution of development in each region, so as not to be left behind compared to other countries.

However, developments in the ICT infrastructure and its utilization in Indonesia are still lagging behind compared to its neighboring countries. Based on Network Readiness Index published by World Economic Forum's (WEF), in 2012, Indonesia is ranked 80th among 142 other countries with index...
value of 3.75, far away from the neighboring countries such as Malaysia (index=4.8, position 29) and Singapore (index= 5.86, position 2). In 2014 Indonesia’s network readiness index increase to 4.04 and rose to 64th position in 2014. Whereas Malaysia has index 4.83 and in 30th position.

The ICT Development Index developed by the International Telecommunication Union (ITU) describes the level of development of information technology and communications of a region. The Indonesia’s Information and Communications Technology Development Index has increased every year from 4.24 in 2012 become 4.83 in 2015 (Official Statistics News BPS, 2016). Increasing of ICT development index, indicating an increase in the utilization of ICT in increasing productivity and expanding economic activity in Indonesia.

One way to measure the impact of ICT development in national development is from the contribution of communication subsector to total GDP. In 2012, the contribution of communications subsector in Indonesia to constant GDP is 6.39%. The contribution of this sub-sector was ranked fourth largest after the industrial subsector without oil and gas, the sub-sectors of large and retail trade, and the sub-sectors with contributions of 23.85%, 15.12%, and 6.52% respectively.

In addition, the constant GDP of the communications subsector in 2000 to 2014 always increased, with GDP of the communications subsector of 18,260.3 billion rupiahs in 2000 and to 205,957.2 billion rupiahs by 2014, as shown in Figure 1.

![Figure 1. GDP Communication Subsector in 2000-2014 (Billion Rupiahs)](image)

The large contribution of the communication subsector to GDP and the increase in GDP value of communications subsector indicates that ICT has an important role in the national economy. Based on this, ICT sector can be used as one of the key sectors in boosting economic growth in Indonesia (Azuari, 2010).

Economic growth theories predict that economic growth is driven by
investments in ICT. Nasab and Aghaei (2009), in their research employs a Generalized Method of Moments (GMM) within the framework of a dynamic panel data approach and applies it to the economy of OPEC member countries over the time span of 1990-2007. The estimates reveal a significant impact on economic growth of investments in ICT in the OPEC member countries. This implies that if these countries seek to enhance their economic growth, they need to implement specific policies that facilitate investment in ICT.

Bongo (2005) show that ICTs have a large contribution to economic growth, where in the business process the use of adequate technology can make the process faster, cost-effective and increase the level of production.

In addition, Farhadi et al (2012) showed a positive relationship between the growth rate of real GDP per capita and ICT development index. A country with higher development of information technology has higher economic growth. In other words, there is a tendency that countries with a rapid ICT growth have a rapid economic growth as well.

Vu Khuong (2004), his study provides a cross-country view on this issue by assessing the impact of ICT on economic growth for 50 major ICT spending countries. His study shows that ICT investment has a significant impact on economic growth not only as traditional investment, but also as a boost to efficiency in growth: a higher level of ICT capital stock per capita allows an economy to achieve a higher growth rate for given levels of growth in labor and capital inputs.

Basically ICT development cannot be separated from the role of government, society, and industry. Government as policy holder, strategy, and priority on a region have an important role in regional development. The sincerity of government in developing and improving ICT can be seen through the realization of government budget expenditure for ICT. Based on figure 2, it can be seen that government expenditure for ICT is increasing every year.

![Figure 2. Government Expenditure for ICT in 2009-2015 (Billions of rupiah)](image-url)
According to Nata (2007), ICT investment has a strong influence on the growth of the Indonesian economy. High growth rates of investment will trigger a high Indonesian economic growth. Through increased government expenditure in the technology and communications sector will have a major impact on capital production factors, corporate institutions and labor that play a role in boosting economic growth.

Since 2004 Indonesia has adopted a fiscal decentralization policy, in which each region has the authority to manage its own finances. The existence of policy differences in the allocation of regional expenditures will cause the development of ICT in each province is different. The difference of ICT development between regions, can lead to digital divide between regions. Based on the Association of Internet Service Providers Indonesia (APJII), internet users in Indonesia increased rapidly from 88 million people in 2014 increased to 132.7 million people in 2016. However, 65% of users are in Java.

Based on the Village Potential (Podes) data, in terms of telecommunication infrastructure and telephone signal reception, by 2014 46.9% of villages in Java have Base Transceiver Station (BTS) and 99.53% of the villages have been reached by cell phone signal. While in Papua and Maluku Islands only 8.195 of villages have BTS and 44.09% of villages are affordable telephone signals. This indicates an inequality or a gap in the ICT development between provinces in Indonesia known as digital gap.

Based on the background and description discussed previously, the purposes of this research are:
1. An overview of the development of provincial ICT development index and local government expenditure for ICT
2. An overview of the digital gap between provinces in Indonesia
3. Show the impact of ICT development index and local government expenditure for ICT on economic growth

METHODS
The data used in this study obtained from Central Bureau of Statistics (BPS), and Ministry of Finance (Kemenkeu) of period 2012-2015. The variables are as follows:
- Gross Regional Domestic Product (GRDP)
The economic growth in this research is approached through growth
indicators of Gross Regional Domestic Product (GRDP).

- ICT development index at provincial level
  The ICT development index is developed by the International Telecommunication Union (ITU). ICT development index is a composite index that combines 11 indicators into a standard measure of information and communication technology development of a region. Data of ICT development index for 2012 to 2015 is obtained from Statistics Official Gazette (BRS) released by BPS on December 15, 2016.

- Local Government expenditure for ICT.
  The data of local government expenditure for ICTs referred to in this study is the realization data APBD for ICT affairs.

This research used a panel data, which is a combination of cross section data and time series data. Cross section data were collected to examine the value of one or more variables from a sample unit at a time, while time series data were collected to examine the value of one or more variables over time (Gujarati, 2004). Models of data panel modeling can be written as follows:

$$Y_{it} = \alpha + \beta \mathbf{X}_{it} + \epsilon_{it}$$ .................................. (1)

where, 
- $i$: number of individuals
- $t$: time period of the study.

Estimation of parameters in panel data regression analysis can be done with three models: common effects model, fixed effects model and random effects model. Common effects models combine time series and cross section data in pool form, so that it is also called Pooled Regression Model (Gujarati, 2004). Estimated parameters using the OLS (Ordinary Least Square) method. This model does not take into account individual and time effects, so it is assumed that individual behavior is the same over time. Common forms of common effects models can be written as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \cdots + \beta_k X_{kit} + \epsilon_{it}$$ .................................. (2)

Where, 
- $k$: the number of explanatory variables used in the model
- $i$: number of individuals
- $t$: time period

Based on the assumption of the residual covariant-variance structure, according to Greene (2003), in common effects there are three different estimating methods that can be used:

- Ordinary Least Square (OLS), if the residual covariant-structure matrix structuring is assumed to be
homoscedastic and there is no cross sectional correlation.

- Weighted Least Square (WLS): Cross Sectional Weight, if the residual covariance matrix structure is assumed to be heteroscedastic and there is no Cross Sectional Correlation.

- Feasible Generalized Least Square (FGLS) / Seemingly Uncorrelated Regression (SUR), if the structure of its residual covariant-variance matrix is assumed to be heteroskedastic and there is a Cross Sectional Correlation.

The fixed effects model assumes differences among individuals that can be accommodated through different intercepts. Estimation of fixed effects model with different intercept between individuals using Least Square Dummy Variable (LSDV) technique. The regression equation as follows:

$$Y_{it} = \beta_{0i} + \beta_{1} X_{1it} + \beta_{2} X_{2it} + \cdots + \beta_{k} X_{kit} + \epsilon_{it} \quad (3)$$

Where, $k$: the number of explanatory variables used in the model

- Ordinary Least Square (OLS / LSDV), if the structure of its residual covariant-variance matrix is assumed to be homoscedastic and there is no Cross Sectional Correlation.

- Weighted Least Square (WLS) or Generalized Least Square (GLS), if the structure of its residual covariant-variance matrix is assumed to be heteroskedastic and does not have Cross Sectional Correlation.

- Seemingly Uncorrelated Regression (SUR) or Feasible Generalized Least Square (FGLS), if the structure of its residual covariant-variance matrix is assumed to be heteroskedastic and there is a Cross Sectional Correlation.

The random effects model estimates panel data in which error variables may be interconnected between time and between individuals. Differences between individuals and or time are accommodated through error (Nachrowi and Usman, 2006). In this model, we use estimates where errors may be correlated between time and between individuals, so OLS can not be used to obtain an efficient estimator. The appropriate method to estimate this model is Generalized Least Square (GLS) with homoscedastic assumptions and no cross-sectional correlation.
The basic equation of the random effect model is:

\[ Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \cdots + \beta_k X_{kit} + \omega_i + \epsilon_{it} \]  

(4)

Where, \( \omega_i = \nu_i + \epsilon_i \)  

(5)

Since in the random effects model, OLS estimates cannot be used due to \( \sigma^2_i, \sigma^2_\epsilon \neq 0 \), Generalized Least Squares (GLS) is then implemented.

In order to test the significance of fixed effects model using F test statistic or Chow test. Chow test is used to find out whether the technical regression of panel data with fixed effects is better than panel data regression using pooled model. Hypothesis used as follows:

\[ H_0: \beta_{01} = \beta_{02} = \cdots = \beta_{0n} \] (pooled model)

\[ H_1: \beta_{0i} \neq \beta_{0j} \] for all \( i \neq j \) (fixed effect model)

To find out whether the random effects model is better than the common effects model can be used Breusch-Pagan Lagrange Multiplier (LM) test (Greene, 2003). Hypothesis used as follows:

\[ H_0: \sigma_\mu = 0 \] (pooled model)

\[ H_1: \sigma_\mu \neq 0 \] (random effect model)

which of Breusch-Pagan LM test follows the chi-square distribution,

\[ W = \chi^2(k-1) = [\hat{\beta}_{REM} - \hat{\beta}_{REM}] [\text{var}(\hat{\beta}_{REM} - \hat{\beta}_{REM})]^{-1} [\hat{\beta}_{REM} - \hat{\beta}_{REM}] \sim \chi^2(\nu, k) \]  

(6)

Hausman test is used to determine the appropriate model between fixed effects or random effects. The hypothesis is used as follows (Greene, 2003):

\[ H_0: \text{cov} (\epsilon_{it}, X_{it}) = 0 \] (REM)

\[ H_1: \text{cov} (\epsilon_{it}, X_{it}) \neq 0 \] (FEM)

Hausman test follows the chi-square distribution,

\[ \frac{1}{2}(\hat{\beta}_{REM} - \hat{\beta}_{REM}) [\text{var}(\hat{\beta}_{REM} - \hat{\beta}_{REM})]^{-1} [\hat{\beta}_{REM} - \hat{\beta}_{REM}] \sim \chi^2(k-1) \]  

(7)

After common effects or fixed effects model is selected, the structure of the variance-covariance matrix need to be evaluated to determine the appropriate estimation method used in the model (whether OLS, GLS, or FGLS methods). Once we obtained the best model it is necessary to check the classical assumption, consisting of normality, homoscedastic, non autocorrelation and non multicollinearity.

**Economic growth**

Economic growth is defined as an increase in the ability of an economy to produce goods and services. Economic growth is one of the most important indicators in analyzing the economic development occurring in a country or region. Economic growth can be assessed as the impact of government policies, especially in the economic field.
The growth of the regional economy in general can be seen through the growth indicators of Gross Regional Domestic Product (GRDP).

**ICT Development Index**

ICT Development Index is an indicator that can describe the level of development of information and communication technology in a region. The higher index value indicates the development of ICT of an area is increasing rapidly, and vice versa, the lower index value indicates the development of ICT in a region is relatively slow. ICT Development Index is useful for comparing ICT development across time and between regions. It can show the digital gap and the potential development of ICT.

The calculation of the Information and Communication Technology Development Index is based on the methodology of the International Telecommunication Union (ITU), in which there are 11 IP-ICT compiler indicators grouped into 3 subindexes, namely access and infrastructure subindex, expert subindex and usage subindex.

**Government Expenditure for ICT**

ICT Investment by the Minister of Communication and Information Technology Number 41 Year 2007 is a budget management process for ICT investment purposes. Management of ICT investment is done through the mechanism of preparation of activity plan and budget of institution, along with other fields, in accordance with relevant regulation (Permen Kominfo No 41/2007).

There are two types of expenditures in ICT investment budgets (Permen Kominfo No 41/2007):

1. **Operational Expenditure (OpEx)**. ICT Operating Expenditure (OpEx) is the expenditure of ICT in order to maintain the level and quality of service. What can be included in the OpEx criteria include salary & overtime fees, tool rental fees, overhead costs, ATK and others.

2. **Capital expenditure (CapEx)** of ICTs is an investment in the form of ICT assets / infrastructure necessary to deliver, expand and / or improve the quality of public services. The book value of the asset will be depreciated during its reasonable economic life (except land). Including CapEx include: construction / purchase of networks, servers & PCs, software, buildings, and land.
RESULTS

ICT Development Index

In general the index of ICT development for all provinces in Indonesia has increased, but still relatively low as shown in appendix 1. As expected the province with the highest ICT index for 2012-2015 is DKI Jakarta. On the other hand, the provinces with the lowest value of ICT development index during the study period were NTT and Papua provinces. This shows large gap in ICT development across provinces.

The ICT development index of most (20 provinces) in Indonesia is lower than the national average (low development). Only DKI Jakarta has high index, and the rest of the provinces has medium development index. This can be seen in figure 3. Furthermore, we can see that some provinces (Bengkulu and East Java) has improved the ICT developments from Low to Medium category.

Figure 3. Grouping of ICT Development Index in 2012 and 2015

Development of Local Government Expenditure for ICT

ICT development cannot be separated from the government role and its regulation. The seriousness of the government in the development and advancement of ICT can be seen through the realization of government expenditure for ICT development which continues to increase. As shown in Figure 4, local government expenditure for ICT on average increases during the study period.
However, when we observe the ratio of ICT expenditure to total government expenditure, local government expenditure for ICT is still relatively very small compared to other expenditures in most of the provinces please see Figure 5. The ratio of government expenditure for ICT is still very low, below 1%.

Provinces which higher local government expenditure on ICT have higher ICT development index. The provinces with high GRDB with higher ICT index and expenditure on ICT are provinces with high GRDB such as some provinces in Java, Bali, East Kalimantan, Riau and South Sulawesi.

Surprisingly, NTB allocate high local government expenditure though its low GRDB and low ICT development index. It shows that this province have invested a lot on ICT to boost its economic growth.

Provinces with lower expenditure and lower ICT index which still have lower GRDP need to review allocation their expenditure for ICT and development their ICT utilization.

Figure 4. Local Government Expenditure for ICT (Billion Rupiahs)

Figure 5. Ratio of Government Expenditure for ICT to Total Expenditure Period 2012-2015

Figure 6 shows positive correlation between the ICT Index and the local government expenditure.

Figure 6. Quadrant Analysis Local Government Expenditure with ICT Development Index in 2015
The Impact of ICT development and Local Government Expenditure for ICT on Economic Growth.

The Chow and Hausman tests shows that the selected model fixed effects model. Furthermore, the Lagrange Multiplier (LM) and Lamda LM tests suggest, respectively, heteroskedastic structure of residual variance-covariance and there is correlation between residual provinces. More detail results are presented in the appendix. Therefore the selected model is a fix effects model with cross-sectional weight and cross-section SUR. The results are summarized in Table 1.

Table 1. The estimates of Fixed Effects Models with Heteroskedastic and Cross-sectional Correlation (Seemingly Uncorrelated Residual)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>16.68009</td>
<td>0.228606</td>
<td>72.96427</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>ICT Index</td>
<td>0.088648</td>
<td>0.016758</td>
<td>5.289967</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>Ln(expenditure)</td>
<td>0.091728</td>
<td>0.015205</td>
<td>6.032724</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>R²</td>
<td>0.998717</td>
<td>Prob(F-statistic)</td>
<td>&lt;0.00001</td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.998267</td>
<td>Durbin-Watson stat</td>
<td>2.12728</td>
<td></td>
</tr>
</tbody>
</table>

The result shows that the ICT development index and local government expenditure for ICT significantly affect the economics growth (measured by GRDB). This is in accordance with Bongo (2005) and Azuari (2010) which shows that ICT development index has an effect on economic growth.

The relationship can be illustrated in the following model equations:

\[ \ln GRDP_i = (16.68 + \tilde{u}_i) + 0.089 ICT\ Index_i + 0.092 \ln Expenditure_i \]

where:

- \( \ln GRDP_i \): logarithm natural of GRDP province-i and year-t
- \( \ln Expenditure_i \): Logarithm natural of local government expenditure for ICT from province-i and year-t
- \( ICT\ Index_i \): ICT development index from province-i and year-t
- \( u_i \): individual effects of province-i

The adjusted R² shows that 99.83% of the variation in provincial economic growth rates in Indonesia is determined by the ICT development index and the local government ICT expenditure, and the rest is determined by other factors.

Based on the selected model, if there is an increase one unit of ICT development index, it can increase economic growth by 0.089%. In addition, the increase 1% in local government expenditure for ICT would
expect to increase economic growth by 0.092%.

The selected fixed effects model, describes although there are differences economic growth between provinces the impact of ICT and Expenditure are the same across provinces.

DISCUSSION

Economic growth can occur in two ways, first by increasing land use, labor and capital, and secondly through better use of technology to improve productivity from existing capital and labor resources. Using ICT in the production of goods with computerized systems can shorten production time. Service using ICT will also be faster and more efficient. Economic growth is also related to the distance, for longer distance are required the greater of economic activity. Indonesia is an archipelago country, with using ICT can shorten economic activity.

ICT development cannot be separated from the role of government. The government contributes in developing and promoting ICT through the allocation of government expenditure for ICT. Government expenditure on the communications sector has a big role and influence on the national economy, through a close relationship with other sectors of the economy. Increased government spending in the ICT sector will have a major impact on capital production factors, corporate institutions and labor that play a role in boosting economic growth.

The differences in ICT development index and regional policies in managing their local expenditure for ICT can affect to the region's economic growth gap. The better ICT development index and the greater allocation of local government expenditure for ICT sector, the higher the economic growth will be.

CONCLUSION

The ICT development index of every provinces in Indonesia show an increase, but most provinces are still in the low category. Only DKI Jakarta is included in the high category. Allocation of local government expenditure for ICT sector in general has increased for each year. However, in terms of share to total expenditure area, the ratio of local government expenditure for ICT sector is still very low under 1%.

There is a digital gap between provinces, especially the large digital gap occurring with DKI Jakarta. The provinces of Eastern Indonesia such as NTT and Papua are still relatively slow in development of ICT.
ICT development index and allocation of local government expenditure for ICT statistically significant effect on economic growth. ICT development index have bigger role in increasing economic growth.

**RECOMMENDATION**

Local government should pay more attention to improve ICT development, by simplifying the regulation of ICT investment that can encourage the increase of ICT development.

Local government should start to increases the allocation of expenditures for ICT and regulates its expenditure to the right target, thereby impacting on improvements in other sectors.

**REFERENCES**


Appendix 1

ICT Development Index of provincial in Indonesia

Appendix 2 Chow Test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob.</th>
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</thead>
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<tr>
<td>Cross-section F</td>
<td>478.752059</td>
<td>(32,97)</td>
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<tr>
<td>Cross-section Chi-square</td>
<td>669.044557</td>
<td>32</td>
<td>&lt;0.00001</td>
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Appendix 3 Hausman Test

Correlated Random Effects - Hausman Test
Equation: FIXEDMODEL
Test cross-section random effects

<table>
<thead>
<tr>
<th>Test Summary</th>
<th>Chi-Sq. Statistic Chi-Sq.</th>
<th>d.f.</th>
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<tr>
<td>Cross-section random</td>
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Appendix 4

Estimation of Fixed Effect Model

Dependent Variable: LNPDRB
Method: Panel Least Squares
Date: 07/24/17   Time: 09:38
Sample: 2012 2015
Periods included: 4
Cross-sections included: 33
Total panel (balanced) observations: 132

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
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<tr>
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<td>0.015205</td>
<td>6.032724</td>
<td>0.0000</td>
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</tbody>
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Effects Specification

Cross-section fixed (dummy variables)

<table>
<thead>
<tr>
<th>R²</th>
<th>0.998717</th>
<th>Mean dependent var</th>
<th>18.63901</th>
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<tr>
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<td>S.D. dependent var</td>
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<td>Sum squared resid</td>
<td>0.230074</td>
<td>Schwarz criterion</td>
<td>-2.219599</td>
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<td>231.9426</td>
<td>Hannan-Quinn criter.</td>
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<td>F-statistic</td>
<td>2221.039</td>
<td>Durbin-Watson stat</td>
<td>2.127278</td>
</tr>
<tr>
<td>Prob(F-statistic)</td>
<td>0.000000</td>
<td></td>
<td></td>
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</table>
### Appendix 5

#### Table of Individu Effect of provinces

<table>
<thead>
<tr>
<th>No</th>
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<th>Effect</th>
<th>No</th>
<th>Provinsi</th>
<th>Effect</th>
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<tr>
<td>5</td>
<td>Jambi</td>
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<td>SulSel</td>
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<td>11</td>
<td>DKI Jakarta</td>
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<td>Gorontalo</td>
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<tr>
<td>12</td>
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<td>PapuaBarat</td>
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<td>16</td>
<td>Banten</td>
<td>0.917730</td>
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<td>Papua</td>
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<td>17</td>
<td>Bali</td>
<td>-0.18627</td>
<td></td>
<td></td>
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</table>

### Appendix 6

#### Classic Assumption Test

##### Normality Test

- **Sample 2012 2015**
- **Observations 132**
- **Mean** -1.05e-17
- **Median** 0.006038
- **Maximum** 0.158846
- **Minimum** -0.094168
- **Std. Dev** 0.041908
- **Skewness** 0.090501
- **Kurtosis** 3.741990
- **Jarque-Bera** 3.208211
- **Probability** 0.201069

**Non Multikolinearitas Test**

From the table can be seen the value of coefficient correlation between independent variables below 0.80, so in this study does not occur multicollinearity problem.
SECURE E-COMMERCE (SEC) TRUSTMARK CERTIFICATION TO IMPROVE CUSTOMER’S TRUST ON ONLINE SHOPPING IN INDONESIA

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email: ikayuni@stis.ac.id

Abstract

ICT are used widely, one of them to sell products and services. Using internet, the two parties can conduct transactions to buy and sell across space. Indonesia internet user penetration continues to increase, opening up opportunities for increasing transactions through e-commerce. Indonesia achieved the highest retail e-commerce sales in 2016 among Southeast Asia Countries. On the other hand, this opportunity raises the risk of insecurity for consumers. Therefore, the role of the Government (Financial Services Authority (OJK), Ministry of Communication and Informatics, and Ministry of Trade) is required in supporting FinTech, primarily in e-commerce. The purpose of the study is to link the potential of e-commerce in Indonesia with the government’s economic policies on consumer protection and cyber security towards perceptual issues. Research methodology uses indepth study through literature review and quantitative analytics on charts and graphs. Trust is the most important barriers to the use of e-commerce. This research produces a platform that can be a recommendation for the government and Fintech company to increase e-commerce sales by improving customer’s trust through Secure E-Commerce (SEC) Trustmark Certification.

Keywords: ICT, Internet Penetration, E-Commerce, SEC, Trustmark Certification

JEL Classification: F10, F14, O33

INTRODUCTION

Electronic commerce (EC-Commerce) is a powerful concept and process that has fundamentally changed the current of human life. Electronic commerce is one of the main criteria of revolution of Information Technology and Communication (ICT) in the field of economy. This style of trading due to the enormous benefits for human has spread rapidly. Certainly it can be claimed that electronic commerce removes many limitations of traditional business. For example, form and appearance of traditional business has fundamentally changed. These changes are basis for any decision in the economy.

Existence of virtual markets, passages and stores that do not occupy any physical space, allowing access and transaction in these markets anytime and anywhere in the world without leaving home is possible. Select and order goods that are placed in virtual shop windows at any part of the world
and also are advertising on virtual networks and payment is provided through electronic services, all of these options have been caused that electronic commerce is considered the miracle of our century (Nanehkaran, 2013).

Internet users are increasing from year to year. Figures 1 shows that China had 731 million internet users. Second-ranked India accounted for 462 million internet users. Indonesia became the country with the third highest internet user in the Asia Pacific region, accounted for 132.7 million internet users. Thus, Indonesia has the potential to develop e-commerce.

The above data is corroborated by the fact that mobile phone internet user penetration in Indonesia always increasing from 2015 to 2021 (Figure 2). Mobile phone internet user penetration in Indonesia always reach over 20% year to year. It means, the number of active mobile phone internet users per 100 people within a specific population, which is technically not a penetration rate as it does not account for users having multiple mobile phones. Nevertheless, it can be a proxy to see the potential of e-commerce in Indonesia. The more people have access to internet through their mobile devices, the more opportunities to develop electronic commerce.

![Figure 1. Number of Internet Users in the Asia Pacific Region as of January 2017, by Country (in Millions)](source)

![Figure 2. Mobile Phone Internet User Penetration in Indonesia from 2015 to 2021](source)

Statista (2017) released statistic of retail e-commerce sales in selected countries in Southeast Asia in 2016
(billion US dollars). In 2016, Indonesia hit 5.29 billion US dollars on retail e-commerce sales. It was the highest number in Southeast Asia region.

Figure 3. Retail E-Commerce Sales in Selected Countries in Southeast Asia in 2016 (Billion US Dollars)

Source: Statista (2017)

Based on the above facts, Indonesia is potential to develop e-commerce. In addition, Indonesia a large population with a predominantly young population. Young people are easy to accept change and adapt quickly to technological advances.

DEFINITION

Electronic commerce or e-commerce refers to a wide range of online business activities for products and services. It also pertains to any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact. E-commerce is usually associated with buying and selling over the Internet, or conducting any transaction involving the transfer of ownership or rights to use goods or services through a computer-mediated network. Though popular, this definition is not comprehensive enough to capture recent developments in this new and revolutionary business phenomenon.

A more complete definition of E-commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between or among organizations, and between organizations and individuals (Gupta, 2014).

There are various classification of electronic commerce and many different methods to characterize these clusters. Academics determined a number of frameworks for classifying electronic commerce but each one want to illustrate it from a unique perspective. The main different classification of electronic commerce are Business-to-Business (B2B), Business-to-Consumer (B2C), Consumer-to-Consumer (C2C), Consumer-to-Business(C2B) and Mobile Commerce (M-Commerce).
E-Commerce Advantages for Seller

The possibility of small companies to compete against large companies

Due to small expenses incurred by a virtual shop small companies are confronting with one less barrier in penetrating the markets that already dominated by the large companies. More than this due to its flexibility and perception towards new and small company has a major advantage in comparison with a large one dominated by birocracy and conservatorism.

Permanent contact with customers for 24 hours and 7 days

Comparing with the common employees who need salaries, a working time table, vacation, with a varying productivity and being subjective to a web site offers information about the company and its products. It takes and processes orders for 24 hours and 7 days continuously with minimum costs. This brings an advantage, too in case of the expansion on the foreign markets when the time difference making communication between the companies harder. It also improves the communication with the customers that have no time thus being able to obtain information and place orders any time.

International markets penetration facilities

The world network is borderless, it does not belong to anyone and the access and publication costs are extremely low. The communication with a customer positioned to the opposite pole of the world is as easy as the communication with someone in the next room. Seller now can sell his products in any country by the means of the web site and no contacts with local companies or large investments are necessary anymore.

The decrease of the costs

These costs may be drastically diminished by the automatics of the orders process. There is also the possibility of a total automatics by the integration with the administration system thus leading to the increase of the general productivity of the company.

New possibilities for performing a direct marketing

Comparing with a human being, computer may retain not only the name
and personal data of all customers as well as their preferences being capable to adapt the offer and products presentation according to each customer’s profile. The study of the customers on internet may be achieved using all available data such as: location, type of browser and operation system, the site where they do come from navigation habits but the customers will not realize at all that they are subject of such studies. This is why many consider this as an infringement of the personal privacy.

Disadvantages for sellers

Fraud

As in any other activity field, the technology of internet created new fraudulent possibilities. In the lack of a direct contact a client may cheat the trader regarding his identity or his real payment possibilities. For example, most of the occidental virtual shops hesitate to send commodities to East Europe because of the many embezzlement initiated by East Europeans with false credit cards.

Security

Another important problem is that regarding the security of the data. A company that has not access to internet does not worry too much as regards the integrity of her administration informatics systems. The connection to a public network that can be accessed by anyone more or less authorized and the access to the confidential data of the local network is raising serious problems. Therefore, new risks occur these being not present before the apparition of such type of commerce.

Launch and integration costs

Although the launch costs of a virtual shop are much lower in comparison with those of a real one they may be incorrectly estimated. A company that has not implemented yet an administration informatics system or those where the employees do not have minimum technical knowledge may confront with an unexpected increase of the launch costs due to the necessity of the acquisition of training systems for the employees.

E-Commerce Advantages for buyers

Availability for 24 hours and 7 days

This availability independent on a certain program represents a major advantage for the clients who can purchase during night too when they are not busy with other urgent problems (job, household, etc.).

Facilities

Due to the electronic commerce there is no need to go to the commercial
places or to the shop next to corner. Everybody may place orders from home sitting in front of the PC and thoroughly analyzing and comparing different products.

**Access to information and different products without any restrictions**

The apparition of the electronic commerce gave a new meaning of the term ‘globalization’. For example, in order to buy handcrafted items from Bali it is not necessary to travel to that destination but only to open the browser at the address of a shop that is trading such items. Before buying the product the potential future buyer has more free and cheap access to the offers of the producers or trading companies.

**Disadvantages for buyers**

**Security**

The most important reason for which some persons hesitate to use internet for purchases as resulted from most of the opinion polls is that of being afraid to supply on line information regarding the credit card. But the same persons are giving daily the credit card number, at phone, to other persons they even do not know at all when they buy from catalogues or TVs.

**Intimacy**

Another important problem is the attempt to the personal intimacy. The potential buyers are afraid that by internet the traders or a bad will person can collect thorough information and they will not realize this at all. Unfortunately, these worries are the result of some exaggerations especially in Occident where The Theory of Conspiracies is fashionable.

**Absence of human contact**

This is the obvious inconvenient generated by the electronic commerce. The low launching and maintenance costs of a virtual shop derives of the advantages of the automatics of the processes and there is no need to employ additional personal, on one hand. On the other hand, the absence of the seller, the human presence to which the buyer may appeal to in case he has doubts, represents an obstacle in spreading this form of commerce. In this respect some companies created programs that are permitting the vocal contact or visual one between the customer and one employee of the company during his visit on the web site.

**Access to technology**

Thoroughly the access to technology refers to both the internet penetration degree and the spread of the computers and specialized knowledge. As long as a site of electronic commerce will be accessible
only to persons who at least know to
launch the browser and type the web
address most of the potential customers
will prefer the next to corner shop.

**CHALLENGE OF IMPLEMENTATION**

There are several issues encountered
within e-commerce implementation:

1. Technical issues:
   - Interoperability
   - Security
   - Privacy: Spyware, Phishing
   - Connectivity to existing systems
     (backward compatibility)
   - Web organization, etc.

2. Perceptual issues: Trust

3. Societal issues

4. Legal and ethical issues

5. Intellectual property issues

There are three types of security
threats:

1. Denial of service (DoS): spamming
   and viruses

2. Unauthorized access

3. Theft and fraud

Trust is one of the most important
barriers to the use of e-business.

Characteristics of e-business
transactions that make trust important:

1. Distance

2. Technology – e.g., buyers must trust
   a merchant to be knowledgeable
   enough to make use of IT to
   implement some security measure to
   protect their credit card numbers.

There are four components of
Buyer’s Trust:

1. Predictability
   Ex: Establishing clear expectations –
   e.g., consistently sending email
   notifications of order confirmation,
   and of order shipment

2. Reliability
   Ex: Providing follow through (do
   according to what merchants’
   promise)

3. Technical competence
   Ex: Ability to carry out
   responsibilities (and show this clearly
   to potential users)

4. Fiduciary responsibility
   Ex: Act on behalf of the customer’s
   interests (e.g., on-line travel
   agencies)

There are three societal issues:

1. Telecommunications Infrastructure

2. Access Inequalities

3. Information Technology Skills
   Shortage

There are two Legal and ethical issues:

1. Digital signatures
   - Knowing whose messages come from
• Used for 2 purposes
  (Authenticate identity of signer or Nonrepudiation)

2. Consumer Protections
   • Small-claims courts
   • Limited liability
   • Return policies

There are five Intellectual Property Issues:

1. Protection
   • Copyrights software, arts
     (literature, artwork, music)
   • Patents and inventions
   • Trademarks (name brands and logos)

2. Global uniformity of laws – different countries may enforce software copyright laws differently

3. “Link liability” – linking to other sites that publish materials belonging to other people without permission

4. Domain names

5. Patenting business processes

**PROBLEM OF IMPLEMENTATION**

Financial Services Authority of Indonesia (OJK) is an Indonesian government agency which regulates and supervises the financial services sector. The OJK is an autonomous agency designed to be free from any interference, having functions, duties, and powers to regulate, supervise, inspect, and investigate. The Financial Services Authority was formed so that the whole activities in the financial services sector are working in ordered, fair, transparent, and accountable manners; are able to create a financial system which grows continuously and in a stable manner; and are able to protect the interests of consumers and the society, including regulation on e-commerce transaction. OJK is currently managing regulation on e-commerce, limited to saving and loan business, such as peer to peer lending and crowdfunding.

Indonesia’s e-commerce scene has flourished in recent years with the flux of players ranging from giants like Rakuten of Japan to local players such as Tokopedia, all of which are banking on the rapid growth of Internet access and smartphone penetration in the archipelago. Researcher IDC recently estimated the value of online transactions in Indonesia would top $3 billion this year. Despite its rapid growth, the industry remains largely unregulated right now due to a lack of coordinated efforts from the relevant government bodies. This has left consumers and sellers, as well as the marketplace, vulnerable to risks without any safety net.
Previous chief economics minister Sofyan Djalil have called for a series of discussions between officials from the trade, finance and communications ministries, among others, to discuss a new government regulation on electronic-based commerce, according to Rudiantara, the communications minister. He said the various ministries had their own issues to address in terms of regulating e-commerce.

“Logistics is a matter of the Transportation Ministry. Then in terms of finance, it will be Bank Indonesia’s responsibility to determine the payment systems that will be used,” Rudiantara told reporters in Jakarta. About e-commerce regulation, he said “Each government body has to converge to address this issue because this isn’t just the responsibility of a single ministry.” Srie Agustin, the director general for domestic trade at the Trade Ministry, said her office would work on at least four aspects of e-commerce regulation: business identity, products, payment methods, and delivery methods. JakartaGlobe (2017).

In most private sectors, there are a lot of e-commerce activities done by people or internet users. Moreover, several government institutions acknowledge the usage of electronic mechanism to make contract or other related activities; for example, the Bank Indonesia (the Indonesian Central Bank) and the Directorate General Immigration and Custom. People will not wait for e-commerce regulation to be issued by the government; and this is always happened to a lot of regulations if they have to keep up with the pace of technology development.

Rini (2016), considering this situation, one should be aware of legal aspects in conducting electronic communication and information. Some legal aspects to be considered among others are: copyright, trademark, consumer protection, privacy, electronic contracts and digital signatures. Since, up to the date there is no law which directly regulate e-commerce in Indonesia, it is important to make interpretation from the existing laws and regulations in relation to electronic communication and information activities. The related laws and regulations required to be considered are the Indonesian Civil Codes, the Indonesian intellectual property laws (Copyright Law No. 12 of 1997; the Trademark Law No. 14 of 1997; the Patent Law No. 13 of 1997), the Consumer Protection Law No. 8 of
1999; and the Telecommunication Law No. 36 of 1999.

Indonesia does not have yet any laws specifically regulated e-commerce. However, government has practically deregulated the telecommunications and information sectors to the extent that the sector is almost liberalized and mainly dependent on cooperation with private sector either through their initiatives and or their investment. The current Electronic Information and Transaction Bill (‘the Bill’) is considered the first initiative of the country to enact a comprehensive legislation on cyberlaw. There were initially two government’s agencies that came out with two different bill drafts at the same time.

The Ministry of Industry and Trade initiated the draft of Electronic Information and Electronic Transaction Bill. On the other hand, the Department of Tourism, Post and Telecommunication under the Ministry of Transport also came out with the draft of Information Technology Bill. This double initiative was uncoordinated creating prolonged, unfocused and unnecessary debates among academics and IT professionals.

After some years of debates, the government acted wisely to coordinate and merge the efforts together. The coordinating agency is now Ministry of Communications and Information, and the consolidated draft is now called Electronic Information and Transaction Bill.

The approach is somehow a hybrid of the two original drafts; it does cover quite extensive subject matters from e-contract to e-signature, from privacy and personal data to cybersquatting and intellectual property rights, and from cybercrimes to consumer protection. However, the Bill does not go lengthy enough in subject matters other than cybercrime, e-contract and related aspects. For other subject matters, the Bill provides that they will be governed by subsidiary regulations.

Since this draft bill is the first to accommodate cyberlaw requirements, once enacted the law will certainly provide basis for the reform or revision of other areas of laws including electronic fund transfer, e-government, capital market, online taxation, and online banking.

Zulhuda (2003) said The Bill, however, reserves some considerations for improvement. The biggest limitation it posed may be associated to its wide but not deep coverage, especially in the
area of privacy and personal data protection.

Nurfajri (2013) said the existing legal framework of e-commerce in Indonesia does not cover several crucial elements such as consumer rights protection. In Indonesia, the issues of consumer rights protection in general are regulated in Indonesian Law Number 8 of 1999 concerning Consumer Protection (CPA). However, CPA was designed with traditional face-to-face commercial transactions in mind, and was enacted before the proliferation of e-commerce in Indonesia. Since the nature of e-commerce transactions is different compared to traditional commerce, which put e-commerce consumers at a more vulnerable and disadvantaged position compared to traditional consumers, CPA is considered less suitable in providing protection for e-commerce consumers. These disadvantages, for instance, arise because e-commerce consumers could not physically verify the goods that they purchased before the transaction was made.

Nurfajri (2013) since there is no regulation providing consumer rights protection that take into account the different nature of e-commerce transactions, Indonesian e-commerce consumers are often faced with potential violation of their rights. Large percentages of Indonesian e-commerce consumers had encountered some problems when shopping online. The top online shopping problems reported by Indonesian e-commerce consumers are related with the low quality of the goods that they received, and goods that ended up being delayed or undelivered. These issues underscored the perception by some Indonesian consumers that e-commerce is less secure than traditional commerce.

It can be concluded from the above expositions that the issues faced by Indonesian e-commerce consumers were a result of the lack of proper regulations regarding e-commerce consumer protections and the present state of e-commerce in Indonesia is still in need of some improvement. The improvement could be in the form of improving the regulations concerning e-commerce, or by improving the facilities provided by the government in order to support the e-commerce activity itself. These two improvements could affect the development of Indonesian economy as well, since the online shops in Indonesia experienced a large proliferation and the
supporting technology develops very rapidly. Thus, approaches by the
Indonesian government to improve the
development of e-commerce in
Indonesia would be essential.

Mamuaya (2011) said, at its
present stage, the primary challenge
that hinders the adoption of e-commerce
in Indonesia is the lack of trust between
consumers and sellers. Part of the
reason behind this lack of trust is the
widespread incidence of e-commerce
fraud in Indonesia, which mostly occurs
in informal online shops that operates
on various social medias by home
business owners.

Lack of trust was also one of the
reasons that hindered European
consumers from adopting e-commerce,
albeit at a lower scale of concern
compared to Indonesian consumers.
According to a survey in 2004,
psychological barriers hindering
European consumers from conducting
e-commerce activities do exist. The top
five psychological barriers for e-
commerce consumers are:
1. Security
2. Privacy
3. Unfamiliarity with services
4. Lack of direct interaction between
   consumers and sellers, and
5. Credibility of information

Balboni (2009).

It could be seen from the above
survey that consumer trust is hard to
obtain. Trust is an essential point in
performing e-commerce; a successful
online transaction requires an initial trust
between consumers and sellers. The
difficulties in obtaining such trust is
exacerbated if the sellers are new and
do not have any prior reputation in e-
commerce transactions. In order to gain
trust from consumers, having detailed
contact information and security
certificates such as SSL certificate
displayed on the website can be very
helpful.

Moreover, trustmarks marking
scheme that aim to guarantee the
quality and security of an online shop
can also be very beneficial for both
sellers and consumers. Trustmark has
been found to be highly valuable in
increasing the consumer’s level of trust,
especially for verifying the reputation
and the quality of the sales process of
the associated online shop. In order to
enhance consumer’s trust in e-
commerce, many European Union (EU)
online shops carry online trustmarks or
digital certificates in the interest of
assuring e-commerce consumers that
their service has been validated by a
third-party service to be safe for their security and privacy.

Regarding the trustmark certification that is commonly used in EU online shops, in Indonesia the trustmark certification is already being regulated in detail under Government Regulation Number 82 of 2012 concerning Electronic System and Transaction Operation (GRESCO). However, the implementation of the trustmark certification in Indonesia itself is still at an early stage and the Indonesian government also does not yet provide proper socialization of the certification to the consumers, causing the low number of online shops in Indonesia that already carry the trustmark certification. The Government should invite the business players to engage in trustmark certification, not just sitting still but also picking up the ball. E-commerce big players such as Tokopedia, Bukalapak, Lazada, Alibaba, etc. should engage in. Three parties (government, seller/webshop, and trustmark authority) should collaborate then each will get a maximum benefit.

OBJECTIVES
The purpose of the study is to link the potential of e-commerce in Indonesia with the government's economic policies on consumer protection and cyber security towards perceptual issues, primarily trust issues.

This research produces a platform that can be a recommendation for the government to increase e-commerce sales by improving customer's trust through Secure E-Commerce (SEC) Trustmark Certification.

METHODS
Research methodology uses in-depth study through literature review and quantitative analytics on charts and graphs.

RESULTS AND DISCUSSION
Trustmarks aim at building consumer's trust in a website by offering a sign of trust to an individual that the retailer will behave as expected. Trustmark covers many aspects of the financial situation of the webshop, privacy and security measures taken to protect transactions and personal data of consumers, clarity of information provided on the website, dispute resolution between webshops and consumers, mystery shopping and payment and delivery methods.

Trustmarks are unequally developed. While some of the trustmarks are well-developed in terms of their number of
subscribers, their years of activity, the scope of their action, their geographic reach, and the refinement of their regulatory, operational and technical setups, others are not as well-developed. However, all trustmarks have demonstrated a specific and clear 'business model'. This business model, integrating rules, operations, procedures and technical settings determines the distinctive service proposition of a trustmark.

Trustmark features are those characteristics of the trustmark scheme, which cover the internal regulatory, service, operations and technical elements of the service delivered to both customers and stakeholders:

a) The webshops, taking advantage of trustmarks in their E-commerce business;

b) The online customers, who to a higher or lower extent base their purchasing decisions on the presence of the trustmark and the associated assurance and services.

The trustmark features are at the same time the service components, and the elements through which the trustmark providers are delivering trust to their stakeholders. Nine trustmark features adopted from EU regulatory framework have been analysed:

1. SSL certification. A quite common trust service, which certifies the Secure Sockets Layer (SSL). Secure Sockets Layer (SSL) is a protocol designed to enable applications to transmit information back and forth securely. SSL certification ensures proper implementation of the protocol on the webshop.

2. Regulatory basis of webshop. This feature deals with the compliance of the webshop to regulatory basis.

3. Transparency of information. This feature deals with the clear and understandable presentation and documentation of the products that are placed on the website; the provision of prices including specification of shipping cost or taxes; the comprehensive description of payment procedures; the comprehensive description of consumer rights; etc.

4. Privacy protection verification. This feature certifies that webshops adhere to standards of the trustmark policies assuring safety of personal data, privacy rules and management of personal data.

5. Dispute resolution system (DRS). This feature includes formal procedures to manage and solve complaints from customers to
webshops. Here we consider the dispute resolution system in the webshop and not the system setup by some of the Trustmark organisations as a trust service. DRS can also be an online complaint form, where customer express dissatisfaction with products, packaging, or delivery time. The complaints are followed up by mediation. DRS can also involve a third party authority that provides legally binding dispute resolution.

6. Money back guarantee. This feature is an insurance-type service provided to customers. Money is refunded if after unsuccessful dispute resolution mediation a customer is still dissatisfied regardless of the underlying complaint reasons.

7. Consumer rating. This feature allows customers to attach a rating to their purchase experience. This helps other customers and might also provide a comprehensive rating of the webshop.

8. Publishing revocation. Trustmarks having this feature publish those webshops whose trustmark seals were withdrawn.

9. Accreditation. According to this feature, trustmark organisations are accredited by third parties hereby ensuring that the codes of conduct of the trustmarks have a minimum level.

We further examined the certification model of the trustmarks. While the trustmark features comprise the services trustmarks deliver to webshops and consumers, the certification steps are the activities that trustmarks undertake to perform the certification of webshops. The certification dimensions include checking the compliance with regulation, the performance of mystery shopping and the involvement of public authorities. The assessment of the complexity of certification is an important indicator on how the trustmark certification process is set up. The more certification assessment objects, the more complex the certification process is.

Our research identified the following nine certification steps:

1. Administrative validity of online webshop. This certification step deals with both the verification of the existence and registration of merchant webshop, as well as with the verification of its physical existence. It includes both an administrative check (country of incorporation, NPWP number,
company register (SIUP number), bankruptcy register, etc.) and a physical check (address, fixed phone line, etc.).

2. Legal check of sales regulation. This certification step deals with the check of compliance of a webshop to regulations.

3. Check of information transparency. This certification step deals with the transparency on information concerning the clear and understandable presentation and documentation of the way products are placed on the website. Also it deals with clear and understandable provision of prices including specification of shipping cost or taxes; with the comprehensive description of payment procedures; with the comprehensive description of consumer rights; etc.

4. Check of privacy rules. This certification step deals with the webshop’s adherence to the standards of the trustmark policies with regard to assurance for safety of data, privacy rules and management of personal data.

5. Check of redress procedures. This certification step deals with the recovery procedure for stage after sales/delivery and prior to conflict. It comprises remedy for faulty or damaged goods free of charge for the customer. As mentioned above, it concerns the procedures embedded in the webshop’s sales procedure and not the one setup by the trustmark.

6. Test order/mystery shopping, simulated purchase process.

7. Physical company on-site visit and audit.

8. Auditing. This certification step deals with doing interim (review) certification/audits according to established quality criteria that include conformity with the law, user convenience, and security of web functionalities. Usually auditing is carried out on an annual basis. Sometimes an audit may also be performed after an incident is reported by customers or in the media.

9. Third party certification. This certification step deals with the trustmark certification that is carried out by a third party to whom the trustmark organisation hands a set of information.

In general, here are aspects that should be checked by SEC Trustmark Selection Criteria:
1. Business identity
2. Products (genuine and qualified products)
3. Security of data exchange and payment methods (including SSL certificates)
4. Privacy (security of personal data storage and transfers)
5. After-sales services
6. Delivery and Logistics
7. Redress

After selection process, Trustmark Authority decide whether issuing certificate or not. After issuing certificate, Trustmark Authority checking Post Selection Condition. These are SEC Evaluation Aspects:
1. Random Checking/Test order
2. Certificate Renewal/Re-accreditation Regularly

By evaluating those aspects on regularly basis, Trustmark Authority can drop sellers/webshops form certified list if they can’t accomplish the condition.

Services of trustmark providers:
1. Certification based on national regulations
2. Certification based on a code of conduct
3. Dispute resolution
4. Assurance policies
5. Consumer ratings and reviews
6. Price comparison
7. Money back guarantee
To boost adaptation, many business players have to be involved. The players must benefit from the process itself. For trademark holders/authorities, they can expand trusted distribution web (trusted distribution chain), increase exposure of genuine products and their strong points compared to fake/imitation product. For seller/merchants, they can ensure their customer that their product and process are trusted. For buyer, they can have many options of product to choose from. They also can trust the merchants and shop with comfort.

CONCLUSION AND POLICY RECOMMENDATION

This research produces a platform that can be a recommendation for the government to increase e-commerce sales by improving customer’s trust through Secure E-Commerce (SEC) Trustmark Certification. Innovation of this platform are:

1. Government engage big player e-commerce (third party) in to be part of Trustmark Authority. Big player e-commerce able to push the business system. In the end, expected path of online product sales more reliable and trusted.

2. Socialization of implementation Secure E-Commerce (SEC) Trustmark Certification doing by government collaborated with big player e-commerce (trustmark authority), so expected to be more efficient.

3. There is Post Selection Evaluation by trustmark authority, so the trusted seller list always up to date. In the end, it will increase buyer’s trust and reliability for shopping online.

REFERENCES


INFORMATION AND COMMUNICATION TECHNOLOGIES FOR WOMEN’S BUSINESS: PROSPECT AND POTENTIAL IN INDONESIA

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Abstract
The development of women’s business in Indonesia has been being a progressive research and interest of the policy makers, academics and practitioners, this study, therefore delves out the ICTs’ use for women’s’ business—ICTs adoption and impact—in business organization. In the core of qualitative study, this study holds the feminist methodology by using the Gender and Development (GAD) approach in revealing the women’s position in economic development. This study aims to reveal (1) how the ICTs adoption and its impact for women’s business, (2) the impediments/barriers faced by women in business and how to counter, and also to give the recommendation to the policy maker related to the ICTs and women’s business.

Keywords: ICTs, Women, Business, Entrepreneurship

INTRODUCTION
Information and communication technologies (ICTs) affect every aspect of our lives as it brings the advantages to us new opportunities for knowledge sharing and gathering for both men and women. Hence, ICTs can provide unlimited opportunities for economic development and social engagement through new innovative thinking and tools (World Bank, 2009). Respectively, this study will delve out the impact of ICTs in economic realm—women’s business.

In Indonesia, a majority of women’s business is found in small and medium enterprises (SMEs), especially small enterprises (SEs) and micro enterprises (MIEs) (Tambunan, 2007, p. 1). The ASEAN Regional Entrepreneurship Report (2015) defines entrepreneurship as “any attempt at a new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals or an established business. This includes:

1. Total early stage entrepreneurial activity: businesses under 3.5 years (includes business idea generation)
2. Established entrepreneurial activity: a business over 3.5 years. This includes:
   • Micro enterprises: 1-4 employees
   • Small enterprises: 5-49 employees
   • Medium enterprises: 50-250 employees
3. Informal and owner-operated businesses: all enterprises not
registered with the municipality or tax authority and all non-employer firms (regardless of registration status) (cited in Sasakawa Peace Foundation Report, 2017).

The development of women’s business in Indonesia has been being a progressive research and interest of the policy makers, academics and practitioners since the post of the Asian financial crisis in 1997/98 which is triggered by three main reasons. First, the enhancement of women entrepreneur activities in Indonesia is rising from year to year. Consequently, many stakeholders recognize the women’s business as an important source of economic growth and development in developing countries (Minniti and Naudé, 2010; Duflo, 2012; WEF, 2012, 2013; Tambunan, 2015). Second, women empowerment as one of the goals of UN-initiated Millennium Development Goals (MDGs) has led the government to recognize women’s business is crucial in order to achieve that goal. Third, the active involvement of women in economic activities induces a significant effect on poverty production (See Tambunan, 2015).

Despite the growing numbers of women lead in business, the gender gap in entrepreneurship in Indonesia does exist. It is reported that only 45% businesses in Southeast Asia are owned by women (Sasakawa Peace Foundation Report, 2017). In Indonesia, the number of women entrepreneurs is reported by various sources. The Indonesian National Agency for Statistics (BPS) reports that approximately 77 percent of MSMEs owners are male while 23 percent are females, and women as business owner are mainly found smaller sized enterprises, i.e. MIEs and SEs. Figure 1 shows that women entrepreneurs tend to dominate MIEs and SEs. Tambunan (2015) argues, this structure of business owner by gender in Indonesia interprets that women as business owners in the LE category are very few, henceforth; it can be assumed that being an entrepreneur in Indonesia is still dominantly a man culture, especially in modern companies (p.136).
Further, Tambunan (2015) argues that “the gender gap in entrepreneurship which is defined as the difference between men and women in terms of numbers engaged in entrepreneurial activity, motives to start or run a business, industry choice and business performance and growth” (p. 135), in developing countries this gap still exist. This gap is triggered by four factors:

1. Women face socio-cultural norms that limit the recognition and support they receive as entrepreneurs.
2. Women’s time and mobility constraints limit their ability to grow their businesses.
3. Women entrepreneurs struggle to access larger markets partly due to shallow networks that hinder business growth.
4. In keeping with global trends, female entrepreneurs, who are concentrated in the informal sector, have limited access to formal finance (Sasakawa Peace Foundation Report, 2017).

Relating to the ICTs use in women’s business, the Sasakawa Peace Foundation (2017) states that “ICT has a central role in helping women entrepreneurs directly by overcoming barriers to entrepreneurship and indirectly by delivering management tools and programs that help them grow their business” (p. 18). As the online discussion on Information and communication technologies and their impact on and use as an instrument for the advancement and empowerment of women (2002) reveals eight ways of ICTs’ contribution to women’s economic opportunity as follow:
1. An increased ability for women to work from home;
2. Improved employment opportunities for women in the ballooning IT sector;
3. Increased ability of informal sector women to shift to the formal sector;
4. Improved global market access for craftswomen through e-commerce;
5. Transformation of traditional gender roles;
6. Improved access of women, especially rural women, to distance learning and distance work programs;
7. Improved ability for the sharing of experiences among women's organizations concerned with the economic wellbeing of women in the informal sector; and
8. Increased ability to avoid gender bias by having a gender-opaque medium.

However, ICTs have been being compared to a double edged sword—enhancing the knowledge of the society on the one hand and emerging gender and social divides based on the existing social divisions on the other (World Bank, 2009). As the International Labor Organization report on Work in the New Economy makes the following observations about the ICT sector:

*Patterns of gender segregation are being reproduced in the information economy where men hold the majority of high-skilled, high value-added jobs, whereas women are concentrated in the low skilled, lower value-added jobs. As traditional manufacturing industries that previously employed women gradually disappear, the women finding jobs in the new, often ICT-related industries are rarely the same ones as those who lost their jobs in the traditional sectors. New inequalities are therefore emerging between women with ICT-related jobs skills versus those without.*

Apparently, the research this scope is still less discussed due to the national data on total number of women entrepreneurs and their key characteristics in Indonesia are limited, and the public interest on women entrepreneurship in Indonesia has just revealed after the Asian financial crisis, driven mainly by the introduction of the MDGs (Tambunan, 2015). Hence, this current research is considerably relevant to counter the
solid bias. This study proposes the research questions as follow; (1) how is the ICTs adoption in women’s business?, (2) what is the impact of the ICTs for the women’s business?, and (3) what is the impediments of women in running the business?

**Theoretical Framework**

**Gender and Development (GAD)**

This study employs the Gender and Development (GAD) approach to highlight the important role of women in economic development. Accordingly, women’s position in development actually cannot be negated since the women also have the role in contributing growth, efficiency, and poverty reduction key development goals. Hence, investing proportionally more women in education, health, family planning, access to land, inputs, and extensions, is an important part of development strategy, as well as an act of social justice.

Gender and Development (GAD) approach emerged as the critique of Women in Development (WID). Women in development rose as the impact of the critic toward dominant development modes that often ignored women and deprived them of their traditional status and economic opportunities. Hence, the WID approach seeks to improve the situation of women by integrating them into development policy and practice (Marchant & Parpart, 2003) as it is stated the World Bank (1994) that the early "women in development programs tended to treat women as a special target group of beneficiaries in projects and programs". Interestingly, the policy framework broadens to reflect the ways in which the relations between women and men constrain or advance efforts to boost growth and reduce poverty for all by characterizing the gender and development (GAD) approach to enhance women’s contributions to development (World Bank, 1994).

In addition, the GAD approach differentiates between practical gender needs and strategic needs for women. Practical needs refer to the demand for goods and services arising out of women’s socially acceptable roles in society. Strategic needs refer to requirements, such as equal employment opportunities and equal access to education and to productive assets, which would help women to achieve greater equality relative to
men by changing their position in society. This approach is seemly to make some inroads into development thinking and planning, but primarily at the level of training (interview, Sherry Greaves, CIDA, WID Unit, Ottawa, 28February 1992; also see Chow 1991; World Bank, 1994).

**ICTs Adoption and Its Impact to Organization**

There are different studies analyzing ICT, especially factors that impact ICT adoption. This research perceives that the ICTs adoption in business is linked to expectations towards positive impacts of ICT and characteristics of individual company (financial, technological, personnel resources, flexibility of structures etc.). Alam and Noor (2009) state that the adoption of ICTs is enabling the business to compete on global scale since it enables improve the efficiency and bring the customers and suppliers into closer relationship (p.112). Hence, the ICTS adoption is considered as crucial condition for women in their business to take competitive advantage from the global markets.

Based on a study in UK, there are three distinct stages of IT use in small businesses (Matthews, 2007):

1. Basic – minimal usage of IT,
2. Substantial – several applications and machines in use,
3. Sophisticated – integrated various systems and constantly developed use of technology.

Consoli (2012) examines the ICTs impact on companies, and identifies and categorizes the main effects into 4 groups; performance (i.e., efficiency, effectiveness, and competitiveness, innovation, and intangible benefits), growth (i.e., productivity, strategic, and sales increase), expansion (i.e., organization expansion, improvement of supply chain, international communication), and new products (i.e., new products/service, product quality, and customer satisfaction). By this explanation, it can be drawn that ICTs have reasonable effect on the labor force’s productivity and on economic growth (Sabbagh, Friedrich, El-Darwiche, Singh & Ganediwalla, 2012).

**METHODOLOGY**

In the core of qualitative research, this research holds the feminist methodology by using the gender and development (GAD) approach in revealing the women’s position in economic and development.
Accordingly, this research seeks to question the politics of representation and knowledge claims and to produce knowledge that situates women’s lives, experiences, and voices (see Saraswati, 2017). Interview is claimed as an appropriate way for this research. As Sharlene Hesse-Biber argues that the feminist interviewer is interested in “uncovering the subjugated knowledge of the diversity of women’s realities that often lie hidden and unarticulated,” as well as in working toward social justice for women (Hesse-Biber, 2014, p. 184). As this research aims to understand the issues of ICT and women’s business—prospect and potential—in Indonesia, interviews proved to be the most appropriate method.

In this regard, I conduct in depth interview to the six informants—woman entrepreneurs who own and run the business with ICT adoption—in August 2017. The key informants in this research are:

<table>
<thead>
<tr>
<th>Informant’s Name</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Avriani</td>
<td>Adia Lavani (clothing)</td>
</tr>
<tr>
<td>Aulia Halimatussadiah</td>
<td>Zetta Media (tech company)</td>
</tr>
<tr>
<td>Azalea Ayuningtyas</td>
<td>Du Anyam (crafts)</td>
</tr>
<tr>
<td>Ayu Zulia Safira</td>
<td>What’s up Cafe (culinary)</td>
</tr>
<tr>
<td>Rodhiah Safitri</td>
<td>Kebun Kemangi (clothing)</td>
</tr>
<tr>
<td>Shinta Nurfauzia</td>
<td>Lemonilo.com (start up market place)</td>
</tr>
</tbody>
</table>

During the interviews, I used digital recording. The interviews were then transcribed verbatim. The first step in my encountering the data was to “rummage” the materials for broad common themes (McCracken, 1988, p. 19). Then, I used an “open coding” system as I read and reread the transcripts (Lindlof and Taylor, 2002, p. 219). To make sense of what emerges from the data, I read them through a feminist perspective that allows the critical understanding and representation of women’s lives as the entrepreneur. In first step, interviews were conducted in Bahasa Indonesia before I translated them into English.
Discussion

ICTs Adoption and Its Impact to Women’s Business

- **Increasing ability for women to work from home**

  ICTs support women’s business as it is possible to run business every time and everywhere. Women do not have to go to the office during office hours, and it is most likely making the women’s mobility become easier.

  **Rodhiah Safitri – Kebun Kemangi**

  By ICTs, I can do everything everywhere; from promoting and selling products. As a housewife, ICTs really makes my mobility as a mom and woman entrepreneur become easier (interview in August 8th, 2017).

- **Improving employment opportunities for women in the ballooning IT sector**

  This point stands on the factual condition; women are more likely hiring more women than men. Major interviewees narrate that they employ more women than men.

  **Azlea Ayuningtyas – Du Anyam**

  We employ 400 women in Nusa Tenggara Timur to make the crafts from plait. These economic activities indeed empower them in financial benefit and reduce the poverty (interview in August 26th, 2017)

  **Rodhiah Safitri – Kebun Kemangi**

  Actually I myself who made the design and pattern for clothes. But for sewing, of course, I deliver the patterned clothes to the tailors who are women (Interview in August 1st, 2017)

  **Aulia Halimatussadiah – Zetta Media**

  In building and running the online publishing and also online book stores, our team is mostly consists of women, only one man found in our team. So is in Zetta Media, my current digital network. All of us are women (Interview in June, 2017).

  **Shinta Nurfauzia – Lemonilo**

  Most of our team are women (Interview in August 26th, 2017)

  **Any Avriani – Adia Lavani**

  I employ men to do the dying/coloring and also sewing the clothes. Women are needed for particular skill in modifying the model of the clothes product (i.e., making braiding as the detail on clothes).

  Relating to creating the job opportunities for women, I examine that most all the interviewees expressed themselves as the problem solver. This can be assumed that the emergence of women entrepreneurship is coming from the social
problems in the society where the women live.

**Any Avriani – Adia Lavani**

Ecofashion is our concept of business, that I would like to create an eco-friendly business since I see that today’s business tend to pollute. And it is so sad. (Any, interview in August, 2017)

**Shinta Nurfauzia – Lemonilo**

My business came from my sense of crisis on the availability of healthy foods. I guess people really need to consume something healthy, yet, they cannot approve the cost. So Lemonilo comes as the solution for them who expect a healthy life without spending too much money (Shinta, interview in August 2017).

**Aulia Halimatussadiah – Zetta Media**

I found that there was no good online bookstore at that time, so I made my own start up; Kutukutubuku.com to counter this problem (Aulia, interview in June, 2017).

**Azalea Ayuningtyas**

I see the local potential in NTT, that women are good in making plait, so I empower them by creating the crafts industry in order to appreciate their skill by inducing the bargain value (Azalea, Interview in August, 2011).

**Ayu Zafira – What’s up Café**

What’s up café has the concept or

*special menu of instant noodles with different seasoning that we combine from all the seasoning. The idea came up to increase the value of instant noodle, so they no longer seen as the unhealthy food since we do not use the instant seasoning, we use the natural ones (Ayu, What’s up Café)*

- **Increasing sales as ICTs can be used as promotion media**

  Interviewees express the view that the ICTs can be an appropriate media for both promotion and sales. Most of the key informants use Instagram as the ICTs platform to promote and sale their products.

**Aulia Halimatussadiah – Zetta Media**

Technology means broader access to information. If technology is integrated to business, the distribution chain could be shortened, the promotion cost can be reduced, so it can low all the cost needed for production-distribution process. Moreover, it could also broaden the market access that impacts to the profits gained and business growth (Aulia, 2013, p. 17).

**Shinta Nurfauzia – Lemonilo**

We use Instagram, especially the Instagram stories to campaign our product, for example; how to make a healthy coffee by using or mixing it with our products. I also ask my friends who
are bloggers to make the testimonies through their blogs. We use social media platform for both selling and promoting our product. We also have web to sell our products (interview in August 26th, 2017)

**Azalea Ayuningtyas – Du Anyam**

We use web, and Instagram for promoting our product. Just like we usually have a quiz to our followers as well as customers and other event that can be followed by them as the promotion program of Du Anyam (Interview in August 26th, 2017)

**Rodhiah Safitri – Kebun Kemangi**

Yes, indeed. ICT platform especially Instagram really helps us in promoting our products and impact the increasing of sales. I also notify the peak hours—the time when most people open their Instagram account—to post my product. Yes, I play several strategies in promoting products through Instagram (Interview in August 6th, 2017)

**Ayu Zulia Safira - What’s up Cafe**

I use Instagram as the media for promotion. We can update our menu through Instagram (interview in August 26th, 2017)

**Any Avriani**

I think Instagram is not really applicable for our products. We produce natural dyed clothes by using natural colors from indigofera (blue), turmeric (yellow), and mangos teen peel (purple). These products, of course, are different with other synthetic-colored clothes. Natural colors do not have stable color, they would easily change. So the consumers might find the difference of the color between what they see on the Instagram and if they see it directly. That’s why I stated that Instagram is not an appropriate way to sell our products. However, the Instagram is useful as the media for campaign our concept of eco-fashion. But for selling the product, we mostly do it through our booths in Alun-alun Grand ndonesia, Alun-alun Galeries Lafayette, and People’s Project Kuningan City (interview in August 22th, 2017).

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**The Impediments of Women-led Business**

- Limited ICT skills, and lack of awareness and confidence, rural women entrepreneurs are further constrained by attitudinal barriers that lead to low ICT ownership and usage
The lack of finance is a major constraint to the growth of female-owned enterprises

Women’s World Banking (2015) reports that female entrepreneurs’ access to formal credit in Indonesia is only 8% well served, 19% underserved, 42% un-served, and 31% Opted out of formal credit. Relating to this study, the interviewees stated that they start their business by their own capital and helped by the investors (non-government credits).

Gender norms and social constraints

Relating to this point of discussion, first of all, I would like to reveal the social norms and constraints in the ICTs use for women. Social interactions tend to culturally shape the people about what it means that technology is only for men.
Aulia Halimatussadiah – Zetta Mesia

In tech, I think I haven’t found any significant lack or barriers. Because indeed, we only have fewer women in tech, thus, men tend to be respect to women in tech, and we women tend to help each other in this field. So we are more likely a support system to each other, which is very good for us. No battling to each other. Maybe the problem is about “the boys club”, that’s what we call it. In IT (information technology) world, it is a domain for men that sometimes make us feel uneasy. But it is still okay for us, not a big problem. That’s what I experience so far.

But somehow, still I have heard that some of my friends, they are women, they tend to find difficulties in finding the fund, or being underestimated if they are pregnant, they are seen as the ones who cannot do anything. But that does not happen to me; I am a single lady, and this is my world, so I have no problem yet (Aulia, interview in June 2017).

Azalea Ayuningtyas – Du Anyam

Yes it is a little bit harder for us to get finance, for example, we really have to perform good, and be smart in taking the challenge or opportunity (interview in August 26th, 2017)

Shinta Nurfauzia

It is not against the truth that men tend to underestimate women in the business world, I experience this. One of my officer, he is a man; he tends to eliminate women in our recruitment. When I ask him why, he shows his underestimation toward women as a moody creature that cannot deal with our work (interview in August, 2017).

CONCLUSION

This study shows that women really contribute in economic development as it is enabling to induce their income and to empower other women in economic activities. However, the gap between men and women’s entrepreneurship still exists. It is triggered by various factors including the social norms (gender stereotyping) and the involvements of government in inducing their business (less access to formal credit, less continuity entrepreneurship training for women). The key informants involved in this study can be considered as good leaders in entrepreneurship / business since they have shown their good performance in running the business and empowering other women. Hence, I might assume that leadership is really needed to induce women’s business in Indonesia. Moreover, this study recommends the policymakers, to give their ability to
affect regulation and to implement programmers at a broad scale, as crucial condition to increasing female entrepreneurs’ access to (i) finance, (ii) skills development, and (iii) ICT tools and connectivity.

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FACEBOOK ADS AS PROMOTIONAL TOOLS FOR MICRO, SMALL, MEDIUM ENTERPRISE

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Abstract
Micro, Small and Medium Enterprises (MSMEs) in Indonesia have a strategic role in absorbing unemployment, supporting poverty reduction programs and to facilitate increased revenues from exports. One of the important and decisive aspects in the success of MSMEs is marketing, especially aspects of promotion. Currently, the media that are widely used by MSMEs in the promotion are online and social media marketing. This research uses desk research method that analyzes secondary data and information about how the effectiveness of social media, especially Facebook ads as a means of promotion of MSMEs as well as observation and experiment directly against the function of facebook ads. The results showed that facebook ads function as a means of promotion tools are effective in the term of cheap, easy, fast and reach out to many among the appropriate target market that can be set based on demographic, interest, behaviour, etc.

Keywords: MSME, Promotion, Social Media, Facebook, Advertising

JEL Classification: O31, O32, O33

INTRODUCTION
Micro, Small and Medium Enterprises (MSMEs) in Indonesia have a strategic role. By the end of 2013, the number of MSMEs in Indonesia is 57.89 million units with contribution to the gross domestic product of 59.08%. The contribution of MSMEs to the employment is about 97.16% or 114 million people (Kementerian Koperasi dan UMKM, 2015).

Some of the things that should be underlined related to the importance of MSME sector in Indonesia are: MSMEs play a big role in absorbing unemployment, supporting poverty reduction programs and to facilitate increased revenues from exports (Tambunan, 2006).

One of the important and decisive aspects in the success of MSMEs is marketing. Kotler and Armstrong have formulated a marketing mix that we know with 7P (Product, Price, Place, Promotions, People, Physical Evidence and Process). Of the seven things, promotion is the main thing that should be prioritized by MSMEs because this aspect is used by MSMEs to inform their products or services. According to Kotler and Keller (Phillip T.Kotler, 2016), there are eight communication models:
1. Advertising
2. Sales Promotion
3. Event and Experiences
4. Public Relation and Publicity
5. Online and Social Media Marketing
6. Mobile Marketing
7. Direct and Database Marketing
8. Personal Selling

Data from wearesocial shows that as of January 2017 internet users in Indonesia reached 132.7 million with penetration rate to population of 51% (population 262 million) as can be seen in figure 1.

Figure 1. Number of Indonesian Internet Users as of January 2017

Active social media users is 106 million while registered mobilephone users 371.4 million or 142% of the population. From this survey we also found active users of social media access using mobile devices already reach 92 million inhabitants. There is a significant increase compared to the data of Internet users in January 2016, which increased by 51% (45 million). This is due to the development of infrastructure and the ease of getting a smartphone or handheld device (wearesocial, hootsuite, 2017).

Moreover, from figure 2 and 3 we can see the comparison of weekly online activity by device (smartphone, computer or tablet). There are at least 2 things that need to be observed that the smartphone ranked first in every online activity conducted (check email, social media, search engines, searching for product information and listening to music). The second is the high percentage of social media use using smartphones (62%). While total social media users have reached 106 million or 40% of the total population.

Figure 2. Weekly Online Activities by Device
Source: wearesocial, hootsuite, (2017)
Based on survey results from wearesocial, it can be seen in figure 5, that many Indonesian people are looking for products / services via the internet (48%), visit online stores (46%) and buy goods / services via computer or smartphone (41%).

From (Yen Yen Maryeni, 2014) we can see MSME profile in West Java mapped based on e-commerce adoption stage model (Chandra, 2012), yielding data as table 5.

**Table 5. MSME Profile in Indonesia**

<table>
<thead>
<tr>
<th>Profile</th>
<th>Category</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-commerce Adoption Stage</td>
<td>Non-Adopter</td>
<td>33.33</td>
</tr>
<tr>
<td></td>
<td>Presence</td>
<td>27.68</td>
</tr>
<tr>
<td></td>
<td>Portals</td>
<td>27.68</td>
</tr>
<tr>
<td></td>
<td>Transaction Integration</td>
<td>6.21</td>
</tr>
<tr>
<td></td>
<td>Enterprise Integration</td>
<td>5.08</td>
</tr>
</tbody>
</table>

Source: (Yen Yen Maryeni, 2014)

From these profiles, it can be noted that most MSMEs (> 50%) are still in the presence or even non adopter level. This means that MSMEs surveyed mostly use the website / social media to inform about the products / services. Another interesting point to investigate further in the presence stage is which social media...
platform is the most widely used and how big the effect of the platform on e-commerce performance (sales, repeat orders, etc.).

Based on data of internet user condition in Indonesia where 62% use social media via smartphone and more than 50% MSME use only website / social media to inform about their product/services, hence this study aims to determine the characteristic of using social media especially Facebook (Fb) ads as a means of promotional tools for MSMEs and how FB ads can support the increase in sales and repeat orders for MSMEs. Facebook was chosen based on survey from wearesocial ranked as top social media most widely used along with youtube. In contrast to the youtube that video-based only, Facebook can contain text, pictures and audio video (complete format).

METHODS

The method used in this research is desk research as we can see in figure 6, where the analysis is done on secondary data from journal and survey result. Also equipped with observations and experiments on facebook ads directly.

RESULTS AND DISCUSSION

To structure the discussion, we will use the 5W1H (What, Why, Who, When, Where and How) model, with 3 main question:

a) what is fb ads?

b) why we have to use fb ads?

c) and how to use fb ads?

Figure 6. Research Method

With this method, data collection are using desk research (studying survey result and journal about social commerce, fb ads) to gain insight about what and why we have to use fb ads. And then further data collection are gained throuh observation of 2 online shop (hijab and moslem fashion) that already running fb ads to see if there any pattern on how to run fb ads effectively in order to increase sales and gained repeat order. Experiment on fb ads directly also conducted to complete the result from desk research and observation.
What is fb ads and why we have to use fb ads are to answer the question about characteristic of fb ads, while how to use fb ads will answer the question about how to use fb ads as promotional tools to support increased sales and repeat orders of MSMEs.

**What is Facebook ads?**

Facebook is type of social media, where people with common interest shares their ideas and comments in a virtual environment (Weber, 2009). Fb ads is an advertisement created by a business on Facebook that’s served up to Facebook users based on user activity, demographic information, device use information, advertising and marketing partner-supplied information, and off-Facebook activity. In short term, Fb ads is an advertisement platform inside facebook that can be used to target specific audience.

**Why we have to use Facebook ads?**

Facebook advertising enables customers to share their experience, ideas, interest and useful information about a brand. Facebook advertising is useful in the sense that it is interactively helpful in collecting feedback and demographic information of targeted customers. In current business environment, Facebook advertising is an effective source to reach targeted customers (Sandberg, 2010). Facebook advertising provides the opportunity to build up your brand and engages with customers on a large social network. Facebook advertising is done to create likeness, attraction and influence buying behavior in positive way. Attitude-towards-the ads, is an interesting theory of advertising often used to understand the buying behavior. Effective advertisement influences the attitude towards brand and finally leads to purchase intention (Goldsmith, 2002). Ideally, consumers buying behavior is the products purchase decision (Adelaar, 2003).

Social media particularly Facebook has become a marketing channel to reach target market. According to a study, “Expand your Brand Community Online” social media has become a significant marketing channel to reach directly targeted customers and engages them with company brands (Hanlon, 2008). For example, Audi (German automobile company) and Dunkin’ Donuts (American consumers’ product company) are using social media for direct interactions with customers. Audi has established corporate relations with
their fans on Facebook (Wasserman, 2011). Similarly, Proper Cloth, New York based company, has created its page on Facebook to post news of their business and pictures of clothes. All its Facebook fans receive their updates in seconds on their Facebook pages. These leading brands have collected consumers on a single platform (i.e. Facebook) and keep them updated at lower cost. According to (Lukka, 2014) Facebook is an effective source to market your products in a personal way. Facebook has enabled marketers to customize their advertisements for a specific group of people. Marketers target these individual on the basis of demographic information’s and mutual interest. Facebook has made it possible to reach these targeted people in cost effective and interesting way instead of traditional marketing channels. Facebook advertisers are using different techniques to effectively convey commercial messages to create purchase decision. Facebook offers better “smart advertising” option that has enabled advertisers to customize all the facts in their ads for viewers corresponding. For example, Facebook and other online communities have enabled Hewlett Packard (HP) to reach customers and helped HP to generate a considerable profit (Lukka, 2014). We can see in Table 6, to make clear understanding about comparison between conventional advertising and FB ads.

Table 6. Comparation Between Conventional Advertising and FB ads

<table>
<thead>
<tr>
<th></th>
<th>Conventional advertising (newspaper, magazine, etc)</th>
<th>FB ads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target</td>
<td>Limited and declined target market</td>
<td>Segmented and specific target in positive growth condition</td>
</tr>
<tr>
<td>Measurement</td>
<td>Hard to Measure</td>
<td>Easier to measure</td>
</tr>
<tr>
<td>Cost</td>
<td>Expensive</td>
<td>Cheaper</td>
</tr>
</tbody>
</table>

Figure 7. The Growth of Newspaper Circulation 2008-2015

Source: tirto.id (2017)
From figure 7 we can see clearly how the development of the internet triggers a change in patterns we consume information, from paper to screen. The growth of newspaper circulation has continued to slow down since 2010. In figure 8 we can see how magazine advertising revenue is decreasing from 47,1 to 26,9 million US $. On the contrary from figure 9 we can see constant increase in internet based advertising from 47,2 to 159,8 million USD.

**How to use facebook ads?**

As already explained earlier, fb ads is one type of paid traffic, the ads that bring visitors in a paid way.

1. SMEs can determine the target audience of ads with various categories, from start location, age, gender, relationship status, hobby, etc.

2. The ad will show to all facebook users, who open their FB either via Laptop, PC, HP, Tablet etc.

To start advertising then there are some things that should be prepared by SMEs as follows in figure 10.

1. **Facebook Fanpage**
   - Fanpage is a place to display products / services that will be sold by UMKM.

2. **Source of payment**
   - To pay to Facebook, there are some paid tools that are supported as follows:
     a) Bank Transfer/Internet Banking;
     b) Debit Card;
     c) Paypal

3. **Preparation of sales**
   - In this stage prepare photos/videos of your product/service, upload and post on fanpage.
After preparation, MSME should know the purpose of promotion / advertisement. Facebook divides advertising goals into 3 parts that can be seen in Figure 11:

- **Awareness**: Objectives that generate interest in your product or service.

- **Consideration**: Objectives that get people to start thinking about your business and look for more information about it.

- **Conversions**: Objectives that encourage people interested in your business to purchase or use your product or service.

Awareness consist of several types of ads such as brand awareness, local awareness and reach. The main function of brand awareness type is to increase the number of Facebook users who like a fanpage.

In Consideration there are types of Web Ads (Click Website) / Traffic and Engagement. This type of traffic ads serves to direct prospective buyers into the e-commerce website of UMKM and increase the number of web visitors (potential buyers).

In the consideration there is also Post Advertisement (Boost Your Post / Engagement) whose main function is to make post sales and seen by more people not only that has become a MSME fanpage, but also targeted people outside it, in accordance with the segmentation of MSME products. With this type of advertising, then the customer interaction (ask via comment, contact, etc) is done in such postings. From these three types of ads we can analyze in Table 7.
Table 7. Comparasion Between Different Types of Fb Ads

<table>
<thead>
<tr>
<th>Brand Awareness (Like Ads)</th>
<th>Traffic (Click Website)</th>
<th>Engagement (Posting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• MSME have to adjust algorithm (rules from FB), where not all fans (liqueur) look, the latest data showed just under 5% of the total number of fans who see per 1 status of his fanpage</td>
<td>• Requires several stages, so that prospective customers buy the product (the user must visit the web first, then he can knows detail info, price, description, contacts etc) • usually not as cheap as posting ads</td>
<td>• MSME do not have to wait for the number of fanpage like to grow • Starting from 0 Likes, SMEs can already advertise the product because the posting can be seen directly by a lot of people</td>
</tr>
</tbody>
</table>

From the analysis, in this research, will be further explored about ad post / engangement. We proposed PDCA (Plan, Do, Check, Act / Adjust) flow from Deming / Shewart Circle in figure 12 to be used as a reference,

Figure 12. PDCA Cycle

Source: (Bulsuk, 2009)

Based on the model we can mapped into the process in post ads as follows in Table 8.

Table 8. Mapping PDCA to FB Ads Stages

<table>
<thead>
<tr>
<th>PDCA Stages</th>
<th>FB Ads Stages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>Targetting Audience</td>
</tr>
<tr>
<td>Do</td>
<td>Optimization of advertising costs</td>
</tr>
<tr>
<td>Check/Study</td>
<td>Ads Evaluation (ROI, Profit Margin)</td>
</tr>
<tr>
<td>Act/Adjust</td>
<td>Split Testing + Scale Up</td>
</tr>
</tbody>
</table>

Source: modified from Facebook (2017)

As a first step in figure 13, Facebook divided targeting with some parts of location, age, gender, language and detailed targeting.
1. Location: MSMEs can fill starting from the largest, namely State, Province, City, District, and etc. Adjust the target market, the reach of the product/service, or if there are promos in certain city, and so on.

2. Age: To determine the age of purchase, we can use statistical data from credible institutions. It will be better if MSME has a database of buyers, from there can be seen from any age scale, the product is widely consumed. Avoid the ages where Facebook users who have not been educated (unfamiliar with online transactions). It means do not choose too young or old.

3. Gender: When suppose our product is mostly consumed by man or woman, or there is more portion among it, choose one. Focus on users whose probability of interest is high.

4. Language: The language used according to the target market.

5. Detailed Targeting: this stage is the core of Facebook ads, this part will be explained in the next discussion.

**Figure 13. Targeting Audience**
Source: Facebook (2017)

**Figure 14. Detailed Targeting**
Source: Facebook (2017)

Detailed Targeting in figure 14 include some of the following:

1. Demographic: a lot of things can be targeted, among the important thing here is education, relationship status, and occupation. Example: MSME can target people who are already in College (educated), its purchasing power is expected to be higher, because it is more educated.

2. Interest: large, multiple categories appears associated with an interest/hobby/someone’s Favorite.
Please select in accordance with the related product/service of MSME.

3. Behaviour: the important thing here is we can target specific types of mobile phones users, of its brand, its Operating System (OS) etc. It is also useful to filter FB users based on its class, for example, IOS User and Iphone user tend to have higher purchase intention as we can see in figure 15 & 16.

Figure 15. Mobile Device OS Targetting
Source: Facebook (2017)

Figure 16. Mobile Device Brand Targetting
Source: Facebook (2017)

Later in more detail will be explained about the demographics and interest as follows:

1. Demographic
   a) Education: In this section when facebook user, study in a particular department or have graduated from a campus with a certain discipline then it could be a passionate target, for example; The target of the nursing profession, they studied with the department of nursing, accounting profession, they studied in accounting majors, there are also designer or photography, they took the related school, can be tailored to the target market respectively. Filter for people who have purchasing power, usually selected people who have ever taken college grad, because they are educated, and should be familiar with online transaction like depicted in figure 17.

Figure 17. Education Level
Source: Facebook (2017)
b) Work, this section is related to the title of their profession, whether they as a doctor, photographer, accountant, nurse, designer, architect, teacher, lecturer, driver, etc. All professions that passionate with MSME business or niche can be targeted.

2. Interest

In interest there are large categories but too broad. MSME requires specific, segmented, targeted specifications. For example suppose camera sales, target people who like photography as seen in figure 18.

**Figure 18. Interest**
Source: Facebook (2017)

What hobby, what kind of interests, and what activities that user passionate about a thing. Another example in figure 19, could be targeting a large online store in Indonesia such as: Lazada, Zalora, MatahariMall, Berrybenka, Bukalapak, Tokopedia etc. With that expected audience of ads is the audience that usual to conduct online shopping.

**Figure 19. Interest**
Source: Facebook (2017)

MSMEs should conduct research one by one detailed targetting. Connect the linkage of products sold with the prospect's interest. The more identification of interest, the more prospective customers who will become the audience of MSME ads.

After plan (targetting), the next thing to be discussed is “do”, this concern with the optimization of advertising costs. From interview with the owner of online shop (hijab & moslem fashion), there are at least 5 aspects to watch out for:

1. Value of the product, Trend, & Competition
   The value of product/service excellence that will be marketed by MSME, what are the advantages of the product/service? How product/service competition in the market? Focus on the advantages of the product in the ad so that
when prospective customer saw our ads they want to buy it.

2. Ad Copy
This is related to the writing of words as well as sentences and pictures / photos / videos on the ads that make potential customers interested to buy.

3. Targeting
Targeting is one of the keys to ads cost optimization, the right target will result in a good conversion, meaning that the SME ads should be read by the right people.

4. Follow up
This aspect is related to the ability to communicate with potential buyers. Open as wide as possible communication with social messaging platform used by most customers, eg Whatsapp, BBM, Messenger, Line etc. Keep the communication style with the evocative language and persuasive.

5. Closing
A good Closing techniques make the prospective customer will make a purchase. Therefore starting from ad copy and communication should be drawn up with the good sentence.

From the five aspects, targetting becomes important, because the audience will enjoy the appropriate offer. In Facebook, the role of targetting also makes the cost of advertising cheaper because facebook ads have the formula:
More Result = More Reach

The more the audience reacts to the ads, the more our advertisements reach people. The meaning is the same cost between ads A and B, can reach different ranges, depending on how much impact the audience interacts with the MSME ads including like, share comments, clicks, etc. One that encourages this is targeting. This means we must do targetting in accordance with our target market. For example, MSMEs selling Naruto motif jackets, then the ads should target that has an interest in the movie Naruto. Examples are as follows in figure 20:

**Figure 20. Interest**
Source: Facebook (2017)
The next step is “check / study” and “act”. It consist of 2 important parts, first is the advertising effort, profit margin & Return on Investment (ROI) and the second is split test + scale up

1. Ad Effort, Profit Margin & ROI

MSME advertising costs can be more than the income earned, meaning that the MSME is losing or advertising costs may be less than the income earned which means get a profit.

Noteworthy is the comparison of ad effort (the time devoted for writing good advertising i.e writing sentences; product research and for the analysis of advertising) compared to the profit margin or profit earned when sold 1 product.

One way to measure the ROI is using 1x profit of products sold, eg profit per product Rp 50,000,-, MSME can test with advertising budget Rp 50,000,- / day. If after advertising the product sold 1 means the return of capital, if 2 means have been profitable, with this method is quite easy to measure.

2. Split Test & Scale Up

Based on ads evaluation, there are several things that can be done, namely doing split testing and scale up.

Split test & Scale up cycle can be seen in figure 21.

Figure 21. Split Test & Scale up Cycle

Source: modified from Facebook (2017)

In the ad test, the main purpose is how to generate as many conversions as possible with minimal effort. In this method we try different types of ads up to meet a suitable pattern, which means ads “a” for segment “x”, ads “b” for segment “y”, and so on. In the process of trial and error as figure 21, If an ads has not resulted in a sales conversion as expected, it will be followed up by changing the ads content, from photo, copywriting, different offers, etc. So it is expected from this process, eventually will be found winning campaign, where with a certain budget will be able to generate significant sales conversions (profit and turnover).
CONCLUSION AND FURTHER RESEARCH

From the research problem, we can conclude 2 point about fb ads as follow:

1. Facebook ads characteristic: Based on desk study and experiment that have been conducted, facebook ads function as a means of promotion tools are effective in the term of cheap, easy, fast and reach out to many among the appropriate target market that can be set based on demographic, interest, behaviour, etc. Moreover the development of the internet triggers a change in patterns we consume information, from paper to screen. It means that fb ads has positive growth condition in the future.

2. How to use fb ads effectively: From the observation of online shop that already running fb ads and experiment, we can use PDCA framework as the guidelines to conduct fb ads effectively as seen in figure 22.

Figure 22. PDCA Framework Mapped to Fb Ads

Source: modified from (Facebook, 2017)

This study serves as preliminary research to give initial insight and practical step for MSME to promote their product/service in cheap and effective way so they can improve their sales and gained repeat order. Further research are needed to give comprehensive understanding about fb ads and other promotional method in digital world, such as:

1. Search Engine Optimization (SEO).
2. Email Marketing.
3. Online Messaging Marketing.

REFERENCES


CONSTRUCTION OF NON-PENAL EFFORTS TO PREVENT CYBER CRIME ON E-COMMERCE

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Abstract
The development of digital era in every aspect of life that is not excluding to the trade sector with the emergence of e-commerce features that offer convenience in shopping. Make the community seem powerless to contain it. Such developments of course in addition to bringing positive impact also brings negative impact of the cyber crime potentials in electronic transactions on e-commerce such as theft of personal data and fraud is rife through e-commerce today. Criminal law in this case provides both penal and non-penal bidders to cope them. On penalty countermeasures with the enactment of Law Number 11 Year 2008 regarding Information and Electronic Transactions has given a repressive efforts in handling cyber crime. However, this is a sign that consumer would act when he has suffered losses. Using a juridical-normative research method, this study would provide construction of non-penal efforts in the form of a security identification model for e-commerce. Thus, prospective customers can determine that the feature is not potentially to be a cyber crime tool to prospective customers. This is intended as a preventive efforts to avoid losses to consumers compared with penal/repressive efforts alone that look like allow the losses occurrences to consumers.

Keywords: E-commerce, Cybercrime, Non-Penal.
JEL Classification: K10, K14, K19

INTRODUCTION

Based on e-marketer data in 2014, total of internet users in Indonesia is 83.7 million users. It is predicted by Kominfo that the number of internet users will increase up to 112 million users in 2017 (Kominfo, 2014) and potentially will continue to increase considering the population in Indonesia itself is more than 250 million people. This is obviously good news because it indicates that technological developments has been well-received in Indonesia in this globalization era.

In addition, it indicates that internet users will use all the features that available in internet. Including e-commerce features, according to Julian Ding in his book E-commerce: Law and Practice (Suparni, 2009) e-commerce is an undefined concept. However, according to R. E. Van Esch in his book Electronic Commerce (Suparni, 2009) states that e-commerce can be defined as all material actions which is implemented in a better, efficient, and effective way in terms of a company production marketing. 
The effectiveness and efficiency of e-commerce features will make both of society as consumer and entrepreneur or companies as manufacturer to utilize these features. Since e-commerce will facilitate the occurrence of legal relationships between companies, companies and consumers and also companies and government institution. In this case, it is a good solution for both consumer and producer in terms of effectiveness and efficiency in making transactions where the distance will not be a barrier for the implementation of the transaction. However, along with it will certainly appear a challenge or problem that must be also anticipated and overcome effectively and efficiently, in this case the problem is regarding the potential of cyber crime in e-commerce activities.

Cyber crime itself cannot be viewed as an ordinary or conventional crime. If we examine the cyber crime against the criteria of conventional criminal law rules, then, we will find out that cyber crime is not a simple crime (Suparni, 2009). Because in his revelation it will take extra effort to uncover who is behind the crime and sometimes even the victim who is the target of the crime does not realize that he has been a victim. For example, I am sure that we still remember the outbreak of ransomware attacks that shocked the world lately which is not excluding Indonesia. Where the attack will lock all existing data on our computer and if in a certain period we do not pay a ransom, then automatically the data in the computer will be forcefully removed. Of course this would be a complicated problem to solve. Especially in the case of investigation and disclosure, because the victims have already suffered losses and there is no guarantee that will make them to get justice for the losses that they have suffered. So it raises the question on how preventive efforts to prevent cyber crime occurs in e-commerce?

Therefore, this paper would like to explore what kind of action that can be strived to be preventive measures to avoid losses incurred on cyber crime in the e-commerce sector, especially in cases of fraud and theft of personal data.

METHODS

The method used in the discussion of this paper was the juridical-normative method. The method of juridical-normative research itself is a literature law research, in this case,
library materials used as basic data which then classified as secondary data (Soekanto and Mamuji, 2013). Secondary data obtained from literature data that include:

1. Primary legal materials, inter alia:
   a. Related legislation.

2. Secondary legal materials, inter alia:
   a. Doctrine or expert opinion;
   b. Books within the scope of Issue;
   c. Scientific journals and research results; and
   d. Internet page with author that can be accounted for.

3. Tertiary legal materials, is material that provide guidance or explanation of primary legal materials and secondary legal materials, such as statistical data.

The collection of data and legal materials was done by literature review which included primary legal materials, secondary legal materials, and tertiary materials that relevant to the problem. Literature review was done through the stages of bibliography identification and identification of the necessary legal material either through literary inventory and access to information through internet data network related to cyber crime and e-commerce. The data and materials would be qualitatively sought, then reviewed and discussed and described descriptively, analytically, and systematically.

RESULTS AND DISCUSSION

Based on the data of e-marketers as reported by the ministry of communication and information, the number of internet users in Indonesia from year to year is predicted continuously increase. It indicates that the digital era has been ongoing and keep growing.

Table 1. Internet User Projection in Indonesia in Million Number

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>83.7</td>
<td>93.4</td>
<td>102.8</td>
<td>112.6</td>
</tr>
</tbody>
</table>

Source: Kominfo (2014), processed

The data described above confirms that there is a necessity to accommodate the internet-based activities so that the number of material or non-material loss can be minimized or even stopped, especially for the e-commerce activities.

In Indonesia itself, e-commerce activities from time to time are increasingly loved by the Indonesian society due to the convenience and practicality gained through the use of the e-commerce features. This can be
proven by the considerable amount of product purchase in the online transaction. For example, in 2015, loot at the following table.

**Table 2. The value of Purchase Transactions Online in 2015**

<table>
<thead>
<tr>
<th>No</th>
<th>Nilai Transaksi</th>
<th>Persentase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;Rp. 500.000</td>
<td>68%</td>
</tr>
<tr>
<td>2</td>
<td>Rp. 500.000 s.d</td>
<td>22%</td>
</tr>
<tr>
<td>4</td>
<td>Rp. 1.000.001 s.d</td>
<td>7%</td>
</tr>
<tr>
<td>5</td>
<td>Rp 2.500.000 s.d</td>
<td>2%</td>
</tr>
<tr>
<td>6</td>
<td>&gt;Rp. 5.000.000,00</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: Ditjen Aptika (2015)

It shows the urgency for the protection of the growing electronic transaction activities in Indonesia. In this matter, the enactment of Law Number 11 Year 2008 on Information and Electronic Transactions (hereinafter we will called it as ITE Law), has provided repressive efforts in legal protection of e-commerce activities in Indonesia. However, as explained in the earlier parts of this paper. Depending on the ITE Law only is not suffecient to get a satisfactory legal protection because the aggrieved parties to a cybercrime act as if they could only able to move if they have suffered a loss or are indicated to be harmed by an act that is reasonably suspected as a cyber crime.

**The Cyber Crime Repressive Handling Problems**

In law enforcement it will depend on the factors that influence it, in this case Soerjono Soekanto (2014) noted that at least there are five factors that influence law enforcement which consists of their own legal factors, law enforcement factors, facilities factors, community factors, and Cultural factors. In repressive action the first three factors are having the most important roles, which summarized as follows:

a. The Legal Factor.

In this case. Although the ITE Law has been enacted as a form of response to the protection afforded to parties with an interest in electronic transactions, it cannot perfectly accommodate the protection of those interests, because basically the law is merely the moment of opname (crystallization of circumstances) where the substantion that is accommodated in a law is a phenomenon that actually has happened in society. In this case cyber crime is a form of crime that evolved over time and perhaps it is not impossible in the future there will
be a form of cyber crime that cannot be overcome through the Act of ITE. For example, in the case of cyber crime is done transcending the cross-border of a country. This will lead to an international crime because it involves a foreign element in it. Meanwhile, the international criminal law (ICL) requires that ICL comes from two sources namely customs and international agreements (Rosidah, 2012). What if one of the parties is someone who is not bound by international treaties that regulate the cyber crime?

b. Law Enforcement Factors.
In this case, law enforcement, both lawmakers and law enforcers, will determine the success factors of whether the ITE Act is to be implemented or not. Therefore, if law enforcers have a lack of understanding of this cyber crime itself, thus, it is certain that law enforcement in the case of cyber crime eradication will not be repressive. Or because the evidence of cyber crime is in the form of electronic data where it can be easily remove. Thus, adding to the complexity of disclosure of cyber crime cases.

c. Facilities Factors.
The absence of facilities or in this case a special body that dealt with cyber crime intensely can result in the weakness of the development of criminal policy towards the renewal of cyber crime prevention efforts. Although in this case the police of republic Indonesia has held Cyber Crime Unit. However, if it is not supported by adequate personnel, this existing will only means to be a form of fattening the government organs only.

Repressive efforts can be said to be strongly affected by the three factors described above. However, we need to remind you again that one of the major disadvantages of repressive efforts is that the countermeasures are carried out when the crime is in motion. Because it is in line with the principle of criminal law that determines that there is no crime without fault (Geen Straf Zonder Schuld principle). Thus, it raises the logical consequence that a repressive effort can be carried out if there has been a mistake or cyber crime has already affecting the victim. Therefore, as an anti-thesis of this repressive effort raises the idea for the holding of preventive efforts.

Criminal Law and Criminal Policies
Based on the mixed theory of criminal prosecution, the criminal is
intended to retaliate the perpetrator, prevention efforts, rehabilitate the perpetrator and society protection (Rosidah, 2012). However, prevention that meant in here is prevention with punishment. This means that prevention is done, so that others people in the community will have no desire to become perpetrators of crime in the future. Then, again if we concentrate on punishment, it is the same with let the occurrence of losses to be occurred first and also the prevention scheme that through this punishment also has the potential to fail because for the cyber crime case, the offender will easily remove the trail and even This thing will inspire many people to participate in doing cyber crime because it tends to be difficult to be prosecuted and penalized.

In addition, there is also a doctrine which states that the criminal law is ultimum remedium. That meant, criminal law is used as the last remedy in crime prevention. This doctrine also resulted in the actualization of criminal law that eliminates the hard image of criminal law (Muladi and Sulistyani, 2016) in such forms as the effort to revise the Law on ITE because the sanctions are too heavy. Such thing then seems to affirm that the penal law itself requires its pursuit to implement prevention without punishment.

**Construction of Preventive Efforts on E-Commerce**

The preventive effort referred to this section is a preventive effort without punishment, which later became known as non-penal effort, which meant that in this case it is necessary to identify what are the factors that influence this preventive action. If in the previous section we have slightly touched on five factors that influence law enforcement, as proposed by Soerjono Soekanto (2014). So, we can say that in this preventive action, the factor which becomes the determinant factor of the success or failure of preventive measures on cyber crime is the factor of facilities and community factors.

Facility factor must be adjusted to the reality prevailing in society. For example in terms of implementation of transactions on e-commerce, it should be known what pattern is often done by the perpetrators of e-commerce. Thus, it can be concluded about what kind of facilities should be held to protect the public from cyber crime on e-commerce.

Community factors are also not less decisive in the implementation of preventive efforts in e-commerce
activities. Because the community itself which will become one of the perpetrators of e-commerce and therefore the public needs to be given education about the prevention of cyber crime when they do e-commerce activities. Such as patterns of action to be performed as well as knowledge of the facilities that can support them to identify the possibility of cyber crime or facility that usually used to commit cyber crime. Here we present the payment method pattern statistics on e-commerce activity.

Table 3. Payment Methods on E-commerce Activity in 2016

<table>
<thead>
<tr>
<th>No</th>
<th>Payment Methods</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ATM Transfer</td>
<td>77.50%</td>
</tr>
<tr>
<td>2</td>
<td>Cash on Delivery</td>
<td>22.50%</td>
</tr>
<tr>
<td>3</td>
<td>Mobile/E-Banking</td>
<td>20.70%</td>
</tr>
<tr>
<td>4</td>
<td>Debit Card</td>
<td>11.30%</td>
</tr>
<tr>
<td>5</td>
<td>Credit Card</td>
<td>11%</td>
</tr>
<tr>
<td>6</td>
<td>Online Payment</td>
<td>8.60%</td>
</tr>
<tr>
<td>7</td>
<td>Wesel</td>
<td>4.80%</td>
</tr>
</tbody>
</table>

Source: Kominfo (2016)

If we discuss e-commerce, of course the most risky thing is the vulnerability of fraud. Therefore we need to know the pattern of payment transaction method in e-commerce activity. Thus, we can know preventive efforts to prevent the occurrence of such fraud attempts. From the data that has been described above can be seen that ATM transfer is the most widely used method by the perpetrator of e-commerce. Therefore, a media that can be used to identify a bank account is needed so that the cyber crime perpetrators who often commit fraud against the prospective buyer in e-commerce activity can be identified. In this case, the prospective buyer can identify that the seller's account address does not have a fraudulent report record and the seller can be trusted.

This kind of facility may be initiated by the community itself or by the government. Because especially the government of the Republic of Indonesia is indeed obliged to hold it because the government has a duty to promote social welfare (Ridwan, 2014).

From that conception, the facility for checking bank accounts on e-commerce activities in this case has been accommodated by the Ministry of Communications and Information of the Republic of Indonesia with the launch of CekRekening.id site, where the site can help the community as a prospective buyer in e-commerce activities to identify a seller on e-commerce has the potential to commit fraud or not against themselves.
The site requires a pro-active effort from the public to report fraud cases affecting e-commerce activities conducted with certain parties. Through the upload of strong evidence will provide a reference to the official directory of the communications and informatics ministry's website to provide a reference to the salesperson's track record on an e-commerce site. Despite it's still providing room for the occurrence of cases of fraud on e-commerce activities. But, it give a good impact on prevention efforts. Because if someone is reported in the directory on the site cekrekening.id. her identity will be directly listed on that directory. Such reporting is not tied to the retroactive principle because its purpose is not to punish. However, it aims to limit the space for cyber crime perpetrators to not repeat the crime and help people to detect the track record of cyber crime perpetrators.

So far in Indonesia, fraud prevention construction on e-commerce activities has grown to that extent. However, it is not only the only way to prevent cyber crime occurred in e-commerce activities because fraud is also not the only threat that can happen to e-commerce activity, personal data theft can also occur when we do activities E-commerce.

According to Munjal and Anooja (2016) we required cooperation between users of e-commerce sites with the government in order to prevent cyber crime. Here are the efforts that can be done by users of e-commerce sites to avoid cyber crime threats.

a. Keep computer OS updated;
b. Use Anti-virus;
c. Use Secured Network;
d. Shop Only Trusted Site;
e. Different Password for Different Website;
f. Don't save the card details or bank details on websites;
g. Don't open lottery promising e-mail;
h. Change Password frequently.

The actions that can be accommodated by government or e-commerce related parties to minimize cyber crime are:

a. Bank and IT, Banks must improve their capabilities in IT development particularly to improve the security of customer data.
b. E-commerce website, There must be a verification of the seller in the e-commerce website concerned, particularly on the track record of the sellers.
CONCLUSION AND POLICY RECOMMENDATION

Based on the exposure that has been submitted it can be concluded that the preventive or non-penal effort is indeed in line with the criminal policy, namely the effort to reform the criminal law enforcement in the community. Therefore, we can understand that with the intensification of reporting on the site of checks, which is managed by the ministry of communication and informatics, for example, will give the impact of social sanctions for the perpetrators of fraud on e-commerce activities which it is more useful in terms of helping to potential buyers will conduct e-commerce activities to detect the seller’s track record.

In addition, pro-active efforts are required from the community as one of the element of e-commerce users. Non-penal efforts will not succeed without the awareness of the community to independently carry out the precautions as described in the later parts of the discussion.

Then, in the case of non-penal countermeasures, increased public welfare and renewals that can support the sustainability of such non-penal efforts (Maroni, 2016). For example in this case is the potential use-effect preventive of law enforcement officers (Arief, 2008) in this case law enforcers are realized as the cekrekening.id site, the site has the potential to minimize the intention of people to do crime that is a form of fraud.

At last, since the community becomes one of the important factors in the implementation of preventive efforts. Thus, activities such as socialization that can provide understanding to the public to apply preventive measures to avoid cyber crime threats for example with the socialization of the usefulness of the cekrekening.id site is needed. Perhaps, at least the government may require e-commerce websites to display public service ads that help clarify the preventive efforts that should be done by the community in terms of avoiding cyber crime threats and the usefulness of such sites as checkrekening.id.

REFERENCES


INTEGRATED INFORMATION SYSTEM TO INCREASE EFFICIENCY AND COMPETITIVENESS SMALL AND MEDIUM–SIZED ENTERPRISES (SMEs)

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Abstract

Business opportunities for SMEs product competitiveness Indonesia has not been optimally facilitated. ICT unavailability in all EMEs in Indonesia is a factor of low sales of SME’s products. ICT that provides information on the price of goods professionally is very active in transparant and competitive trade. This paper is intended to initiate an integrated information system that serves as a provider of product pricing data from SMEs that can be accessed easily through an application with a big data system. Initiation of an integrated information system consisting of several sub products of SMEs, to improve the marketing of all Indonesian SME’s products. Price comparisons provided by the Integrated Information System (SIT) application will increase transparancy and competitiveness for SMEs. In addition, the ease of accessing SME’s products will increase the trade of SME’s products, which will have an impact on improving the economy of Indonesia.

Keywords: SMEs, ICT, Integrated Information System, Efficiency, Competitiveness.

JEL Classification: O30, O31, O33.

INTRODUCTION

The last fews decades, Information and Communication Technology (ICT) has shown a significant development in developed and developing countries. The digital revolution has led to ICT with a strategic role in influencing the economic growth of a country (Kossai & Piget, 2014; Shawney et al., 2014). The role can be seen based on the rapid and easy exchange of information and communication, especially related to trade flows (Kemendag, 2017). Several studies have shown that companies that have implemented ICTs gain substantial profits, especially in influencing the competitiveness of these companies (Akomea-Bonsu & Sampong, 2012). Several theoretical and empirical studies also focus on the application of ICT to improve the performance and sustainability of SMEs (Tarute & Gatautis, 2014; Ongori & Migiro, 2009; Leon et al., 2016; Consoli, 2012). Tarute & Gatautis (2014) identifies potential ICT impacts use of SME performance and analyzes the
factors that influence SME success. The main findings of Tarute & Gatautis (2014) show that ICTs have an impact in business performance and communication both internally and externally. The conclusions of some of the results of this study indicate that the use of ICT can provide efficiency benefits, effectiveness, innovation, increased profits and competitiveness (Consoli, 2012).

SMEs have an important role in economic growth of Indonesia (BAPPENAS, 2014). SMEs are able to survive and perform better when the economic crisis occurs. This is illustrated by the contribution to SMEs in the growth of Indonesia’s Gross Domestic Product (GDP) in Figure 1.

Figure 1. Growth Contribution of SMEs to GDP
Source: BPS (2014), processed

Figure 1. show that SMEs have strong immunity in dealing with the vulnerability of the global economy. The contribution of SMEs to Indonesia's economic growth of the 1998 economic crisis had the largest percentage of 52.24 percent. On the contrary, when the economy starts to recover, the contribution of SMEs to GDP has decreased significantly to reach over 20 percent. On the other hand, although SMEs have a large contribution to GDP as well as high resilience to the crisis, the contribution of SMEs has a downward trend from year to year.

The declining contribution of SMEs to Indonesia's GDP was also followed by a drop in SME exports.

Figure 2. Growth of SME Export Value
Source: BPS (2014), processed

Figure 2 shows that the highest export value occurred at the time of
crisis 1998. Then the value of exports decreased and has never reached a percentage as in the time of crisis 1998. Export growth and contribution of SMEs to GDP that has not been able to return increased due to several things, including the capacity and Low quality of human resources, limited access to productive resources, and expensive transaction costs (BAPPENAS, 2014). If the problem of SMEs can be handled, it can be expected that the contribution of SMEs will again increase, but it will also improve the competitiveness of SMEs both domestically and globally.

In the current era of globalization, it is important for SMEs to increase their competitiveness in order to compete for the global market and one way that can be done is to utilize ICT (Sawhney et al., 2014). ICT adoption for SMEs provides benefits such as facilitating information exchange, improving knowledge, performance, improving relationships between customers and suppliers, increasing efficiency, reducing production costs and improving the quality of goods and services produced (Kemendag 2017 Akomea-Bonsu & Sampong, 2012).

The digital revolution that has occurred over the past twenty years has resulted in the emergence of innovations in the ICT sector. One of the IT sector innovations is Big Data. The rapid growth of the ICT sector resulted in a wide range of information experiencing a very rapid increase and in large numbers. On the other hand, there are still data that can not be known and accessed by the community, the data is unstructured and still scattered in various sources. Transactions made by SMEs and buyers through online stores, email and facebook are examples of some unstructured data. The data is difficult to collect and analyze, thus becoming a weakness for SMEs in analyzing their future business prospects.

Transactions, prices, and competitiveness are very important data in determining SME business decisions. Propose idea to use big data onto searching and processing unstructured data onto a smart idea. Ease of accessing and analyzing all data onto large quantities and real-time into excess big data. Big data is considered very useful for SMEs because it can
help SMEs in analyzing data that is difficult to access more efficiently. On the other hand, big data also has a risk of data leakage. Highly accessible data becomes an opportunity for leakage of information about other unrelated parties. The risk that big data has caused government intervention in the management. Integrated Information System becomes an alternative to minimize risk big data. Integrate information distribution system on related parties (related) with certain access restrictions makes the big data system safer. Leaks will be minimized by using the Integrated Information System. In addition, the Integrated Information System that uses Big Data is an intelligent breakthrough in helping SMEs determine future decisions. In addition, related parties such as Bank Indonesia and consumers will also be assisted by the availability of information that is integrated by the Ministry of Trade in a platform that provides the program / application. The trade ministry as the manager also has an interest in the information generated from the Big Data analysis in determining the trading strategy, especially for SMEs in the future. Some of the benefits provided by the Integrated Information System program initiated in this paper will result in a more efficient and effective trading and economic system.

Formulation of Problem

Based on the above background exposure, this paper is made to address some of the following issues:

1. How does Big Data's work concept for SMEs?
2. How does the Integrated Information System workflow work?

THEORY AND RELATED WORK

Integrated Information System (IIS)

Integration in information systems is explained into two main perspectives namely. (1) Integration as a mechanism that describes the interrelationship of information technology and communication interconnected within an organization; (2) integration shows how independent organizations have standardized business processes and are closely tied to telecommunications and computer technology (Mohamed et al., 2013). IIS is also used to facilitate the exchange of information. Mohamed
et al (2013) to explain more widely that IIS requires an integrated system in all applications, data and communications in real time and consistently. Eventura (2014), an organization that provides Managed IT services in the UK, explains there are 5 main benefits of using IIS, such as: real time data, better communication, reduced risk of errors, greater productivity, and one secure location.

**Big Data**

Big data is one of the paradigms and new breakthroughs developed in recent years (Gunther et al., 2017; Sen et al., 2016). Big data has the ability to identify, store and try to analyze large amounts of data and at high speed (Bilal et al., 2016). In general, the big data feature is described in Figure 3 or called 5V which consists of Volume, Velocity, Veracity, Variety, and Value (Storey & Song et al., 2017; Sen et al., 2016; Gandomi & Haider, 2015).

*Volume* includes the amount of data successfully recorded in a large storage (terabytes, Exabytes, petabytes, etc). *Velocity* describes the frequency of data processing including creating, capturing, extracting, processing and storing data. *Veracity* encompasses data uncertainty and thus requires a wider data analysis. *Variety* refers to the heterogeneity of data that is so diverse that it is possible to find various types of structured and unstructured data. *Value* to include data values that are difficult to estimate and ascertained.

**Figure 3. The 5 Vs Big Data**

Several studies have shown the strategic role of big data for improving the competitiveness of SMEs. Soroka et al. (2017) describes the use of big data analysis has great potential and benefits
for improving the performance of SMEs. Sen et al., (2016) explains that the big data system can help create real-time solutions and take advantage of transparency in decision making. Big data is also a major driving factor for determining priority strategies for SME growth through technology and innovation utilization.

Research Objectives
Based on the background that has been built, this paper aims to provide solutions by initiating an integrated data service program intended to be managed by the Ministry of Commerce. The initiated program aims to improve the competitiveness of SMEs through price transparency, as well as the integration of hard-to-access SME data.

METHODS
This paper is based on several literature studies on the concept of ICT, Big Data and Integrated Information Systems. The concept is used to build an innovation idea to initiate an integrated information program with the main objective of improving the competitiveness of SMEs in Indonesia.

RESULT AND DISCUSSION
Application of big data technology for SMEs enables efficient storage and processing of data (Hashem et al., 2016). The use of big data has the potential to increase the competitiveness of SMEs (Soroka et al., 2017). Big data link with the competitiveness of SMEs has an important role in decision-making SME entrepreneurs. This paper is designed to apply the Big Data concept into all SME trading activities that will provide integrated information. Such information can be exploited by some relevant stakeholders from the results of big data analysis. The Big Data framework of providing an integrated information system as a whole is designed and illustrated with Figure 4.
Based on the framework, all SME trading activities in real-time can be monitored thoroughly and dynamically. The big data framework consists of four components: Data, Analysis, Insight, and Action. The components will be described as follows:

1. Data

In accordance with the above chart, the data is the main component used for large data analysis process. The data collected by the big data system consists of click tracking, the price of products offered by SMEs, and buying and selling transactions conducted online. These three data are the materials used in big data analysis phase.

2. Analysis

Analysis is an important step in big data system. The efficiency of big data is caused by the process that exists on this stage of analysis. The stage includes data mining and data integration. The components of the analysis phase are described as follows:

a. Data mining is a process of digging to value added information that has not been available manually, to obtain information relevant to user needs (GSBIPB, 2013; Medvedev et al., 2017). The process of data mining is very important to the stage of big data analysis, because the information mining and information processing is done by data mining
will give the result of accurate and relevant big data analysis.

b Integration data is a data binding stage that initially resides in a separate source. Data onto separate sources are processed and incorporated in the process. The results of pooling data from multiple sources will result in integrated data. The data can then be used as knowledge by SME entrepreneurs. Data integration is basically part of data mining. This study intentionally separates the integration data from data mining in order to emphasize the use of the results of integration data as information that can be accessed by related stakeholders through the Integrated Information System program.

Big data analysis stage with both components produces more relevant and accurate data. Such information can be accessed by several relevant stakeholders (SMEs, Bank Indonesia, Consumers) to be an insight into future decisions.

3. Insight

Insight is the knowledge or understanding gained from the information that has been obtained from certain sources and useful for the determination of the strategy to be right target (Social Media Week (SMW) Jakarta, 2017). Insights gained from the analysis of SME activity data in the form of consumer behavior, competitiveness, and price projection. The information provided by the Big Data is an integrated information system, so that the parties are related (Ministry of Trade, Bank Indonesia, SME, and consumers), as well as having an interest in the information provided, can access that information. The information submitted by Big Data will be fully managed by the Trade Ministry, while others have limited rights to access that information. The rights restriction aims to maintain the competitiveness of SMEs as well as the confidentiality of consumer data as a form of consumer protection.
4. Action

Action is a strategy or action undertaken by a particular party to achieve an expected goal, such as increased sales, etc. Action in big data analysis is a strategy or action of related parties who already know or have insight into information that has been given by Big Data. Big Data Analysis above is addressed to SMEs, so the action in the chart is an action that SMEs do after they have insight into the information provided by the Big Data. The relevant actions to be undertaken by SMEs include supply chain planning, performance improvement, product placement design, variety and price optimization, distribution and logistics optimization, and product quality improvement. The action will be realized by SMEs and then will be responded by consumers in the market. The interactions by the seller and the buyer will be recorded again and automatically become part of the data to be re-analyzed.

Big Data chain will continue to spin in processing data that has a very large volume of high speed. Big Data is very dynamic in managing and updating information from data that has been collected. Very accurate analysis techniques make information from the results of Big Data analysis to be trusted.

The Big Data concept that has been proposed specifically to SMEs will be linked to integrated information systems. Integrated Information System is proposed to distribute information that has been given by Big Data to the parties concerned, so it does not require much cost of the distribution of information. Integrated Information System is used because basically an information will be more efficient and effective if integrated with the parties that are interconnected. The concepts and flow of the Integrated Information System are described in Figure 5 below.
Based on the above chart, Integrated Information System begins with the existing SMEs data collection of Indonesia. The data collection is done online through a platform that has been provided and managed by the Ministry of Commerce. Registration by Manufacturers (SMEs) will provide SME profile data, as well as product type and price. SMEs who have registered will have an account in the market place platform which is also provided by the Ministry of Commerce. All types and prices of SME products will enter into the market place. Domestic and foreign consumers who will buy SME products can enter by registration like SMEs do, but the difference is that consumers do not need to enter the type and price of the product. Customers who already have an account can log in and select and order SME products as needed. All these activities will be recorded and become data to be analyzed by Big Data. The results of the Big Data analysis resulted in integrated information managed by the Ministry of Trade. The trade ministry in this case has full rights to the data it manages. The integrated data can then be accessed by related parties (Bank Indonesia and UKM) with limited rights to be used as the basis of future decision-making and strategy.

Limitations of data access rights are described below:

1. Bank Indonesia

Bank Indonesia is an independent institution in determining monetary policy. Policy determination by Bank Indonesia is conducted by conducting prior research on the
economic condition of Indonesia. The crucial economic problem is inflation, even a bad experience for the Indonesian economy. Inflation is not only influenced by money supply and interest rates, but also influenced by demand and supply conditions in the real sector. SME product price also contributed to inflation in Indonesia (Bank Indonesia, 2017). Bank Indonesia needs to research the prices of SME products, especially those that have an effect on inflation. The integrated information system will provide the projected price data of these SME products of a platform. Bank Indonesia can access the projected data on SME product prices to be used in determining the inflation and strategy that must be done.

2. SMEs

Integrated Information Systems will assist SMEs in analyzing real-time and relevant market conditions. Data accessible by SMEs is the competitiveness of all SME products of the form of grading, consumer behavior towards SME products, as well as the projected prices of SME products. The benefits of a grading system based on the SME product type group presented can increase competition in a healthy and transparent manner among SMEs. Information on the form of consumer behavior towards the purchase of SME products provides benefits of determining marketing strategies and services to consumers for the better.

Price transparency in market place platforms incorporated into Integrated Information System makes competition more competitive. The information presented by the Integrated Information System, particularly the competitiveness will be the foundation by SMEs in setting strategies to improve their competitiveness. Improved product quality, service, price, etc. as a SME strategy to enhance their competitiveness based on Integrated Information System. Competition in increasing competitiveness among SMEs will lead to the products of SMEs that have very high competitiveness, and can compete with overseas products of the global market. Consumers across the country will choose products of the highest quality and price accordingly, therefore price transparency and integration of such
platforms with Integrated Information Systems will increase competition in improving the competitiveness of their respective SME products. SME products that have the best quality and price will have a higher competitiveness. This is an opportunity to increase demand for SME products both at home and abroad. Increasing demand for SME products abroad will lead to increased exports for Indonesia. The potential that arises from the provision of integrated market place with IIS is the increasingly well-known SME products in the global market. Global-scale product marketing issues can be dealt with on the platform. The potential for trading activities of SME products is increasing. Indonesia's export problems that have been dominated by the oil and gas sectors will be offset by an increase in exports in the non-oil and gas sectors through an increase in SME exports. The increase in exports has a positive influence on the Indonesian economy, namely the increase in state revenues and the expansion of employment.

**CONCLUSION AND POLICY RECOMMENDATION**

Implementation of Big Data technology can help SMEs in storage and processing efficiently. The use of Big Data has the potential to improve the competitiveness of SMEs. Big Data technology has the concept of collecting data that was initially difficult to access and simultaneously analyze it, as well as provide information from the analysis results accurately to the relevant parties. Big Data collects and analyzes all available data in a structured or unstructured manner. Structured data is data owned by SMEs, while unstructured data is data available in various sources and not yet integrated.

The main idea proposed from this paper is the initiation of Integrated Information System program managed by the Ministry of Commerce. The program can help data collection by Big Data. The results of Big Data analysis will be integrated with the related parties. Bank Indonesia as the inflation policy maker, Bank Indonesia requires data on the price projection and related data required in inflation forecasting, related information will be integrated.
with the Ministry of Trade to Bank Indonesia. The Ministry of Trade will also integrate information from the Big Data analysis to SMEs and consumers according to their individual needs. Bank Indonesia, SMEs and consumers have limited access rights, but the Ministry of Trade has unlimited rights to access and manage data. This is because the Ministry of trade as a manager of Integrated Information System program.

The proposed idea of Integrated Information System (SIT) with big data requires government intervention in supporting and realizing the idea. The following policy suggestions are used to support and realize the ideas that have been developed in this paper, including:

1. Conducting training for SMEs in Indonesia regarding registration and operation of the SIT platform.
2. Provide advanced human resources in IT
3. Provision of integrated platforms that have been proposed.

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REFERENCES


DOES INTELLECTUAL PROPERTY CONTRIBUTE IN ECONOMIC PERSPECTIVE OF TECHNOLOGY TRANSFER?

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Abstract
This paper examines the contribution of Intellectual Property (IP) in the international transfer. Technology transfer might be understood in a narrow or broad in the context of IP. Technology transfer may occur within national borders or internationally, and involves the cross-border technology transfer to developing the local technology capabilities. There are differences in the use of IP and the major channel of technology transfer. This paper reviews the international technology transfer literature. A desk review of both primary and secondary literature was conducted, and descriptive analysis was used. This paper founds a positive relationship between an intellectual property right and international transfer of technology. However, every type of international technology transfer has a different effect in economic perspective. Moreover, Indonesia faces the challenges as an importer of technology. Instead, Indonesia should focus to strengthen the IP Right’s regime to foster the Indonesian welfare from technology transfer.

Keywords: Intellectual Property, Technology Transfer, Technology Imports

INTRODUCTION
Intellectual Property (IP) became an essential part of global society. For the developing country, IP turns into one of global competitiveness index indicator for a country by innovation and technological readiness. In the Global Competitiveness Index, innovation has been recognized as one of the drivers of economic growth (Todaro & Smith, 2014). The IPR standards, norm, and institution were debates in the 1980s and 1990s as the main topic of negotiation in the World Trade Organization’s (WTO) Uruguay Rounds. The result of this negotiation is the Agreement on Trade Related Aspect of Intellectual Property (TRIPS), which is then used as a guideline for WTO member countries in setting up IP related rules. It also affects the understanding of government and industry that increasing of the IP protection will determine the economic growth of a country.

Protection of intellectual property is considered part of economic policy, despite the fact that economic theories concerning economic growth and development have ignored or considered it a minor (Ilie, 2014). Several previous research has worked
on the impact of new IP application’s standard, investment in research and development, technology transfer, productivity also growth. Several surveys of an investor in research and development suggest that technology transfer within multinational actor is sensitive to the perceived strength of IP protection (Branstetter et al., 2006).

The importance of IP Protection for economic activities based on innovation is different for each country, not only influenced by the amount of resource by the country to create the new IP but also the amount of protected knowledge and information used in production and consumption (Ilie, 2014). For the developing country like Indonesia, the ability to produce innovation and new technology is still lacking. This is the main reason for developing countries to import technology from developed countries even though some theorist argued that International Technology Transfer (ITT) affect the economy of home country negatively regarding overall benefits, employment and technological lead (Reddy & Zhao, 1990). Nonetheless, ITT based on IP protection will bring benefits to the home country, in addition to invention protection, the commercial value of the technology will also return to home country.

This paper is addressed to the analysis of the contribution of IP in the technology transfers, within national borders or internationally. The models of technology transfer examine including the major channel of technology transfer and its relation with the IP. The study also examines the challenges for Indonesia as an importer of technology. The IP Right’s regime in Indonesia also evaluates to be strengthening to foster the Indonesian welfare from technology transfer.

This paper proceeds in the following structure: Section 2 briefly reviews the literature on technology transfer model, also the review of IP and economic development. Section 3 describes the method used in this paper. Section 4 then presents the main results in two parts. The first one focuses on the contribution of IP in the international technology transfer, including the relationship of IPRs and technology transfer by the level of economic development. The second part of Section 3 focuses on the Indonesia’s challenges as the importer of technology. Section 4 discusses the IP Right’s regime in Indonesia, concludes with a summary of the main
findings, implication, and suggestion for further research.

METHODS

The purpose of this paper is to analyze how IP contribute to technology transfer. To realize this objective, a narrative review was performed. A combination of primary and secondary sources was searched using Google Scholar search engine. Several key terms were employed namely: ‘intellectual property right,’ ‘international technology transfer,’ and ‘economic development.’ This literature was then reviewed narratively and analyzed descriptively.

RESULTS AND DISCUSSION

Review of Technology Transfer Models

Technology Transfer (TT) has a different meaning that can assume various meaning in different context. Technology transfers as the way to transfer and share of skill and technological know-how, and usually involves the modern technology from developing country (Wie, 2005). Technology transfer is crucial to developing the country to gaining access to modern technology and a challenge to developing the capabilities using the new technology.

Technology transfer describes the process of which the technology shares or move from creator to user and will be different for each institution in role and interest (Choi, 2009). A different model is influenced by the tendency of a system or technology that will be transformed to each institution (Isnasari & Kusumaputri, 2016). The various model of international technology transfer is depended on the type of technology and the capability of the receiving country. Such models include:
(a) Foreign direct investment;
(b) Technology (technical) licensing agreements;
(c) Imports of capital goods;
(d) Foreign education and training;
(e) Turnkey plants;
(f) Technical consultancies.

These models are used to succeed the technology transfer, although not be guaranteed simply by using a particular model. Also, key aspects of technology transfer are knowledge, skill, and organizational (Choi, 2009). In the International Technology Transfer (ITT) context, most of the technology transfers are doing by the profit motive. However, receiver capabilities and willingness for acceptance are important to streamline the technology transfer.
IPR and Economic Development

The understanding of Intellectual Property (IP) was first understood in the Trade-Related Intellectual Property (TRIPs) agreement, which was signed as part of the Uruguay Round of multilateral trade negotiations in 1994, calls for the establishment of minimum standards of IPR protection by all World Trade Organization (WTO) members by 2006. The developing country notices that IP is a major component of economic policy (EOCD, 2008). Some economic theory demonstrates that Intellectual Property Rights (IPRs) can play a role either positive or negative on economic growth and development (Ilie, 2014). The relation is positive but depends on another factor that promotes the benefits of IP. However, several systems of IPRs stimulate the effect on economic growth and technological progress are positive if a system aims to encourage competition.

Hence, IPRs protection is an essential component of the economy, especially in developing countries like Indonesia. There are several ways in which IPRs affect the growth of the economy (Maskus, 2000).

1. Intellectual Property Rights Could Enhance Domestic Innovation

2. Intellectual Property Rights Could Attract Technology Transfer

3. Intellectual Property Rights Are Administratively Costly

4. Intellectual Property Rights Shut Down Infringing Activity

5. TRIPS Could Transfer Rents


7. Intellectual Property Rights Promote Growth in Open Economies

Intellectual Property for the International Technology Transfer

International Technology Transfer (ITT) refers to the process by a country (usually developed country) obtain and share technology to the developing world. Transfer flows across the border has the different channel, formal and informal channels. Several channels of ITT has been shown in the extant literature and can be concluded that foreign direct investment, technical licensing agreement, import of capital goods, foreign education and training, turnkey plans and technical consultancies. Foreign Direct Investment in particular with transnational corporation expected to establish the advanced technology to the subsidiaries or may be diffused to host-country. Import of capital goods, in particular, is to be a primary source of
technology diffusion, which international education and training can also become a channel for technology transfer.

The most study considering the impact of IPR protection on technology transfer might be diffused and to examine whether IPR Protection impacts the volume of activities in the channel of technology transfer. Adding a measure of IPR protection to a standard in technology transfer is a clear step to determine the channel of technology transfer. Technical Licensing Agreement as one form of ITT, requires IPR as one of the conditions in conducting technology transfer. For developed countries, IPR becomes a kind of protection against exported technology and a requirement for carrying out technical licensing agreements (Ilie, 2014). However, the impact of stronger IPR protection in technology transfer is depending on a country circumstance. Protection of intellectual property is considered part of economic policy, despite the fact that economic theories concerning economic growth and development have ignored or considered it a minor (Ilie, 2014).

International technology transfer within multinational firms is costless and thus cannot account for the observed increase in R&D spending by a foreign company (Dinopo and Segerstrom, 2010). International technology transfer is one of the ways that can be taken by Indonesia to advance its technological frontier. For technology transfer to benefit Indonesia, however, the Government of Indonesia (GoI) must ensure the protection of Intellectual Property Rights (IPRs) as this has been shown to improve economic growth of the host country (Romer, 1990; Eicher & García-Peñalosa (2008)). Advocates of stronger IPR protection argue that this reform promotes innovation in the global economy and benefits developing countries by fostering more rapid economic growth. The differences between developed and developing country are not the only gab in resource but also gab in knowledge and information, which is the success of economic development will reduce the gaps. Intellectual Property provides the market power for an industrial company and creates restricting competition as the barrier to entry the industry. Although, the effectiveness of intellectual property rights in the development and growth depends on the circumstances of each country (Maskus, 2000).

The strong IPR protection in developing country can encourage ITT.
Market and competition are two main acting in ITT. This is in line with the literature arguing that market power will effect significant for a country with a small market and have few domestic competitors. In other hand, countries with the large and more open market are more developed in the term of GDP per capita, and the technology transfer can be significant in growth.

**Indonesia’s Challenge as an Importer of Technology**

Indonesia as one of the largest economy in Asia has managed to overcome the Asian financial crisis that happened in the late 1990s evidenced by its steady growth of GDP valued at USD 857 in 2000 to USD 3,603 in 2016 (The World Bank, 2017). As the importing of technology, Indonesia faces the challenge of type and relevant technologies (Wie, 2005). The role of Indonesia outward adoption capability is relatively small among ASEAN countries. In the Global Innovation Index, Indonesia is in ranking 87 from total 127 countries with value 30.10 (of scale 100) (Cornell et al., 2017). Moreover, Indonesia becomes the top ten favorite investment destinations in developing Asia’s economic performance. In Indonesia, significant negative equity inflows in the fourth quarter dragged total foreign direct investment inflows to $3 billion. (UNCTAD, 2017)

As such, Indonesia can be categorized as a middle-income country. Some industry in Indonesia depends on “ready-made” technology. Therefore, the sustained industry will adjust to the needs of technology and capacities of the receiving countries, where the imported technology does not have "ready-made" technology. The transfer of technology not only depends on the level of readiness technology but also state level of readiness and capabilities to adopt the technology. Development of technological capabilities not only came from experience but also higher extends from the technological effort of the country.

Development of technological capabilities is important for Indonesia, facing the competition in the international market from industrial countries. The needs of manufacturing industries in Indonesia to develop the technological capabilities is important since the technological base is crucial compared with the East Asian newly-industrialized economies (NIEs). Several studies on ITT in Indonesia indicate that foreign direct investment, technology licensing agreements,
imports of capital goods, and technical and marketing assistance from foreign buyers of manufactured exports, have been the four major channels for international technology transfer in Indonesia (Wie, 2005). At this moment, some data related ITT in Indonesia.

1. Foreign Direct Investment (FDI)

Since the 1980s, Indonesia experiences an increase of FDI, especially in export-oriented FDI. After the Asian economic crisis, Indonesia has even experienced net FDI outflows that have persisted until the present (Table 1 present the flow of outward FDI in Indonesia). The decline in investment value in Indonesia is also affected by the less supportive investment climate, including the policies issued by the Government and corruption.

**Table 1. Outflow of FDI in Indonesia**

(Millions of Dollars)

<table>
<thead>
<tr>
<th>Year</th>
<th>Net FDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>19.138</td>
</tr>
<tr>
<td>2013</td>
<td>18.817</td>
</tr>
<tr>
<td>2014</td>
<td>21.811</td>
</tr>
<tr>
<td>2015</td>
<td>16.641</td>
</tr>
<tr>
<td>2016</td>
<td>2.658</td>
</tr>
</tbody>
</table>

Source: World Investment Report 2017

2. Import of capital goods

Capital good means the tangible assets such as buildings, machinery, equipment, vehicles and tools that an organization uses to produce goods or services to produce consumer goods and goods for other businesses. Import of capitals goods is included technology from receiver country. In Indonesia, the good capital industry is relatively small compared with other developing country in ASEAN country. Table 2 shows the increase in good capital import during the investment since 2012.

**Table 2. Import in Indonesia (Millions of Dollars)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Import</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>22.3</td>
</tr>
<tr>
<td>2013</td>
<td>24.7</td>
</tr>
<tr>
<td>2014</td>
<td>29.3</td>
</tr>
<tr>
<td>2015</td>
<td>31.5</td>
</tr>
<tr>
<td>2016</td>
<td>38.1</td>
</tr>
</tbody>
</table>

Source: Badan Pusat Statistik (Central Bureau of Statistics)

**Strengthen the IPR’s Regime in Indonesia**

Intellectual Property regime has become the innovation system that aims to stimulate the innovation by the inventor to increase the use of knowledge and also offers the possibility of a return on investment (Ilie, 2014). As an importer of technology, Indonesia has sought to strengthen the protection
of IP Right. Over the years, Indonesia has supported several international agreements related IP usage, and become a member of the World Intellectual Property Organization (WIPO) in 1979. In 1995, Indonesia joined the World Trade Organization and ratified the Trade Related Aspect of Intellectual Property (TRIPS) in 1996 which set the IP standard. Moreover, Indonesia also joined the ASEAN Framework Agreement on Intellectual Property Cooperation in 1995. Indonesia’s participation in international organizations and ratifying IP-related, indicating that the Government of Indonesia pays particular attention to IP Protection.

The Government of Indonesia has released several national legislation products as the system of IP Protection that (Table 3 present the summary of national IP legislation and membership of Indonesia in international IP Protection agreement). Indonesia currently has seven laws on patent, trademark and geographical indication, industrial design, copyright and related rights, plant variety protection, trade secret, and layout designs of integrated circuits (DGIP, 2017 and WIPO, 2017). Moreover, the Government of Indonesia through the Law of the Republic of Indonesia No. 18 of 2016, on National System for Research, Development, and Application of Technology mandated the establishment of IP Management units to manage the monetary and other commercialization benefits of IP.

**Table 3. Basis of Indonesia’s IPR System**

<table>
<thead>
<tr>
<th>National Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law of the Republic of Indonesia No. 28 of September 16, 2014, on Copyright (2014)</td>
</tr>
<tr>
<td>Law No. 15 of August 1, 2001, regarding Marks (2001)</td>
</tr>
<tr>
<td>Law No. 31 of December 20, 2000, regarding Industrial Designs (2000)</td>
</tr>
<tr>
<td>Government Regulation (PP) 20/2005 on Transfer of Technology of Intellectual Property and Result of R&amp;D by R&amp;D Institutes and Universities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>International Laws/Treaties</th>
</tr>
</thead>
<tbody>
<tr>
<td>WIPO Performances and Phonograms Treaty (2005)</td>
</tr>
<tr>
<td>WIPO Copyright Treaty (2002)</td>
</tr>
</tbody>
</table>
CONCLUSION

This paper reviewed the contribution of IP to international technology transfer narratively using both primary and secondary sources searched using relevant key terms. This paper highlights the importance of technology as a catalyst in accelerating sustainable economic growth and development. Moreover, this paper emphasizes the importance of IP rights in the attempt to foster technology transfer. The findings in this paper can be used as a consideration by the government when making policies in the area of IP and technology transfer.

REFERENCES


ANALYZING AVAILABILITY AND COMPETENCY OF ACCREDITED TESTING LABORATORIES FOR IMPROVING COMPETITIVENESS OF INDONESIAN EXPORT CASE STUDY: NUTMEG

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ABSTRACT
Certification of products is important to enhance customer protection and to improve its competitiveness in the global trade. For this purpose, Accredited Conformity Assessment Body (CAB), especially testing laboratory, is one of the important facilities to provide certification of export products. This study is conducted to investigate the competency and the availability of accredited CABs and its role in improving competitiveness of Indonesian export e.g. nutmeg. Nutmeg is one of the ten potential products of Indonesia. Nutmeg is belonging to spices. About 70 – 75 % of the world’s nutmeg exports are originated from Indonesia. The value of nutmeg export in 2011 could reach US$ 96.8 million. The value, however, decreased steadily to US$ 65.4 million in 2016. During the last four years, there were 35 times rejections of Indonesian nutmeg export by European Union (EU) due to its aflatoxin level which exceeded the specified limit. This number of rejections was higher compare to the rejections occurred between 2009 and 2012, which is only 21 times. For this reason, it is the main objective of this study is to provide evidence-based policy for the local as well as central government for developing more competent CAB and its availability of nutmeg testing laboratories in nutmeg production centers. It is also the aim of this study to guide farmers, collectors and exporters to improve post-harvest, storage and handling to ensure high quality of nutmeg and to avoid aflatoxin contamination.

Keywords: Conformity Assessment Bodies (CABs), Testing Laboratory, Availability and Competency, Competitiveness, Nutmeg

INTRODUCTION
Nutmeg is one of the spice plants which is one of 10 potential export products of Indonesia. Currently, according to the data given by World Food and Agriculture Organization (FAO), Indonesia is recorded to be the number one producer and exporter of Nutmeg, with 75% share in the world market. That nutmeg demand in the world reached 20,000 tons per year, with major importer countries being Vietnam (45.44%), Netherlands (8.38%), United States (8.34%), India (8.16), and other countries (29 , 68%) (BPS, 2015).

From 2009 until now there is an issue about the quality of nutmeg products Indonesia, namely aflatoxin contamination that can be harmful to human health that consume it. Up to now it has been recorded 58 times notification and rejection of nutmeg
Indonesia issued by EU RASFF (Rapid Alert System Food and Feed).

On 8 January 2016 the EU has issued new regulations that tighten the entry of nutmeg seeds, especially from Indonesia through EU 24/2016 regulation. It states that every nutmeg product from Indonesia to be exported to the EU must be certified with Health Certificate issued by the Ministry of Agriculture of the Republic of Indonesia. The Health Certificate must state that the exported nutmeg product has been sampled and tested for its aflatoxin level content in accordance with EU regulation EC 401/2006 and EC regulation 519/2014 on sampling methods and mycotoxins food testing methods on food.

To fulfill these pre-requirements demanded by export destination countries, the availability of aflatoxin testing laboratory for nutmeg in nutmeg-producing provinces hence is getting more important. Moreover, the testing laboratory can also be utilized to explore other benefits of nutmeg and its derivatives, which will encourage domestic industries to export not only raw nutmeg, but also the extracted nutmeg into nutmeg oil and medicine for further raising the benefits and prosperity of farmers and exporters.

On February 23, 2017, the daily Kompas newspaper reported that although Indonesia became one of the world’s main producers of nutmeg, export support facilities and services are considered inadequate. Exporters, among others, complained about the limitations of testing laboratories and the process of obtaining long-term food security certificates. President Director of PT Agri Spice Indonesia, Sigit Ismaryanto, one of Indonesian spice experts, gave an example that the process of sampling by the Competent Authority of Food Safety (OKKP) may take 14 days while the testing laboratory should take 7 - 10 days in normal situation. However due to the long queue, the testing process in the laboratory can be more than 10 days, that is, from sampling, testing until certificate exit more than 20 days. If it does not pass, the process should start all over again. The role of testing laboratory and nutmeg certification becomes very important for nutmeg producing area in Indonesia in order to fulfill the standard, regulation and technical requirement of export destination country as a form of food safety protection in its country.

These nutmeg producing countries and some nutmeg importing
countries have also been competing to examine the benefits of nutmeg and its derivatives for human health, for example nutmeg extract (nektarin B) that may be useful as therapeutic candidates of nonalcoholic fatty liver disease (Pharmazie, 2015) and nutmeg oil (atsiri) that has the potential to reduce joint swelling due to chronic pain because of inflammation, cancer and diabetes (Zhang, 2016).

Therefore, the thesis research will be conducted to analyse the availability and competency of nutmeg testing laboratories in Indonesia for improving competitiveness of Indonesian export. The study may provide the recommendation for the local as well as central government for developing their nutmeg testing laboratories availability.

The research questions related to this study are listed below:
1. Whether testing laboratory is available in potential nutmeg province?
2. How are the roles of the CABs especially testing laboratory in improving competitiveness of Indonesian export?
3. What are the policies should be made by Indonesian government with the current availability of their CABs in order to improve the export of their potential product and enhance customer protection?

THEORY AND RELATED WORK
1. Nutmeg

According to Agricultural Research Agency - Ministry of Agriculture (2003), Potential commodity is a commodity that has a strategic position to be developed in an area based on various considerations both technically (Land and Climate condition) and socioeconomic and institutional (technological, ability, resource capability, resource capability, human, infrastructure, and local socio-cultural conditions). Nutmeg is one of the spice plants which is one of 10 potential export products of Indonesia. The main areas of Indonesian nutmeg producers are Nangroe Aceh Darussalam, North Sulawesi, North Maluku, Papua and West Sumatra. In Indonesia, there are several species of nutmeg, namely (Nurdjannah, 2007):

a. *Myristica fragrans Houtt*, which is the main variety and dominates other types in terms of quality and productivity. This plant is indigenous to the island of Banda.

b. *M. argenta Warb*, familiar by the name Papuanoot or Nutmeg of
West Irian, indigenous to west Irian province, especially in the bird's head area. Growing in the forests, the quality is under the nuts of Banda.

c. *M. scheffert Warb*, is found in the forests of Irian Jaya.

d. *M. speciosa*, found in Bacan island, this species has no economic value.

e. *M. succeanea*, located on the island of Halmahera, this species has no economic value.

In the days of British rule, this plant was distributed in some of its colonies, among them is the small island of West India (Grenada) and can be successful, so this area is now a competitor of Indonesia in the export of nutmeg in the world. In 1748, nutmeg plants were also developed to North Sulawesi, Minahasa and Sangir Talaud Islands, West Sumatra and Bengkulu, followed by Java, Aceh and Lampung. Siau Island, located in the District of Siau Tagulandang Biaro Archipelago (Sitaro), North Sulawesi Province, is one of the best nutmeg producers. Not only in Indonesia, commodities are named in English as 'siau nutmeg' also famous in the world. The Siau Island was once a bone of contention between European countries because of its spices. Portuguese, Spain, and the Netherlands have all fought against each other over spices of Siau Island. Siau Nutmeg the International name of Nutmeg originating from Siau. It's trademarks include it's pleasant scent and good quality of it's essential oil, which makes Sitaro nutmeg better of than the ones produced in other region.

Nutmeg consists of pulp (77.8%), mace (4%), shell (5.1%) and seed (13.1%) (Rismunandar, 1990). Components in nutmeg and mace consist of essential oils, fatty oils, proteins, cellulose, pentosan, starch, resins and minerals. The percentage of the varied components is affected by the clones, the quality and duration of storage and place of growth. The fatty oil content of whole nutmeg seeds varies from 25 to 40%, while in the mace between 20 to 30%. The nutmeg eaten by caterpillars has a higher percentage of essential oils than whole seeds because the starch and its fatty oil are partly eaten by insects (Marcelle, 1975). According to Leung in Rismunandar (1990) nutmeg contains about 2-16% essential oils with an average of 10% and fixed oil about 25-40%, carbohydrates about 30% and protein about 6%.
2. Benefit of Nutmeg

Nutmeg is known as a spice plant that has economic value and multipurpose because every part of the plant can be utilized in various industries. Nutmeg and nutmeg oil are export commodities and are used in the food and beverage industry. Commercially, the nutmeg and mace are the most important parts of nutmeg and can be made into essential oils as a producer of essential oils and oleoresin oils. The oil content in nutmeg ranges from 5-15% (Peter, 2001), while the nutmeg mace can produce 4-17% nutmeg oil (BSN, 2006). Another product that can be made from nutmeg is trimiristin nutmeg butter which can be used for oil food and cosmetic industry (Somaatmaja, 1984).

As a medicine, nutmeg seeds are carminative (stimulates fart), stomakik (stimulate appetite), stimulant, spasmolytic and antiemetic (anti nausea) (Weil, 1966). Nutmeg oil is also used in the pharmaceutical industry as a medicine for abdominal pain, diarrhea and bronchitis. Meanwhile, according to Chevallier, (2001) nutmeg is useful to reduce flatulence, improve digestibility, treat diarrhea and nausea. In addition to dysentery, ulcers, stop vomiting, heartburn, stomach bloating and rheumatic drugs. Aromatic myristicin, elimicin, and safrole of 2-18% found in seeds and nutmeg flowers stimulate hallucinations. Eating a maximum of 5 grams of powder or nutmeg oil resulted in poisoning characterized by vomiting, headache and dry mouth (Weiss, 1997; Rudglev, 1998; Fras and Binghamton, 1969; Samiran, 2006), according to Jukic et al. (2006), components of myristisin and elimisin have an intoxication effect. In some European countries, nutmeg seeds are used in small doses as meat and soup dishes. Mace is preferably used in food seasonings, pickles, and soy sauce. According Rismunandar (1990), essential oils in the flesh of nutmeg contains components of myristicin and monoterpen. The components of myristicin in the flesh of nutmeg can cause drowsiness.

Lately there is a new development of the utilization of essential oils of nutmeg, namely as a raw material in aromatherapy. It has been reported that the main components of nutmeg and mace, myristicin, elemicin and iso-elemicin in aromatherapy are relieving stress. In Japan, some companies spray the scent of nutmeg oil through the air circulation system to improve air
and environmental quality. For the same purpose lately many found its use in other forms that is in the form of potpourri, scented candles, atomizer and other perfume products. In the United States the marketing of perfumes from the nutmeg reaches USD 500 million.

3. Nutmeg Quality standards

There are 2 (two) quality standards used in the nutmeg trading requirements, namely SNI Standard 006-2015 and EU Standard 165/2010.

a. SNI 006-2015, is a revision and merging of SNI 01-0006-1987 Nutmeg, SNI 01-0007-1987 Mace, and SNI 01-2045-1990 Nutmeg seed with shells to facilitate the stakeholders in its application. This revision is based on proposals from stakeholders and as an effort to provide quality assurance for producers and consumers. SNI 0006-2015 includes classification of quality requirements, sampling methods, test methods, marking and packaging conditions. This standard applies to nutmegs with shells and without shells and mace used as spices. As a normative reference of SNI 0006-2015 used International Standard ie ISO and Indonesian National Standard (SNI).

b. Standar EU 165/ 2010, This standard is made by EU-FVO (EU-Food and Veterinary Office) by limiting the content of Aflatoxin allowed on nutmeg, ie Aflatoxin levels for B1≤ 5 PPb and total Aflatoxin ≤ 10 PPb, since Aflatoxin is a compound that can cause cancer in Humans. Aflatoxin is toxic to nuts, especially nutmeg that can not be decomposed by the human body so that products that have been contaminated by Aflatoxin can no longer be consumed by humans.

In order to fulfill the requirements of trade and export of nutmeg, the purchasers and Importers of nutmeg require either a quality standard above or both standards. Usually the quality standard of SNI 006-2015 is used in pricing for buyers and exporters of nutmeg.

For export purposes to the EU, the government established EU 24/2016 regulations requiring nutmeg products exported by Indonesia to the EU to comply with
EU quality standards 165 / 2010. The EU government requires that nutmegs to be exported by Indonesia must obtain a Health Certificate from Competent Authority in this case. The EU appoints the Ministry of Agriculture of the Republic of Indonesia as a Competent Authority. The Ministry of Agriculture then established the OKKP (Central Competent Authority of Food Safety) to issue Health Certificate to Indonesian exporters by enclosing the results of testing by accredited laboratories audited by the EU-FVO, in which case Indonesia has only 2 accredited laboratories who are competent in Aflatoxin nutmeg testing in accordance with EU 165/2010 standard, namely (1) PMB Laboratories at Directorate of Standardization and Quality Control, Directorate General of Consumer Protection and Commerce of Commerce, Ministry of Trade, Jakarta; And (2) PT Angler Bio ChemLab Laboratory, in Surabaya. To accelerate the export process, OKKP delegates its tasks and authority to OKKP-D (Region Competent Authority of Food Safety) in the region where there is a port of export door. In addition to requiring the use of EU 165/2010 quality standards, EU governments in regulation 24/2016 also require testing of Aflatoxin nutmeg content to be exported using sampling standards, usually following EU standard EC 401/2006 and EC regulation 519/2014 on sampling Methods and mycotoxins food testing methods on food or sometimes follow the standard sample of the importer.

4. Aflatoxin

Aflatoxin was produced by mold or fungi such as Aspergillus flavus and Aspergillus parasiticus. It is toxic and carcinogenic, thus harmful for human health. Favorable conditions for its growth include high moisture content and high temperature. At least 13 different types of Aflatoxin are produced in nature with Aflatoxin B1 considered as the most toxic. The presence of Aspergillus flavus does not always indicate harmful levels of Aflatoxin, but it reveals the presence of Aflatoxin (Henriette, 2015). The aflatoxin issue is now one of the obstacles of nutmeg export in the EU and does not rule out the possibility...
of affecting other importer countries in the world, so it is very important for the Indonesian government to overcome these trade barriers. The above is caused by the attention of the international community to food security that is consumed is very high, so they require high standards on food that will be received and consumed (Hariyadi, 2007).

Shrimp contamination can occur at harvest, processing up to Storage (Ashiq et al., 2014). Each step in the farm production chain can be a potential point of aflatoxin contamination if environmental conditions and handling are not appropriate. Ezekiel et al. (2013) of 36 spice samples consisting of ashanti pepper, black pepper and nutmeg calabash from Lagos, Nigeria showed 67% of contaminated samples of the genus Aspergillus, Fusarium, Penicillium and Rhizopus. Okano et al. (2012) of 25 nutmeg samples from Indonesia showed contamination of aflatoxin B and G. Groups of fungi producing aflatoxin G were Aspergillus nomius and A. bombycis.

According to the regulation from Ministry of Agriculture No. 53 / permentan / OT.140 / 9/2012 that the quality of nutmeg Indonesia is still not good due to contamination by Aspergillus flavus fungus that causes Aflatoxin. The occurrence of fungal contamination on nutmeg and mace, caused by several things, among others:

a) Mixture of nutmegs such as the difference of age of nutmeg fruits, as well as healthy and contaminated nutmeg fruits.
b) Post harvest is less hygienic
c) Poor drying process
d) The water content is still high on nutmeg (> 12%)
e) Inadequate materials and packing methods

5. Improving Export Competitiveness of Nutmeg

International trade is defined as the exchange of goods and services that occur beyond the borders between countries. International trade is required to obtain the benefits made possible by the specialization of production. With commerce, every person, region, or nation can focus attention on producing goods and services that they can efficiently do while they
trade for other goods and services they do not produce (Lipsey, 1997). Competitiveness is the ability to produce goods and services that meet international testing, while at the same time maintaining a high and sustained level of income, or the ability of regions to generate high levels of income and employment while remaining open to external competition. Competitiveness can also be interpreted as the capacity of the nation to face the challenges of international market competition and to maintain or increase its real income.

According to the Porter theory (1998) that competitiveness of a country is determined by the ability of producers to innovate and improve their ability. Nutmeg Indonesia obtains Competitive Advantage (CA) because of the pressures and challenges. Indonesian nutmeg producers benefit from competition in overseas markets that have high demand. Differences in national values, cultures, economic structures, institutions, and histories all contribute to success in competition. Manufacturers of Pala Indonesia become competitive through innovations that may include technical improvements to the production process or product quality.

According to Aditya Nugroho as team leader of TSP2 (2014), in improving the quality of food and non-food products export to EU in particular, the government of Indonesia cooperates with EU government with TSP 2 (Trade Support Program 2) 2009 - 2015 program, with budget € 15 million with the intention of:

a) To facilitate a further integration of Indonesian exports into international markets;

b) To upgrade the export quality infrastructure (EQI) that supports Indonesia's access to International markets (Systems required to meet import standards and requirements, management systems, testing and accreditation arrangements etc.);

c) To improve compliance of Indonesian exports to International Standards.

To improve the competitiveness of Indonesian products to the international market,
a strong integration of products in the global market is required. This can be done by meeting International Standards and accessing International markets in every supply chain. Supply chains that meet International market access require the development of Export Quality Infrastructure / EQI (Quality Infrastructure is all aspects of standardization, metrology, conformity assessment, quality management and knowledge management), built with 3 (three) factors:

a) Institutional Strengthening, such as the construction of Accredited Laboratories and Conformity Assessment Bodies that comply with the development of International market demand; As well as building an export information system.
b) Improvement on Standards and Conformity Assessment,c) Trade Policy Development

With development and Strengthening EQI will be obtained Product Quality that can be accepted by International market, which have strong competitiveness in international market. Logical of EQI Framework can be seen in the picture 1 as follows:

Pic. 1. Logical of EQI Framework
Source: Aditya Nugroho, 2014 (EQI and Strategy of TSP II)

The quality system and product standards in each State shall be made in order to guarantee and protect all citizens as consumers of Safety, Health, Security and Environment (SHSE)/K3 L. In accordance with the concept of National Quality Assurance (NQA) made in TSP II program, EU and Government of Indonesia cooperation with Ministry of Trade as Coordinator and 7 (seven) Ministries/ Government Agency as Beneficiaries (Ministry of Marine and Fisheries, Ministry of Industry, Ministry of Agriculture, The National Agency of Drugs and Food Control, the National
Standardization Bodies, the National Accreditation Commission and the Indonesian Institute of Sciences) where the System Health Safety and Environment is the basis of quality requirements, built through the development of EQI. With competitive EQI it will facilitate the traceability process so that it can be maintained the quality of a product (Sustainability). Scope NQA is as follows:

![Scope of National Quality Assurance](image)

**Pic. 2. Scope of National Quality Assurance**

*Source: Aditya Nugroho, 2014 (EQI and Strategy of TSP II)*

**METHODS**

1. **Data Source and Information**
   
   In this research there are two data that is:
   
   a. Primary Data, this data is used to support secondary data. The method of data collection is through in-depth interview and sample survey questionnaire to competent authority (Government, Exporter, and Nutmeg Laboratory).
   
   b. Secondary Data, The study was compiled based on data and information obtained from secondary data sourced from relevant agencies within the scope of the Ministry of Trade (MoT), Ministry of Agriculture (MoA), BPS, BSN, and data from Unitrade.com.

2. **Processing and Data Analysis**
   
   Data processing will be conducted with two methods:
   
   a. Quantitative,
   
   In order to prove the importance of the availability of nutmeg testing laboratories in the nutmeg producing province, it is necessary to process the data used in analyzing the problems, namely:
   
   a) **Production Analysis**
      
      Production variables are projected using a double exponential smoothing method. Multiple exponential smoothing methods are used in forecasting time-
dependent data that follows a linear trend, if the data indicates a trend. With this method is done simple smoothing with two components that must be updated every period, i.e., component level and trend. Levels are the estimates passed from the data values at the end of each period, whereas the trend is the estimate that is passed from the average growth at the end of each period (Subagyo, 1986).

The estimation formula using multiple exponential smoothing methods is as follows:

\[ S_t = \alpha \cdot Y_t + (1 - \alpha) \cdot (S_{t-1} + b_{t-1}) \]

\[ b_t = Y \cdot (S_t - S_{t-1}) + (1 - Y) \cdot b_{t-1} \]

Note:

- \( S_t = \text{Forecast} / \text{for t period} \)
- \( Y_t = \text{The value of actual time series} \)
- \( \alpha = \text{Constant alignment between 0 & 1} \)

b) Revealed Competitive Advantage (RCA)

Revealed Comparative Advantage (RCA) used objectively to analyze the comparative advantage or competitiveness of a commodity within a country. The RCA method is based on a concept that inter-regional trade actually shows the comparative advantage of a region. The measured variable is the export performance of a product to the total export of an area which is then compared with the share of the value of the product in world trade (Ragimun, 2012).

\[ \text{RCA} = \frac{X_{ij}/X_{it}}{W_{ij}/W_t} \]

Note:

- \( X_{ij} = \text{The value of Indonesian exports of commodity j to country i} \)
- \( X_{it} = \text{Total export value of Indonesia to Country i} \)
- \( W_{ij} = \text{The value of exports of commodity j in the world} \)
- \( W_t = \text{Total export value of the world} \)

The feasibility or timeliness of a time series model is indicated by the magnitude of MAPE (Mean Percentage Error), MAD (Mean Absolute Deviation) and MSD (Mean Square Error).
Squared Deviation). The smaller the MAPE, MAD and MSD values indicate that the model used is more accurate (Subagyo, 1986).

MAPE is a measure of the relative accuracy used to determine the percentage deviation of forecasting results. MAPE equation formula is as follows:

$$MAPE = \frac{1}{n} \sum_{i=1}^{n} |PE|$$

Where PE (Percentage Error) is obtained by the formula:

$$PE = \left(\frac{X_t - F_t}{X_t}\right) \times 100\%$$

Note $X_t =$ Actual data in period $t$

$F_t =$ Data forecasting results in the period to-$t$

b. Qualitative descriptive

To support Quantitative analysis each other and to know the importance of testing laboratory in nutmeg producing province in order to increase export competitiveness of nutmeg Indonesia, supported by primary data and other evidence from literature review.

RESULTS AND DISCUSSION

a. Production Center of Nutmeg in Indonesia

Based on the average data table of nutmeg production of Indonesia in 2012-2016, the center of nutmeg production in Indonesia is found in 5 (five) provinces, namely Aceh, North Maluku, North Sulawesi, Maluku and West Papua. The five provinces contributed 86.71% to the cumulative. Aceh ranks first with a contribution of 25.46% per year. The second rank is occupied by North Maluku with a contribution of 19.89% per year, followed by North Sulawesi, Maluku and West Papua with contributions of 14.79%, 14.65% and 11.93% respectively (Figure 3.4) While production contribution from other provinces is 13.29%.
Table 1. Average Nutmeg Production of Indonesia in 2012-2016

<table>
<thead>
<tr>
<th>No</th>
<th>Province</th>
<th>Production (Ton)</th>
<th>Share (%)</th>
<th>Cumulative share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2012</td>
<td>2013</td>
<td>2014</td>
</tr>
<tr>
<td>3</td>
<td>North Sulawesi</td>
<td>3.410</td>
<td>3.455</td>
<td>5.203</td>
</tr>
<tr>
<td>5</td>
<td>West Papua</td>
<td>1.373</td>
<td>3.015</td>
<td>4.658</td>
</tr>
<tr>
<td>6</td>
<td>Java Island</td>
<td>935</td>
<td>1.413</td>
<td>1.179</td>
</tr>
<tr>
<td>7</td>
<td>Others</td>
<td>2.295</td>
<td>2.660</td>
<td>2.921</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>25.233</td>
<td>28.098</td>
<td>32.650</td>
</tr>
</tbody>
</table>

Source: DG of Plantation, Ministry of Agriculture
Note: *) 2015 Preliminary value
***) 2016 Estimation value
Production: Dried Nutmeg

b. Export Competitiveness of Nutmeg in Several Provinces

From export data in Table 2, it can be calculated that the competitiveness of nutmeg export in some provinces in Indonesia is used nutmeg export data by province all over Indonesia, where the biggest nutmeg export in Indonesia is done by Java Island, North Sulawesi Island, North Sumatra and Lampung.

Table 2. Volume of Export by Province in Indonesia, 2007 - 2016

<table>
<thead>
<tr>
<th>PROVINCE</th>
<th>VOLUME (Ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORT SUMATERA</td>
<td>262</td>
</tr>
<tr>
<td>BALI</td>
<td>-</td>
</tr>
<tr>
<td>JAVA ISLAND</td>
<td>10,056</td>
</tr>
<tr>
<td>RIAU ISLAND</td>
<td>-</td>
</tr>
<tr>
<td>LAMPUNG</td>
<td>157</td>
</tr>
<tr>
<td>SOUTH SULAWESI</td>
<td>-</td>
</tr>
<tr>
<td>NORTH SULAWESI</td>
<td>227</td>
</tr>
<tr>
<td>WEST SUMATERA</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10,701</td>
</tr>
</tbody>
</table>

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With the formula of RCA (Revealed Competitive Advantage), the objective to analyze the comparative advantage or competitiveness of a commodity in a region. The RCA value or volume of trade/exports in a region shows the comparative advantage and competitiveness of the region compared to the territory of RCA (Revealed Competitive Advantage), Other in one Country. From the export data in Table 2 above, the following results are obtained in Table 3.

Table 3. Nutmeg Revealed Competitive Advantage (RCA) In all provinces in Indonesia, 2007 - 2016

<table>
<thead>
<tr>
<th>PROVINCE</th>
<th>Nutmeg RCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORT SUMATERA</td>
<td>0.025</td>
</tr>
<tr>
<td>JAVA ISLAND</td>
<td>0.940</td>
</tr>
<tr>
<td>LAMPUNG</td>
<td>0.015</td>
</tr>
<tr>
<td>NORTH SULAWESI</td>
<td>0.021</td>
</tr>
<tr>
<td>WEST SUMATERA</td>
<td>-</td>
</tr>
</tbody>
</table>

Based on the nutmeg RCA table in all provinces in Indonesia in 2007 - 2016, only one Province in Indonesia has an absolute RCA Coefficient high compared to other provinces in Indonesia with an average RCA of 0.924. This shows that the native of Java originated from the island of Java has a better competitiveness compared to other provinces in Indonesia.

The high exports of Pala in the year 2007 - 2016 in the island of Java which average reaches nearly 10,000 tons per year, not comparable with annual production of nutmeg that only reaches 1300 tons. This indicates that, if 100% of nutmeg production in Java island is intended for export, there are about 8,700 tons or about 87% of nutmegs not originating from Java.
Island, but nutmegs coming from other regions or provinces.

When compared to West Papua Province with average production in 2012-2016 amounted to 3,729 tons or about 11.93% of the total average nutmeg production in Indonesia, there is no export process conducted on the province. It also happens in other provinces such as North Sulawesi Province (especially Siau Island) which is famous for having the best nutmeg quality in the world with the nickname "King of Nutmeg" and in August 2015 Siau island megalith patent certificate Geographic Indicator (GI), where production Nutmeg in 2016 of 5,635 tons, but the export of nutmeg in the province is only 1,677 tons, this means there are 3,958 tons or about 70% of the Nau (including Siau nutmeg) not exported from North Sulawesi.

From the data above shows that Indonesian nutmeg is not all exported through the region or province of potential origin of the product. This happened one of them because of quality Infrastructure factor that is institution / export supporting facility not yet available in that area. The facility is unavailable accredited laboratories in areas with potential nutmeg products in Indonesia. According to information from several exporters through a questionnaire held by the Directorate of PMB-Ministry of Commerce in the Monitoring and Evaluation of Export Commodity Exhibition of Pala from 2015 to 2017, one of the exporter factors prefer export through Port in Java Island is due to the availability of laboratory testing, especially aflatoxin. As discussed above that to be able to export process especially to EU exporter must have Health Certificate from OKKP-D certificate at port of departure based on certificate of passing test result at Accredited Testing Laboratory which has been audited its competence by export destination country. Indonesia currently has only 2 (two) Accredited Testing Laboratories that are competent.

The export process conducted in Java is one of the factors causing the contamination of Aflatoxin in Nutmeg, which is known in Testing Laboratory in
Indonesia and in Exporting Country Port when Indonesian nutmeg product is tested again. The reason is the length of export process chain from farmers in the province of origin of nutmeg to export destination country. The occurrence of fungal contamination causes aflatoxin on nutmeg seeds triggered by the length of export process are:

- Blending of some nutmeg contaminated with insects and aflatoxin fungi
- The mixing of young nutmeg with the old, so the young nutmeg with high humidity and the duration of the trip will trigger the fungus
- Poor packaging and storage processes triggered by moisture in the air for a long time will cause mold.

c. Projection of Nutmeg Production in Indonesia in 2016-2020

Based on data of Indonesian nutmeg production from 1980 to 2016, where production in 1980 which was 18,353 tons fluctuated growth until the year 2004 there was a drastic decrease of production that is 10,360 tons, but in the next year increase again until 2016 nutmeg production Indonesia amounted to 36,151 tons. By using model of double exponential smoothing. The MAPE value is obtained at 15.00 with the level smoothing constant \( \alpha = 1.06883 \) and the trend \( \gamma = 0.005982 \), the projected production projection 2016-2020 can be seen in Table 4. It is predicted to increase with an average growth of 2.85% per year. In 2016 nutmeg production is estimated at 36.15 thousand tons and will increase until 2020 to 40.44 thousand tons. With the increasing projection of nutmeg production, Indonesia is expected to be able to export nutmeg to the world's nutmeg consumer countries.
Table 4. Production of Pala Indonesia, 1980 - 2016

<table>
<thead>
<tr>
<th>Year</th>
<th>Prod. (Ton)</th>
<th>Growt h (%)</th>
<th>Year</th>
<th>Prod. (Ton)</th>
<th>Growt h (%)</th>
<th>Year</th>
<th>Prod. (Ton)</th>
<th>Growt h (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>18.353</td>
<td></td>
<td>1993</td>
<td>20.911</td>
<td>20,76</td>
<td>2006</td>
<td>8.943</td>
<td>9,09</td>
</tr>
<tr>
<td>1992</td>
<td>17.316</td>
<td>5,93</td>
<td>2005</td>
<td>8.198</td>
<td>-20,87</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: DG of Plantation, Ministry of Agriculture

Note: *) 2015 Preliminary value
      **) 2016 Estimation value

Table 5. Projected Production
Results Pala Indonesia, 2016-2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (Ton)</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>36.151</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>37.266</td>
<td>3,08</td>
</tr>
<tr>
<td>2018</td>
<td>38.327</td>
<td>2,85</td>
</tr>
<tr>
<td>2019</td>
<td>39.388</td>
<td>2,77</td>
</tr>
<tr>
<td>2020</td>
<td>40.449</td>
<td>2,69</td>
</tr>
</tbody>
</table>

From the projection of nutmeg production of Indonesia to 2010 which continues to show an increase, it is very necessary for Indonesia in order to improve the Export Quality Infrastructure to improve the quality of nutmeg Indonesia in the world market, one of them with the development of accredited testing laboratories in the region / province of potential products.

CONCLUSION AND POLICY RECOMMENDATION

From the above discussion can be concluded as follows:

1. In the framework of integration of Indonesian nutmeg products to international market, it is necessary to develop Export Quality Infrastructure, which is
strengthening national Quality Institution with accredited Testing Laboratories in the producing region/ province of nutmeg.

2. Development laboratory is a tool that can be used as traceability of nutmeg quality in a region / province, which can be used by policy makers and stakeholders in order to increase and fulfill the standard and regulation of export destination country, and healthy competition between producer of nutmeg regions / To produce the best nutmeg quality.

3. Availability of Accredited Testing Laboratories in producing regions / provinces of nutmeg will reduce costs for exporters so as to provide competitive selling prices of nutmeg and delivery time to shorter export destinations so as to reduce the potential aflatoxin contamination on nutmeg that will enhance competitiveness Indonesia's exports in the world.

4. Availability of Accredited Testing Laboratory will make it easier for OKKP-D to issue Health Certificate, so that exports can be done in the region / province of nutmeg producers, so as to increase the income of the region that can be used as much as possible for the development of nutmeg-producing areas.

From the above conclusions it is recommended as follows:

1. Before conducting the testing laboratory, it is necessary to mapping all of the conformity assessment bodies and testing laboratory in each province in Indonesia, whether accredited or not.

2. The government should collect data on nutmeg exporters, nutmeg collectors and nutmeg farmers in Indonesia, as a function of traceability and sustainability of Indonesian nutmeg quality in the face of international competition.

3. The Local and central governments shall cooperate immediately to realize the availability of an accredited Testing Laboratory having competencies recognized by the export destination country (with developing new laboratories or repositioning Indonesian Testing Laboratories).

4. The Local Government and Central Government shall cooperate with the involvement of stakeholders (government, farmers, traders/
exporters of nutmeg, nutmeg, consumers, and academia) to make policy in the framework of Sustainability on the quality of nutmeg in its area, post the availability of laboratory for authorized authorities to cooperate in improving the quality of nutmeg in its area, by conducting coaching and training for farmers, collecting merchants and exporters in accordance with the quality trace info obtained from the laboratory.

REFERENCES


Commission Regulation (EU) No 401. 2006. laying down the methods of sampling and analysis for the official control of the levels of mycotoxins in foodstuffs


THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON THE ORGANISATION OF ISLAMIC COOPERATION (OIC) COUNTRIES’ TRADE DEVELOPMENT

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Abstract
The development of information and communication technology (ICT) has contributed to the world growth, including through increased transactions and trade. ICT promotes global trade through increasing productivity and efficiency of resource allocation, and in turn, lowering transaction costs from both supply and demand side. The development of ICT also occurs in the Organisation of Islamic Cooperation (OIC) member countries allegedly contribute in trade growth in these countries. The relationship between ICT and trade has been widely discussed in the literature. In contrast to previous studies, this study comprehensively analyze the role of ICT on both total trade and trade openness. ICT includes subscription of broadband, cellular-phone, and fixed-telephone, as well as internet usage. Testing the unbalanced panel of 52 OIC member countries during 2000-2015 period, this study found that the use of cellular-phone and fixed-telephone play a significant role in increasing total trade and promotes trade openness of the OIC countries. Meanwhile, the use of broadband significantly increased trade, but did not significantly affect trade openness. Interestingly, the use of internet significantly increased trade, but lowered the trade openness of the OIC countries. These results indicate that the utilization of communication technology is preferred in increasing trade between OIC countries than the utilization of internet.

Keywords: ICT, Trade Openness, Total Trade, OIC

JEL Classification: F12, F13, F15

INTRODUCTION

Background
In recent decades, both international trade and information and communications technologies (ICT) have been increasing rapidly. The era of globalization is marked by the development of ICT that has become one of the important factors that increase of international trade and transactions, and in turn, contribute to global economic growth. The existence of ICT encourages the increase of international trade through increased productivity and efficiency in resource use, thereby lowering transaction costs both through supply and demand sides. In addition, the presence of ICT makes communication easier and it has changed how people interact.

The development of ICT also occurs in the Organization of Islamic Cooperation (OIC) member countries. Figure 1 shows the average development of total trade and average use of ICT in the OIC countries during the period 2000-2015. It appears that the total trade in the
OIC countries has continuously increased despite the decline in 2008 due to the global economic crisis. Meanwhile, ICT has been growing rapidly since 2005.

Graphic 1. The Development of ICT and Total Trade of The OIC Countries, 2000-2015

Nevertheless, the development of international trade in the OIC countries tended to be more closed after the global economic crisis in 2008. Trade openness in the OIC countries experienced a drastic decline in 2009, had increased again in 2010, but fell continuously since 2012. Figure 2 shows the average development of trade openness and the average use of ICT in the OIC countries during the period 2000-2015.
Graph 2. The Development of ICT and Trade Openness of The OIC Countries, 2000-2015

Source: World Bank (2017), author’s processes

Figure 3 shows the average development of various information and communication technologies in the OIC countries during 2000-2015. It reveals that the use of broadband, cellular-phone, and internet continues to increase. Meanwhile, the use of fixed-telephone continues to increase since the beginning of the 21st century, but began to decline persistently since 2010.

Graph 3. The Average of Various ICT Use in The OIC Countries, 2000-2015
Source: World Bank (2017), author’s processes
This is allegedly due to the presence of cellular-phone began to replace fixed-telephone since 2010. Different development patterns of various ICT types and its impact on various international trade indicators is a phenomenon that worthy to observe further.

**Research Questions**

In the OIC countries, the development of various ICT types are in line with the development of trade, especially during the period 2000-2015. Nevertheless, trade openness in the OIC countries tends to decline especially after the global economic crisis of 2008. This raises the question of whether there is a different effect of the use of ICT on total trade and trade openness in the OIC countries.

**Theory and Related Work**

The development of ICT has contributed to the world growth, including through increased transactions and trade. ICT promotes global trade through increasing productivity and efficiency of resource allocation, and in turn, lowering transaction costs from both supply and demand side.

The existence of ICT encourages the increase of international trade through increased productivity and efficiency in resource use, thereby lowering transaction costs both through supply and demand sides. In addition, the presence of ICT makes communication easier and it has changed how people interact.

Venables (2001) indicates four ways how ICT can reduce trade costs. First, ICT contributes to a more transparent market and, subsequently, reduces search, match and communications costs. Second, the use of ICT encourages the reduction of monitoring costs and company management. Third, the use of ICT may result in reduced shipping costs due to organizational change and digitization. Fourth, the use of ICT can reduce transit time and related costs.
Figure 4 provides a simple illustration of how the decline in trade costs can increase international trade. A country will import if the price balance under autarky is greater than the price of imported goods produced abroad \( (p_0 > p_1) \). After opening the balance at point \( E_1 \), domestic produces \( p_{1A} \), and the amount of \( AE_1 \) is goods imported from abroad. Trading costs are included in the price \( p_1 \). If the cost of trade falls, then the import price will decrease from \( p_1 \) to \( p_2 \). The new balance is at point \( E_2 \). Domestic manufacturers will be able to provide the quality of \( p_{2B} \), and the amount imported to \( BE_2 \). If the value of trade costs falls, the quantity of imported goods increases from \( AE_1 \) to \( BE_2 \).

Empirical studies examining the relationship between ICT use and international trade have been widely practiced. A number of previous studies have examined whether the use of ICT can facilitates and increase trade through reduced trade costs, particularly information and communication costs.

Freund and Weinhold (2002) conducted the first study to examine the impact of ICT on trade. The study estimated the impact of internet use on bilateral trade services in developed and middle income countries in the 1995-1999 period and indicated that a 10% increase in web host growth as a proxy for internet adoption increased 1.7% of services exports and 1.1% imports services. Subsequently,
Freund and Weinhold (2004) also estimated the role of internet adoption in bilateral trade in goods for 56 countries between 1997 and 1999. The study found that a 10% increase in Internet adoption led to a 0.2% increase in trade in goods.

After that, other studies that examine the impact of the Internet on trade are mostly done. Clarke and Wallsten (2006) used cross-sectional data of total exports of goods in 2001 for 26 developed countries and 72 developing countries and found that greater internet penetration encouraged trade flows from developing countries to developed countries, but no significant impact was found on trade flows from developed countries to developing countries. Vemuri and Shidiqi (2009) analyzed the impact of ICT infrastructure and Internet penetration on international trade for 64-country panels between 1985 and 2005. The study found that a 10% increase in internet use led to a 2% increase in bilateral trade. Choi (2010) using data from 151 countries from 1990 to 2005 indicated that doubling internet usage would increase service exports by 2-4%. Liu and Nath (2013) with a slightly different sample tested 40 developing countries in 1995-2010 and found that Internet subscriptions and internet hosts are positively and significantly related to trade performance. Yushkova (2014) used the Internet business usage index to estimate the impact of the internet on exports of goods to OECD countries, Brazil, China, India, Indonesia, Russia, and South Africa in 2011. The study found that internet use by the business community in both exporting and importing countries have a positive relationship with the export flows between the two countries. Xing (2017) examined the impact of internet and e-commerce adoption on bilateral trade flows using 21 developing country panels and 30 OECD countries and indicated that better access to modern ICT and adoption of e-commerce applications stimulated bilateral trade at various levels.

In addition to internet adoption, the use of ICT is also synonymous with increased communication. Nordas and Piermartini (2004) explored the role of infrastructure quality on trade performance and found that telecommunications as one element of infrastructure quality had a significant positive impact on trade flows. Fink et al. (2005) provides stronger evidence
that international variation in communication costs also has a significant effect on bilateral trade at the aggregate and disaggregated rates based on the 2-digit SITC classification.

Furthermore, Tang (2006) investigated how the use of various telecommunications influenced US imports on differentiated goods from 1975 to 2000 and found that the adoption of fixed-telephone, mobile phone and internet connections in exporting countries had a significant impact on US imports on differentiated goods. An increase of 10% internet adoption rate in exporting countries increases total exports of goods to the United States by 1%. Jungmittag and Welfens (2009) analyzed the bilateral fixed-line telephone impact on trade and found that international calls have a positive impact on trading volume. The increase in international telecommunications volume by 10% increased the volume of trade in Europe by 2%. Abeliantsky and Hilbert (2017) tested the different impacts of telecom quality and quantity from fixed and mobile telephone and internet services on bilateral exports of goods. From 122 countries during the period 1995-2008 showed a significant impact on export performance for all variables.

A number of studies that tried to test various types of ICT and also ICT in general indicator. Demirkan et al (2009) estimated cross-section data for 175 countries in 2005, finding a positive relationship between ICT and international trade. Ahmad, Ismail & Hook (2011) estimated the impact of the internet and the Malaysian mobile phone subscriptions, the use of personal computers and the internet with time series data between 1980 and 2008, found a statistically significant impact on all variables. Timmis (2012) estimates panel data for OECD countries between 1990 and 2010. The study defines ICT as internet users, broadband subscriptions and fixed lines connections, and finds that these countries trade more and more with each other. Nath and Liu (2017) used panel data for 49 countries from 2000 to 2013, tested the impact of ICT on exports, imports and total trade of 10 services, indicating that ICT development has a positive and significant contribution to the growth of international trade 7 of 10 types services.
Meanwhile, the study also found that the impact is greater in smaller countries. Márquez-Ramos & Martínez-Zarzoso (2010) analyzed the impact of technological innovations on sectoral exports, finding positive and non-linear impacts of technological innovation on export performance. Mattes et al (2012) tested the impact of the aggregate ICT development index. This study used the ICT development index of the ITU and calculated the multilateral resistance for the EU between 1995 and 2007. This study found a positive impact if both countries had high levels of ICT development. Portugal-Perez & Wilson (2012) studied the impact of heavy infrastructure (physical and ICT infrastructure) and light (border efficiency and transport and business regulatory environments) on export performance in developing countries in the 2004-2007 period. The study found that infrastructure boosted export performance. Francois & Manchin (2013) developed an infrastructure index, including ICT, based on principal component analysis and found a positive impact of this index on export and import activities. Francois and Machin (2007) considers the use of mobile telephone as a determinant of infrastructure development. Liu and Nath (2016) used panel data for 49 countries during 2000 to 2013 empirically testing the impact of exports and imports from 10 services. The results indicate that overall ICT development has a significant impact on the export of other business services and transport services and the import of insurance services, telecommunications services, and travel services.

Linking the development of ICT with countries’ comparative advantage, Wang and Li (2017) uses country-level ICT data and bilateral trade in 2013 to test whether the differences between countries in ICT can be a source of comparative advantage in international trade. Empirical results show that a country’s export in one industry increases 10% if the country’s ICT development index increases 1 standard deviation and the industrial R & D intensity increases 1 standard deviation.

To sum up, the presence of ICT plays a role in driving down the cost of trade and increasing total trade performance as a whole.

Research Objectives

This study examines the impact of ICT utilization on various trade
indicators, including exports, imports, total trade, and trade openness in 52 OIC member countries during the period 2000-2015.

**METHOD**

**Model**

Using fixed-effect model (FEM), this study examines the effects of various uses of ICT on various international trade indicators in the OIC countries during the period 2000-2015. Various utilization of ICT, among others: broadband, fixed-telephone, cellular-phone, and internet usage. Meanwhile, various indicators of international trade are trade openness, total trade, exports, and imports. The model used in this study as follows:

\[
\text{Log(OPEN}_{jt}\text{)} = \beta_0 + \beta_1 \text{Log(BRO}_{jt}\text{)} + \beta_2 \text{Log(CEL}_{jt}\text{)} + \beta_3 \text{Log(TEL}_{jt}\text{)} + \beta_4 \text{Log(NET}_{jt}\text{)} + \gamma_j + \delta_t + \varepsilon_{jt}
\]

\[
\text{Log(TRADE}_{jt}\text{)} = \beta_0 + \beta_1 \text{Log(BRO}_{jt}\text{)} + \beta_2 \text{Log(CEL}_{jt}\text{)} + \beta_3 \text{Log(TEL}_{jt}\text{)} + \beta_4 \text{Log(NET}_{jt}\text{)} + \gamma_j + \delta_t + \varepsilon_{jt}
\]

\[
\text{Log(EXPORT}_{jt}\text{)} = \beta_0 + \beta_1 \text{Log(BRO}_{jt}\text{)} + \beta_2 \text{Log(CEL}_{jt}\text{)} + \beta_3 \text{Log(TEL}_{jt}\text{)} + \beta_4 \text{Log(NET}_{jt}\text{)} + \gamma_j + \delta_t + \varepsilon_{jt}
\]

\[
\text{Log(IMPORT}_{jt}\text{)} = \beta_0 + \beta_1 \text{Log(BRO}_{jt}\text{)} + \beta_2 \text{Log(CEL}_{jt}\text{)} + \beta_3 \text{Log(TEL}_{jt}\text{)} + \beta_4 \text{Log(NET}_{jt}\text{)} + \gamma_j + \delta_t + \varepsilon_{jt}
\]

To test the robustness of the equation, variables. Model using alternative this study also used alternative variables as follows:

\[
\text{Log(OPEN}_{jt}\text{)} = \beta_0 + \beta_1 \text{Log(BRO100}_{jt}\text{)} + \beta_2 \text{Log(CEL100}_{jt}\text{)} + \beta_3 \text{Log(TEL100}_{jt}\text{)} + \beta_4 \text{Log(NET}_{jt}\text{)} + \gamma_j + \delta_t + \varepsilon_{jt}
\]

\[
\text{Log(TRADE}_{jt}\text{)} = \beta_0 + \beta_1 \text{Log(BRO100}_{jt}\text{)} + \beta_2 \text{Log(CEL100}_{jt}\text{)} + \beta_3 \text{Log(TEL100}_{jt}\text{)} + \beta_4 \text{Log(NET}_{jt}\text{)} + \gamma_j + \delta_t + \varepsilon_{jt}
\]

\[
\text{Log(EXPORT}_{jt}\text{)} = \beta_0 + \beta_1 \text{Log(BRO100}_{jt}\text{)} + \beta_2 \text{Log(CEL100}_{jt}\text{)} + \beta_3 \text{Log(TEL100}_{jt}\text{)} + \beta_4 \text{Log(NET}_{jt}\text{)} + \gamma_j + \delta_t + \varepsilon_{jt}
\]

\[
\text{Log(IMPORT}_{jt}\text{)} = \beta_0 + \beta_1 \text{Log(BRO100}_{jt}\text{)} + \beta_2 \text{Log(CEL100}_{jt}\text{)} + \beta_3 \text{Log(TEL100}_{jt}\text{)} + \beta_4 \text{Log(NET}_{jt}\text{)} + \gamma_j + \delta_t + \varepsilon_{jt}
\]

Where

\[
\text{Log(OPEN}_{jt}\text{)} \quad \text{Trade as % of GDP}
\]

\[
\text{Log(TRADE}_{jt}\text{)} \quad \text{Total trade in constant 2010 US$}
\]

\[
\text{Log(X}_{jt}\text{)} \quad \text{Exports of goods and services in constant 2010 US$}
\]

\[
\text{Log(M}_{jt}\text{)} \quad \text{Imports of goods and services in constant 2010 US$}
\]
Log\(\text{BRO}_{jt}\) Fixed-broadband subscriptions
Log\(\text{CEL}_{jt}\) Mobile-cellular telephone subscriptions
Log\(\text{TEL}_{jt}\) Fixed-telephone subscriptions
Log\(\text{NET}_{jt}\) Percentage of Individuals using the Internet
Log\(\text{BRO100}_{jt}\) Fixed-broadband subscriptions per 100 inhabitants
Log\(\text{CEL100}_{jt}\) Mobile-cellular telephone subscriptions per 100 inhabitants
Log\(\text{TEL100}_{jt}\) Fixed-telephone subscriptions per 100 inhabitants

data

The data used in this study comes from World Development Indicator (WDI), World Bank (Table 1). The data includes unbalanced panel of 52 OIC member countries during the period 2000-2015. ICT data includes Fixed-broadband subscriptions (BRO), Fixed-broadband subscriptions per 100 inhabitants (BRO100), Fixed-Telephone subscriptions (TEL), Fixed-Telephone subscriptions per 100 inhabitants (TEL100), Mobile-cellular telephone subscriptions (CEL), Mobile-cellular telephone subscriptions per 100 inhabitants (CEL100), and Percentage of Individuals using the Internet (NET). All variables of ICT allegedly have a positive impact on exports, imports, total trade, and trade openness.

Trade data includes trade as % of GDP (OPEN), Exports of goods and services in constant 2010 US $ (X), Imports of goods and services in constant 2010 US $ (M), and Total trade in constant 2010 US $ (TRADE).

Table 1. Variable Definition and Source

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Expected Sign</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG(OPEN)</td>
<td>Trade as % of GDP</td>
<td></td>
<td>World Development Indicator (WDI), World Bank</td>
</tr>
<tr>
<td>LOG(TRADE)</td>
<td>Total trade in constant 2010 US$</td>
<td></td>
<td>World Development Indicator (WDI), World Bank</td>
</tr>
<tr>
<td>LOG(X)</td>
<td>Exports of goods and services in constant 2010 US$</td>
<td></td>
<td>World Development Indicator (WDI), World Bank</td>
</tr>
<tr>
<td>LOG(M)</td>
<td>Imports of goods and services in constant 2010 US$</td>
<td></td>
<td>World Development Indicator (WDI), World Bank</td>
</tr>
<tr>
<td>LOG(BRO)</td>
<td>Fixed-broadband subscriptions</td>
<td>+</td>
<td>World Development Indicator (WDI), World Bank</td>
</tr>
<tr>
<td>LOG(BRO100)</td>
<td>Fixed-broadband subscriptions per 100 inhabitants</td>
<td>+</td>
<td>World Development Indicator (WDI), World Bank</td>
</tr>
</tbody>
</table>
RESULTS AND DISCUSSION

Looking at unbalanced panel data of 52 OIC member countries during 2000-2015, this research seeks to explain how the various types of ICT use to various international trade indicators such as trade openness (OPEN), total trade (TRADE), export (X), and import (M).

Table 2. The Effect of ICT on Trade Openness, Total Trade, Exports, and Imports of The OIC Countries, 2000-2015

<table>
<thead>
<tr>
<th>Dep. Var.</th>
<th>LOG(OPEN)</th>
<th>LOG(TRADE)</th>
<th>LOG(X)</th>
<th>LOG(M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>2.853***</td>
<td>20.849***</td>
<td>20.228***</td>
<td>20.727***</td>
</tr>
<tr>
<td></td>
<td>8.217</td>
<td>0.486</td>
<td>0.540</td>
<td>0.581</td>
</tr>
<tr>
<td>LOG(BRO)</td>
<td>-0.003</td>
<td>0.006</td>
<td>0.012</td>
<td>-0.004</td>
</tr>
<tr>
<td></td>
<td>-0.420</td>
<td>0.011</td>
<td>0.012</td>
<td>0.013</td>
</tr>
<tr>
<td>LOG(CEL)</td>
<td>0.022</td>
<td>0.115***</td>
<td>0.131***</td>
<td>0.052*</td>
</tr>
<tr>
<td></td>
<td>1.223</td>
<td>0.026</td>
<td>0.028</td>
<td>0.031</td>
</tr>
<tr>
<td>LOG(TEL)</td>
<td>0.096***</td>
<td>0.093***</td>
<td>0.056*</td>
<td>0.135***</td>
</tr>
<tr>
<td></td>
<td>4.454</td>
<td>0.030</td>
<td>0.034</td>
<td>0.036</td>
</tr>
<tr>
<td>LOG(NET)</td>
<td>-0.039*</td>
<td>0.029</td>
<td>0.049</td>
<td>0.010</td>
</tr>
<tr>
<td></td>
<td>-1.896</td>
<td>0.027</td>
<td>0.030</td>
<td>0.032</td>
</tr>
</tbody>
</table>

Cross-section fixed: Yes  Period fixed: Yes
R-squared: 0.892  Adjusted R-squared: 0.877  F-statistic: 60.603***
No. of Observations: 587

Standard error in the parenthesis: * p< 0.1, ** p< 0.05, *** p< 0.01
Source: author’s calculation
Table 2 shows that the use of fixed-telephone has a positive and significant impact on all international trade indicators, namely trade openness, total trade, exports, and imports in OIC member countries. A 10% increase in fixed-telephone usage will increase trade openness in OIC countries by 0.96%, ceteris paribus. A 10% increase in fixed-telephone usage will also increase the total trade in OIC countries by 0.93%, ceteris paribus. Nevertheless, the use of fixed-telephone to import has a greater impact than on exports. On the one hand, an increase in fixed-telephone usage by 10% will increase imports by 1.35%, ceteris paribus. On the other hand, a 10% increase in fixed-telephone usage will increase exports by only 0.56%, ceteris paribus, or less than half when compared to imports.

Table 2 also shows the estimation results of various types of ICT use on various international trade indicators. Based on these tables, cellular-phone use has a positive and significant effect on total trade, exports, and imports, but has no significant effect on trade openness. The use of cellular-phone has a greater effect on total trade compared to telephone usage. The 10% increase in cellular phone usage will increase the total trade in OIC countries by 1.15%, ceteris paribus. In addition, in contrast to the use of mobile phone, cellular-phone use has a greater effect on exports than on imports. On the one hand, an increase in cellular-phone usage by 10% will increase imports by 1.31%, ceteris paribus. On the other hand, a 10% increase in cellular-phone usage will increase exports by only 0.52%, ceteris paribus, or less than half when compared to imports. In addition, the use of internet even negatively and significantly affect the openness of trade in OIC countries. Increasing internet usage by 10% will reduce trade openness in OIC countries by 0.39%, ceteris paribus.
Table 3. The Effect of ICT on Trade Openness, Total Trade, Exports, and Imports of The OIC Countries Using Alternative Variables, 2000-2015

<table>
<thead>
<tr>
<th>Dep. Var.</th>
<th>LOG(OPEN)</th>
<th>LOG(TRADE)</th>
<th>LOG(X)</th>
<th>LOG(M)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.312</td>
<td>0.426</td>
<td>0.463</td>
<td>0.527</td>
</tr>
<tr>
<td>LOG(BRO100)</td>
<td>0.009</td>
<td>0.018*</td>
<td>0.013</td>
<td>0.035***</td>
</tr>
<tr>
<td></td>
<td>0.007</td>
<td>0.010</td>
<td>0.011</td>
<td>0.012</td>
</tr>
<tr>
<td>LOG(CEL100)</td>
<td>0.041**</td>
<td>0.136***</td>
<td>0.127***</td>
<td>0.134***</td>
</tr>
<tr>
<td></td>
<td>0.016</td>
<td>0.023</td>
<td>0.025</td>
<td>0.028</td>
</tr>
<tr>
<td>LOG(TEL100)</td>
<td>0.101***</td>
<td>0.047</td>
<td>0.031</td>
<td>0.062*</td>
</tr>
<tr>
<td></td>
<td>0.022</td>
<td>0.030</td>
<td>0.033</td>
<td>0.037</td>
</tr>
<tr>
<td>LOG(NET)</td>
<td>-0.063***</td>
<td>0.088***</td>
<td>0.080***</td>
<td>0.101***</td>
</tr>
<tr>
<td></td>
<td>0.019</td>
<td>0.024</td>
<td>0.026</td>
<td>0.030</td>
</tr>
</tbody>
</table>

Cross-section fixed: Yes, Yes, Yes, Yes
Period fixed: No, No, Yes, Yes
R-squared: 0.880, 0.990, 0.990, 0.982
Adjusted R-squared: 0.867, 0.988, 0.989, 0.980
F-statistic: 70.663***, 818.045***, 835.904***, 465.866***
No. of Observations: 587, 504, 505, 504

Standard error in the parenthesis; * p< 0.1, ** p< 0.05, *** p< 0.01
Source: author’s calculation

To test the strength of the model, this study also used alternative variables for each ICT usage variable. Table 3 shows that cellular-phone use has a positive and significant impact on all international trade indicators, namely trade openness, total trade, exports, and imports. The 10% increase in cellular-phone usage will increase trade openness in OIC countries by 0.41%. The 10% cellular-phone usage will also increase total trade, exports, and imports in OIC countries by 1.36%, 1.27% and 1.34%, respectively.

Table 3 also shows the estimation results of various types of ICT use on various international trade indicators with alternative variables. Based on the table, internet use positively affects total trade, exports, and imports, but also has a negative and significant effect on trade openness in OIC countries. Increasing internet usage by 10% will reduce trade openness in OIC countries by 0.63%, ceteris paribus. In contrast, an increase in Internet usage by 10% would increase total trade, exports, and imports in OIC countries by...
0.88%, 0.80%, and 1.01%, ceteris paribus, respectively. In addition, fixed-telephone usage has a positive and significant effect on trade openness, but has no significant effect on total trade, exports, and imports. A 10% increase in fixed-telephone usage will increase trade openness in OIC countries by 1.01%, ceteris paribus.

Table 4. The Effect of ICT on Trade Openness of The OIC Countries, 2000-2015

<table>
<thead>
<tr>
<th></th>
<th>[1]</th>
<th>[2]</th>
<th>[3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG(OPEN)</td>
<td>C</td>
<td>LOG(BRO)</td>
<td>LOG(TEL)</td>
</tr>
<tr>
<td></td>
<td>2.853***</td>
<td>-0.003</td>
<td>0.096***</td>
</tr>
<tr>
<td></td>
<td>8.217</td>
<td>0.009</td>
<td>0.016</td>
</tr>
<tr>
<td>LOG(BRO)</td>
<td>-0.420</td>
<td>0.041**</td>
<td>-0.112***</td>
</tr>
<tr>
<td>LOG(CEL)</td>
<td>0.022</td>
<td>0.007</td>
<td>0.017</td>
</tr>
<tr>
<td>LOG(TEL)</td>
<td>1.223</td>
<td>0.016</td>
<td>0.017</td>
</tr>
<tr>
<td>LOG(NET)</td>
<td>8.217</td>
<td>0.007</td>
<td>0.011</td>
</tr>
<tr>
<td></td>
<td>0.312</td>
<td>0.009</td>
<td>0.011</td>
</tr>
<tr>
<td></td>
<td>0.149</td>
<td>0.036***</td>
<td>0.011</td>
</tr>
<tr>
<td></td>
<td>0.096***</td>
<td>-0.420</td>
<td>-0.042**</td>
</tr>
<tr>
<td></td>
<td>0.101***</td>
<td>0.016</td>
<td>0.016</td>
</tr>
<tr>
<td></td>
<td>-0.063***</td>
<td>0.149***</td>
<td>0.017</td>
</tr>
<tr>
<td></td>
<td>-1.896</td>
<td>0.019</td>
<td>0.017</td>
</tr>
<tr>
<td>Cross-section fixed</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Period fixed</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.892</td>
<td>0.880</td>
<td>0.390</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.877</td>
<td>0.867</td>
<td>0.370</td>
</tr>
<tr>
<td>F-statistic</td>
<td>60.603***</td>
<td>70.663***</td>
<td>19.078***</td>
</tr>
<tr>
<td>No. of Observations</td>
<td>587</td>
<td>587</td>
<td>587</td>
</tr>
</tbody>
</table>

Standard error in the parenthesis; * p< 0.1, ** p< 0.05, *** p< 0.01
Source: author’s calculation

Table 4 shows estimates of the effects of different types of ICT on trade openness in OIC countries. Column [1] uses fixed cross-section and fixed period, column [2] uses only fixed cross-section, and column [3] only uses fixed period. Based on the table, fixed-telephone usage has a positive and significant effect on trade openness in OIC countries. In contrast, internet use has a negative and significant impact on trade openness in OIC countries. However, the effect of fixed-telephone usage on trade openness in OIC countries is greater than the effect of internet use. On the one hand, an increase in fixed-telephone usage by 10% will increase trade openness in OIC countries by 0.96%, ceteris paribus. On the other hand, an increase in internet usage will only reduce trade openness in OIC
countries by 0.39%, ceteris paribus, or less than half when compared to the positive effect of telephone use.

Table 5 shows the estimates of the effects of different types of information and communication technologies on trade openness in OIC countries with alternative variables. The estimates in the table reinforce the evidence that the use of fixed-telephone has a positive and significant impact on increased trade openness in OIC countries. A 10% increase in fixed-telephone usage will increase trade openness by 0.67%.

Based on Table 5, the largest influence of fixed-telephone use among various other types of information and communication technologies.

Tabel 5. The Effect of ICT on Trade Openness of The OIC Countries Using Alternative Variables, 2000-2015

<table>
<thead>
<tr>
<th></th>
<th>[1]</th>
<th>[2]</th>
<th>[3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG(OPEN)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>4.279***</td>
<td>4.232***</td>
<td>3.824***</td>
</tr>
<tr>
<td></td>
<td>0.077</td>
<td>0.072</td>
<td>0.118</td>
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<td>LOG(BRO100)</td>
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<td>0.011</td>
<td>0.040***</td>
</tr>
<tr>
<td></td>
<td>0.008</td>
<td>0.008</td>
<td>0.012</td>
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<tr>
<td>LOG(CEL100)</td>
<td>0.000</td>
<td>0.028</td>
<td>0.142***</td>
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<tr>
<td></td>
<td>0.018</td>
<td>0.017</td>
<td>0.031</td>
</tr>
<tr>
<td>LOG(TEL100)</td>
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<td>0.061***</td>
<td>0.045**</td>
</tr>
<tr>
<td></td>
<td>0.022</td>
<td>0.022</td>
<td>0.020</td>
</tr>
<tr>
<td>LOG(NET)</td>
<td>-0.026</td>
<td>-0.038**</td>
<td>-0.027</td>
</tr>
<tr>
<td></td>
<td>0.021</td>
<td>0.018</td>
<td>0.026</td>
</tr>
<tr>
<td>Cross-section fixed</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Period fixed</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.889</td>
<td>0.875</td>
<td>0.256</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.873</td>
<td>0.862</td>
<td>0.231</td>
</tr>
<tr>
<td>F-statistic</td>
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<td>67.379***</td>
<td>10.262***</td>
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<tr>
<td>No. of Observations</td>
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</table>

Standard error in the parenthesis: * p< 0.1, ** p< 0.05, *** p< 0.01
Source: author's calculation

Tabel 6. The Effect of ICT on Total Trade of The OIC Countries, 2000-2015

<table>
<thead>
<tr>
<th></th>
<th>[1]</th>
<th>[2]</th>
<th>[3]</th>
</tr>
</thead>
<tbody>
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<tr>
<td>C</td>
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<td>LOG(BRO)</td>
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<td>0.018*</td>
<td>0.218***</td>
</tr>
</tbody>
</table>

395
Table 6 shows estimates of the effects of different types of ICT on total trade in OIC countries. Column [1] uses fixed cross-section and fixed period, column [2] uses only fixed cross-section, and column [3] only uses fixed period. Based on the table, cellular-phone usage has a positive and significant effect on trade openness in OIC countries. The 10% increase in cellular-phone usage will increase the total trade in OIC countries by 1.15%, ceteris paribus.

Tabel 7. The Effect of ICT on Total Trade of The OIC Countries Using Alternative Variables, 2000-2015
Table 7 shows estimates of the effects of different types of ICT on total trade in OIC countries with alternative variables. The estimates in the table reinforce evidence that cellular-phone usage has a positive and significant effect on total trade in OIC countries. A 10% increase in cellular phone usage will increase the total trade by 0.64%, ceteris paribus. In addition, there is strong evidence that internet usage has a positive and significant impact on total trade in OIC countries. Increasing internet usage by 10% will increase total trade by 0.61%, ceteris paribus. Based on Table 8, the effect of cellular-phone and internet usage is greatest among other types of information and communication technologies.

From all the estimates that has been discussed, there are some things that can be recorded. First, the use of cellular-phone and fixed-telephone positively and significantly affect the international trade, both from total trade and trade openness. Secondly, internet usage positively and significantly affects total trade but negatively and significantly affects trade openness. Third, trade and import is most influenced by fixed-telephone usage, while total trade and exports are greatly influenced by cellular-phone usage.

CONCLUSION AND POLICY RECOMMENDATION

The relationship between ICT and trade has been widely discussed in the literature. In contrast to previous studies, this study comprehensively analyze the role of ICT on both total trade and trade openness. This study examines the effect of ICT on trade in OIC countries. ICT includes subscription of broadband, cellular-phone, and fixed-telephone, as well as internet usage. Testing the 52 OIC countries during 2000-2015 period, this study found that the use of cellular-phone and fixed-telephone play a significant role in increasing OIC countries’ trade and promotes trade openness. Meanwhile, the use of
broadband significantly increased trade, but did not significantly affect trade openness. Interestingly, the use of internet significantly increased trade, but lowered the trade openness of OIC countries. These results indicate that the utilization of communication technology is preferred in increasing trade between OIC countries than the utilization of internet.

The utilization of communication technology that facilitates communication is key to increasing international trade in OIC countries, such as cellular-phone and fixed-telephone. Therefore, in supporting the strategy in promoting trade with OIC countries, Indonesia should focus on improving capacity, quality, and quantity in communication technology.

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Abstract

The Asia-Pacific Economic Cooperation (APEC) is a 21-member cooperation forum established in 1989, aimed at boosting economic growth and improving welfare in the Asia Pacific region. The rise of trade agreements in the Asia Pacific region makes APEC begin to look for a deep and comprehensive form of trade liberalization in the Asia Pacific region. At the APEC leaders' meeting in Santiago, Chile, in 2004, it was agreed to conduct feasibility studies on the establishment of Free Trade Agreement-Asia Pacific (FTA-AP). Following the agreement, APEC has initiated a preliminary assessment of the possibility of establishing an FTA-AP. This analysis aims to analyze the impact of FTA-AP for Indonesia and analyze the determinants of Indonesia's superior product export performance within the framework of FTA-AP by using CGE analysis with GTAP model. Simulation results show that 50% tariff cuts have an impact on (1) improving the welfare of all countries in FTA-AP except the United States; (2) negative impact on Indonesia's trade balance; and (3) 12 sectors experienced an increase during the 50% tariff reduction were paddy rice, oil seeds, plant based fibers, crops, wool silk worms and cocoons, fishing, vegetable oil and fats, processed rice, food products, electronic equipment, machinery and equipment and manufactures. Meanwhile, simulation on full liberalization shows (1) the increase in welfare in all countries, including Indonesia, except Peru and rest of the world (ROW); (2) Indonesia's trade balance has increased; and (3) trade liberalization has a positive impact on Indonesia's real GDP. The FTA-AP specific cooperation must be properly addressed by the stakeholders in order not to harm the national interest, and not solely make Indonesia as a market for products from Asia-Pacific countries incorporated in the FTA-AP. However, if Indonesia is does not join the FTA-AP, Indonesia will lose its share of exports as Indonesia's share of FTA-AP exports is about 75% of Indonesia's total exports.

Keywords: APEC, Free Trade Agreement, FTA-AP, Indonesia, GTAP Model

JEL Classification: F12, F13, F17

INTRODUCTION

The Asia-Pacific Economic Cooperation (APEC) is an inter-21 economic forum established in 1989. APEC consists of countries in the Asia and Pacific region, including: Australia, Brunei Darussalam, Canada, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, United States of America, China, Hong Kong, China Taipei, Mexico, Papua New Guinea, Chile, Peru, Russia and Vietnam. The APEC forum aims to strengthen economic growth and strengthen the Asia-Pacific community. Twenty-one member countries of APEC are called non-state economies because the form of cooperation in APEC is a non-political cooperation, marked by membership of Hong Kong-China and China Taipei.
APEC’s main objective is to promote economic growth and improve prosperity by encouraging and facilitating trade and investment to become more open in the Asia Pacific region. In addition, APEC also aims to enhance the cooperation of member economic capacity development. APEC cooperation also supports the economic progress and openness of the trading system in the Asia Pacific region.

Trade liberalization agreements in the Asia Pacific region have grown rapidly both regionally and bilaterally. The trade liberalization agreement was established as a result of the sluggish multilateral trading system (MTS).

Based on data of WTO (2015) in the Asia Pacific region, 46 bilateral FTAs and 12 trade agreements are still being negotiated. The number of trade liberalization agreements allegedly occurred overlapping spaghetti bowl schemes in the Asia Pacific region. Therefore, APEC began to look for a deep and comprehensive form of trade liberalization in the Asia Pacific region. At a meeting of APEC leaders in Santiago, Chile, in 2004, it was agreed to conduct feasibility studies on the establishment of Free Trade Agreement-Asia Pacific (FTA-AP). Following the agreement, APEC has initiated a preliminary assessment of the possibility of establishing an FTA-AP.

One of the results of the APEC study conducted by Bergsten (2007), argues that FTA-AP will be the best policy choice. FTA-AP will also create a positive profit from free trade without violating WTO rules. In addition, the FTA-AP is expected to prevent overlapping of free trade in the Asia-Pacific region by consolidating sub-regional trade, and revitalizing APEC.

So the formulation of the problems and objectives in this paper is how the impact of the formation of FTA-AP for Indonesia, so its purpose is to analyze the impact of the formation of FTA-AP for Indonesia.

METHODS

The analytical method used in this paper to analyze the impact of FTA AP for Indonesia is the CGE trade model. The analysis tools use the 2012 GTAP version, using data from 2002 and 2007. In this analysis, updating data of tariffs in GTAP by using altertax method is needed. Tariff data is obtained from WITS. The HS code in Trademap has been matched with concordance in GTAP. The sectoral aggregation is based on 57 sectors in GTAP and the country aggregation is based on 19 out of 21 APEC economies, meanwhile the
remaining economies are classified in the rest of the world.

The simulation will consist of a 50% tariff reduction from the baseline and full trade liberalization to see the impact of FTA-AP formation for Indonesia.

RESULTS AND DISCUSSION

For Indonesia, APEC is Indonesia's main export destination, which contributes USD 115.68 billion or 73.32% in 2010 and USD 149.89 billion or 73.66% in 2011. This contribution is much larger than the role of the market Union Europe and the Middle East whose contribution only reached 10.08% and 3.19% in 2011. Among these countries, Japan became the main destination of Indonesian exports with contribution in 2011 reaching USD 33.7 billion (16.57%), followed by China which reached USD 22.9 billion (11.27%), and Singapore USD 18.4 billion (9%). APEC's important role is also due to the large contribution of FDI countries in the Asia Pacific region to Indonesia. In 2012, the FDI realization from Singapore listed itself as the first rank with a contribution of USD 4.8 billion. In the second, third and fourth positions are Japan, South Korea and the United States with contributions of USD 2.4 billion, USD 1.9 billion and USD 1.2 billion respectively.

APEC is also important for Indonesia considering this region to bring together old and new economic power. Old power is represented by the United States which is the main economic power today. Meanwhile, the new economic power is represented by China and other East Asian countries which are now a rising star and a decisive force in the present and future. Indonesia's active involvement in the region is crucial to the sustainability and engagement of the Indonesian economy in the global economy.

Using the CGE Trade model, it can be analyzed how Indonesia's macro and sectoral economic performance if the Free Trade Area Asia Pacific (FTA-AP) is implemented. To know the effect of FTA-AP implementation on Indonesia's economic performance, simulation of tariff barrier elimination policy becomes 0 (SIM2) and decrease of 50% tariff barrier (SIM1). In order to the tariff data in accordance with tariffs applied in Indonesia, tariffs must be updated using altertax method, before the simulation is done.

In a macroeconomic perspective, predictive analysis as a consequence of decreasing trade barriers in the form of tariffs may indicate a change in the
direction and magnitude of key macroeconomic variables. Welfare levels in thousand USD (using Equivalent Variation proxy), output at national level (using real GDP proxies), aggregate trade performance shown through trade balance variables is a set of variables that focus on macroeconomic level of analysis.

In a sectoral perspective, predictive analysis as a consequence of tariff reduction can be indicated by the relationship and magnitude of key variables in the sectoral economy such as output, exports, imports and labor demand. Detailed analysis of trade potential is reviewed from changes in macro and sectoral variables in the case of FTA-AP cooperation.

From the results of GTAP version 8, full liberalization of trade affects the welfare of all aggregate countries in the FTA-AP except the United States on SIM1 and Peru and rest of the world (ROW) on SIM2. One explanation that can be expressed is the possibility of trade diversion from the FTA-AP trade. Prosperity increases as a decrease in trade barriers in the form of tariffs will lower production costs (production efficiency). The low cost of production has an impact on the decline in the prices of goods and services. This leads to an increase in welfare from the producer side due to increased efficiency as well as consumer welfare as it pays the price of goods and services lower than its willingness to pay. Welfare consumers not only happen because of the increase in consumption from domestic, but also due to consumption of imports.

The relatively cheap price is the effect of trade creation effect. In detail can be seen in Table 1. The highest welfare occupied by China both on SIM1 and SIM2. Jiang and McKibbin in the study on the impact of FTA-AP on national and regional economies in China, stated that China has the greatest positive impact compared to other cooperation schemes such as Asean-China FTA and East Asia FTA (EAFTA). The sectors in China that will benefit are textiles, garments and footwear. While the sectors that will experience losses are motor vehicles and parts thereof.

Among ASEAN countries, the impact of the highest prosperity on SIM1 is occupied by Singapore and in SIM2 occupied by Indonesia. Compared to SIM1, Indonesia's welfare improvement in SIM2 is higher. Full liberalization gives more incentives for producers to produce and provide consumer choice for goods and services consumed compared with a 50% tariff reduction.
Profits for Indonesia are expected to increase if not only tariffs from other countries entering Indonesia alone are derived 50% or abolished, but also the reduction or elimination of tariffs imposed by trade partner countries for Indonesian export products (simulated reciprocally). This is in line with Kim and Park (2013) research which states that based on CGE analysis results, FTA-AP which is a regional trade bloc can provide a positive advantage that is predicted to have great potential to improve the economic welfare of participating APEC and will increase economic growth in the APEC region. In particular, the FTAAP will be better off if it is supported by trade liberalization of services and enhancement of trade facilitation.

Indonesia's trade balance has increased when simulation of full liberalization (SIM2). A 50% tariff reduction (SIM1) has a negative impact on Indonesia's trade balance. Indonesian export products contain more raw materials / auxiliary materials than imports. The import of raw / auxiliary goods and capital materials has a very important role in fulfilling domestic demand for goods whose supply is not produced domestically or cannot be met from domestic production. In addition, imports are important if domestic raw material prices are expensive as this will have an impact on the uncompetitiveness of a product in the international market so that the competitiveness of the country's export products is low.

When Indonesia still charges a rate of 50%, then the price of raw materials or capital goods become expensive, then finally the price of Indonesian export products is relatively more expensive. This condition will reduce Indonesia's exports resulting in a trade balance deficit. Conversely, when the tariff is abolished the raw material price becomes relatively cheaper so that the price of Indonesia's export products has competitiveness. This condition encourages trade balance surplus. In addition to Indonesia, the country with a positive trade balance at the time of simulation of full liberalization (SIM2) alone is Peru, while positive on the 50% tariff reduction (SIM1) alone is ROW. Countries whose trade balance is positive on simulation of 50% (SIM1) and full liberalization (SIM2) tariffs are USA, Japan, Singapore and Hongkong. This shows that economic actors in the United States, Japan, Singapore and Hong Kong are responsive to the offer both under 50% and full liberalization rates.
Beside of having an impact on public welfare, FTA-AP also gives an impact on GDP change. Trade liberalization has a positive impact on Indonesia's real GDP. The full liberalization simulation gives a real increase in real GDP compared to the simulation of 50% tariff reduction. Overall impact on real GDP can be seen in Table 1.

GDP growth in Indonesia is relatively small compared to other ASEAN countries. This is possible because the reduction or elimination of tariffs only occurs in Indonesia while the trading partner country of Indonesia does not decrease or eliminate the tariff (not reciprocal). Trade liberalization incentives only occur in some sectors which are the leading commodity exports whose quantity is also relatively small. This condition also indicates trade liberalization is an important condition, but not enough to get gains from trade. FTA cooperation is not limited to tariff reduction or elimination only. It is no longer a secret when tariff barriers are coming down, other obstacles in the form of non-tariff barriers are increasing. Salvatore (1997) states when tariff rates in various countries are decreased, meaning through a series of multilateral trade negotiations, the number and role of various forms of non-tariff trade barriers actually surged. This shift in the form of trade barriers has an impact on bilateral and multilateral trade in commodities.

In its implementation, there are several technical regulations issued by the World Trade Organization (WTO) in the GATT (General Agreement on Tariff and Trade) related to non-tariff barriers such as prohibitions against dumping (international price discrimination), restrictions on technical trade barriers to trade, the safeguard preference, the prohibition on the issue of subsidies and countervailing measures, the government regulation of a state in maintaining the security of food, sanitary and phytosanitary, as well as the obligation which must be undertaken by the government and non-government in trading activities which include export and import activities of products or commodities.

One of Indonesia's leading export commodities that experienced non-tariff barriers in export destination countries one of the APEC countries is the CPO. CPO faces the issue of "black campaign", such as environmental issues as well as health problems. Even Indonesia fails to include CPO as a commodity that is included in the category of environmentally friendly commodities in the APEC forum.
Whereas the Indonesian government has set palm as one of the pillars of national economic development because it generates USD 24 billion from USD 30 billion agricultural surplus. Not only plantation commodities, but fishery commodities also face non-tariff barrier, one of them is tuna fish.

Karatri and Widyastuti (2015) research shows the high tariff equivalent of NTBs of several APEC countries such as Australia by 6.58%. Examples of obstacles that Australia implements are related to the inspection of goods entered into Australia by the Custody / Quarantine on some products namely fish and other seafood products which are fresh, raw, ripe, dry, and frozen. In addition, there are taxes and other fees subject to customs / GST, and the detention of exported products when not eligible or referred to as holding order (HO) by AQIS Australia. The competitiveness of Indonesia's tuna exports to Australia from 2010 to 2013 has decreased due to the imposition of non-tariff barriers imposed by the Australian state (Trade Field of the Embassy of Indonesia 2013). Not only Australia, other Asia Pacific member countries such as Thailand, USA and even China also apply high NTBs tariff equivalent to Indonesian tuna fish. Based on I-TIP of the WTO (2015) China stipulates requirements related to sanitary and phytosanitary in fishery commodities, while Thailand implements safeguard and technical barriers to trade for similar commodities.

Based on the above explanation, the framework of the FTA-AP will not be optimal if only Indonesia alone lowers or liberalizes tariff and non tariff barriers. The policy of tariff reduction and trade liberalization should be a commitment for all members of the FTA AP so that each country gets a gain from trade. With these considerations, the FTA AP framework needs to be optimized through trade facilitation among APEC members, especially developing countries such as Indonesia and other ASEAN countries to negotiate with developed countries such as the United States, Japan and Australia.

Meanwhile, the impact of Indonesia's trade cooperation with FTA-AP countries on sectoral economic performance can be seen in Table 2. Output expansion during the 50% tariff reduction is 12 sectors. Meanwhile, when there is full liberalization within the framework of FTA-AP only as much as 6 sectors have increased. This implies that there are still many sectors in Indonesia that require protection compared to liberalization. The import threats encourage small incentives for
producers, so exports will decline especially when full liberalization takes effect. The decline in exports occurred almost in all products with a relatively large drop of exports between 70.448% (for wool) and the lowest of 0208 (for sugar). With full liberalization, import threats reduce producer incentives for some sectors to produce, thus reducing exports. However, when the tariff reduction is only 50%, protection still gives producers incentives to export. Based on Table 2, both the 50% tariff reduction and the full trade liberalization by Indonesia on the products of countries incorporated in FTA-AP give more incentive to import. Increased imports will threaten the competitiveness of all sectors. Consistent with theory, sectors that experience a decrease in output will have an impact on the decline in demand for labor otherwise the sector with increased output will have an impact on the increase in labor demand.

A study conducted by Rodriguez on the impact of FTA-AP on the Philippines, examines the economic impact across the Asia Pacific free trade area (FTAAP) on the Philippine economy. The study used a general equilibrium model to determine the impact on sectoral output and consumption. The results of the study show that FTAAP benefits the Philippines in the form of higher aggregate output and employment. However, this advantage is not for industries related to rice and corn.

Table 1. Impact of FTA AP on Welfare, Trade Balance, and Real GDP

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<tr>
<th>Country</th>
<th>Welfare (US $ Million)</th>
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<th>Real GDP (%)</th>
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<td>frs</td>
<td>-0.050</td>
<td>-4.230</td>
<td>1.460</td>
</tr>
<tr>
<td>fsh</td>
<td>0.037</td>
<td>-0.313</td>
<td>1.488</td>
</tr>
<tr>
<td>coa</td>
<td>-0.138</td>
<td>0.150</td>
<td>-0.102</td>
</tr>
<tr>
<td>oil</td>
<td>-0.214</td>
<td>-1.939</td>
<td>1.457</td>
</tr>
<tr>
<td>gas</td>
<td>-0.395</td>
<td>-2.865</td>
<td>-0.195</td>
</tr>
<tr>
<td>omm</td>
<td>-0.167</td>
<td>-4.937</td>
<td>-0.076</td>
</tr>
<tr>
<td>cmt</td>
<td>-0.700</td>
<td>-6.012</td>
<td>2.763</td>
</tr>
<tr>
<td>omi</td>
<td>-0.678</td>
<td>-3.019</td>
<td>0.543</td>
</tr>
<tr>
<td>vol</td>
<td>1.127</td>
<td>86.910</td>
<td>2.455</td>
</tr>
<tr>
<td>pcr</td>
<td>0.164</td>
<td>-1.833</td>
<td>2.467</td>
</tr>
</tbody>
</table>

Table 2. Impact of FTA AP on Indonesia's Sector Performance (%)
CONCLUSION AND POLICY RECOMMENDATION

Indonesia will get welfare improvements both on tariff cuts of 50% and at full liberalization in the FTA-AP. Indonesia’s trade balance will increase when the simulation of full liberalization, but at the time of cutting the tariff 50% gives a negative impact on Indonesia’s trade balance.

Trade liberalization has a positive impact on Indonesia’s real GDP, where full simulation of liberalization provides a higher real GDP increase compared to a 50% tariff cut simulation.

Responding to the position of Indonesia in the FTA-AP, there are two possibilities: first, if Indonesia joined the FTA-AP, then Indonesia must improve the competitiveness of its products sector, considering there are only some superior commodities based on raw materials. Lower tariffs and liberalization are preferred for sectors that are auxiliary raw materials and capital goods. While protection is still applied to sensitive products, such as gas,
mineral, meat product, leather, chemical, rubber, plastic products and metal products.

Sectors that can be prioritized in 50% tariff cuts are paddy rice, oil seeds, plant based fibers, crops, wool silk worms and cocoons, fishing, vegetable oil and fats, processed rice, food products, electronic equipment, machinery and equipment and manufactures.

Sectors that can be prioritized when full liberalization is oil seeds, coal, vegetable oil and fats, beverage and tobacco products, textiles and apparel wearing.

Indonesia can utilize incoming investment from FTA-AP countries. The government needs to facilitate trade in the form of harmonization of regulatory standards and export requirements imposed by FTA-AP countries to improve Indonesia's trade performance, since the estimates show the effects of non-tariff (NTM) imposed by FTA-AP countries on performance total exports and selected commodities of Indonesia. In addition to standard harmonization, improvements in quality infrastructure and standards also need to be improved and increased so that the competitiveness of Indonesian export products increases.

Improved logistics infrastructures for both land and sea logistics not only include physical infrastructure, but also port and airport regulations and services as a determinant of the competitiveness of Indonesian export products.

Secondly, if Indonesia does not join the FTA-AP, then Indonesia should optimize existing and negotiated trade cooperation in both bilateral and regional (ASEAN plus one) cooperation schemes. Some of the benefits that are indicated will not be obtained by Indonesia if they don’t join the FTA-AP are: Indonesia will lose a large share of exports given the share of Indonesia's exports to FTA-AP countries is about 75% of total Indonesian exports; Indonesia will be only a target market for the major countries in the Asia Pacific region; Indonesia will be difficult to enter the markets of FTA-AP countries and will suffer losses by losing the opportunity to transact at a low tariff; Indonesia will not get gain from trade which is the improvement of welfare through export and import process; Expansion of product markets that can increase output and economic growth rates and encourage increased investment and savings; Indonesia must meet the needs of domestic production that can cause the selling price to soar
due to inefficiency (no specialization), which will eventually lower the level of welfare; Indonesia will lose the entry of foreign investment or capital flows will be reduced; There is no transfer of technology and other immeasurable benefits such as efforts to improve product quality and increased competition.

Indonesia can join the FTA-AP. Liberalization will be done gradually, starting from tariff cuts up to 50% and then leading to full liberalization. It is intended that domestic sectors can prepare themselves and develop non-tariff measures (NTM), Indonesia will not solely become a market for FTA-AP countries.

REFERENCES


ANALYSIS OF PRIORITY COUNTRIES AND PRODUCTS FOR INDONESIAN EXPORT DIVERSIFICATION IN LATIN AMERICA

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Abstract

Indonesian economy often receive negative impact from external factors, particularly through the trade linkage. To mitigate that impact, export market and product diversification should be established. Latin America is one of the potential regions to augment Indonesian export market. Therefore, this study attempts to classify the potential market and product for Indonesian export, particularly in Latin America, using panel regression, complementarity, and export similarity index over the period 2000-2015. The regression is also used to examine whether the presence of The Indonesian Trade Promotion Center (ITPC) can support the diversification. The results of the regression conclude that the complementarity index gave a significant positive effect to boost Indonesian export. Whereas, the export similarity index gave a significant negative effect. Based on that regression result, those indexes established Chile, Uruguay, Suriname, and Ecuador as the priority countries with the products: animal and vegetable oils, fats and waxes; chemicals and related products; miscellaneous manufactured articles; commodities and transactions. The regression also conclude that ITPC gave a significant positive impact on Indonesian export. For instance, the government should prioritize those countries and products and also develop ITPC there to optimize Indonesian export.

Keywords: Export Diversification, ITPC, Panel Regression, Complementarity Index, Export Similarity Index

JEL Classification: F10, F13, F14

INTRODUCTION

Indonesian economy often receive negative impact from external factors, particularly through the trade linkage. Harahap et al (2015) found that external shock transmitted through trade linkage cause greater impact on Indonesian economy than other linkages. The deterioration recently exhibited while there was a slowdown of the China economy in the end of 2015. Indonesian dependence on the import demand from China to support the national income lead Indonesian economy to decline simultaneously. Declining of Indonesian economy clearly showed in economy growth and significantly in depreciation of rupiah. This phenomenon shows that the export which depends on only one or two countries will increase the risk on economy to get the negative impact. Therefore, Indonesia needs to augment market access to many regions or to diversify export market.
In order to establish stability in economy, Indonesia also needs to diversify not only the export market but also the product. It consider the vulnerability if a country just depend on few commodities. The dependence on few commodities will significantly decrease the export revenue when the demand or supply of those commodities decrease. For this reason, Indonesia should diversify both of export market and product.

The diversification export market and product are included in diversification trade dimension (Papageorgiou, Spatafora, and Wang, 2015). The diversification trade not only the solution of instability economy because of external factors but also to get higher economic growth. Papageorgiou and Spatafora (2012) found that higher GDP per capita and lower volatility are strongly positively associated with diversification. Accordingly, the diversification is also one of the keys to reach an ambitious target of Indonesian growth by 5.1% in 2017 and 5.4-6.1% in 2018.

Latin America is one of the regions where Indonesian government recently focus on develop Indonesian export market. Comparing with other regions such as Asia and Africa, Latin America has the lowest market share for Indonesian export. Over the period 2000-2015, average of Indonesian market share in Latin America reaches only 0.43%. This value never reached 1% during that period. This fact shows that diversification in Latin America has not been optimized yet. In May this year, Indonesia tries to strengthen bilateral cooperation with Chile, through IC-CEPA as a gate for Indonesia to access Latin American market. For this reason, it urges to comprehend whether Indonesian export product complement or competitive with Latin America. This information is interesting to explore about the priority countries for Indonesian export market diversification. Therefore, this study conducted the complementarity and export similarity index to examine both of the priority countries and products in that region.

The diversification in the priority countries of Latin America which established based on those indexes also should be supported with another strategy. Saputri and Ardiyanti (2016) found that The Indonesian Trade Promotion Center (ITPC) gave a positive impact on Indonesian export. They also explain that ITPC can
mitigate the trade obstacles to explore the untapped market. If we consider the challenge to enter the market in Latin America, the study analyzing the impact of ITPC in Latin America is important to be conducted. Hence, this study also examine whether ITPC can support the diversification export which can conclude if ITPC has a significantly impact to increase Indonesian export in Latin America.


METHODS

This paper applies complementarity and export similarity index to identify the priority countries and products in Latin America. Complementarity index measures the degree to which the export pattern of one country matches the import pattern of another. A high degree of complementarity can be interpreted to suggest that there is more favorable prospects for a successful trade arrangement. It is defined as 1 minus the sum of the absolute value of the difference between the import category shares of the region and the export shares of the country divided in half. This index is formulated as follows (Plummer et al, 2010):

$$CI_{cgr} = 1 - \frac{\sum_{g} \text{abs} \left( \frac{M_{rg}}{M_{r}} - \frac{X_{cg}}{X_{c}} \right) }{2}$$

where:

- $M_{rg}$ : imports of good $g$ by region $r$
- $M_{r}$ : total imports of region $r$
- $X_{cg}$ : exports of good $g$ by country $c$
- $X_{c}$ : total exports by country $c$

In the context of this study, $c$ is Indonesia, and $r$ is country in Latin America. The index takes a value between 0 and 1, where 0 indicates no overlap (no match at all) and 1 indicates perfect match in the import–export pattern.

Meanwhile, export similarity index captures the degree of similarity between the export profiles of one country and other countries in a region.
It is defined as the sum over export categories of the smaller export share, comparing the export share of the country with that of other countries in the region. This index is formulated as follows (Plummer et al., 2010):

$$ESI_{cgr} = \sum_g \min \left( \frac{X_{rg}}{X_r}, \frac{X_{cg}}{X_c} \right) \quad \ldots \ldots \ldots (2)$$

where:

- $X_{rg}$: exports of good $g$ by region $r$
- $X_r$: total exports of region $r$
- $X_{cg}$: exports of good $g$ by country $c$
- $X_c$: total exports by country $c$

In the context of this study, $c$ is Indonesia, and $r$ is country in Latin America. The index ranges between 0 and 1, where 0 indicating no overlap in the export profiles (the country is not a competitor with other countries in the region) and 1 representing perfect overlap.

High similarity can be interpreted to suggest that there will be limited potential for gains from interindustry trade with a regional trading arrangement. The more similar the export profiles are, the more likely that countries are competitors in global markets. This index does not consider gains from intra-industry trade (Plummer et al., 2010).

Nowadays, the benefits of intra-industry trade have been explained by various business researchers. Intra-industry trade arises if a country simultaneously imports and exports similar types of goods or services. Similarity is identified here by the goods or services being classified in the same sector. Hapsari and Mangunsong (2006) found that the similarity of export structure is one of the important factors influencing the growth of intra-industry trade. The more similar the export structure of two countries, the more they will trade. For example, although Indonesia and Malaysia has high export similarity index in the sector of petroleum and telecommunication products, but this similar export products gave a positive impact on their trade with strong intra-industry trade.

It means that high export similarity index not only may give a negative impact on export, but also a positive impact. High export similarity may also represent that there is intra-industry trade between Indonesia and Latin America that can increase Indonesian export. Hence, first, using panel regression we will examine whether the export similarity index give a negative impact on Indonesian export to Latin America or, on the contrary, give a positive impact.
Based on the regression result, on the second attempt, we will analyze the priority countries and products using the combination of complementarity and export similarity index which be displayed in a scatter plot X-Y. From this plot, the position of each country and each product can be grouped into four quadrants according to the value of their complementarity and export similarity index. Therefore, we can define the priority countries and products which has potential gains for Indonesian export. Both of the indexes are calculated using the two digit level SITC Revision 4.

We estimate a panel regression model of the following form:
\[
\ln(X_i)_t = \alpha_i + \beta_1(COM_i)_t + \beta_2(SIM_i)_t + \beta_3\ln(PGD_i)_t + \beta_4\ln(EXC_i)_t + \beta_5(ITPC_i)_t + \beta_6(TO_i)_t + \varepsilon_{it} \tag{3}
\]

where \((X_i)_t\) is the Indonesian exports to country \(i\) on period \(t\), \((COM_i)_t\) is complementarity index between Indonesia and country \(i\) on period \(t\), \((SIM_i)_t\) is export similarity index between Indonesia and country \(i\) on period \(t\), \((PGDP_i)_t\) is per capita GDP of country \(i\) on period \(t\), \((EXC_i)_t\) is exchange rate between Indonesia and country \(i\) on period \(t\), ITPC is a dummy variable whether there is ITPC in country \(i\) or vise versa, and \((TO_i)_t\) is trade openness of country \(i\).

According to Gujarati and Porter (2008), panel data involves different models that can be estimated. These are pooled, fixed effects and random effects. The step of estimation is begin with using Chow test to check whether pooled model or fixed effect as the fit model. If this test shows that fixed effects as the best model compare to pooled model, then it is followed with Hausman test to check the appropriate model based on fixed and random effects model. But if the pooled is better than fixed effects model, the BP-LM test is needed to check whether the pooled or random effects model more preferable.

Since the conclusion of those test stating that pooled or fixed effects as the best model, then the next procedure is checking the variance-covariance structure of residuals. Lagrange Multiplier (LM) test is used to check whether the structure of residual variance-covariance matrix are heteroscedastic or homoscedastic. If the structure of residual variance-covariance matrix are heteroscedastic, the \(\lambda_{LM}\) test is needed to check whether there is cross sectional correlation.
The statistic of LM test is asymptotically distributed under the null as a Chi-Square with N-1 degrees of freedom (df), whereas \( \lambda_{LM} \) test is under the null as a Chi-Square with \( N(N-1)/2 \) df. Those test are formulated as follows (Greene, 2012):

\[
LM = \frac{T}{2} \sum_{i=1}^{N} \left[ \frac{\hat{\sigma}_i^2}{\hat{\sigma}^2} - 1 \right]^2 \sim \chi^2_{(N-1)} \cdots (4)
\]

\[
\lambda_{LM} = T \sum_{i=2}^{N} \sum_{j=1}^{i-1} \hat{r}_{ij}^2 \sim \chi^2_{(N(N-1)/2)} \cdots (5)
\]

where \( T \) is total of periods, \( N \) is total of observations, \( \hat{\sigma}_i^2 \) is residual variance of equation \( i \) in homoscedastic condition, \( \hat{\sigma}^2 \) is residual variance of system equation in homoscedastic condition, \( \hat{r}_{ij}^2 \) is residual correlation coefficient.

Briefly, panel regression testing can be illustrated by the figure below:

**Figure 1. Step of Panel Regression**

All the data used in the model comprises 12 countries in Latin America including Argentina, Bolivia,
Brazil, Chile, Ecuador, Guyana, Columbia, Paraguay, Peru, Suriname, Uruguay, and Venezuela over the period 2000-2015. Data on total exports, total imports, and exchange rates are obtained from UNCTADStat. Data on per capita GDP and trade openness are obtained from World Bank.

RESULTS AND DISCUSSION

Finding The Best Estimation Method

Based on Chow and Hausman test results, this study applies Fixed Effect Model (FEM) to estimate the model. These test results are exhibited in the Table 1 below:

Table 1. Chow and Hausman Test Results

<table>
<thead>
<tr>
<th>No</th>
<th>Test</th>
<th>Chi-square</th>
<th>df</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Chow</td>
<td>430.34</td>
<td>11</td>
<td>0.000</td>
</tr>
<tr>
<td>2.</td>
<td>Hausman</td>
<td>39.87</td>
<td>6</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Based on Table 1, p-value of the Chow statistic is smaller than the alpha 5%, therefore the null hypothesis is rejected. This means FEM is more appropriate than Pooled model. Meanwhile, p-value of the Hausman statistic is also smaller than the alpha 5%. This test applies to decide the better model between FEM and REM. The results conclude that FEM is also more appropriate than REM. Therefore, FEM is a chosen model to be applied in this study.

This study also examines the best estimation method for FEM with Lagrange Multiplier (LM) and Lambda LM (λLM) test. These test results are presented in the Table 2 below:

Table 2. LM and Lambda LM Test Results

<table>
<thead>
<tr>
<th>No</th>
<th>Test</th>
<th>Chi-square</th>
<th>Df</th>
<th>Chi-square table</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>LM</td>
<td>85.56</td>
<td>11</td>
<td>19.68</td>
</tr>
<tr>
<td>2.</td>
<td>Lambda LM</td>
<td>158.29</td>
<td>66</td>
<td>85.96</td>
</tr>
</tbody>
</table>

Based on Table 2, LM statistic is larger than chi-square table, therefore the null hypothesis is rejected. This means that the residual structure of the variance-covariance matrix is heteroskedastic. Because of this result, this study continue to examine the existence of a cross sectional correlation in this model. Based on Table 2, lambda LM statistic is greater than Chi-square table. This result show that there is also a cross sectional correlation in this model. Hence, the appropriate estimation method for the model is FEM with cross section
Seemingly Unrelated Regression (SUR) weighted. This estimation method was applied to reduce the bias effect because of the existence of a cross sectional correlation and heteroskedastisity (Baltagi, 2011).

**The Impact of Each Variable**

Table 3 below presents the results of the estimation variables in the Indonesian export to Latin America model. From six variables, five out of six have significant impact on Indonesian export to Latin America at the level of 5%. Meanwhile, the ITPC variable is significant at the level of 10%.

<table>
<thead>
<tr>
<th>No.</th>
<th>Variable</th>
<th>Coefficient</th>
<th>T-statistic</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>4.553769</td>
<td>16.85291</td>
<td>0.0000</td>
</tr>
<tr>
<td>2</td>
<td>COM?</td>
<td>0.881838</td>
<td>2.378753</td>
<td>0.0185</td>
</tr>
<tr>
<td>3</td>
<td>SIM?</td>
<td>-0.953122</td>
<td>-2.394702</td>
<td>0.0177</td>
</tr>
<tr>
<td>4</td>
<td>LNPGDP?</td>
<td>2.749336</td>
<td>23.55632</td>
<td>0.0000</td>
</tr>
<tr>
<td>5</td>
<td>LNEXC?</td>
<td>0.232942</td>
<td>6.808773</td>
<td>0.0000</td>
</tr>
<tr>
<td>6</td>
<td>ITPC?</td>
<td>0.068652</td>
<td>1.690413</td>
<td>0.0927</td>
</tr>
<tr>
<td>7</td>
<td>TO?</td>
<td>0.008301</td>
<td>11.62326</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

In this model, the coefficient of country’s i GDP per capita has a positive sign (2.75). The result is consistent with theoretical expectation and in line with finding from Abidin, Bakar, and Sahlan (2013). This coefficient means that all else being equal, 1% addition of GDP per capita in one of Indonesian trading partner will increase Indonesian export value to the country by 2.75%.

For exchange rate variable, the estimation shows a positive relationship with Indonesian export to Latin America. The positive sign indicates that a depreciation on rupiah against the country’s currency will encourage Indonesian export to the country. Coefficient of this variable is 0.23, which means all else being equal, 1% addition in this variable causes the Indonesian export increase by 0.23%. This result is also consistent with theoretical expectation regarding relative price between two countries. Rupiah depreciation against one of country in Latin America lead price of Indonesian export product relative to be
cheaper than the country. For this reason, the demand import from Indonesia become increase.

Next variable is trade openness. This variable shows the country’s openness degree to do export-import activities with another country. Coefficient of this variable also has positive sign which is 0.008. This coefficient means that all else being equal, 1 point addition in this variable will increase Indonesia export to Latin America by 0.8%. The higher of an openness of the country means weaker barriers to enter the market, therefore, Indonesia export will tend to increase.

In this paper, we also examine the contribution of ITPC in Indonesian export to Latin America. The finding shows that ITPC variable has a positive sign in the model. This means ITPC has positive impact to increase Indonesian export to Latin America. The coefficient indicates that all else being equal, the existence of ITPC in a country of Latin America will increase Indonesian export to the country by 6%. This positive contribution means ITPC can support Indonesian challenge to diversify export market in Latin America.

The next important variables in this study are complementarity and export similarity index. These sign results will decide the concept of priority countries and products for Indonesian export diversification in Latin America. Both of variables are essential to create the concept because these indexes are able to capture the nontraditional market, unlike the other variable that tends to lead to the traditional market. Therefore, these indexes are appropriate to analyze the diversification dimensions.

The estimation exhibits that complementarity index has a positive impact on Indonesian export to Latin America and, on contrary, export similarity index has a negative impact. This findings are in line with conclusion of Plummer et al (2010) that the more similar the export profiles are, the more likely that countries are competitors in global markets. From this result, the Indonesian priority trading country in Latin America is the country where Indonesian export has high complementarity with their import and has low similarity with their export.

**The Finding of the Indonesian Export Priority Countries and Products**

As mentioned before, after know the impact of export similarity index to Indonesian export in Latin America, the
priority countries and products will be defined using the combination of complementarity and export similarity index which will be displayed in a scatter plot X-Y. On the Y axis is complementarity index, while on the X axis is export similarity index. From this plot, the position of each country and each product can be grouped into four quadrants according to the value of their complementarity and export similarity index.

**Finding the Priority Countries**

![Figure 2. Complementarity and Export Similarity Index between Indonesia and Each Country](image)

Quadrant I (high CI, high ESI), depicts a country that has strong potential with high competition. Quadrant II (high CI, low ESI), indicates that the country has strong potential with low competition. It is the most appropriate country to diversify export market. Quadrant III (low CI, low ESI), indicating the country has the potential benefit of low competition. The export products do not comply with their import. Quadrant IV (low CI, high ESI), indicating the country has a low potential by strong competition in global markets. Beside that, the export products also do not comply with their demands.

From figure 2, we can see that Chile, Uruguay, Suriname, and Ecuador were the countries that have high CI and low ESI with Indonesia (Quadrant 2). Based on the regression result, high CI and low ESI can boost the Indonesian export. Their import demand in accordance with Indonesian export and their export products has low similarity with Indonesian export products. The CI value between Indonesia and those countries from the average of the 2000-2015 are about 0.53 for Chile, 0.50 for Uruguay, 0.48 for Suriname, and 0.47 for Ecuador. Meanwhile, the ESI value are about 0.27 for Chile, 0.26 for Uruguay, 0.19 for Suriname, and 0.26 for Ecuador. This condition indicates that Indonesia has a great opportunity and more promising prospects to increase export and trade arrangement with those countries compare to others. With low export similarity products which means there is...
low competition pressure in global markets, Indonesia also more easy to increase export in those countries. Therefore, we can conclude that Indonesia should prioritize to increase the export to those countries.

Geographically, Indonesia and Latin America are separated by a huge geographical gap. However, Krugman (1991) emphasizes that the distance already does not play such a role through technologies in transport and communication and thus the creation of preferential trade agreement will bring its participants more profits than costs. Additionally, Chile, Uruguay, Suriname, and Ecuador provides opportunities for Indonesia with more promising prospects in trade arrangement. Those countries also has a strategic location that can serve as the entrance of Indonesian exports to Latin American market as a whole.

Indonesia and Chile have been connected through some associations, including the Asia-Pacific Economic Cooperation (APEC) and an international forum on ocean and climate change. Currently, the two countries are in the process of negotiating CEPA after being delayed for more than two years. This cooperation is expected to increase trade and investment between the two countries. With high complementarity that give more favorable prospect, Indonesia can prioritize to strengthen the economic and trade relations with Chile through IC-CEPA. Meanwhile, Indonesia, Uruguay, Suriname, and Ecuador have been connected through the World Trade Organization (WTO) and Forum of East Asia-Latin America Cooperation (FEALAC) where Chile is also a member.

The total value of Indonesian exports to Chile over the period 2000-2015 reaches only 8.97% of its total export to Latin America. Meanwhile, Indonesian exports to Uruguay, Suriname, and Ecuador are less than 5% of its total export to Latin America. When compared to its exports to other countries particularly Brazil, Indonesian exports to those countries is still very low. Brazil was recorded as the country’s major destination of Indonesian exports in Latin America. However, although Indonesian exports to those countries still smaller than Brazil, and has decreased in 2015, Indonesian exports to those countries has an increasing trend (Graph 1).
Indonesian exports to Chile in 2000 amounted to US$ 84.73 million and rose to US$ 147.35 million in 2015. Although the export value has an increasing trend with an average growth rate of 5.37% per year.

The value of Indonesian exports to Uruguay, Suriname, and Ecuador also has an increasing trend with an average growth rate of 13.04%; 8.87%; and 14.08% per year. With this performance, there is still a big room for Indonesia to accelerate trade to those priority countries.

From figure 2, it can also be presumed that Brazil and Peru (Quadrant 1) are the potential country because their import products do comply with Indonesian export products. Despite many similar export products with those countries as competitors (high ESI), but still much import demand. Indonesian export to Brazil over the period 2000-2015 reaches 57.79% of its total export to Latin America and reaches 5.39% for Peru. Indonesian export to those countries also has an increasing trend with an average growth rate of 14.95% per year for Brazil, and 17.61% per year for Peru.

High complementarity between Indonesia and Brazil and Peru shows that those countries also give favorable prospects for Indonesia to strengthen bilateral trade relations. But, Indonesia should do more effort to increase the product competitiveness to keep and accelerate export to those countries. Indonesia should increase the innovation and quality of export products.
products to win the competition in global markets.

To boost export performance, there are numerous policies to be implemented by the government. From the regression result, ITPC has a positive impact to increase Indonesian export to Latin America. It means that ITPC in cooperation could generates greater exports performance in host country. Promoting a country as a reliable trading partner which have high quality export products as well as its trustworthy exporters is indeed beneficial.

Under the Ministry of Trade, Indonesia has 19 ITPCs around the world. In Latin America, ITPC has been in Brazil and Chile. To supporting Indonesian exports performance, Indonesia should increase the number of ITPCs, particularly in Uruguay, Suriname, and Ecuador as priority countries. Their role in assisting business people in the new market, providing information on market opportunities and conducting export promotion abroad is expected to encourage larger trade volume.

**Finding the Priority Products**

Using the same kind of scatter plot, from figures below, each product from each priority country can be grouped into four quadrants according to the value of CI and ESI owned. The product group categories which we analyze based on UNCTAD are Food and live animals (SITC0), Beverages and tobacco (SITC1), Crude materials, inedible, except fuels (SITC2), Mineral fuels, lubricants and related materials (SITC3), Animal and vegetable oils, fats and waxes (SITC4), Chemicals and related products, n.e.s. (SITC5), Manufactured goods (SITC6), Machinery and transport equipment (SITC7), Miscellaneous manufactured articles (SITC8), Commodities and transactions, n.e.s. (SITC9).

![Figure 3. Complementarity and Export Similarity Index between Indonesia and Chile](image)

Indonesian export products that have a high match with the demand of imports Chile, and have low similarity with the export products, are the products covered in SITC4, SITC5,
SITC8, and SITC9 (Figure 3). Those export products more priority and more prospective for Indonesian export compare to others. Indonesian export to Chile for products covered in SITC4, SITC5, SITC8, and SITC9 fluctuate over the period 2000-2015. The export value of miscellaneous manufactured articles (SITC8) products increased sharply over this period. Indonesian exports for this products in 2000 amounted to US$ 7.27 thousand and rose to US$ 1489.83 thousand in 2015. While the export value of animal and vegetable oils, fats and waxes (SITC4), chemicals and related products, n.e.s. (SITC5), and commodities and transactions, n.e.s. (SITC9) still low.

Figure 4. Complementarity and Export Similarity Index between Indonesia and Uruguay

From figure 4, we can see that the products included in SITC4, SITC8, and SITC9 are the most potential products for Indonesian export in Uruguay. Besides has low competition, those export products do comply with their demands. Indonesian export of those products has an increasing trend over the period 2000-2015, particularly the export value of animal and vegetable oils, fats and waxes (SITC4) which has increased about US$ 4956.40 thousand from 2000.

Figure 5. Complementarity and Export Similarity Index between Indonesia and Suriname

The priority products for Indonesian exports to Suriname consists of products covered in SITC4, SITC5, SITC8, and SITC9 (Figure 5). Where compared to its exports to other priority countries, Indonesian exports to Suriname is still low, so is those products. With this great potency where those products do comply with import demand, Indonesia has a big opportunity to increase the export of
those products. Indonesian export value to Suriname for products covered in SITC4, SITC5, SITC8, and SITC9 are less than US$ 500 thousand in 2015.

Figure 6 shows that the priority products for Indonesian export to Ecuador are animal and vegetable oils, fats and waxes (SITC4), and commodities and transactions, n.e.s. (SITC9). Indonesian exports value in Ecuador for those products still very low, where less than US$ 150 thousand in 2015.

**Figure 6. Complementarity and Export Similarity Index between Indonesia and Ecuador**

From all the products that has great prospect for Indonesian diversification export in priority countries in Latin America almost the same. The priority products consists of Animal and vegetable oils, fats and waxes (SITC4), Chemicals and related products, n.e.s. (SITC5), Miscellaneous manufactured articles (SITC8), Commodities and transactions, n.e.s. (SITC9). Meanwhile, products covered in SITC0, SITC1, and SITC2 (in Quadrant1) are also the potential products that needs to increase the competitiveness to keep export to the priority countries. It is important to increase the quality of those export products to win the competition in global markets, because those products has high similarity with their products.

**CONCLUSION AND POLICY RECOMMENDATION**

The present study reveals that the priority countries for Indonesian export diversification in Latin America are Chile, Uruguay, Suriname, and Ecuador. Indonesian export in accordance with their import demand and has low similarity with their export products. Then, the priority products for Indonesian exports to Chile and Suriname are animal and vegetable oils, fats and waxes (SITC4), chemicals and related products, n.e.s. (SITC5), miscellaneous manufactured articles (SITC8), commodities and transactions, n.e.s. (SITC9). The priority products for Indonesian exports to Uruguay are animal and vegetable oils, fats and waxes (SITC4),
miscellaneous manufactured articles (SITC8), commodities and transactions, n.e.s. (SITC9). While The priority products for Indonesian exports to Ecuador are animal and vegetable oils, fats and waxes (SITC4), and commodities and transactions, n.e.s. (SITC9). Because of the great potency of those countries and products, Indonesia should prioritize to boost export to those countries with the priority products.

Brazil and Peru import products has a high complementarity with Indonesian export. But, because many similar export products with those countries as competitors in global market, Indonesia should improve the product innovation and competitiveness to accelerate export. Thus, based on the regression result, the presence of ITPC as trade promotion agencies abroad gave a significant positive impact to Indonesian export. Therefore, the government should increase the number of ITPCs or another commercial diplomacy (CDC) instruments to generates greater exports performance in host country particularly in Chile, Uruguay, Suriname, and Ecuador as the priority countries.

Indonesia also has big opportunity to increase the bilateral trade relations with Latin America. High complementarity that give more favorable prospects for a successful trade arrangement, should be used to further intensify not only bilateral trade relations but also bilateral economic cooperations as a whole.

REFERENCES


THE EFFECT OF AUSTRALIA’S NON-TARIFF MEASURE ON INDONESIA’S EXPORT

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Abstract

Australia is an important trade partner for Indonesia and the two countries are already engaged in trade cooperation within the framework of the ASEAN-Australia-New Zealand Free Trade Agreement (AANZFTA). Though tariff duty for Indonesian exports to Australian market are relatively low, Indonesia’s export performance is still far from optimal. It seems that Australia’s Non-Tariff Measure policy greatly affected Indonesia’s export volume. This analysis undertakes a study of Australian trade policies, as well as developments that have been achieved within the framework of the ASEAN-Australia-New Zealand FTA (AANZFTA). This analysis employs indexing and econometric methods to assess the impact of Australia’s Non-Measure Policy on Indonesian export product. The analysis finds that there are 73 NTM regulations that Australia applies to Indonesian products from 2007 to 2015. The number of SPSs effectively affects 335 Indonesian export products (within 6 digits). While the provision of TBT Australia notified in the WTO is recorded only existed since 2011. The provisions of TBT Australia applied for products from Indonesia as much as 27 TBT and effective for 403 Indonesian export products. The regression result shows that the tariff variable does not give effect to the performance of Indonesian export to Australia. Meanwhile, non-tariff measures in the form of SPS proved to have a negative impact on the performance of Indonesian exports to Australia. This shows that Indonesian products have not been able to comply with the SPS standards that Australia requested.

Keywords: AANZFTA, Non-Tariff Measures, Trade Policy

JEL Classification: F13, F14, F15

INTRODUCTION

Australia is an important trading partner for Indonesia since decades. Indonesia’s exports to Australia in 2015 reached USD 3.7 billion, making Australia the 12th largest export country for Indonesia (Pusdatin, 2017). Indonesia itself is Australia’s main export destination country with a 2% share of total Australia’s export to the world and ranks 12th as export destination (Trademap, 2017). Australia is a major Indonesia’s investment source with more than 400 Australian companies operating in Indonesia covering various sectors such as mining, agriculture, construction, infrastructure, finance, health, food, beverages and transportation (DFAT, 2016).

Indonesia has engaged in trade cooperation with Australia through the ASEAN-Australia-New Zealand FTA (AANZFTA) which has been in effect
since January 2010. in ASEAN and Australia point of view AANZFTA is an imperative cooperation as both represent the largest economic power in Asia Pacific. For ASEAN itself, AANZFTA is part of ASEAN's objective to expand economic integration in global trade. The most substantial level of liberalization of AANZFTA is in the trade of goods which covers 96% of total post tariffs. The scope of cooperation in AANZFTA is the most ambitious of the existing FTA which Indonesia involved.

Though liberalization under AANZFTA scheme is considerably on high level, but the trade agreement has not provided significant benefits to increase Indonesia's exports to Australia. Indonesia's exports on non-oil and gas to Australia during 2006-2011 grew with an average growth of 11.3% per year. Likewise, non-oil and gas imports improved 13.8% in the same period. Nonetheless, in the post-implementation period of AANZFTA, export and import performance tended to decline with average growth for non-oil / gas exports -4% and imports -3% through 2012-2016.

Some empirical studies have proved that FTA has a significant impact to improve the welfare of member states (Timbergen (1962), Aitken (1973), Abrams (1980), Brada and Mendez (1983).) However, some studies conclude that FTAs do not provide evidence to increase trade of member countries (Bergstrand (1985), Frankel (1997).) Although there are still different judgements about the impact of the FTA however countries are still conducting FTAs with expectations for expanding trade access.

Baier and Bergstrand (2004) conducted an empirical test that exploring the determinants of the successful FTA which concluded that welfare resulted from an FTA would be higher if: i) the distance between the members are closer; ii) the distance of the partner country from the rest of the world are further; iii) the economic development gap between the members are larger. The less developed member can exploit the more developed partner in terms of economies of scale and product differentiation; iv) the higher the ratio of capital per labor between partner countries since it implies differences in comparative advantage among member countries. The last, v) the lower the ratio of capital per labor of member countries relative to the rest of the world as it has implications for the diversion of the intra-industry trade. Refereeing to Baier and Bergstrand (2004) it suggest that
Indonesia’s cooperation with Australia encompasses almost all the characteristics mentioned as the determinant of successful FTA.

In 2009 the Ministry of Trade of Indonesia together with the Ministry of Foreign Affairs and Trade (DFAT) of Australia accomplished Joint Feasibility Study regarding the impact of trade cooperation between Indonesia and Australia. It suggested that the Comprehensive Free Trade Agreements between the two countries are supposed to provide economic benefits for both countries. However, recent data suggests that trade between the two countries is more favorable on the Australian side merely.

Research on the impact of FTAs between Indonesia and Australia was also performed by the International Labor Organization (ILO, 2013). The study found that the greatest benefit of trade liberalization between Indonesia and Australia occurred in agricultural sector and its expansion. Otherwise, the manufacturing and service sectors are negatively affected by trade liberalization.

Data shows that trade liberalization between Indonesia and Australia does not automatically increase trade. It proves that tariff reductions do not necessarily affect trade between the two countries. According Fakhruddin (2008) Indonesia’s export performance are significantly affected by Non-Tariff Measure (NTM) imposed by partner countries. On average, NTM provides an additional 70% of trade barriers derived from tariffs. Considering the issue explained previously, this study specifically analyzes whether Australian NTM policy undermines the performance of Indonesian exports.

METHODS
To answer the research question, this study used three stages of approach, which are:

1) Identifying products that are categorized as top export products, potential export products and potential export products to Australia. Each category has the characteristics described in the following Table

<table>
<thead>
<tr>
<th>Table 1. Characteristic of Product Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Top Export</td>
</tr>
<tr>
<td>Potential Export</td>
</tr>
<tr>
<td>Potential Export to Australia</td>
</tr>
</tbody>
</table>
2) Identifying the Non-Tariff Measured applied to products in point 1
3) From point 1 and 2, 143 products were selected. Those products were tested for Non-tariff Measure analysis on bilateral trade using econometric method with the Export demand model as follow:

\[
\ln(\text{EXP}_{kt}) = \alpha + \beta_1 \ln(\text{GDPC}_t) + \beta_2 \ln(\text{POP}_t) + \beta_3 \text{Tariff}_{kt} + \beta_4 \text{SPS}_{kt} + \mu_{kt}
\]

Where:
- \( \text{EX}_{kt} \) = Export value on product \( k \) from Indonesia to Australia in year \( t \) (in USD million).
- \( \text{POP}_t \) = Population in Australia in year \( t \).
- \( \text{GDPC}_t \) = Australia’s Gross Domestic Product per capita in year \( t \) (million people)
- \( \text{Tariff}_{kt} \) = Australia’s Ad valorem tariff of products \( k \) in year \( t \)
- \( \text{SPS}_{kt} \) = The number of SPS measures applied on products \( k \) in year \( t \).

RESULTS AND DISCUSSION
Performance of Indonesian Trade with Australia

Indonesia’s trade balance with Australia has always experienced a deficit since 2012. Indonesia’s trade with Australia is strongly supported by oil and gas exports compared to non-oil and gas, then that contribution of surplus is always contributed by oil and gas. Export performance to Australia follows the trend of Indonesia’s export performance to the world, which is currently declining. The decline in exports is much higher than the decrease in imports. This is what cause the trade deficit to worsen. Average export growth over the last five years decreased by -7.9% per year while imports decreased by -0.8%. Nevertheless, the oil and gas balance still shows positive growth figures.

Table 2. Indonesia- Australia Trade Balance, 2011-2015 Period (US$ Million)

<table>
<thead>
<tr>
<th>Description</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Trend (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Trade</td>
<td>10.760</td>
<td>10.203</td>
<td>9.409</td>
<td>10.596</td>
<td>8.496</td>
<td>-4.3</td>
</tr>
<tr>
<td>Oil &amp; gas</td>
<td>2.508</td>
<td>1.766</td>
<td>1.606</td>
<td>1.409</td>
<td>829</td>
<td>-21.7</td>
</tr>
<tr>
<td>Non-Oil &amp; gas</td>
<td>8.252</td>
<td>8.437</td>
<td>7.803</td>
<td>9.187</td>
<td>7.667</td>
<td>-0.6</td>
</tr>
<tr>
<td>Export</td>
<td>5.983</td>
<td>4.905</td>
<td>4.370</td>
<td>4.948</td>
<td>3.880</td>
<td>-7.9</td>
</tr>
<tr>
<td>Oil &amp; gas</td>
<td>2.504</td>
<td>1.547</td>
<td>1.397</td>
<td>1.252</td>
<td>685</td>
<td>-24.5</td>
</tr>
<tr>
<td>Non-Oil &amp; gas</td>
<td>3.078</td>
<td>3.358</td>
<td>2.973</td>
<td>3.697</td>
<td>2.995</td>
<td>0.4</td>
</tr>
<tr>
<td>Import</td>
<td>5.177</td>
<td>5.298</td>
<td>5.038</td>
<td>5.648</td>
<td>4.816</td>
<td>-0.8</td>
</tr>
<tr>
<td>Oil &amp; gas</td>
<td>3</td>
<td>219</td>
<td>209</td>
<td>157</td>
<td>143</td>
<td>103.7</td>
</tr>
<tr>
<td>Non-Oil &amp; gas</td>
<td>5.174</td>
<td>5.078</td>
<td>4.829</td>
<td>5.491</td>
<td>4.872</td>
<td>-1.3</td>
</tr>
<tr>
<td>Balance</td>
<td>405</td>
<td>-392</td>
<td>-489</td>
<td>-699</td>
<td>-1.136</td>
<td>0.0</td>
</tr>
<tr>
<td>Oil &amp; gas</td>
<td>2.501</td>
<td>1.328</td>
<td>1.189</td>
<td>1.090</td>
<td>542</td>
<td>-27.8</td>
</tr>
<tr>
<td>Non-Oil &amp; gas</td>
<td>-2.905</td>
<td>-1.723</td>
<td>-1.856</td>
<td>-1.794</td>
<td>-1.678</td>
<td>-3.9</td>
</tr>
</tbody>
</table>

Source: Central Bureau of Statistics (BPS), processed by Puska KPI

Indonesia’s exports are dominated by traditional export destination countries, that are United States, China and Japan. Indonesia’s export
contribution to the country are 13%, 12%, and 12%, respectively. Indonesia’s exports performance in ASEAN and FTA partner countries is dominated by these countries such as Japan, China, Korea, New Zealand, Australia and India. Indonesia's export to ASEAN in 2015 represents 22.5% of total exports, while exports to non-ASEAN FTA partners accounted for 39.2% of total exports. Australia is an FTA partner country through AANZFTA which ranks 11th according to 2015 data for the largest export destination country with 3% contribution.

Indonesia exported 1730 products in HS 6-digit by 2015. Table 3 shows 25 products with the largest export value. The product represents 1.5% of total goods item and contributes to total exports of 60.9%. It shows that Indonesia’s export products to Australia are still concentrated to some products only. Indonesia’s main export are dominated by oil and gas, machinery, timber footwear and paper products. Australia is also an important export destination for some Indonesian product. This is indicated by the high export share value (over 50%) for products such as HS 847898, HS 841480, HS 300450, HS 847490, dan HS 842139.

### Table 3. Indonesia’s Export Product to Australia 2009-2014

<table>
<thead>
<tr>
<th>No.</th>
<th>HS Code</th>
<th>Description</th>
<th>Export Value in 2015 (USD Million)</th>
<th>Trend 2011-2015 (%)</th>
<th>Share in Indonesia Export (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>270900</td>
<td>Petroleum oils and oils obtained from bituminous minerals, crude</td>
<td>675 -24 10</td>
<td>617</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>730511</td>
<td>Line pipe of a kind used for oil or gas pipelines, having circular cross-sections and an external diameter of &gt; 60 mm</td>
<td>617 -24 10</td>
<td>617</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>440929</td>
<td>Wood, incl. strips and friezes for parquet flooring, not assembled, continuously shaped “tongued, grooved”, “feather edged”, “arrow headed”, “tenon joint”, “partially tongued”</td>
<td>108 -3 14</td>
<td>108</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>852872</td>
<td>Reception apparatus for television, colour, whether or not incorporating radio-broadcast receivers</td>
<td>85 6 22</td>
<td>85 6 22</td>
<td>22</td>
</tr>
<tr>
<td>5</td>
<td>730490</td>
<td>Tubes, pipes and hollow profiles, of iron or steel</td>
<td>71 455 90</td>
<td>71 455 90</td>
<td>90</td>
</tr>
<tr>
<td>6</td>
<td>740710</td>
<td>Bars, rods and profiles, of refined copper, n.e.s.</td>
<td>65 769 53</td>
<td>65 769 53</td>
<td>53</td>
</tr>
<tr>
<td>7</td>
<td>401110</td>
<td>New pneumatic tyres, of rubber, of a kind used for motor cars, incl. station wagons and racing cars</td>
<td>60 -11 5</td>
<td>60 -11 5</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>890520</td>
<td>Floating or submersible drilling or production platforms</td>
<td>59 33 42</td>
<td>59 33 42</td>
<td>42</td>
</tr>
<tr>
<td>9</td>
<td>180400</td>
<td>Cocoa butter, fat and oil</td>
<td>53 34 5</td>
<td>53 34 5</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>731589</td>
<td>Chain of iron or steel (excluding articulated link chain, skid chain, stud-link chain, welded link chain)</td>
<td>38 0 97</td>
<td>38 0 97</td>
<td>97</td>
</tr>
<tr>
<td>11</td>
<td>730840</td>
<td>Equipment for scaffolding, shuttering, propping or pit-propping (excluding composite sheetpiling, interlocking sheetpiling)</td>
<td>37 82 82</td>
<td>37 82 82</td>
<td>82</td>
</tr>
<tr>
<td>12</td>
<td>300490</td>
<td>Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes, n.e.s.</td>
<td>37 26 12</td>
<td>37 26 12</td>
<td>12</td>
</tr>
<tr>
<td>13</td>
<td>480300</td>
<td>Toilet or facial tissue stock, towel or napkin stock and similar paper for household or sanitary use</td>
<td>36 12 8</td>
<td>36 12 8</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>740811</td>
<td>Wire of refined copper, with a maximum cross-sectional dimension of &gt; 6 mm</td>
<td>34 0 9</td>
<td>34 0 9</td>
<td>9</td>
</tr>
<tr>
<td>15</td>
<td>732690</td>
<td>Articles of iron or steel, n.e.s. (excluding cast articles or articles of iron or steel wire)</td>
<td>32 202 45</td>
<td>32 202 45</td>
<td>45</td>
</tr>
<tr>
<td>16</td>
<td>847490</td>
<td>Parts of machinery for working mineral substances of heading 8474, n.e.s.</td>
<td>32 -3 39</td>
<td>32 -3 39</td>
<td>39</td>
</tr>
<tr>
<td>17</td>
<td>844331</td>
<td>Machines which perform two or more of the functions of printing, copying or facsimile transmission, whether or not incorporating microfilm recorders</td>
<td>31 26 3</td>
<td>31 26 3</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>310210</td>
<td>Urea, whether or not in aqueous solution (excluding that in pellet or similar forms, or in granular, powdery or other agglomerated forms)</td>
<td>30 -8 12</td>
<td>30 -8 12</td>
<td>12</td>
</tr>
<tr>
<td>19</td>
<td>940360</td>
<td>Wooden furniture (excluding for offices, kitchens and bedrooms, and seats)</td>
<td>28 13 3</td>
<td>28 13 3</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>480256</td>
<td>Uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes, n.e.s.</td>
<td>28 32 3</td>
<td>28 32 3</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Trademap, 2016

On the Import side, ASEAN and FTA Indonesia partner countries also have a dominant share in Indonesia’s import by 2015. Imports from ASEAN and FTA partners accounted for 28.47% and 39.24% of total imports respectively. The United State, Hongkong and Taipei are among the top ten imported origin countries not from FTA Indonesia partner countries with contributions of 5%, 2% and 2% respectively. Australia is the 8th largest country in terms of imports from Indonesia, which accounted for 3% of Indonesia’s total imports by 2015.
In 2015 Indonesia’s imports from Australia as many as 1900 items of products in HS 6 digit. Table 4.3 shows the twenty-five products with the greatest import value. The product represents 1.3% of the total number of imported products and 73% of the total import value from Australia. The fact indicates that imports from Australia are still highly concentrated on the main products only. Indonesia’s main imported products from Australia are mostly agricultural and livestock products, such as beef, dairy products and grapes. The largest imported product is wheat (HS 100190) with import value of USD1.3 billion. Based on its import market share, Australia is the largest supplier of agricultural products. For example, beef import bovine live except pure bred (HS010290) 100% comes from Australia. Indonesia also imports metal products such as copper, iron, aluminum and zinc.

### Table 4. Indonesia’s Import Products from Australia, 2010-2014 Period (USD Thousand)

<table>
<thead>
<tr>
<th>No.</th>
<th>HS Code</th>
<th>Description</th>
<th>Import Value in 2015 (USD million)</th>
<th>Tren 2011-2015 (%)</th>
<th>Share in Indonesia Import (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100190</td>
<td>Wheates and melash</td>
<td>1,029.44</td>
<td>-4</td>
<td>44</td>
</tr>
<tr>
<td>2</td>
<td>010290</td>
<td>Bovine, live except pure-bred breeding</td>
<td>409</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>270112</td>
<td>Bituminous coal, whether or not pulvenred but not agglomerated</td>
<td>181</td>
<td>1.193</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>202330</td>
<td>Bovine, live, frozen</td>
<td>152</td>
<td>17</td>
<td>70</td>
</tr>
<tr>
<td>5</td>
<td>260111</td>
<td>Iron ore concentrates, other than roasted iron concentrates, non-agglomerated</td>
<td>131</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>740311</td>
<td>Copper cathodes and sections of cathodes, unwrought</td>
<td>119</td>
<td>-19</td>
<td>22</td>
</tr>
<tr>
<td>7</td>
<td>270900</td>
<td>Petroleum oils and oils obtained from bituminous minerals, crude</td>
<td>112</td>
<td>-38</td>
<td>18</td>
</tr>
<tr>
<td>8</td>
<td>260210</td>
<td>Wheat powder not exceeding 1.5% fat</td>
<td>115</td>
<td>13</td>
<td>28</td>
</tr>
<tr>
<td>9</td>
<td>520100</td>
<td>Cotton, not carded or combed</td>
<td>69</td>
<td>-29</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>230110</td>
<td>Flour, meal, and pellets of meat or meat offal unfit for human consumption</td>
<td>65</td>
<td>4</td>
<td>39</td>
</tr>
<tr>
<td>11</td>
<td>760120</td>
<td>Aluminum unwrought, alloyed</td>
<td>58</td>
<td>-41</td>
<td>32</td>
</tr>
<tr>
<td>12</td>
<td>247090</td>
<td>Plastic other than iron or steel, nes</td>
<td>41</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>13</td>
<td>790111</td>
<td>Zinc not alloyed unwrought containing by weight 99.99% or more of zinc</td>
<td>41</td>
<td>13</td>
<td>22</td>
</tr>
<tr>
<td>14</td>
<td>300611</td>
<td>Polyethylene</td>
<td>31</td>
<td>-25</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>190190</td>
<td>Malt extract/food prep of Chicory &lt; 10% cocoa</td>
<td>31</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>16</td>
<td>230111</td>
<td>Titanium pigments and props, &gt;98% titanium oxide</td>
<td>30</td>
<td>-5</td>
<td>22</td>
</tr>
<tr>
<td>17</td>
<td>780110</td>
<td>Aluminum unwrought, not alloyed</td>
<td>29</td>
<td>-41</td>
<td>17</td>
</tr>
<tr>
<td>18</td>
<td>773129</td>
<td>Non-threaded articles of iron or steel, not</td>
<td>21</td>
<td>296</td>
<td>41</td>
</tr>
<tr>
<td>19</td>
<td>200810</td>
<td>Grapes, fresh</td>
<td>22</td>
<td>24</td>
<td>34</td>
</tr>
<tr>
<td>20</td>
<td>200330</td>
<td>Bovine, live, boneless, fresh, or chilled</td>
<td>19</td>
<td>5</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>3,730</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Trademap, 2016
Australian Trade Policy

Tariffs are still one of the most important trading instruments in Australian trade, although the acceptance of tariffs plays a very small role in state tax revenue. The change in the new nomenclature of HS 2007 to HS 2012 only gives a significant difference in tariff rates. The average Most Favored Nation tariff in 2010 was 3.1% to 3% in 2014. The average tariff for industrial products was 3.3%, while for agricultural products only 1.4%. A total of 96% of Australia’s total tariff posts range from zero to 5%.

For industrial sectors that are still supported by the government such as textile, clothing, footwear (textile clothing and footwear or TCF), and passenger motor vehicles (PMV) still apply tariff higher than average. The structure of tariff is also relatively unchanged with seven types of tariffs, which are six advalorem rates, one specific tariff, one mix tariff and one tariff alternative. Australia also implements an escalation rate which means that the effective tariff rate for protection will be greater than the nominal tariff. Tariff Advalorem covers 99.7% of total tariff post. The rest is a specific tariff and mixed tariff applicable to used vehicle products. However, specific tariffs on used vehicles are often not charged. A 96.6% tariff post is bound tariff (bound MFN) with an average of 9.9%. Although the tariff structure still has tariff quota, but its application is flexible. For example tariff quotas on tobacco products processed, in practice never applied.

Table 5. Structure of Australian Tariff MFN

<table>
<thead>
<tr>
<th></th>
<th>MFN applied</th>
<th>2010</th>
<th>2014</th>
<th>Real bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bound tariff rates</td>
<td>95.5</td>
<td>98.3</td>
<td>98.3</td>
<td></td>
</tr>
<tr>
<td>Simple average rate</td>
<td>3.1</td>
<td>3.0</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>HS 2007-2012</td>
<td>1.4</td>
<td>1.4</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>HS 2012-2017</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>WHTC non-agricultural</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Passenger motor vehicles</td>
<td>3.3</td>
<td>3.3</td>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td>Fruit and vegetables</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>(including fresh)</td>
<td>10.0</td>
<td>10.0</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Domestic tariff rates</td>
<td>3.9</td>
<td>3.9</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>International tariff rates</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>General standard</td>
<td>0.9</td>
<td>0.9</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Coefficient of variation of tariff rate</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>Duty free tariff</td>
<td>46.2</td>
<td>47.6</td>
<td>20.9</td>
<td></td>
</tr>
<tr>
<td>Non-eligible imports</td>
<td>0.3</td>
<td>0.3</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Australia applied rates</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td></td>
</tr>
</tbody>
</table>

Source: Trade policy review Australia (TPR Australia), (WTO, 2016)

Prohibitions and restrictions on imports in the form of quarantine requirements or technical requirements are still applied. Such restrictions and restrictions are required to meet the Appropriate Level of Protection (ALOP) standard. Australia has undertaken reforms to create a modern and more responsive system to facilitate trade while maintaining biosecurity risks. Technical standards and many other rules are subject to cost and benefit
analyzes, but these provisions do not apply to SPS provisions. The number of identical Australian national standards or which is the adoption of international standards as much as 97% of the applicable standard. Since 2010, Australia has not signed a new Mutual Recognition Agreement (MRA) for trade facilitation cooperation.

RESULT AND ANALYSIS

Indonesian Export Products are Constrained SPS

NTM Australia data is obtained from Non Tariff Measure I-TIP database provided by WTO. Data on NTM that can be obtained through I-TIP sources comes from notification documents reported by WTO member countries. For the purposes of this analysis NTM which is considered to affect trade is Technical Barrier to Trade (TBT) and Sanitary and Phytosanitary (SPS). The data collected are TBT and NTM notified by Australia from 2007 to 2015.

From this information it is known that there are 73 SPS provisions that apply Australia to Indonesian products from 2007 to 2015. The number of SPS effectively affects 335 Indonesian export products (in 6 digit). While the TBT provision notified in the WTO are recorded only since 2011. TBT provisions imposed on products for Indonesia are 27 TBT and effective for 403 Indonesian export products.

This analysis calculates the determination of potential and superior products of Indonesian exports to Australia. Then identify what products are potentially facing NTM constraints in Australia. This analysis filters 143 products that include potential and superior categories. There are 79 products facing NTM constraints from 2007 to 2015.

Table 6. Number of Products

<table>
<thead>
<tr>
<th>Year</th>
<th>SPS (Number of Products)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>2007</td>
<td>26</td>
</tr>
<tr>
<td>2008</td>
<td>4</td>
</tr>
<tr>
<td>2009</td>
<td>4</td>
</tr>
<tr>
<td>2010</td>
<td>5</td>
</tr>
<tr>
<td>2011</td>
<td>4</td>
</tr>
<tr>
<td>2012</td>
<td>1</td>
</tr>
<tr>
<td>2013</td>
<td>0</td>
</tr>
<tr>
<td>2014</td>
<td>0</td>
</tr>
<tr>
<td>2015</td>
<td>0</td>
</tr>
</tbody>
</table>

Information: data is processed (source : I-TIP)

The calculation results show that every year Indonesia’s export products to Australia have increased the constraints of NTM. There is a significant increase in the frequency of SPS=2 terms by 8% from 2014 to 2015. There is a bigger increase in SPS provisions by 3 provisions, i.e 11,8% in 2015. The results also indicate the increasing difficulty of Indonesian export
products entering Australian market, as indicated by the SPS value of 7. The Export products experiencing most constraints from the 5 to 7 frequencies are HS060290, HS080450, HS060210, HS120991, HS040130, HS060110, HS040120, HS070960, HS040110. Mostly dominated by agricultural products, fisheries, livestock and horticulture, such as plants live, fruits (mango, mangosteen), vegetables and diary products.

**Regression Results: The Impact of NTM on Export Performance**

The impact analysis of NTM is done by econometric method of export performance model. The model explains the factors affecting Indonesia’s exports to Australia with explanatory variables are NTM indicator of SPS, trade barriers in the form of tariffs and macro economic indicators, such as Australian GDP and population. The econometric model used in this study is a panel regression model for the period 2007 to 2015. In this panel model there is no dummy variables for the period before and after AANZFTA due to assumption after AANZFTA, then automatically the prevailing tariff is preferential tariff. Based on best model determination result, the selected panel model is Pooled Least Squared model. The Regression result of the econometric model are described in the following table.

**Table 7. Regression Results**

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Dependent Variable : ln(Indonesian Export to Australia)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Ln(Tariff)</td>
<td>0.0825*</td>
</tr>
<tr>
<td></td>
<td>(0.1235)</td>
</tr>
<tr>
<td>SPS</td>
<td>-0.3268**</td>
</tr>
<tr>
<td></td>
<td>(0.1533)</td>
</tr>
<tr>
<td>Ln(GDPC)</td>
<td>-2.4548*</td>
</tr>
<tr>
<td></td>
<td>(1.4724)</td>
</tr>
<tr>
<td>Ln(Pop)</td>
<td>16.296**</td>
</tr>
<tr>
<td></td>
<td>(5.2021)</td>
</tr>
</tbody>
</table>


The regression results show that the tariff variable does not give effect to the performance of Indonesian export to Australia. The results are shown in the regression experiments in columns (1) and (3) in which regression coefficients does not provide a significant statistical probability. Meanwhile, non-tariff barriers in the form of SPS proved to have a negative impact on Indonesia’s export performance to Australia. In the regression models (2), (3) and (4) the SPS coefficient gave negative values with significant levels of 95%, 95% and 99% respectively. The regression coefficient shows a change in the export rate of Indonesian products by -0.55% when exported products face additional SPS constraints of one unit. This
indicates that Indonesian products have not been able to comply with the SPS standards demanded by Australia. Furthermore, the GDP factor and population also play a significant role in Indonesian exports. A 1% increase in population in Australia will have a significant impact on Indonesia’s export growth rate of 16.296%. Unlike the effect of the increase in Australian GDP which has an impact on the decline in Indonesia’s export rate of -2.454%.

The population has a positive and significant influence on Indonesian exports. This shows that the Australian market is a potential market in terms of consumer interest in Indonesian products. However, the negative and significant effect of GDP on export performance shows that if there is an increase in income in Australian population then demand for Indonesian products will decrease. This can happen because Indonesia’s export products to Australia are mostly agricultural products or manufactured products that are still slightly processed. These products have a demand elasticity that is not elastic when compared to the elasticity of high manufactured products. If there is an increase in consumer income then consumer demand will move to products that are high manufactured.

CONCLUSION AND POLICY RECOMMENDATION

Conclusion

Based on the results and analysis of this study, it can be concluded several points as follows:

1. Indonesia’s trade balance with Australia has always experienced a deficit since 2012. Indonesia’s trade with Australia is strongly supported by oil and gas exports compared to non-oil and gas, so that the contribution of surplus is always contributed by oil and gas. Indonesia’s main export are dominated by oil and gas, machinery, timber, footwear and paper products. Australia is also an important export destination for some Indonesian products. This is indicated by the high Australian share value (over 50%) for products such as HS847989, HS841480, HS300450, HS847490, and HS842139.

Indonesia’s main import products from Australia are mostly agricultural and livestock products, such as beef, dairy products and grapes. The largest imported products is wheat (HS100190) with import value of USD 1.03 billion. Based on its import
market share, Australia is the largest supplier of agricultural products. For example, beef import bovine live except pure bred (HS 010290) 100% comes from Australia. Indonesia also imports metal products such as copper, iron, aluminum and zinc.

2. Average Australian MFN tariff has been very low. Australia’s average rate by 2015 is 3%. For industrial sectors that are still supported by the government such as textile, clothing, footwear (textile clothing and footwear or TCF), and passenger motor vehicles (PMV) still apply tariff higher than average.

3. Based on database collected from I-TIP, it is known that there are 73 NTM regulations that Australia applies to Indonesian products from 2007 to 2015. The export products experiencing NTM constraints most often from the SPS 5 to 7 frequency values are HS060290, HS080450, HS060210, HS120991, HS040130, HS060110, HS040120, HS070960 and HS040110.

The regression results show that the tariff variable does not give effect to the performance of Indonesian export to Australia. Meanwhile, non-tariff barriers in the form of SPS proved to have a negative impact on Indonesia’s export performance to Australia.

An additional one-frequency SPS provision on Indonesian export products caused a decline in the value of Indonesian exports by 0.55%. This indicates that Indonesian products have not been able to comply with the SPS standards demanded by Australia.

GDP and population also play a significant role in Indonesian exports. A 1% increase in population in Australia will have a significant impact on Indonesia’s export growth rate of 16.296%. While the effect of Australian GDP increase impact on the decline in the level of Indonesian exports amounted to -2.454%.

**Policy Recommendation**

In the near future, Indonesia-Australia cooperation agreements should be prioritized to overcome non-tariff barriers, rather than tariff barriers. Especially on some of Indonesia’s superior and potential products, including for products HS060290, HS080450, HS060210, HS120991, HS040130, HS060110, HS040120, HS070960, HS040110. Most are products of fisheries, agriculture, horticulture and animal husbandry sectors, such as fruits (mango, mangosteen), live plants to dairy products. Cooperation can be done in
the form of capacity building through Mutual Recognition on Food Standard that encourages Indonesian products to meet Australian standards and criteria in Import Risk Analysis (IRA). This is important because Australia takes SPS action in the form of Import Risk Analysis (IRA) for a number of imported goods although in WTO terms for SPS does not require such analysis.

ACKNOWLEDGEMENT

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REFERENCES


THE EFFECT OF TRADE ON INEQUALITY AND POVERTY ALLEVIATION

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Abstract
Trade not only plays a role in the dissemination of goods but also the dissemination of technology. The process of distribution of goods and technology is expected to improve the welfare of the community. According to recent research, trade is closely related to decreasing inequality and poverty in both developed and developing countries. This study aims to see the effect of trade on Indonesia's welfare. Trade is decomposed into international trade (foreign import export), inter-provincial trade, and trade taking place within the province. Meanwhile, welfare is represented by poverty and inequality. This study used 33 provincial panel data in Indonesia during the period 2011-2015. The method used in this research is panel seemingly unrelated regression (SUR). The results of this study indicate that trade, especially international trade and trade between provinces, has an impact on welfare. Trade has a two-sided impact on the program of reducing inequality and poverty alleviation. Therefore, government programs are needed to minimize the bad effects of international trade and increase the benefits of inter-provincial trade.

Keywords: Trade, Inequality, Poverty, SUR
JEL Classification: F14, D63, I32

INTRODUCTION
Indonesia's economy continues to rise from adversity. In 2016, Indonesia's economic growth reached 5.02 percent. Indonesia's economic growth is one of the highest among G20 member countries. However, this is not accompanied by a significant decrease in inequality. In the first semester of 2017, Indonesia's Gini Ratio was at 0.393, down slightly from the previous Gini Ratio of 0.394. This figure shows that inequality in Indonesia is still quite high. This is reinforced by a survey of Swiss financial institutions, Credit Suisse, shows that 1 percent of the richest people in Indonesia control 49.3 percent of national wealth. This condition is only better than Russia, India, and Thailand (Katadata, 2017).

As Indonesia's economic growth improves, besides than inequality, poverty is still a major problem. As quoted from Berita Resmi Statistik (2017), in March 2017, the number of poor people (population with per capita expenditure per month below the poverty line) reached 27.77 million people (10.64 percent), increased by 6.90 thousand people compared with the conditions in
September 2016 which amounted to 27.76 million people (10.70 percent). Not only the increasing number of poor people, the severity poverty index and the depth of poverty index also increased compared to the conditions of September 2016.

To fix both of these issues, a comprehensive policy is needed so this problems will not to trigger new problems. Policies are attempted to address both issues by taking the factors that will be affecting poverty and inequality simultaneously. One potential economic that can be used is trading. Trade liberalization is believed to be an important part of the policy package for prosperity and growth and potentially for poverty alleviation (Cicowiez & Conconi, 2008). As quoted from DFID (2005), trade is quite important in poverty alleviation. Many research concluded that economic poverty is rooted in their inability to trade - and trade is a vital route out of poverty. In many studies, one of the trade proxy is trade globalization. Preyer and Bös (2002) provided a simple operationalization of trade globalization, they said that trade globalization is the proportion of all world production across international borders. Meanwhile, Baccaro (2011) stated that trade globalization is the proportion of the country’s total trade volume to its gross domestic product. According to the research that conducted by Danacica (2005) globalization is one of the strongest factors in reducing poverty and inequality in a country if the country is able to utilize it well. If not well utilized then trade globalization will increase poverty and regional inequality. Another study that conducted by Harrison (2006) shows that an increase in export activity is closely associated with declining poverty in Columbia and Mexico. From some of the previous researches can be seen that international trade has two sides in decreasing inequality and eradication of poverty.

Meanwhile, domestic trade also contributes to economic equity. Not only play a role in the distribution of goods, but domestic trade is also expected to facilitate the dissemination of information and technology around Indonesia. It can reduce asymmetric information that may result in worsening inequality. The development of the sea toll road is intended to facilitate trade and
distribution of goods throughout Indonesia, especially eastern Indonesia. Hopefully, this can be a breakthrough to improve the quality of life of the community, especially in eastern Indonesia. In addition, domestic trade is also an alternative when the economy of the export destination country is experiencing sluggishness due to global crisis. Indonesia’s large population is a potential market for domestic products. A number of studies show that domestic trade has an effect on poverty reduction. Results of research that conducted by Ayomi (2014) in Malang showed that the trade sector has a significant effect on the decrease of poverty level. Another study conducted by Ardiatma (2017) showed similar results, large and retail trade sectors significantly and negatively affect poverty rate in West Kalimantan.

In many countries, trade is an important source of welfare, and is an important tool for sustainable growth and poverty reduction. To begin with, access to larger and richer overseas markets is needed. It will be a key to allowing domestic firms to generate the level of demand that required to exploit economies of scale which, in turn, create opportunities for sustainable economic growth (Hayashikawa, 2008). One of the priority is that the government can integrate trade so that it can effectively support the eradication of poverty (UNCTAD, 2004). Bigsten et all. (2004) has shown that trade can also, through increased efficiency of export processes that will increase productivity. The greater efficiency of domestic firms benefits consumers, including the poor, through price reductions.

There are three main channels through which trade can have a direct impact on poverty according to Winters (2002):
a. How changes in border prices get translated into the prices actually faced by the poor. This depends on (i) the competitive structure of the distribution sector; (ii) the way in which government institutions, such as marketing organizations, operate, and (iii) the size of the trade-able sector in the domestic economy.
b. How trade impacts on profits, employment and wage levels. There are two opposite ways in which this
might occur. If wages are flexible and available labor is fully employed, then price changes caused by trade expansion will be reflected in wage changes, with employment staying the same. Alternatively, if there is a large pool of workers who move in and out of a job when circumstances change, then trade expansion will change the employment level. In reality, both effects occur simultaneously, with the balance between them depending on the relative flexibility of wage levels and labor markets.

c. How trade changes government revenue and expenditure. The key lessons are that (i) expansion does not have to lead to a reduction in revenues if the tariff peaks and exemptions are tackled at the same time, and (ii) short falls in tariff revenues should be compensated by more broad-based and less distortive replacement taxes, such as those based on value added. More generally, sound macroeconomic policies are far more important for maintaining social expenditure than relying on tariffs.

As mentioned in point (a) the structure of a competitive distribution sector is absolutely necessary. One of the requirements of a competitive distribution structure is quality access. The existence of access also plays a role in analyzing how trade affects inequality and poverty. Most case studies in some countries typically identify the role of the market as an important factor in determining the impact of trade on poverty. When poor conditions improve, this is usually associated with better market performance and access. In Madagascar, for example, poor households are almost completely cut off from some of the existing rudimentary markets due to lack of infrastructure (Hoekman & Olarreaga, 2007).

Mills (2009) gave a review of present research that relates openness to inequality. A theoretical model formulated the procedure relating openness and inequality and show that how it enhanced inequality within established nations and reduced inequality within less developed countries. In Indonesia, at present, there is still a dichotomy between western Indonesia and Eastern
Indonesia. Western Indonesia is identified with the more developed regions than in Eastern Indonesia. Regardless of its distance to the nation's capital, the inequality between western Indonesia and eastern Indonesia is strongly felt. Eastern Indonesia is synonymous with areas that are difficult to access. The Maluku, Papua and other eastern regions are lagging behind in development due to the difficult access to the region. Difficult access to this region makes goods and service’s prices more expensive than other parts of Indonesia. This is also the cause of high poverty rates especially in the Maluku and Papua.

Based on that phenomena, this study aims to find out how the effect of trade on poverty and inequality and show phenomena in the field that support these results. The limited research that decomposes the effect of trade on inequality and poverty leads researchers to hypothesize only that the effect of trade globalization will be reducing poverty but rising inequality. Meanwhile, for domestic trade, the share of trade on GRDP, as well as the growth of the trade sector, is hypothesized to have a significant effect on inequality and poverty, without mentioning the direction of its effect.

METHODOLOGY

This study measures how the impact of trade on inequality and poverty. By its scope, trade is decomposed into: international trade, interprovincial trade, and trade that occurred in a region. International trade is commonly known as one of the strong indicators of openness and globalization.

In this study, international trade as a measure of globalization is formulated in accordance with the definition of trade globalization by Baccaro (2011) with this formula:

\[ IT = \frac{Foreign \ Export + Foreign \ Import}{GRDP} \]

Note: IT: International Trade
GRDP: Gross Regional Domestic Product

Meanwhile, inter-provincial trade became an indication of a province’s dependence on other provinces. Taking the same analogy with international trade, inter-provincial trade is formulated as a percentage of total value of exports and imports between regions on the value of GRDP. Mathematically, inter-provincial trade is formulated as follows:
The third trade decomposition is trade conducted in the region. This variable indicates the amount of value added on trade sector that occurs in a region. The proxy used for this variable is the share of trade value added to total GRDP. The formula used for this variable is:

\[ \text{TR} = \frac{\text{Trade Value Added}}{\text{GRDP}} \]  \hspace{1cm} (3)

Note:
TR: Trade conducted in the region
GRDP: Gross Regional Domestic Product

Then, the data of trade growth in this research is taken from BPS website from GRDP's data. The formula used to calculate trade growth is:

\[ \text{Trade Growth} = \frac{\text{Trade current} - \text{Trade last year}}{\text{Trade last year}} \times 100\% \]  \hspace{1cm} (4)

As an indicator of welfare, poverty and inequality are two main indicators. In this study, poverty and inequality used data calculated by BPS. The poverty is approached by percentage of the population below the poverty line or known as the Head Count Index (P0). Meanwhile, inequality is represented using the Gini ratio. The formula for each of these indicators is as follows:

Formula for poverty rate according to BPS (2017):

\[ P_\alpha = \frac{1}{n} \sum_{i=1}^{q} \left[ \frac{y_i - z}{z} \right]^\alpha \]  \hspace{1cm} (5)

Note:
\( \alpha = 0 \)
\( z = \) poverty line
\( y_i = \) Average monthly per capita expenditure of population below the poverty line (i=1, 2, 3, ...., q), \( y_i < z \)
\( q = \) The number of people who are below the poverty line.
\( n = \) total population

Meanwhile, the Gini Ratio is calculated by the following formula:

\[ G = \frac{\sum_{i=1}^{n} \sum_{j=1}^{n} |x_i - x_j|}{2 \sum_{i=1}^{n} x_i} - \frac{\sum_{i=1}^{n} \sum_{j=1}^{n} |y_i - y_j|}{2n \sum_{i=1}^{n} x_i} \]  \hspace{1cm} (6)

(Sen, 1977)

Another variable that used in this study is inflation. This variable is used as a control variable of price changes at the consumer level. Inflation is used as a control due to the close relationship between this variable and trade in general. Inflation from consumer price index (CPI) is preferred than inflation from wholesale price index (WPI) because inflation from CPI is in direct contact with the community as a consumer and contributes to changes in poverty and inequality. In each province there are often more than one city of inflation, the inflation used is limited to inflation in the provincial capital only. The
inflation data used in this study is the general inflation rate calculated by BPS.

Furthermore, to measure the impact of trade on inequality and poverty, a seemingly unrelated regression panel (SUR panel) is used. This model is used with the assumption of correlation error between equations due to the relationship between poverty and inequality. The initial model was built by looking at the effects of trade on poverty and inequality separately. But because of the linkage between poverty and inequality, these two equations are made in a system of equations.

This research uses SUR Panel Method with random effect estimators. The SUR panel method was developed by Erik Biorn (JoE). This approach uses a multistep (stepwise) algorithm procedure with Generalized Least Squares (GLS) and Maximum Likelihood (ML). This method refers to the model built by Erik Biorn (2004).

The model that used in this research is:

\[ \text{GR} = \beta_0 + \beta_1 \text{IT}_{it} + \beta_2 \text{IPT}_{it} + \beta_3 \text{TR}_{it} + \beta_4 \text{Inflation}_{it} + \epsilon_{it} \]

\[ \text{Poverty} = \alpha_0 + \alpha_1 \text{IT}_{it} + \alpha_2 \text{IPT}_{it} + \alpha_3 \text{TR}_{it} + \alpha_4 \text{Inflation}_{it} + \alpha_5 \text{TradeGrowth}_{it} + \omega_{it} \]

Note:

GR: Gini Ratio
IT: International Trade
IPT: Inter-provincial Trade
TR: Trade conducted in the region
i: province i
\( t \): period t
\( \epsilon, \omega \): error term

RESULT AND DISCUSSION

As two major economic issues, the movement of poverty and inequality become the public’s focus. In the period of 2011-2015, the poverty and inequality rates fluctuated. From several literatures and international organization’s references, trade is one of the factors that influence the inequality and poverty in developing countries.

The following figure is a general overview of poverty, inequality, share of international trade to GDP, share of trade’s value added to GDP, and annual inflation of Indonesia within the period 2011-2015 using the data from the BPS-Statistics Indonesia.
If Indonesia's welfare, trade and inflation variables are depicted in the face form, then Indonesia's condition within the 2011-2015 can be seen in Figure 1. On these faces, the size of the eye reflects the national inflation rate. In the period 2011-2015, Indonesia's annual inflation is quite fluctuating. In 2013 and 2014, Indonesia's annual inflation touched 8 percent. The high inflation rate in that years was mainly driven by rising food prices and the costs of Transport, Communication and Financial Services. Although trade closely related to inflation, but in the period of research, the share of trade to GDP is relatively stable in the range of 13 percent. In Figure 1, the share of trade to GDP is symbolized as a size of the mouth. This condition is a little bit different with the international trade. In the midst of the world economic recession, the percentage of total international trade volume to GDP is getting smaller. In the Figure 1, the percentage of the total volume of international trade to GDP is represented by the size of the nose, the size of the nose decreases from year to year.

Meanwhile, two major measures of welfare, poverty and inequality, symbolized by the density of eyebrows and hair thickness. As one of the main highlight in the program of sustainable development goals (SDGs), the government made
various efforts to reduce poverty in Indonesia. In 2011, the poverty rate was at 12.49 percent. This number continues to decline and by 2015 the poverty rate is already at the level of 11.22 percent. Although the poverty rate in Indonesia tends to decrease, the decrease is not as drastic as the government expected. Regionally, Papua is still the province with the highest poverty rate compared to the others. By 2015 the poverty rate in Papua has reached 28.4 percent, meaning that more than a quarter of Papua’s population is still below the poverty line. Meanwhile, the income gap (gini ratio) in Indonesia fluctuated during the period 2011-2015. Gini ratio of Indonesia in 2010 amounted to 0.41 and then rose to 0.413 in 2013, then decrease to 0.408 in 2015. Regionally, in 2015 the highest economic inequality in West Papua. This number is increasing every year means the economic inequality in West Papua is getting worse. This condition is influenced by the increase of unemployment so that it has implication to the slow growth of middle and lower population expenditure compared to upper group population.

The Effect of Trade on Poverty and Inequality

Trade has an effect like a double-edged sword. The conclusions are drawn from the data of 33 provinces in Indonesia in the period 2011-2015. On the one hand, trade can have an adverse effect on inequality, but on the other hand trade plays a role in reducing poverty.

Table 1. The Effect of Trade on Poverty and Inequality with Regression

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Importer</th>
<th>Exporter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p0</td>
<td>GR2</td>
</tr>
<tr>
<td>International Trade</td>
<td>-0.141***</td>
<td>0.0617***</td>
</tr>
<tr>
<td></td>
<td>(0.0330)</td>
<td>(0.0218)</td>
</tr>
<tr>
<td>Inter-provincial Trade</td>
<td>-0.0140</td>
<td>-0.0524***</td>
</tr>
<tr>
<td></td>
<td>(0.0188)</td>
<td>(0.0124)</td>
</tr>
<tr>
<td>Trade in Region</td>
<td>-0.380*</td>
<td>-0.649***</td>
</tr>
<tr>
<td></td>
<td>(0.209)</td>
<td>(0.138)</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.156</td>
<td>-0.0620</td>
</tr>
</tbody>
</table>
In general, if the effect of trade on poverty and inequality is seen separately by using multiple linear regression analysis, it can be seen in the Table 1 that each type of trade has different effects on poverty and inequality. In regions with importer status, the share of international trade has a significant effect on poverty and inequality. To poverty, globalization, in this case international trade, has a negative and significant effect. This means, the greater the share of international trade will reduce the poverty rate. However, international trade has a negative impact on inequality. The higher the international trade, it will be accompanied by an increase in inequality. This is slightly different in areas with exporter status, international trade has no significant impact on inequality. In the exporter status area, international trade shows only the effect of reducing the poverty rate. Meanwhile, in contrast to international trade, domestic trade only has a significant effect on the decrease of inequality in importer area. Another indicator of trade used is the share of trade to GRDP. This indicator has a significant effect on poverty reduction and inequality in both importer and exporter areas. Nevertheless, economic growth in the trade sector has no significant effect on poverty reduction. This indicates that the economic transformation should be prioritized rather than just pursuing growth.

Theoretically, poverty and inequality have close relationships. Due to that theory, this model is modified using seemingly unrelated regression with panel. Here is the modeling result using SUR panel:
As the result of separate model between poverty and inequality, in simultaneously model, international trade also has different effect on poverty and inequality. In both importer and exporter areas, foreign trade plays a role in reducing poverty, but simultaneously, it also increases inequality. This is favored by the fact that approach to new technologies favors skilled and trained labor rather than unskilled (Munir, Kiani, Khan, & Jamal, 2013). Two of these effects should be noted that the utilization of international trade does not bring too much negative impact.

Meanwhile, if systematically observed its effect on poverty and inequality, domestic trade has a significant influence on poverty both in importer and exporter areas but has no effect in decreasing inequality. Then, the growth of the trade sector has only a significant effect on the decline of poverty level in exporter status, while in the region with importer status, the

### Table 2. The Effect of Trade on Poverty and Inequality with SUR Panel

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Importer</th>
<th></th>
<th>Exporter</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p0</td>
<td>GR2</td>
<td>p0</td>
<td>GR2</td>
</tr>
<tr>
<td>International trade</td>
<td>-0.348***</td>
<td>0.0707***</td>
<td>-0.0464***</td>
<td>0.0605***</td>
</tr>
<tr>
<td></td>
<td>(0.0256)</td>
<td>(0.0208)</td>
<td>(0.00741)</td>
<td>(0.00946)</td>
</tr>
<tr>
<td>Inter-provincial trade</td>
<td>-0.0443***</td>
<td>-0.0225</td>
<td>-0.0174***</td>
<td>-0.00136</td>
</tr>
<tr>
<td></td>
<td>(0.0129)</td>
<td>(0.0145)</td>
<td>(0.00629)</td>
<td>(0.00922)</td>
</tr>
<tr>
<td>Trade growth</td>
<td>-0.119</td>
<td></td>
<td>-0.393***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0894)</td>
<td></td>
<td>(0.0883)</td>
<td></td>
</tr>
<tr>
<td>Trade in Region</td>
<td>0.215*</td>
<td>-0.130</td>
<td>-0.734***</td>
<td>0.487***</td>
</tr>
<tr>
<td></td>
<td>(0.129)</td>
<td>(0.166)</td>
<td>(0.0816)</td>
<td>(0.0993)</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.0691</td>
<td>0.127*</td>
<td>-0.155**</td>
<td>0.185*</td>
</tr>
<tr>
<td></td>
<td>(0.101)</td>
<td>(0.0671)</td>
<td>(0.0681)</td>
<td>(0.101)</td>
</tr>
<tr>
<td>Observations</td>
<td>104</td>
<td>104</td>
<td>61</td>
<td>61</td>
</tr>
<tr>
<td>Number of kodeprov</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
growth of the trade sector has no effect on poverty reduction. Accordingly, countries are encouraged to reduce trade barriers in order to reduce absolute poverty, due to the result of several previous research that said countries with few restrictions on trade will have faster economic growth than countries that heavily restrict trade and that absolute poverty will be reduced more quickly with faster economic growth (Cicowiez & Conconi, 2008). Indicators of trade share have an effect that is different in areas with importer status and exporter. In an exporter country, the share of trade to GRDP has a positive and significant influence, but has no significant effect on inequality. This means, the greater the share of trade to GRDP, then tend to make poverty increases. In contrast, in an exporter country, the share of trade to GDP has a significant effect on poverty and inequality. On poverty, in exporter areas, trade share has a negative and significant effect. This indicates the greater share of trade to GRDP, the poverty level will decrease. Unfortunately, in an area of exporter status, the higher the share of trade to GRDP will actually increase inequality. This indication should be wary, especially for areas transformed by relying tertiary sectors.

In contrast with separate modelling between poverty and inequality, in modelling with SUR, inflation significant effect either on the area with the status of the importer or exporter status area. Inflation plays a role in increasing inequality in both regional status, but reduces poverty in exporter status.

From the availability of access in general’s view, there are differences in the effects of trade on poverty and inequality in the area of West Indonesia and East Indonesia.
Table 3. The Effect of Trade on Poverty and Inequality in West Indonesia and East Indonesia with SUR Panel

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Eastern Indonesia</th>
<th>Western Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p0</td>
<td>GR2</td>
</tr>
<tr>
<td>International Trade</td>
<td>-0.00336</td>
<td>0.115***</td>
</tr>
<tr>
<td></td>
<td>(0.0165)</td>
<td>(0.0247)</td>
</tr>
<tr>
<td>Inter-provincial Trade</td>
<td>-0.0130</td>
<td>-0.0167</td>
</tr>
<tr>
<td></td>
<td>(0.0115)</td>
<td>(0.0188)</td>
</tr>
<tr>
<td>Trade growth</td>
<td>-0.0346</td>
<td>0.0606</td>
</tr>
<tr>
<td></td>
<td>(0.0567)</td>
<td>(0.0377)</td>
</tr>
<tr>
<td>Trade in Region</td>
<td>-0.494**</td>
<td>0.704**</td>
</tr>
<tr>
<td></td>
<td>(0.243)</td>
<td>(0.327)</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.136**</td>
<td>0.166*</td>
</tr>
<tr>
<td></td>
<td>(0.0580)</td>
<td>(0.0959)</td>
</tr>
<tr>
<td>Observations</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Number of kodeprov</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In Table 3 we can see the difference of trade effect on inequality and poverty in west Indonesia and east Indonesia. In east Indonesia, the globalization of trade has a significant effect on the increase in inequality, but not significantly on the poverty rate. Meanwhile, in west Indonesia, trade globalization has no significant effect on poverty and inequality. This is different from the inter-provincial trade’s effect. Inter-provincial trade has a significant effect on poverty and inequality in West Indonesia, but is not significant in East Indonesia. In West Indonesia, the volume of domestic trade plays a role in reducing poverty, but unfortunately increases inequality. Another element of trade, the growth of the trade sector, did not have a significant effect on poverty, both in West Indonesia and East Indonesia.

Another element, share trade to GRDP, shows different things. This element has a significant effect on poverty and inequality, both in West
Indonesia and East Indonesia. In eastern Indonesia, the share of trade to PDRB is negatively related to poverty. The higher the share of trade to GRDP will reduce poverty, but unfortunately increase inequality. A slightly different effect is found in Western Indonesia. In Western Indonesia, the share of trade in GDP is proportional to the level of poverty and inequality. This means, the higher the share of trade then tend to poverty and inequality will be higher. An interesting result to investigate this phenomenon.

Inflation, as a control variable, proved to have only a significant effect on poverty and inequality in eastern Indonesia. The effects of inflation on poverty and inequality in Eastern Indonesia are similar to the effects of trade share to GDP. Inflation reduces poverty, but increases inequality. Although theoretically the rise of inflation is not always good, but the inflation (within reasonable limits) will increase economic enthusiasm so that it can ultimately reduce poverty. On the inequality side, according to Thalassinos (2012) The link between inequality and inflation is an issue of major concern with important policy implications. The findings of positive relationship would imply that policy makers should be concerned with the distributional implications of government policies.

CONCLUSIONS

From all of that explanation, can be concluded:

1. Each element of trade has a different effect on inequality and poverty
2. International trade reduces poverty in exporter and importer areas, but increases inequality in exporter, importer, and eastern Indonesia
3. Inter-provincial trade reduces poverty in exporters area, importers area, and in western Indonesia but also raises inequality in western Indonesia
4. Trade growth plays a role in reducing poverty only in exporter areas
5. The share of trade on GRDP have various effects depending on the status and location of the region. Trade share plays a role in reducing poverty in the exporter areas and western Indonesia. However, it is increasing poverty in importer areas and western Indonesia. In addition, it is also increasing inequality in
exporting regions, eastern Indonesia, and western Indonesia.

6. Simultaneous policies are required to minimize the adverse effects of trade on poverty and inequality. Policy is made in accordance with economic and regional characteristics so that it can be useful optimally.

REFERENCE


menguasai-49-kekayaan-nasional


## Appendix 1. Multiple Linear Regression

### A. Multiple Linear Regression on Importer Areas

The following are the results of the multiple linear regression analysis on importer areas:

**Model 1**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs</th>
<th>F(5, 90)</th>
<th>Prob &gt; F</th>
<th>Adj R-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>759.398859</td>
<td>5</td>
<td>151.879772</td>
<td>104</td>
<td>6.08</td>
<td>0.0000</td>
<td>0.2600</td>
</tr>
<tr>
<td>Residual</td>
<td>2161.00133</td>
<td>90</td>
<td>22.0600135</td>
<td>104</td>
<td></td>
<td></td>
<td>0.2222</td>
</tr>
<tr>
<td>Total</td>
<td>2921.29018</td>
<td>103</td>
<td>28.3619435</td>
<td>104</td>
<td></td>
<td></td>
<td>4.6968</td>
</tr>
</tbody>
</table>

### Coefficients

|                      | Coef.  | Std. Err. | t     | P>|t| | 95% Conf. Interval |
|----------------------|--------|------------|-------|------|-------------------|
| p0                   |        |            |       |      |                   |
| international trade  | -0.008182 | 0.0030352  | -0.26 | 0.797 | -0.137354        |
| interprovincial trade| 0.000078  | 0.0004444  | 0.19  | 0.848 | -0.000403        |
| trade_share          | 0.009249 | 0.0004444  | 0.39  | 0.698 | 0.000403         |
| tradeGrowth          | 0.001205 | 0.0003844  | 0.31  | 0.758 | -0.000208        |
| inflation            | 0.001205 | 0.0003844  | 0.31  | 0.758 | -0.000208        |
| _cons                | 21.4333  | 3.0233     | 7.23  | 0.000 | 14.29416         |

**Model 2**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs</th>
<th>F(4, 99)</th>
<th>Prob &gt; F</th>
<th>Adj R-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>445.721372</td>
<td>4</td>
<td>111.430343</td>
<td>104</td>
<td>11.57</td>
<td>0.0000</td>
<td>0.3185</td>
</tr>
<tr>
<td>Residual</td>
<td>953.663243</td>
<td>95</td>
<td>9.93296205</td>
<td>104</td>
<td></td>
<td></td>
<td>0.2910</td>
</tr>
<tr>
<td>Total</td>
<td>1399.38462</td>
<td>103</td>
<td>13.5862584</td>
<td>104</td>
<td></td>
<td></td>
<td>3.1037</td>
</tr>
</tbody>
</table>

### Coefficients

|                      | Coef.  | Std. Err. | t     | P>|t| | 95% Conf. Interval |
|----------------------|--------|------------|-------|------|-------------------|
| GR2                  |        |            |       |      |                   |
| international trade  | 0.6216928 | 0.0217934 | 2.83  | 0.006| .0184499          |
| interprovincial trade| 0.0593625 | 0.0122956 | -0.24 | 0.808| -0.078795         |
| trade_share          | 0.6491332 | 0.1383504 | -4.99 | 0.000| -0.374072         |
| inflation            | -0.0620419 | 0.1373822 | -0.45 | 0.653| -0.3346115        |
| _cons                | 20.58634  | 2.175536  | 12.33 | 0.000| 14.42699          |
B. Multiple Linear Regression on Exporter Areas

```
. regress p0 international_trade interprovincial_trade trade_share tradegrowth inflation if statusNM==1

Source | SS      | df | MS    | Number of obs = 61
Model  | 825.761853 | 5  | 165.152371 | F(5, 55) = 3.34
Residual | 2722.56819 | 55 | 49.5012399 | Prob > F = 0.0106
Total   | 3548.33005 | 60 | 59.1388361 | Adj R-squared = 0.1630

|                      | Coeff. | Std. Err. | t     | P>|t|   | [95% Conf. Interval] |
|----------------------|--------|-----------|-------|-------|-----------------------|
| international_trade  | -0.074502  | 0.0277566 | -2.68 | 0.010 | -0.1301457 to -0.0188946 |
| interprovincial_trade| 0.0236747  | 0.029616  | -0.80 | 0.428 | -0.0803265 to 0.0356771 |
| trade_share          | 0.668412   | 0.2303472 | -2.89 | 0.005 | -1.1675 to -0.121827 |
| tradegrowth          | -0.2475122 | 0.4757667 | -0.52 | 0.605 | -1.20097 to 0.705955 |
| inflation            | -0.4553858 | 0.3438816 | -1.33 | 0.190 | -1.142857 to 0.232455 |
| _cons                | 20.14696   | 5.476104  | 5.22  | 0.000 | 17.59663 to 35.9593 |
```

```
. regress GR2 international_trade interprovincial_trade trade_share tradegrowth inflation if statusNM==1

Source | SS      | df | MS    | Number of obs = 61
Model  | 136.692465 | 4  | 34.173116 | F(4, 56) = 2.42
Residual | 792.323876 | 56 | 14.1484606 | R-squared = 0.5444
Total   | 929.016341 | 60 | 15.4836057 | Adj R-squared = 0.4710

| GR2                                      | Coeff. | Std. Err. | t     | P>|t|   | [95% Conf. Interval] |
|------------------------------------------|--------|-----------|-------|-------|-----------------------|
| international_trade                      | -0.003343 | 0.014175 | -0.24 | 0.809 | -0.0318302 to 0.0250965 |
| interprovincial_trade                    | 0.0250671 | 0.0154479 | -1.62 | 0.110 | -0.0560129 to 0.0058787 |
| trade_share                              | -0.3391779 | 0.1274246 | -2.66 | 0.010 | -0.5944401 to -0.0839157 |
| inflation                                | 0.0196908 | 0.1831729 | 0.11 | 0.915 | -0.3472486 to 0.3866302 |
| _cons                                    | 42.13895   | 2.248813 | 18.74 | 0.000 | 37.63404 to 46.64386 |
```
Appendix 2. Panel *Seemingly Unrelated Regression*

A. Panel *Seemingly Unrelated Regression* on Importer Areas

Seemingly unrelated regression (SUR) in panel data set

One-way random effect estimation:

<table>
<thead>
<tr>
<th>Number of Group variable:</th>
<th>4</th>
<th>Number of obs</th>
<th>104</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel variable:</td>
<td>kodeprov</td>
<td>Number of eqn</td>
<td>2</td>
</tr>
<tr>
<td>Time variable:</td>
<td>year</td>
<td>Number of panels</td>
<td>4</td>
</tr>
</tbody>
</table>

Random effects $u_i$ ~ Gaussian

corr($u_i$, $e_{it}$) = 0 (assumed)

Panel type: strongly balanced

|                  | Coef.  | Std. Err. | z     | P>|z| | [5% Conf. Interval] |
|------------------|--------|-----------|-------|------|---------------------|
| p0               |        |           |       |      |                     |
| international_trade | -.3470075 | .0255971  | -13.59 | 0.000 | -.3979769 -.297381 |
| interprovincial_trade | -.0443204 | .0129315  | -3.43  | 0.001 | -.0696657 -.018975 |
| trade share      | .2146035 | .1289518  | 1.66   | 0.096 | -.0381353 .4673463 |
| tradegrowth      | -.1186421 | .0894319  | -1.33  | 0.185 | -.2939254 .0566412 |
| inflation        | -.0690882 | .1885705  | -0.69  | 0.492 | -.2662027 .1280263 |

|                  | Coef.  | Std. Err. | z     | P>|z| | [5% Conf. Interval] |
|------------------|--------|-----------|-------|------|---------------------|
| GR2              |        |           |       |      |                     |
| international_trade | .0706592 | .0207921  | 3.40  | 0.001 | .0299074 .111411  |
| interprovincial_trade | -.0224836 | .014534  | -1.55 | 0.122 | -.0509696 .0060025 |
| trade share      | -.1299643 | .1656874  | -0.78 | 0.433 | -.4547057 .294771 |
| inflation        | .1271449 | .0676537  | 1.90  | 0.058 | -.0942779 .2585678 |

Dependent variables: p0 GR2

Independent variables: international_trade interprovincial_trade trade_share tradegrowth inflation
B. Panel Seemingly Unrelated Regression on Exporter Areas

Calculating multi-step estimates...
Iteration 1: relative difference = 0.74844461
Iteration 2: relative difference = 5.8440-07

Seemingly unrelated regression (SUR) in panel data set:

One-way random effect estimation:

|                       | Coef. | Std. Err. | z     | P>|z|    | [95% Conf. Interval] |
|-----------------------|-------|-----------|-------|--------|---------------------|
|                       |       |           |       |        |                     |
| p0                    | International trade | -0.0464437 | 0.0874076 | -6.26 | 0.000   | -0.0609223 | -0.0318851 |
|                       | Interprovincial trade | -0.0174286 | 0.0682943 | -2.72 | 0.006   | -0.0297622 | -0.0050889 |
|                       | Trade share         | 0.7337743 | 0.0816231 | -8.99 | 0.000   | -0.9937627 | -0.5737299 |
|                       | Trade growth        | -0.392712 | 0.0882864 | -4.45 | 0.000   | -0.5657502 | -0.2196737 |
|                       | Inflation           | -0.1545366 | 0.0681 | -2.27 | 0.023   | -0.2880101 | -0.0210631 |
|                       |                   |           |       |        |                     |
| GR2                   | International trade | 0.0604677 | 0.0094646 | 6.39  | 0.000   | 0.0419175 | 0.079018 |
|                       | Interprovincial trade | -0.0013601 | 0.0092216 | -0.15 | 0.883   | -0.0194311 | 0.0167139 |
|                       | Trade share         | 0.4870753 | 0.0992617 | 4.91  | 0.000   | 0.2925259 | 0.6816248 |
|                       | Inflation           | 0.184656  | 0.1088103 | 1.63  | 0.047   | -0.019285 | 0.3822465 |

|                       |       |           |       |        |                     |
|                       | sigma u | see e(sigma u) |       |        |                     |
|                       | sigma e | see e(sigma e) |       |        |                     |

Dependent variables: p0 GR2
Independent variables: International trade interprovincial_trade trade_share trade_growth inflation
C. Panel Seemingly Unrelated Regression on East Indonesia

Calculating multi-step estimates...
Iteration 1: relative difference = 0.57107624
Iteration 2: relative difference = 4.371e-07

Seemingly unrelated regression (SUR) in panel data set

<table>
<thead>
<tr>
<th>Number of Group variable</th>
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<th>Number of obs</th>
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</tr>
</thead>
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<td>Number of eqn</td>
<td>2</td>
</tr>
<tr>
<td>Time variable</td>
<td>year</td>
<td>Number of panels</td>
<td>1</td>
</tr>
</tbody>
</table>

Random effects \( u_i \sim \text{Gaussian} \\
\text{corr}(u_i, e_it) = 0 \text{ (assumed)}

Panel type: strongly balanced

|                      | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|----------------------|-------|-----------|-------|------|----------------------|
| \( p_0 \)            |       |           |       |      |                      |
| international trade  | \(-.0033591\) | \(.0164787\) | \( -.20 \) | .838 | \(-.0356569\) | .0289386 |
| interprovincial trade| \(-.0129989\) | \(.0115342\) | \(-1.13\) | .260 | \(-.0355964\) | .0096168 |
| trade_share          | \(-.4936396\) | \(.2428541\) | \(-2.03\) | .042 | \(-.9696249\) | .0176544 |
| tradegrowth          | \(-.0346449\) | \(.0566864\) | \(-0.61\) | .541 | \(-.1457482\) | .0764583 |
| inflation            | \(-.1355767\) | \(.0579856\) | \(-2.34\) | .019 | \(-.2491871\) | \(-.0219663\) |

|                      | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|----------------------|-------|-----------|-------|------|----------------------|
| \( GR2 \)            |       |           |       |      |                      |
| international trade  | \(.114732\) | \(.0247205\) | \( 4.61\) | .000 | \(.0662808\) | \(.1631832\) |
| interprovincial trade| \(-.0166961\) | \(.0187988\) | \(-0.89\) | .374 | \(-.035541\) | \(.0201488\) |
| trade_share          | \(.703797\) | \(.3269371\) | \( 2.15\) | .031 | \(.063012\) | \(1.344582\) |
| inflation            | \(.1162241\) | \(.0959381\) | \(1.93\) | .053 | \(-.0217942\) | \(.3542763\) |

\( \sigma u \) \quad \text{and} \quad \text{see} \quad \sigma_e \text{ (\( \sigma u \))}

Dependent variables: \( p_0 \) \( GR2 \)
Independent variables: \text{international trade interprovincial\_trade trade\_share tradegrowth inflation}
D. Panel Seemingly Unrelated Regression on West Indonesia

```
-> region = i
          (running multi-step estimates...)
Calculating multi-step estimates...
Iteration 1 : relative difference = 0.43918369
Iteration 2 : relative difference = 3.266e-07

Seemingly unrelated regression (SUR) in panel data set
One-way random effect estimation:

| Number of Group variable: | 1 | Number of obs  | 85 |
| Panel variable:           | kodeprov | Number of eqn  | 2  |
| Time variable :          | year     | Number of panels | 1 |

Random effects u i ~ Gaussian
corr(u_i, e_it) = 0  (assumed)
Panel Type : strongly balanced

| p0                      | Coef. | Std. Err. | z   | P>|z| | [95% Conf. Interval] |
|-------------------------|-------|-----------|-----|------|---------------------|
| international_trade     | 0.0116279 | 0.0116438 | 1.00 | 0.319 | -0.0111924 to 0.0344493 |
| interprovincial_trade   | -0.0208928 | 0.0078131 | -2.57 | 0.010 | -0.0354062 to -0.0047794 |
| trade share             | 0.3003133  | 0.1086145  | 2.76 | 0.006 | 0.0874327 to 0.5131939 |
| tradegrowth             | -0.0606222 | 0.0376609  | -1.61 | 0.107 | -0.1319198 to 0.1143626 |
| inflation               | 0.0321475  | 0.0256848  | 1.20 | 0.231 | -0.0847691 to 0.0267912 |

| GR2                     | Coef. | Std. Err. | z   | P>|z| | [95% Conf. Interval] |
|-------------------------|-------|-----------|-----|------|---------------------|
| international_trade     | 0.0209877 | 0.0282435 | 0.74 | 0.457 | -0.0343686 to 0.0763439 |
| interprovincial_trade   | 0.068428  | 0.0189451  | 3.61 | 0.000 | 0.0312962 to 0.1055598 |
| trade share             | 0.507755  | 0.3015817  | 1.68 | 0.092 | -0.0833342 to 1.098844  |
| inflation               | 0.040216  | 0.0531393  | 0.74 | 0.457 | -0.1035348 to 0.1839667 |

Dependent variables: p0 GR2
Independent variables: international_trade interprovincial_trade trade_share tradegrowth inflation
```
ANALYSIS OF COMPETITIVENESS AND DETERMINANTS OF EXPORTS OF INDONESIA’S LEADING COMMODITIES TO THE AFRICAN REGION

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Abstract
The African region is a potential market for Indonesia. Palm oil & its fraction, soap, fatty acid, and uncoated paper are the commodities that have the highest export value to Africa. The study analyzes the competitiveness, using RCA, EPD, and IIT, while determinants of exports using Export Demand Function model of these commodities. These analyses can be used as a background study to diversify exports markets and products to the African region. The RCA analysis showed that all commodities in this study are competitive in the African market because the value is higher than one. Market position of Indonesia’s leading commodities by EPD matrix were on different position. Palm oil & its fraction on rising star, soap on lost opportunity, while fatty acid and uncoated paper were on retreat. The result of IIT showed weak integration level except palm oil & its fraction that has no integration level. Export demand function of each commodity significantly affected by the value of the previous year's exports, real GDP per capita, economic distance, real export price, and real exchange rate. Therefore, Indonesia should increase its export value to the African region under the scheme of bilateral trade agreement.

Keywords: Competitiveness, RCA, EPD, IIT, Export Demand Function
JEL Classification: F10, F14, F15

INTRODUCTION
The economic openness of each country in the world encourages international trade which is marked by the rapid flow of goods and services between countries. One of the implementation of the economic openness of a country is by forming various cooperation in the field of international trade.

Indonesia as one of the countries that implement the open economy system must be able to anticipate and utilize this situation to reach maximum benefit. In an open economic system, countries in the world really depending by its exports to improve their welfare.

During the period of 2010 – 2016, Indonesian’s trade balance were fluctuated. While in 2012 – 2014 Indonesia faced a trade balance deficit as Indonesia's import value is higher than its exports. However, Indonesia was able to bring back its trade balance to surplus conditions in the following year by reducing imports but unfortunately followed by the declining of its exports value.

The non-oil and gas sector contributes significantly to Indonesia's
trade so it has an important role in the Indonesian economy. A lot of non-oil and gas commodities are the mainstay of Indonesian export commodities to many countries in the world, some of Indonesia's leading commodities are palm oil & it's fraction, soap, fatty acid, and uncoated paper.

Indonesia's non-oil and gas export market is spread to various countries in the world. So far, Indonesia's non-oil export destination market is still dominated by major trading partner groups such as Republic of China, Japan, United States, India and Singapore. Indonesia's non-oil and gas commodities exports value to these countries tend to have a downward trend. Dependency on a certain market can also have a negative impact and very risky for the development of exports, especially if world economic shocks occur.

In order to increase Indonesia’s export value, the Indonesian government continues to develop and explore other potential export markets such as in Europe, Asia, Middle East, and even in African region. One of the market diversification that can be done is through increasing export value to the African continent. Africa is the third largest continent after Asia and America with 54 countries and the total population reaches 1.1 billion people.

South Africa is Indonesia's largest market in African region, followed by Egypt and Nigeria. The total value of Indonesia's exports to South Africa in 2012 reaches US $ 1.69 billion and tends to fluctuate annually. This can be an opportunity for Indonesia to continue to increase its exports in the African market.

One of the ways that Indonesia used to enter the African market is the Global System of Trade Preferences among Developing Countries (GSTP). Indonesia and several African countries such as Ghana, Benin, Egypt, Morocco, Tunisia and other African countries have been incorporated in the GSTP since 1989. As a member country, GSTP is expected to increase export opportunities for Indonesian products in the African market.

Beside GSTP, the Economic Community of West African States (ECOWAS) can also be utilized to enter the African market. Indonesia's export value with ECOWAS in 2014 reached US $ 1.56 billion with a trade surplus for non-oil and gas sector reached US $ 1.09 billion. This indicates that ECOWAS countries have a dependency and need for non-oil and gas products.
from Indonesia. These opportunities should be utilized as well as possible by market diversification to Africa.

METHODS

Types and Sources of Data

All data used in this study is secondary data in panel dataset that consists of both time series and cross-sectional data obtained from various sources including: World Integrated Trade and Solution (WITS), Trade Map, World Bank and other sources. The number of an observational period as the time series data are five years, from 2010 to 2014. The cross-sectional data consists of seven countries, which are the main export destination countries in African region such as Benin, Djibouti, Ghana, Egypt, South Africa, Tanzania, and Nigeria. The objects of this study are palm oil & it’s fraction (HS 1511), soap (HS 3401), fatty acid (HS 3823), and uncoated paper (HS 4802).

Data Analysis

In this study, the data was analyzed using a model of export demand. Meanwhile, to analyze the competitiveness and level of commodity integration is done by analysis of Revealed Comparative Advantage (RCA), Export Product Dynamic (EPD), and Intra Industry Trade (IIT). The dependent variable of this study is export value of Indonesia’s leading commodities to the African region, meanwhile the independent variables are value of the previous year’s exports, real GDP per capita, economic distance, real export price, and real exchange rate. The model equation of export demand can be written as follow:

\[
\ln X_{ijt} = \alpha + \beta_1 \ln X_{ijt-1} + \beta_2 \ln GDP_{jt} + \beta_3 \ln DIST_{jt} + \beta_4 \ln RXP_{ijt} + \beta_5 \ln RER_{jt} + \mu_{it} \tag{1}
\]

Note:

- \(X_{ijt}\): the export value of Indonesia’s leading commodities to country \(j\) (ton)
- \(X_{ijt-1}\): the previous year’s export value of Indonesia’s leading commodities to country \(j\) (ton)
- \(GDP_{jt}\): GDP per capita in the country \(j\) (USD)
- \(DIST_{jt}\): the economic distance between Indonesia and country \(j\)
- \(RXP_{ijt}\): the export price of Indonesia’s leading commodities in country \(j\)
- \(RER_{jt}\): the real exchange rate between Indonesia to country \(j\) (IDR/local currency unit, LCU)
- \(\mu_{it}\): error term
- \(\alpha\): intercept
- \(\beta_n\): estimated parameter (n=1,2,…5)

According to Nachrowi (2006), panel data model is an econometric
model that combines time series data with cross section data. The implication of this combination is that the estimation of the panel data model is more efficient because of the greater number of observations. In addition, the use of panel data models can also reduce the effect of bias as the degree of freedom increases.

In panel data analysis there are three kinds of approach which consist of the least squares approach (pooled least square), fixed effect model (FEM), and random effect model (REM). The selection of models used in a study needs to be done based on statistical considerations. This is intended to obtain an efficient estimation. The selected regression model has to meet the classical assumptions based on Gauss-Markov theory, to get the best linear unbiased estimator.

**RESULTS AND DISCUSSION**

The result of RCA analysis shows that the four leading commodities exported to African market, in the last five years, are competitive in African market. This shows that high export value is followed by a good level of competitiveness so that it can compete with commodities from other countries.

Although the value of RCA for the four commodities were high, the value fluctuates. The most significant decrease is in paper (HS 4802) which decreases almost every year. This indicates a decline in Indonesia's paper competitiveness rate in the African region.

**Table 1. Results of Competitiveness Analysis of Indonesia’s Leading Commodities in the African Region**

<table>
<thead>
<tr>
<th>HS Code</th>
<th>Commodities</th>
<th>RCA</th>
<th>EPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1511</td>
<td>Palm oil &amp; it's fraction</td>
<td>26.96</td>
<td>26.31</td>
</tr>
<tr>
<td>3401</td>
<td>Soap</td>
<td>30.27</td>
<td>25.50</td>
</tr>
<tr>
<td>3823</td>
<td>Fatty acid</td>
<td>18.11</td>
<td>17.50</td>
</tr>
<tr>
<td>4802</td>
<td>Uncoated paper</td>
<td>20.30</td>
<td>12.04</td>
</tr>
</tbody>
</table>

Source: UN Comtrade (2017), processed

Based on Table 1, only the palm oil & it’s fraction (HS 1511) is in a rising star position. In this case it means that Indonesia is still only relying on its comparative advantage in trading with countries in Africa.

For soap (HS 3401) is in lost opportunity position. The lost
opportunity position is due to Indonesian soap companies have expanded their business by opening factories in Africa. These companies are PT. Sayap Mas Utama (WINGS Corporation) and PT. Sinar Antjol. Both companies are companies who producing soap, detergents, and other cleaning tools. With that two companies in the African region, African countries were no longer import soap from Indonesia so that the export value of Indonesian soap to Africa tends to decline.

The other two commodities, fatty acids (HS 3823) and paper (HS 4802) were in retreat position. The retreat position indicates that both commodities are no longer wanted by African market. This is proven by the development of export values for these two commodities from 2010 to 2014 has a trend that tends to decline. Therefore, commodities that are in retreat position need special attention and improvement in marketing strategy.

Table 2. IIT Values of Indonesia’s Leading Commodities to the African Market

<table>
<thead>
<tr>
<th>HS Code</th>
<th>Commodities</th>
<th>IIT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2010</td>
</tr>
<tr>
<td>1511</td>
<td>Palm oil &amp; it's fraction</td>
<td>0.00</td>
</tr>
<tr>
<td>3401</td>
<td>Soap</td>
<td>0.00</td>
</tr>
<tr>
<td>3823</td>
<td>Fatty acid</td>
<td>0.00</td>
</tr>
<tr>
<td>4802</td>
<td>Uncoated paper</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Source: UN Comtrade (2017), processed

Table 2 presents the results of IIT analysis of Indonesia’s leading commodities in the African region. The results show that none of the commodities that have a strong integration level. The palm oil & it’s fraction (HS 1511) does not have integration with countries in the African region. This means that Indonesia’s palm oil trade with Africa still has not been to modern international trade, where there are exchanges of goods that are exported but modified or there is a product differentiation. This is in line with the fact that Indonesia is the world’s largest supplier of palm oil in the world along with Malaysia. This condition is also supported by the fact that most of the countries in Africa do not produce palm oil.

Three other commodities, soap (HS 3401), fatty acids (HS 3823), paper
(HS 4802) have only a weak integration level in the African region. This illustrates that Indonesia dominates in trading these three commodities with countries in the African region.

The determinants of export demand of Indonesia’s leading commodities were analyzed to explain the effect of economic variable to the trade flow of Indonesia’s leading commodities in the African market. The result of panel data regression of Indonesia’s leading commodities export can be seen in the Table 3.

**Table 3. The Estimation Results of Panel Data Regression**

<table>
<thead>
<tr>
<th>Variable</th>
<th>HS 1511</th>
<th>HS 3401</th>
<th>HS 3823</th>
<th>HS 4802</th>
</tr>
</thead>
<tbody>
<tr>
<td>ln X\text{ijt}</td>
<td>0.037302***</td>
<td>0.030800***</td>
<td>0.078425***</td>
<td>-0.028167***</td>
</tr>
<tr>
<td>In GDP\text{jt}</td>
<td>-0.993237**</td>
<td>-0.115425**</td>
<td>-4.617320**</td>
<td>3.130879***</td>
</tr>
<tr>
<td>ln DIST\text{jt}</td>
<td>3.701725***</td>
<td>-2.230942***</td>
<td>7.002920***</td>
<td>0.794530</td>
</tr>
<tr>
<td>ln RXP\text{ijt}</td>
<td>-1.767698***</td>
<td>0.551523</td>
<td>0.202164</td>
<td>0.642979***</td>
</tr>
<tr>
<td>ln RER\text{jt}</td>
<td>0.575086</td>
<td>0.884694*</td>
<td>1.453923</td>
<td>-0.851308</td>
</tr>
<tr>
<td>Model</td>
<td>FEM</td>
<td>FEM</td>
<td>FEM</td>
<td>FEM</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.909911</td>
<td>0.969886</td>
<td>0.975360</td>
<td>0.974037</td>
</tr>
<tr>
<td>Adj R-squared</td>
<td>0.866826</td>
<td>0.955484</td>
<td>0.962392</td>
<td>0.961619</td>
</tr>
<tr>
<td>Prob (F-statistic)</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>DW stat</td>
<td>2.155142</td>
<td>2.265333</td>
<td>2.206042</td>
<td>2.305814</td>
</tr>
</tbody>
</table>

***signified at 1%; **5%; *10%

The best model of regression panel data was selected based on the result of Chow test, Hausman test, and Lagrange Multiplier test. Based on those tests, the best regression model is fixed effect model for all commodity analyzed. Based on Table 3, the significant variables affecting exports were vary for each commodity and have met the classical assumption test.

**Value of Previous Year's Exports**

Based on the research hypothesis, the previous year’s export value variables have a positive effect on the performance of Indonesian exports. The results of the analysis show that all coefficients are positive, it is in accordance with the hypothesis and theory in this study, except the paper (HS 4802) that is contrary to the hypothesis and theory because the coefficient is negative. This is because the value of RCA for paper products in the African region tends to decline every year. This indicates that the level of competitiveness for paper products in the African region continues to decline.
The most drastic decline in RCA values occurred in Benin with RCA value of 30.97 for 2013, down to 19.89 for 2014. Paper products also experienced drastic RCA value declines in Ghana from 29.28 in early 2012 down to 17.33 in 2014.

**Real GDP Per Capita**

Based on the results, the real GDP per capita of the destination country has a positive impact on paper (HS 4802) exports at the level of 1 percent. This result has been in accordance with the theory, where the increase in real GDP per capita will positively affect export. The increased real GDP per capita in the importing country can increase people's purchasing power, thus increasing demand for goods from other countries.

The increase in real GDP per capita of African countries has a negative effect on exports of Indonesian palm oil (HS 1511) and fatty acids (HS 3823). This is because the growth of GDP real per capita of African countries tends to decline every year, even in South Africa and Ghana. Real GDP per capita for South Africa continued to decline, in 2011, US $ 8.081 fell to US $ 6.472 in 2014. Similarly, the real GDP per capita of Ghana in 2013 was US $ 1.827 down by 0.21 percent to US $ 1.441 in 2014. The negative growth of real GDP per capita of African countries is negatively impacting Indonesia's commodity trading to the African region.

**Economic Distance**

Economic distance negatively affect export value for soap (HS 3401). Increasing the economic distance between Indonesia and African countries will decrease soap exports from Indonesia to Africa.

The economic distance actually has the opposite effect for palm oil (HS 1511) and fatty acid (HS 3823) which shows positive coefficient. This condition is caused because the majority of countries in Africa do not produce palm oil. This is evidenced by the results of IIT for palm oil that has no integration level. While fatty acid are important inputs for industrial sectors in African countries, especially cosmetics, plastics, paints, tires, pharmacy, detergents and soaps, so that the increase in economic distance does not adversely affect the trade of palm oil and fatty acids to the African market.

**Real Export Price**

The real export price negatively impact the export of palm oil (HS 1511).
Increasing the export price of palm oil to Africa will decline palm oil exports to African region.

For paper (HS 4802), the real export price variable has a positive effect on paper exports to Africa. This is because the increase in price will be followed by improving the quality of paper produced, so the demand for paper is also increasing. The increase of paper exports to the African region is also due to improvements in distribution channels (Ministry of Industry of Republic of Indonesia, 2017). The fact that the people of Africa really like paper products from Indonesia because of its quality also affect the paper trade of Indonesia to Africa. So to meet the paper needs in his country, African countries import from other countries include importing from Indonesia.

**Real Exchange Rate**

The estimation results for real exchange rate variables indicate that Indonesia’s leading commodity exports to Africa are almost unaffected by exchange rates. Only soap commodities (HS 4011) are affected by the real exchange rate. The estimated coefficient shows that the real exchange rate has a significant and positive effect. A positive relationship can mean that if the exchange rate decreases or depreciates, then exports will increase.

Indonesia's real exchange rate against African countries has no effect on most commodities. This is because the volatility level of Indonesian currency and African countries is relatively stable. Even Indonesia's real exchange rate with South Africa and Egypt tend to unchanged from 2010 to 2014.

**CONCLUSION AND POLICY RECOMMENDATION**

**Conclusion**

This study examines the competitiveness and trade flow of Indonesia’s leading commodities to African market using RCA, EPD, IIT, and demand export analysis. Palm oil & it’s fraction (HS 1511), soaps (HS 3401), fatty acids (HS 3823), and paper (HS 4802) are Indonesia’s largest export commodities to African countries. All commodities analyzed have a comparative advantage in the African region. Market position of Indonesia’s leading commodities by EPD matrix shows that palm oil & it’s fraction on rising star, soap on lost opportunity, while fatty acid and uncoated paper were on retreat. The result of IIT showed weak integration level except
palm oil & it’s fraction that has no integration level. The factors that statistically significant in affecting export demand of Indonesia’s leading commodities to African region are the value of previous year’s exports, real GDP per capita, economic distance, real export price, and real exchange rate.

Policy Recommendation

In order to increase the competitiveness and export value, Indonesia has to widen the market to other potential export destination countries which have high of GDP per capita especially in African region. Indonesia also has to establish the free trade agreement to the non-producer country in order to develop the market of Indonesia’s leading commodities. To widen the market, Indonesia has to increase the quality and productivity of leading commodities and improve infrastructure and technology of processing. As a result, the competitiveness of Indonesia’s leading commodities will better in the aspect of quality and price.

REFERENCES


POSSIBILITY AND THE IMPACTS OF BILATERAL TRADE AGREEMENT BETWEEN INDONESIA-SOUTH AFRICA AS NEW STRATEGIC TRADE PARTNER

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Abstract

Under the uncertainty of global economy and political climate, Indonesia should adopt strategic measures for its international trade in order to escalate national economic growth and development. Referring to the current global economic trade, Indonesia’s trade partners, such as China, Japan, and United States, have undergone economic slowdown which led to negative impacts towards the volume of trade with Indonesia. As a response to anticipate the negative impacts, Indonesia should look for new strategic trade partner in another region. This study aims to analyze the possibility and impacts of trade in goods and services between Indonesia and South Africa. The trade may offer substantial economic gains, in particular to Indonesia, due to abundance of Africa’s economic potential and complementary trade pattern between two countries. South Africa requires agricultural products that belong to Indonesia comparative advantage. Nevertheless, the positive impacts from the implementation of trade agreement with South Africa could not be realized if the two countries still adopt protectionist policy. By using mathematical approach, this study suggests that tariff and nontariff barriers provide negative impact towards trade volume of the two countries. Furthermore, this study adopts qualitative and quantitative approach in order to analyze political condition linkage of the two countries in pursuing bilateral trade agreement.

Keywords: Bilateral Agreement; Indonesia; South Africa.

JEL Classification: F10, F13, F53.

INTRODUCTION

After global financial crisis in 2008-2009 that brought severe impacts for almost all countries, the world is currently faced by the global economic uncertainty. The World Bank estimated that global economic growth for this year would only reach to the level 2.7% referring to the last year economic growth that only reached 2.3% (The World Bank, 2017). The global economic uncertainty gets stronger due to the increasing global political situation. Brexit in United Kingdom and the presence of Donald Trump as the President of United States of America (USA) (Elliot, 2017). Moreover, several global big economic players are experiencing economic sluggish. China now has a slowing down economy. The level of both foreign and...
domestic demand gets declining, overproduction of its heavy industries, and the weakening retail sales. Those three are the indicators of sluggish China economic growth in the second half (Bloomberg, 2017).

US in and of itself has experienced the sluggish economic growth as well to the level of 0.7% (Swanson and Ehrenfreund, 2017). On the other side of the world, Japan has also experienced slowing down economic growth to 0.3% (White and Kajimoto, 2014). The global economic uncertainty has triggered to the shift of global economic cooperation pattern. Currently, Asia is increasing its economic cooperation with Africa and vice versa. This is because both Africa and Asia are the highest economic growth in the world and exceeded the global average. However, the rising economic growth of Africa has been overlooked by the world. In recent years, Africa economic growth is approaching Asia. *International Monetary Fund* (IMF) suggested that in the next five years, African continent could be the fastest growing economy in the world (French, 2012).

In responding to such situation, Indonesia needs to take strategic and feasible actions in its foreign economic policy to achieve national economic interest by having new strategic trade partner. In this case, Indonesia has chosen South Africa as the new trade partner. Both countries have reached an agreement to have economic cooperation in promoting trade and investment in 3rd Senior Official Meeting (SOM) Joint Trade Commission (JTC) Indonesia—South Africa (Kementerian Luar Negeri RI, 2017).

This paper argues that the new trade cooperation agreement between Indonesia and South Africa is unique and there are several reasons why it needs to be further analyzed. First, the cooperation between two countries is the new economic trend because generally, developing countries is prone to have trade and investment cooperation with developed countries to get more economic benefits (Low, 2001).

Second, South Africa’s foreign trade policy is protectionist (Freytag, 2011). This becomes the main impediment for the trade partners to enter the domestic market. Third, Indonesia motivation in choosing South Africa is important to analyze. Compared to the other African
countries, the economic growth of South Africa is not growing rapidly. In Africa, Ivory Coast is the fastest growing economies with annual growth to reach 8.5% (Myers, 2016). This can be vividly seen from the table below that shows South Africa is not considered as fastest growing economies in African continent. Countries like Mozambique, Kenya, Rwanda, Djibouti, Senegal, and Tanzania are supposedly able to be the strategic partner for Indonesia.

![Percentage of Annual Real GDP Growth in African countries](image)


This paper tries to answer several important questions, 1) Why does Indonesia intensify the economic cooperation (trade and investment) with South Africa, instead of other more strategic countries? 2) What are the economic benefits that Indonesia can reap from the cooperation with South Africa? This becomes the basis for this paper to analyze the Indonesia motivation and economic benefits that South Africa can offer.

**RESEARCH METHODS**

In this paper, we applied both qualitative and quantitative methods. The qualitative methods was applied for examining political economy considerations upon the cooperation between Indonesia and Africa in general, as well as South Africa in particular.

In order to stimulate the impact of tariff imposed to the total output in the economy, we applied the mathematical approach as the quantitative methods. Our hypothesis from this particular equation suggested that tariff and nontariff barriers provide negative impact towards trade volume of the two countries.

**RESULTS AND DISCUSSION**

Indonesia needs to find another trading partner that can provide a potential market. This must be done because Indonesia’s main trading partners, which are mostly developed economies, have a slowing down economy. Given this condition, Indonesia government has shown its interest to seek for business
and investment opportunities in African countries. Indonesia is willing to increase economic cooperation with African countries which for so long time was never put as a priority. Indonesia then chose South Africa as a trading partner in order to bolster the country’s presence on the African continent. Indonesia and South Africa had already been in process to finalize the 2017-2021 Strategic Partnership as a basis of economic cooperation (Salim, 2017).

In this part, this paper further analyzes the economic cooperation between Indonesia and South Africa. First, the analysis starts from the macroeconomic indicators of South Africa in order to understand how potential South Africa’s market is. Second, this paper analyzes trade indicators of both South Africa and Indonesia. Lastly, there would be an analysis to explore the barriers for the partnership between Indonesia and South Africa.

**Macroeconomic Indicators of South Africa**

South Africa has been classified as upper middle-income countries by World Bank. This country has GDP worth 294.841 billion US dollars. This size of GDP is relatively large in comparison with other economies in Africa continent. According to Figure 1, South Africa’s GDP is the second largest among top 10 economies across Sub Saharan Africa in 2016. Nigeria has the biggest size of GDP that is worth 405.083 billion US dollars. With this relatively huge size of GDP, South Africa has a big market that could offer lots of business and investment opportunities. Therefore, Indonesia’s plan to increase economic partnership with South Africa is very strategic.

![Figure 2. Top 10 GDP in Sub Saharan Africa](source: World Development Indicator)
Although South Africa has a relatively huge size of GDP, this country is currently facing a slowing down economic performance. According to figure 2, South Africa’s GDP growth is continuously decreasing where the economic growth hit 0.2% in 2016. This sharp decline was one of the worst in more than two decades which happened to almost all countries in Sub-Saharan Africa region (World Bank, 2017).

The decline in economic growth shows that South Africa and the others are not resilient to external factors. The economy of South Africa is dependent on commodity exports, which caused the country dependent on commodity prices. As the commodity prices deteriorates, the revenue of South Africa decreases. This negative effect on low commodity price to South Africa’s revenue results a budget deficit. South Africa had reached 4% in 2016, and the National Treasury Republic of South Africa planned to narrow the deficit to 3.7% in 2018 and 3.8% in 2019 (National Treasury Republic of South Africa, 2017). Besides, the World Bank has projected economic growth in Sub-Saharan Africa to reach 2.6% in 2017 and continue to increase in 2018-2019 as the commodity price is projected to improve (World Bank, 2017).

Figure 3. South Africa’s GDP Growth, 2007-2016

Source: World Development Indicator
Trade Indicators

Figure 3 shows South Africa’s total exports and imports from 1992 to 2016. In 2016, South Africa exported 89.771 billion US dollars and imported 89.256 billion US dollars. It resulted South Africa to have surplus worth 515 million US dollars. The effect of low commodity price can be seen from trade deficit depicted in figure 4. South Africa had been through trade deficit for four years.

![Figure 4. South Africa's Exports-Imports (Current USD) 1992-2016](image)

Source: World Development Indicator

Figure 5. South Africa’s Trade Balance (Current USD) 1992-2016

Source: World Development Indicator

South Africa mainly exports primary commodities. Table 1 below shows top 10 South Africa’s commodity exports in 2015. These commodities are classified
as raw materials which provide low value-added. The most important commodity exports for South Africa is gold which accounts for 10.7 percent from total South Africa’s exports in 2015. These commodities are subject to the volatility of commodities prices. Given this condition, several economists suggest South Africa to shift from resource-based economies into a more industrial-based economy.

Table 1. South Africa’s Main Commodity Exports, 2015

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Value (in billion US$)</th>
<th>% of Total SA’s Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>10</td>
<td>10.7</td>
</tr>
<tr>
<td>Diamonds</td>
<td>9.83</td>
<td>10.5</td>
</tr>
<tr>
<td>Platinum</td>
<td>9.7</td>
<td>10</td>
</tr>
<tr>
<td>Coal Briquettes</td>
<td>6.34</td>
<td>6.8</td>
</tr>
</tbody>
</table>

Table 2. South Africa's Main Commodity Imports, 2015

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Value (in billion US$)</th>
<th>% of Total SA’s Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude Petroleum</td>
<td>8.67</td>
<td>11</td>
</tr>
<tr>
<td>Refined Petroleum</td>
<td>4.42</td>
<td>5.5</td>
</tr>
<tr>
<td>Cars</td>
<td>4.24</td>
<td>5.2</td>
</tr>
<tr>
<td>Computers</td>
<td>2.02</td>
<td>2.5</td>
</tr>
<tr>
<td>Gold</td>
<td>1.9</td>
<td>2.4</td>
</tr>
<tr>
<td>Broadcasting Equipment</td>
<td>1.62</td>
<td>2.3</td>
</tr>
<tr>
<td>Packaged</td>
<td>1.58</td>
<td>2</td>
</tr>
</tbody>
</table>


South Africa imports goods that would be used as inputs in manufacturing process. In 2015, South Africa imports crude petroleum that accounts for 11 percent from total South Africa’s imports. If we compare type of commodities represented in table 1 and table 2, then we could conclude that South Africa imports commodities whose value added is higher than its export commodities.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Value (in billion US$)</th>
<th>% of Total SA’s Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicaments</td>
<td>1.47</td>
<td>1.8</td>
</tr>
<tr>
<td>Vehicle Parts</td>
<td>1.39</td>
<td>1.7</td>
</tr>
<tr>
<td>Delivery Trucks</td>
<td>1.01</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Trade between Indonesia and South Africa

Indonesia and South Africa have traded through exports and imports for long period of time. South Africa and other African countries are important Indonesia’s trading partners; however
Indonesia has not exploited business and investment opportunities. One of the reason why Indonesia did not focus on trade with Africa is the geographical proximity. Indonesia prefers to trade with Asian countries due to its geographical location that is close to Indonesia. The agreement reached between Indonesia and South Africa is a momentum to expand its economic cooperation to African countries, especially with South Africa.

Table 3 below gives the information on annual trade complementarity index (TCI) from 2003 to 2013 where Indonesia is treated as an exporting country. TCI provides information on how well the structures of a country’s exports and imports match. The index ranges from zero to one. If the index value is one, the export and import shares are exactly match. Table 3 only provides TCI data for top 10 big economies in Sub Saharan Africa region which are treated as importer for Indonesian commodities. We could find that South Africa has relatively higher TCI compared to other countries. In 2005, South Africa is the only country that Indonesia has TCI with value of 0.5. South Africa also shows consistent TCI at 0.4 which declined in 2005. Therefore, Indonesia has a more complementary trade with South Africa than other Sub-Saharan African countries.

Some might argue that 0.4 as the value of TCI is quite low and it becomes the reason not to intensively trade with South Africa. There are several factors that create relatively low TCI. The first reason is low intensity trade between the two countries. As mentioned earlier, Indonesia and South Africa have never put one to each other as priority trading partner. Secondly, both countries focus on trade with countries which are geographically close to them. This results on types of commodities traded by Indonesia and South Africa. More intensive trade could increase TCI because there would be more types of commodities traded between the countries.
Table 3. Annual Trade Complementarity Index, Indonesia as Exporter (2003-2013)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>South Africa</td>
<td>0.4</td>
<td>0.4</td>
<td>0.5</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Sudan</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Angola</td>
<td>0.3</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Kenya</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Tanzania</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Ghana</td>
<td>0.4</td>
<td>0.3</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Cote d'Ivoire</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Congo</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Source: UNCTADStat, access: http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx

The other aspect that needs to be considered is the commodities which are traded by both countries. Table 4 below give the information on what Indonesia imported from South Africa in 2016. From table 4, Indonesia main import commodities are such chemicals, wood pulp, aluminum, and fruits. One important information from table 4 is that Indonesia has been cooperative in facilitating trade where Indonesia provide relatively low ad valorem tariff. Indonesia imposed tariff lower than 10 percent for these 10 import commodities.

Table 4. Indonesia's Top 10 Imports from South Africa, 2016

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Product Label</th>
<th>Value in 2016, USD thousand</th>
<th>Equivalent ad valorem tariff applied by Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard</td>
<td>103,228</td>
<td>2</td>
</tr>
<tr>
<td>71</td>
<td>Natural or cultured pearls, precious or semiprecious stones, precious metals, metals clad with precious metals and articles thereof; imitation jewelry; coin</td>
<td>28,814</td>
<td>5</td>
</tr>
<tr>
<td>72</td>
<td>Iron and steel</td>
<td>25,483</td>
<td>5</td>
</tr>
</tbody>
</table>
The table 5 is the information of South Africa’s imports from Indonesia in 2016. South Africa mainly imports motor vehicles, rubber, footwear, tires, and papers. Unlike Indonesia, South Africa imposed relatively high tariffs for several commodities. In table 5, footwear is a commodity which are imposed the highest ad valorem tariffs, followed by vehicles. Although South Africa imposed high tariffs for footwear and vehicles, South Africa has shown its effort to reduce several tariffs. Imports for machinery and chemical products would be an example that South Africa imposed quite low tariff.

Table 5. South Africa’s Top 10 Imports from Indonesia, 2016

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Product Label</th>
<th>Value in 2016, USD thousand</th>
<th>Equivalent ad valorem tariff applied by South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes</td>
<td>216,390</td>
<td>9</td>
</tr>
<tr>
<td>64</td>
<td>Footwear, gaiters and the like; parts of such articles</td>
<td>51,279</td>
<td>28</td>
</tr>
<tr>
<td>87</td>
<td>Vehicles other than railway or tramway rolling stock, and parts and accessories thereof</td>
<td>47,449</td>
<td>16</td>
</tr>
<tr>
<td>40</td>
<td>Rubber and articles thereof</td>
<td>36,343</td>
<td>16</td>
</tr>
<tr>
<td>84</td>
<td>Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof</td>
<td>32,231</td>
<td>2</td>
</tr>
<tr>
<td>85</td>
<td>Electrical machinery and equipment and parts thereof, sound recorders and reproducers, television image and sound recorders and</td>
<td>26,461</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 4 and 5 give another essential information regarding the trade between Indonesia and South Africa. South Africa mainly exports chemicals, wood pulp, aluminum, and fruits. These commodities are not top 10 export commodities of South Africa as represented in Table 1. Indonesia is similar with South Africa. Indonesia mainly exports motor vehicles, rubber, footwear, tires, and papers. These commodities are not Indonesia’s revealed comparative advantage. Anderson & Strutt (2015) had calculated revealed comparative advantage indexes for Indonesia, China, and the other ASEAN countries using Global Trade Analysis Project (GTAP) model. Their calculation showed that Indonesia’s revealed comparative advantage is agricultural commodities. Therefore, we could also see that both Indonesia and South Africa mainly traded goods which they are highly advantaged. It shows that countries could have trade even for the commodities they are not really competitively advantaged.
Figure 5. ‘Revealed Comparative Advantage Indexes by Sector, 2007 and 2030
Source: Anderson & Strutt (2015)

**Barriers to Enter South Africa’s Market**

However, irrespective of how strategic South Africa is for Indonesia, South Africa’s foreign trade policy is currently imposing protectionism. Its tariff rate that is twice higher than EU imposed made Indonesia unable to explore the potentials of business and investment opportunities from trading with South Africa. However, President Jokowi and Zuma recently had already agreed to soon discuss lowering tariff and non-tariff trade barriers for top quality products and commodities (Halim, 2017).

**Mathematical Approach to Explain Negative Effects of Tariff**

It has been discussed macroeconomic indicators of South Africa and trade relations between Indonesia and South Africa. It has been recognized as well that Africa has imposed relatively high tariff, although the country had made commitment to lower this tariff barrier. In this part, we are going to see the mathematical explanation on the negative effects of tariffs and propose South Africa to reduce its tariffs. We are going to use supply side of exchange rate.

Krugman, Obstfeld, & Melitz (2012) explained that tariffs would increase the general price level within a particular economy. The general price level is a composite price consisting price of domestic goods and price of imported goods. If the Home government imposed tariff on imported goods, then the price of imported goods would increase. This would result in
decreasing demand for imported goods decreases and increasing general price level. Tariffs would create inefficiency within the economy which represented by the deadweight loss for both consumers and producers. Therefore, we are going to use price as the proxy to estimate the impact of tariff to the economy.

We are going to make several assumptions before we do the estimation. We assume that both Indonesia and South Africa are small open economies. Another assumption is both of these economies adopt competitive market.

Here is the structural equation from supply side of exchange rate:
\[ Y = C(Y) + I(r) + G + X \left( \frac{EP^X}{P_D} \right) - \]
\[ E_P^{IM} IM \left[ Y, \frac{EP^{IM}}{P_D} \right] \] \hspace{1cm} (1)
\[ P = \gamma P_D + (1 - \alpha)EP^{IM} \] \hspace{1cm} (2)
\[ PL(r, Y) = D + R \] \hspace{1cm} (3)

Equation (1) describes the equilibrium condition between demand and supply of domestic products. Equation (2) describes general price level within a particular economy. The general price level is a combination between domestic price and price of imported goods. Equation (3) describes the equilibrium condition in money market.

We need to add several assumptions before we proceed to the estimation. We assume:
- The domestic price \( P^D \) does not equal the price of imported good \( P^{IM} \)
- The domestic price: \( P^D = 1 \)
- \( \gamma \neq 1 \)
- \( M = D + R \)

By using this additional information, we could transform the structural equations into:
\[ Y = C(Y) + I(r) + G + X[EP^X] - \]
\[ EP^{IM} IM[Y, EP^{IM}] \] \hspace{1cm} (4)
\[ P = \gamma P^D + (1 - \alpha)EP^{IM} \] \hspace{1cm} (5)
\[ PL(r, Y) = M \] \hspace{1cm} (6)

Equation (5) has important economic intuition. We first need to find the total differential, then we find the partial derivative with respect to a particular explanatory variable.
\[ dP = (1 - \gamma)P^{IM}dE + (1 - \gamma)EdP^{IM} \]
\[ \frac{dP}{dE} = (1 - \gamma)P^{IM} > 0 \] \hspace{1cm} (7)
\[ \frac{dP}{dP^{IM}} = (1 - \gamma)E > 0 \] \hspace{1cm} (8)
Equation (7) states that a depreciation (an increase in $E$) would increase the general price level, ceteris paribus. Equation (8) states that an increase in price of imported goods would increase the general price level, ceteris paribus. We could see that depreciation of a currency and an increase in price of imported goods would increase the cost of living since the general price level increases.

The next step, we need to find the total differential from equation (4), (5), and (6)

Total differential of equation (4)
\[ dY = C_1 dY + I_1 dr + dG + X_1 EP^x dE + XP^x dP^x - IMP^{IM} dE - EIM dP^{IM} - EP^{IM} IMY dY - EP^{IM} IM E dE - E^2 P^{IM} IM^{P^{IM}} dP^{IM} \]

After we have already found the total differentials, we transform these three equations into a matrix:

\[
\begin{bmatrix}
 h & -A \\
 0 & -(1 - \gamma)P^{IM} \\
 PL_Y & 0 \\
\end{bmatrix}
\begin{bmatrix}
 dY \\
 dE \\
 dP \\
\end{bmatrix}
= 
\begin{bmatrix}
 I_r & 1 & EP^x & -Z & 0 \\
 0 & 0 & 0 & (1 - \gamma)E & 0 \\
 -PL_r & 0 & 0 & 0 & 1 \\
\end{bmatrix}
\begin{bmatrix}
 dr \\
 dG \\
 dP^x \\
 dP^{IM} \\
 dM \\
\end{bmatrix}
\]

Before we would like to estimate the impact of tariffs, we have to make sure
whether the matrix system above has a unique solution or not. Then we need to find the determinants of matrix J.

\[ |J| = \begin{vmatrix} h & -A & 0 \\ 0 & -(1 - \gamma)P^{IM} & 0 \\ P_L & 0 & L \end{vmatrix} = h[-(1 - \gamma)P^{IM}L] < 0 \]

Since the determinant of matrix J does not equal zero, we conclude that the matrix system above has a unique solution.

Now we could estimate the impact of tariffs to the economy. As tariff would increase price of imported goods, we would use \( P^{IM} \) as the proxy of measurement. Therefore, we are going to find the first derivative of \( Y \) with respect to \( P^{IM} \).

\[
\frac{dY}{dP^{IM}} = \frac{1}{|J|} \begin{vmatrix} -Z & -A \\ (1 - \gamma) & -(1 - \gamma)P^{IM} \\ 0 & 0 \end{vmatrix} = \frac{Z(1 - \gamma)P^{IM}L + A(1 - \gamma)EL}{|J|} = \frac{(1 - \gamma)L[(ZP^{IM} + AE)]}{|J|} < 0
\]

The calculation above showed that an increasing price of imported goods have a negative effect on total output. In other words, imposing tariffs would have negative impact to the economy.

*Political Economy on Indonesia—South Africa Economic Cooperation*

Amplifying spirit of historic Bandung conference, Indonesia utilized the momentum of the 60th anniversary of Konferensi Asia Afrika (KAA) to call the greater cooperation of Asia and Africa under the New Asia-Africa Strategic Partnerships. By this cooperation, Indonesia committed to work together with South Africa to assist another countries in region of Africa in order to boost trade and investment (SABC News, 2015). This partnership scheme aims to foster relations between developing countries.

Bilateral relations between the two countries have been nurtured well so far. During South African President Jacob Zuma bilateral meeting with Indonesia in March 2017, President Zuma acknowledged the strong foundation of bilateral friendship based on Indonesia’s key role in supporting the South African’s struggle for freedom in the past. Furthermore, Indonesia and South Africa had agreed “to take our partnership to the next level.” (The Jakarta Post, 2017). With that being said, it would be a clear indicator toward strong intentions regarding further and deeper partnership.

The foreign economic policy is indispensable from political
consideration. In this case, this paper found two reasons of why cooperation with South Africa is politically lucrative and beneficial for Indonesia.

First, South Africa offers Indonesia an entry point to African market. In this case, even though South Africa is geographically located at the southern edge of the African continent, it has a strategic role as a hub for the region, particularly for regional headquarters of foreign companies whose business in sub-Saharan Africa from Johannesburg and to some extent from Cape Town. The reason why South Africa has a strategic role as regional hub is because not only from the transport geography, but also due to the high economic development in South Africa that brought a good environment that facilitates business activities, including transport (Scholvin and Draper, 2012). For Indonesia, South Africa can be the entry point for Indonesian products to Southern African Custom Union (SACU) countries (Tempo, 2017).

Second, there is an urgency from Indonesian business entities to the government to penetrate South African Market. Business entities were having their business summit during Joko Widodo’s presidential visit this year to Africa, including South Africa. The representatives explored the possibility of further expansion of strategic industries to the region. (The Jakarta Post, 2017).

CONCLUSION AND POLICY RECOMMENDATIONS

In this paper, we have shown that the bilateral trade between Indonesia and South Africa may offer substantial economic gains, in particular to Indonesia, due to abundance of Africa’s economic potential and complementary trade pattern between two countries. However, the positive impacts from the implementation of trade agreement with South Africa could not be realized if the two countries still adopt protectionist policy, suggesting that the two countries should lower their respective tariffs.

By examining the political economy considerations between Indonesia-South Africa cooperation, further relations shall be pursued due to two principal reasons. First, South Africa as the entry point for Indonesian products to African market. Second, there is an urgency from Indonesian business entities to the government to penetrate South African Market.
Based on the elaboration above, we offer several policy recommendations in order to enhance further beneficial trade agreement between the two parties.

1. Lowering the tariffs.

According to the calculation, South Africa can rely on trade to boost its economic growth. Through lowering the tariffs, the price of imported goods would be lower, then the impact to the total output would be positive. In other words, having an open economy where foreign countries can have access to the market, your economy would grow.

2. Indonesian Government should encourage Indonesian business entities to actively engage in South African market.

Taking into consideration the political economy circumstances, Indonesian business entities should actively engage in South African Market, under the impetus of Indonesian government. This could be applied both for private enterprises, as well as state-owned enterprises. Kamar Dagang dan Industri (KADIN) Indonesia should be the focal point, or a catalyst, to boost the trade relations. In this regard, investment has to be the integral part for further negotiations, such as promotion, facilitation, and protection of Foreign Direct Investment (FDI). Also, the government should be aware of financing issues, encouraging export-import banks of the two parties to facilitate the financial transactions.

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Abstract

The opportunity for Indonesia to further develop its export of fish and processed fish products is immense. However, Indonesia still face obstacles when exporting fish and processed fish products to the global market. Even though Mutual Recognition Agreement (MRA) on Fish Inspection and Quality Control System has been signed between Indonesia and Canada but it has not optimally boosted the increase of Indonesian fish exports to Canadian market. This study aims to analyse factors determining Indonesian fish and processed fish products being export to Canada. Using augmented gravity model which utilizes GDP per capita of both Indonesia and Canada, real exchange rate, and MRA as independent variables on bilateral export, the result of this study concludes that Indonesian GDP per capita, exchange rate, and MRA have positive and significant effect to Indonesian export on fish and processed fish products while Canadian GDP per capita has negative and significant impact on export. This study also found that the ability to meet buyer requirements in term of private standards also determining products access to the market. This study suggests that there is a need to develop regulatory framework which enable fish sectors can comply private standards and requirements hence bolstering export to Canadian market.

Keywords: Market Access; Canadian Market; Fish and Processed Fish Products

JEL Classification: F43, O13, O24, Q22

INTRODUCTION

Indonesia is an archipelago with vast oceans that comprise nearly two-thirds of its total area. Therefore, fish products can be a potential for Indonesia as a source of economic activity. The contribution of fisheries sector to Indonesian national GDP in 2016 was 2.3 per cent.\(^1\) Indonesian fish and processed fish products have promising potential for export. The export value of Indonesian fish and processed fish products was US$2.9 billion and US$0.9 billion respectively in 2016, which represents a growth of 3.5 and 5.3 per cent from 2011.\(^2\) The top destination countries for Indonesia’s fish and processed fish products are the United States, Japan, China, Thailand, Russia, and some European countries.

The opportunity for Indonesia to further develop its exports of fish and processed fish products is immense. This is in line with government policy especially Ministry of Trade which aims to increase export of some potential products including fish and processed fish products. Nevertheless, Indonesian

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\(^1\) Indonesian National Statistic Agency (BPS)  
\(^2\) International Trade Centre
fish and processed fish products still face obstacles when exporting to the global market for example tuna. As one of Indonesia’s potential products, tuna experienced facing refusal in United States and Russia market due to salmonella contamination. These rejections of tuna indicate that Indonesian fish products are still hampered by non-compliance with food safety standards in destination market.

Canada is not Indonesia’s main export destination country for fish and processed fish products. Canada is not Indonesia’s main export destination country for fish and processed fish products. Canada, even, only rank in 17th as Indonesia destination country for fish and processed fish products. As world supplier, Indonesia ranks in 12th in Canadian market, with a market share slightly above 1 per cent.

One of the reasons underpinned Indonesian fish exports still low in Canada is predictably likely due to high food safety standards. But this presumption is not reasonable because the United States as a country with relatively same high food safety standards, it became the main market of Indonesian fish products exports instead.

A prerequisite to penetrating global markets is to ensure that producers and suppliers in exporting countries comply with global standards, whether these are public or private standards. In principle, food safety standards, also known as SPS standards, are introduced by governments in the interest of society, to achieve the important social objective of protecting public, animal, and plant health, and to protect the environment.

Another question underpinning this study is why Indonesia's exports to Canada are relatively small compared to Vietnam and Thailand. Vietnam and Thailand is two major suppliers for fish products in Canadian market. Whereas, the type of Indonesian marine resources with those countries is relatively same.

It is also important to note that Indonesia exports fewer to the Canadian market than the US market even though there has been a signing of Mutual

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3 Ningsih. R, 2014

4 Sanitary Phytosanitary (SPS) measures/standards according to the WTO Agreement defined as “all relevant laws, decrees, regulations, requirements and procedures including, inter alia, end product criteria; processes and product methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transportation of animals and plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety”.
Recognition Agreement (MRA) between Indonesia and Canada since 2002 regarding the inspection and quality control for fisheries products. This is an opportunity for Indonesia to better penetrate the Canadian market, especially since the demand for fisheries products is growing by 4.5 per cent from 2006 to 2016, and total value reached just over US $2 million.\textsuperscript{5}

Even though Canada is potential market, but it is one of the highest-ranked countries in adopting food safety standards.\textsuperscript{6} After the Listeriosis outbreak case in 2008, the food safety system in Canada became continuously developed\textsuperscript{7}. Well-developed food safety standard has eventually influenced and encouraged the market and industries to adopt a better and safer food production and management system for consumers. The implementation of food safety standards in term of both public and private standards has challenged exporting countries including Indonesia to comply with those standards.

This study aims to determine factors that influence Indonesian fish and processed fish products export to Canadian market. The second is to analyse on how the application of standards and buyer requirement effect export to Canadian market.

\section*{METHODS}

To analyse factors determining export of Indonesian fish and processed fish products to Canadian market, we employ Augmented Gravity Model. This model is utilized to estimates Indonesian fish and processed fish products export. This model is written as follows:

\[
\ln(\text{Fish}_{ijt}) = \beta_0 + \beta_1 \ln(\text{GDP/cap}_{it}) + \beta_2 \ln(\text{GDP/cap}_{jt}) + \text{RelER} + \text{Dummy (MRA)} + \varepsilon_{ijt}
\]

This augmented model is expanded from base Gravity Model which use variable Gross Domestic Product (GDP), population and distance as basic parameters. However, this model utilized GDP/cap rather than GDP. The real GDP in this model was calculated from GDP constant price multiple by GDP deflator. Then we divide real GDP with population. The \(\ln(\text{Fish}_{ijt})\) is logarithmic value of actual fish and processed fish export product from Indonesia to Canada. Then, \(\ln(\text{GDP/cap}_i)\) and \(\ln(\text{GDP/cap}_j)\) are the GDP/cap in logarithmic value for partner country (Canada) and Indonesia, respectively. The GDP/cap is used to be

\textsuperscript{5} International Trade Centre
\textsuperscript{6} Le Vallee, J.C., and Charlebois, S. 2015.
\textsuperscript{7} Report of the Independent Investigator into the 2008 Listeriosis Outbreak
a proxy of income (welfare) as well as purchasing power.

The two other variables are also utilized in this Augmented Gravity Model. There is relative exchange rate \((\text{Re}\text{ER}_{ij})\) that indicates the ratio of Indonesia and Canada exchange rate and dummy variable of Mutual Recognition Agreement (MRA). For this parameter, the data series from 1997 until 2001 is zero and from 2002 until 2016 is one. This variable is to capture the effect of MRA to Indonesian export of fish and processed fish products.

**Data**

This research utilizes data from various sources. The export value of fish and processed fish products are available from UN-COMTRADE data using HS 1989 classification system. It provides data of fish and processed fish export from 1997 to 2016. The data of Gross Domestic Product and population of Canada and Indonesia were taken from World Economic Outlook database. Data of exchange rate is also available in the same source.

Information and data from literature and other sources, as well as interview with stakeholders includes food safety stakeholders in Canada are also used in this analysis.

**RESULTS AND DISCUSSION**

**Standards and Buyer Requirements**

Canada is country which has improved standards on food safety. Currently, the government of Canada is establishing new and more comprehensive regulations called the Safe Food for Canadians Regulations (SFCR). The SFCRs would replace the current regulations made under the Canada Agricultural Products Act, the Fish Inspection Act, the Meat Inspection Act, and the food-related provisions of the Consumer Packaging and Labelling Regulations.

As mentioned previously that Canada has one of the best food safety systems in the world.\(^8\) This can be implicitly reflected in standards that are developed in supporting food safety. There are many public and private standards and requirements regarding food safety.

In regard of private standards, certified environmental and sustainability products such as Marine Stewardship Council (MSC), Aquaculture Stewardship Council (ASC) and Best Aquaculture Practices (BAP) are widely adopted in the Canadian market and become challenging for

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\(^8\) Le Vallee, J.C., and Charlebois, S. 2015
supplier form abroad since these are widely requested by the importers.

Among those certifications, MSC certificate has been mostly adopted in the world including Canadian market. Most of retailers such as Loblaw and Whole Foods ask for this certificate. Friend of the Sea (FoS) who manages on fish stock sustainability for both farmed and wild-caught fish products are also adopted by retailers. Another example of certification is Global Trust which is based on the United Nations Food and Agriculture Organization (FAO).

The most common standards applied in Canada are related to traceability and environmental sustainability. In the future, the market will drive to implement stronger regulations on the food safety, environment, traceability and animal welfare.

**Estimate Results of Model**

The parameter estimates for the Augmented Gravity Model are reported in Table 1. The log GDP per cap Canada is negative and significant in all models: OLS, Random Effect and Fixed Effect. This indicates that income of Canada is negatively correlated with Indonesian fisheries export. The coefficients of GDP/cap of Canada in three models have the same value indicates that model is relatively robust. Meanwhile, Indonesian GDP/cap is positive and significant in all models: OLS, Random Effect and Fixed Effect. Positive sign of Indonesian GDP/cap means that increase in GDP/cap of Indonesia may affect the increase of fisheries export value from Indonesia into Canada. The increase of DGP/cap of Indonesia reflects the growth of production in sectors and it will boost export.

On the other hand, the increase GDP/cap of Canada leads the decrease of Indonesian fish export. This can be explained by consumer preference in Canada. As a developed country, demand of products that meet standards of environment and animal welfare will raise and create a niche market. The characteristic products that have been complied with those standards will create higher price. That is why the increase of GDP/cap of Canada will decrease export.

Real exchange rate is positive and significant. While for MRA, the sign shows negative for fixed effect model and positive for OLS and random effect. It is as expected that MRA should facilitate trade between country because
there has been a mutual recognition on inspection and quality control system.

Table 1. Estimation results

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>OLS</th>
<th>Random Effect</th>
<th>Fixed Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log GDP/cap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>-1.134</td>
<td>-1.134**</td>
<td>-1.134</td>
</tr>
<tr>
<td>Log GDP/cap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>1.528*</td>
<td>1.528**</td>
<td>1.528</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>2.084**</td>
<td>2.084**</td>
<td>2.084</td>
</tr>
<tr>
<td>MRA</td>
<td>0.156</td>
<td>0.156**</td>
<td>-0.156+</td>
</tr>
<tr>
<td>Observations</td>
<td>42</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.539</td>
<td>0.733</td>
<td></td>
</tr>
<tr>
<td>Number of commodity</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses
** p<0.01, * <0.05, + p<0.1

Source: Author’s calculation

Factors Challenge Indonesian Export

Before entering Canadian market, such certifications must be issued by entities of recognized impartiality and competence body. This is to make sure that exported products have consistent quality that meet with Canadian and international standards. This is a big challenge for Indonesia’s fisheries sector, especially when they want to export to Canada then they need to be aware of standards and buyer requirements in the Canadian market. This is not easy because many countries apply public standards as sanitary and phytosanitary (SPS) or technical barrier to trade (TBT) with different levels of stringency. This also poses a problem as it affects the cost of complying with those standards. The most vulnerable impacted parties from those measures are small and medium enterprises (SMEs), because of their lack of capacity to comply with the standards.

Regarding SPS standards being applied in Canada, based on statistic data from CFIA, many cases include revocation and suspension on license of food products occurred. This indicates that some products have been noncompliance with SPS measures imposed by Canada. In 2014 from total 28 cases, 1 identified of fisheries products. While in 2015, it was identified 3 cases from fisheries products form total of 21 cases. And by the year 2016, the case increases become 8 from total of 19 cases. Over the last three years, there are indications that noncompliance case of SPS measures increase dramatically.9

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9 Canadian Food Inspection Agency
Nonetheless, based on trade survey conducted by Center Food in Canada, food safety and traceability is top challenge for developing countries. It is difficult for supplier in developing countries to get food safety certification since they do not have good food safety practices in their countries. Moreover, Canadian national commodity association presented that according to the new proposed regulation, the safe Food for Canadian Act, the license requirements become more stringent. This could make developing countries suppliers burdened by high cost of compliance.

Trade survey also resumed that there were other factors that challenge developing countries in penetrating Canadian market such as Canada’s small market size and lack of physical infrastructure. Whereas, from the suppliers’ side, they face some challenges in exporting inter alia the lack of financial incentives or support, strong competition, the high cost of logistics, lack of business opportunities, and a lack of knowledge on how to export. The lack of knowledge on how to exports becomes foremost factor that cause minimum access to export besides lack of marketing channel.

Aligned with trade survey result, study on Indonesia’s trade access to the European Union,\textsuperscript{10} highlighted that there were at least three constraints faced by Indonesian exporters to enter the European Union market specifically, and the global market in general. Firstly, the major impediment is SPS requirements in the international market. The second is meeting international standards (as private standards) since they often lack of information and face excessively high costs in meeting those standards. The third, most of Indonesian laboratories are unable to provide all testing and analysis required by international standards.

It is also hard for SMEs to overcome challenges in meeting international standards since they are often lack of information and face excessively high costs in meeting those standards. The highest component of compliance cost is to an auditor services which have to be imported from outside. Other than that, Indonesian laboratories are unable to provide all testing and analysis required by international standards. Even, the exporters have to come to other laboratories that are more well equipped. Since applied standards

\textsuperscript{10} Indonesia’s Trade Access to the European Union: Opportunities and Challenges
are vary and different among the countries, it will burden exporters with the cost of compliance. It also hard to find accredited certification body that could certify the products align with global standards. This will certainly be a challenge for provider of quality testing services and certification bodies in Indonesia to get recognition in international market. All of these conditions reflect that Indonesia is still lack of supportive infrastructures as a factor driving export. Weak infrastructure support will eventually affect export quality and performance.

Policy support from government is also important. In a meeting on food safety requirements and standards abroad, an Indonesian association representative of pole and hand line fishing stated that, until now, Indonesian tuna products are still not yet certified by the Marine Stewardship Council (MSC).\textsuperscript{11} Since 2010, the Indonesian Ministry of Fisheries and Marine Affairs has proposed MSC certification for certain fish products such as skipjack, crab, big eye grouper and yellow fin tuna. Regrettably, they have not yet been approved. Lack of regulatory support from government is still restricting local tuna producers’ ability to comply with MSC standards. Support here is defined as the issuance of policy or regulations to regulate the distribution of capture quota at sea. Without having a clear distribution of capture quota at the sea, producers will not possibly get the MSC certificate. While the MSC certificate is one of the most requested by importers in the Canadian market. It might be challenge for the Government of Indonesia to start to formulate regulations that can accommodate this need.

CONCLUSION AND POLICY RECOMMENDATION

Based on estimation of model, it concludes that all factors including MRA are significantly influencing export. Another factor influences Indonesian export in Canadian market is the application of standards on food safety. Consumers or buyers in Canada also seek some certification such as environment, sustainability, and animal welfare.

The augmented gravity model not utilize trade barrier so it cannot be concluded quantitatively that standards hampering export. But qualitatively, both public and private standards have

\textsuperscript{11}See http://www.mongabay.co.id/2015/12/18/nelayan-tuna-kejar-sertifikat-msc/
influence on export of Indonesia’s fish and processed fish products.

Even though MRA significantly has effect on increase export, but standards such as SPS measures are still a significant constraint for Indonesian exporters in Canadian market.

In regard of private standards, certified environmental and sustainability products such as MSC, ASC and BAP become challenging since these are widely requested by the importers.

In order to meet buyer requirements, it should be supported by government by providing regulatory framework which supports fish sectors to enable access to get certification of compliance of private standards such as MSC, ACS and GAP.

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REPEALING CIRCUMVENTION AGAINST ANTI-DUMPING ACTIONS IN INDONESIA: CASE STUDY OF EXISTING CONDITION IN SELECTED STEEL SECTORS AND BENCHMARKING FROM WTO MEMBERS’ BEST PRACTICES

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Abstract

Since there has been no specific rules agreed by WTO members on anti-circumvention provisions, some WTO member states such as the United States and European Union have adopted anti-circumvention rules on their domestic regulation. In fact, Indonesia has several times been subject to anti-circumvention allegations by the importing partners, but has no opportunity to do so. Therefore, this study is aimed at providing some indicators that probably could reflect the circumvention activities in Indonesia. In addition, this study will explore best practices on anti-circumvention provisions taken by other WTO’s members. The first result shows that Indonesian anti-dumping measures on selected steel products were not fully effective because it could be circumvented by slightly modified product. Secondly, the several countries such as the US, EU, Australia, and India have adopted anti-circumvention rules in their anti-dumping regulation. Therefore, it is recommended for the Government of Indonesia to immediately amendment the Government Regulation No. 34/2011 on Antidumping, Countervailing, and Safeguard Measures by adopting clauses of anti-circumvention at least covering the forms/types and procedures of action.

Keywords: WTO Agreements, Anti-Dumping, Circumvention, and Best Practices

JEL Classification: F13, F14, F53, L61

INTRODUCTION

Circumvention of anti-dumping became an emerging trade issue in Indonesian during 2013-2014. Even though Indonesia had enacted several anti-dumping measures on steel products, but there were still many complaints of imports surged on those products, especially boron-added alloy steel. By adding a small portion of boron as an alloy element (0.0008%), the HS code of import product become changed (example from HS 7208.51 to 7255.40) and did not subject to anti-dumping measures. Besides, it did not significantly change the physical characteristics (i.e. hardness, tensile strength, and elongation) of the steel. To reduce those kinds of circumvention practices, the government of Indonesia established Minister of Trade Regulation No. 28/2014 concerning Import Rules on Alloy Steel. Based on the regulation, importation of alloy steel requires verification and pre-shipment inspection performed at origin country, prior to the product being shipped.
However, we should aware that the regulation was a short-term solution to reduce circumvention practices. In the global trade practices, much of countries using specific rules, i.e. anti-circumvention measures, embedded in their domestic regulation on anti-dumping and countervailing (anti-subsidy). Although there are no specific anti-circumvention provisions agreed at the World Trade Organization/WTO (Bael and Bellis, 2011), some WTO’s members such as the United States (US) and European Union (EU) have adopted anti-circumvention rules.

In fact, Indonesia has several times been alleged to conduct circumvention in the export market. For example, in 2012, the EU initiated a circumvention investigation of imported bicycle products from Indonesia. The EU accused that China rerouting export of their bicycle to the EU through Indonesia after China was subject to anti-dumping duties on the products since 2011. The final results of the EU investigation in 2013 stated that three Indonesian manufacturers or exporters, namely PT Insera Sena (Polygon), PT Terang Dunia Internusa (United) and PT Wijaya Indonesia Makmur Bicycle Industry (WIM Cycle) were exempted from the circumvention allegations.

On the other hand, Indonesia has never made allegation of circumvention to their trading partners because there is no legal standing to do so. Government Regulation No. 34/2011 concerning Antidumping, Countervailing, and Safeguard Measures does not contain any rule to repeal circumvention practices. Based on data of WTO (2015), Indonesia during the period 1996-2014 has conducted 122 allegations of anti-dumping and 54 cases of which are proven to be dumping and imposed anti-dumping duty. Looking at the number of the cases, the circumvention of anti-dumping might be (potentially) happening many times in Indonesia.

Therefore, this study is aimed to provide key reasons why Indonesia and possibly other developing countries need to improve theirs trade remedy instruments by looking at Indonesia import pattern after enacting anti-dumping measures. Besides, this study will explore best practices on anti-circumvention provisions taken by other WTO’s members.
METHODS

In order to provide key reasons why Indonesia requires to improve theirs trade remedy instruments, especially anti-dumping measure, we need to know whether circumvention of anti-dumping is found to be taking place or not. According to Vermulst (2012) and Puccio and Erbahar (2016), at least three categories of circumvention, namely: slightly modification, transshipment or third-country circumvention, and assembly operation. Considering to the evasion of anti-dumping on steel products by changing HS code classification as stated on the background, this study only focus on slightly modified product by taking example on Indonesian anti-dumping case of Hot Rolled Plate (HRP) and Cold Rolled Coil/Sheet (CRC).

The indication of slight modification circumvention is analyzed by comparing the pattern of related import product before and after implementation of anti-dumping measures using secondary data from Badan Pusat Statistik (BPS). This approach is inspired from the circumvention investigation conducted in the US and EU. One of the considerations to conclude circumvention during investigation in the US is based on the changing trade pattern, including source/country origin (Section 781 Tariff Act 1930 and 19 CFR 351.225 concerning Scope Rulings). Furthermore, in the EU’s circumvention investigation report includes special section which discuss trade pattern.

Indication of slightly modification circumvention exists if imports volume of the similar products on dumping goods (slightly modified products) increase after the imposition of anti-dumping measure, while imports of dumping goods subject to anti-dumping measure from the same country decrease. Circumvention undermines the anti-dumping measures because the actual import of the products continues to rise through other channel.

Similar product information (HS code) on steel products subject to anti-dumping is obtained from domestic industry, particularly anti-dumping petitioners (Table 1). Although different in HS codes, but the physical form and technical characteristics do not differ substantially so that it can be used to divert the importation of carbon steel (subject to anti-dumping measures) into alloy steel category.
Table 1. HS Code Indented to Use for Circumvention

<table>
<thead>
<tr>
<th>Product</th>
<th>HS Code of Carbon Steel (subject to anti-dumping)</th>
<th>HS Code of Alloy Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRP</td>
<td>7208.51; 7208.52</td>
<td>7225.40</td>
</tr>
<tr>
<td>CRC</td>
<td>7209.16; 7209.17; 7209.18; 7209.26; 7209.27; 7209.28; 7209.90; 7211.23; 7211.29; 7211.90</td>
<td>7225.50</td>
</tr>
</tbody>
</table>

To improve Indonesian anti-dumping regulation, this study will explore best practices on anti-circumvention provisions taken by other WTO’s members.

RESULTS AND DISCUSSION

Trade Pattern after Implementation of Anti-Dumping Measure

The levy of anti-dumping duty on Hot Rolled Plate (HRP) imported from China, Singapore, and Ukraine was ruled by the Minister of Finance Regulation No.150/PMK.011/2012. It was applied for three years since January 2012 and has been extended for four years since April 2016 through the Minister of Finance Regulation No. No.50/PMK.010/2016. In this analysis of trade pattern, we only consider the first implementation of anti-dumping duties (2012) as a base year of the comparison.

As been showed in Figure 1, the import of HRP from all countries subject to anti-dumping was decrease. During the anti-dumping imposition of 2012-2015, the import volume of HRP declined by 37.8% per year where the largest decrease occurred in the imports from Ukrainian HRPs which fell by 45% per year, while imports of HRPs from China and Singapore fell by 20.4% per year and 39.1% per year respectively. Furthermore, imports from countries that are not subject to anti-dumping duty also showed a significant decrease of 39.6% per year during the same period.
To identify whether the exporters circumvent the anti-dumping measure by slight modification or not, the trade pattern of each import origin will be analyzed in detail (Figure 2). Indication of slightly modification circumvention on the anti-dumping imposition of HRP is only visible on imports of HRP from China in 2013. After imposition of the anti-dumping duty in 2012, the import volume of HRP (product subject to the measure) from China in 2013 decreased and followed by the sudden surge of imported steel alloys (HS 7225.40) from China in the same year (Figure 2.A). Compared to 2012, the imported steel alloys in 2013 increased by 29.0 thousand tons and the imported HRP decreased by 76.1 thousand tons. It is noticeable that about half of HRP’s import form China has been circumvented through the correspondence steel alloys.

Different trade pattern appears to HRP’s import from the other subject country of anti-dumping. Imported steel alloys (HS 7225.40) form Singapore (Figure 2.B) and Ukraine (Figure 2.C) did not increase after anti-dumping imposition of HRP, indicating there were no potential circumvention activities.
Figure 2. Indonesia’s Import Pattern of HRP and its alloy steel by Country subject to Anti-Dumping

Source: BPS (2016), processed

The second case anti-dumping action to be analyzed is Cold Rolled Coil (CRC). Indonesia imposed anti-dumping measure on CRC imports from South Korea, Taiwan, Vietnam, Japan, and China since 2013 and valid for three years, as stipulated by the Minister of Finance Regulation No. 65/PMK.011/2013. In March 2016, the imposition of the BMAD ended and is currently under review.

As shown in Figure 3, prior to the imposition of anti-dumping in 2013, CRC’s import performance from both the country subject to anti-dumping and other countries are highly fluctuating and do not indicate a particular pattern. However, after the anti-dumping measure implemented in 2013, there was a decrease in CRC imports from the targeted countries. It seems that anti-dumping effective to suppress import volume of the CRC.
Changes in import patterns indicating slightly modification circumvention are seen in Indonesian import of CRC product from all countries subject to anti-dumping but in various responses (Figure 4). In this case, the indication of slightly modification circumvention relatively easy to see from the import pattern of CRC from China, South Korea, Taiwan, and Japan during the period of 2013-2015. Import of the correspondence alloy steels (HS 7225.50) from those countries increased right after the enforcement of anti-dumping on CRC product and indeed the imported CRC from those countries decreased substantially.

Even the relatively small increased of the alloy steels, like in the case of Taiwan; it could be an indication of circumvention because the implementation of anti-dumping changes the historical trade pattern. Taiwan never export alloy steels of HS 7225.50 to Indonesia before 2013. For the same reason, the changing import pattern of CRC from Vietnam is considered as indication of slightly modification circumvention. Vietnam began to export the steel alloys to Indonesia since 2015. Even it was a late response, but the increased of Vietnamese export on steel alloys of HS 7225.50 to Indonesia was still in the implementation period of anti-dumping.
Figure 4. Indonesia’s Import Pattern of CRC and its alloy steel by Country subject to Anti-Dumping

Sumber: BPS (2016), processed

If we only look at the import pattern of the product subject to anti-dumping measure (Figure 1 and 3), we could make incorrect conclusion that anti-dumping effectively suppress imports. However, the decreased import product subjected to anti-dumping could be followed by the increased import of the correspondence product. In fact, the correspondence product has the same characteristics and uses but different in HS code (import classification). Therefore, this circumvention undermines the anti-dumping measure.

The above indications of slightly modification are supported by businessmen which stated that slightly modified circumvention is more likely to occur for steel products and conducted
by Chinese producers/exporters. In addition, the Government of China provides incentives in the form of tax rebate for exporting various alloy steel products (MEPS, 2017).

**Best Practices of Anti-Circumvention Rules**

As been mention in the introduction, Indonesia has no specific law to repeal circumvention of anti-dumping action. Therefore, we would like to discuss the development and rules of anti-circumvention implemented by some WTO’s members, namely the US, EU, India, and Australia. The best practices of anti-circumvention rules from other countries experience would help Indonesia to overcome the circumvention practices, which for example have been identified in the previous analysis.

Anti-circumvention rule is needed to repeal the circumvention activities against anti-dumping or countervailing measures. Therefore, countries adopted the anti-circumvention rule usually insert it in their existing related regulation (amendment). For example, the anti-circumvention provision was adopted by the US in 1988 as part of the Omnibus Trade and Competitiveness Act and has been amended in 1994. The EU adopted anti-circumvention rules in 1994 as set forth in the Council Regulation (EC) No. 3283/1994 (Vermulst, 2015). After several revisions, the anti-circumvention rule against anti-dumping measures in the EU is currently governed by Article 13 EC No. 2016/1036 on the Protection Against Dumped Imports from the Countries Not Members of the European Community, while anti-circumvention of anti-subsidy measures is ruled by Article 23 EC No. 2016/1037 on Protection Against Subsidized Imports from the Countries Not Members of the European Community.

In recent years, anti-circumvention provisions have been widely adopted by WTO’s members in its domestic regulation, including Australia and India. The anti-circumvention regulatory framework of Australia concerning anti-dumping and countervailing measures was introduced in June 2013 and amended in January 2014 and April 2015 (Department of Industry, Innovation and Science, 2015). Meanwhile, rules on anti-circumvention policy in India were introduced since

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1 Based on Focus Group Discussion with some anti-dumping petitioners (domestic industries) on March 1, 2016 in Jakarta.
2012 through amendments to the Customs Tariff Act 1975.

Among the countries, only EU explicitly defines circumvention in its regulation. Based on the EU regulation, there are five conditions for actionable circumvention: practice, process or work; change in the pattern of trade; insufficient due cause or economic justification; undermining the remedial effects of the duty; and evidence of dumping (Vermulst, 2015). However, all of anti-circumvention regulation adopted by the US, EU, Australia, and India include the type/form of circumvention activities which cover: product alternation, importation of parts for assembly, third country circumvention (transshipment), and reorganization/arrangement by exporters (for example through producers benefiting from a lower individual duty rate).

Anti-circumvention action must be preceded by investigation. In general, if circumvention is proven, anti-dumping or anti-subsidy duties that have been implemented before may be expanded either by changing the scope of the country origin of imports and/or by changing the description of imported products subject to trade remedies, without having to initiate a new investigation.

CONCLUSION AND POLICY RECOMMENDATION

Using the selected steel case of anti-dumping, the study shows potential indications of circumvention practices, especially on slightly modified product. Circumvention becomes a loophole and undermines the remedial effect of anti-dumping duty. Therefore, the anti-dumping measure taken by Indonesia may be not completely effective since the actual import continues.

Given the circumvention indication, it is important for the Government of Indonesia to immediately improves the Government Regulation No. 34/2011 on Antidumping, Countervailing, and Safeguard Measures by inserting clauses of anti-circumvention action that at least covers the forms of circumvention activity and measures as have been adopted by the US, EU, Australia, and India. Although there is an indication of circumvention, the Government should take an appropriate considerations so it is not becomes protectionism which leads to higher costs for the whole economy.
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Abstract

CPO is one of commodities proposed by Indonesia to be in APEC’s development products list. In relation with that, by using GTAP model, the study then aims to: (1) analyze the effect of CPO as development products against on trade and economy (2) analyze the impact of development products on investment; and (3) formulate policy recommendations, negotiating positions, and strategies. The results show that most of the member countries are improved in terms of welfare, GDP, investment, consumption, exports, and imports. Meanwhile, some countries that do not propose any development products, such as Australia, Japan, and New Zealand also experience an increasing in GDP due to trade liberalization. In the case of Indonesia, the trade liberalization almost has no impact on GDP, although exports are relatively higher than imports. Then, the investment of 17 APEC countries increases except for Canada, Hong Kong, Indonesia, and Peru. Various diplomacy strategies are needed, the strategies are in terms of not only trade and investment issues, but also challenges related to CPO issues as the development products. Those issues are associated with health and environmental safety, non-tariff barrier, and low competitiveness of Indonesia’s development products.

Keywords: CPO, GTAP, APEC Economies, Development Products

JEL Classification: F12, F13, F15

INTRODUCTION

In 2013, APEC endorsed a proposal submitted by its members (including Indonesia) namely "Promoting Products which Contribute to Sustainable and Inclusive Growth through Rural Development and Poverty Alleviation". As one of the procedural stages in APEC negotiations, the APEC Policy Support Unit (PSU) is mandated to undertake research or the impact assessment on the proposal. The scope of PSU research including 157 products based on 6 digit HS categorization. Indonesia itself proposes the inclusion of 15 products, namely CPO (4 HS), Rubber (1 HS), Paper (5 HS), Rattan (3 HS) and Fisheries (2 HS) in the Development Products List.

Indonesia initiated the implementation of Trade Policy Dialogue (TPD) at APEC SOM3 Meeting in Cebu in 2015 where most
participants agreed to conduct a more comprehensive product-related evaluation to the sub-economic and sectoral level using the Computable General Equilibrium (CGE) approach. By using Global Trade Analysis Project (GTAP) Model, it can the economic impacts of free trade liberalization on the proposed development products on the Indonesian economy and other APEC economics could be assessed rigorously. By focusing on Crude Palm Oil (CPO) as one of the proposed development products in APEC fora, this study answers the question of how the proposal impact the trade and investment performance both in Indonesia, as an individual country, and other APEC member countries. In this regard, the study aims to: (1) analyze the impacts of CPO as Devpro on trade and economy (2) analyze the impacts of Devpro on investment; and (3) formulate policy recommendations, negotiating positions, and strategies on CPO and other Development Products.

METHODS

The main data used in this study include secondary data sourced from CEIC, COMTRADE, WITS, World Bank and GTAP Database version 9. More specifically, the regional aggregation in this research consist 20 APEC economies plus ROW (Rest of The World). While sector aggregation are being kept in detail representing 57 sectors producing goods and services in GTAP version 9 database.

Policy Simulation Scenarios

The simulation is a combination of the reciprocal import tariff and export subsidy reduction by 95 percent across 157 development products proposed by all APEC economies.

This design of the simulation is adopted on consideration of further tariff liberalization on EG Lists’ import tariff below 5%. With the inclusion of CPO in the Development Products, it benefits tariff reduction to be lower than 5%.

RESULTS AND DISCUSSION

The Impacts of CPO and Its Derivatives as One of The APEC Development Products on Trade, Indonesian Economy, and Other APEC Economies

Figure 1 presents the simulated impact on welfare
measured by equivalent variation. Overall, the welfare of APEC member countries has increased, including Indonesia. The highest impact will be obtained by China followed by USA, Japan, and South Korea. The countries that descend the welfare of Thailand, Vietnam, Peru and the Philippines.

In terms of production, welfare improvement is possible because reductions in import tariffs and export subsidies will provide incentives for producers to increase output. In terms of consumption, both private and government consumers will obtain products at relatively competitive prices as a result of trade creation effects from tariff reductions and export subsidies in development products liberalization scenario.

Decrease in trade barriers, both tariff and subsidized development products including CPO and its derivatives stimulate the consumption effect. Graphically, the Consumption Possibility Frontier (CPF) line will shift upward. This means that the reduction of import tariff and export subsidies will incentivize people to consume in larger quantities. In other words, the real incomes of the community (ie the income measured by quantity of goods can be purchased by specific amount of money) increases due to the combination of the reduction in import tariff and export subsidies of development products.

![Figure 1. The Impacts of the Import Tariff and Export Subsidies Reduction in Development Products List on the Welfare of Indonesia and Other APEC Economies](image)

The reduction in import tariffs and export subsidies provides incentives for producers to increase output and boost the real GDP. Interestingly, the increase in real GDP does not only occur in countries that propose development products but also to other APEC economies which do not propose.
Based on Figure 2, the highest impact will be obtained by China followed by South Korea, Thailand, Malaysia, and Vietnam. South Korea, Malaysia and Vietnam are APEC economies endorsing development products. South Korea proposed HS 843490 (A part for an oil press), HS 870190 (Tractor), HS 841931 (Drying machine for agriculture produce); Malaysia filed HS 090412 (Pepper of the genus Piper, dried or crushed or ground fruits of the genus Capsicum (peppers) or of the genus Pimenta (eg, allspice); - Pepper of the genus Piper (black and white): Crushed or ground); while Vietnam listed HS 0901119 (Coffee, whether or not roasted or decaffeinated; coffee husks And skins; coffee substitutes containing coffee in any proportion: coffee, not roasted, not decaffeinated) as development products.

Thailand was among the countries with the highest GDP growth although it is not a country that proposes development products. This is because Thailand is one of the main exporters of products proposed by other countries as development products such as rubber. Thailand is a producer of natural rubber in the world followed by Indonesia, Malaysia and Vietnam (www.indonesiainvestments.com).

Despite proposing development products of 15 HS 2 digits, including CPO and its derivatives (5 HS), tariff reductions and export subsidies liberalization have relatively no impact on Indonesian real GDP (ie decreased by 0.008%). The trade liberalization of development products has consequence Indonesia to open its domestic economy to 157 development products from other APEC countries. Of the 5 proposed development products proposed by Indonesia, only the output of fish
(fisheries) that decreased. Vol (CPO), crp (rubber), crp (rattan), and ppp (paper) have increased. However, overall results show that many sectors that experienced injury such as pdr (paddyrice); Wht (wheat); Gro (cereal grains nec); ctl (cattle, sheep, goat, and horses); Oil; cmt (meat of cattle, sheep, goat, and horses); omt (meat product nec); wap (wearing apparel); p_c (petroleum, coal products); and mvh (motor vehicles). These sectors are proposed by other APEC economies as development products. This implies that the sectoral output rises on the other 4 development products, including CPO, have not been able to improve the real GDP growth of Indonesia. It can be inferred that the detrimental effects on output are more dominant.

In line with Oktaviani et al. (2010) the central issue to be observed regarding trade performance is the extent to which Indonesia's supply can respond to trade liberalization opportunities. Indeed the phenomenon that occurs is the supply-side constraints. This condition will get worse if free trade does not provide incentives and long-term strategy for industry to increase productivity through production efficiency and technology adoption. Improving the quality of export infrastructure, such as post-harvest quality improvement, packing and handling and strengthening of quality testing laboratories will enhance the export competitiveness. The limited laboratory test in Indonesia is in line with the research of Widyastutik and Arianti (2012). The number of test labs is only 365. Improved supply chain management efficiency is also needed so that Indonesian products can penetrate market access in export destination countries more efficiently.

Several APEC economies that do not register development products like Australia, Japan and New Zealand will gain from the liberalization. This indicates that tariff reductions and export subsidies of development products provide benefits in terms of increasing real GDP to other APEC members, and not only exclusively and limited to countries that promote development products.

The reduction of import tariff and export subsidies on development products will enhance the competitiveness, thus the output price will be lower. The second round effect of lowered output price will reduce inflation. Hence, it is predicted that it
will also decrease the real wage. Most of the APEC economies, including Indonesia, experienced decreases in private consumption. The Indonesian private consumption went down by -0.58 percent, while the government consumption decreased by 1.74 percent. The detailed results can be seen in Table 1.

**Table 1. The Impacts of the Import Tariff and Export Subsidies Reduction in Development Products List on Private and Government Consumption (in Percentage)**

<table>
<thead>
<tr>
<th>Negara</th>
<th>Konsumsi Swasta (in %)</th>
<th>Konsumsi Pemerintah (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>aus</td>
<td>0.22</td>
<td>0.22</td>
</tr>
<tr>
<td>cam</td>
<td>-0.42</td>
<td>-0.37</td>
</tr>
<tr>
<td>chi</td>
<td>-0.25</td>
<td>-0.23</td>
</tr>
<tr>
<td>ind</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td>maz</td>
<td>-0.06</td>
<td>-0.06</td>
</tr>
<tr>
<td>chn</td>
<td>1.73</td>
<td>1.90</td>
</tr>
<tr>
<td>hkg</td>
<td>-0.35</td>
<td>-0.3</td>
</tr>
<tr>
<td>jpn</td>
<td>1.50</td>
<td>1.56</td>
</tr>
<tr>
<td>kor</td>
<td>1.00</td>
<td>2.15</td>
</tr>
<tr>
<td>brn</td>
<td>1.16</td>
<td>1.44</td>
</tr>
<tr>
<td>tim</td>
<td>-0.40</td>
<td>-0.24</td>
</tr>
<tr>
<td>sdn</td>
<td>-0.50</td>
<td>-1.74</td>
</tr>
<tr>
<td>mya</td>
<td>0.63</td>
<td>0.07</td>
</tr>
<tr>
<td>phi</td>
<td>-0.47</td>
<td>-0.4</td>
</tr>
<tr>
<td>sgp</td>
<td>1.17</td>
<td>1.21</td>
</tr>
<tr>
<td>thk</td>
<td>-0.70</td>
<td>-0.51</td>
</tr>
<tr>
<td>unn</td>
<td>2.95</td>
<td>2.83</td>
</tr>
<tr>
<td>vni</td>
<td>-0.25</td>
<td>0.22</td>
</tr>
<tr>
<td>mex</td>
<td>-0.54</td>
<td>-0.53</td>
</tr>
<tr>
<td>per</td>
<td>-1.00</td>
<td>-1.01</td>
</tr>
<tr>
<td>ROW</td>
<td>0.84</td>
<td>0.82</td>
</tr>
</tbody>
</table>

On micro level, the impact analysis of the reduction of import tariff and export subsidies on development products ill highlight on its impacts on output, export, import, especially on CPO and the rest of four products which are listed as APEC Development Products.

Tariff reductions and export subsidies will provide incentives for producers to increase output. In general, reductions in tariff and export subsidies of 157 development products increase sectoral output from APEC countries for five (5) development products proposed by Indonesia. In the case of Indonesia, the highest increase of output occurs in oil palm (vol) followed by wood products (lum), paper products (ppp) and chemical goods, then rubber and plastic (crp). In detail, the percentage change of each sectoral output in Indonesia and APEC countries can be seen in Table 2.
Table 2. The Impact of Reduced Import Tariff and Export Subsidies of Development Products on the Sectoral Output of Indonesia and Other APEC Member Countries (5 List of Development Products Proposed by Indonesia) (%)

<table>
<thead>
<tr>
<th>Product</th>
<th>Fish</th>
<th>Oil</th>
<th>Lumber</th>
<th>Pulp</th>
<th>Cop</th>
<th>Cig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>0.41</td>
<td>1.11</td>
<td>-4.44</td>
<td>-3.3</td>
<td>-0.59</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>0.57</td>
<td>3.79</td>
<td>-0.24</td>
<td>0.08</td>
<td>-0.46</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>-0.03</td>
<td>-0.53</td>
<td>-2.42</td>
<td>0.01</td>
<td>-0.87</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.02</td>
<td>0.37</td>
<td>0.68</td>
<td>0.06</td>
<td>-0.17</td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>0.11</td>
<td>-2.4</td>
<td>0.08</td>
<td>2.91</td>
<td>1.23</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>0.09</td>
<td>-2.99</td>
<td>-1.72</td>
<td>-0.05</td>
<td>-2.45</td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>0.13</td>
<td>15.46</td>
<td>0.33</td>
<td>0.69</td>
<td>-2.75</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>0.36</td>
<td>0.56</td>
<td>-3.54</td>
<td>0.23</td>
<td>1.29</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>0.01</td>
<td>59.94</td>
<td>-1.55</td>
<td>-0.72</td>
<td>2.55</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>-0.10</td>
<td>0.58</td>
<td>-1.15</td>
<td>0.72</td>
<td>4.7</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.43</td>
<td>7.21</td>
<td>-5.51</td>
<td>-0.85</td>
<td>-14.92</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>-0.04</td>
<td>2.21</td>
<td>2.15</td>
<td>0.44</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.3</td>
<td>1.23</td>
<td>0.67</td>
<td>3.67</td>
<td>1.16</td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>-0.01</td>
<td>-0.03</td>
<td>-1.25</td>
<td>-0.05</td>
<td>-0.82</td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>0.25</td>
<td>1.53</td>
<td>4.35</td>
<td>3.16</td>
<td>6.16</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>1.4</td>
<td>1.65</td>
<td>-2.04</td>
<td>-1.24</td>
<td>0.38</td>
<td></td>
</tr>
<tr>
<td>Vietnam</td>
<td>0.06</td>
<td>-1.93</td>
<td>2.23</td>
<td>-2.75</td>
<td>4.76</td>
<td></td>
</tr>
<tr>
<td>Costa Rica</td>
<td>0.39</td>
<td>0.87</td>
<td>-0.03</td>
<td>0.24</td>
<td>0.96</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>0.43</td>
<td>-0.76</td>
<td>-0.1</td>
<td>-0.04</td>
<td>-0.21</td>
<td></td>
</tr>
<tr>
<td>Peru</td>
<td>0.13</td>
<td>0.49</td>
<td>-0.35</td>
<td>-0.19</td>
<td>-0.18</td>
<td></td>
</tr>
</tbody>
</table>

In general, trade liberalization through reductions in tariff and export subsidies on development products will generate efficiency, which then cause domestic prices to fall. This will cause depreciation of effective real exchange, increasing in export competitiveness and, a further impact, increasing in exports. Based on Figure 3, in average, APEC countries exports increase between 0.22 to 5.87%.

Most imports of APEC countries increase and, even, exports increase more. The consequences of this conditions are a positive trade balance for Canada, Indonesia, Philippines, Mexico, and Peru. However, for few countries, such as Hong Kong and Brunei, exports are decreased.

Figure 3 shows the total trade performance, while Table 3 shows the performance of the sector, especially for 5 development products proposed by Indonesia, including CPO and its derivatives.
Overall, trade liberalization in 157 development products boosts exports and sectoral imports from APEC countries for the 5 development products proposed by Indonesia. This shows that the liberalization provides benefits in the form of increasing exports of other APEC countries. This happens not only for APEC countries that propose development products. For Indonesia, the highest increase of exports occurs in wood products (lum); palm oil and its derivatives (vol); fisheries (fsh); and paper products (ppp).

**Impact of CPO and Its Derivatives Development, as One of APEC's Development Products, on Investments of Indonesia and other APEC Member Countries**

Comprehensive reduction schemes of tariff and export subsidies provide space for increasing in investment. An agreement to liberalize trade through tariff and export subsidies reductions on development products can encourage businesses to adapt to the business environment seamlessly. The import tariff and export subsidies reduction makes the investment more attractive. The impact of the reductions on investment in Indonesia and other APEC countries, then, is showed in Figure 4.

In general, almost all APEC countries' investment increase (ranging from 0.12-7.17 percent). Canada, Hong Kong, Indonesia, and Peru face a declining in investment of about -0.06 to -0.29 percent. Peru and Indonesia experience that tariff reductions and export subsidies have not been able to provide incentives to increase investment, although they are the...
countries that propose development products. This indicates that increasing in investment is not only driven through trade policy, another policy is needed to increase investment. In the CGE model, the expected net rate of return on capital stock in $r$ is influenced by the risk level of investing. The development products proposed by Indonesia are from agricultural sector that basically have high investment risk. Negative issues related to the products, such as CPO with environmental issues, health and deforestation will affect price fluctuations, affect the investment risk. The size of the investment risk will, furthermore, affect the interest of investors to invest.

Among APEC countries, Thailand, Vietnam, and Korea gain the highest increase of investment. This explains why these three countries have the highest real GDP. Declining in tariffs and export subsidies have an impact on the decline of investment prices which in turn provides incentives for investors from other APEC countries to invest in sectors that produce development products in those three countries.

The highest percentage increase is owned by Thailand, followed by Malaysia and Vietnam. Thailand and Vietnam are the producers of rubber, one of commodities proposed in the development products. Malaysia is the world's second-largest producer of CPO and its derivatives. Other development products such as fishery products are excellent commodities of Vietnam and Thailand. The decline in tariffs and export subsidies of development products led to a decrease in costs so that investment prices in these three countries decline as well.

Figure 4. Impact of Decreasing Tariffs and Export Subsidies of Proposed Development Products on Investment in Indonesia and Other APEC Countries
Policy Recommendations

The GTAP simulation results show that import tariff and export subsidies reductions have an impact on improving welfare. Indonesia's output and exports, especially CPO and its derivatives, have increased. Some other macro indicators, such as real GDP and investment, have decreased but relatively in a small amount. One of the causes of declining in real GDP is because there is a decrease in investment. In the CGE model, the expected net rate of return on capital stock in r is influenced by the risk level of investing.

As a developing country, Indonesia's main products proposed in development products are from a primary sector with high investment risk. For CPO products, environmental issues concerning forest clearance, that cause forest destruction affecting the loss of living place for orangutans and humans, as well as health issues, lead to price volatility of palm oil. The volatility of palm oil prices affects the risk of investing.

Price fluctuations of development products, including CPO, as a result of negative issues are in line with the FGD results. Stakeholders state that from the results of the EFSA (European Food Safety Authority) study, CPO and its derivatives contain carcinogenic contaminants that are harmful to health because they trigger cancer disease. Some articles, one of them is by Alex Pietrowski with the title “Eco-Apocalypse in Indonesia That No One is Talking About” is very provocative to corner Indonesia. However, this condition does not apply for Malaysia, even though Malaysia is also the main producer of CPO (Waking Times, October 30, 2015 in Erwidodo (2017).

In relation to discussion above, strategies and efforts that can be done is by strengthening the coordination and cooperation among multi stakeholders to design and implement a consistent forest/field fire prevention program. As for environmental problems, the strategy and efforts that can be done are implementing the program of Indonesia Sustainable Palm Oil (ISPO) consistently, credibly, and accountably. Related to the program, it is necessary to give 'incentives' for companies that apply ISPO correctly and, on the other hand, to give 'punishment' (disincentives) for companies that have not / do not apply ISPO rules.
Health-related issues (health security) and the environmental issues often lead to NTBs (Non-Tariff Barriers). Several studies show that the use of NTMs is increasing as the tariff decreases. This is in line with the low tariffs in the GTAP database including tariff for CPO.

A study by the Ministry of Trade (2017) shows that APEC countries with the highest frequency of NTM with B31 category are Japan and Canada, both with a total of 15 NTM. NTM under category P13 are Australia, Canada, and Thailand with each has a total of 15 NTM. NTM with category B14, which is authorization requirement for TBT reasons, is also a category that has many occurrences of frequency for 15 proposed development products (Australia has 15, Japan has 5). NTM with the A14 and A31 categories have the same number which is 15 frequencies. The highest frequency of A14 is owned by Australia with 15 NTM followed by Peru with 6 NTM, meanwhile for A31 is owned by Indonesia, USA, and Vietnam with 5 NTM for each. Based on the type of NTMs, APEC member countries mostly apply TBT for all HS Code listed in each country member. The frequency of TBT-NTM in APEC countries appears 116,342 times.

Related to that, it is necessary to harmonize and do mutual recognition on the imposition of TBT/SPS in the APEC economy. Moreover, the existence of SPS/TBT management is also essential so that the domestic standards become better which will ultimately improve export performance. Strengthening the standard and quality infrastructure through increasing the number and quality of domestic testing laboratories is also important. Thus, Indonesia’s development products will be able to meet the standards and quality required by APEC countries as Indonesian trading partners.

CONCLUSIONS AND POLICY RECOMMENDATIONS

CONCLUSIONS

Overall trade liberalization benefits APEC countries, not only for countries that propose development products. Welfare, real GDP, investment, consumption and export-imports of most APEC member countries increase due to liberalization. Some APEC member countries that do not register development products such as Australia, Japan and New Zealand will gain the benefit from the
liberalization in the form of an increase in real GDP. In the case of Indonesia, trade liberalization causes a decline in real GDP with relatively small value. Indonesia's exports are relatively higher than imports. The output and export of palm oil and its derivatives are more responsive to trade liberalization than the other 4 development products proposed by Indonesia. This is indicated by an increase in output and exports that are relatively larger.

The investment attractiveness for most APEC countries will be higher with the reduction in import tariffs and export subsidies for development products. As a result, the overall investment of 17 APEC countries increase except for Canada, Hong Kong, Indonesia, and Peru.

Various diplomacy strategies are needed to encourage the "Promoting Products Which Contribute to Sustainable and Inclusive Growth through Rural Development and Poverty Alleviation" proposal. The diplomacy strategy is not only from the trade side, but also the investment and challenges in facing CPO and its derivatives related issues as development products. These issues are related to security (health) and the environment, non-tariff barriers, and low competitiveness of Indonesia's development products. With these strategies, the benefits to be gained by Indonesia will be greater compared to the strategy of diplomacy through trade only.

POLICY RECOMMENDATIONS

The GTAP simulation of tariff and export subsidies reductions on development products shows that although the welfare and export of Indonesia increase but there is a small decrease in some other macro indicators such as real GDP and investment. So, the policy implications in this research are:

1. In order to get a success in Indonesia's diplomacy of the development products in the APEC forum and get support from other APEC member countries, Indonesia should try to convince the other APEC member countries that the proposal will also improve the performance of overall APEC economies.

2. Strategies are needed to reduce investment risk so that investors are interested to invest in Indonesia especially in CPO and its derivative
sector. The attractiveness of investment will increase if the CPO and its derivative industry can address the issues related to security (health) and environment. Policy recommendations related to this topic are:

- Implementing Indonesia Sustainable Palm Oil (ISPO) program consistently, credibly, and accountably.
- Strengthening the multi-stakeholder coordination and cooperation to design and implement a consistent forest/field fire prevention program.

3. In this study, a simulation was conducted on 157 development products. Among the development products, there are several products noted as sensitive products for Indonesia, such as rice. Based on the simulation results, the rice sector will experience an injury as there is a declining in output and exports. In this case, an adoption of technology is necessary to increase efficiency which, later, can increase the competitiveness of 157 development products in APEC economies.

4. Health (safety issues) and environmental issues related to CPO products and its derivatives and also other development products often lead to NTMs (Non-Tariff Measures). Several studies show that the use of NTMs is increasing as the tariff decreases. Improving quality standards is needed so that Indonesia can penetrate market access in APEC countries. Related to that, strengthening the domestic standard and quality infrastructure for sectors with export potential is required. Harmonization of regulations relating to export requirements, including standards and quality, is urgently needed to increase Indonesia's exports.

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Export Performance Analysis of Indonesia’s Main Commodity to Middle East in the Period of 2010-2014

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Abstract

Middle East region (United Arab Emirates, Egypt, Iran, Oman, Saudi Arabia, and Turkey) is one of Indonesia’s prospective export market. This study aims to analyze competitiveness and export determinants of Indonesia’s main commodities (HS 1511, HS 1517, HS 5407) to Middle East in the period of 2010-2014. Revealed Comparative Advantage (RCA) analysis described that Indonesia’s main commodities both in agriculture and manufacturing sectors have high competitiveness level. Export Product Dynamics (EPD) matrix indicated that market position for all products are on rising star. The estimation results by using export demand function showed that agricultural products are affected by GDP per capita, economic distance, and exchange rate. Meanwhile, manufacturing product was affected by GDP per capita, price of export, and exchange rate. Therefore, Indonesia should strengthen the bilateral trade under Indonesia-Middle East FTA.

Keywords: EPD, Export Demand Function, RCA

JEL Classification: F10, F14, F15

Introduction

Indonesia’s export to the main destination countries continues to decline starting in 2011. The most significant decrease of export value occurred in 2009 until USD 20.5 trillion due to the United States crisis in 2008. United States is Indonesia’s traditional export market, so the crisis in the country are strongly influenced Indonesia’s export activities. This phenomenon proves that reliance on traditional country is very risky for the development of Indonesia’s exports if it is not anticipated by the penetration into new markets. Export diversification is needed as replacement of traditional markets which are relatively vulnerable to crisis. Middle East region is one of the strategic markets for Indonesia because potentially become major trading partners. The interaction of Indonesia-Middle East have been entwined since the powerful Organization of Islamic cooperation (OIC) was founded in 1969. In addition, Indonesia currently looking for trade sector as potential areas of Middle East. These opportunities also supported by the countries with largely construction of infrastructure facilities, logistics and transportation. The advancement of Middle East countries can be utilized to achieve more favorable trading results.
Indonesia's export-import value in Middle East market were fluctuate during the period of 2005-2014 (Figure 1). The larger import value during the years caused a deficit of Indonesia-Middle East trade balance. However, USD 8 billion of Indonesia's exports value can be related to Indonesia's prospective market. This trend illustrates that Middle East countries are promising target market.

**Figure 1. Indonesia's export-import value in Middle East period of 2005-2014 (000 USD)**

Source: ITC (2015)

Indonesia actively involved with Middle East countries in various forum of negotiation and trading partnerships such as Indonesia-Gulf Cooperation Council (GCC). The strategic partnership was intended in order to make Indonesia more aggressively enter to Middle East region particularly GCC countries. Egypt, Iran, Turkey and Saudi Arabia are the main importers of Indonesia palm oil. Other products with high export value are automotive, TPT, paper, forest products, natural rubber, yarn and fabric products.

**METHODS**

Data used in this research is secondary data in the form of 2010-2014 period of time-series and cross-section of export destination countries including Saudi Arabia, Egypt, Iran, Oman, Turkey and the United Arab Emirates. Data obtained from the main source i.e. WITS (World Integrated Trade Solution). Commodities examined is the product code by the Harmonized System (HS) 2007 four digits.

Macro-economic data (GDP per capita and exchange rates) obtained from WDI (World Development Indicators) and UNCTAD (United Nations Conference on Trade and Development). While the geographic range data sourced from CEPII (Centre d'Etudes Prospective et d'Informations Internationales).

**Revealed Comparative Advantage (RCA)**

Analysis of the RCA firstly introduced by Ballasa (1965) as a tool to
measure a country's comparative advantage in its export. Mathematically, the value of RCA that have been modified are written as follows:

$$ \text{RCA}_i = \frac{X_{ij}/X_j}{X_{iw}/X_W} $$

Note:

- $X_{ij}$: export product $i$ to State $j$
- $X_j$: total export to country $j$
- $X_{iw}$: world export of product $i$ to State $j$
- $X_W$: total world export to country $j$

The RCA calculation result can be summed up in as if value is greater than one, then Indonesia has comparative advantages in competition of commodity exports to the Middle East. As for when the value of the RCA less than one, then that means the leading commodities in Indonesia did not have a comparative advantage in the Middle East.

**Export Product Dynamic (EPD)**

EPD is used as a tool for the identification of market position and performance of a commodity at a specific market objectives. The potential of Indonesia's main export product to the Middle East region can be calculated by this concept. Mathematically, the calculation of the position of the weaknesses and strengths of the product in the EPD's analysis is as follows:

$$ X \text{ axis } = \frac{\sum_{t=1}^{T} \left( \frac{X_{ij}}{X_{iw}} \right) \times 100\% - \left( \frac{X_{ij}}{X_{iw}} \right)_{t-1} \times 100\%}{T} $$

$$ Y \text{ axis } = \frac{\sum_{t=1}^{T} \left( \frac{X_j}{X_W} \right) \times 100\% - \left( \frac{X_j}{X_W} \right)_{t-1} \times 100\%}{T} $$

Note:

- $X$ axis: the growth of the share of the export market
- $Y$ axis: the growth of the market share of product
- $X_{ij}$: export for product $i$ to State $j$
- $X_j$: total export to country $j$
- $X_{iw}$: export product to other countries of the world $i$ $j$
- $X_W$: the total value of world export to country $j$
- $T$: the number of years
- $t$: year $t$

Matrix EPD consists of the attractiveness of the market are calculated based on the growth of demand for the products and information business strengths are calculated based on the growth of the market's gains. Ideal market position is the position of the rising star. While the retreat is generally not desirable, but in certain cases it might be desirable if the movement is away from stagnant products and toward dynamic products.
Panel Data Method

The data panel is comprised of the time series data collected from time to time against an individual and cross section data collected in a time of many individuals. The data panel has several advantages such as individual heterogeneity controlled, collinearities between the variable decreases, and a greater degree of free and efficient (Hsiao 2003).

Research Model

Based on hypotheses and empirical studies which are tailored to the fact in several countries as well as a variety of alternative specifications of the models that have been tried, then the set of four variables that are thought to affect the flow of exports. As for the research of the model can be written in the equation as follows:

\[ \ln X_{ijt} = \beta_0 + \beta_1 \ln Y_{jt} + \beta_2 LND_{jt} + \beta_3 \ln P_{ijt} + \beta_4 \ln ER_{jt} + \mu_{it} \]

Note:
\( X_{ijt} \): Indonesia’s main commodity export volume to Middle East (tons)
\( Y_{jt} \): real GDP per capita of Middle East countries (USD)
\( D_{jt} \): economic distance between Indonesia and Middle East countries (km)
\( P_{ijt} \): real price of Indonesia’s main commodities export to Middle East (USD/ton)
\( ER_{jt} \): real exchange rate between Indonesia to Middle East countries (IDR/LCU)
\( \ln \): natural logarithm
\( \beta_0 \): intercept
\( \beta_1 - \beta_4 \): estimated parameter
\( \mu_{it} \): error term

Economic distance is formulated as follows:

\[ D_{ijt} = \text{Dist}_{ijt} \times \frac{GDP_{jt}}{\sum_{j=1}^{r} GDP_{jt}} \]

Note:
\( \text{Dist}_{ijt} \): geographic distance between Indonesia and Middle East on the year-\( t \)
\( \text{GDP}_{jt} \): GDP of Middle East countries on year-\( t \)
\( \sum_{j=1}^{r} \text{GDP}_{jt} \): total GDP of Middle East countries on year-\( t \)

RESULTS AND DISCUSSION

RCA Analysis

Indonesia’s export to Middle East was lower than its import. Further studies are needed to know Indonesia’s main commodities competitiveness using RCA. Analysis result of Indonesia’s main commodities competitiveness in Middle East as
measured by the value of the RCA is indicated in Table 1.

**Table 1. RCA value of Indonesia’s main commodity to Middle East period of 2010-2014**

<table>
<thead>
<tr>
<th>HS Code</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>1511</td>
<td>36.52</td>
<td>43.52</td>
<td>51.89</td>
<td>65.21</td>
<td>62.60</td>
</tr>
<tr>
<td>1517</td>
<td>19.51</td>
<td>31.30</td>
<td>33.29</td>
<td>33.91</td>
<td>29.10</td>
</tr>
<tr>
<td>5407</td>
<td>14.43</td>
<td>13.85</td>
<td>15.85</td>
<td>14.04</td>
<td>24.26</td>
</tr>
</tbody>
</table>

Source: WITS (2017), processed

RCA value from three export commodities of Indonesia’s highest contributor to the Middle East entirely located above value of 1 (one). The results of calculation show that the highest RCA value is HS 1511.

Palm oil and its products fractions (HS 1511) was the largest contributor to the export value of Indonesia to Middle East. In 2014, export of palm oil reached a peak of USD 1.7 billion. Results of RCA analysis of palm oil also showed high competitiveness rating. In addition to palm oil, other commodities which empowered high competitiveness were products i.e. margarine (HS 1517), woven synthetic filament yarn (HS 5407) with the highest value of the RCA each of 33.91 and 24.26.

Several countries which has great potential as a major exporter of palm oil are showed by Figure 2. This describes percentage share of the country’s major exporter of palm oil to the rest of the world in 2014. So, it is known that Indonesia as the country with the largest contributions reached 50.5%. Results of these findings prove that Indonesia palm oil is such attractive product in international markets.

![Figure 2. Contribution of world palm oil exporter country of 2014 (%)](image)

Source: ITC (2015)

**EPD Analysis**

The results of EPD analysis of Indonesia's three main commodities to the Middle East are shown in Table 2. All commodities from agriculture and industry sectors were in the rising star position. This means that both export growth rate of Indonesia and growth of export share in the Middle East market has increased. Commodities on this
category are competitive. In accordance with the export data during the period of 2010-2014, these commodities also show a positive trend.

Indonesia's strategic commodity market position is strategically quite related to Indonesia’s export growth to prospective markets from Middle East region (Saudi Arabia, United Arab Emirates, Egypt, Turkey and Iran). The rest consists of Taiwan, Australia, Hongkong, Brazil, Russia, Mexico, Myanmar, South Africa, Nigeria, Ukraine, Cambodia, Argentina, Peru and Chile.

Table 2. EPD analysis results of Indonesia’s main commodities to Middle East period of 2010-2014

<table>
<thead>
<tr>
<th>HS Code</th>
<th>Product name</th>
<th>Average of X axis</th>
<th>Average of Y axis</th>
<th>EPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1511</td>
<td>Palm oil and its fractions,</td>
<td>14.37</td>
<td>0.52</td>
<td>Rising Star</td>
</tr>
<tr>
<td>1517</td>
<td>Margarine</td>
<td>13.77</td>
<td>0.52</td>
<td>Rising Star</td>
</tr>
<tr>
<td>5407</td>
<td>Woven synthetic filament yarn</td>
<td>21.68</td>
<td>0.52</td>
<td>Rising Star</td>
</tr>
</tbody>
</table>

Source: WITS (2017), processed

If traced since the period of 2010-2014, Indonesia’s non-oil exports to almost countries which are prospective markets show a positive trend. The highest trend is shown by Myanmar at 19.97%. The Middle East countries in general have a positive trend even Saudi Arabia and United Arab Emirates are at double-digit levels, each at 15.26% and 10.28%. Egypt and Turkey are still relatively positive and are at 6.8%. Only Iran along with Ukraine, Argentina and Chile are among the prospective market categories with negative trends, respectively -13.22%, -4.75%, -3.90% and -3.78%.

There are numbers of export destination countries diversification in the form of prospective markets. Strong market position of Indonesia’s main commodities is also supported by the diversification of products. The Ministry of Trade also added other categories of non-oil products to the grouping of Indonesian export products. During 2010-2014, the trend of non-oil / non-gas export value of Indonesia's major products as a whole was 1.45%. CPO, textiles and textile product are categorized with positive trends, respectively at 3.24% and 2.12%. Both products are Indonesia’s main product group which are match with Indonesia’s main commodity in Middle East market (HS 1511, HS 5407). As for HS 1517, it can be classified as other non-oil and gas products.
Panel Data Analysis (Determinants of Indonesia's Main Commodities Export to the Middle East)

This research used export demand function approach to explain determinants of Indonesia's main commodity to Middle East. Variables used in model are export volume of Indonesia's main commodities to the Middle East (X_{ij}), GDP per capita of Middle East countries (Y_{ij}), economic distance (D_{ij}), export prices of Indonesia's main commodities (P_{ij}), and Indonesia exchange rate to Middle East countries (ER_{ij}).

The best model selection estimation was done through testing consisting of Hausman test and Chow test. The results of the analysis showed that the most appropriate model to analyze the determinants of Indonesia's superior commodity exports to the Middle East was the fixed effect model (FEM). The results of significance coefficients of each of Indonesia's main commodities to the Middle East during the study period are presented in Table 3.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Commodity</th>
<th>HS 1511</th>
<th>HS 1517</th>
<th>HS 5407</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td></td>
<td>-61.58</td>
<td>-18.75</td>
<td>1.576</td>
</tr>
<tr>
<td>LNY_{ij}</td>
<td></td>
<td>3.2337</td>
<td>***</td>
<td>7.9211</td>
</tr>
<tr>
<td>LND_{ij}</td>
<td></td>
<td>3.1303</td>
<td>**</td>
<td>-8.063</td>
</tr>
<tr>
<td>LNP_{ij}</td>
<td></td>
<td>-0.116</td>
<td></td>
<td>0.3550</td>
</tr>
<tr>
<td>LNER_{ij}</td>
<td></td>
<td>3.2620</td>
<td>*</td>
<td>0.9048</td>
</tr>
<tr>
<td>R-s</td>
<td></td>
<td>0.8418</td>
<td></td>
<td>0.8322</td>
</tr>
<tr>
<td>Adj R-s</td>
<td></td>
<td>0.7706</td>
<td></td>
<td>0.7567</td>
</tr>
<tr>
<td>F-stat</td>
<td></td>
<td>0.0000</td>
<td></td>
<td>0.0000</td>
</tr>
<tr>
<td>DW st</td>
<td></td>
<td>2.2122</td>
<td></td>
<td>2.1512</td>
</tr>
</tbody>
</table>

Significance level: *** 1%, **) 5%, *) 10%

**GDP per capita**

GDP per capita illustrates the ratio of the gross income of a country to the population. Based on the results of the analysis, the variable GDP per capita of the destination country has a positive influence on export demand of all commodities. The implication is an increase in export demand for palm oil and its fractions (HS 1511), margarine (HS 1517) and woven synthetic filament yarn (HS 5407) products as the country's GDP per capita increases. The results are in accordance with the research hypothesis and the study of Adzimatinur (2016), related to the explanation of the positive effects of GDP per capita on exports. Increasing GDP per capita means an increase in...
people's incomes so that demand for Indonesia's superior commodity exports also increased.

Export demand for agricultural commodities in the form of margarine products appears to be more elastic to changes in GDP per capita than other leading commodities. An increase of 1% of GDP per capita of importer countries will be responded by an increase in demand for margarine exports (HS 1517) of 7.92%. The high demand is certainly not independent of the country's destination profile dominated by high income country (high income country).

The growth of margarine demand in the Middle East market is in line with developments in the tourism sector especially in the United Arab Emirates (UAE). The growing restaurant and hotel services industry in the UAE has led to high demand for margarine as a base for pastry and bakery food products. Indonesia's highest total demand for UAE margarine reached USD 10.4 million in 2011. Furthermore, in 2013, Indonesia is the fourth largest exporter of margarine products to the UAE after the United States, Malaysia and Belgium with a market share of 10.39% (Kemendag 2014). High competitiveness and strong market position make Indonesian margarine have loyal customers in Middle East region including in UAE.

**Economic Distance**

The economic distance is a transformation of transport costs and geographical distances that theoretically have a negative effect on export volumes. The demand for margarine exports is more responsive to changes in economic distance than per capita GDP. The economic distance increased by 1%, will increase transportation costs, thus decreasing the export volume of margarine (HS 1517) by 8.06%. This estimation results are in accordance with the research hypothesis and the results of Sunardi's study (2015) which explains that the negative value coefficient indicates the greater the distance between countries. As a result, this condition can reduce the flow of trade.

The opposite condition occurs in the product of palm oil and its fractions (HS 1511) with coefficient value of 3.13. The result of export coefficient determinant test on palm oil and its fractions (HS 1511) which is not in accordance with the research hypothesis explains the behavior of export destination countries in the
Middle East region. Countries with higher economic distances actually enjoy more Indonesian palm oil commodities, without paying too much attention to the high cost of transportation. The results of this estimate are supported by Lawless and Whelan (2007) research which proves that distance can positively affect export.

**Export Price**

Export prices in trade may affect the demand for leading commodities including woven synthetic filament yarn products (HS 5407). The estimation results show that the woven fabric of the synthetic filament yarn is positively affected. If the price increases by 1%, then the export volume of woven synthetic filament yarn (HS 5407) will decrease by 0.87%.

The coefficient of negative value on the estimation results has been in accordance with the theory and hypothesis in this study. Lipsey (1997) states that price is one factor that influences the number of demand by consumers. The higher the set price, the number of requests will decrease.

The opposite is true for palm oil and its fractions (HS 1511) and margarine (HS 1517). Based on the estimation result, both commodities can be classified as inelastic commodities because they have coefficient value less than one. Elasticity of export prices for palm oil and its fractions (HS 1511) and margarine (HS 1517) were 0.17 and 0.36, respectively.

Arora (2015) explains that inelastic commodities can be regarded as competitive commodities. Palm oil has the smallest elasticity value so it is the most competitive commodity among other commodities. This is also reflected in the high competitiveness of both commodities so that Middle Eastern countries still import from Indonesia without paying too much attention to prices.

**Exchange rate**

The exchange rate is the relative price level agreed by the people of both countries to trade each other. The coefficient of the real exchange rate of the Indonesian currency against the currency of the country of destination is entirely significant. This shows that the real exchange rate of rupiah against the currency of Middle East countries is one of the determinants of the export flow of Indonesia's main commodities.

Agricultural commodities are positively affected, while commodities
from the industrial sector are negatively affected. Positive relationship can be interpreted that if there is depreciation, then the export will increase. The estimation results have been in accordance with the hypothesis and previous research related to the positive relationship between the exchange rate and export (Nguyen 2010). Currency depreciation benefits domestic sellers and foreign buyers as it causes domestic goods to be cheaper for foreign buyers.

A contradictory relationship occurs in the woven synthetic filament yarn (HS 5407) derived from the industrial sector. The real exchange rate coefficient of the rupiah against the currencies of Middle Eastern countries is marked negative. Although these estimates are inconsistent with the research hypothesis, Myn and Kennan (2009) studies conclude similar results. Manufacturing industries of developing countries such as Indonesia have a high dependence of imported raw materials. When the exchange rate depreciates, the cost of importing raw materials will increase. This condition causes export performance of manufacturing commodities in developing countries decline. Based on the estimates, the depreciation of the rupiah real exchange rate by 1% will reduce the demand for the export of woven fabrics from synthetic filament yarns by 1.81%.

CONCLUSION AND POLICY RECOMMENDATION

Based on the results of the analysis in this study, obtained some conclusions related to Indonesia-Middle East trade performance as follows:

1. Indonesia's largest export to six Middle Eastern countries is aligned with the diversity of economic potential of the Middle East region.
2. Main commodities are the highest contributor of Indonesian exports in the Middle East market are palm oil and its fractions (HS 1511), margarine (HS 1517) and woven synthetic filament yarn (HS 5407).
3. The result of RCA analysis showed that all Indonesia’s main commodities in the Middle East market have comparative advantages.
4. The EPD analysis results showed that all Indonesia's main commodities in Middle East market are in a rising star position.
5. EDF model analysis showed that GDP per capita and exchange rate variables affect all the leading
commodities. The economic distance variables and export prices only affect respectively on margarine products (HS 1517) and woven synthetic filament yarn (HS 5407).

6. Demand for export of woven synthetic filament yarn products (HS 5407) appears to be more elastic to changes in GDP per capita than changes in export prices. While demand for export of margarine products (HS 1517) is the most responsive to changes in economic distance compared to other commodities.

Recognizing this, Indonesia should actively expand its market share to potential nontraditional export destination countries as well as other prospective markets. Differentiation of products is also considered important for Indonesia's main commodity exports not only in the form of raw materials (raw materials), but processed products of high value.

In addition, the performance of leading commodities from the manufacturing sector that decreased during exchange rate depreciation can be trickled by the use of raw materials from alternative producers in addition to maintaining exchange rate stability.

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THE EFFECT OF IMPORTED RAW MATERIAL ON FIRM TO EXPORT
(CASE OF FOOD PROCESSING SECTOR)

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Abstract
Many firms need to imported raw materials in order to produce their products. These products can be sold domestically or exported. The objective of this article is to analyze the relation between imported raw materials and exporting firm in the case of food processing sector in Indonesia. The data used is secondary data from Statistics of Medium and Large Industry Survey 2013 conducted by Statistics Indonesia. The results indicate that only 6 percent of the total firm conducted export imported their raw materials and the average value of their imported raw materials is around Rp 135 billion. Meanwhile for firms sell their product only to domestic market, 53 percent of these firms use imported products and the average value of their imported raw materials is around Rp 25 billion. From the equation it indicates that firm using imported has slightly higher probability to export compare to firm using no imported input. These indicates that in the future imported products should be substituted with domestically produced raw materials and at the same time increase the number of exporting firms in order to increase their value added.

Keywords: Food Processing, Imported Raw Material, Export
JEL Classification: F10, Q17

INTRODUCTION
Indonesia export and import has fluctuated over the years. For many years, Indonesia has enjoyed a trade surplus except in 2012 until 2014. The highest trade deficit occur in 2014 when the deficit reached around 4 billion US$ (UN Comtrade, 2017). In 2015 the trade balance became surplus and the surplus increase by 15 percent in 2016 (UN Comtrade, 2017) (Figure 1). Beginning from 2012, the trend of export and import tend to decrease. In 2015, both export and import decrease the highest. Export decrease by 14.6 percent meanwhile import decrease by 19.9 percent (Figure 1). Therefore the trade surplus in 2015 and 2016 is mainly cause by the decrease in import exceed the decrease in export.
One of the causes of trade deficit is the increase of import not only for consumption but also for raw materials. During the period of 2009 until 2012, import increase significantly with the highest increase occurring in 2010 with the increase of 40 percent (Figure 1). In 2016, Indonesia’s raw materials import reached 60.5 billion US$ or about 45 percent of total import (Statistics Indonesia, 2017).

The trend of imported raw materials is similar to total import. During the period of 2009 until 2012, it increase significantly with the highest increase occurred in 2010 with the increase of 41.6 percent (Figure 2). Meanwhile after 2012 import of raw materials also suffer from a decrease (Figure 2).

Figure 1. Indonesia’s Export and Import Value, 2007-2017
Source: UN Comtrade (2017)
One of the sector that has an important contribution to Indonesia’s export is the food processing sector. This sector is classified belongs to HS code 15-24 ranging from vegetable oil to tobacco processing. In 2016, the food processing sector contributed 16 percent of the Indonesia’s total export and the share increase from 11 percent in 2007. During the period of 2007 until 2016, export of this sector fluctuated with the highest increase occurred in 2008 with increase of 50 percent and the highest decrease occurred in 2009 with 17 percent decrease (Figure 3).
From the previous explanation, it is interesting to compare between Figure 2 and 3. Therefore the objective of this article is to analyze the effect of imported raw materials and exporting firm in the case of food processing sector in Indonesia.

Several scholars have tried to distinguished between exporting and non exporting such as the work by Bernard and Jensen (1999), Javalgi, White and Lee (2000), Bhavani and Tendulkar (2001), Silvente (2005), Alvarez (2006), Byford and Henneberry (2006), Rodriguez-Pose et.al (2013). These authors identified factors that affect firm to export such as number of employees (Javalgi, White and Lee, 2000; Silvente, 2005; Bernard and Jensen, 1999), total sales (Javalgi, White and Lee, 2000; Silvente, 2005; Bhavani and Tendulkar, 2001; Lee and Habte-Giorgis, 2004), age of firm (Javalgi, White and Lee, 2000), firm ownership (Javalgi, White and Lee, 2000; Sjoholm, 2003), industry type (Javalgi, White and Lee, 2000); innovation (Pla Barber and Alegre,
One of the variables that affect firm to export is imported input. Bas and Straus-Kahn (2010) proved that increasing the varieties of imported inputs will make the inputs to complement better and eventually will increase the firm’s productivity. Meanwhile Aristei et.al (2013) analyze the two-way causal effect between exporting firm and imported input. The authors found that imported input affect firm to export meanwhile exporting firm do not have any influence to the firm to imported their raw materials. Most of the articles is on general firm meanwhile this article analyze on specific industry.

**RESEARCH AND METHODS**

The research is conducted using secondary data from the Manufacturing Survey 2013 conducted in 2014 for the food processing sector. There are 4695 observation included in the analysis. Two logit equation is constructed with different imported input variable, in the form of import value and import share. The two equations are as follows:

\[ L_i = a_0 + a_1 \text{IMP} + a_2 \text{WORK} + a_3 \text{PROD} + a_4 \text{DFOR} + a_5 \text{DLOC} \]

\[ L_i = a_0 + a_1 \text{SIMP} + a_2 \text{WORK} + a_3 \text{PROD} + a_4 \text{DFOR} + a_5 \text{DLOC} \]

Where

- \( L_i \) = exporting or non-exporting firm (1 = exporting; 0 = non-exporting)
- \( \text{IMP} \) = value of imported input (Rupiah)
- \( \text{SIMP} \) = share of imported input (%)
- \( \text{WORK} \) = number of production worker (person)
- \( \text{PROD} \) = production value (Thousand rupiah)
- \( \text{DFOR} \) = dummy foreign ownership (1 = foreign share; 0 = no foreign share)
- \( \text{DLOC} \) = firm location (1 = island of Java; 0 = outside Java)

The hypothesis is that all of the coefficients are positive. The variables of production worker (\( \text{WORK} \)) and production value (\( \text{PROD} \)) resembles the firm size. Many scholars have concluded that bigger firm size (in terms of employee, sales etc) will have higher probability to export compare to smaller
size firms (Javalgi, White and Lee, 2000). The variables of foreign ownership (DFOR) and imported inputs (IMP and SIMP) represent the foreign network variable. Sjoholm (2003) concluded that foreign networks have important effect on exporting firm in Indonesia since it decrease the sunk cost for export. The firm local variable (DLOC) represent the geography variable. Rodriguez-Pose et.al (2013) reveals that geography make an important difference on the behavior of firms in Indonesia. The discussion will focus on the imported input variable.

**RESULTS AND DISCUSSION**

From the data it indicates that only 6 percent of the total firm conducted export imported their raw materials and the average value of their imported raw materials is around Rp 135 billion. Meanwhile for firms sell their product only to domestic market, 53 percent of these firms use imported products and the average value of their imported raw materials is around Rp 25 billion.

The result of the two models generate similar result. Four variables are significant, imported value or share of imported value, production value, dummy of foreign shares and dummy location. Meanwhile number of production worker is the only insignificant variable (Table 1).

**Table 1. Equation Results**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.16***</td>
<td>0.16***</td>
</tr>
<tr>
<td>Imported Input</td>
<td>1.00**</td>
<td>0.00</td>
</tr>
<tr>
<td>Share of Imported Input</td>
<td>1.01***</td>
<td></td>
</tr>
<tr>
<td>No of Production Worker</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Production Value</td>
<td>1.00***</td>
<td>1.00***</td>
</tr>
<tr>
<td>Dummy foreign shares</td>
<td>4.18***</td>
<td>3.78***</td>
</tr>
<tr>
<td>Dummy location</td>
<td>0.47***</td>
<td>0.45***</td>
</tr>
</tbody>
</table>

Note: *** significant at 1 percent level
** significant at 5 percent level
* significant 10 percent level

The imported input and imported input share is significant although the coefficient is close to one which indicate there is only slight different between exporting firm and non exporting firm. This result is supported by the findings of Bas and Straus-Kahn (2010) and Aristei et.al (2013). This shows that firm with imported inputs have the experience to deal with foreign firms therefore have the experience to deal with foreign buyers. With import activities, it can promotes personal
network and obtain market information (Sjoholm, 2003).

From the four variables, dummy foreign shares has the highest effect on exporting firm. Firms with foreign shares has 4.18 times and 3.97 times more probability to export compare to firm with no foreign shares. This can be explained that firms with foreign shares have network abroad at least in their home countries and use this network in buying the product they produced. In addition, the firm with foreign shares will have also market information regarding their home country (Sjoholm, 2003).

The location of the firm is also an important factor and this is supported by Rodriguez-Pose et.al (2013). The hypothesis is that firm located in Java island have more probability to export than firm located outside Java island since in Java island has better quality of infrastructure. Firms located in Java mainly serve domestic market especially in Java island meanwhile firms located outside Java mainly focus on local resources which has the potency to export.

Exporting products are considered to be the goal of many firms. With export activities, firm will have diversify their market not only depending on domestic market. From the result, it indicates that networking with foreign sector, in terms of import or foreign shares, will increase the probability to export. In term of the firm, inviting foreign owner will make the probability of exporting increase. Therefore, these firms should attract foreign investor to buy the firm’s share since the foreign investors not only will bring new market but there are other advantages such as new skills and technology.

In the policy side, there are two ways that the government can intervene. First by easing the flow of imported raw materials entering the country and secondly to make the environment for foreign investors to invest in Indonesia much more supportive. In the long-run, the government must identify raw materials needed for exporting firm production and make incentive for firms to invest to produce those raw materials. Therefore, firms will not rely heavily on imported raw materials and decrease Indonesia’s import value in the future.
CONCLUSION AND POLICY RECOMMENDATION

Four variables have the effect on exporting firm, namely imported input or share of imported input, number of production worker, dummy foreign shares and dummy location. From these variables it can be inferred that linking with foreign side in the form of share or inputs will induce firm to export. From the policy side, the government must ease the import of raw materials to support exporting firm and be more open to foreign investors in order to increase the country’s export value. In addition, in the long-run imported raw materials must be substituted with domestic production in order to decrease import and to decrease relying on imported inputs.

REFERENCES


United Nations Commodity Trade (UN Comtrade) (2016)
### Appendix.

**STATA Result**

Logistic regression  
Number of obs = 4695  
Wald chi2(4) = .  
Prob > chi2 = .  
Log pseudolikelihood = -1550.5927  
Pseudo R2 = 0.0802

| exp | Odds Ratio | Std. Err. | z    | P>|z|   | [95% Conf. Interval] |
|-----|------------|-----------|------|-------|----------------------|
| imp | 1          | 2.67e-10  | 2.12 | 0.034 | 1                     | 1                     |
| work | 1.000129 | .0003205  | 0.40 | 0.687 | .9995011   | 1.000757             |
| prod | 1.000026 | .0000116  | 2.29 | 0.022 | 1.000004  | 1.000049            |
| dfor | 4.179691 | .7217026  | 8.28 | 0.000 | 2.97967   | 5.863005             |
| dloc | .4678646 | .0468723  | -7.58| 0.000 | .3844535  | .5693727             |
| _cons | .1649188| .0137481  | -21.62| 0.000 | .1400591  | .1941909             |

Note: 0 failures and 1 success completely determined.

Logistic regression  
Number of obs = 4695  
Wald chi2(5) = 235.89  
Prob > chi2 = 0.0000  
Log pseudolikelihood = -1543.9623  
Pseudo R2 = 0.0841

| exp | Odds Ratio | Std. Err. | z    | P>|z|   | [95% Conf. Interval] |
|-----|------------|-----------|------|-------|----------------------|
| simp | 1.013366 | .0028676  | 4.69 | 0.000 | 1.007762  | 1.019002             |
| work | 1.000128 | .0003093  | 0.41 | 0.679 | .999522   | 1.000735             |
| prod | 1.000026 | .0000111  | 2.38 | 0.017 | 1.000005  | 1.000048             |
| dfor | 3.974979 | .6811817  | 8.05 | 0.000 | 2.84097   | 5.561642             |
| dloc | .4494133 | .0452475  | -7.94| 0.000 | .3689316  | .547452             |
| _cons | .1640957| .0135641  | -21.86| 0.000 | .1395524  | .1929556             |

Note: 0 failures and 1 success completely determined.
STRATEGY OF INDONESIAN RUBBER DEVELOPMENT TO INCREASE EXPORTS: SWOT ANALYSIS

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Abstract
Indonesia has many advantages in agricultural sector and processing of rubber in terms of varieties, a number of agricultural land, and labor. Although Indonesia has a great opportunity to become a major player in world rubber trade, but there are still threats and obstacles that must be faced in order to maintain existing markets or expand market access. This study aims to analyze the agricultural sector, especially rubber plantations in Indonesia using Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis. The availability of sufficient labor and natural conditions as well as a vast and fertile land could support the strengths in rubber sector industry, but also could become a weakness where exist the low quality of human resources and low productivity and quality of rubber in Indonesia compared to other countries (Malaysia and Thailand). In addition, the rubber in Indonesia still has to face the problem of the low quality of infrastructure, commodity exports are still in the form of rubber raw materials, and the lack of experts in the field of agro-industrial rubber. The priority of rubber development to increase export strategy is maximize the Strengths-Opportunities (S-O). Relevant authorities should increase variation from rubber processed products, development of quality of human resources, and infrastructure development.

Keywords: Strategy, Rubber Development, Indonesia, SWOT and Export
JEL Classification: F18, O13, P45

INTRODUCTION

There are several researchers analyzing rubber commodities using the SWOT approach (Strengths, Weaknesses, Opportunities, and Threats). Ciras (2013) examines the plastics and rubber industries in IOWA USA. This study identifies the Strengths, namely: (1) the rubber industry in IOWA is more productive than the average USA, (2) 90% of the company rubber IOWA found that technology is an important component to achieve the company’s goals. In addition, USAID (2002) also conducted rubber research in Sri Lanka. In this study, they found that rubber industry will be more productive and gain profit if business actors produce based on cluster. Clusters are associations of companies that participate in transactions and trade agreements and represent each segment in the business value chain. This has been done in the rubber industry in Indonesia where there is the Association of Indonesian Rubber Entrepreneurs (Gapkindo / Gabungan Perusahaan Karet Indonesia).
In the case of rubber in Indonesia, Hendratno (2008) conducted research on the export demand of Indonesian rubber to China. Indonesian Strengths, namely: (1) traditional natural rubber market, (2) the availability of natural resources, (3) a source of household income farmers, and (4) plantation labor. In the scope of research in several rubber centers in Indonesia, there are Nasution (2008), Herawati (2010), and Silangit et al. (2014). These three studies are both using SWOT and resulted in strategies to increase the income of smallholder rubber farmers. The availability of land and labor becomes a strength in each of these areas. From the above explanation, it appears that not many scientific studies about rubber with SWOT in the latest. There is room for researchers to fill the gap. So, this paper aims to analyze Indonesian rubber development strategy in order to increase exports.

METHODS

Data used in this study are primary and secondary data. Primary data became the main reference in data collection, as well as through in-depth interviews. Secondary data were obtained from literature studies and scientific publications from government and non-government institutions.

This research uses qualitative and quantitative methods. Qualitative method is done by collecting data of in-depth interview with related officials at Ministry of Agriculture, Regional Office of Industry and Trade (Disperindag), professional associations and rubber farmers in North Sumatera and South Sumatera.

Quantitative method is done with SWOT model (Strength, Weakness, Opportunity, and Threat). SWOT analysis is a way of analyzing internal and external factors into strategic steps in business optimization that is more beneficial. Related to this, we use the Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS) Matrix (Rangkuti, 2011). The SWOT analysis will see the strengths, weaknesses, opportunities and threats associated with improving rubber performance in Indonesia.

RESULTS AND DISCUSSION

Strengths

Indonesia has several strengths in rubber commodities that enable it to solidify its position as a world-class rubber producer. Viewed from the natural resource conditions, Indonesia's
geographical condition is very supportive of rubber planting efforts. Rubber plants require air temperature between 24-28 degrees Celsius for its growth. Moreover, Indonesia also has sufficient rainfall for rubber plantation that is 1,500-2,000 mm / year (Kementerian Perindustrian, 2007).

The area of rubber plantation is also constantly increasing from year to year. Figure 1 shows the growth of rubber fields between 1975-2015 reached 1.01% annually. The highest number plantation area in 2015 is 3,656,057 hectares, while the highest rubber production in 2013 is 3,237,433 tons.

![Figure 1. Development of Plantation Area (Luas Areal Karet) and Production of Rubber (Produksi Karet)](image)

Source: Ditjenbun (2014), edited

Another strength, Indonesia has many varieties of rubber trees and excellent potential factors, such as pest-resistant and faster harvest time. A number of leading varieties currently being developed are IRR5 Clone, IRR 42 Clone, IRR 118 Clone, and natural rubber foam (Kementerian Perindustrian, 2007). The next strength is the availability of sufficient labor. The number of labor in the rubber plantation sector in 2015 is predicted to increase to 2.4 million from 2.2 million in 2010 (Ditjenbun, 2014). Furthermore, the government is viewed by a number of large entrepreneurs of rubber plantations are quite responsive to the policies that support one of them easy
access to capital (results of interviews with the Rubber Association of Indonesian Rubber Companies / Gapkindo in Palembang). Based on data from Kementan (2015), rubber production centers in Indonesia are spread in 6 main provinces, namely South Sumatra (23.22%), North Sumatra (15.14%), Riau (11.9%), Jambi (9.78%), West Kalimantan (8.68%) and Central Kalimantan (7.03%). Total 75.75% of rubber production is outside Java, while 24.25% is controlled by Java. In 2014 there was an increase of Indonesia’s foreign exchange reserves from rubber to US $ 4,741 million (Kementan, 2015). These conditions make Indonesia now become one of the main producing countries and natural rubber exporting countries of the world. Rubber exports from Indonesia alone have formed not less than 33% of global rubber exports. Rubber commodities in addition to being a driver of economic growth in production centers, is also a source of income, employment and Indonesia’s foreign exchange reserves (Litbang Deptan, 2007).

The next strength is the export of rubber products from Indonesia continues to show improvement to 4 countries (Figure 2). The four largest export markets of rubber and rubber products in Indonesia are USA, Japan, China and India with 6%, 4% and 6% increase in export respectively (Trademap, 2016).

![Figure 2. Export Rubber and Rubber Products from Indonesia Year 2011-2015](image)

Source: Trademap (2016), calculated
Furthermore, the development of rubber products has been given priority in the government's development strategy in the Masterplan for the Acceleration and Expansion of Indonesia's Economic Development (MP3EI). Especially for the rubber itself, the Sumatra corridor produces 65% of the total national rubber (Kemenko Perekonomian, 2011).

Another strength is the potential of downstream industries through the presence of a number of domestic industries. Natural rubber and synthetic rubber are used as tire raw materials with rubber content levels between 40-60%, and added by various other materials. The results of downstream rubber industry include shoe sole, tire retreading, and rubber goods for industry. While concentrated latex can be used as raw materials of gloves, condoms, rubber threads, balloons, foam pillows and mattresses, and others (Kemenko Perekonomian, 2011: 56). Large entrepreneurs are also environmentally oriented in the development of their products (sustainable development) (Results of interviews with Indonesian Rubber Companies Association / Gapkindo in Palembang). Rubber plantations in Indonesia have become a valuable source of biodiversity in environmental conservation, sources of CO₂ absorption and O₂ producers (Novianti and Hendratno, 2008).

**Weaknesses**

On the other hand, the development of rubber products in Indonesia also faces a number of weakness. The main problems are government policies related to the development of agricultural products that have not been implemented properly, one of them is the rejuvenation of rubber crops, the provision of superior quality seeds, cultivation counseling and post-harvest rubber technology. In infrastructure, port capacity development, land logistics, and additional electrical capacity.

The second weakness is Indonesian rubber productivity is relatively lower compared to other producer countries (see table 1). India can produce 1,903 kg of ready-to-harvest rubber per hectare, Indonesia is only able to produce 993 kg / hectare, as well as when compared with countries in Southeast Asia. Thailand, Vietnam and Malaysia respectively, were able to produce 1,699 kg / hectare; 1,661 kg / hectare; and 1,411 kg / hectare. This means that the productivity of Indonesian rubber plantations is about 30-40% lower.
Table 1. Rubber Productivity in the Year 2005, 2010, 2015 (Kg/ Ha)

<table>
<thead>
<tr>
<th>Type of Business</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Enterprise</td>
<td>1,505</td>
<td>1,341</td>
<td>1,184</td>
</tr>
<tr>
<td>Private Company</td>
<td>1,132</td>
<td>899</td>
<td>962</td>
</tr>
<tr>
<td>State-owned Enterprise</td>
<td>1,236</td>
<td>982</td>
<td>865</td>
</tr>
</tbody>
</table>

Source: Kementan (2015), calculated

The low productivity of rubber is due to the large portion of small entrepreneurs in Indonesian rubber production. About 80% of national rubber production is generated by small entrepreneurs and most of these small entrepreneurs own small land and still low productivity of the national rubber. The low productivity of the national seeds, plantation land use that is not optimal, and poor plant maintenance (Kemenko Perekonomian, 2011).

The next weakness in Indonesian rubber development is in terms of infrastructure. In the province of North Sumatera, which one of the major rubber producers, the availability of road infrastructure becomes a major obstacle. The issue of this highway has also been discussed with the Asian Development Bank. In his study of connectivity in Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT), the ADB stated that the Bandar Lampung-Palembang-Jambi-Pekanbaru-Medan route is only 45.3-53 km per hour. This low average speed is due to the high density of trucks that use this route as the main transport route (ADB, 2012). In the West Kalimantan province, this infrastructure problem has delayed the entry of Chinese investors in 2010 and 2012 (Equator-News, 2013).

Furthermore, the weakness of Indonesia’s rubber sector is the structure of exports that are still too dependent on raw products. Recorded only 15% of the upstream production is consumed by the downstream industry in Indonesia. Meanwhile, the remaining 85% (in the form of natural rubber) becomes an export commodity (Kemenko Perekonomian, 2011).

Another weakness is the lack of experts and facilities for the development of the rubber industry. This makes rubber plantations in Indonesia a minimal innovation (Novianti and Hendratno, 2008).
Table 2. IFAS Analysis of Rubber Products

<table>
<thead>
<tr>
<th>INTERNAL FACTOR</th>
<th>Weight</th>
<th>Rating</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengths</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Natural condition and supporting land area</td>
<td>0.06</td>
<td>2.4</td>
<td>0.15</td>
</tr>
<tr>
<td>2. Variety of rubber derivative products</td>
<td>0.05</td>
<td>3.6</td>
<td>0.19</td>
</tr>
<tr>
<td>3. Availability of labor</td>
<td>0.05</td>
<td>2.8</td>
<td>0.15</td>
</tr>
<tr>
<td>4. There are no export duties for rubber export</td>
<td>0.07</td>
<td>2.2</td>
<td>0.15</td>
</tr>
<tr>
<td>5. A favorable taxation policy</td>
<td>0.06</td>
<td>2</td>
<td>0.12</td>
</tr>
<tr>
<td>6. Easy access to capital</td>
<td>0.07</td>
<td>2.2</td>
<td>0.15</td>
</tr>
<tr>
<td>7. Ease of obtaining business licenses</td>
<td>0.07</td>
<td>2.6</td>
<td>0.17</td>
</tr>
<tr>
<td>8. Rubber is Indonesia’s leading export commodity</td>
<td>0.07</td>
<td>3</td>
<td>0.2</td>
</tr>
<tr>
<td>9. The number of rubber export which tends to increase</td>
<td>0.05</td>
<td>3.4</td>
<td>0.18</td>
</tr>
<tr>
<td>10. The existence of national rubber commodity development strategy in MP3EI</td>
<td>0.05</td>
<td>3.8</td>
<td>0.21</td>
</tr>
<tr>
<td>11. Existence of a domestic industrial sector that potentially absorb rubber raw material for industrial downstream</td>
<td>0.06</td>
<td>3.6</td>
<td>0.22</td>
</tr>
<tr>
<td>12. Entrepreneurs have paid attention to environmental aspects in the management of rubber plantations</td>
<td>0.07</td>
<td>2</td>
<td>0.14</td>
</tr>
<tr>
<td>13. The rubber industry is environmentally friendly</td>
<td>0.07</td>
<td>2</td>
<td>0.13</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>0.81</td>
<td>2.18</td>
<td></td>
</tr>
<tr>
<td><strong>Weaknesses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Government policies related to the development of rubber products have not been implemented properly</td>
<td>0.04</td>
<td>3</td>
<td>0.14</td>
</tr>
<tr>
<td>2. The productivity of rubber plantations is relatively low compared to other rubber producing countries</td>
<td>0.03</td>
<td>3</td>
<td>0.11</td>
</tr>
<tr>
<td>3. Inadequate supporting infrastructure</td>
<td>0.02</td>
<td>4</td>
<td>0.08</td>
</tr>
<tr>
<td>4. Most export commodities are still raw materials</td>
<td>0.04</td>
<td>3</td>
<td>0.11</td>
</tr>
<tr>
<td>5. The minimum use of technology in rubber plantations</td>
<td>0.03</td>
<td>3</td>
<td>0.1</td>
</tr>
<tr>
<td>6. Lack of expertise and facilities for rubber industry development</td>
<td>0.03</td>
<td>3</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>0.19</td>
<td>0.62</td>
<td></td>
</tr>
<tr>
<td><strong>Total (Strengths+Weaknesses)</strong></td>
<td></td>
<td>1</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Source: Researchers Calculation (2016)

The overall weighting value for Strengths (S) is 0.81 or 81%. Meanwhile, Weaknesses (W) has smaller weight, which is only 0.19 or 19% of the overall weight of IFAS rubber commodities (see table 2). This means Strengths (S) has a weight of 4.5 times greater than Weaknesses (W).

**Opportunities**

For the opportunity side, rubber has a large export market overseas. Recorded world natural rubber consumption increased by 24.93% during the period 2001-2007. This is the impact of the fast growing automotive sector, especially in Asia-Pacific markets such as China, USA and
Japan. Specifically in China, the country has a very high rubber consumption. In 2007, recorded the consumption of rubber China amounted to 2.57 million tons. Meanwhile, domestic production only reached 500,000 tons. This gap can be filled Indonesia by exporting rubber products to the country. Indonesia’s rubber market also exists in the US and Japan. The US absorbed 25% of Indonesia’s total rubber exports, which was about 590,946 tons in 2006. Meanwhile, Japan imported about 15% by 357,000 tons (Novianto and Hendratno, 2008).

Recently, Indonesia’s next opportunity is an investment in rubber plantation sector. Many foreign investors want to invest in this area. One of them is an investor from Germany who is currently working on rubber plantation development opportunities in Bangka Belitung Province (Indonesia.go.id., 2013). Another country that also interested in investing is China, they want to invest up to Rp. 10 trillion in West Kalimantan Province (Equator-News, 2013). Another potential area that invites foreign investors is Aceh, Singapore-based company PT Aceh Rubber Industries, has invested in rubber processing plantation sector in Aceh Tamiang (Atjeh.co., 2013).

Third, Indonesia’s opportunity comes from its engagement with the International Rubber Consortium Limited Organization / IRCo rubber product alliance. IRCo outlines production quotas for each country, thereby making rubber prices more manageable and profitable for rubber producers (Novianti and Hendratno, 2008). The fourth opportunity, rubber trade is now using contract futures mechanism. Contract futures is a trading mechanism whereby a product is purchased several months early to get price certainty. Usually the price of a product tends to fluctuate, thus giving the product earlier, at a predetermined price, this mechanism will provide business certainty in the future. Fifth opportunity, the existence of free trade agreement scheme. Indonesia has a comparative advantage in rubber products, so it can compete with similar commodities in overseas markets. The last opportunity, the development of the management of green tire (Novianto and Hendratno, 2008) and eco-friendly tire is environmentally friendly (Ashley, 2016; Jain, 2013).

**Threats**

Threats faced by Indonesian rubber entrepreneurs are among others the development of non-tariff barriers
applied by major importing countries. The implementation of these obstacles is usually political factors because it is driven by export business group of export destination countries that are afraid that their products are unrivaled by Indonesian rubber products.

Furthermore, the threat that must be faced is the fluctuation of rubber prices in the international market. This is particularly evident in 2007-2008 and 2011, where fluctuations in rubber prices look considerably. Fluctuations in rubber prices so far is a picture of global economic conditions (see Figure 3). When the world economy declines, the price of rubber will decrease. This happened at the end of 2008 when the US financial crisis began to spread throughout (Ansell, 2010 and Shen Wei USA, 2011). Later, Indonesian rubber products were threatened by the existence of substitute products. Countries like China have successfully developed synthesis rubber made from crude oil, such as substitute rubber because it can replace natural rubber in the production of tires, footwear, and others (Novianto and Hendratno, 2008).

Table 3. EFAS Analysis of Rubber Products

<table>
<thead>
<tr>
<th>EXTERNAL FACTOR</th>
<th>Weight</th>
<th>Rating</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Potential overseas rubber market</td>
<td>0.12</td>
<td>2.4</td>
<td>0.29</td>
</tr>
<tr>
<td>2. Trade policy of import duty tariff of low quality rubber product</td>
<td>0.11</td>
<td>2.2</td>
<td>0.25</td>
</tr>
<tr>
<td>3. The number of foreign investment for the development of rubber products</td>
<td>0.10</td>
<td>3.6</td>
<td>0.36</td>
</tr>
<tr>
<td>4. The existence of an alliance of world rubber producers IRCo (International Rubber Consortium Limited Organization) to encourage rubber price stability</td>
<td>0.11</td>
<td>3.6</td>
<td>0.39</td>
</tr>
</tbody>
</table>
5. Contract futures trading system that ensures the continuity of rubber demand 0.10 3.6 0.34

6. The existence of various bilateral and regional trade agreements (IJEPA, ACFTA, RCEP, Indonesia-EU CEPA, etc.) 0.11 3.6 0.39

7. The development of green tire and eco-friendly tire is environmentally friendly 0.09 3.2 0.29

Sub Total 0.73 2.31

**Threats**

1. Indonesian rubber products are cheaper according to importer countries than rubber products from other countries 0.05 4 0.2

2. The competitiveness of other countries’ rubber products is high 0.05 3.2 0.17

3. The vulnerability of rubber imports from importing countries to the shock of economic crisis from other countries 0.07 4 0.27

4. The non-tariff trade policy of rubber products becomes a barrier 0.02 3.8 0.09

5. The world economic trend causes fluctuations in rubber prices 0.05 3.6 0.16

6. The existence of substitute products such as synthetic rubber from competing countries 0.02 4 0.1

Sub Total 0.27 1

Total (Opportunities+Threats) 1 3.3

Source: Researchers Calculation (2016)

Based on table 3, it appears that the opportunity factor (O) dominates the overall weight of EFAS. The weight of opportunities factor (O) is 0.73 or 73%. The threats factor (T) forms only 0.27 or 27% of the total value of EFAS.

**Rubber Product Development Strategy of Indonesia**

Based on the Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS), the formulation of export development strategy can be done. These strategies will be formulated with a combination of S-O (Strengths-Opportunities), W-O (Weaknesses-Opportunities), S-T (Strengths-Threats), and W-T (Weaknesses-Threats). The strategies included in the S-O category as follows:

1. Utilize the fertile natural conditions and large rubber fields, the availability of a relatively large workforce, the accessibility of capital and the ease of obtaining a business license to capture the potential opportunities of international rubber market potential. This opportunity can be obtained by initiating the research and development of downstream rubber derivative products such as tires and additives of asphalt hardening (Darunifah, 2007; Idral. 2016).

2. Utilize the characteristics of entrepreneur who have been concerned about environmental aspects and environmentally friendly rubber industry
to capture the opportunities for the development of green tire and eco-friendly tire in the global market. This opportunity can be achieved by implementing the transfer of environmentally friendly tire in the global market. This opportunity can be achieved by implementing the transfer of environmentally friendly tire manufacturing technology, management of impact handling Safety, Security, Health and Environment (Kesehatan, Keselamatan Kerja dan Lingkungan Hidup / K3L) and the development of efficient and effective industries.

(3) Utilize rubber as Indonesia's leading export commodity to capture the opportunities of contract futures trading system that ensures the continuity of rubber demand. The Jakarta Futures Exchange (Bursa Berjangka Jakarta / BBJ) rubber trade in futures contracts in as a means: risk management, price creation, market efficiency and market information (Bappebti, 2012; Kuswandari, 2000). Increasing the quality and quantity of rubber in the commodity futures market can streamline the rubber commodity market.

(4) Increase the amount of variety of rubber derivative products by utilizing an overseas investment. Increased investment in rubber industry can be done by encouraging rubber plantation and processing companies to Go Public, so they can get capital from domestic and abroad in the capital market.

(5) Increase the presence of a potential domestic industrial sector to absorb rubber raw materials for industrial downstream purposes to utilize the existence of various trade agreements by way of Indonesia can negotiate tariff reductions and non-tariff barriers especially for rubber products.

(6) Utilize the policy of no duty on rubber and favorable taxation policies to seize the opportunities for foreign investment to develop rubber products. Promotion of business opportunities and investment in plantation sector and rubber industry to attract potential investors from abroad.

(7) Utilize the existence of the national rubber commodity development strategy in MP3EI to capture the potential opportunities of the rubber market abroad. Development of non-traditional markets to increase Indonesia's rubber exports.

(8) Increase the number of rubber exports to capture trade policy opportunities for low tariff rates on rubber products and the presence of an alliance of global rubber producers IRCo to encourage rubber price stability. Indonesia can maximize IRCo meetings
in order to consolidate international rubber price stability policies and develop capacity building and technology transfer of rubber industry.

The Strategies included in the W-O category are as follows:

(1) Improve the implementation of government policies related to the development of rubber products; the development of rubber plantation productivity; the availability of infrastructure; the use of technology in rubber plantations, experts and facilities to capture the potential opportunities of the rubber market abroad.

(2) Improve supporting infrastructure to attract foreign investment. The development of infrastructure such as electricity, roads, ports, airports and railways in rubber production centers so that foreign investors are interested to invest in plantation sector and rubber industry.

The Strategies included in the S-T category are as follows:

(1) Increase the amount of variety of rubber derivative products to overcome the threat of low competitiveness of rubber products. Strategies in order to increase the variety of rubber products can be done with the incentive of plantation and domestic rubber industry in order to absorb more rubber raw material.

(2) Increase the awareness of the entrepreneurs in taking into account the environmental aspects, the amount of variety of rubber derivative products, the existence of national rubber commodity development strategy in MP3EI and the environmentally friendly rubber industry to overcome the threat of Indonesian rubber products cheaper by the importer countries and the high product competitiveness rubber country competitors. Strategies that can be done is making a standard testing laboratory and the quality of rubber products. This laboratory can be a certainty of rubber quality for companies using rubber derivative products.

(3) Increase variety of rubber derivative products to overcome the threat of the presence of substitute products such as synthetic rubber from other countries. A strategy that can be implemented is to encourage the processing industry of rubber raw materials to be processed into rubber pipes; thread and cord are vulcanized; plate / sheet vulcanize; tubes, pipes and hose vulcanize; tire; supplies of vehicles, rubber for health and pharmaceuticals, clothing and footwear, as well as other goods and vulcanized rubber (Pemprov Kaltim, 2014).
(4) Increase the presence of the domestic industrial sector that is potential to absorb rubber raw material for industrial downstream purposes to overcome the threat of vulnerabilities of rubber imports from importing countries to the economic crisis of other countries. Development of rubber stock storage and commodity futures trading can be a strategy in case there is shock of economic crisis from other countries.

(5) Improve the national rubber commodity development strategy in MP3EI to address the threat of non-tariff trade policy of rubber products from importing countries. This strategy can be done by mapping out what non-tariff policy applied by Indonesia’s export destination country and then negotiating non-tariff barriers if it is not in accordance with WTO.

(6) Given the supportive natural and land conditions, the availability of sufficient labor, the accessibility of capital, the ease of obtaining business licenses, and the rubber of Indonesia’s leading export commodities can overcome the threat of the existence of substitute products such as synthetic rubber from other countries. There is a need to improve the quality of Indonesian rubber with the implementation of Indonesian National Standard (Standard Nasional Indonesia / SNI) rubber in a sustainable manner.

The strategies included in the W-T category are as follows:

(1) Increase productivity and implementing government policies related to rubber product development to overcome the threat of low prices and competitiveness of Indonesian rubber products in the world market.

(2) Increase the availability of infrastructure, technological development in rubber plantations, experts and facilities to overcome the threat of cheaper Indonesian rubber products, the existence of non-tariff trade policies, and the presence of substitute products such as synthetic rubber from competing countries. Market intelligence of rubber products is needed by Indonesian Embassy and Indonesian Trade Representative Offices abroad.

SWOT weighting results are made to know the priorities and interrelationships between strategies. Therefore, this study examines the combination of internal and external strategies of each factor in each product. The strategy chosen as a priority strategy in the development planning of each product is the one that has the greatest interaction value of the four S-
O, S-T, W-O and W-T combination as shown in Table 4.

### Table 4. Priority Rubber Product Development Strategy

<table>
<thead>
<tr>
<th>RUBBER</th>
<th>IFAS</th>
<th>Strengths (S)</th>
<th>Weaknesses (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EFAS</td>
<td>2.18</td>
<td>0.62</td>
</tr>
<tr>
<td>Opportunities (O)</td>
<td>(SO) : 5.035</td>
<td>(WO) : 1.432</td>
<td></td>
</tr>
<tr>
<td>2.31</td>
<td>Priority I</td>
<td>Priority III</td>
<td></td>
</tr>
<tr>
<td>Threats (T)</td>
<td>(ST) : 2.18</td>
<td>(WT) : 0.62</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Priority II</td>
<td>Priority IV</td>
<td></td>
</tr>
</tbody>
</table>

Source: Researchers calculation (2016)

Based on the calculation of multiplication, the weight and rating value (urgency) obtained from IFAS and EFAS each product, it can be determined the order of priority strategy desired on each product. Table 4 shows the first priority of rubber development strategy is S-O strategy with score 5.035. The second, third and fourth priorities are S-T (2.18), W-O (1.432) and W-T (0.62). The results of the analysis show that S-O strategy is the main priority in increasing rubber export because it has the highest interaction value. The results of the analysis indicate there is a need for a comprehensive strategy in increasing Indonesian rubber exports abroad, which are: (1) initiate the research and development of downstream rubber derivative products; (2) develop the most efficient and effective rubber industries that environmentally friendly; (3) utilize rubber to capture opportunities of contract futures trading system; (4) increase the variety of rubber derivative products; (5) increase the domestic industrial sector to absorb rubber raw materials; (6) promote investment in plantation sector and rubber industry; (7) utilize the national rubber commodity development strategy; and (8) maximize IRCo.

### CONCLUSIONS AND RECOMMENDATIONS

**Conclusions**

Based on the result of SWOT analysis, the priority of Indonesian rubber development to increase export strategy is Strengths-Opportunities (S-O) with score 5.035. The second, third and fourth priorities are S-T (2.18), W-O (1.432) and W-T (0.62). The results of the analysis show that S-O strategy is the main priority in increasing rubber export because it has the highest interaction value. The results of the analysis indicate there is a need for a comprehensive strategy in increasing Indonesian rubber exports abroad, which are: (1) initiate the research and development of downstream rubber derivative products; (2) develop the most efficient and effective rubber industries that environmentally friendly; (3) utilize rubber to capture opportunities of contract futures trading system; (4) increase the variety of rubber derivative products; (5) increase the domestic industrial sector to absorb rubber raw materials; (6) promote investment in plantation sector and rubber industry; (7) utilize the national rubber commodity development strategy; and (8) maximize IRCo.
meetings to consolidate policies, develop capacity building and technology transfer of rubber industries.

**Recommendations**

Basic policy recommendations can be obtained from the results and discussions, which are:

1. Increase variation from downstream of rubber processed products so as to overcome the fluctuation of international rubber price.

2. Development of the quality of human resources with the capability of developing rubber industry and rubber products. This can be done by making educational facilities and infrastructure (education and training) in the field of processing raw rubber into semi-finished materials or finished goods from rubber.

3. Acceleration of infrastructure development, such as: good quality of electricity, ports, roads, airports, railways, and terminals to assist the development of rubber industry in production centers.

**REFERENCES**


THE POTENTIAL OF TRADE COOPERATION BETWEEN INDONESIA AND SOUTH AFRICA

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Abstract
This study aims to investigate the potential benefits of trade cooperation between Indonesia and South Africa. To know the potential, there are two questions to be answered in this study; First, how the competitiveness of Indonesia and South Africa products; And second what is the impact of welfare, trade, and tariff revenue from the liberalization of Indonesia-south Africa. RSCA calculations shows, Indonesia has a relatively higher competitiveness than South Africa in the vegetable products sector; Mineral products; Plastics/rubber; Wood and wooden products; Textile; And footwear/headgear, machinery and miscellaneous. While South Africa has a relatively higher competitiveness than Indonesia in the foodstuffs sector; Chemical and allied industries; Raw hides, skins, leather and furs; Stone/glass; Metals and transportation. Based on the Partial Equilibrium simulation, Indonesia will experience an increase in imports of USD 28.4 million and South Africa for USD 231.5 million. Furthermore, it is suggested that in the initial phase, trade cooperation between Indonesia and South Africa should be in the form of Preferential Trade Agreement (PTA) which focuses on the high competitive products of both countries.

Keywords: Trade Liberalization, Competitive Product, Partial Equilibrium

JEL Classification: F10, F13, F15

INTRODUCTION
The Joint Trade Committee (JTC) meeting with the aim of enhancing bilateral cooperation in trade, investment and economy has been conducted by the Ministry of Trade of the Republic of Indonesia with the Minister of Trade and Industry of South Africa as the coordinator. JTC has been conducted 2 (two) times, the first meeting on May 23, 2006 in Tsawane, and second on October 16, 2012 in Jakarta.

The proposed Preferential Trade Agreement (PTA) cooperation was discussed during the 2nd JTC meeting in Jakarta. Indonesia proposed that both parties be able to prepare a study to examine the possibility of cooperation between PTA Indonesia-South Africa. However, South Africa is included as a member of Southern Africa Customs Union (SACU) so that bilateral PTA is not possible. At the meeting of the two heads of state on the sidelines of the IORA Summit in March 2017, the President of the Republic of Indonesia proposed to the President of South Africa that trade cooperation could be expanded by opening SACU access. While conducting trade and economic cooperation is an important thing to do,
it is necessary to consider some aspects that may occur whether to be beneficial or detrimental to Indonesia. It is therefore necessary to analyze the potential benefits that will be obtained through trade cooperation with South Africa, so that Indonesia can determine the right policy in obtaining optimal benefits from the cooperation undertaken. This study was conducted to find out the potential of trade cooperation between Indonesia and South Africa, through calculating the competitiveness of both countries' export products and Partial equilibrium simulation to know the impact of welfare, trade and tariff revenue from tariff liberalization of Indonesia-South Africa.

**METHODS**

This analysis uses two quantitative methods. First, using Revealed Comparative Advantage (RCA) which then normalized into Revealed Symmetric Comparative Advantage (RSCA). RCA calculation is done because in International trade the competitive advantage is one very important thing. Several studies have been done to prove it, including Widodo (2010), Cai (2007), and Gupta (2015). The RCA index is defined as the ratio of two shares. The numerator is the share of a country’s total export quantity of the commodity of interest in its total exports volume. The denominator is share of world exports quantity of the same commodity in total world exports volume.

The ratio is defined as:

\[ RCA_{ih} = \frac{X_{ih}/X_{it}}{X_{wh}/X_{wt}} \]

Where;

- \( RCA_{ih} \)= revealed comparative advantage ratio for country i in product h,
- \( X_{ih} \)= country i’s exports of product h
- \( X_{it} \)= total exports of country i
- \( X_{wh} \)= world exports of product h
- \( X_{wt} \)= total world exports

Since \( RCA_{ih} \) turns out to produce values that cannot be compared on both sides of one, Dalumet al.,(1998) and Laursen (1998) have made Revealed Symmetric Comparative Advantage (RSCA) index, which is formulated as follows:

\[ RSCA_{ih} = \frac{(RCA_{ih} - 1)}{(RCA_{ih} + 1)} \]

And secondly, Partial Equilibrium simulation will be used to analyze the impact of tariff reduction on Welfare, Government Revenue and Trade Balance between Indonesia and South Africa. The use of Partial Equilibrium analysis tools can be done with several computer applications, including with
regular spreadsheet applications such as Microsoft Excel and SMART Model. The SMART Model or "Single Market Partial Equilibrium Simulation Tool" is a simple partial equilibrium model developed by WITS. Using the existing SMART tools on WITS, this model can calculate the impact of tariff reductions to disaggregate levels of up to a 6-digit HS. This analysis adopts what SMART does and calculates the impact of tariff reductions for each country using Microsoft Excel. This is done to provide flexibility in choosing simulated products or commodities with more flexible time periods.

RESULTS AND DISCUSSION

Macroeconomic Indicators and Trade Performance Indonesia - South Africa.

Based on the comparison of economic indicators in table 1, Indonesia's economic growth is much greater than that of South Africa. In 2015, Indonesia's GDP reaches US $ 858 billion while South Africa is only US $ 314.73 billion. With the total population of Indonesia in the same year amounted to 255.46 million people, the income per capita of the Indonesian population reached US $ 3,362.36 per year. By contrast, with a population of only 55.01 million, South Africa's per capita income is larger than Indonesia at US $ 5,721.14 per year. South Africa's inflation rate is 4.57%, lower than Indonesia's 6.36%. The inflation figure shows that aggregate price spikes in South Africa tend to be more stable than Indonesia. South Africa's unemployment rate is 25.3%, much higher than Indonesia's 6.18%. The comparison of macroeconomic data above usually means that Indonesia is a larger potential market than South Africa, but South Africa has greater purchasing power than Indonesia.

Table 1. Comparison of Macroeconomic Indicators between Indonesia and South Africa

<table>
<thead>
<tr>
<th>Macro Economics</th>
<th>Indonesia</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP, current prices (US$ Billions)</td>
<td>858.95</td>
<td>314.73</td>
</tr>
<tr>
<td>GDP per capita (US$)</td>
<td>3,362.36</td>
<td>5,721.14</td>
</tr>
<tr>
<td>Inflation, average consumer prices (%)</td>
<td>6.36</td>
<td>4.57</td>
</tr>
<tr>
<td>Unemployment (%)</td>
<td>6.18</td>
<td>25.3</td>
</tr>
<tr>
<td>Population (Juta)</td>
<td>255.46</td>
<td>55.01</td>
</tr>
</tbody>
</table>

Source: IMF (2017), processed
Indonesia's trade relations with South Africa have been going pretty well. The growth of total trade between Indonesia and South Africa has experienced a declining growth over the last 5 years (2012-2016), with annual declines reaching 21.2%. However, in January 2017 the total trade between Indonesia and South Africa reached USD 99.7 million or increased by 56.7% YoY.

Indonesia's export performance to South Africa dominated non-oil exports by showing a downward trend of 20.4% over the period 2012-2016. In 2016, Indonesia's non-oil exports to South Africa reached USD 727.6 million, an increase of 9.3% compared with the previous year to reach USD 666.1 million. In January 2017, non-oil exports reached USD 69.9 million or an increase of 43.7% YoY.

Meanwhile, Indonesia's import performance from South Africa is also dominated by non-oil imports, with a downward trend of 23.2% during 2012-2016. Indonesia's imports in 2016 reached USD 289.7 million, an increase of 25.6% compared to 2015 with a value of USD 230.6 million. In January 2017, non-oil imports reached USD 29.5 million or an increase of 98.7% YoY.

Indonesia's non-oil and gas trade balance performance with South Africa during the period 2012-2016 always had a surplus but with a downward trend of 18.4%. In January 2017, non-oil surplus in the non-oil Indonesia to South Africa from start showed improvement with a value of USD 40.4 million, an increase of 19.5% YoY. Trade data shows that trade performance between Indonesia and South Africa over the last five years has decreased significantly, both in terms of export and import has a negative trend, it is not impossible if the two countries do not immediately find a solution then the trade value will be smaller each year.
Table 2. Trade Balance Indonesia - South Africa 2012-2016 Period (January)

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Jan-16</th>
<th>Jan-17</th>
<th>Change (%)</th>
<th>Trend (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Perdagangan</strong></td>
<td>2 353.5</td>
<td>1 895.3</td>
<td>1 878.0</td>
<td>898.1</td>
<td>1 018.7</td>
<td>63.6</td>
<td>99.7</td>
<td>56.7</td>
<td>-21.5</td>
</tr>
<tr>
<td>Gas</td>
<td>42.7</td>
<td>1.6</td>
<td>21.5</td>
<td>1.8</td>
<td>1.4</td>
<td>0.1</td>
<td>0.2</td>
<td>135.9</td>
<td>-49.3</td>
</tr>
<tr>
<td>Non Oil And Gas</td>
<td>2 310.7</td>
<td>1 893.7</td>
<td>1 856.5</td>
<td>896.3</td>
<td>1 017.3</td>
<td>63.5</td>
<td>99.5</td>
<td>56.6</td>
<td>-21.2</td>
</tr>
<tr>
<td><strong>Eksport</strong></td>
<td>1 691.5</td>
<td>1 270.3</td>
<td>1 379.5</td>
<td>666.1</td>
<td>727.9</td>
<td>48.6</td>
<td>70.0</td>
<td>43.9</td>
<td>-20.8</td>
</tr>
<tr>
<td>Gas</td>
<td>41.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.5</td>
<td>0.3</td>
<td>-</td>
<td>0.1</td>
<td>0.0</td>
<td>-61.3</td>
</tr>
<tr>
<td>Non Oil And Gas</td>
<td>1 650.3</td>
<td>1 270.1</td>
<td>1 379.1</td>
<td>665.6</td>
<td>727.6</td>
<td>48.6</td>
<td>69.9</td>
<td>43.7</td>
<td>-20.4</td>
</tr>
<tr>
<td><strong>Import</strong></td>
<td>662.0</td>
<td>624.9</td>
<td>498.5</td>
<td>231.9</td>
<td>290.8</td>
<td>14.9</td>
<td>29.7</td>
<td>98.5</td>
<td>-23.2</td>
</tr>
<tr>
<td>Gas</td>
<td>1.5</td>
<td>1.4</td>
<td>21.1</td>
<td>1.3</td>
<td>1.1</td>
<td>0.1</td>
<td>0.1</td>
<td>64.1</td>
<td>-7.0</td>
</tr>
<tr>
<td>Non Oil And Gas</td>
<td>660.4</td>
<td>623.6</td>
<td>477.4</td>
<td>230.6</td>
<td>289.7</td>
<td>14.9</td>
<td>29.5</td>
<td>98.7</td>
<td>-23.2</td>
</tr>
<tr>
<td><strong>Trade Balance</strong></td>
<td>1 029.5</td>
<td>645.4</td>
<td>881.0</td>
<td>434.2</td>
<td>437.1</td>
<td>33.7</td>
<td>40.3</td>
<td>19.6</td>
<td>-19.0</td>
</tr>
<tr>
<td>Gas</td>
<td>39.7</td>
<td>-</td>
<td>20.6</td>
<td>-</td>
<td>0.8</td>
<td>-</td>
<td>0.8</td>
<td>-7.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Non Oil And Gas</td>
<td>989.9</td>
<td>646.5</td>
<td>901.7</td>
<td>435.0</td>
<td>437.9</td>
<td>33.8</td>
<td>40.4</td>
<td>19.5</td>
<td>-18.4</td>
</tr>
</tbody>
</table>

Source: Pusdatin (2017), processed

Indonesia's main non-oil export products to South Africa are dominated by palm oil derivatives (HS151190) and jewelry (HS711319) with 2016 export share respectively 24.3% and 16.3%. During the period 2012-2016, most of Indonesia's non oil and gas export products to South Africa experienced a downward trend. Nevertheless, there are some export products that still have an increasing trend such as jewelry, palm kernel oil, motor vehicles, sports shoes and cocoa butter. Meanwhile, in January 2017 some of the products that started to increase their exports are derivatives of palm oil, vehicles, natural rubber (TSNR / SIR / Crumrubber), palm kernel oil, ceramics, fatty acids, sports shoes, wood products (wooden doors & , Cocoa butter and vegetable oil / fats.)
Table 3. Main Products of Indonesian Exports to South Africa (USD Million)

<table>
<thead>
<tr>
<th>No</th>
<th>HS</th>
<th>Desc</th>
<th>Eksport Value 2016 USD Million</th>
<th>Growth 2012-2016 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>151190</td>
<td>Palm oil and its fractions refined but not chemically modified</td>
<td>176.8</td>
<td>-1.9</td>
</tr>
<tr>
<td>2</td>
<td>711319</td>
<td>Articles of jewellery &amp; parts thereof of precious metals</td>
<td>118.7</td>
<td>92.6</td>
</tr>
<tr>
<td>3</td>
<td>870322</td>
<td>Automobiles with reciprocating piston engine displacement</td>
<td>43.3</td>
<td>-2.6</td>
</tr>
<tr>
<td>4</td>
<td>400122</td>
<td>Technically specified natural rubber (TSNR)</td>
<td>24.9</td>
<td>-28.5</td>
</tr>
<tr>
<td>5</td>
<td>151329</td>
<td>Palm kernel/babassu oil and its fractions</td>
<td>23.6</td>
<td>5.6</td>
</tr>
<tr>
<td>6</td>
<td>690919</td>
<td>Ceramic wares laboratory, chemical/other technical uses</td>
<td>15.7</td>
<td>-5.2</td>
</tr>
<tr>
<td>7</td>
<td>382319</td>
<td>Industrial fatty acids, acid oils nes</td>
<td>14.6</td>
<td>-17.2</td>
</tr>
<tr>
<td>8</td>
<td>870899</td>
<td>Motor vehicle parts nes</td>
<td>13.3</td>
<td>0.9</td>
</tr>
<tr>
<td>9</td>
<td>640319</td>
<td>Sports footwear, outer sole of rubber/plastics</td>
<td>11.1</td>
<td>-15.9</td>
</tr>
<tr>
<td>10</td>
<td>441820</td>
<td>Doors and their frames and thresholds, of wood</td>
<td>9.9</td>
<td>-5.1</td>
</tr>
<tr>
<td>11</td>
<td>390760</td>
<td>Polyethylene terephthalate</td>
<td>9.7</td>
<td>0.0</td>
</tr>
<tr>
<td>12</td>
<td>640399</td>
<td>Footwear, outer soles of rubber/plastics</td>
<td>8.8</td>
<td>18.5</td>
</tr>
<tr>
<td>13</td>
<td>640411</td>
<td>Sports footwear with outer soles of rubber or plastic</td>
<td>8.7</td>
<td>29.9</td>
</tr>
<tr>
<td>14</td>
<td>840734</td>
<td>Engines, spark-ignition reciprocating displacement</td>
<td>8.3</td>
<td>-25.9</td>
</tr>
<tr>
<td>15</td>
<td>090111</td>
<td>Coffee, not roasted, not decaffeinated</td>
<td>7.4</td>
<td>-2.7</td>
</tr>
<tr>
<td>16</td>
<td>401110</td>
<td>Pneumatic tire new of rubber for motor car</td>
<td>7.1</td>
<td>-23.5</td>
</tr>
<tr>
<td>17</td>
<td>180400</td>
<td>Cocoa butter, fat and oil</td>
<td>7.0</td>
<td>15.8</td>
</tr>
<tr>
<td>18</td>
<td>151790</td>
<td>Edible mixture of animal/vegetable fats/primaryKey</td>
<td>6.8</td>
<td>-3.8</td>
</tr>
<tr>
<td>19</td>
<td>640419</td>
<td>Footwear of sports, outer soles of rubber/plastics</td>
<td>6.7</td>
<td>-11.5</td>
</tr>
<tr>
<td>20</td>
<td>440929</td>
<td>Wood, including strips and friezes for parquet flooring</td>
<td>6.2</td>
<td>-0.7</td>
</tr>
<tr>
<td></td>
<td>Sub Total</td>
<td></td>
<td>528.7</td>
<td>-1.9</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td></td>
<td>198.9</td>
<td>-37.1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>727.6</td>
<td>-20.4</td>
</tr>
</tbody>
</table>

Source: Pusdatin (2017), processed

The main commodity imported by Indonesia from South Africa in table 4, is dominated by pulp / pulp chemicals (HS470200) with import value of 2016 reaching 121.9 million with import share reaching 42.1%. During 2012-2016, most of the imported products have decreased but some are increasing, especially fresh fruit (pears, oranges, lemons), wire, explosives and flat-rolled metals. In 2016, there were recorded new imports of Indonesian commodities from South Africa, namely gold in unwrought forms (non-moneta) and copper (copper cathodes and sections of cathodes unwrought) with import value of USD 28.8 million And USD 12.5 million. In January 2017, several imported products that increased significantly were pulp / pulp chemicals (HS470200 and HS470329) and flat rolled (HS720230).
Table 4. Main Products Imported Indonesia from South Africa (USD Million)

<table>
<thead>
<tr>
<th>No</th>
<th>HS</th>
<th>Desc</th>
<th>Import Value 2016 USD Million</th>
<th>Growth 2012-2016 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>470200</td>
<td>Chemical wood pulp, dissolving grade</td>
<td>121.9</td>
<td>-19.1</td>
</tr>
<tr>
<td>2</td>
<td>710812</td>
<td>Gold in unwrought forms non-monetary</td>
<td>28.8</td>
<td>0.0</td>
</tr>
<tr>
<td>3</td>
<td>720449</td>
<td>Ferrous waste and scrap, iron or steel</td>
<td>13.9</td>
<td>-30.7</td>
</tr>
<tr>
<td>4</td>
<td>740311</td>
<td>Copper cathodes and sections of cath</td>
<td>12.5</td>
<td>0.0</td>
</tr>
<tr>
<td>5</td>
<td>080830</td>
<td>Pears</td>
<td>10.7</td>
<td>18.3</td>
</tr>
<tr>
<td>6</td>
<td>760110</td>
<td>Aluminium unwrought, not alloyed</td>
<td>9.1</td>
<td>-52.8</td>
</tr>
<tr>
<td>7</td>
<td>731300</td>
<td>Wire, barbed, twistd hoop, single flat or twistd double</td>
<td>8.4</td>
<td>85.1</td>
</tr>
<tr>
<td>8</td>
<td>520100</td>
<td>Cotton, not carded or combed</td>
<td>7.6</td>
<td>-23.6</td>
</tr>
<tr>
<td>9</td>
<td>470329</td>
<td>Chemical wood pulp, soda/sulphate, nes</td>
<td>6.7</td>
<td>-14.2</td>
</tr>
<tr>
<td>10</td>
<td>720249</td>
<td>Ferro-chromium, nes</td>
<td>6.2</td>
<td>0.0</td>
</tr>
<tr>
<td>11</td>
<td>080510</td>
<td>Oranges, fresh or dried</td>
<td>3.2</td>
<td>9.5</td>
</tr>
<tr>
<td>12</td>
<td>930690</td>
<td>Munitions of war &amp; pts thereof &amp; other arms</td>
<td>3.2</td>
<td>0.0</td>
</tr>
<tr>
<td>13</td>
<td>080550</td>
<td>Fresh or dried lemons &quot;Citrus limon, Citrus limonum&quot;</td>
<td>2.3</td>
<td>89.8</td>
</tr>
<tr>
<td>14</td>
<td>080810</td>
<td>Apples, fresh</td>
<td>2.2</td>
<td>-5.0</td>
</tr>
<tr>
<td>15</td>
<td>270799</td>
<td>Oils &amp; other products of the distillation of coal</td>
<td>2.0</td>
<td>-6.7</td>
</tr>
<tr>
<td>16</td>
<td>360200</td>
<td>Prepared explosives, o/t propellent powder</td>
<td>2.0</td>
<td>112.1</td>
</tr>
<tr>
<td>17</td>
<td>740322</td>
<td>Copper-tin base alloys, unwrought</td>
<td>1.7</td>
<td>-12.8</td>
</tr>
<tr>
<td>18</td>
<td>261000</td>
<td>Chromium ores and concentrates</td>
<td>1.7</td>
<td>-5.3</td>
</tr>
<tr>
<td>19</td>
<td>721921</td>
<td>Flat rolled prod, stainless steel, hr, nic</td>
<td>1.4</td>
<td>18.3</td>
</tr>
<tr>
<td>20</td>
<td>720230</td>
<td>Ferro-silico-manganese</td>
<td>1.4</td>
<td>-7.6</td>
</tr>
<tr>
<td></td>
<td>Sub Total</td>
<td></td>
<td>246.8</td>
<td>-19.8</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td></td>
<td>42.9</td>
<td>-34.1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>289.7</td>
<td>-23.2</td>
</tr>
</tbody>
</table>

Source: Pusdatin (2017), processed

The Trade Complementary Index (TCI) between Indonesia and the South African countries can provide useful information for intra-regional trade prospects. This indicates the level of suitability of a country's import and export structure. TCI is one of the analytical tools in considering the establishment of trade cooperation with partner countries. TCI between Indonesia and South African countries is generally presented in Figure 1 below.
Based on Figure 2 it can be seen that since 2012, South Africa’s export match rate to Indonesia’s import structure is higher than that of Indonesia’s exports to South Africa’s import structure. This shows that South Africa has a better ability to meet the demand for Indonesian imports than Indonesia to meet the demand for imports of South Africa.

**Competitiveness Index/Revealed Symmetric Comparative Advantage (RSCA).**

Based on the calculation of product competitiveness of both countries in table 5, Indonesian products that have competitiveness in global markets include vegetable products; Mineral products; Plastics / rubber; Wood and wood products; Textile; Footwear / headgear. While South African products that have competitiveness in the world market are vegetable products; Foodstuffs; Mineral products; Wood and wood products; Stone/glass and metals. It can be concluded that relatively Indonesia has a better advantage than South Africa that is on vegetable products; Mineral products; Plastics/rubber; Wood and wooden products; Textile; And footwear / headgear.
The bilateral RSCA between Indonesia and South Africa shows that Indonesia has a competitive advantage in the South African market in the vegetable products sector; Mineral products; Plastics/rubber; Wood and wooden products; Textile; And footwear/headgear, while South Africa has competitiveness in the Indonesian market for the foodstuffs sector; Chemical and allied industries; Raw hides, skins, leather and furs; Stone/glass; Metals and transportation.

Table 5. Bilateral Revealed Symmetric Comparative Advantage

<table>
<thead>
<tr>
<th>Sector</th>
<th>RSCA Indonesia Relative to South Africa</th>
<th>RSCA Afrika Selatan Relative to Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>animal and animal product</td>
<td>0.17</td>
<td>-0.01</td>
</tr>
<tr>
<td>vegetable products</td>
<td>0.43</td>
<td>0.64</td>
</tr>
<tr>
<td>foodstuffs</td>
<td>-0.06</td>
<td>0.10</td>
</tr>
<tr>
<td>mineral products</td>
<td>0.07</td>
<td>0.35</td>
</tr>
<tr>
<td>chemical and allied industries</td>
<td>-0.11</td>
<td>-0.24</td>
</tr>
<tr>
<td>plastics/rubber</td>
<td>0.44</td>
<td>0.11</td>
</tr>
<tr>
<td>raw hides, skins, leather and furs</td>
<td>-0.28</td>
<td>-0.42</td>
</tr>
<tr>
<td>wood and wooden products</td>
<td>0.42</td>
<td>0.47</td>
</tr>
<tr>
<td>textile</td>
<td>0.70</td>
<td>0.27</td>
</tr>
<tr>
<td>footwear/headgear</td>
<td>0.84</td>
<td>0.55</td>
</tr>
<tr>
<td>stone/glass</td>
<td>-0.57</td>
<td>-0.07</td>
</tr>
<tr>
<td>metals</td>
<td>-0.37</td>
<td>-0.37</td>
</tr>
<tr>
<td>machinery/electrical</td>
<td>0.29</td>
<td>-0.43</td>
</tr>
<tr>
<td>transportation</td>
<td>-0.51</td>
<td>-0.51</td>
</tr>
<tr>
<td>miscellaneous</td>
<td>0.17</td>
<td>-0.40</td>
</tr>
</tbody>
</table>

| Explanatory Note                   |                                        |                                          |
| Maximum Value of RSCA              | 1.00                                   |                                          |
| Minimum Value of RSCA              | -1.00                                  |                                          |
| Critical Point                     | Comparative Advantage =>0              |                                          |

Source: UN Comtrade (2017), processed

Impact of Trade Liberalization between Indonesia and South Africa.

Milner (2005) and Thomy, et al (2013) once predicted the potential of trade liberalization by African countries to their trading partner countries. In the calculation of partial equilibrium performed indicates that there will be an increase in the value of trade due to tariff reduction, but also a decrease in tariff revenues due to liberalization conducted, but the decline in fixed tariff income will not prevent the increase in welfare due to falling prices of imported products.

In this paper, potential impacts of trade cooperation between Indonesia and South Africa are calculated by simulating partial equilibrium with South African tariff reduction scenarios for
products originating from Indonesia and vice versa. Simulation scenario is cutting rates up to 0% for all products. The simulation results are as follows:

**Table 6. Partial Equilibrium Simulations The Impact of Trade Cooperation between Indonesia and South Africa (in USD Thousand)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Increased Import</th>
<th>Welfare</th>
<th>Tarif Revenue Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>28,454.82</td>
<td>1,503.85</td>
<td>4,411.81</td>
</tr>
<tr>
<td>South Africa</td>
<td>231,587.28</td>
<td>20,522.70</td>
<td>80,462.49</td>
</tr>
</tbody>
</table>

Source: Partial Equilibrium Simulation (2017), processed

Based on the simulation results, it appears that Indonesia will experience an increase in imports of USD 28.4 million, while South Africa will experience an increase in imports of USD 593.4 million. Thus, the tariff cuts to the two countries will increase Indonesia's trade balance surplus. In addition, the impact of tariff cuts will reduce the price level of imported products thereby providing welfare in the form of consumer surplus. For Indonesia the welfare increase will be USD 1.5 million while South Africa is USD 47.4 million. The potential loss of tariff revenue on the Indonesian side will be USD 4.4 million while for South Africa USD 200.7 million.

**CONCLUSION AND RECOMMENDATION**

Based on the analysis conducted on macro-economic data of Indonesia and South Africa it is know that the size of the Indonesian market is much larger than southern Africa, but the purchasing power of people in South Africa is greater than Indonesia can attract Indonesian exporters. Indonesia Trade Balance with Africa The South during the period 2012-2016 always had a surplus on the Indonesian side and in 2016 the surplus was recorded at USD 437.1 million but the total trade value always decreased every year, both in the export and import side. Based on the analysis of Trade Complementary Index (TCI), South African export structure can meet the needs of Indonesian imports better than Indonesian exports in meeting the needs of South African imports, this could mean that if the trade cooperation is done then Indonesia will have more choices in determining its superior products To enter in the trade
negotiations between the two countries. However, the trend of declining trade value every year is a problem that must be addressed immediately to save the share of Indonesian exports in the South African market, and cooperation tariff reduction between Indonesia and South Africa could be one option.

To conduct trade cooperation each country must possess competitive products to win market share in its partner country, and analysis result shows that Indonesia has a relatively higher competitiveness than South Africa in the vegetable products sector; Mineral products; Plastics / rubber; Wood and wooden products; Textile; And footwear / headgear. While South Africa has a relatively higher competitiveness than Indonesia in the Indonesia market for foodstuffs; Chemical and allied industries; Raw hides, skins, leather and furs; Stone / glass; Metals and transportation.

The results of the Partial equilibrium simulation show that both Indonesia and South Africa are both Benefited. Partial Equilibrium simulation showed, Indonesia will experience an increase in imports of USD 28.4 million and South Africa for USD 593.4 million. So that the trade cooperation of PTA Indonesia-South Africa will provide a substantial surplus of trade balance for Indonesia. The increase in welfare due to import tariff cuts for Indonesia will amount to USD 1.5 million, while South Africa amounts to USD 47.4 million. Indonesia will potentially lose revenue due to tariff reductions of USD 4.4 million while South Africa amounts to USD 200.7 million.

Based on preliminary analysis that has been conducted, trade cooperation between Indonesia and South Africa will benefit both countries, especially Indonesia. With tariff liberalization it will increase the trade value between Indonesia and South Africa, with surplus remain on the side of Indonesia. This type of trade cooperation between Indonesia and South Africa is suggested in the form of Preferential Trade Agreement (PTA), as there are only a few products from both countries that have high competitiveness. Tariff liberalization should focus on a number of products with the highest competitiveness held by both countries.
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COMPETITIVENESS ANALYSIS OF COCOA AND THE AFFECTING FACTORS OF INDONESIAN COCOA EXPORTS IN MAIN EXPORT DESTINATION COUNTRIES

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Abstract

Indonesia is the third largest countries as cocoa beans producer in the world. The implementation of export tax policy (ETP) on cocoa beans since April 2010 led to the Indonesian cocoa beans export value into a significant decline but on the other hand, processed cocoa products have increased especially on cocoa paste and cocoa butter. The objectives of this study are to indentify the Indonesian cocoa (cocoa beans, cocoa paste, and cocoa butter) trade position, analyze affecting factors of export demand of Indonesian cocoa and Indonesian cocoa competitiveness in the main export destination countries in period of 2006–2015. The method of Trade Specialization Index (TSI) is used to analyze trade position of Indonesian cocoa. Gravity Model is used to analyze the factors of export demand of Indonesian cocoa. Revealed Comparative Advantage (RCA) and Export Product Dynamic (EPD) method are used to analyze the position of competitiveness of Indonesian cocoa. Results of TSI showed that Indonesia can be said as a cocoa’s exporter country. Export demand of cocoa beans in the main export destination countries are influenced by the GDP per capita of importers, real exchange rate of importers, and economic distance. Exports demand of cocoa paste in the main export destination countries are significantly influenced by the real exchange rates of importers, economic distance, and tax policy. Affecting factors of Export Demand of cocoa butter in the main export destination countries are GDP per capita, export price, and tax policy. RCA method results showed that Indonesian cocoa beans competitiveness have declined in all main exporter countries after the implementation of export tax policy while cocoa paste and cocoa butter competitiveness have significantly increased in all main export destination countries. EPD method results showed that mostly Indonesian cocoa’s market positions have decreased into Falling Star from Rising Star position.

Key words: EPD, Export Tax Policy, Gravity Model, RCA, TSI
JEL Classification: F1, F6

INTRODUCTION

The agriculture sectoral is one of the sectors that have an important role in the growth of the Indonesian economy. The agricultural sector in 2016 contributed Rp 947 518.30 Billion or 14.11% to Indonesia’s GDP (BPS 2016a). Based on the field of business, the agriculture sectoral is divided into five subsectors: food crops, horticultural crops, plantation crops, livestock, and agricultural services and hunting. The plantation subsector has the highest contribution than other subsectors in the Indonesia’s agriculture sectoral.
Plantation subsector contributed Rp 282,217.10 Billion or 3.63% to GDP of agriculture sector with a positive growth rate of 3.34% in 2016 (BPS 2016b). Positive growth rate of plantation triggers producers in trading of plantation commodities especially in exporting plantation commodities.

Cocoa is one of the major commodity of plantation subsector which has positively growth in Indonesia's export activities. By 2015, the value of cocoa exports was US $1,307.8 thousand with a growth rate of 5%. Cocoa commodities are mostly to be exported rather than to be sold in the domestic market due to Indonesian culture that does not consume large amounts of chocolate (Kemenperin 2010). Cocoa is also the third largest source of foreign exchange in income of plantation commodity after palm oil and rubber commodity. The trade balance of cocoa in 2015 was in surplus position with had value of US $1,013,991 thousand. The surplus of cocoa trade balance affected the surplus of Indonesia's trade balance (Ditjenbun 2016).

Indonesia is the third largest producer of cocoa beans in the world after Ivory Coast and Ghana. As the third largest cocoa beans producer in the world, Indonesia mostly exports cocoa in the form of cocoa beans or raw cocoa that have not fermentation process. Generally, Indonesian cocoa farmers only do the drying process on cocoa beans without giving an add value (fermentation process). This causes the quality of cocoa beans and processed cocoa products in the international market to be low whereas Indonesian cocoa beans have an eminence in high melting point cocoa butter, and do not contain pesticide than cocoa beans from Ghana and Ivory Coast (Kemenperin 2010) so that it causing low demand of Indonesian cocoa beans from importing countries because importing countries prefer cocoa beans that have been processed or fermented.

Based on data of FAO (2016) from the average of cocoa beans production in period of 2010-2015, Ivory Coast as main producer of cocoa beans in the world has an average production of 1,441,469 tons, Ghana as the second
largest producer has an average production of 803,497 tons, Indonesia as the third largest producer with an average production of 740,995 tons, Nigeria and Cameroon have an average production of 256,105 tons and 333,067 tons. In order to maintain the sustainability of cocoa bean production as a source of raw materials in national industrial and to reduce exports in the form of cocoa beans, the government implemented a export tax policy on cocoa beans by Regulation of the Minister of Finance of the Republic of Indonesia No.67/PMK.011/2010 since 1 April of 2010.

![Figure 1. Export Value of Indonesian Cocoa (2010-2015)](source)
Source: International Trade Center (2017), processed

Since the implementation of export tax policy on cocoa beans in 2010, there has been a significant declined in export value of Indonesian cocoa beans to export destination countries from year to year. On the other hand, export tax policy on cocoa beans has a positive impact, that is the increasing volume and value of processed cocoa exports, especially on cocoa paste and cocoa butter. There are three highest contribution of cocoa commodities as commodity of Indonesian cocoa export by 2010-2015 period, that is cocoa bean commodity which contributed an average of export value of US $ 491,271.83 thousand, cocoa butter commodity with an average of export value of US $ 420,228.5 thousand, and cocoa paste with an average of export value of US $ 385,599 thousand.
value of US $201,932.5 thousand so it can be said that the implementation of the policy goes well which Indonesia can switch from exporting cocoa in the form of cocoa beans to exporting cocoa in the form of processed cocoa such as cocoa paste and cocoa butter. The implementation of export tax policy on cocoa beans is expected can inhibit the export of cocoa in the form of raw materials (cocoa beans) and ensure the availability of industrial raw materials and boost exports of processed cocoa such as cocoa paste and cocoa to enable Indonesian cocoa to be exported in main export destination countries.

Therefore, it is necessary to analyze the development of competitiveness position, the factors can influence the increase or decrease of Indonesian cocoa export flow, and Indonesian cocoa competitiveness so that it can be expected ability to maintain or improve its competitiveness in the world and destination countries and how the strategy can support the success and improving Indonesian cocoa competitiveness in main export destination countries.

Based on the background and the phenomenon of the problem, then this research is formulated some objectives as follows.

1. Identifying export trade positions of cocoa beans and processed cocoa (Indonesian cocoa paste and butter cocoa) in the main export destination countries.
2. Analyzing the factors that affect the demand for export of cocoa beans and processed cocoa (Indonesian cocoa paste and butter cocoa) in the main export destination countries.
3. Analyzing the trading competitiveness of cocoa beans and processed cocoa (Indonesian cocoa paste and butter cocoa) in the main export destination countries.

**METHODS**

**TYPES AND SOURCES OF DATA**

The data utilized is secondary data, namely data panel or combination of time series and cross section data. The time period is the last 10 years, that is 2006-2015 periods and cross section data consisting of each six main export destination countries of cocoa bean, cocoa paste and cocoa butter. Data and
information are collected from various sources from various research from related institutions such as the Badan Pusat Statistik Republic of Indonesia (BPS RI), International Trade Center (ITC), Ministry of Trade Republic of Indonesia, and the Ministry of Agriculture Republic of Indonesia. Other supporting data obtained through various literature and journals. The types and sources of data in this is provided in Table 1.

Table 1. Types and Sources of Data

<table>
<thead>
<tr>
<th>No.</th>
<th>Type of Data</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Volume and value of cocoa exports</td>
<td>International Trade Center</td>
</tr>
<tr>
<td>2.</td>
<td>Volume and value of cocoa imports</td>
<td>International Trade Center</td>
</tr>
<tr>
<td>3.</td>
<td>Export Price</td>
<td>International Trade Center</td>
</tr>
<tr>
<td>4.</td>
<td>Real GDP per capita</td>
<td>WDI, World Bank</td>
</tr>
<tr>
<td>5.</td>
<td>Economic Distance</td>
<td>CEPII, WDI</td>
</tr>
<tr>
<td>6.</td>
<td>Real Effective Exchange Rate</td>
<td>WDI, World Bank</td>
</tr>
<tr>
<td>7.</td>
<td>Cocoa Production</td>
<td>Food and Agriculture Organization</td>
</tr>
</tbody>
</table>

Analysis of Method

Data analysis methods used in this study include analysis of quantitative descriptive, Revealed Comparative Advantage (RCA) analysis, Export Product Dynamics (EPD) analysis, and Index of Trade Specialization analysis (TSI) is processed by using Microsoft Excel 2016, while Gravity Model analysis is processed by using Eviews 9.0 software.

This study has a difference with previous studies of Suryana (2014) and Tresliyana et al. (2015) that is cocoa commodity and time period that used in this study. Cocoa commodities in the analysis of competitiveness positions based on estimates of Trade Specialization Index (TSI), Revealed Comparative Advantage (RCA) and Export Product Dynamics (EPD) include cocoa beans, cocoa paste, and cocoa butter. The analysis of affecting factors that influencing the export commodity refers to Pradipta and Firdaus (2014) research. The difference with the research is on the commodity, time period used, and variables used in building the gravity model. There are
three models of cocoa which analyzed in this research using gravity model that is cocoa bean, cocoa paste, and cocoa butter with periods of 2006-2015. The variables used in this research are variables of GDP per capita of importer country, export price, real exchange rate of importer country, RCA policy, and economic distance between countries.

1. Trade Specialization Index (TSI) Analysis

Trade Specialization Index Analysis is a method that used to determine the position or stages of development between products so that it can be seen the tendency of a country as an exporter or an importer. The level of growth of a product in trade can be identified in five stages (Hasibuan et al. 2012) as follows:

1. Introduction stage, if the TSI value is between -1 to -0.50
2. Import substitution stage, if the TSI value is between -0.50 to 0.00
3. Growth stage, if the TSI value is between 0.01 to 0.80
4. Maturity stage, if the TSI value between 0.81 to 1.00
5. Return to import stage, if TSI value decreases from 1.00 to 0.00.

2. Gravity Model

Gravity model is a model that can see a trade based on distance and interaction between countries where used to analyze the pattern of bilateral trade flow between countries. The model which based on Newton Gravity concept was first used by Jan Timmergen in 1962 to analyze the flow of international trade. This model estimates that volume of trade between two countries is directly correlated to the income of each country, and inversely related to the trade barriers between countries (Dilanchiev, 2012). The simplest form of gravity model is as follows:

\[ X_{ij} = \frac{Y_i Y_j}{D_{ij}} \]

Where \( X_{ij} \) is an export from country i to country j, \( Y_i \) represents income of country i, \( Y_j \) is income of country j, and \( D_{ij} \) is the distance between country i and country j. However, along the needs, the formulation of the gravity model equations can be modified based on the needs of the study.
The gravity model analysis by Dilanchiev (2012) analyzed relationship between economic and non-economic factors in bilateral trade that influenced by GDP per capita of other countries, FDI, exchange rate, geographic distance with other countries, population, population of other countries, and dummy variable of EU's member. The research of gravity model by Pradipta and Firdaus (2014) aims to know the affecting factors the flow of export trade of Indonesian fruits by using some variables such as export price variables, population of destination countries, economic distance between Indonesia and destination countries, Indonesia real exchange rate against dollar, Real GDP of Indonesia, real GDP of destination countries, an interaction between real GDP of Indonesia and destination countries, GDP per capita of destination countries, Indonesian consumer price index, and dummy variable of crisis that occurred in Europe. The main export destination countries that is analyzed in this study is the country that has the highest import value of cocoa.

Model Formulation

Equation model that formulated in this study is cocoa commodities with Harmony System 18 code (HS 18) consists of: (a) Export of cocoa beans with HS 1801 to the main export destination countries: Malaysia, Singapore, United States, Thailand, Germany, and Netherlands; (b) Export of cocoa paste with HS 1803 to main export destination countries: Malaysia, Germany, China, Spain, United States, and Brazil; and (c) Export of cocoa butter with HS 1804 to main export destination countries: United of States, Germany, Malaysia, Australia, Estonia, and Netherlands.

The variables used in this study refers to previous study by Pradipta and Firdaus (2014) consisting of the dependent variable that is value of Indonesian cocoa exports (cocoa beans, cocoa paste, and cocoa butter) to each main export destination countries, and an independent variables consisting of GDP per capita of the destination countries, the price of Indonesian cocoa beans in the destination countries, exchange rate of destination countries (US dollar), economic distance, and
export tax policy on cocoa beans. The equation of cocoa export demand is formulated as follows.

\[
\ln X_{ijt} = \alpha_0 + \alpha_1 \ln GDP_{jt} + \alpha_2 \ln PX_{ijt} + \alpha_3 \ln REER_{jt} + \alpha_4 \ln EDIST_{ijt} + \alpha_5 \ln ET + u_{ijt} \quad (1)
\]

expected parameter values are:

\[\alpha_1, \alpha_3, \alpha_5 > 0; \quad \alpha_2, \alpha_4, \alpha_5 < 0\]

\(X_{ijt}\) = Export value of Indonesian cocoa (cocoa beans, cocoa paste, and cocoa butter) to main export destination countries

\(PX_{ijt}\) = Prices of Indonesian cocoa (cocoa beans, cocoa paste and cocoa butter) in destination countries (%)

\(REER_{jt}\) = Exchange rate of destination countries (%)  
\(GDP_{jt}\) = Real GDP per capita of destination countries (%)  
\(EDIST_{ijt}\) = Economic Distance (%)  
\(\alpha_0\) = Intercept  
\(\alpha_1, \ldots, \alpha_4\) = Parameter  
\(U_{ijt}\) = error/residual

3. Revealed Comparative Advantage Analysis (RCA)

Revealed Comparative Advantage Analysis (RCA) method measures the performance of the exports commodity from a country by evaluate the role of export of a particular commodity in the total exports of a country to be compared with the share of these commodities in world trade. The value of RCA (Basri and Munandar 2010) is formulated as follows:

\[
RCA = \frac{X_{ijt}/X_{it}}{W_{ijt}/W_{it}}
\]

RCA = The level of competitiveness of cocoa commodity from country i (Indonesia)
\[ X_{ij} = \text{Export value of cocoa from country } i \text{ (Indonesia) to the country } j \]
\[ X_{it} = \text{Total export value of all country } i \text{ to country } j \]
\[ W_{ij} = \text{The export value of world cocoa commodity to country} \]
\[ W_t = \text{The total value of exports of all commodities of the world to country } j \]

A value of \( RCA > 1 \) indicates that the commodity of Indonesian cocoa (cocoa beans and processed cocoa) has a comparative advantage (has competitiveness) while if the value of the \( RCA < 1 \), indicates that Indonesian cocoa does not have comparative advantage (competitiveness).

4. Export Product Dynamic Analysis (EPD)

Export Product Dynamic (EPD) is one of competitiveness indicator to measure the market position of a country for the purpose of a particular market. This method can measure the dynamic of product in the international market (Hasibuan et al. 2012). Each quadrant shows the different of market positions. Quadrant I or Rising Star is the ideal position of the market where the products of a country in the international market is experiencing in additional of market share (fast growing products). Quadrant II or Lost Opportunity is the current state of decline in the share of the competitive market. Quadrant III or Falling Star is a condition when the increased market share of exports, but not on market share of dynamic product. Quadrant IV or Retreat is a condition when the product is no longer desired by the market. Mathematically, the strength of the business/market share (X-axis) of a product formulated as follows:

The growth of the power business or is called the market share of exports (X axis):

\[
\frac{\sum_{i=1}^{T} \left( \frac{X_{ij}}{W_{ij}} \right) \times 100\% - \left( \frac{X_{ij}}{W_{ij}} \right)_{i-1} \times 100\%}{T}
\]

The growth of the attractiveness of the market or so-called market share of product (Y axis):

\[
\frac{\sum_{i=1}^{T} \left( \frac{X_{ij}}{W_{ij}} \right) \times 100\% - \left( \frac{X_{ij}}{W_{ij}} \right)_{i-1} \times 100\%}{T}
\]

Description:

\[ X_{ij} = \text{Exports value of cocoa (cocoa beans, cocoa paste, and cocoa} \]
RESULTS AND DISCUSSION

1. The Trade Position of Indonesian Cocoa

a. The Trade Position of Indonesian Cocoa Beans

The results of TSI method analysis of the Indonesian cocoa beans in the six main export destination countries is divided into two periods, namely the period of 2006-2010 or prior to the implementation of export tax policy on cocoa beans and the period of 2011-2015 or after the implementation of export tax policy on cocoa beans. The trade position of Indonesian cocoa beans in six main export destination countries is provided in Table 2.

In Table 2, in the period 2006-2010 or before implementation of export tax policy shows that Indonesian cocoa beans has reached a stage of maturity in the main export destination countries in the market of Malaysia (1.00), Singapore (1.00), United States (1.00), Thailand (1.00), Germany (1.00), and Netherlands (0.98) that can be shown with the average of TSI value is between 0.81 to 1.00.
Table 2. The trade position of Indonesian cocoa beans (2006–2015)

<table>
<thead>
<tr>
<th>Market</th>
<th>Average value of TSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>1.00</td>
</tr>
<tr>
<td>Singapore</td>
<td>1.00</td>
</tr>
<tr>
<td>United States</td>
<td>1.00</td>
</tr>
<tr>
<td>Thailand</td>
<td>1.00</td>
</tr>
<tr>
<td>Germany</td>
<td>1.00</td>
</tr>
<tr>
<td>Netherlands</td>
<td>0.98</td>
</tr>
</tbody>
</table>

Source: ITC (2017) processed

The stage of maturity indicates that Indonesia can be said as a net exporters country of cocoa beans in the destination countries, however after the implementation of export tax policy (period 2011-2015), the average of TSI value in the market of Malaysia, Singapore, and the United states has decreased which is caused due to the occurrence of an increase in imports of Indonesian cocoa beans from the country. A decrease in the average TSI value that is relatively high is in the market of United States (0.72) due in 2014, Indonesia in addition to export of cocoa beans to the United states, also has imported cocoa beans from United States to the value of imports amounted to US$ 2 798 thousand, which is greater than the value of exports of US$ 1 148 thousand (ITC 2017) that is indicated by the value of TSI amounted to -0.4 in 2014. Imports of cocoa beans from United States is caused to get cocoa beans with good quality (fermented) because the production of cocoa beans that fermented in Indonesia only reach 15% of the production of cocoa beans so that it only meets about 60% of the needs of the processing national industry (Muttaqin 2011 in Listyati et al. 2014). Nevertheless, Indonesian cocoa beans remain on the stage of maturity after the implementation of export tax policy that shown by the average of TSI value is between 0.81 to 1.00.

The ideal value of TSI of Indonesian cocoa beans in the main export destination countries (TSI value is equal to one) indicates that Indonesia has always been exporter cocoa beans and never import cocoa beans from that export destination countries. Overall, Indonesia is said to be a net exporter cocoa bean or Indonesia have a strong tendency or specializing into exporting countries of cocoa beans in the export destination countries both before and
after the implementation of export tax policy. It means that the presence or absence of implementation of export tax policy on cocoa beans does not affect the position of trade of Indonesia as a country exporter of cocoa beans but only affects the composition in proportion of the export value of cocoa beans into declining in each export destination countries.

b. The Trade Position of Indonesian Cocoa Paste

The estimation result of TSI value of Indonesian cocoa paste in period of 2006-2015 in the main export destination countries is divided into two periods, namely the period 2006-2010 or before the implementation of export tax policy and the period 2011-2015 or after the implementation of export tax policy, because due to the Government's Export tax Policy cause the shifting of Indonesian cocoa exports from previously exporting cocoa beans become exporting in processed cocoa such as cocoa paste. The TSI value of Indonesian cocoa paste is provided in Table 3.

<table>
<thead>
<tr>
<th>Average value of TSI</th>
<th>Market</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Malaysia</td>
<td>Germany</td>
<td>China</td>
<td>Spain</td>
<td>United States</td>
</tr>
<tr>
<td>2006-2010</td>
<td>-0.07</td>
<td>0.49</td>
<td>0.60</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>2011-2015</td>
<td>-0.56</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Source: ITC (2017) processed

Based on Table 3, In the period of 2006-2010 in the market of Malaysia, Indonesian cocoa paste was on the import substitution stage (average of TSI value is -0.07). This is due to the decrease on exports of Indonesian cocoa paste in 2008 with a rate of decline 0.78% followed by an increasing of high import with a rate of 0.55% and import value is US $ 2 659 thousand from the previous imports of US $ 222 thousand, then after the implementation of export tax policy in the period 2011-2015, its position decreased become the introduction stage (average TSI is -0.56) in period 2011-2015, because in this period, import value of Indonesian
cocoa paste from Malaysia is always higher than its export value.

In the market of Germany, Indonesian cocoa paste is on growth stage (average of TSI value is 0.49), because in 2008 there was a declined in export value (US $ 16 thousand) followed by an increased import value was US $ 1 409 thousand. The growth stage indicates that Indonesia begin to expand the export of cocoa paste to Germany, it can be seen from the average export value of cocoa paste to Germany increase from year to year with an average growth of 39.9%, but in the period 2011-2015 Indonesia did not import cocoa paste from Germany anymore so that the position of Indonesian cocoa paste is on the maturity stage (average TSI of 1.00). In the China market, Indonesian cocoa paste is at a growth stage (average TSI of 0.60) in the period 2006-2010. The average export value of cocoa paste to China was fluctuated with an average growth of -0.16% and then Indonesian cocoa paste is on the maturity stage of the China market (average TSI of 1.00) in the period of 2011-2015 after implementation of export tax policy on cocoa beans. Meanwhile, Indonesia can maintain the consistency of Indonesian cocoa paste position as a net exporter in the market of Spain, United States, and Brazil either during the period of 2006-2010 or before implementation of export tax policy and in the period 2011-2015 or after implementation of export tax policy, so it can be said that Spain, United States, and Brazil is a potential market for Indonesia to export cocoa paste because during that period Indonesia always exported without imported cocoa paste from that country. Overall, Indonesia can be said as a net exporter of cocoa paste or Indonesia has a strong tendency or specializes to become an exporter country of cocoa paste in export destination countries both before and after the implementation of export tax policy.

c. The Trade Position of Indonesian Cocoa Butter

Since the implementation of export tax policy on cocoa beans caused the shift of Indonesian cocoa exports from the most exported in the form of cocoa beans currently turning to be exporting cocoa in the form of processed cocoa such as cocoa butter so that the trade
position of Indonesian cocoa butter in the international market becomes important to examine whether Indonesia tendency as net exporter or net importer country of cocoa butter. The estimation result of TSI value divided into two periods, namely the period of 2006-2010 or prior to the implementation of export tax policy on cocoa beans and the period of 2011-2015 or after the implementation of export tax policy on cocoa beans. The average of TSI value of Indonesian cocoa butter for the period of 2006-2015 in the main export destination countries can be seen in Table 4.

Table 4 The trade position of the Indonesian cocoa butter (2006-2015)

<table>
<thead>
<tr>
<th>Average value of TSI</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>United States</td>
</tr>
<tr>
<td>2006-2010</td>
<td>1.00</td>
</tr>
<tr>
<td>2010-2015</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Source: ITC (2017) processed

Based on Table 4, in the market of Malaysian, Indonesian cocoa butter is on a growth stage which is indicated by an average of TSI value is 0.49 in the period of 2006-2015 as the export value of cocoa butter in Malaysia fluctuates with an average growth of 8.7% in the period. Followed by a considerable import value in 2007 with an import value of US $ 1 462 thousand, but after the implementation of export tax policy on cocoa beans, Indonesian cocoa butter is on the position of maturity (net exporter) in the period of 2011-2015. This indicates that the implementation of export tax policy is working well because Indonesia can be encouraged to export cocoa in processed form like cocoa butter. In the market of US, Australia, Germany, Holland and Estonia, Indonesian cocoa butter is consistently at the stage of maturity in either the period 2006-2010 or before the implementation of export tax policy and in the period 2011-2015 or after the implementation of export tax policy where the average TSI is ideal (value TSI of 1.00). The maturity stage indicates that Indonesia is a net exporter for the market because always exporting...
cocoa butter without importing cocoa butter from the country so it can be said that United States, Australia, Germany, Netherlands and Estonia are potential markets.

2. Affecting Factors of Indonesian Cocoa Exports in Main Export Destination Countries

Overall, the affecting factors of the export of Indonesian cocoa bean, cocoa paste and cocoa butter in main export destination countries are the GDP per capita of the importer country, the export price, the real exchange rate of the importer country, export tax policy, and the economic distance.

Table 5. Estimation results of gravity model of Indonesian cocoa beans, cocoa paste, and cocoa butter in main destination export countries.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cocoa Beans</th>
<th>Cocoa Paste</th>
<th>Cocoa Butter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient and Probability Value</td>
<td>Coefficient and Probability Value</td>
<td>Coefficient and Probability Value</td>
</tr>
<tr>
<td>C</td>
<td>37.8513</td>
<td>8.015</td>
<td>-7.6662</td>
</tr>
<tr>
<td>(Prob)</td>
<td>(0.2214)</td>
<td>(0.7097)</td>
<td>(0.4411)</td>
</tr>
<tr>
<td>LnGDP$_{jt}$</td>
<td>17.5191</td>
<td>3.8644</td>
<td>0.928</td>
</tr>
<tr>
<td>(Prob)</td>
<td>(0.0005)**</td>
<td>(0.5405)</td>
<td>(0.0082)**</td>
</tr>
<tr>
<td>LnPX$_{ijt}$</td>
<td>-0.4844</td>
<td>0.8479</td>
<td>0.9564</td>
</tr>
<tr>
<td>(Prob)</td>
<td>(0.2010)</td>
<td>(0.0000)**</td>
<td>(0.0000)**</td>
</tr>
<tr>
<td>LnREER$_{jt}$</td>
<td>3.1785</td>
<td>-7.6848</td>
<td>-0.0859</td>
</tr>
<tr>
<td>(Prob)</td>
<td>(0.0447)*</td>
<td>(0.0024)**</td>
<td>(0.9715)</td>
</tr>
<tr>
<td>LnEDIST$_{ijt}$</td>
<td>21.1202</td>
<td>-1.0057</td>
<td>0.1054</td>
</tr>
<tr>
<td>(Prob)</td>
<td>(0.0004)**</td>
<td>(0.8711)</td>
<td>(0.5810)</td>
</tr>
<tr>
<td>LnET</td>
<td>0.0023</td>
<td>0.105</td>
<td>0.0761</td>
</tr>
<tr>
<td>(Prob)</td>
<td>(0.9270)</td>
<td>(0.0000)**</td>
<td>(0.0000)**</td>
</tr>
</tbody>
</table>

Weighted Statistic

| R-squared | 0.8805 | 0.8349 | 0.9358 |
| Prob(F-statistic) | 0.0000 | 0.0000 | 0.0000 |

*significance level at 5% ; ** significance level at 1%
a. **Real GDP per capita**

Real GDP per capita of destination countries has a positive relation and significant to the export value of Indonesian cocoa beans and cocoa butter commodity in six main export destination countries. Pradipta and Firdaus (2014) explained that the GDP of the destination countries is used as a measure of absorption capacity, an increased GDP of the destination countries will result in the country's absorption capacity also increasing, so that imports from that country will increase. Real GDP per capita of a country also indicates the purchasing power of the people in the country. If the real GDP per capita of export destination countries increases then people's purchasing power on the consumption of goods will increase so that export demand for the goods will increase.

b. **Export Price**

The export price of cocoa beans has a negative relation and insignificant to the export value of Indonesian cocoa bean commodity in six main export destination countries. The estimation result shows that when there is an increase of export price on Indonesian cocoa beans, there is a decrease of cocoa bean exports to six main export destination countries. An increased export prices on cocoa beans make importers tend to seek other exporters who export cocoa beans that cheaper to their country. This condition will cause the export volume of Indonesian cocoa beans to decrease. This study is supported by Pradipta and Firdaus (2014).

Meanwhile, cocoa paste and cocoa butter export prices have a positive relation and significant to the export value of Indonesian cocoa paste and cocoa butter commodities to six main export destination countries. A positive increase in export prices illustrates the quality of cocoa paste and cocoa butter, the higher price of cocoa paste and cocoa butter exports indicates the better quality of cocoa paste and cocoa butter so the value of exports is also higher in export destination countries. This study was supported by Hanoum research (2016).
c. Real Effective Exchange Rate (REER)

The real exchange rate of the destination countries has a positive relation and significant to the export value of Indonesian cocoa beans commodity to six main export destination countries. When there is an increase in the real exchange rate of the destination countries it causes an increase on Indonesian cocoa beans exports to six main export destination countries. The positive relationship between the exchange rate of the destination countries and the export of Indonesian cocoa beans to the export destination countries according to the hypothesis, when the high REER in the destination countries (weakening domestic currency) cause the price of foreign goods is relatively cheaper and domestic goods is relatively more expensive, so encouraging the country to import goods from other country that have less expensive. This research is in line with Ginting's (2013) research.

The real exchange rate of the destination countries has a negative relation and significant to the export value of Indonesian cocoa paste commodity to six main export destination countries, whereas in cocoa butter, the real exchange rate of the main export destination countries has a negative but insignificant relationship. The relationship of exchange rate of importer country which has negative influence to trade is not in accordance with the hypothesis but in line with Machmud research (2016) when a country experiencing depreciation causes domestic export price is relatively more expensive and the price of foreign exports becomes relatively cheaper so it will cause the country increases its exports and reduces imports that indicate when depreciation in importing countries causes importer countries to reduce the importation of cocoa butter from Indonesia so that the export of Indonesian cocoa paste and cocoa butter to importers decreases.

d. Economic Distance

The economic distance in the export and import trading activity reflects the transportation costs which are an obstacle in the trading activity, so that if the economic distance is farther will lead to an increase in transportation costs.
which leads to the rising prices of traded goods and services (Dilanchiev 2012).

The estimation results indicate that when an increase of economic distance between Indonesia and export destination countries resulted in a decrease in export of Indonesian cocoa paste commodity to six main export destination countries. An increasing distance of Indonesia’s economy to main export destination countries indicates that further distance will increase transportation costs, thus can affecting the decline in demand for Indonesian cocoa paste exports. This study is supported by Pradipta and Firdaus research (2014).

However, the economic distance has a positive relation and significant with the export value of Indonesian cocoa bean commodity to six major export destination countries, meanwhile in cocoa butter, economic distance has positive relation and insignificant. Proximity relationship with trade that has a positive relationship is not appropriate hypothesis but research of Lawless and Whelan (2007) stated that the distance can positively affect export. The geographical distance relationship between Indonesia and the main importer countries of Indonesian cocoa can increase or decrease the export of Indonesian cocoa to export destination countries.

e. Export Tax Policy

The implementation of export tax policy on cocoa beans has a negative relation to the export value of cocoa beans to six major export destination countries. The implementation of export tax policy on cocoa beans cause Indonesian cocoa beans exports to be lower than if Indonesia cocoa exports without the implementation of export tax policy. Determination of export tax policy on cocoa beans is intended to reduce cocoa exports in the form of cocoa beans so that it can spur producers to export prossed cocoa because if the cocoa has been processed will have more added value so that the prevailing price is also high in the international market. The impact of export tax policy having negative correlation with cocoa beans exports is in line with study of Suryana (2014).

Export tax policy on cocoa beans has a positive relation and significant to the export value of cocoa paste and
cocoa butter to six major export
destination countries means that with
the implementation of export tax policy
on cocoa beans, the export value of
cocoa paste and cocoa butter is higher
than the export value of Indonesian
cocoa paste and cocoa butter if without
the implementation of export tax policy.
The objective of the implementation of
export tax policy on cocoa beans in
order to Indonesia enable to increase
the export of processed cocoa and
switch from previously exporting in the
form of cocoa beans to exporting in the
form of processed cocoa such as cocoa
paste and cocoa butter. The positive
impact of the implementation of export
tax policy on cocoa beans to cocoa
processing exports is in line with study
of Suryana (2014).

3. Indonesian Cocoa Competitiveness in Main Export Destination Countries
3.1 RCA Analysis of Indonesian Cocoa
a. Cocoa Beans
Indonesia as the third world’s
largest of cocoa producer country needs
to know the competitiveness of
Indonesian cocoa beans exports in the
international market, one of them by
calculating the value of Revealed
Comparative Advantage (RCA) to know
the export performance of Indonesian
cocoa beans commodity. If the value of
RCA> 1, it means the commodity of
cocoa beans has comparative
advantage, otherwise if the value of
RCA <1, it means a commodity cocoa
beans has not comparative advantage.
The results of the analysis of RCA value
of Indonesian cocoa beans in six main
export destination countries are divided
into two periods, namely the period
2006-2010 or before implementation of
export tax policy and the period 2011-
2015 or after implementation of export
tax policy. Based on data obtained from
International Trade Center (2017),
Malaysia, Singapore, United States,
Thailand, Germany, and Netherlands
are the six main export destination
countries of Indonesian cocoa beans.
The estimated of RCA value of
Indonesian cocoa beans can be seen in
Table 6.
Based on the results of RCA estimates in Table 6, the 2006-2010 period shows that Indonesian cocoa beans have an average of RCA value is more than one in the market of Malaysia (10.46), Singapore (12.59), United States (28.15), Thailand (12.66), and Germany (6.82), which indicates that Indonesian cocoa beans have competitiveness or comparative advantage in Malaysia, Singapore, United States and Thailand, and Germany markets. Meanwhile, Indonesian cocoa beans in Netherlands market are not energized because they have an average of RCA value is less than one, which is 0.53. The average of RCA value of Indonesian cocoa beans in all main export destination countries decreased significantly in the period 2011-2015. The decline of RCA value after 2010 is due to the percentage of export value of Indonesian cocoa beans to the total export value in each export destination countries has decreased significantly compared to the previous year. The decrease was caused by the Indonesian government enacted of the export tax policy on cocoa beans by Regulation of the Minister of Finance of the Republic Indonesia on April 1, 2010.
In the period of 2011-2015, the average of RCA value of Indonesian cocoa beans still have comparative advantage in the market of Malaysia (4.89), Singapore (5.84), United States (1.16), and Thailand (11.32) despite a sharp decline in RCA in the country in the previous period, but in Germany and Netherlands markets the cocoa beans of Indonesia became non-engineered. The low of RCA value in Netherlands market is due to the fact that Netherlands choose to import of cocoa beans from competitor countries such as Ivory Coast and Ghana with average import value of Netherlands cocoa paste from Ivory Coast of 32.74% and 22.65% from Ghana in period of 2006-2015, while the share import of Netherlands cocoa paste from Indonesia is only 0.2% of the total value of imported Netherlands cocoa beans.

Indonesian cocoa beans are still constrained by their relatively low productivity of 900 kg per ha lower than the competitor countries of Ivory Coast and Ghana which reaches an average of 1500-2000 kg per ha, but Indonesian cocoa beans have an advantage of melting point cocoa butter which is high and contains no pesticides than cocoa beans from competing countries such as Ivory Coast and Ghana (Ministry of Industry 2010). Therefore, it becomes a challenge as well as an opportunity for Indonesia to increase the production and productivity of cocoa beans in the upstream sector to increase the added value of the downstream sector to maintain the continuity of Indonesian cocoa export in export destination countries in order to the RCA value of cocoa beans in export destination countries continues has increased and Indonesia is able to compete with other exporter countries of cocoa beans.

b. Cocoa Paste

Cocoa paste is one of cocoa derivative commodities with HS 1803 which has no less important role in Indonesian export activity because cocoa paste has the average third highest of export value after cocoa beans and cocoa butter in 2010-2015 period with average export value 201 932.5 thousand US dollars. The estimation results of RCA method of Indonesian cocoa paste can be seen in
Table 7 which is divided into two periods, 2006-2010 period before the implementation of export tax policy and 2011-2015 period after implementation of export tax policy.

Table 7. Dynamics of RCA value of Indonesian cocoa paste (HS 1803) in six main export destination countries (2006 – 2015)

<table>
<thead>
<tr>
<th>Year</th>
<th>Malaysia</th>
<th>Germany</th>
<th>China</th>
<th>Spain</th>
<th>United States</th>
<th>Brazil</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>0.00</td>
<td>0.45</td>
<td>3.90</td>
<td>16.39</td>
<td>1.65</td>
<td>44.00</td>
</tr>
<tr>
<td>2007</td>
<td>0.00</td>
<td>0.10</td>
<td>1.28</td>
<td>17.11</td>
<td>2.50</td>
<td>13.73</td>
</tr>
<tr>
<td>2008</td>
<td>6.14</td>
<td>0.04</td>
<td>0.82</td>
<td>50.74</td>
<td>2.19</td>
<td>60.59</td>
</tr>
<tr>
<td>2009</td>
<td>0.04</td>
<td>3.90</td>
<td>0.00</td>
<td>16.17</td>
<td>0.41</td>
<td>4.93</td>
</tr>
<tr>
<td>2010</td>
<td>0.22</td>
<td>13.38</td>
<td>3.82</td>
<td>22.51</td>
<td>0.70</td>
<td>2.87</td>
</tr>
<tr>
<td></td>
<td>average of 2006-2010</td>
<td>1.28</td>
<td>3.57</td>
<td>1.96</td>
<td>24.58</td>
<td>1.49</td>
</tr>
<tr>
<td>2011</td>
<td>8.62</td>
<td>23.23</td>
<td>26.21</td>
<td>29.00</td>
<td>14.18</td>
<td>41.63</td>
</tr>
<tr>
<td>2012</td>
<td>4.37</td>
<td>18.02</td>
<td>27.46</td>
<td>23.31</td>
<td>30.67</td>
<td>48.16</td>
</tr>
<tr>
<td>2013</td>
<td>15.36</td>
<td>17.53</td>
<td>4.56</td>
<td>24.18</td>
<td>11.49</td>
<td>79.26</td>
</tr>
<tr>
<td>2014</td>
<td>17.72</td>
<td>36.27</td>
<td>18.76</td>
<td>30.39</td>
<td>11.19</td>
<td>41.14</td>
</tr>
<tr>
<td>2015</td>
<td>21.74</td>
<td>40.35</td>
<td>35.98</td>
<td>38.21</td>
<td>16.45</td>
<td>50.31</td>
</tr>
<tr>
<td></td>
<td>average of 2011-2015</td>
<td>13.56</td>
<td>27.08</td>
<td>22.59</td>
<td>29.02</td>
<td>16.80</td>
</tr>
</tbody>
</table>

Source: ITC (2017) processed

Based on in Table 7, the average value of RCA on Indonesian cocoa paste for the period 2011-2015 (after export tax policy on cocoa beans) in six main export destination countries is higher than the average value of RCA in 2006-2010 (before the implementation of export tax policy on cocoa beans). The average value of RCA on cocoa paste in the Malaysia market increased to 13.56 from the previous 1.28 before the implementation of the export tax policy, in Germany has increased to 27.08 from 3.57, in China the RCA value has increased 1.96 to 22.59, in Spain has increased to 29.02 from previous 24.58, in the United States has increase to 16.80 from 1.49, and in Brazil has increased to 52.10 from 25.22. It indicates that the implementation of the Government of Indonesia's export tax policy works well because Indonesia...
can shift from being the majority of cocoa exporters in the form of cocoa beans now exporting cocoa in the form of processing cocoa such as exporting cocoa paste.

Overall, Indonesian highest RCA paste value occurred in Brazil, reaching 79.26 in 2013. Indonesia is a major importer of cocoa paste for Brazil with a total share of 55.3% of the total import value of Brazilian cocoa paste in 2013 (ITC 2017). The high value of RCA in Brazil illustrates the high demand for Indonesian cocoa paste exports. While in Malaysia, Germany, China, Spain, and United States, the value of RCA fluctuated with an increasing trend. Indonesian cocoa paste is relatively favored by the world community because it has unique quality, aroma, and characteristics that are not inferior to competing countries such as Ghana (Kusumaningrum et al., 2014). Overall, Indonesian cocoa paste commodities are engineered in the main export destination market or have a comparative advantage that can be indicated by an average RCA value of more than one.

c. Cocoa Butter

Cocoa butter is one of derivative cocoa commodities with HS 1804. Based on data from International Trade Center, in 2010-2015 period, cocoa butter has the second highest export value after cocoa beans with export value about of US $ 420 228.5 thousand. Therefore, this study is needed to see how the potential of Indonesian cocoa butter commodity in export destination countries by using RCA analysis. There are six main export destination countries of Indonesian cocoa butter in this research, including United States, Germany, Malaysia, Australia, Estonia, and Netherlands. The RCA estimation results of Indonesian cocoa butter can be seen in Table 8 which is divided into two periods, namely 2006-2010 period or before implementation of export tax policy and 2011-2015 period when implementation of export tax policy.
Based on Table 8 it can be seen that before implementation of export tax policy in the period of 2006-2010 Indonesian cocoa butter commodities have an average of RCA value more than one (RCA > 1) in main export destination countries such as United States (26.42), Germany (1.45), Malaysia (3.66), Australia (17.66), Estonia (79.17), Netherlands (12.97) which indicates that Indonesian cocoa butter has power or has a comparative advantage in main export destination countries. In the period of 2011-2015 or after the implementation of export tax policy on cocoa beans, average of RCA value of Indonesian cocoa butter has increased significantly from the previous period (before application of Export Duty on cocoa beans). The average of RCA value of Indonesian cocoa butter in the US market is 46.48, Germany is 21.82, Malaysia is 13.83, Australia is 19.17, Estonia is 185.56, and Netherlands is 5.55. It means Indonesian cocoa butter remains energized or has a comparative advantage after the export tax policy in main export destination countries.

Table 8 Dynamics of RCA value of Indonesian cocoa butter (HS 1804) in six main export destination countries (2006 – 2015)

<table>
<thead>
<tr>
<th>Year</th>
<th>United States</th>
<th>Germany</th>
<th>Malaysia</th>
<th>Australia</th>
<th>Estonia</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>24.34</td>
<td>0.20</td>
<td>2.85</td>
<td>16.47</td>
<td>0.00</td>
<td>20.70</td>
</tr>
<tr>
<td>2007</td>
<td>30.12</td>
<td>1.41</td>
<td>12.74</td>
<td>19.08</td>
<td>269.24</td>
<td>18.25</td>
</tr>
<tr>
<td>2008</td>
<td>33.58</td>
<td>1.17</td>
<td>2.70</td>
<td>21.95</td>
<td>92.81</td>
<td>14.43</td>
</tr>
<tr>
<td>2009</td>
<td>19.59</td>
<td>0.25</td>
<td>0.00</td>
<td>16.12</td>
<td>14.22</td>
<td>7.23</td>
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<tr>
<td>2010</td>
<td>24.45</td>
<td>4.21</td>
<td>0.00</td>
<td>14.70</td>
<td>19.60</td>
<td>4.26</td>
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<tr>
<td></td>
<td>average of 2006-2010</td>
<td>26.42</td>
<td>1.45</td>
<td>3.66</td>
<td>17.66</td>
<td>79.17</td>
</tr>
<tr>
<td>2011</td>
<td>37.50</td>
<td>4.53</td>
<td>11.73</td>
<td>11.03</td>
<td>209.59</td>
<td>4.32</td>
</tr>
<tr>
<td>2012</td>
<td>42.58</td>
<td>26.97</td>
<td>5.94</td>
<td>18.26</td>
<td>151.68</td>
<td>2.11</td>
</tr>
<tr>
<td>2013</td>
<td>48.28</td>
<td>20.91</td>
<td>15.79</td>
<td>24.15</td>
<td>213.29</td>
<td>4.26</td>
</tr>
<tr>
<td>2014</td>
<td>51.11</td>
<td>26.02</td>
<td>15.68</td>
<td>17.34</td>
<td>161.82</td>
<td>8.09</td>
</tr>
<tr>
<td>2015</td>
<td>52.94</td>
<td>30.65</td>
<td>19.99</td>
<td>25.08</td>
<td>191.43</td>
<td>8.98</td>
</tr>
<tr>
<td></td>
<td>average of 2011-2015</td>
<td>46.48</td>
<td>21.82</td>
<td>13.83</td>
<td>19.17</td>
<td>185.56</td>
</tr>
</tbody>
</table>

Source: ITC (2017) processed
The high average of RCA value in the Estonian market both before and after the implementation of export tax policy indicates that Indonesian cocoa butter has a strong power in the Estonian market. High RCA values indicate the high demand for Indonesian cocoa butter exports in the country. The significant decline in RCA values occurring in 2008-2009 from the previous year in Europe such as Germany, Estonia and Netherlands was due to the fact that in that year was Europe crisis. The impact of the European crisis on trade of Indonesian cocoa butter export is shown by the decline of Indonesian high export of fat in Germany, Estonia and Netherlands. United States is the second potential market for Indonesian cocoa butter with RCA value that has increased in 2010-2015. Indonesia is the main exporter of cocoa butter for US with an average share 32.8% of total imports of 2010-2015 United Statesn cocoa (ITC 2017).

Overall, Indonesian cocoa butter is energized or has a comparative advantage in six main export destination countries. The high value of RCA in the three countries of Estonia, Germany, and Australia is due to the high demand for cocoa exports from Indonesia to the country because cocoa butter is used to the main raw material in the process of making chocolate in the country. Therefore, to improve its comparative advantage, Indonesia needs to maintain the continuity of cocoa butter exports in export destination countries and increase the quantity of cocoa butter exports in markets with low RCA values, to obtain sustainable cocoa butter products, sustainable cocoa production is required. Because according to Cocoa Indonesia (2015), 100 kg dry cocoa beans can be obtained 25-30 kg cocoa butter which is the most valuable processed products. Overall cocoa butter commodities have comparative advantages in six main export destination countries.

3.2 EPD Analysis of Indonesian Cocoa in Main Export Destination Countries

Export Product Dynamic (EPD) is a method to identify the dynamics of an export product in order to determine the dynamic (competitive advantage) of cocoa beans, cocoa paste and cocoa butter in export destination countries.
There are four quadrants that indicate the market share position of Indonesian cocoa bean, cocoa paste, and cocoa butter, namely Rising Star in the first quadrant, occurs when the trading of Indonesian cocoa beans, cocoa paste, and cocoa butter has increased in market share (fast growing products), Lost Opportunity in the second quadrant occurs when the competitive market share has negative growth, in this position there is an increase on export demand but Indonesia is unable to fulfill an amount of exports as demand improvement, Retreat in third quadrant occurs when the product is no longer be wanted by the market, and Falling Star in fourth Quadrant occurs when the increasing on export market share of cocoa beans, cocoa paste, and cocoa butter experienced negative growth. The market position of Indonesian cocoa beans, cocoa paste, and cocoa butter can be seen in Table 8.

Table 8 Estimated of EPD results of Indonesian cocoa to six main export destination countries (2006-2015)

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<tr>
<td></td>
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<td>Average growth X</td>
<td>Average growth Y</td>
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<tr>
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<tr>
<td>Cocoa Beans</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Malaysia</td>
<td>0.01085</td>
<td>0.00127</td>
</tr>
<tr>
<td>2.</td>
<td>Singapore</td>
<td>0.00059</td>
<td>0.00034</td>
</tr>
<tr>
<td>3.</td>
<td>United States</td>
<td>0.00215</td>
<td>0.00007</td>
</tr>
<tr>
<td>4.</td>
<td>Thailand</td>
<td>-0.00181</td>
<td>0.00020</td>
</tr>
<tr>
<td>5.</td>
<td>Germany</td>
<td>0.00035</td>
<td>0.00003</td>
</tr>
<tr>
<td>6.</td>
<td>Netherlands</td>
<td>0.00017</td>
<td>0.00007</td>
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<tr>
<td>Cocoa Paste</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Malaysia</td>
<td>0.00062</td>
<td>0.00127</td>
</tr>
<tr>
<td>2.</td>
<td>Germany</td>
<td>0.00182</td>
<td>0.00003</td>
</tr>
<tr>
<td>3.</td>
<td>China</td>
<td>0.00009</td>
<td>0.00003</td>
</tr>
<tr>
<td>4.</td>
<td>Spain</td>
<td>0.00423</td>
<td>0.00012</td>
</tr>
<tr>
<td>5.</td>
<td>United States</td>
<td>-0.00023</td>
<td>0.00007</td>
</tr>
<tr>
<td>6.</td>
<td>Brazil</td>
<td>-0.01387</td>
<td>0.00008</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Cocoa Butter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>United States</td>
<td>0.00174</td>
<td>0.00007</td>
</tr>
<tr>
<td>2.</td>
<td>Germany</td>
<td>0.00057</td>
<td>0.00003</td>
</tr>
</tbody>
</table>
Based on the EPD estimation results in Table 8, the market share position of Indonesian cocoa beans in Malaysia, Singapore, United States, Germany and Netherlands market is on the position of Rising Star in the period before the implementation of export tax policy on cocoa beans or 2006-2015 period. It is on the Rising Star position because it has a positive value in growth of export market share and the growth of market share of cocoa beans that indicates demand for cocoa beans in the country has increased and the market share experienced rapid growth (fast growing products) so that Indonesian cocoa beans can be said have a competitive advantage, while after the implementation of export tax policy or in the period 2006-2010, Indonesian cocoa beans in the country are on the Retreat position. It indicates that Indonesian cocoa beans have no longer a competitive advantage because Indonesian cocoa beans are not able to compete with other exporters so that Indonesian cocoa beans are no longer be wanted in the main export destination countries. In market of Thailand, the position of Indonesian cocoa beans is on Lost Opportunity position (a decline in export market share even though cocoa beans are still as a competitive product) both in the period before the implementation of export tax policy (period 2006-2010) and after the implementation of export tax policy (2010-2015 period). The position of Lost Opportunity means that Indonesia must expand and increase its export market share in Thailand market.

In the period prior to the implementation of export tax policy (2006-2010), Indonesian cocoa paste in Malaysia, Germany, China and Spain markets was on the Rising Star position which means that cocoa beans have increased the demand in the country but after the implementation of export tax policy (2011-2015) , Cocoa paste in the market of Malaysia, Germany, China and Spain decreased its position to
Falling Star or the market share of Indonesian cocoa paste experienced negative growth while its export market share experienced positive growth. This condition is not desired by Indonesia as an exporter of cocoa paste because Indonesian cocoa paste is unable to compete with other cocoa paste exporters. The decrease in position that caused by the implementation of export tax policy is also experienced by Indonesian cocoa paste in United States and Brazilian markets, which previously was on the Lost Opportunity position turned into Falling Star position. Different from Indonesian cocoa paste in Germany, Indonesia is able to fulfill the demand for cocoa paste in the Germany market and experience a positive market share growth or be in the Rising Star position both before and after the implementation of export tax policy. Indonesia must maintain the continuity of export of cocoa paste to Germany as a potential market and improve strategies to increase exports and market share that still show negative growth.

In cocoa butter, the Rising Star position consistently occurs in the Estonian market both before and after the implementation of the export tax policy which means that Indonesian cocoa butter has competitive advantage in Estonia because it is able to fulfill the demand of cocoa paste and the growth of its export market share is on the rise, while position of Indonesian cocoa paste in the United States and Germany market changed from Rising Star (before the implementation of export tax policy) to Falling Star (after the implementation of export tax policy). In the Malaysia and Australia market the position of Indonesian cocoa paste changed from Lost Opportunity (before the implementation of export tax policy) to Falling Star (after the implementation of export tax policy). Falling Star means there is a decline in the demand of cocoa paste in the country because Indonesian cocoa butter can not compete with other exporters. Indonesian cocoa paste in Netherlands market is on the position of Lost Opportunity both before and after implementation of export tax policy which means that export market share in main export destination countries experienced negative growth although
cocoa butter commodity still become a dynamic product (competitive) in its country.

**Conclusions**

Based on the results of data processing on the condition of power and the factors that affect the export of Indonesian cocoa in the main export destination countries, obtained some conclusions. Most of the trading position of Indonesian cocoa beans commodity either before or after the implementation of tax policy is at maturity stage in export destination countries. Indonesian cocoa paste commodity is mostly at maturity stage except in Malaysia, Germany, and China before the implementation of export tax policy, but after the implementation of tax policy, mostly are in maturity stage except in Malaysia. Indonesian butter cocoa commodity is at the maturity stage in all export destinations both after and before tax policy implementation except in Malaysia prior to the implementation of export tax policy.

Factors that significantly affect the export demand of Indonesian cocoa beans to destination countries include economic distance, real GDP per capita of destination countries, real exchange rate, and economic distance. In cocoa paste, influential variables, namely real exchange rate, export price and the implementation of export tax policy. In cocoa butter, influential variables, namely real GDP per capita of destination countries, export price, and the implementation of export tax policy.

After the implementation of tax policy, the competitiveness of Indonesian cocoa beans has decreased in all export destination countries. The competitiveness of Indonesian cocoa paste and cocoa butter has increased since the implementation of tax policy.

Following the the implementation of export tax policy, most of the cocoa beans position dropped from Rising Star to Retreat, but in Thailand market remains on Lost Opportunity Position. In the only cocoa paste in Germany that stays on the Rising Star position, while in other markets its position drops from Rising Star and Lost Opportunity to Falling Star. On the only cocoa butter in Estonia that remains in the Rising Star, while in other markets its position drops from the Rising Star and Lost Opportunity to Falling Star.
Policy Recommendation

To maintain Indonesia's position as a net exporter of cocoa, Indonesia needs to maintain the stability of cocoa export by ensuring the availability of raw materials of processed cocoa products, i.e cocoa beans by increasing production and quality cocoa beans, especially in Malaysia's market with low competitiveness.

In order to anticipate cocoa trade to further distant of importer countries, the government is advised to build facilities and infrastructure such as ports to reduce transportation costs in cocoa trade with other countries and the process of cocoa distribution can be done faster, while for importing countries that has a close proximity to Indonesia, Indonesia should penetrate the potential market.

To increase competitiveness of cocoa beans, Indonesia needs to optimize the export volume of Indonesian cocoa beans to potential countries as potential markets for Indonesia by increasing the growth of market share of cocoa bean, cocoa paste and Indonesian cocoa butter in the country Export destination.

To increase cocoa competitiveness Indonesia should increase its export share of cocoa bean, cocoa paste and cocoa butter products and expand market share in main export destination countries by increasing cocoa beans production, cocoa paste and cocoa butter and increasing export volume.

REFERENCES


THE INCREASING OF INDONESIAN MARKET ACCESS THROUGH BILATERAL TRADE COOPERATION

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Abstract

1970’s, trade liberalization has been used as an effective development tool for economic growth by developed and developing countries. Based on the evidence that it can gain benefits through an active participation in world trade especially through bilateral trade agreements which influenced market access conditions under institutional framework. This study aims to proof bilateral trade cooperation can ensure Indonesian market access augmentation through the implementation of non-tariff barriers in Free Trade Agreement (FTA) and Bilateral Investment Treaty (BIT). The research study is specific form of qualitative analysis through applying library research method as well as by providing some graphics to confirm the findings to be more relevant. The data has triangulated to develop an overall picture of bilateral trade cooperation. The result of this research is by applying non-tariff barriers will increase its rating for foreign direct investment in order to boost its development in producing goods as well as to become better prospect for Indonesian economy. The relations between non-tariff barriers with investment is when non tariff barriers is applied, will increase the export rate without any additional cost which means the number of production will increase as well. So the investment will run smoothly by giving more capital to boost the production. Government should focus on helping domestic industry in getting more competitive rather than restricting foreign competitors and more investment is needed to increase the quality of the local product to compete in global market arena.

Keywords: Indonesia, Bilateral Trade Cooperation, Bilateral Investment, Non-tariffs Barriers, and Market Access.

JEL Classification: F12, F13, F15

INTRODUCTION

The world of the twenty-first century will be a dynamic world in which the pace, scope, and complexity of change are increasing. The continued march of globalization, the growing number of independent nation-state and non-state actors, in combination with advancing technologies, have increased global connectivity, interdependence, and complexity, creating greater uncertainties, systemic risk and a less predictable future. These changes have led to reduced warning times and compressed decision cycles.

Current world economic conditions pose significant challenges for policymakers. The Government's reforms to the macroeconomic framework leave Indonesia better place to continue to steer a course of augment market access through bilateral trade cooperation. In an increasingly integrated global economy, no country
can be insulated from the impact of current world developments.

As far as Indonesia is concerned, it has experienced strong economic growth since recovering from the 1997 Asian financial crisis. Economic growth accelerated to a 10-year high of 6.3 per cent in 2007 and a respectable 4.5 per cent in 2009, making the country one of the best performers during the global recession. Indonesia has recovered strongly after the initial wobbles when the global financial crisis turned critical in 2008. Following disruptive capital outflows and a precipitous Rupiah depreciation in late 2008, the country steadied itself and recovered quickly. During the course of 2009, its GDP growth has remained positive, unlike that of most of its export-dependent neighbors (Mishra, 2011).

Since the mid 1980s Indonesia has participated in comprehensive trade liberalization in order to boost bilateral trade cooperation in both Free Trade Agreement (FTA) and Bilateral Investment Treaty (BIT). Trade and investment policies have undergone fundamental changes and massive economic reforms in Indonesia along with changing patterns of development strategy over the last three decades. As a part of interdependent world economy, Indonesia has experienced various bilateral trade cooperation and regional free trade agreements.

As one of founding fathers of the Association of South East Asian Nations (ASEAN) under Bangkok Declaration 1967, Indonesia remains as a strong country in both political and economical matters in Southeast Asia region. As the ASEAN Declaration stated, ASEAN established itself as a regional cooperation with two fundamental objectives: (1) to accelerate economic growth, social progress, and cultural development in the region; and (2) to reduce historical conflicts and foster regional peace and stability without interventions in domestic affairs.

Furthermore, the ultimate aim of AFTA as a platform to achieve one of ASEAN goals is to “increase ASEAN’s competitive edge as a production base geared for the world market through trade liberalization and closer economic cooperation” (Cordenillo, 2005). The agreement on Common Effective Preferential Tariff Scheme for AFTA (CEPT-AFTA) is the main instrument through which ASEAN wishes to achieve trade liberalization.
Especially when ASEAN program for regional trade integration (AFTA) has resulted in zero tariff rates on virtually all merchandise trade among members. Members of ASEAN, including Indonesia, have negotiated bilaterally with Australia, China, India, Japan, New Zealand, and South Korea and established FTAs since 2010 with each of these countries. Indonesia is currently negotiating a FTA with the European Union to be called a Comprehensive Economic Partnership Agreement (CEPA) to increase bilateral market access through trade and investment (Cheong, 2017).

Indonesia, the largest economy in the Southeast Asia has enjoyed steady economic growth over the past decade (U.S Department of State, 2017). Indonesia represents about 36% of the region's GDP and has the largest population which is 250 million inhabitants (European Commission, 2017). The survey has found that 37% of businesses in Indonesia are affected by non-tariff barriers to trade. Non-tariff measures include a variety of regulations on imports and exports such as technical requirements, rules of origin or quotas (Gonzalez, 2013).

In fact, the use of non-tariff barriers has increased worldwide by lowering the tariff. WTO’s Law has diminished tariff barriers since 1947 which led most of members of WTO have been creating multilateralism. Rules in WTO as a legal basis of multilateralism to regulate non-tariff barriers, is clear in which be used as an instrument against discriminatory trade policies (Article I:1 GATT 1994). Non-tariff barriers is also important to deal with technical and bureaucratic measures or legal issues especially when it comes to the idea of trade related to investment measures (Soeparna, 2017).

Based on Most Favoured Nations (MFN) Clause, Every states should have the same tariff barriers in order to diminish less those tariffs to make an economical world without borders. While article XXIV GATT 1994 allows and encourages the integrated economic area if non-tariffs barriers are cheaper or no longer exist. But in reality, trade agreements generally provide trading partners with lower tariffs and as a result, different tariff rates are applied to the same product, depending on its origin.
So WTO wants an international tariffs barriers which means no tariff barriers. In the other hand WTO wants the economical world without borders but they figured out and still figuring during Doha’s round which it was an Utopia. Back then after the changement from GATT 1947 which succeeded to reduce those tariffs, Marrakesh Agreement established WTO in 1995 but the members could not make a proper agreement during Doha’s round for 13 years. Thus, this paper will only focus on bilateral trade agreement since it is more efficient and it will be better for states to make their own agreement through Free Trade Agreement (FTA) or Bilateral Investment Treaty (BIT) to augment the market access especially for Indonesia.

In order to increase the market expansion through bilateral cooperation, Bilateral Investment Treaty (BIT) and Free Trade Agreement (FTA) are exist in many kinds of different level of integration. It can be an integration between two countries such as Indonesia and India which permits a preferential economic or financial taxes between these two states or such as Indonesia and European Union. Thus, it allows cheaper exportation or importation within two those.

BITs specify a number of guarantees to foreign investment such as rights to freely transfer funds and assets, minimum treatment standards and protection from expropriation. Since the first BIT has been signed between Germany and Pakistan in 1959, the number such bilateral agreements has been rising at an exponential rate. Between 1990 and 2009, the number of BITs signed by developing countries increased from 200 to about 2000 (Colen, 2012).

So the main analysis is how Indonesia gives an access to its form overseas to expand their own market through economic diplomacy of bilateral trade cooperation and how Indonesia gives access to its territory to the international firm. Basically to augment market access is included BIT and FTA which are used to expand economic market in different type of process.

The leading questions of this paper is how bilateral trade cooperation can help Indonesia to augment market access of local product in order to increase the exportation? and Which one is more valuable between Free Trade Agreement (FTA) and Bilateral
Investment Treaty (BIT) to expand the market access of Indonesia?

The hypothesis of this study is local product as a sample to augment Indonesian market access through bilateral trade cooperation. Non-tariff barriers as a tool of FTA will increase the competition by encouraging local products to meet international standard in order to boost the exportation. As a result, this situation will lead into market expansion once Indonesia’s local product is competing in global market. At the end the market access augmentation will be achieved since Indonesia is able to increase the exportation rate through non-tariff barriers in FTA.

The objective of this paper is to analyze, discuss as well as to examine on how to increase Indonesian market access through bilateral trade cooperation in both Free Trade Agreement (FTA) by applying non-tariff barriers and Bilateral Investment Treaty (BIT) by providing the analysis which one is more valuable to augment Indonesian market access by maximizing the export rate. And also to give a knowledge and information by providing clear analysis to everyone who eager to learn about bilateral trade cooperation.

It is important to be clear about the significance and the scope of research. So this paper will discuss more about bilateral trade cooperation only which based on some supportive theories as well as analytical framework of non-tariffs barriers implementation and bilateral investment to augment Indonesian market access. The limitation of this research is will be more specific on how to develop the exportation rate by increasing Indonesian market access through bilateral trade cooperation.

The theories to support this paper are (1) Absolute advantage theory by Adam Smith where each state will receive the result of their specific goods trading based absolute advantage. By meaning, the ability to produce a good better, faster, or more quickly than a competitor. So, if it takes less labor, capital, and other inputs to produce the same good in one country than in another, the first country has an absolute advantage in that good.

It is really connected with government's ideas to dismiss the obstacles which made international trade become inefficient. Potential
market, economic growth, economic development, as well as mutual benefits. Absolute advantage theory is basically the ability of particular country to produce goods or services more than other countries can do by using the exact resource. Which means a particular country absolutely more efficient at production than another country.

Absolute advantage is determined by the basic comparison of worker productivity. This theory is explained in the book “An Inquiry into the Nature and Causes of the Wealth Nations” by Adam Smith 1776. According to him, one country can be labeled in having absolute advantage from other countries when that particular country can produce more goods and services with cheaper than other countries can do (Kilic, 2002).

(2) Comparative advantage theory where two countries can do international trade through bilateral trade cooperation by maximizing their most productive goods as well as the thing that efficient to produce. Basically, comparative advantages theory is the ability to produce a good at a lower opportunity cost of the resources used. That means a country will tend to specialized in the goods or services for which it has the biggest productivity advantage or the smallest productivity disadvantage compared to other countries. The theory of comparative advantage says that a trade between the two countries will make both countries better off which means each produces best and trades for what it does not produce particularly well.

Consider the following examples of goods and services trade: China is able to produce cheap coffee efficiently while Japan is really efficient in producing cheap tea then both of these countries do trading; nannies from Indonesia move to Australia temporarily to provide childcare services; and Europeans travel to Peru for a week in the jungle as a part of an eco-tourism package. In each of these example, trade takes place via a different mode the coffee from China are sent across border to Japan while Japanese tea are sent to China; the nannies travel to a foreign country to provide their services (movement of natural person); and the eco-tourism consumers engage in consumption abroad. However, each of these examples has something in common: trade is driven by differences in certain specialization; and the
Amazon has unique attributes that are not available at home to the European tourists.

Differences between countries especially one of the major sources which is factors of supplies; that is differences in availability of natural resources, arable land, skilled labor ratios, capital, government policies, institutions, and other factors can all lead to differences in the prices of both inputs and outputs in the absence of trade. These price differences create incentives to trade. Differences between countries can also arise from a variety of other sources such as technological differences which will affect trade in both goods and services (Mattoo et al, 2008).

Meaning, a country with an abundance of forested land will likely export forest products, a country with an abundance of highly skilled workers will export goods and services that are intensive in their use of skilled labor, and a country with an abundance of labor relative to capital and land will likely have relatively low wages and so export labor-intensive goods and services.

Furthermore, trade driven by differences between countries generates two types of potential benefits. Producers gain from access to a larger market and higher prices and consumers gain the access to both a wider variety of goods and services and to lower-prices imported goods and services. Standard trade theory predicts that if market are perfectly competitive, then a country will always gain from the trade, in the sense that the country as a whole can consume more goods and services after trading than before. The logic for this result relies on the simple premise that if markets are perfectly competitive, then profit maximizing firms will end up maximizing the value of national income (Mattoo et al, 2008).

So in the end comparative advantage will gains from specialization arising by increasing returns to scale or agglomeration and it applies for both to goods and services. Which means there is a gain of specialization by developing the productive capacity in a particular field.

(3) International trade cooperation theory which based on economic diplomacy as a soft power to negotiate the tariff/price in having cooperation among states. So based on absolute advantage and comparative advantage theory, it will motivate one country to do trading with other countries which
resulting differences among countries products. So a great portion of international trade is such an opportunity to do export based on country’s specialization.

Based on Heckscher-Ohlin (HO) model, the starting point is by opening the international trade system among states to do bargaining interaction among states. The interaction will increase a factor of production as a result will raise the output of the goods that draws intensively upon that factor (Luterbatcher, 1999).

So the basic insights of Heckscher-Ohlin (HO) model is more likely into international commodities exchange to transfer the production factor based on comparative advantages theory. Which means the international commerce compensates the geographic distribution of productive resources through the exchange of commodities. As a result, it will transform local market for factor services into a global market which the derived demand for inputs becomes more elastic and also more similar across countries (Leamer, 1995).

Basically can be conclude that Heckscher-Ohlin (HO) model is a theory in economics explaining that countries export can be most efficiently and plentifully produced. This model is used to evaluate trade and more specifically, the equilibrium of trade between two countries that have varying specialties (Investopedia, 2017). Emphasis is placed on the exportation of goods requiring factors of production that a country has in abundance and the importation of goods that the country cannot produce as effectively. So countries having different resources in to feed into the global market through cooperation.

The model clearly places emphasis on the benefits of international trade which more specifically the global benefits to all when each country puts the most effort into exporting resources that are natively abundant. The benefit comes full circle when each country imports the resources it naturally lacks.

The implication of country’s interest to do international trade somehow led into international trade framework under institution. The traditional institutional constructions to promote international trade, GATT 1947 (General Agreement on Tariffs and Trade) and its successor organization the WTO (World Trade Organization) have sought to promote international
trade liberalization and fight domestic special interest through trade negotiation and agreements (Luterbatcher, 1999).

The aim is to strengthen the institution underpinning the “free” trade dimension of the international regime by imposing no-tariff barriers to trade in goods and services. But this framework is not limited to multilateral cooperation under one international institution only since the international trade implementation can be formed in bilateral cooperation as well which will be more specific in analyzing the motive of particular countries’ interest. And it is also can be achieved not only country to country base implementation because the bilateral cooperation among country and regional organization is included as bilateral trade cooperation such as Indonesia and European Union. But this paper will only focus on bilateral trade cooperation to augment Indonesian market access in both Free Trade Agreement (FTA) and Bilateral Investment Treaty (BIT)

**METHODS**

This research will be specific form of qualitative analysis which explain comparative analysis. Policy case study of bilateral trade cooperation to achieve market access augmentation will determine the assessment of specific policies of non-tariff barriers and bilateral investment. The assessment could include a dimension that examines the more valuable approach of those two implementations and also a component that analyzes the impact on Indonesian market access.

This research briefly addresses each of the above issues and provides a context and some possible alternatives to current policy. The purpose of this report is to provide an exhaustive analysis and show how each issue relates to government purpose to expand the market access. The method of collecting the data is by using library research method. The data collection is all about resources related to bilateral trade cooperation, non-tariff barriers, bilateral investment, market access as well as local product exportation. This method will gather all data from some literature which are books, journals, documents, newspapers, official websites, and official reports related to this topic which means the type of data is secondary by providing pictures and figures of important numbers to confirm the findings to be more relevant.
RESULTS AND DISCUSSION

Figure 1. Regional Context, Indo-Pacific by Numbers


Picture 1 shows Indonesia’s GDP among Asia Pacific countries. Indonesia is standing in the top 5 by contributing 861 US Billion GDP in 2015 which became the highest GDP among South East Asia countries and third highest position in Asia Pacific countries after India and Australia. This fact shows us Indonesia is a potential country in terms of economic aspect for the next years to come.

Figure 2. Merchandise Exports and Imports of Selected Economies, January 2012-July 2016 (Billion Dollars)


Picture 2 shows Indonesia’s merchandise exports and imports from 2012 until 2016. The graphic shows Indonesia’s percentage of merchandise exports and imports in 2016 is getting lower than the percentage from 2012 to 2015. But the most important thing is since mid of 2014, the percentage of Indonesia’s merchandise exports is always upper hand than Indonesia’s merchandise imports. Which means Indonesia is trying to boost the economic growth by maximizing the export rate year by year.
Figure 3. Indonesia Exports

Picture 3 shows the Indonesia’s exports as a whole which is not limited to merchandise only from August 2016 to July 2017 in USD Million. The graphic shows the fluctuation of Indonesia’s exports is still happening within almost a year. Even though Indonesia’s exports on July 2017 which is 13,617 USD Million is lower than Indonesia’s export on March 2017 which is 14,678.8081 USD Million, but compared to August 2016 which is only 12,753.9213 USD Million, in July 2017 Indonesia’s Export is increased to 13,617 USD Million. Meaning that, Indonesia’s market is getting better in order to boost the exports rate.

These three pictures show Indonesia’s position in Asia Pacific country as a key player of economic aspect. It proofs by showing the exports condition of Indonesia through international trading arena. The thing that need to be concerned is on how to increase the exports rate by expanding the market access as well as to maintain the rate is not going to be down. To achieve that goal, this paper would like to explain more about how bilateral trade cooperation can help Indonesia to augment market access of local product especially the merchandise through export rate development as well as an analysis of non-tariff barriers and bilateral investment in which one more valuable to increase Indonesian market access.

Bilateral Cooperation through Free Trade Agreement (FTA) by Applying Non-Tariff Barriers

The current boom in international trade may be unprecedented in recent history. Both trade in goods and trade in services have been soaring. Trade in goods happens when items are physically shipped from one country to another. These include commodities such as oil and copper; manufactured products such as clothing, furniture, and automobiles; and high tech products such as computers and airplanes. When product crosses the border, it becomes an export of the originating country and import of the destination country. In the other hand, service trade happens when a person or company in one country
provides a service to a resident of a different country.

Bilateral trade cooperation is one of the tools for a country to invest to another country through agreement in implementing international trade. One of the example is by initiating Free Trade Agreement (FTA) among two countries. In order to make a trade goes easy, non-tariff barrier is being implemented as an incentive from the government to invest in certain product or even to expand the range of investment to any sector. As a result, non-tariff barriers is an incentive from the government to encourage investor to invest more to the local product in order to increase the quality to be able in competing with international market so at the end market access augmentation will be achieved through bilateral trade cooperation.

Study by Wilson, Mann and Ostuki (2004) says that the impact of non-tariff barriers are pretty clear in terms of improvements of trade facilitation such as port efficiency, customs regulations, and services infrastructure. The benefits of trade facilitation on global trade indicates that there are significant economic gains from improvements in trade facilitation of individual countries (Thangavelu, 2010). So this tool can motivate particular country to expand the market access globally.

Furthermore, the developing countries in particular are likely to benefit significantly from further bilateral trade cooperation and the elimination of barriers to their exports such as: (1) more intense competition and increase the access by improving the quality of goods and services; (2) enhancing credibility of potential domestic reform and strengthen domestic regulation or the regulatory institution; (3) enhancing participation in the development of international standards; (4) ensuring access of market in the poorest areas; (5) attraction of foreign investment; (6) world welfare improves by allowing factors to move to their most productive location.

Indonesia as one of important emerging country who has fourth largest population in the world which in economic perspective, the large population will invite potential consumers for global products. Meaning that, the purchasing power of Indonesian citizens will increase and will be the buyers’ for importing goods from
global market especially from neighboring countries.

Beside that, Indonesia’s strategy to apply non-tariff barriers will increase its rating for foreign direct investment in order to boost its development in producing goods as well as to become better prospect for Indonesian economy. Besides, Indonesia fully support the commitment to combat protectionism which means Indonesia will maintains open market policies in order to give larger opportunities for domestic products to compete with imported goods in the domestic market (Yulius et al, 2012).

Based on Indonesian Constitution Number 7, 1994 about Non-tariff Measures which aim to decrease or diminish barriers in trade (Standstill and Rollback Principles). This matter indirectly will increase the competitiveness of Indonesia’s product to the global market as well as by keeping its economy open to the world.

The relations between non-tariff barriers with investment is when non tariff barriers is imposed, will increase the export rate without any additional cost which means the number of production will increase as well. So the investment will run smoothly by giving more capital to boost the production.

**Bilateral Cooperation through Bilateral Investment Treaty (BIT)**

Bilateral Investment Treaty (BIT) is also important where enterprise can export easily and invest abroad in one country area. One of the consequences for having bilateral investment is the increasing share of international trade among states by entering market with an easy access. The investment itself is an increasingly important driver of a global economy especially when it comes to the idea of Bilateral Investment Treaty (BITs) and investment chapter in Free Trade Agreements (FTAs).

Investment flows have increased with greater economic integration of the global economy and the growth of international value chains. Over the past several decades, BITs (along with investment chapter in FTAs) have emerged as the primary source of international investment law and primary mechanisms for promoting and protecting global direct investment flows (Akhtar, 2013).
Analysis of Discussion

Which one is more valuable to augment Indonesian market access based on the prospect of Indonesia ahead? Bilateral trade cooperation through Free Trade Agreement (FTA) will augment market access in both goods and services. While bilateral trade cooperation through Bilateral Investment Treaty (BIT) will augment market access in terms of capital by building the enterprises in order to avoid taxes of tariffs in doing export since it is freely to transfer funds and assets.

The differences between FTA and BIT can be seen from the different view. In BIT, countries can transfer the technology and knowledge which are intangible through enterprises. For example Apple’s company moved to Japan by creating new enterprise in order to increase the exportation since it is better rather than Apple's products need to be exported from the United States. By creating the Apple’s company in Japan through BIT, it will be easier for Apple to expand their market in Asia which is less cost. For the host country, it will boost the exportation rate in the form of productivity spillover. Meaning that, the production is still counted in the host country even though the production is owned by foreign company or investment. In the other hand, even though at the end BIT will help the host country to increase the exportation rate, but it will take time to give such a significant benefit to host country especially when host country is standing in the different level of technology capability compared to home countries. But in FTA the transferring process of goods as well as services are tangible and both country can see the benefit directly so the evaluation is a lot easier to do in order to expand the market access.

Since Indonesia’s market is full of small medium enterprises so by initiating Bilateral Investment Treaty (BIT) is not really beneficial for Indonesia to increase the market access since the object of BIT is investor or company while there is no such a big company of Indonesia which is able to build the infrastructure in other country. In the other hand most of BIT that joined by Indonesia, the object is Indonesia instead of being a subject.

So the the aim of Indonesia to augment the market access through BIT is not successful because the contribution of BIT to Indonesia is only limited to decrease the unemployment
rate while for the market access of goods and services through direct exportation is more potential by doing FTA.

Free trade is good for Indonesia because Indonesians can and routinely do outcompete their international trade partners. Trade provides increased standards of living and regardless of how many workers are displaced, they will always be absorbed into the growing industries (Robert. 2008).

So a country is better off with free trade since free trade is the road to prosperity after seeing how export helped China turn itself into a manufacturing powerhouse, shipping, all sorts of toys, machinery, clothing and other manufactured goods to the United States while India used service exports to jump-start its economy such as computer programming and costumer service call centers (Michael, 2009).

Meaning, countries enjoy big gains from free trade which include lower product prices, faster growth, better use of resources, and generally higher living standards as well as rapid competition. The most important gain from free trade is that gives an access to Indonesia to the global market which bigger than national market and give an access to the new ideas since the global market is getting competitive. So cross countries collaboration might be happened.

**CONCLUSION AND POLICY RECOMMENDATION**

In the last decade, market access conditions have increasingly been affected by bilateral trade cooperation. Trade cooperation generally provide trading partners with lower tariffs and as a result, different tariff rates are applied to the same product, depending on its origin. To foster the bilateral trade cooperation, this paper has looked the effect of non-tariff barriers to increase Indonesian market access through export rate development.

In relation to the objective of this study, the overall results indicate that to augment market access is more valuable by imposing non-tariff barriers through Free Trade Agreement (FTA) in terms of export performance in bilateral trade cooperation. Overall the analysis suggest that potential trade gains from market access augmentation improvement by lowering tariff barriers to trade in order to improve the relations with trading partner through bilateral cooperation platform.
Government should focus on helping domestic industry in getting more competitive rather than restricting foreign competitors. Without better financing, the non-tariff barriers would not be effective and the government needs more investment from the private sector to increase the product quality which means taxing the gainers to compensate the losers.

Since the trend of bilateral trade cooperation nowadays is most likely through FTA. It is not necessary for Indonesia to isolate itself from global trading arena but need to face the challenge carefully. Which means, government needs to balance the import and export rate during FTA. Without particular tool the competitiveness in domestic scale will be hampered and the rate of investment will be decreased.

The form of balancing tool is through non-tariff barriers simply because while Indonesia is dealing with FTA, the balance sheet of Indonesia’s domestic market need to balanced. Since in free trade imported product will be cheaper because of 0% tariff, so the increasing of importation will be competed with domestic industry product. So non-tariff barrier is the best option to make the import and export rate remains balance without disturbing the trade flows.

So Non-tariff barriers basically is a government regulation which applied to specific products and services. Regulations such as technique used in production, safety of the produce, ingredients and other criteria. These regulations would reflect the consumer choices in the domestic market and will give a chance to domestic producers to be more competitive than foreign producers with unique production techniques available only to domestic producers.

How does government helps the loser? Free trade benefit people whose skills are relatively scarce in world markets. But in the other hand It hurts people whose skills are relatively common. So better-educated workers should do better in dealing with international competition of free trade among states.

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DOES TRADE OPENNESS JEOPARDIZE LOCAL INDUSTRY?

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Abstract

In general, trade liberalization is believed as a tool to increase economy. Many free trade agreements (FTAs) has been signed by countries all over the world. Increasing economy capacity and decreasing the price of goods are the example of their targeting result. On the other hand, some economists argue that FTAs might harm a country local industry. In contrast, there are only limited number of studies which can explain the relationship between these two variables. Hence, empirical research regarding the effect of FTAs on local industry is needed in order to provide insight for the government. This paper attempts to explain the effect of FTA on manufacturing growth in West Java using panel data in the period of 2012 to 2015. The FTA in this paper is represented four FTAs involving Indonesia as the center of observation. The analysis of data in this research uses the regression analysis. The result shows Australia and Korea FTA have a positive significant impact to the regional manufacturing growth while India FTA has a negative one. In addition, Japan FTA has a non significant impact to the regional manufacturing growth.

Keyword: Free Trade Agreement, Manufacturing Growth.

INTRODUCTION

In the new global economy, countries come to see the international trade as an activity which can benefit them in the term of free trade by exceeding the production and consumption deviation. The free trade policy is preferable to other trade policies. These two arguments are believed by many economics scholars. (Krugman & Obstfeld, 2009)

The government of Indonesia also has the same thing in mind, hence it creates international, regional, and bilateral free trade agreements. There are several studies which analyzed the effects of international and regional free trade agreement in the case of Indonesia economy. On contrast, there are only limited studies which took the bilateral free trade agreement into the account of observation.

International Trade Theory

Countries in the world can use international trade as an option to develop their countries. There are three well established theories of international trade1. Those are

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1 All these three theories use perfect competition market approach. To date, there is a new trade theory which uses non-perfect competition market approach. This theory is
Ricardian model, short term Heckscher-Ohlin model or specific-factor model, and long term Heckscher-Ohlin model. These third theories of international trade will be discussed in following paragraphs.

The first theory in international trade is the Ricardian model. This model introduces the concept of comparative advantage of a country which comes from labor productivity. Though it is possible a country has absolute advantages or disadvantages compares to other country, a nation will also has a comparative advantage to other nations. Comparative advantage means a country has sector which produce higher output compares to other sectors given the same input. The Ricardian theory states when a country engages in international trade, the nation has an option to focus the production to the comparative advantage sector and export the excess. On the other hand, the country will satisfy the demand of comparative disadvantage sector from imports. Both these actions will result higher utility for the country. (Feenstra & Taylor, 2008; Krugman & Obstfeld, 2009)

The Ricardian model leads to the second theory of international trade, the specific-factor model or Heckscher-Ohlin model in short term. This model tries to examine the effects of international trade in the short term. There are some assumptions in this model: first, this model specifies the land as agriculture input and capital as manufacturing input; second, both capital and land have no ability to move between them; third, the labor is used by both sectors; fourth, the labor using by both sectors follows diminishing return; and fifth, the model examines the short term period. The specific-factor model predicts the sector, which has a comparative advantage, will benefits from international trade policy. On the other hand, the disadvantageous sector will suffer from international trade activity. In addition, the effect to the labors could not be determined because they will gain in disadvantageous sector and loss in the advantageous sector. (Feenstra & Taylor, 2008; Krugman & Obstfeld, 2009)

The next theory is the long term Heckscher-Ohlin model. This model assumes the capital of each sector is able to move across sectors in the
long term. The movement of capital assumption leads to the distinction between capital or labor abundant country. The resource, which is plenty or scarce in the country, will determine the results of the international trade activity. The abundant resource owners will receive benefits; in contrast, the limited resource owners will suffer from the international trade. This condition is famous with Stolper-Samuelson theorem. Though there will be resource owner’s, who is insufferable, the new nation utility is higher than before. (Feenstra & Taylor, 2008)

All above theories explain the benefits following the implementation of international trade. In addition, the Heckscher-Ohlin model in short and long term show there are disadvantageous actors from engaging in international trade.

**Tariff Policies Theory**

In the international trade policy, the first and easiest device is tariff which is “a tax levied when a good is imported.” (Krugman & Obstfeld, 2009, page 182) In Indonesia, article 1(15) Law Number 17 of 2006 regarding Amendment to Law Number 10 of 1995 on Customs states tariffs are a state levies under customs act, which imposed on goods imported. (Legislative & President, 2006) Tariffs have previously been used to finance government budget; for example, most of the U.S government budget came from tariffs before the introduction of income tax. In addition, small country revenue might be depended from tariffs. Moreover, tariffs are used by countries to protect national interests in certain domestic areas, for example, protection to the producer. The government might be put his face in the producer rather than consumer because the producer is easily identified than consumer. There are four effects that accompany the imposing of tariff. Those are consumer loss, producer gain, government revenue, and welfare loss. (Feenstra & Taylor, 2008; Krugman & Obstfeld, 1991)

On the other hand, free trade will result in the opposite effect of imposing tariffs; the results are primarily consumer surplus, producer loss, and increase in national welfare. In addition, reduction of government revenue can be occurred if there is tariff before trade liberalization. (Feenstra & Taylor, 2008; Krugman &
Obstfeld, 1991) Moreover, there are two additional gains of free trade: first, the domestic industries increase their efficiency and improve the economies of scale; second, free trade promotes learning and innovation in order to win the domestic and international market. (Krugman & Obstfeld, 2009)

The purpose of this research to explain the effect of FTA on industry growth in West Java using specific data for FTA (import value using Korea, Australia – New Zealand, India, and Japan FTA). The objective of the research is to inform West Java local government and customs authority about the recommendation to optimize the benefit from FTA.

The study sought to answer the following specific research questions:

1. What is the effect of FTA on regional manufacturing growth in West Java?
2. What is the recommendation for the West Java local government and customs authority to optimize the benefit from FTA?

Sikdar and Nag (2011) attempted to analyzed the impact of FTA on India and ASEAN Member States using the Global Trade Analysis Project (GTAP) database to run several simulations with different scenarios of India’s trade liberalization with the ASEAN region. The simulations of their research were used to assess the impact of this liberalization on the external sector and domestic macroeconomic variables of countries involved. Examining the implications of FTA for the countries' welfare, including selected South Asian countries, the result reveal that post-FTA while the export from India to ASEAN Member States is increase substantially, India is suffering from a welfare loss due to both allocative inefficiency and negative terms of trade effect. In the other hand, Malaysia, Singapore, and Thailand show positive welfare gains. The smaller countries except Cambodia, Lao PDR, and Philippines also enjoy a positive welfare gains. This welfare gain by ASEAN countries is primarily due to their improved terms of trade.

Later in 2013, Rajagukguk estimated the impact of ASEAN-China Free Trade Agreement (ACFTA) using the Dynamic Social Accounting Matrix (DySAM) Analysis as analytical approach. The simulation of his research shows that the
implementation of ACFTA will give a negative impact on output and employment in the textile industry if there is no real support from the government in form of incentive policies to mitigate duties (tariff). The greater the fall in import duties, the more the reduction in the output and the employment.

Then in 2012, Setiawan observed the impact of IJEPA trade agreement in goods on Indonesia and Japan as involved countries. The assessment was conducted using econometric analysis approach examining the two countries from two sides: export contribution to national income and the export contribution growth. As a result in macro level, both Indonesia and Japan gain benefits from IJEPA. Although, Indonesia received more benefits than Japan from the increased export contribution to national income by amount and by percentage, and from leverage towards the export contribution.

RESEARCH METHODOLOGY

This research observes West Java province consisting:
1. District/urban district of Bandung
2. District of West Bandung
3. District/urban district of Bekasi
4. District/urban district of Bogor
5. District of Cianjur
6. Urban district of Depok
7. District of Karawang
8. District of Subang
9. District/urban district of Sukabumi
10. District/urban district of Tasikmalaya

The research time frame captured in this research is period of 2012-2015.

Type of Data

The secondary data type is used in this paper which list as follows:
1. Regional manufacturing growth rate of West Java province, in the term of aggregate increase in manufacturing sector. The data is derived from Indonesia Statistics Center. This variable will be expressed as Y.
2. Asean–India FTA (AI FTA), in the term of the import value which uses AI FTA scheme. The data is obtained from Directorate General of Customs and Excise. The variable will be showed as AI.
3. Asean–Korea FTA (AK FTA), in the term of the import value which uses AK FTA scheme. The data is obtained from Directorate
General of Customs and Excise. The variable will be showed as AK.

4. Asean – Australia – New Zealand FTA (AANZ FTA), in the term of the import value which uses AANZ FTA scheme. The data is obtained from Directorat General of Customs and Excise. The variable will be showed as AANZ.

5. Indonesia – Japan EPA (IJEP), in the term of the import value which uses IJEPA scheme. The data is obtained from Directorat General of Customs and Excise. The variable will be showed as IJ.

The regional manufacturing growth rate of West Java data is showed in percentage; the others data are expressed in hundred billion rupiahs.

The regional manufacturing growth rate of West Java province is the dependent variables while four FTA’s are the independent variables.

Data Analysis

Indonesia government already sacrifice his potential revenue from import tariff. This condition is caused by lower import tariff due to the enactment of Free Trade Agreement. There have to be positive impact to the Indonesia people as a result. On the other hand, some scientists argue the benefits of trade liberalization and mention the consequences of free trade, which also will bear by privat sectors. In order to have deeper understanding, regarding the effect of free trade to the regional manufacturing growth, the authors try to find the suit approach to answer the above question. This paper will use two steps approach; first, defining and measuring FTA and regional manufacturing growth; second, formulate methodology to estimate the effect of FTA’s to the regional manufacturing growth.

In the beginning, FTA’s is defined as Asean – India FTA (AI), Asean – Korea FTA (AK), Asean – Australia – New Zealand FTA (AANZ), and Indonesia Japan EPA (IJ). As a result, there are four FTA’s variables.

Second, choose the best model. A panel data regression model is considered the suit approach to predict the relationship between FTA’s and regional manufacturing growth.

RESULT AND DISCUSSION

All FTA’s indicators are valued in rupiah and consist of AI, AK, AANZ,
and IJ. Considering the huge number of these four variables, the number is then converted in hundred billion rupiahs. The regional manufacturing growth is showed in percentage. All of the variables are computed for specific district/urban districts and year. This process results a single value for each indicators in every district/urban district per year.

There are some valuable information from examining FTA’s and regional manufacturing growth indicators. The statistics summary shows the range of the highest and the lowest utilization of FTA’s among the district/urban district. This identification is important for the recommendation part in this paper. The summary contains the information, which district/urban district should utilize more FTA’s in order to maximizing the benefit from Trade Liberalization. The summary statistics is provided in the next Table.

**Table 1. Summary Statistics for FTA’s**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>District/Urban District</th>
<th>Max</th>
<th>District/Urban District</th>
</tr>
</thead>
<tbody>
<tr>
<td>y</td>
<td>1.154231</td>
<td>3.409397</td>
<td>depok</td>
<td>8.419544</td>
<td>Karawang</td>
</tr>
<tr>
<td>Al</td>
<td>1.042599</td>
<td>139</td>
<td>cianjur, subang,</td>
<td>4.412337</td>
<td>Bekasi</td>
</tr>
<tr>
<td>AK</td>
<td>4.326577</td>
<td>79</td>
<td>tasikmalaya</td>
<td>14.81073</td>
<td>Bekasi</td>
</tr>
<tr>
<td>ANZ</td>
<td>2.028766</td>
<td>397</td>
<td>cianjur, subang,</td>
<td>8.838753</td>
<td>Bekasi</td>
</tr>
<tr>
<td>IJ</td>
<td>25.10034</td>
<td>693</td>
<td>cianjur, subang,</td>
<td>87.44823</td>
<td>Bekasi</td>
</tr>
</tbody>
</table>

*Note: Std. Dev., standar deviation; Min, minimum; Max, maximum.*

*Source: Author’s computation based on data from indicated sources.*

Table 1 shows the district/urban district which are leading in regional manufacturing growth and FTA’s utilization. Using above information, the local government of district/urban district could knows its position and use it as an improvement target.
Formulating The Econometric Model

The regional manufacturing growth is actually affected by many indicators, such as trade openness, infrastructure, local government expenditure and revenue, investment, and others.

This research uses the basic structure of the equation as follows:

\[ \Delta Y_t^D = C + b_1 A_l^D + b_2 A_K^D + b_3 A_N^D + b_4 A_J^D + e_t^D \]

The explanation of each variable denotation are:

- \( C \) is the constant
- \( b \) terms are coefficients
- \( t \) is year observed
- \( D \) is the district/urban district observed
- \( \Delta Y \) is the regional manufacturing growth rate
- \( A_l \) is the value import using Asean – India FTA
- \( A_K \) is the value import using Asean – Korea FTA
- \( A_N \) is the value import using Asean – Australia – New Zealand FTA
- \( A_J \) is the value import using IJEPA
- \( e_t \) is the error term

Panel Data Processing

Three models are offered in panel data processing, Pooled Ordinary Least Square (OLS) or usually known as Common Effect (CE) regression, Fixed Effect Model (FEM) regression, and Random Effect Model (REM) regression. Chow Test and Hausman Test is conducted to decide which regression is suit from the statistical perspective. The result shows that FEM with Weight is the best fit for the models. The result of the regression is presented in the Table 2 below.

The FEM regression indicates successful result. The value of adjusted \( R^2 \) is 0.722. This means that the independent variables successfully explain more than 72% of the dependent variable. The other 28% is explained by another factors that are not included in this paper. This condition is considered satisfying result.

The model has passed the required four classical assumption: normality test, multicollinearity test, non-autocorrelation test, and non-heteroskedastisitas test, indicating the validity of all variables.
Table 2. The Result for Regression of the Effect of FTA's to The regional Manufacturing Growth (Fixed Effect Model with Weight)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.8328</td>
</tr>
<tr>
<td>AI</td>
<td>-0.609 **</td>
</tr>
<tr>
<td>AK</td>
<td>0.525 **</td>
</tr>
<tr>
<td>ANZ</td>
<td>0.1443*</td>
</tr>
<tr>
<td>IJ</td>
<td>0.0718</td>
</tr>
</tbody>
</table>

Number of observation 40
Adjusted R-squared 0.7225

*Significant at the 10 percent level.
**Significant at the 5 percent level.
***Significant at the 1 percent level.

Source: Author’s computation based on data from indicated sources using Stata.

Table 2 indicates that the three out of four indicators are statistically significant. The coefficients of each indicator shows the estimated elasticities of regional manufacturing growth with respect to specific condition. It indicates that different form of FTA’s will affect regional manufacturing growth rate.

In General, FTA’s benefits the regional manufacturing growth rate, two FTA’s show positive effect (Korea and Australia – New Zealand), and only one gives the negative one (India). Examining the results deeper, unexpected result come in form IJEP. Though the value of this FTA’s is the highest, but it has no significant result. This is an important consideration for the policymakers, from the central government to the local government, as they identify the form of FTA’s and regional manufacturing development priorities in the next year.

We could conclude that FTA’s, in form of AK FTA dan AANZ FTA, bosters the regional manufacturing growth ini (0,52) and (0,14) respectively. It indicates the regional manufacturer benfits from cheaper raw material and machinery, which are imported with high tariff in previous year.

On the other hand, the Asean India FTA shows the negative effect (-0,6), which means, the regional manufacturer have to compete with the imported goods and facing severe result. This condition coud utilize by the policy maker, to evaluate this FTA form. There shoud be an help for the regional manufacturer, evaluate the agreement, or other considerations.
While the Indonesia Japan EPA (IJEPA) shows the positive sign (0.071), unfortunately it is statistically not significant. Due to this condition, the interpretation of this variable is irrelevant.

CONCLUSIONS AND POLICY RECOMMENDATION

The arguments that show there are various result of FTA’s are correct. Based on this research, there are three result of FTA’s, positive, negative, and none.

The FTA which is signed with Korea and Australia – New Zealand give positive result from the regional manufacturing growth point of view. Cheaper materials (machinery and raw material) could obtained by regional manufacturer. The policy makers could use these two FTA’s as benchmark for the next FTA.

In contrast, India FTA shows the negative one. The regional manufacturer has to compete with the same goods from India, which is now cheaper because use FTA scheme. The policy makers should aware with this situation and formulate the best policy to address this condition.

In summary, this research is able to answers of the research questions in this paper. First, there are positive, negative, and none effect of FTA’s to the regional manufacturing growth. Second, the Korea and Australia – New Zealand FTA could use as benchmark for the next trade liberalization agreement because of the positive impact, while in the India FTA case, there should be a deeper investigation to examine the negative effect.

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THE IMPACT OF MULTILATERAL TRADE AGREEMENTS TO THE
COMMODITY TRADE FLOWS (CASE STUDY: INTERNATIONAL PALM OIL
TRADE)

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Abstract
Agriculture plays an important role for developing nations, agricultural raw materials act as a
primary source of income. Southeast Asia is a region that consists of middle income
developing economies, with two countries contributing as the region’s major exporters,
Indonesia and Malaysia. The major commodity which contributes to the high value of export
is palm oil which is exported as two main form, crude and refined. Palm oil is exported to
more than 100 countries and then processed into various form. Latest development of
international trade for Indonesia and Malaysia is the establishment of regional and
multilateral trade agreement. As two of the largest producers, joining trade agreement
become an opportunity for both Indonesia and Malaysia to promote trade because of the
reduction in trade barriers. Although Indonesia and Malaysia produce similar products,
involvement in the trade agreement will give different results in the flow of goods. Based on
the description above, the objective of this research is to analyze the impact of the
establishment of regional and multilateral trade agreements on Indonesia and Malaysia's
palm oil trade flows. The differentiation of palm oil into crude and refined is used for a deeper
analysis of the impact of multilateral trade agreements. The gravity model with Poisson
Pseudo Maximum Likelihood (PPML) regression are utilized to quantify the changes of palm
oil trade flows.

Keywords: Palm Oil, Multilateral Trade Agreement, Gravity Model.
JEL Classification: C21, C23, F10, F11, F12, F14.

INTRODUCTION
The sectors which contribute to
the world trade are agriculture (9.5%),
fuels and mining (20.4%) and
manufacturing (66.2%). The export
value has increased from US$ 0.5
trillion in 2000 to US$ 1.7 trillion in 2014
for the agriculture sector (World Trade
plays an important role for developing
nations, the share of agricultural export
from emerging nations is increased from
37% in 1990 to 43% in 2010 (Cheong et
al., 2013). Beside the increasing in its
share, export of agricultural raw
materials act as a primary source of
income for emerging nation (Aksoy &
Beghin, 2004).

Southeast Asia is a region that
contains middle income emerging
economies, with two countries counted
as the region’s major exporters, they are
Indonesia and Malaysia. The main
export commodity that has high value in
international market is vegetable oil
initially originated from palm oil.
Palm oil is predicted to become an important commodity throughout the international trade community. Due to the high demand in the international market, the combined export value of palm oil between Indonesia and Malaysia reached for US $23 billion in 2016 alone (Food and Agriculture Organization [FAO] 2016).

According to data from WTO, Indonesia and Malaysia have different shares of the palm oil market between the periods of 1989-2016. The European Union (EU) was the main trading partner of Indonesia with the total market share reach by 80% in 1989, this share dropped significantly to 14% in 2016. For Malaysia, the share for the EU increased slightly from 8% in 1989 to 13% in 2016. China is considered to be the emerging economy and population, shows a tremendous increase in the import of the palm oil. For palm oil originating from Indonesia, the export share to China reached 15% in 2016 compared to 3% in 1989, while for Malaysia, the export share to China reached 17% in 2016 compared to 9% in 1989. Another country which shows increasing import increases of palm oil is India. In 2016, Indonesia’s palm oil export share reached 28% while in 1989 the share was only 7%. Similar cases apply to Malaysia, where the export share to India reached 15% in 2016, three times larger than in 1989 at only 5%. Similar to China and India, the export share of Indonesia’s palm oil to countries grouped to the Association of Southeast Asian Nations (ASEAN) has increased to 14% in 2016. Contrary to Malaysia, the export share of Malaysia’s palm oil to ASEAN market decreased from 25% in 1989 to 11% in 2016.

The change of the palm oil export proportion is influenced in part by the establishment of trade agreements among countries. Indonesia and Malaysia are involved in similar free trade agreements, which are part of the ASEAN Free Trade Area (AFTA) Agreement. During the period between 2000 and 2012, there has been an expansion of partnership with ASEAN; newly added countries are: China (2005), Korea (2007), Japan (2008), India (2010) and Australia/New Zealand (2010).

As two of the largest producers, joining the AFTA become an opportunity for Indonesia and Malaysia to promote trade because of the reduction in trade barriers. Although Indonesia and Malaysia produce similar products, involvement in the RTA will give different results in the flow of goods.
Based on the description above, the objective of this research is to analyze the impact of the establishment of regional trade agreements on Indonesia and Malaysia’s palm oil trade flows.

LITERATURE REVIEW

Viner introduced the terms trade creation and trade diversion in 1950; trade creation refers to a shift of product origin from expensive domestic producers to more efficient producers which are a member of trade agreement. Trade diversion occurs when a member country transfers its imported goods from a country that is outside of the trade agreement to a member country within the trade region. Specific on agricultural commodities, the impact of FTA establishment was analyzed by Lambert and McKoy on 2009. Their results from the gravity model estimation indicates that FTA generally increases trade in agriculture and trade sector. Philippidis et al. (2013) examine the bilateral trade flow on 20 single agricultural commodities between period 2001 to 2004 within 95 country, their research result shows that the FTAs has significant impact to trade on wheat and other cereal gains; and paddy rice.

The gravity model was introduced by Tinbergen (1962). According to this model, trade between countries is explained by economic sizes, populations, direct geographical distances and a set of dummy variables. The initial gravity model can expressed as:

\[
(1) \quad X_{ij} = \beta_0 (Y_i)^{\beta_1} (Y_j)^{\beta_1} (D_{ij})^{\beta_4} \mu_{ij}
\]

where \(X_{ij}\) is the value of bilateral trade (export or import) in current US dollars, \(Y_i\) and \(Y_j\) represent exporter and importer´s economic size, \(D_{ij}\) is the distance between the two countries, \(\mu_{ij}\) is the disturbance term, and the \(\beta\)s are the unknown parameters of the equation. The microeconomic foundation of gravity equation was established by Anderson in 1979.

In Anderson´s theory the goods are differentiated by their origin. However, Anderson´s model was not really recognized by trade economists (Head & Mayer, 2013). The next theoretical foundation of the gravity equation set by Bergstrand (1985, 1989) who developed a connection between endowment factors and the bilateral trade model. Bergstrand (1989) shows that the gravity model is a practical
example of the monopolistic competition theory as developed by Krugman in 1980.

The renowned work of Anderson and Van Wincoop (2003) “gravity with gravitas” has successfully laid the theoretical foundation of the gravity equation and has been completed by many other researchers. Principally, the Anderson and Van Wincoop (AVW) gravity model originated from a demand function. The structure of the model was based on the final formula of the constant elasticity of substitution equation for consumer preferences. Consumers have “love of variety”, by consuming a greater variety of goods, the overall utility increases. The second assumption of the AVW gravity model follows Krugman’s (1980) production function; under the condition of increasing returns to scale, each firm produces one particular product. The large number of firms diminish the competition, the price is constant and can cover firm’s marginal costs and fixed costs. In international trade, trade cost’s regularly occur and become somewhat of a barrier.

The AVW model shows the importance of controlling relative trade costs. Their results indicate that bilateral trade is influenced by relative trade cost. Country j imports from country i and must pay a price which is influenced by the weighted average trade cost being paid to all other trading partners. The derivation of the AVW model can be seen in the appendix. The cross sectional gravity equation by AVW is summarized below:

\[X_{ij} = \frac{Y_i Y_j}{Y} \left( \frac{\tau_{ij}}{\Pi^k_i P^k_i} \right)^{1-\sigma}\]

Taking the logarithm on both sides:

\[\ln X_{ij} = \ln Y_i + \ln Y_j - \ln Y + (1 - \sigma) \ln \left( \frac{\tau_{ij}}{\Pi^k_i P^k_i} \right)\]

where \(X_{ij}\) is the trade value from country i to j, and \(Y\) represents the world GDP. \(Y_i\) is the GDP of country i, \(Y_j\) is the GDP of country j, \(\sigma_k\) denotes the elasticity of substitution and \(\tau_{ij}^k\) represents trade costs. Two important features of the AVW model is the two additional variables, \(\Pi^k_i\) and \(P^k_i\). \(\Pi^k_i\) is called the outward multilateral resistance, and \(P^k_i\) is called the inward multilateral resistance. The outward multilateral resistance denotes the exports from country i to country j depending on trade costs across all possible export markets. The inward
multilateral resistance denotes the imports into country i from country j depending on trade costs across all possible suppliers (Shepherd, 2013). Generally, these figures are low if a country is isolated from world market (Bacchetta, 2012). Inward multilateral resistance is also called the price index and outward multilateral resistance is called competition (Fally, 2012).

Extensive research has been conducted to examine the determining factor of palm oil trade in the international market. Suryana (1986), Tondok (1998), Ibrahim (1999), and Basiron (2001) analyzed the outlook of palm oil in the international market for Indonesia and Malaysia. Shamsuddin et al. (1997) examined the determinant and implication of policy instruments on the Indonesian and Malaysian palm oil. Lubis (1994), Shamsuddin et al. (1994), and Susila (1995) who examined Malaysia’s palm oil supply and demand system.

The impact of the Free Trade Agreements (FTA) proliferation to a country’s overall trade especially palm oil was describe by Ernawati et al.(2006). The simulation shows that a reduction of tariff in export and import has varying impacts on partner country. The palm oil demand is influenced by price, as is the price of substituted commodities such as rapeseed oil and soybean oil; exchange rate and lag export, are also shown to be influenced in the simulation.Riffin (2010), performed a study comparing the market share of Indonesian and Malaysian palm oil in Asia, Europe, and throughout Africa. The commodities were differentiated into crude and refined palm oil. The market share was analyzed by constant market share analysis (CMSA). Furthermore, another study concerning the impact of FTAs was conducted by (Balu & Ismail, 2011). According to their descriptive research, for Malaysia’s palm oil industry, the FTAs was a good opportunity because it helped to increase market share and tariff reduction lead to a higher profit. The competitiveness of traded goods will likely enhance due to liberalization of tariffs.

METHODS

Data Types and Sources

This research uses secondary data available from various sources. The bilateral trade of palm oil annual data from the period between 1990 and 2014 has been generated from the United Nations Commodity Trade Statistic
Database (UN COMTRADE) and further incorporated with the World Integrated Trade Solution (WITS) software. The data consists of a nominal value of bilateral trade from Indonesia and Malaysia to 91 partner countries that have conduct trade more than ten times within the 24 year period. The total palm oil and its fraction which has Harmonized System (HS) code: 1511, divided into crude palm oil (HS code: 151110) and refined palm oil but no chemically modified (HS code: 151190). The geographical distance between countries was obtained from the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII), economic distance is gained by multiply geographical distance with the average of crude oil price the importer’s GDP data came from the World Bank, along with FTA information from the Asia Regional Integration Centre (ARIC). The value of palm oil production is generated from the FAO.

The Gravity Analysis (PPML Estimation)

The gravity model estimation is applied to examine whether the trade agreement influences trade flow or not. This study use Poisson Pseudo Maximum Likelihood (PPML) in order to control zero trade data and heteroskedasticity. PPML method was led by Gourieroux et al. (1984) and is normally used for the count data model. The most prominent study concerning the use of PPML as a tool for estimating the gravity model was conducted by Santos Silva and Tenreyro (2006). They argued that the log linear transformation result in an inconsistent bias in the presence of heteroskedasticity, the result from the PPML estimation will give better result by including the zero value rather than truncating OLS. The following research by Santos Silva and Tenreyro (2011) shows that the PPML is constant and performs well in the presence of over dispersion (the conditional variance is not equal to the conditional mean) and excess zero values.

Sun and Reed (2010) was the first author who utilized PPML on the effect of FTAs with disaggregated data for agriculture commodities. The result of PPML is better than the OLS result. Following Sun and Reed (2010), the empirical model is stated as:

\[ Y_{ijt} = \exp\{\beta_0 + \beta_1 \ln GDPl_t + \beta_2 \ln GDPl_j + \beta_3 \ln D_{ij} + \beta_4 FTA_{ij} + \pi_{ij} + \delta_t + \varphi_i + \gamma_j + \epsilon_{ijt}\} \]

................................4)
\( Y_{ijt} \) represent the export value from country \( i \) to \( j \) at time \( t \), \( \delta_i \) stands for the fixed effect of country \( i \) (exporter fixed effect), \( \phi_j \) represent the fixed effect of country \( j \) (importer fixed effect), \( \pi_{ij} \) denotes the country pair fixed effect, and \( \gamma_t \) refers to the time effect.

**Econometric Modelling of International Palm Oil Trade**

Estimating the gravity model for a disaggregate commodity can lead to biased estimations if the GDP of exporter countries are used as a proxy for the economic size of the exporter (\( GDP_{it} \)). Therefore, the production value of palm oil is used in this study as a proxy for the exporter’s economic size. In order to examine the impact of multilateral trade, the dummy variable (FTAs) is divided into two parts one before and one for after the year 2000. The main reason for splitting up the dummy variable is the proliferation of FTAs for both Indonesia and Malaysia after year 2000, which increase the member of free trade agreement in southeast Asia region. The gravity model of international palm oil takes the following form:

\[
\begin{align*}
\ln Y_{ijt} &= \beta_0 + \ln \text{Prod}_{it} + \\
&\quad \beta_1 \ln \text{GDP}_{it} + \beta_2 \ln D_{ij} + \\
&\quad \beta_4 \text{FTAs}_{b2000\_id}_{ijt} + \\
&\quad \beta_5 \text{FTAs}_{a2000\_id}_{ijt} + \\
&\quad \beta_7 \text{FTAs}_{b2000\_my}_{ijt} + \pi_{ij} + \delta_i + \\
&\quad \phi_j + \gamma_t + \epsilon_{ijt} \\
\end{align*}
\]

where

\( Y_{ijt} = \text{annual palm oil export from } i \text{ to } j \text{ at year } t \text{ in US}\$

\( \text{Prod}_{it} = \text{annual palm oil production value of } i \text{ at year } t \text{ in US}\$

\( \text{GDP}_{it} = \text{annual GDP of importer country } (j) \text{ at year } t \text{ in US}\$

\( D_{ij} = \text{bilateral economic distance between countries} \)

\( \text{FTAs}_{b2000\_id}_{ijt} = \text{Dummy variable for FTAs before year 2000, 1 if Indonesia as an exporter and have signed agreement with importer country } (j) \text{ at time } t, \text{ otherwise 0} \)
FTAs_a2000_id_{ijt} = Dummy variable for FTAs after year 2000, 1 if Indonesia as an exporter and have signed agreement with importer country (j) at time t, otherwise 0

FTAs_b2000_my_{ijt} = Dummy variable for FTAs before year 2000, 1 if Malaysia as an exporter and have signed agreement with importer country (j) at time t, otherwise 0

FTAs_a2000_my_{ijt} = Dummy variable for FTAs after year 2000, 1 if Malaysia as an exporter and have signed an agreement with importer country (j) at time t, otherwise 0.

With the setting we expect positive sign for the coefficient of importer’s GDP and the coefficient of palm oil production. This means that the export of palm oil will increase as long as there is growth in a country economy. The distance variable is expected to have negative sign because it is considered as trade barrier. The further destination country the less export quantity is expected. FTAs dummy variable is expected to have positive sign since the commencement of FTAs is meant to reduce trade barriers.

RESULTS AND DISCUSSION

The PPML estimation result is utilized to analysis concerning the impact of FTAs on the commodity trade flow. The FTA dummy variable is utilized to quantify the change of trade flow due to the establishment of the trade agreements. The estimation use two main separate dummy variables, before and after year 2000. Furthermore, based on the results from table 1, the PPML with the combination of time, country pairs and country specific effect is applied to the next estimation. In particular, the dependent variable are divided into two, they are crude palm oil (HS151110), and refined palm oil but no chemically refined (HS151190). The result of the PPML estimation for different palm oil export type can be seen in Table below.

For crude palm oil, the estimated coefficients for palm oil production have the expected positive signs and are statistically significant at the 5% level, this means that 1% increase in palm oil production would be associated with an increasing in the average export of palm oil by approximately 0.11%, ceteris paribus (cp). A positive sign was also determined for refined palm oil (HS 151190), with the average export value
increasing by about 0.01% when the production value increases by 1%, \( cp \). The GDP coefficient has a positive influence on the palm oil export, the GDP variable was not influential on the palm oil export and is statistically significant for refined palm oil export.

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>crude</th>
<th>refined</th>
</tr>
</thead>
<tbody>
<tr>
<td>l_gdp</td>
<td>0.369*** (0.00165)</td>
<td>0.0362*** (5.54e-07)</td>
</tr>
<tr>
<td>l_dist</td>
<td>-0.878*** (0.00429)</td>
<td>-0.0773 (0.856)</td>
</tr>
<tr>
<td>l_prod</td>
<td>0.0117 (0.659)</td>
<td>0.117*** (0)</td>
</tr>
<tr>
<td>FTAs_b2000_id</td>
<td>0.135 (0.524)</td>
<td>0.796*** (0.00383)</td>
</tr>
<tr>
<td>FTAs_a2000_id</td>
<td>-0.298** (0.0429)</td>
<td>0.216*** (6.55e-05)</td>
</tr>
<tr>
<td>FTAs_b2000_mys</td>
<td>0.0645 (0.832)</td>
<td>0.0769 (0.500)</td>
</tr>
<tr>
<td>FTAs_a2000_mys</td>
<td>0.118 (0.424)</td>
<td>0.0887*** (0.000113)</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.127 (0.542)</td>
<td>-0.463 (0.886)</td>
</tr>
</tbody>
</table>

Observations: 3,250, 4,375
R-squared: 0.544, 0.511

Robust pval in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The estimation results are inline to the gravity theory that trade is influenced by the economic size of the importer. As expected, the distance variable has a negative sign and is statistically significant at the 1% level for crude palm oil (HS 15110). This indicates that when the bilateral economic distance increases by 1%, the average crude palm oil export will fall by 0.8%. This result indicates that distance acts as a trade barrier. This result indicates that for high value product (refined palm oil), the distance does not influence trade.

Furthermore, the trade flow experiences different changes for Indonesia and Malaysia due to the establishment of trade agreements. Generally, for Indonesia with FTA before 2000, the coefficients are statistically significant and have a positive sign for all refined palm oil. The estimated FTA after 2000 coefficients have a negative result for crude palm oil, and the sign is statistically significant for crude palm oil. For Malaysia with FTA before 2000, the coefficients are statistically not significant and have a positive sign for all type of palm oil. The estimated FTA after 2000 coefficients have a positive result for crude and refined palm oil, and the sign is statistically significant for refined palm oil.

For FTA before year 2000, the results show different effects for Malaysia. For Malaysia, the average export of crude palm oil increases by
6.6%, while for refined palm oil, FTA establishment causes an average export rise of 7.9% respectively, *ceteris paribus* (c.p.). In particular, the tremendous effect occurs for Indonesia’s refined palm oil export, as indicated with the variable FTA before year 2000, the average refined palm oil export increased by 121.7%, and for crude 14.5%, c.p.

The average export of Indonesian crude palm oil decreased by 25.8% after the establishment of the FTA from 2001 to 2011. For refined palm oil, the average export increased by 24.1% higher than export without FTA, c.p. The use of crude palm oil for domestic consumption may cause why the decline in export of crude palm oil is different than the in the refined palm oil. In fact, Indonesia is known as the largest consumer of palm cooking oil. The increase in Indonesia’s refined palm oil export after the establishment of AFTA could be caused by by the higher demand of palm oil in the international market. The high growth of economy size in the Asia region may become the primary factor for the rising of consumption of palm oil, therefore, Indonesia’s prefer to export its palm oil to the member of FTA.

Furthermore, the FTA after year 2000 give positive result to the the total value of Malaysia’s palm oil export. The establishment of FTA after year 2000 caused the average export value decrease by 12.5% for crude and 9.2% for refined export.

**Table 2. The Change of Palm Oil Export due to FTA establishment (%)**

<table>
<thead>
<tr>
<th>Palm Oil</th>
<th>Indonesia (%)</th>
<th>Malaysia (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS</td>
<td>Before 2000</td>
<td>After 2000</td>
</tr>
<tr>
<td>151110 (Crude)</td>
<td>14,50 -25,80</td>
<td>6,60 12,50</td>
</tr>
<tr>
<td>HS</td>
<td>Before 2000</td>
<td>After 2000</td>
</tr>
<tr>
<td>151190 (Refined)</td>
<td>121,70 24,10</td>
<td>7,90 9,20</td>
</tr>
</tbody>
</table>

Source: Author’s Calculation

\[\text{1 The effect of FTA calculated by } \left\{e^{\beta}-1\right\}\times100\]

In fact, the market share of Malaysian palm oil in China’s market has reached 65%, while the Indonesian share in China’s market only reaches 40%. Moreover, the Malaysian company has built a refinery in China by doing a joint venture mechanism with a China’s company in the beginning 1995.

Due this finding, along with the FTA establishment, Malaysia has additional opportunities to process refined palm oil
into downstream products such as oleochemicals (Nor, 2012). This is one of the examples of the dynamic effect that has occurred due to the establishment of RTAs, the investment creation effect.

Furthermore, the Malaysian export oriented policy has pushed the development of refineries in Malaysia itself, the refined palm oil is then exported to fulfill the demand for countries outside of the Asian region. Since the year 1990, Malaysian palm oil has acquired the oleochemical industries in several developed countries such as the Netherlands, Germany, Switzerland and the United States (Nor, 2012).

**CONCLUSION AND POLICY RECOMMENDATION**

In summary, the flow of exports is influenced by other factor, such as by the government policies that are put into effect. The different policy give different result. The Malaysian government has also further utilized free trade agreements by doing investment in the downstream palm oil industry in other FTA membership countries, especially with China. This is one of the example for the positive dynamic effect of FTAs.

For further research, it is recommended that the researcher should focus not only on palm oil commodities, but also in the derivatives of palm oil products (oleochemical).

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THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) TO IMPROVE BUSINESS COMPETITIVENESS IN INDONESIA

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Abstract
It can’t be denied that ICT has played an important role in encouraging business progress. It has impact to business transformation from traditional to electronic platform. Nowadays, this business model is to become a trend in Indonesia. Unsurprisingly, it has been growing e-commerce model, such as Lazada, Buka Lapak, Tokopedia, Matahari Mall, and many more. According to data from Social Research & Monitoring shows that in 2015 internet users in Indonesia reached 93.4 million. In 2016, the number of online shopper reached 8.7 million people with a transaction value of about 4.89 billion US dollars. This model provides an opportunity for business actors to market their products and services not only to the national level but also to the international level. Here, the use of ICT as a competitive advantage to coming closer to consumers and reach global market. Dramatically, it is able to sustain business processes that include reducing operational costs, marketing time, cutting supply chain, etc. Thus, it provides to open a new market deals through using ICT platform. Therefore, this paper will identify the matters related to the role of ICT to improve business competitiveness in Indonesia with business law perspective.

Keywords: “e-commerce”, “competitiveness”, “global enterprise”, “new trade deals”.

INTRODUCTION
The Government of the Republic of Indonesia is very concerned on the development of e-commerce. In 2016, Government intends to cooperate with foreign business actor through Indonesian steering committee for e-commerce development so that Indonesia’s e-commerce road map formed.¹ In the future, Indonesia is predicted has the potential to become the biggest digital economy country in Southeast Asia, both on manufacture and retail industry.²

²NN, Indonesia to Become The ASEAN’s Biggest Digital Economy Country, BKPM, http://www.bkpm.go.id/en/article-
To prepare this goal, Indonesian regulation related to e-commerce activities has regulated. Generally, trade through Electronic Systems has regulated under Law of No.7 of 2014 concerning Trade (Trade Law). Specifically, electronic transaction is also regulated under Law of No.11 of 2008 about Electronic Information and Transactions (EIT Law). While for online transportation also has regulated under Ministry regulation No. 26 of 2017 concerning Implementation of Transport People with General Motorized Vehicles Not in Trayek.

Recently, in Indonesia emerged a lot of business actors who open business using electronic platform or commonly called e-commerce. Here, Indonesia has a significant growth in online market or e-commerce. Currently, the percentage of e-commerce transaction has reached for high about 36% and it predicted would reach to US$ 81 billion in 2025.³

Not surprisingly, there are not only offer goods but also service which offer through online. Its development is very rapidly. In the field of product sales for example, there is emerging e-commerce business such as, lazada, buka lapak, toko pedia. While in the field of services, there is emerging e-commerce business on services, such as traveloka, tiket, skyscanner, which offer air tickets, voucher hotel etc.

In online travel sector, the existence of online transportation services like Gojek, Uber and Grab, supports Indonesia in becoming the biggest online travel market in Southeast Asia. The online travel growth in Indonesia is estimated will increase about 22% per year, from US$ 800 million in 2015 to US$ 5.6 billion in 2025.⁴

Furthermore, it predicted that the internet user in Indonesia will reach 215 million people before 2020.⁵ Therefore, government strives to improve the telecommunication infrastructure quality in supporting online business. The quality improvement is necessary to accelerate many innovations in information and technology to support Indonesia in becoming the biggest digital economy in ASEAN. Today,
development of ICT has adopted of 4G technology.

Nowadays, ICT has become a backbone of e-commerce development so that it’s hard to imagine that businesses will growth without benefiting from the digital revolution. In this regards, ICT has play an important role in supporting business. It is an effective for direct selling model. In the model, it allows to sell their products directly to the end consumer. Here, e-commerce provides a small business the ability to build and manage its own personal relationships with its customers. Therefore, this paper will identify the matters related to the role of ICT to improve business competitiveness in Indonesia with business law perspective.

**METHODS**

Methods/Approach of this paper uses legal research with normative jurisdiction approach. Besides that, multidisciplinary research approach through the analysis of legal rules under Indonesian Business Law is also applied.

**RESULTS AND DISCUSSION**

1. Business Competitiveness

During the past decade, a new economic shift into the Information Age and gave birth to a new trading model. All sorts of goods and service are now sold over the Internet. This will provide an opportunity for business actors to increase their competitive in the face of business competition.

In Indonesia, Trade Law has anticipated trade development in the globalization era. Competitiveness is not only in traditional business but also in online business. Therefore, in Article 24, Law of No.7 of 2014 concerning Trade has regulated about trade through Electronic Systems (ES). ES is a trade transactions conducted through a series of devices and electronic procedures. Thus, ICT has played an important role to conduct in online business.

The role of ICT in supporting business has been recognized by policy maker in business worldwide. In this regards, EU policy makers know that European firms can operate and innovate effectively and efficiently when infrastructures, such as broadband, and

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policies related to working digitally are harmonized across the region.\textsuperscript{8} Here, ICT should be at the heart of both strategic and operational Management and as such, the IT Managers’ leadership role should have the ability to influence corporate vision and strategy to ensure that the business’ operational efficiency is maintained.\textsuperscript{9}

Competitiveness is ability of a firm or a nation to offer products and services that meet the quality standards of the local and world markets at prices that are competitive and provide adequate returns on the resources employed or consumed in producing them.\textsuperscript{10}

\section*{2. ICT to Improve Business Competitiveness in Indonesia}

Author identified the role of ICT in improving business competitiveness at business law perspective, as follows:

\subsection*{a. Creating Fair Competition}

E-commerce provides creating social innovation not only for big company but also for Small and medium-sized enterprises (SMEs). It is a fair deal for consumers online to choice goods and service through online. \textit{GoJek} application for example, it creates social innovation with streamline order procedure for transportation order. It allows consumer can get information in real time so that reduce idle time for waiting period.

Nowadays, using information technology to develop products, services, and capabilities that give a company major advantages over the competitive forces it faces in the global marketplace.\textsuperscript{11} Here, the role of ICT creates a conducive business climate through healthy business competition, thus securing equal business opportunity for large, middle and small scale entrepreneurs and allow to create effectiveness and efficiency in business activities.\textsuperscript{12} Furthermore, business actor is able to improve competitiveness

\begin{itemize}
\item \textsuperscript{8} INSEAD, \textit{Building Competitiveness and Business Performance with ICT}, p.9
\item \textsuperscript{9}Morton Holder, \textit{Using ICT to Enhance Business Competitiveness},
\item \textsuperscript{10} BusinessDictionary,
http://www.businessdictionary.com/definition/competitiveness.html
\item \textsuperscript{12} See Article 3 (b and d), Law No. 5 of 1999 concerning the Ban on Monopolistic Practices and Unfair Business Competition.
\end{itemize}
through creating innovation to attract consumers based on ICT.

In this regards, ICT supports fair competition in ecommerce business model. It allows business actors in Indonesia in running based on economic democracy by considering the balance between the interests of business actors and the public interest.\(^\text{13}\) Furthermore, ICT has a play an importance role to realize the objectives of Law No. 5 of 1999 concerning the Ban on Monopolistic Practices and Unfair Business Competition (Unfair competition Law), such as to maintain public interest and improve the efficiency of the national economy as one of the means to improve public welfare and to prevent monopolistic practices and/or unfair legal competition by the entrepreneurs.\(^\text{14}\) Here, business player has same chance to offer goods and services so that fair competition can be enforced. This model allows consumer is as the final choice of goods and services offered.

\textbf{b. Building Collaboration}

To improve business competitiveness is can be established through building collaboration with other parties. Nowadays, business is hard with stand lone strategy. It will develop dramatically if company to open partnership. Online Travel Company in Indonesia, such as \textit{Traveloka} built collaboration with both national and international business partners. The partnership gives \textit{Traveloka} travelers access to a diverse set of international accommodations\(^\text{15}\). Even the US giant will also collaborate with its Indonesian counterpart on global hotel booking.\(^\text{16}\)

In 2016, \textit{traveloka} collaborated with \textit{expedia} has raised US $ 500 million.\(^\text{17}\) Nowadays, \textit{traveloka} has built partnership with over 100 domestic and international airlines, and serves consumers in Indonesia, Thailand, Vietnam, Malaysia, Singapore, and the Philippines with different payment options and a variety of accommodation

\(^{13}\)See Article 2, Law No. 5 of 1999 concerning the Ban on Monopolistic Practices and Unfair Business Competition.

\(^{14}\)See Article 3 (a and c), Law No. 5 of 1999 concerning the Ban on Monopolistic Practices and Unfair Business Competition.


\(^{16}\)Ibid

\(^{17}\)Ibid
c. Building Mutual Trust

The use of ICT, allows trade to be transparent as Law No. 8 of 1999 concerning Consumer Protection (Consumer Protection Law) implies. In Article 10 Consumer Protection Law has regulated that in offering the goods and/or services for trading, entrepreneurs are prohibited from offering, promoting, advertising or providing incorrect or misleading statements regarding: a. the price or rate of a certain goods and/or services; b. the use of the goods and/or services; c. the condition, warranty, guarantee, rights or compensation on certain d. goods and/or services; e. the discount or attractive prizes offered; f. the danger of using the goods and/or services.

Here, ICT can facilitate allowing available of the transparent information related to certainty on price, quality, warranty, delivery, refund, paying, etc. In this regards, ICT allow building trust between entrepreneur and consumer. In the context building trust, principle of legal certainty should be applied in e-commerce activities. In EIT Law, “Principle of legal certainty” means a legal foundation on which Information Technology and Electronic Transaction...
usage as well as anything that supports its application shall be legally recognized inside and outside the court.\textsuperscript{19}

Furthermore, e-commerce has a worldwide reach so that it takes a rule that can reach the activities of electronic transactions globally. This law, has been designed for it, as stated in the article 2 that stated “Electronic Information and Electronic Transactions is cross-territorial or universal in nature, this law shall have jurisdiction over legal acts applicable not only in Indonesia and/or committed by Indonesian citizens, but also applicable to legal acts committed outside jurisdiction of Indonesia by both Indonesian citizens and foreign citizens or Indonesian legal entities and foreign legal entities having legal effect in Indonesia.

Trust is one of universal principle in international business. It is something committed or entrusted to one to be used or cared for in the interest of another.\textsuperscript{20} Electronic transactions that do not allow conducting face-to-face directly, will build mutual trust with each parties. Thus, here is the role of ICT which supports this principle to conduct transactions anywhere and anytime.

d. Linking to Global Marketing

Marketing both goods and services to global marketing is something that is relatively hard, not only related to promotional costs, but also transaction procedures and payment systems. However, today, it can be overcome by the emergence of the use of ICT in the online trading system. The combination of global marketing with an Internet distribution method allows many companies to try their hand at reaching growing target markets overseas.\textsuperscript{21}

At the legal aspect, EIT Law has regulated that Information Technology and Electronic Transaction usage shall be implemented with the objectives to develop the national trade and economy in order to improve public welfare. It means that this law to support expands market to the global segmentation. Indonesian’s e-commerce can be accessed by anyone in anywhere and anytime for 7/24 without considering

\textsuperscript{19} See Article 3 EIT Law
citizenships. It provides opportunity to market globally.

Here, using the Internet to sell to international consumers is a very low risk business decision. Companies do not have to tie up huge financial investments through franchising, direct investment or brick-and-mortar stores overseas. ICT have allowed companies to easily expand to global markets. Traveloka, lazada for example has a dynamic website that allows international orders. It also provides a tremendous database for the company to use to build their customer base.23

In legal aspect, electronic trading system has regulated under trade law. It provides administrative sanctions until license revocation for each business communities who trade goods and / or services by using an electronic system that does not provide the data and / or information is complete and correct.24 Hence, trade with link to global market should be paid attention on legal aspect. It must clear on "term and condition" so that each party will agree to "choice of law" and "choice of forum".

CONCLUSION AND POLICY RECOMMENDATION

1. Conclusion

In general, this paper identify that matters related to the role of ICT to improve business competitiveness in Indonesia is very significant to support both national and international trade. It will impact to national economic growth indirectly. In business law perspective, some regulation, such as trade law, EIT law, Consumer protection Law, electronic transaction Law, etc has regulated the issues generally. It indicated that business competitive in e-commerce sector can be increased through the use of ICT. Here, ICT is as transaction media plays an important role to support buying and selling activities both products and services globally.

Applying ICT at business sector, it is able to have a role to increase business competitive. Firstly, creating fair competition is an effort business community to compete each other with fair principle on price, service, trust etc. Secondly, building collaboration can be realized through opening partner relationship with various parties. It allow

22 Jennifer Lombardo, ibid
23 Jennifer Lombardo, ibid
24 See Article 65 Trade Law
to open link not only big company but also SMEs in both national and international partners. Thirdly, building mutual trust can be realized through relationship between business to business (B2B), business to customer (B2C), and customer to business (C2B) based on ICT platform. Fourthly, linking to Global Marketing is best strategy through using ICT to market products and services globally.

2. Policy Recommendation

The Role of ICT to improve business competitiveness in Indonesia should in line with the Indonesia regulation.

Author identified for policy recommendation, as follows:

a. Trade Law and Intellectual Property law has to harmonize with EIT law. It is to anticipate e-commerce business practice for intellectual property infringement related to selling pirated product through online.

b. Electronic transaction provisions needs to harmonize with unfair competition Law about ban on agreement practices in build collaboration.

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Internet


