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Dilip Dutta Fajar Hirawan

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ABSTRACT

This paper examines the role of Indonesia-ASEAN trade as one of the opportunities for the Indonesian government to realise food security in the country. Focusing on four market share criteria-competitiveness effect, initial country/regional market effect. initial product/commodity effect, and adaptation/world growth effect-the Constant Market Share (CMS) analysis investigates trading activity between Indonesia and ASEAN before and after the global food crisis during 2007-08. Results show that trading activity between Indonesia and other ASEAN member countries experienced different structures and patterns in terms of the above market share criteria. The results recommend for the Indonesian government to develop an effective trade strategy by analysing the track record of their products, particularly their products' competitiveness, trade value growth and market share. This paper also suggests that Indonesian government should conduct policy harmonisation, in the form of trade facilitation, tariff reduction and elimination, as well as services and trade liberalisation, to optimise the food security achievement in Indonesia.

Keywords: Indonesia, ASEAN, Regional Trade, Food Security, Global Food Crisis, Competitiveness, Food Policy

1. Introduction

Food security is being recently discussed in many global, regional and national forums on development issues as a critical one. In the two sets of global development goals–*Millennium Development Goals* (MDGs) (2001-2015) and *Sustainable Development Goals* (SDGs) (2015-2030)–implemented by the United Nation (UN) in the new millennium, food security has consistently been prioritised as the crucial issue. It has been agreed that this issue needs to be solved because the fear of famine and hunger has always haunted people all over the world. At the global level, in response to a threat of global food insecurity, the Food and Agriculture Organization (FAO), the UN body that focuses on food and agriculture development, held an expert forum in Rome, Italy, during 12-13 October 2009. The forum discussed and analysed the above crucial issue as well as the policy options that could be considered by the governments to feed the world in 2050. Moreover, the forum projected that world population would grow approximately by one-third or 2.3 billion people between 2009 and 2050. Hence, by 2050 a significant increase, at least 70 percent, of food production,

including cereals and meat, would require feeding about 9-10 billion people in the world (FAO, 2009). This necessary condition has been even getting worse due to the recent increase in food prices that could make many food items unaffordable to poor people across the developing and underdeveloped countries.

The FAO price index that measures the change of a basket of food prices internationally showed a dramatic spike in 2008. The sharp increase in prices of staple food, such as rice, corn (maize), wheat and soybeans, has caused concerns both politically and economically in most of the countries in the world. This adverse condition has become a global attention, especially concerning about the possible factors from both the shorter- and longer-term points of view. Based on the UN Report on Global Social Crisis published in 2011, speculative effect in agricultural commodity futures markets, occasional crop failures in many grains and cereals producing countries, and increased biofuel production in the developed countries, including European countries and the United States, are among the short-term factors. Meanwhile, the reduction of domestic and foreign agricultural investments in developing countries, international trading system problems and the changing consumption patterns in most emerging countries are some of the longer-term factors that have caused the spike in food prices during 2007-2008 (UN, 2011). Nevertheless, food is a core component that has to be fulfilled to shape a better future for the human race. The fulfilment of food requirement is a part of human rights, and the States constitution guarantees it. Every government of the country should be pro-active to assure that not only their people have access to food, but also it should be sufficient, safe, diverse and nutritious.

In the new millennium, more than millions people have been suffering from the imbalance between the supply of and demand for food in many developing countries. It is often argued that 'the need to find a balance between a growing demand for food and the planet's limited capacity to support its production as a necessary step to achieve food security' (Laurentiis *et al.*, 2016). Behind this balance that is urgently sought after at the global level, country-specific other factors such as business and economic environment, available infrastructures, production capacity, socio-political stability, are crucial and they need to be appropriately involved in the decision-making process of food policy formulation. The food policy agenda usually focuses on the rapid and sustained reduction of poverty. According to Timmer (2015, p. 31) four such important, although overlapping, food policy agenda are:

• faster economic growth (the efficiency objective),

- more equal distribution of income from that growth (the welfare objective),
- a guaranteed nutritional floor for the poor (the safety net objective), and
- secure availability and stable prices in food markets (the food security objective).

For some countries that have not enough agricultural land to produce agricultural products or commodities, they usually rely on food/agricultural trade to fulfil their domestic demand. There are several forms of trade agreements that they could involve in, from bilateral to multilateral trade agreement. For certain countries that have an advantage geographically, they also could involve in the regional trade agreement, as is the case of Indonesia's involvement in Association of Southeast Asian Nations (ASEAN). Even though in practice any form of trade agreements could be difficult to be implemented due to some barriers, especially non-tariff ones, the trade agreement initiative is the proper start in implementing mutual benefit trade activity between countries. Some countries, like Indonesia that have an abundance of land, also tend to be self-reliant in fulfilling the domestic demand for agricultural/food commodities. These countries make much effort for increasing their food sovereignty. Food sovereignty might seem too good to be true for some countries like Indonesia that have a high population, lack proper agricultural infrastructure and have limited technology required for boosting agricultural/food production.

The food sovereignty or food security achievement is usually driven by political agenda. Hence, this kind of political agenda has the tendency to push people's mindset to be more nationalist and protective in facing the issue of agricultural/food trade. The rise of nationalism sometimes distorts the effectiveness of trade, especially related to trade in agricultural commodities. Some countries tend to be protectionists by implementing import quota policy to protect local food and agricultural products, and even sometimes export quota policy to feed the local people during crop failure due to drought. Once countries conduct these kinds of policy as part of non-tariff barriers, any trade agreements or arrangements will tend to be ineffective. Nevertheless, trade still is an important strategic policy that might be effective for developing countries in order to achieve food security.

This paper focuses on the importance of Indonesia's agricultural and food trade that needs to be strengthened at its different levels, particularly at the regional level. As a member country of ASEAN, Indonesia has the advantage of fulfilling its domestic demand by trading with other nations within the region. Indonesia and some other ASEAN member countries, such as Thailand and Vietnam, are among the most significant primary sector producers in the Asian region in particular and the world in general. Regional trade cooperation within ASEAN member countries began with the signing of the ASEAN Free Trade Area (AFTA) in January 1992 (ASEAN, 2012) which came into effect in 1993, one year after the signing. Regional trade cooperation in the ASEAN region became even more intensive and integrated at the end of 2015 under the ASEAN Economic Community (AEC). This economic or specifically trade agreement is essential in enabling countries, like Indonesia, to fulfil their agricultural and food product needs and is a key to enhancing trade cooperation, thus promoting food security.

After going through a literature survey on the importance of linking ASEAN regional trade to food security realisation in section 2, an appropriate research methodology on analysing the role of trade in promoting food security will be adopted in section 3. The detailed empirical results and their implication will be presented in section 4, which will be followed by a number of concluding remarks in section 5.

2. Literature survey

In the Southeast Asian region context, several studies have been conducted to examine the relationship between ASEAN regional trade and food security. Bello (2004), Chandra and Lontoh (2010), Pongsrihadulchai (2010), Briones (2011), Waiyeelin and Yamao (2012) and Intal (2015) are some of the current studies that have investigated the link between regional trade in ASEAN and its food security realisation. Bello (2004) conducts research on food security, agricultural efficiency and regional integration in the Asia-Pacific Economic Cooperation (APEC) region in general and in ASEAN region in particular. It has been argued that food self-sufficiency, food sovereignty, protectionism as well as political sensitivities are some issues that have to be handled properly when the country is dealing with agricultural/food trade. In conclusion, Bello (2004) gives importance on three areas that should be taken into account by ASEAN member countries to realise their food security plans in the region, increased competitiveness of ASEAN's food products globally, and promotion of ASEAN role in the international forum.

Chandra and Lontoh (2010) investigate the relationship between international trade and food security as well as the lesson learned from food crisis 2007/2008. They propose how to strengthen regionalism in food security aspect within ASEAN member countries through harmonisation of domestic and regional food security policies. This effort could enhance food security coordination and mechanism as well as to reduce policy gaps among ASEAN member countries. They also highlight that it is necessary to put regional solidarity/interests above domestic economic interests. Food/agricultural trade seems to be more sensitive than other sectors' trade because of the misperception of political jargons used by political leaders in the country. However, they think that it is crucial to review food security policies and trade priorities to tackle the issue of food insecurity in the region as a whole, and therefore to implement a regional approach to food security, especially within the ASEAN Economic Community (AEC) framework.

Pongsrihadulchai (2010) introduces ASEAN Food Security Information System (AFSIS) that has the primary objective to facilitate food security planning and implementation in the ASEAN region through systematic collection, analysis and dissemination of information. Moreover, AFSIS has a specific goal to improve information system and member countries' capacity in providing information and data analysis. Based on the fact that most of ASEAN people consume rice, AFSIS has a goal to support East Asia Emergency Rice Reserve (EAERR), namely ASEAN Plus Three Emergency Rice Reserve (APTERR). Under APTERR, three East Asian countries including China, Japan, and South Korea can take part in making rice available in the region during an emergency, stabilising the price of rice and improving farmers' income and prosperity. Thus, in general, AFSIS is crucial to strengthen food security in the ASEAN region.

Briones (2011) also focuses on commitment among ASEAN member countries and other three East Asian countries (Japan, South Korea, and China) to solve food insecurity problem in the region. According to Briones, both vigorous domestic policies and strong commitment of the members are needed for regional and multilateral cooperation in order to realise food security. Briones, however, mentions some issues for effective regional cooperation to manage food security risks. These issues are about volumes and timing of storage as well as the release of emergency stocks, financial sustainability, and institutional capabilities. Waiyeelin and Yamao (2012) highlight ASEAN member countries' effort to enhance food security, specifically to increase food availability in the region. They analyse the effectiveness of AIFS and basic policy frameworks that have been conducted in several ASEAN member countries, including Indonesia. Based on their research findings, Indonesia is one of the countries in the ASEAN region that stands out to be a good example of showing how to realise food security through institution optimisation and social safety net programs. They suggest that these two domestic policies of Indonesia might be copied by other ASEAN member countries to fulfil food sufficiency for their people.

Intal (2015) recommends that three key aspects have to be realised to achieve food security in the region under the ASEAN Economic Community (AEC) framework. These are electronic customs or national single window, greater competition in logistics system and better-supporting infrastructure. Intal (2015) believes AEC has a positive impact on ASEAN food security since the beginning of 2000, in particular through several actions and policies taken, which relate to trade facilitation, tariff elimination, services and trade liberalisation, agriculture and food security initiatives.

Besides ASEAN region, several studies also have observed the importance of the regional trade in relation to food security in other parts of the world. Maasdorp (1998) and van Rooyen (2000) focused their research in the Southern African Development Community (SADC), Rueda-Junquera (1998) examined regional trade in Central America, as was similarly done by Dorosh (2008), Chand (2007) and Taneja, et al, (2011) in the context of South Asia. In the SADC context, Maasdorp (1998) investigates the prospect of grain products self-sufficiency as the main focus of SADC Food Security Programme and National Early Warning Units. He believed that intra-regional trade in grain and food products could be optimised by freeing agricultural products market in the SADC to promote comparative advantage. The intra-regional trade in SADC region also could attract investment in agriculture and agro-industry. Meanwhile, van Rooyen (2000) highlights the challenge of regional food security and the role of agriculture in the SADC region. Infrastructure investment programmes, human capital development, and regional trade are necessary to enhance Southern African regionalism. Moreover, from the Central America perspective, Rueda-Junquera (1998) offers the main components of the agricultural integration program in the Central America, namely regional trade liberalisation of basic

agricultural products (maize, rice, and sorghum) and common protection scheme establishment.

From the South Asian context, Chand (2007) concludes that trade has a vital role in realising food security because a trade could stabilise domestic food prices, balance food deficiency, and stimulate comparative advantage. It is argued that the South Asian countries should harmonise their food self-sufficiency program with regional trade arrangement by monitoring their agricultural food production and consumption. Furthermore, Dorosh (2008) suggests South Asian countries should promote agriculture growth by considering equality to enhance food security in the region. Private sector trade promotion with some adjustments, especially focusing on access to food for all level of households, is the best policy to realise food security and to combat poverty in the region (Dorosh, 2008). Meanwhile, Taneja et al. (2011) technically analyse the sensitive lists of India's commodities under South Asian Free Trade Agreement (SAFTA) to enhance intra-SAARC trade. Their study suggests India as the largest economy in the region to remove several sensitive lists to promote food security in the South Asian region.

3. Research methodology

The role of trade in promoting food security between Indonesia and ASEAN is examined using Constant Market Share (CMS) analysis which can provide information on the competitiveness of the country or region analysed (Tyszynski, 1951; Zebregs, 2004; Athanasoglou et al., 2010). The market share can be decomposed into four criteria: competitiveness effect, initial country or regional/market effect, initial product/commodity effect, and adaptation/world growth effect (Leamer & Stern, 1970; Gilbert, 2010; Spence & Karingi, 2011). The CMS analysis investigates trading activity between Indonesia and ASEAN before and after the global food crisis 2007/2008.

For the CMS analysis mechanism, let I be a set of commodities exported by the country or region of interest, which is indexed by i. Let J be a set of regions or countries to which the goods are exported, which is indexed by j. Then we can define the identity:

$$EX_{ij}^{1} - EX_{ij}^{0} \equiv r. EX_{ij}^{0} + (EX_{ij}^{1} - EX_{ij}^{0} - r. EX_{ij}^{0})$$
(1)

where EX is the value of the flow of exports from the country or region under study, and a superscript indicates the period (0 = initial period and 1 = current period), and *r* is the growth rate of world exports over the period.

Taking this expression and summing up both sides of commodities i and regions j then yields:

$$\sum_{i} \sum_{j} EX_{ij}^{1} - \sum_{i} \sum_{j} EX_{ij}^{0} \equiv r \cdot \sum_{i} \sum_{j} EX_{ij}^{0} + \sum_{i} \sum_{j} (EX_{ij}^{1} - EX_{ij}^{0} - r \cdot EX_{ij}^{0})$$
(2)

The left-hand side of the identity is simply the change in total exports from the country of interest over the period. Meanwhile, the right-hand side breaks this down into several components that show world export growth in exports and the "competitiveness" effect (Gilbert, 2010).

The competitiveness effect is measured as the change in the exporting country or region's share in destination market imports, multiplied by the initial proportion of the partner country or region's import in world trade. The formula of the competitiveness can be seen as below:

$$\left[\left(\frac{EX X_{ij}}{EX Y_{ij}}\right)^{1} - \left(\frac{EX X_{ij}}{EX Y_{ij}}\right)^{0}\right] x \left(\frac{EX X_{ij}}{EX Y_{j}}\right)^{0}$$
(3)

where EXX refers to the export value of the exporting country or region and EXY is the value of the world's exports.

Initial country or regional effect is calculated as the initial market share of the exporting country or region multiplied by the change in the share of partner country or region in the destination market (equation 4). Meanwhile, the initial product effect is designed as the change in partner country or region's imports in world trade multiplied by the difference between the initial share of the exporting country or region and the initial market share of the exporting country or region in destination market imports (equation 5).

$$\left(\frac{EX X_j}{EX Y_j}\right)^0 x \left[\left(\frac{EX X_{ij}}{EX Y_j}\right)^1 - \left(\frac{EX X_{ij}}{EX Y_j}\right)^0 \right]$$
(4)

$$\left[\left(\frac{EX X_{ij}}{EX Y_{ij}}\right)^{0} - \left(\frac{EX X_{j}}{EX Y_{j}}\right)^{0}\right] x \left[\left(\frac{EX X_{ij}}{EX Y_{j}}\right)^{1} - \left(\frac{EX X_{ij}}{EX Y_{j}}\right)^{0}\right]$$
(5)

The adaptation effect is obtained by calculating the cross variation of changes in the exporting country or region's market share and the change in its share of partner country or region's markets on a particular product in world imports.

$$\left[\left(\frac{EX X_{ij}}{EX Y_{ij}}\right)^{1} - \left(\frac{EX X_{ij}}{EX Y_{ij}}\right)^{0}\right] x \left[\left(\frac{EX X_{ij}}{EX Y_{j}}\right)^{1} - \left(\frac{EX X_{ij}}{EX Y_{j}}\right)^{0}\right]$$
(6)

In summary, Table 1 provides a brief explanation of CMS analysis.

| Effects | + - | | |
|--|---|--|--|
| Competitiveness Effect | the certain product is competitive | the certain product is not competitive | |
| Initial Effect | | | |
| Country Effectpositive demand of certain product because of the high demand from the specific country or region | | negative demand of certain product because of the low demand from the specific country or region | |
| Desident Effect | positive demand of certain product because of the | negative demand of certain product because of the | |

low demand from the world as a whole

negative response or adaptation

Table 1 Brief explanation of constant market share analysis

Source: Adapted from several sources on Constant Market Share analysis.

high demand from the world as a whole

positive response or adaptation

Product Effect

Adaptation Effect

Based on Figure 1 below, there are four quadrants, and each quadrant has its own characteristics, especially on the degree of competitiveness along the X-axis and level of trade value growth on the Y-axis. If the bubble is located in quadrant 1, it means the product is the champion because it is competitive and it has positive trade value growth in the market. If the bubble is located in quadrant 2, the product is an underachiever because it is less competitive even though it has positive trade value growth. If the bubble is located in quadrant 3, the product is declining due to its inferior characteristics, is less competitive and has adverse trade value growth in the market. Quadrant 4 represents achievers-in-adversity products which are competitive but have negative trade value growth.

Figure 1 The expected output from the CMS analysis by quadrants



Source: International Trade Centre, modified from Tambunan (2006, p. 16).

The outcome or output of CMS analysis is a bubble chart, where the bubble itself represents the product, and the size of the bubble represents its market share in a certain market. Where the bubble is located in one of four quadrants (see Figure 1) depends on the calculation result from the CMS analysis. The market share is the ratio between the export value of certain commodities of the exporting country or region to the destination market and the export value of certain commodities of the exporting country or region to the world market. It is measured as the following:

$$\left(\frac{EX X_{ij}}{EX Y_{ij}}\right)^1 x \ 100\% \tag{7}$$

The data is accessible from International/Commodity Trade Statistics Database (UN COMTRADE). 16 Indonesian products classification based on Harmonised Commodity Description and Coding System (HS). The HS product classification is selected because it has been used to analyse trade issues in most of the countries in the world. Thus, it is easier to conduct a comparative study as well as to obtain common understanding about product classification across the countries. The 16 products classification are animal (HS 1-5), vegetable (HS 6-15), food (HS 16-24), mineral (HS 25-26), fuel (HS 27), chemical (HS 28-38), plastic and rubber (HS 39-40), hides and skin (HS 41-43), wood (HS 44-49), textile and clothing (HS 50-63), footwear (HS 64-67), stone and glass (HS 68-71), metal (HS 72-83), machinery and mechanical (HS 84-85), transport equipment (HS 86- 89) and miscellaneous product (HS 90-99). The timeframe of data is divided into two periods, before the global food crisis 2007/2008 (2002-2006) and after the crisis (2010-2014).

4. **Results and their implication**

The map of Indonesian products' characteristics in the ASEAN market

Figure 2 shows the Indonesian trade balance was in surplus with ASEAN during 1990 to 2004. Since then, the Indonesian trade balance has consistently experienced a trade deficit, and it reached its lowest level in 2008. The data suggest that the implementation of AFTA and AEC seems to have increased Indonesian imports instead of its exports. As one of the biggest countries in ASEAN, it is expected that the flow of goods and services, as well as capital, would be higher to Indonesia rather than to other countries within ASEAN. The global economic slowdown has also affected Indonesian trade with ASEAN since 2012. The Indonesian trade value growth, both exports and imports, shows a negative trend based on Figure 2 below.

Figure 2 Indonesian trade balance with ASEAN, 1990–2015 (in USD thousands)



Source: UN COMTRADE.

Trading activity between Indonesia and ASEAN member countries experienced different structures and patterns, in competitiveness, adaptation, country effect and product effect, before and after the global food crisis. As shown in Figure 3 below, competitiveness and product effect of Indonesian products in the ASEAN market after the global food crisis are lower (i.e., moving closer to the centre of the radar chart) than those characteristics before the crisis, suggesting that there is a lower demand for Indonesian products in the ASEAN market after the global food crisis. Meanwhile, the adaptation of Indonesian products in the ASEAN market after the crisis is higher (i.e., moving further away from the centre of the radar chart) than the adaptation before the crisis. This positive trend of adaptation effect suggests that Indonesian product exports adapted well in response to the lower demand from the ASEAN market. The country effect of Indonesian products in the ASEAN market remains unchanged before and after the crisis.

Figure 3 CMS analysis of Indonesian products in the ASEAN market before and after global food crisis 2007/2008

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Source: UN COMTRADE (authors' calculation).

Figure 4 describes CMS analysis of Indonesian's products in the ASEAN market before the global food crisis. The six big bubbles represent vegetables, minerals, wood, footwear, food and metal products, evidence that Indonesia is one of the biggest exporters in the ASEAN market for those six products. The market share of those six Indonesian products is more than 5 percent each relative to similar products from other countries. In the ASEAN market, Indonesian vegetables have 10.89 percent of market share, followed by minerals, wood, footwear, food and metal products that each have more than 5 percent of market share. Meanwhile, the other ten products have less than 5 percent of market share each.



Figure 4 Indonesian products' competitiveness, market share and trade value growth in the ASEAN market before global food crisis 2007/2008

Source: UN COMTRADE (author's calculation).

Note: Y-axis of the Figure indicates trade value. The arrow (X-axis) shows the level of competitiveness. Arrow to the left means less competitive and arrow to the right means more competitive.

Indonesian metals, as well as plastics and rubber products, are categorised as "champion" product because they are located in the first quadrant due to their superior characteristics that are more competitive and have positive trade value growth. In the second quadrant, four Indonesian products can be classified as "underachiever" products: minerals, fuels, chemicals and miscellaneous products with positive trade value growth, but less competitiveness. Five Indonesian products in the ASEAN market before the global food crisis are located in the third quadrant, categorised as "declining" products that have negative competitiveness and trade value growth: wood, food, animals, textiles and clothing, and machinery and mechanical products. Meanwhile, five products, vegetables, footwear, stone and glass, transport equipment and hides and skins products. Table 2 below summarises the performance of all 16 Indonesian products in the ASEAN market before the global food crisis.

| | Description | Competitiveness | Country | Market |
|-------|-----------------------------------|-----------------|---------|--------|
| пэ | | Effect | Effect | Share |
| 6-15 | Vegetable Products | + | - | 10.89 |
| 25-26 | Mineral Products | - | + | 10.33 |
| 44-49 | Wood Products | - | - | 8.15 |
| 64-67 | Footwear Products | + | - | 6.46 |
| 16-24 | Food Products | - | - | 5.90 |
| 72-83 | Metal Products | + | + | 5.12 |
| 68-71 | Stone and Glass Products | + | - | 4.50 |
| 39-40 | Plastic and Rubber Products | + | + | 3.64 |
| 27 | Fuels | - | + | 3.40 |
| 1-5 | Animal Products | - | - | 3.39 |
| 50-63 | Textiles and Clothing Products | - | - | 3.32 |
| 86-89 | Transport Equipments | + | - | 3.22 |
| 41-43 | Hides and Skins Products | + | - | 2.62 |
| 28-38 | Chemical Products | - | + | 2.60 |
| 84-85 | Machinery and Mechanical Products | - | - | 1.95 |
| 90-99 | Miscellanous Products | _ | + | 1.45 |

Table 2 Market share, competitiveness and country effect of Indonesian products in the ASEAN market before global food crisis 2007/2008

Source: UN COMTRADE (authors' calculation).

After the global food crisis, the performance of Indonesian products in the ASEAN market remained unchanged, especially for vegetable products that are consistently the Indonesian product with the highest market share of 8.30 percent, followed by fuels (7.36 percent), food (5.93 percent) and wood products (5.85 percent). The other 12 products have less than 5 percent of market share in the ASEAN market. Figure 5 illustrates the performance of all 16 Indonesian products in the ASEAN market after the global food crisis. Based on Figure 5 below, two Indonesian products are categorised as "champion" products that have superior characteristics: fuels, and stone and glass products. Meanwhile, most Indonesian products in the ASEAN market after the global food crisis are categorised as "underachiever" products: vegetables, food, wood, animals, plastics and rubber, footwear, textiles and clothing, hides and skins, and miscellaneous products.

Figure 5 Indonesian products' competitiveness, market share and trade value growth in the ASEAN market after global food crisis 2007/2008



Source: UN COMTRADE (author's calculation).

Note: Y-axis of the Figure indicates trade value. The arrow (X-axis) shows the level of competitiveness. Arrow to the left means less competitive and arrow to the right

means more competitive.

Indonesian products classified as "declining" products are transport equipment, metals, minerals, and machinery and mechanical products, located in the third quadrant in Figure 5 above. Only one Indonesian product in the ASEAN market, chemical products, is categorised as an "achiever in adversity" product. Table 3 below summarises the performance of all 16 Indonesian products in the ASEAN market after the global food crisis.

Table 3 Market share, competitiveness and country effect of Indonesian products in the ASEAN market after global food crisis 2007/2008

| HS | Description | Competitiveness | Country | Market |
|-------|-----------------------------------|-----------------|---------|--------|
| | | Effect | Effect | Share |
| 6-15 | Vegetable Products | - | + | 8.30 |
| 27 | Fuels | + | + | 7.36 |
| 16-24 | Food Products | - | + | 5.93 |
| 44-49 | Wood Products | - | + | 5.85 |
| 28-38 | Chemical Products | + | - | 3.48 |
| 86-89 | Transport Equipments | - | - | 3.39 |
| 72-83 | Metal Products | - | - | 3.35 |
| 68-71 | Stone and Glass Products | + | + | 3.07 |
| 1-5 | Animal Products | - | + | 2.48 |
| 39-40 | Plastic and Rubber Products | - | + | 2.12 |
| 64-67 | Footwear Products | - | + | 1.97 |
| 25-26 | Mineral Products | - | - | 1.72 |
| 84-85 | Machinery and Mechanical Products | - | - | 1.57 |
| 50-63 | Textiles and Clothing Products | - | + | 1.48 |
| 41-43 | Hides and Skins Products | - | + | 0.83 |
| 90-99 | Miscellanous Products | - | + | 0.74 |

Source: UN COMTRADE (authors' calculation).

Trade in animals, vegetables and food products between Indonesia and ASEAN

After analysing the performance of the main Indonesian products in the ASEAN market, this section examines the performance of Indonesian products related to food security. Three products that represent food and agricultural commodities are animals, vegetables and food (AVF) products, coded in the Harmonised Commodity Description and Coding System (HS) as HS 1-5 for animal products, HS 6-15 for vegetable products and HS 16-24 for food products. This subsection analyses the performance of Indonesian AVF products in the ASEAN market as well as ASEAN's AVF products in the Indonesian market. The analysis time frame is divided into two periods, before and after the global food crisis.

The findings from this analysis will assist the Indonesian government in developing policy on food and agricultural trade with ASEAN member countries. The findings can inform trade policy decisions on whether Indonesia should export or should import certain goods to and from the ASEAN market. A feasibility study is conducted to understand the performance of Indonesian AVF products in the foreign market and the performance of foreign AVF products in the Indonesian market. It is important that Indonesia has a good evidence base for determining strategic trade and economic partnerships with other countries or regions, such as ASEAN.

The Constant Market Share (CMS) analysis uses a bubble chart with three bubbles representing the three different products of animals, vegetables and food products. The bubbles are located in four quadrants, based on the CMS analysis. Each bubble represents the product, and the size of the bubble represents its market share in the market.

Indonesian animals, vegetables and food (AVF) products in the ASEAN market

This subsection analyses the performance of Indonesian AVF products in the ASEAN market before and after the global food crisis to evaluate Indonesian trade policy decisions that have been made before and after the global food crisis. Based on Figure 6, before the global food crisis, Indonesian vegetable products had the highest the market share among the three AVF products with 11.22 percent, followed by food commodities (5.89 percent) and animal products (3.39 percent). This finding suggests that the ASEAN demand for Indonesian vegetable products is high compared to the demand for Indonesian animals and food products. From the competitiveness perspective, Indonesian vegetable products are more competitive than animals and food products. Meanwhile, Indonesian food products experience higher trade value growth compared to vegetables and animal products.



Figure 6 Indonesian AVF products' competitiveness, market share and trade value growth in the ASEAN market before global food crisis 2007/2008

Source: UN COMTRADE (author's calculation).

Note: Y-axis of the Figure indicates trade value. The arrow (X-axis) shows the level of competitiveness. Arrow to the left means less competitive and arrow to the right means more competitive.

Based on the characteristics of the three products, vegetable products can be categorised as an "achiever in adversity" product (located in the fourth quadrant), food products can be categorised as an "underachiever" product (located in the second quadrant), and animal products can be classified as a "declining" product (located in the third quadrant) As an "achiever in adversity" product, Indonesian vegetables have negative trade value growth, but are more competitive in the ASEAN market compared to other Indonesian AVF products. As an "underachiever" product, Indonesian food is less competitive and has positive trade value growth in the ASEAN market, while as a "declining" product, Indonesian animal products are less competitive and have negative trade value growth in the ASEAN market.

Figure 7 below represents the Indonesian AVF products' competitiveness, market share and trade value growth in the ASEAN market after the global food crisis. Based on CMS analysis, Indonesian vegetables still have the highest market share (9.58 percent) among AVF products, followed by food commodities (5.93 percent) and animal products (2.48 percent). The composition of their market share is consistent with their market share characteristics

before the global food crisis. Only the value of their market shares are slightly different. For example, Indonesian vegetable products' market share in the ASEAN market decreased from 11.22 to 9.58 percent, while animal products fell from 3.39 to 2.48 percent. This finding suggests that ASEAN members have more options to consume vegetable and animal products from other countries rather than Indonesia. Interestingly, Indonesian food products experienced an insignificant increase in market share from 5.89 to 5.93 percent.

Figure 7 Indonesian AVF products' competitiveness, market share and trade value growth in the ASEAN market after global food crisis 2007/2008



Source: UN COMTRADE (author's calculation).

Note: Y-axis of the Figure indicates trade value. The arrow (X-axis) shows the level of competitiveness. Arrow to the left means less competitive and arrow to the right means more competitive.

Based on the characteristics of AVF products above, after the global food crisis, vegetable and food products can be categorised as "declining" products because they are located in the third quadrant, while animal products can be classified as an "underachiever" product due to the location in the second quadrant. As "declining" products, Indonesian vegetables and food products have negative trade value growth, and they are less competitive in the ASEAN market. Meanwhile, as the "underachiever" product, Indonesian animal products have positive trade value growth but are less competitive in the ASEAN market compared to other Indonesian AVF products.

The recommendation from the results is that the Indonesian government should take necessary policy action to ensure all their products are on track in competitiveness and trade value growth. For example, after the global food crisis, vegetable and food products were categorised as declining products, with negative trade value growth and less competitiveness. The Indonesian government could undertake more marketing activity by creating more events, such as an Indonesian trade fair, to introduce Indonesian vegetables and food products to the ASEAN market. By introducing the products through market and business events as well as intensive market engagement to study similar products from other countries and regions in the ASEAN market, it is expected that both animal and food products could become more competitive and increase trade value. For animal products, the Indonesian government could do more study on how to compete with animal products from other countries and regions in the ASEAN market. Conducting more market research and having a better understanding of the destination market could improve the competitiveness of Indonesian products, especially animal products, in the ASEAN market.

ASEAN's animals, vegetables and food products in the Indonesian market

This subsection analyses the performance of ASEAN's AVF products in the Indonesian market before and after the global food crisis. This analysis is a foundation for the Indonesian government to develop policy recommendations on agricultural and food import policy action in the ASEAN market. The analysis is also useful for the Indonesian government to evaluate Indonesian trade policy decisions, especially on food and agricultural imports that have been made before and after the global food crisis. Figure 8 shows that before the global food crisis, the market share of ASEAN AVF products in the Indonesian market was highest for their food products with 32.12 percent, followed by vegetable products (23.49 percent) and animal products (12.36 percent). This finding suggests that the Indonesian population's demand for

ASEAN food products was high compared to ASEAN vegetable and animal products. From the competitiveness perspective, ASEAN animal products were more competitive than food and vegetable products. ASEAN food products experienced higher trade value growth compared to animal and vegetable products.

Figure 8 ASEAN AVF products' competitiveness, market share and trade value growth in the Indonesian market before global food crisis 2007/2008



Source: UN COMTRADE (author's calculation).

Note: Y-axis of the Figure indicates trade value. The arrow (X-axis) shows the level of competitiveness. Arrow to the left means less competitive and arrow to the right means more competitive.

Based on the characteristics of the three products, animal products can be classified as a "champion" product (located in the first quadrant), food products can be classified as an "underachiever" product (located in the second quadrant) and vegetable products as a "declining" product (located in the third quadrant). As a "champion" product, ASEAN animal products have superior characteristics, are more competitive and have positive trade value growth in the Indonesian market. As an "underachiever" product, ASEAN food products are less competitive and have positive trade value growth in the Indonesian market. As a "declining" product, ASEAN vegetable products have negative trade value growth and are less competitive in the Indonesian market compared to other ASEAN AVF products.

Figure 9 below represents the ASEAN AVF products' competitiveness, market share and trade value growth in the Indonesian market after the global food crisis. Based on CMS analysis, ASEAN food products still have the highest market share (28.85 percent) among AVF products, followed by vegetable products (15.26 percent) and animal products (4.05 percent). The composition of their market share is very similar to their market share characteristics before the global food crisis. Only the value of their market shares are different, and they tend to have a lower market share. For example, ASEAN food products' market share in the Indonesian market decreased from 32.12 to 28.85 percent, the vegetable products fell from 23.49 to 15.26 percent, and animal products declined from 12.36 to 4.05 percent. This result suggests that Indonesian citizens now have more options to consume AVF products from countries other than ASEAN.



Figure 9 ASEAN AVF products' competitiveness, market share and trade value growth in the Indonesian market after global food crisis 2007/2008

Source: UN COMTRADE (author's calculation).

Note: Y-axis of the Figure indicates trade value. The arrow (X-axis) shows the level of competitiveness. Arrow to the left means less competitive and arrow to the right means more competitive.

Based on CMS analysis above, after the global food crisis 2007/2008, food remains an "underachiever" and vegetables remain a "declining" product. On the other hand, animal products move from a "champion" to "underachiever" product due to its new bubble location in the second quadrant. As "underachiever" products, ASEAN food and animal products have positive trade value growth, and they are less competitive in the Indonesian market. Meanwhile, as a "declining" product, ASEAN vegetable products have negative trade value growth and are less competitive in the Indonesian market compared to other ASEAN AVF products.

5. Conclusion and the way forward

Ten active ASEAN member countries have continuously shared the same vision, mission, principles and values. Since the implementation of AFTA in 2002, the regional trade policy has improved the intensity of trade among ASEAN member countries. Trade facilitation and tariff elimination are the main factors that have improved intra-ASEAN trade. Through trade facilitation, ASEAN trade performance grew significantly from USD 121 billion in 1998 to USD 458 billion in 2008 (Chandra and Lontoh, 2010). The export and import profiles of ASEAN members have become more complementary to each other over time. Here lies a strong potential for intra-regional trade among the ASEAN member countries (Hapsari and Mangunsong, 2006). After the establishment of the ASEAN Economic Community (AEC) in late 2015, the intra-regional trade has further boosted economic activities in the region. Moreover, the ASEAN member countries are expected to promote peace, stability and prosperity in the form of mutual partnerships in dynamic development and a community of caring societies.

This paper suggests the Indonesian government should consider several steps and actions to achieve food security in Indonesia. The role of Indonesia-ASEAN trade is one of the opportunities for the Indonesian government to optimise its achievement for realising food security in Indonesia. As we may already know that within the Southeast Asian region, there are several ASEAN member countries that are very potential in supplying food and agricultural products to the world, especially in the Asian region. Thailand, Viet Nam and Indonesia are the countries that are consistently supplying those products to the global market. Hence, the strategy on how to achieve food security within the region also should be set appropriately to gain more advantages for fulfilling food and agricultural products' demand in Indonesia and ASEAN.

The results and discussion section above suggest that Indonesian government should consider ASEAN AVF products' characteristics, specifically their competitiveness and trade value growth, before deciding whether to import those products or not. For example, after the global food crisis, food and animal products are categorised as "underachiever" products, which have positive trade value growth, but they are less competitive. In this case, the Indonesian government should re-evaluate its trade policy decision to import those products from the ASEAN market. The Indonesian government could conduct a market intelligence study to find other import sources, especially for food and agricultural products, which tend to be more competitive.

The results also suggest that Indonesian government should conduct policy harmonisation, in the form of trade facilitation, tariff reduction and elimination, as well as services and trade liberalisation. The Indonesian government should develop an effective strategy to trade their products in selected markets by analysing the track record of their products, particularly their products' competitiveness, trade value growth and market share. Conducting a market intelligence study to find other import sources is the effective way to re-evaluate import decision from abroad. Meanwhile, undertaking more marketing activity by creating more events, such as an Indonesian trade fair/expo, to introduce Indonesian products to the destination market is one of the ways for the Indonesian government to export its products. Furthermore, to increase the export value significantly, the Indonesian government also should start to trade their products by prioritising the products that have higher trade value, such as machinery and mechanical products, transport equipment, chemical products and metal products.

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