The Intra-Industry Trade of Palm Oil Commodity Between Indonesia and Malaysia

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Abstract Globalization and trade liberalization promote the flow of goods and services between countries. In the international trade sector, the palm oil is one of Indonesia's main export commodities, as Indonesia is one of the largest exporters in the world. In addition to Indonesia, Malaysia is also one of the largest exporters of palm oil in the world. Even so, Indonesia and Malaysia mutually trade the palm oil commodities one another. In economics, the international trade involving products in the same industry is called intra-industry trade. The aims of this study is to analyze the intra-industry trade in the palm oil industry between Indonesia and Malaysia from 1989 to 2015.

1. Introduction

International trade has become one of the most important parts of the development process. The expansion of international trade cannot be separated from free trade regime, which is leads to the elimination of barriers of international trade or more commonly referred as trade liberalization. The logical effect of liberalization from trade liberalization is the increasing flow of goods and services between countries.

As well as free trade, industrialization promotes international trade, because industrial goods which give added value more than others are the main commodities in the global market. The impact of industrialization in the international trade is countries trading similar goods. In economics, the international trade involving products in the same industry is called intra-industry trade. The research written by Wibowo (2013) shows that trade in the ASEAN is more intra-industrial, especially for manufacturing commodities [1]

In the world trade constellation, ASEAN is one of the main destinations of Indonesian export. From January to August 2017, Indonesian export value to ASEAN countries reached 3,040.7 million US dollars or 21.48 percent of total Indonesian exports. From that trade, the phenomenon of intra-industry trade occurred between Indonesia and Malaysia.

Indonesia and Malaysia are the two largest exporters of palm oil in the world. In 2016, Indonesian palm oil exports reached US$ 17,092 million, while Malaysia exported palm oil worth US$ 10,050 million. However, Indonesia and Malaysia trade palm oil commodity one another. UN COMTRADE data shows that in 2016 Indonesia exported palm oil worth US$ 621.4 million from Malaysia, while importing US$ 112.9 thousand in the same period. This study aims to analyze the intra-industry trade of palm oil commodity between Indonesia and Malaysia.

2. Methodology

In the development of international trade theory, the classical theory failed to explain the intra-industry phenomenon in international trade. The logic of intra-industry trade begins with the relaxation of a strict assumptions in traditional international trade theory

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suggested by David Ricardo and Heckscher-Ohlin. Heckscher-Ohlin argue that the factor endowment difference leads to different comparative advantages among countries and than drives to international trade. Even if two nations are identic, there is still a basis for mutually benefetical trade based on economies of scale. A large portion of international trade today involves the exchange of differentiated products. Such as intra-industry trade arises in order to take advantage of important economies of scale in production, which result when each firm in country produces only one or a few styles or varieties of a product (Salvatore, 2013) [2].

Intra-industry trade can be measured by an index called Intra-Industry Trade Index. Grubel and Lloyd calculated this index in 1967 to measure the index of intra-industrial trade in 10 industrial countries. The index of intra-industrial trade is in the interval 0 to 1 with the lowest indicates a country only exports or imports, while the number 1 shows the intra-industry trade that reached the maximum level. Empirically, the intra-industry trade index can be calculated by the following equation (1).

$$IIT_j = 1 - \frac{\sum |X_j - M_j|}{\sum (X_j + M_j)}$$

(1)

where X and M represents the exports and imports value of country i and j.

Basically the equation (2.1) is a general equation that commonly used to measure multilateral intra-industry trade index. Based on the equation (2.1), researchers requiring bilateral intra-industrial trade can modify the equation into:

$$IIT_{ij}^k = \frac{(\sum X_{ij}^k + \sum M_{ij}^k) - |\sum X_{ij}^k - \sum M_{ij}^k|}{(\sum X_{ij}^k + \sum M_{ij}^k)}$$

(2)

where k represents the industry or commodity group.

3. Discussion

The discussion of intra-industry trade is closely related to the definition of industry. The wider the scope of industry groups in the index calculation, the greater the possibility value of intra-industry index calculations because it involves more products. According to Lipczynski (2005), industry can be defined based on geographical location or by product [3]. The definition of industry by product is an industry definition that includes all goods that are similar to each other whereas the definition of geographical industry is an industry bounded by geographical boundaries.

The definition of palm oil industry in this study refers to the definition of palm oil traded by Indonesia according to the Central Bureau of Statistics (BPS). Specifically according to BPS (2014) there are four variants of palm oil traded by Indonesia: Crude Palm Oil (HS 151110); Other Palm Oil (HS 1511190); Crude Oil of Palm Kernel (HS 151321) and Other Palm Kernel Oil (HS

151329) [4]. Thus, the definition of the palm oil industry in this study includes all variants of the palm oil mentioned by the BPS.

In order to capture the determinants of palm oil intra-industry trade between Indonesia and Malaysia, this study uses the intra-industry trade index since 1989-2016 as dependent variable for the regression analysis, with formula as follows:

$$IIT_t = \beta_0 + \beta_1 DGDPP_t + \beta_2 ECDIST_t + \beta_3 TRF_t + \mu_t$$

(3)

where IIT_t stands for intra-industry trade index, GDPP is the diffence in per capita GDP, $ECDIST_t$ represents effective distance between Indonesia and Malaysia, and TRF represents the barrier of international trade of Indonesia.

The difference in GDP per capita (DGDPP) shows differences in endowments factor between countries. Actually, factor endowments can be measured with difference in the ratio of GDP per worker as used by Hummels (1995) [5]. However, due to the limited availibility of data, this study used the GDP per capita difference as a proxy of endowments factor such as Helpman (1987) used. Meanwhile the economic distance (ECDIST) is used to represent distances because geographical distances are constant over time and failed to capture the dynamics of transportation cost in international trade. In addition, the tariff (TRF) represents international trade barrier in Indonesia.
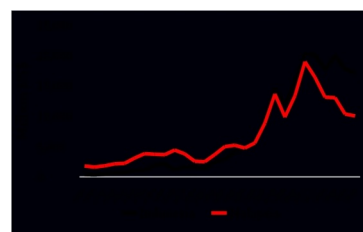

Figure 1. Palm oil export of Indonesia and Malaysia

Indonesia and Malaysia are two largest oil exporters in the world. In 2016, Indonesia's and Malaysia's palm oil exports reached US$ 27,143 million or 83 percent of the world's total exports. Figure 1 shows the value of palm oil commodity exported by Indonesia and Malaysia. Since 1989 the value of Malaysian exports is higher than Indonesia, but since 2005 the value of Indonesian palm oil exports is higher than Malaysia. This is an implication of Indonesia large-scale palm plantations in the late 1990s has entered the harvest period. Since 2011, the value of palm oil exports from Indonesia and Malaysia has decreased due to the decreasing of palm oil prices in the global market.
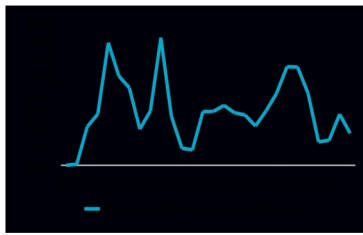
Figure 2. Share of Indonesian palm oil export to Malaysia

Figure 2 shows that Malaysia, as one of the largest exporters of palm oil, is also one of the destinations of Indonesia palm oil exports. Even in 2010 and 2011, Indonesian palm oil exports to Malaysia reached 11.2 percent of Indonesia's total palm oil exports. Although the import value of palm oil from Malaysia tends to fluctuate, but the export and import of palm oil commodity between Indonesia and Malaysia is interesting

Basically, Indonesia's palm oil imports are used for domestic demand for palm oil. Meanwhile there is a shortage of supply as oil palm production flows overseas since the price of palm oil in the international market is relatively higher. To anticipate this, the government once implemented domestic market obligation (DMO) and applied export tax to increase domestic supply, especially Crude Palm Oil (CPO) commodity.

The calculation of intra-industry trade index shows a trend of declining index value. In the early 1990s to about 1997, the index value of palm oil intra-industry trade between Indonesia and Malaysia was stable between 0.5 and 0.8, but decreased dramatically by the 2000s. This is due to the decline in the total value of Indonesian palm oil imports towards the end of the 1990s or when there was an economic crisis. The value of imports then began to increase again in the early 2000s as the recovery of economic conditions.

Intra-industry index between Indonesia and Malaysia that tended to decline confirm Wibowo's (2013) study which found that the intra-industry index for SITC 0-8 code between Indonesia and Malaysia tended to decrease[1]. However, it is mentioned that the index of intra-industry trade is interesting because Indonesia and Malaysia share relatively similar natural endowments such as agricultural products and raw materials.

Regression estimation results show that only tariff variables significantly affect the palm oil intra-industry trade between Indonesia and Malaysia. The difference in endowments factor as measured by the difference in GDP per capita does not affect the intra-industry trade is understandable because although it has similar endowment factors, Indonesia and Malaysia trade in similar goods.

Besides intra-industry, both countries need to consider input-output optimisation model for sustainable oil palm plantation development. By meeting certain condition such as combined organic and inorganic fertilizers, this model can help both countries to meet international demand without changing the original ecosystem [6].

4.Conclusion

Indonesia and Malaysia generally have similar natural abundance factors, but mutually export and import palm oil commodities. Although the value of palm oil imports from Malaysia tends to fluctuate, but Indonesian palm oil exports to Malaysia are stable and even tend to increase.

Intra-industry values of palm oil commodity values between Indonesia and Malaysia tended to decline since the early 2000s, however Malaysia remains a major destinantion Indonesian palm oil exports. While the import value of palm oil from Malaysia tends to decrease, the total value of Indonesia's palm oil imports also tended to decline since the early 2000s. This indicates the improvement of domestic palm oil supply.

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