

Research Article

The Intensity of the Food Processing Industry Products Trade between Indonesia-China

Joko Widodo¹, M. Zulianto², Dyah Ayu Puspitaningrum³

¹Faculty of Teacher Training and Education, University of Jember, Indonesia

²Faculty of Teacher Training and Education, University of Jember, Indonesia

³Economic Education, STIKIP PGRI, Situbondo, Indonesia

Abstract: Economic globalization is characterized by the depletion of the geographic boundaries of a country's economic activity has prompted increasing economic interdependence. International trade is one of the important aspects in the economy of a country. The type of data in this research is secondary data and the form of time series in the 2005-2013 year periodicity, which can be obtained from literature Bank Indonesia, Statistics Indonesia Trade Processing several editions in particular classes of food processing industry, Indonesian export data published by BPS, some edition. This analysis will be applied to the exports of processing trade imports, especially food processing industry group based on the International Standard Industrial Classification (ISIC), and wherein the 3-digit level. The analysis consists of: (1) Analysis of Intra-Industry Trade; (2) Analysis of Error Correction Model (Error Correction Model/ECM). The intensity of intra - industry trade between Indonesian food processing with China in 2005-2013 we got the result that the total units of study, in this case Indonesia and China are seven units of study are categorized commodity remaining intra-industry trade is a commodity category inter - industry trade. ECM short-term in research, in general or simultaneous independent variables significantly affect intra-industry trade as the long-term ECM estimation results in research that has no relation to the movement of intra-industry trade between Indonesia and China. Thus, it is less precise when it is applied in Indonesia.

Keywords: International Trade, Food Processing Industry, Error Correction Model

INTRODUCTION

The opening of the world economy is characterized by the situation of economic globalization which is characterized by increasing depletion of the geographic boundaries of a country's economic activity that has encouraged the increase of economic interdependence and sharpened competition among nations, not only in international trade but also in investment, finance and production. Globalization in the economy also encourages the development of free markets (Muhi, 2011: 2). The involvement of a country in economic globalization has positive and negative impacts, depending on the country's readiness in facing the opportunities and challenges that arise in the globalization. One of the impacts is that globalization creates high trade competition between countries.

Countries engage in international trade for two reasons: first, each country has different comparative advantages, so by trading, the gains from trade will be accepted by both parties. Second, the country trades with the aim of achieving economies of scale in production (Yuliati, 2007: 1). The point is that if each country only produces certain number of goods (specialization), then they can produce the goods on a larger scale; therefore, it is more efficient than the country produces all kinds of goods.

Indonesia as a developing country always tries to improve the development which the main objective is to realize a democratic society in justice and prosperous. In fulfilling the

needs of the development, it needs reliable resources required and has the expertise and high-tech capabilities. It requires quite large cost to realize this (Yuliarmi, 2005: 1). It will not be possible achieved if it uses the available resources in the country (Indonesian country) to fulfill the needs of the entire community. Hence, it is necessary to have cooperation with other countries in international trade.

China is one of the world's major economic forces. Together with the other two East Asian countries, Japan and South Korea, they have become Indonesia's most important trading partners as well as ASEAN from year to year. Efforts to improve trade relations with China, ASEAN where Indonesia becomes one of the members, have agreed on free trade cooperation within the framework of ASEAN-China Free Trade Area (ACFTA). Within the framework of the agreement, the countries which become the members of the treaty give each other preferential treatment in three sectors: goods, services, and investment sectors in order to accelerate the flow of goods, services and investment among member countries; so that, a free trade zone can be formed. Preferential treatment is a treatment that is more favorable than the treatment given to other non-member trading partner countries in general. In the deal in the goods sector, the main component is preferential tariff (Setiawan, 2012: 2).

Indonesia and China are not new countries based on the point of view of each other. Both have good relationships as fellow

countries in the Asia region. As explained earlier, China is economically independent. The strength of China's economy shows that it is one of the world's leading economies. China's economy also continues to develop compared with other developed countries such as the United States and European countries. The Indonesian economy also develops. As a developing country, Indonesia has an economic growth rate that continues to lead positively. This is evidenced by Indonesia ranks the 2nd position as the country with the largest economic growth rate in Asia after China. Moreover, many economic observers think that domestic factors affecting Indonesia's economic growth, especially abundant natural resources and large populations, are increasingly beneficial to Indonesia in its economy.

LITERATURE REVIEW

International Trade Theory

Trade or exchange may be interpreted as a process of exchange based on the voluntary will of each party. Each party must have the freedom to determine the profit and loss of such exchange based on their respective interests and then determine whether to exchange or not (Boediono, 2000).

A simple Absolute Advantage theory owned by Adam Smith uses the theory of labor values. This labor value theory is very simple because it uses the assumption that labor is homogeneous and is the only factor of production. In reality, labor is not homogeneous; the factor of production is not just one; and the mobility of the labor is not free; it can be explained by example as follows: For example, there are only two countries, America and Britain have homogeneous labors as production factor producing two goods; wheat and clothing. To produce 1 unit of wheat and clothing, American requires 8 units and 4 units of labors. In the UK, each unit of wheat and clothing requires labors of 10 units and 2 units. This means that 1 unit of wheat required 10 units of labors in the United Kingdom while in the United States, it requires only 8 units ($10 > 8$). 1 unit of clothing in America requires 4 units of labors while in the UK, it requires only 2 units. Such a situation can be said that America has an absolute advantage on wheat production and Britain has an absolute advantage on clothing production. It is said as the absolute advantage because each country can produce one kind of goods at a cost that is absolutely lower than other countries. The advantage of the absolute-advantage theory is the occurrence of free trade between two countries with different absolute advantage, where the interaction of exports and imports increases the prosperity of the country. The disadvantage is that if only one country has an absolute advantage then international trade will not happen because there is no profit.

The J. S. Mill theory states that a country will produce and then export the goods that have the greatest comparative advantage and import the goods owned by comparative disadvantage (a goods that can be produced cheaper and import goods which is produced alone, it costs a lot). This theory states that the value of a good is determined by the number of labors devoted to producing the good. Example:

Production done by 10 people in 1 week, according to this theory trade between America and England, will not arise because absolute advantage for the production of wheat and clothing exist in America. However, the important thing is not the absolute advantages itself but the comparative Advantage itself.

In modern theory of international trade known Heckser-Ohlin theory (H-O), this theory is also called the theory of availability factors. The rationale for this theory is international trade, for example between Indonesia and Japan due to the different opportunity costs between the two countries. Differences in alternative costs are due to differences in the number of production factors (eg labor, land, and raw materials) owned by both countries. Thus, because the endowment factor is different, the price of the production factors is also different according to the market law (Tambunan, 2001: 171). Heckser-Ohlin's theory of international trade explains that commodities in the process of production demand more (abundant factors) and fewer (rare factors) will be exported for exchange with commodities in whose production processes demand factors in opposite proportions. Hence indirectly, excessive factors are exported and rare factors are imported (Lindert, 1994: 35).

METHODS

The types of data in this study were secondary data and time series in the period of 2005-2013 in quarter form (4 months). The data could be obtained from the study of the literature of Bank Indonesia, the Central Statistics Agency of Indonesian Food Processing Trade in some editions, especially the food processing industry, the Indonesian Export Import Data of some editions. This analysis would be applied to imported food products export trade group, especially food processing industry based on International Standard Industrial Classification (ISIC) which was in 3-digit level. The analysis method used was Grubel-Lloyd Index and Error Correction Model (ECM) analysis method.

RESULTS AND DISCUSSION

Indonesia is a country with the largest economy in Southeast Asia and is the most populous country in the world. In 2009, Indonesia's GDP reached US \$ 514.9 million. Indonesia's economy grew at an average rate of 5.4 percent per year between 2005 and 2008. During 2008, the Indonesian economy could maintain good performance amid the global economic turmoil. Overall economic growth reached 6.1% in 2008, slightly slower than the previous year's 6.3%. This growth was driven by private consumption as well as exports. In 2009, the economy slowed down with a growth rate of 4.5%. A key factor in this slowdown was the decline in exports due to the global economic recession.

Despite the global recession, the slowdown in the domestic economy was also affected by negative export growth and high interest rates that contributed to a slowdown in investment growth. Due to declining exports and investment slowdown, Indonesia's economic growth in 2009 was generally supported by domestic consumption activities, both

household consumption and government consumption that kept the economy growing positively 4.5% slower than 2008 which grew by 6.1 %.

Trade plays an important role in the Indonesian economy. Trade has been a driving force for Indonesia to recover after the Asian crisis. Indonesia's foreign trade has grown rapidly and peaked in 2008 with total trade reaching US \$ 266.2 billion, growing more than doubled compared to after the Asian crisis. In 2009, Indonesia's foreign trade both exports and imports declined as the impact of the global financial crisis. Total trade in 2009 fell by 34.7% over the previous year. Nevertheless, Indonesia's trade conditions in 2010 appeared to be improving. It was indicated by the total trading period of January-October 2010 which again increased by 35.45% compared to the same period in 2009.

As with the total trade, Indonesia's trade balance actually experienced the lowest point in 2008 mainly due to an increase of oil and gas imports as well as imports of industrial inputs. In 2009, due to weaker imports than exports due to the weakening of the Indonesian economy because of the global crisis, the trade balance also increased. In 2010, the trade balance again showed an increase. Based on trade data from January to October, the balance sheet improvement occurred both in the oil and gas and non-oil sectors and boosted the balance sheet by 6.3% from the same period of the previous year.

The food processing industry has contributed considerably in the national economy, where the development of Indonesia's food processing exports increased considerably from 2001 to 2006. In 2004, the value of Indonesian food processing exports reached US \$ 1,129,502,649 and increased to US \$ 1,326,300,209 at 2005. The growth of Indonesian export value in 2004 to 2005 was 6.14%. While the average growth of Indonesian exports value during the period of 6 years was 7.37%. Indonesia's GDP also increased in 2005-2007 before the monetary crisis, it was around 426612.1 to 506933 (USAID, 2007: 65).

Along with the development of total trade, exports also increased rapidly until 2008, with export value of US \$ 137 billion, then decreased in 2009 by 15% to US \$ 116.5 billion. Nevertheless, the export trend over the past five years has remained on an upward trend with a growth rate of 9.7% per year. Indonesia's exports were dominated by non-oil and gas products, with share in 2009 amounting to 83.7%, the highest share in the last five years. The growth of non-oil and gas share has actually fluctuated over time with the average share over the last five years (2005-2009) being 80%. In 2010, Indonesian exports returned to recovery. Increased exports occurred both in oil and gas sector and non-oil and gas sector and boosted export increase from January to October 2010 by 35.5%.

Food processing industry itself consisted of several classifications based on KBLI 2005-2009 e.g. Processing and Preservation of Meat, Fish, Fruits, Vegetables, Oil and Fats. In the same year, China's exports to Indonesia increased by 652%

compared to 2003 while Indonesia was only able to increase exports to China by 265%. The condition indicated that China has earned nearly 3 times profit since the introduction of ACFTA (www.nusantaranews.com). While in 2010, in which the ACFTA agreement began to be actively enforced in Indonesia itself, there were also similar conditions. In this year, Indonesia-China trade balance still showed a surplus for China.

The research of intra-food trade industry between Indonesia and China was in the period of 2005-2013. This research was a study of intra-industry trade; data based on the classification of ISIC (food processing industry). In discussing the first issue, we would analyze the intensity of intra-industry trade based on the ISIC classification with the adoption of Grubel-Lloyd Index analysis method.

The second problem analysis consisted of three independent variables and one dependent variable. Variable data in this research were obtained from various sources, among others, from the study of the literature of Bank Indonesia, the Central Statistics Agency of Indonesian Food Processing Trade in some editions, especially the food processing industry. Indonesia Export Import Data in some editions and Economic Statistics (<http://www.econstats.com>), processed. For the next, data were processed by using G-L Index, and Analysis of Error Correction Model (ECM).

THE ANALYSIS RESULT OF IIT (INTRA-INDUSTRI TRADE)

The industry-specific hypothesis consisted of five hypotheses that IIT would be greater if: first, there was greater product differentiation; Second, occurred in commodities, where there was an economic scale in its production; Third, market structure tended not to be monopolistic; Fourth, there was potential for product cycle trade and / or technological differentiation; And fifth, there was a higher involvement of transnational corporations.

The country-specific hypothesis stated that: first, IIT level would be greater among countries with advanced market economies than in Least Development Countries (LDC's). This was due to differences in income and demand structure; Second, IIT would be bigger in big countries than in small countries. This was because in large countries, the diversity of products and economies of scale was considered higher than small countries; Third, IITs would be higher if there was an overlap of appetite among trading partner nations as it could increase the reach to exchange on diverse commodities; Fourth, IITs would also be greater if trading partner countries were geographically close, either because of the proximity that led to low transport costs (*ceteris paribus*) as well as physical proximity positively related to cultural similarities and tastes.

The policy-based hypothesis stated that: first, IITs would be greater if tariff and non-tariff barriers for industry were relatively low; Second, IIT would be greater in countries involved in various forms of economic integration. This was because economic integration would affect the decline of trade barriers and usually economic integration occurred between

adjacent countries (and may be accompanied by overlapping of taste).

THE ANALYSIS RESULT OF ECM (Error Correction Model)

Short Term of ECM Analysis Result

Based on the result of short-term estimation in this research, it had a value of ECT that was positive value 0.333333 and had a probability t-count smaller than α 5%, 10% = 0.05 and 0.10 then statistically significant, so the short-run ECM model specifications that were used could Applied in Indonesia. The exposure of the test results indicated that all variables partially on inaction had a significant effect on the intra-industry trade between Indonesia and China where the probability t-value was smaller than the specified degree (α = 0.05 and 0.10), where the gross domestic product (GDP-1) = 0.0000, inflation (INFLATION-1) = 0.0000, and the association (EXCHANGE RATE -1) = 0.0000. Thus, the estimation results showed the regression coefficient of gross domestic product variables, inflation and exchange rate had an effect and positively related to intra-industry trade.

In general, simultaneous independent variables significantly affected the intra-industry trade shown by the probability value of F-statistic that was smaller than F-table = 0.05 and 0.10 which was 0.000000. Reinforced with Adjusted R-squared resulted in 1,000,000 which indicated that intra-industry trade variables were explained by the determinant variable in the model were 100%. Interpretation of short-term ECM methods in this research was said to be valid. Looking at the results of the short-term ECM estimation was in line with the concept of this theory either partially or simultaneously on independent variables that significantly affected the dependent variable that were the variable of gross domestic product, inflation and exchange rate to intra-industry trade.

GDP variables significantly affected intra-industry trade which was in line with the opinion of Linder (in Yuliati, 2007: 32), that countries with high per capita incomes demand high-quality goods, luxurious consumer goods and sophisticated capital goods while countries with low incomes tend to demand low-quality goods; their consumption goods are also basic necessities and less sophisticated capital goods. The difference is that the difference in income per capita is an obstacle in conducting trading activities.

As for Indonesia when compared with China, it had a relatively lower value of gross domestic product than China, so it would tend to ask for low-quality goods; the consumer goods were also basic needs and capital goods that were less sophisticated. It also reflected the demand pattern of the Chinese state demanding more luxurious goods with high quality, surely also producing it with the latest technological sophistication of nearly the same as the previous state. While Indonesia had per capita income which was still below China and tended to reflect the pattern of demand for goods with standard quality.

Long Term of ECM Analysis Result

The estimation results in short-term ECM methods could provide a further view of the results of estimates on long-term ECM methods, where this research looked at the inaction rates of each determinant of intra-industry intra-shorts estimated in the short term. Long-term ECM estimates could be demonstrated as follows. Based on observations on the calculations, it could be interpreted, that the three variables of gross domestic product, inflation, and exchange rate, where each t-statistic was smaller than the table $df = 103$, α 1% = 2.36310, α 5% = 1.65978, α 10 % = 1.28982, then these three variables had no long-term relationship to intra-industry trade movement between Indonesia and China.

Based on the results of long-term ECM estimation, there was no relation to intra-industry trade movement between Indonesia and China. Based on the estimation results using ECM analysis tools, it showed that in the case of intra-food trade between Indonesia and China, the GDP variable had no effect. Not affecting the GDP variable in influencing the intensity of intra-food processing trade between Indonesia and China was caused by the value of per capita income of Chinese country that was greater than per capita income of Indonesia. Therefore, it was appropriate and in line with the new international trade theory developed by Linder.

Per capita income showed the purchasing power of each individual within a region. According Hoftzyer (1984), the lower the per capita income level of a region / country caused that trade would also decrease. This approach was one of approaches on the demand side or consumer side. Other factors that affected consumer demand for commodities were the taste (Supranto, 2001). Therefore, in the case of intra-food trade between Indonesia and China, the GDP variable had no effect.

CONCLUSION

In this research, it was obtained some conclusions that as follows:

1. The intensity of intra-food trade between Indonesia and China in 2005-2013 resulted that in a total research unit, in this case, Indonesia and China had seven research units that were commodity categorized intra-industry trade while the rest was commodity categorized inter-industrial trade. Thus, the theory that has been described with the estimation results stayed in the same direction.
2. The results of short-term ECM estimation in research, in general, simultaneous independent variables significantly affected intra-industry trade; thus, the estimation results showed that the regression coefficient of variables of gross domestic product, inflation and exchange rate influenced on intra-industry trade. The long-term ECM estimation result in the study was not related to intra-industry trade movement between Indonesia and China. Based on the estimation results using ECM analysis tools, it showed that in the case of intra-industrial trade of food processing between Indonesia and China, they had three variables that have no long-term relationship to the movement of intra-

industry trade between Indonesia and China, so it was less appropriate when it was applied in Indonesia.

REFERENCES

- [1] Boediono. 2000. International Economy. Yogyakarta: BPFE.
- [2] Yuliati, L. 2007. Analysis of Intra-Trade (Intra Industry Trade) Indonesia's Manufacturing to ASEAN-4 Market Period 1980-2002. *Jurnal Ekonomi Ilmu Ekonomi dan Studi Pembangunan*.
- [3] Lindert, P. H. 1994. *International Economy*. Jakarta: Bumi Aksara.
- [4] Setiawan, S. 2012. Asean-China FTA: The Impact on Indonesia and China Exports. http://www.kemenkeu.go.id/sites/default/files/2014_kajian_pkrb_01.%20ASEAN-CHINA%20FTA%20Dampak%20Ekspor.pdf (26 April 2017).
- [5] Tambunan, T. 2001. *The Indonesian Economy: Empirical Theories and Ministry of Trade Report*. Agency of the Ministry of Industry. Findings. Jakarta: Ghalia Indonesia.
- [6] USAID. 2007. *Ministry of Trade Report*. Agency of the Ministry of Industry. <http://iak.kemenperin.go.id/edocument/ROADMAP-FURNITURE.pdf> (26 April 2017).
- [7] Muhi, A. 2011. *Ancaman Globalisasi*. <http://alimuhi.staff.ipdn.ac.id/wp-content/uploads/2011/08/ANCAMAN.GLOBALISASI.pdf> (23 September 2011).
- [8] Yuliarmi, N. 2005. The Influence of Gross Domestic Product (GDP), and Inflation on Export Value of Indonesian Oil and Gas for the period of 1993-2005. <http://ejournal.unud.ac.id/abstrak/pengaruh%20produk%20domestik%20bruto%20dan%20inflasi.pdf> (23 September 2011)
- [9] Tambunan, T. 2001. *The Indonesian Economy: Empirical Theories and Findings*. Jakarta: Ghalia Indonesia.
- [10] Lindert, P.H. 1994. *International Economics*. Jakarta: Bumi Aksara.
- [11] Hoftyzer, 1984. http://www.google.edu/econ/undergraduate/documents/2014_Thesis.pdf (15 September 2014).
- [12] Supranto, J. 2001. *Econometrics*. Jakarta: Ghalia Indonesia.