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The Import Demand Analysis of Indonesian and Malaysian Palm Oil in Italy

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Abstract: ***Italy is one of the largest importers of palm oil in the EU. Indonesia and Malaysia are the main suppliers of palm oil in Italy. This research aimed to (1) analyze the competition level of Indonesian and Malaysian palm oilin Italy, (2) analyze the factors affecting demand for Indonesianpalm oil in Italy, (3)analyze the factors affecting demand for Malaysian palm oil in Italy. This research uses a model approach to AIDS. The results obtained are Indonesian palm oil has a larger share compared with the Malaysian palm oil in Italy. Factors affecting demand for imports of Indonesian palm oil in Italy isMalaysian palm oil prices, the total value of real imports, and imports of palm oil in the previous year.Factors affecting demand for imports of Malaysian palm oil in Italy is Indonesian palm oil prices, Malaysian palm oil prices, dan Rest of World palm oil prices.***

Keywords: AIDS, demand, import, Italy, palm oil

1. Introduction

International trade is trade in goods by two or more countries with the goal of public welfare in a country. The existence of international trade allows each country to obtain goods and services needed by the country. Goods that are difficult to obtain because of low production or not available in a country can be obtained from other countries through international trade activities. Thus, each country can cover the shortage in the country in a way to buy it from other countries.

International trade that is held between the countries in the world provide benefits for each country. One country that has also benefited from the activities of trade between countries is Italy The existence of international trade may be a solution for Italy to complement the needs of an item within the country. Goods that have low reproductive or not produced in Italy can be presented through international trade. In this case Italy will import a wide range of needs such goods into the country.

Palm oil (Palm oil) is one type of raw goods imported by Italy. Statistics Comtrade (2016) noted that the Italian state is included in one of the largest palm oil importer in the European Union. The existence of palm oil commodity in Italian imports very important because this stuff is needed for industrial activities in Italy. Most industries in Italy that use palm oil is the food processing industry, such as industrial biscuits, chocolate, and baker.

Italy does not produce palm oil. To obtain palm oil commodities, Italy import them from countries outside the EU such as Indonesia and Malaysia. The two countries are the major suppliers of commodities of palm oil in Italy. Supplies of palm oil from Indonesia and Malaysia dominate share of imports of palm oil in Italy. The proportion of imports of palm oil from Indonesia and Malaysia in Italy in 2015 reached 93 per cent of the total imports of palm oil Italy (Comtrade 2016).

High population growth and a policy for the use of renewable raw materials up to 10 percent of EU governments to be implemented in the countries of the European Union increase the needs for palm oil in Italy. Palm oil needs are increasing resulting in demand for palm oil in Italy is increasing. This condition affects competition of two major countries palm oil suppliers in Italy are becoming increasingly stringent. Therefore, the purpose of this study are (1) analyze the competitive level of Indonesian and Malaysian palm oil in Italy; (2) analyze the factors affecting demand for Indonesian palm oil in Italy; (3) analyze the factors affecting demand for Malaysian palm oil in Italy.

2. Import Demand

Import activity is economic activity overseas purchasing products for the purposes of or marketed in the country. According to Murni (2013), import can be either (1) something that can be seen physically (visible import), (2) something that can't be seen (invisible import) including banking, insurance, and tourism employment trips abroad, (3) capital which can be a foreign investment coming into the country in the form of physical assets or bank deposits. Basically, the import of a country occurs because of the gap between demand and domestic production will be of particular products which tend to domestic production is not able to supply domestic needs. But along with the growing integration market has triggered the development of a country's imports have a background as an alternative option to meet domestic demand.

Import demand of a country represents the difference of domestic consumption reduced domestic production and stocks at the end of last year. Basically the demand of a country is influenced by several variables include income levels, commodity prices, population, related commodity prices, tastes, and other factors (Putong 2003). McConell and Brue (2005) mentions the fundamental characteristics of the demand is when the prices of goods to fall, then the quantity demanded increases (ceteris paribus). Conversely when the price of goods increases, the quantity demanded falls (ceteris paribus).

3. Method

The data used in this research is secondary data. The data used is the time series data for 17 years coming from two sources, namely Comtrade and World Bank. The trade data used are palm oil trade data with HS code 1511.

Data Analysis

This research uses a model approach to almost ideal demand system (AIDS). Data processing was performed using STATA 12. Specifications linear approximation from the model of AIDS (AIDS LA) used in this research is adoption of the model used by Suharno AIDS (2011) and Syaffendi *et al*. (2013) as follows.

$$w_i = \alpha_i + \sum_{j=1}^{n} \gamma_{ij} lnP_j + \beta_i \ln\left(\frac{x}{P^*}\right) + \theta_i lnER + \lambda_i lnPS +$$

Where :

w_i = share of palm oil import source
P = palm oilprices (US$/ton)
x = the total value of import (US$)
p* = stone price index
ER = real exchange rate(EUR/US$)
PS = the price of substitute goods (US$/ton)
POP = population (person)
GDP = gross domestic bruto(US$)
IMP = total impor of palm oil in the previous year (ton)
e =error

Moschini (2000 in Rifin 2010) found stone geometric price index may affect the nature of the calculation model of AIDS because it is not invariant to changes in measurement units. For that Moschini suggest the use of stone price index correction that uses a log-linear version of Laspeyres as follows.

$$\ln P^* = \sum_{i=1}^{n} S_i \ln \frac{p_{it}}{p_t^0}$$

Where : p_t^0= the price on the base year

Based on this basic equation, then the equation is formed of two models for each country exporters. The first equation is the equation model for Indonesia. The second equation is the equation model for Malaysia. Both of these equations are written as follows.

$$w_{ind} = \alpha_i + \gamma_1 \ln p_{ind} + \gamma_2 \ln p_{mly} + \gamma_3 \ln p_{row} + \beta_i \ln\left(\frac{x}{p^*}\right) + \theta_i lnER + \lambda_i lnPS + \sigma_i lnPOP + \pounds_1 lnGDP + \phi_1 lnIMP + e$$

$$w_{mly} = \alpha_2 + \gamma_4 \ln p_{ind} + \gamma_5 \ln p_{mly} + \gamma_6 \ln p_{row} + \beta_2 \ln\left(\frac{x}{p^*}\right) + \theta_2 lnER + \lambda_2 lnPS + \sigma_2 lnPOP + \pounds_2 lnGDP + \phi_2 lnIMP + e$$

Where :

$\alpha_1, \alpha_2, \alpha_3$ = intercept
$\gamma_1, \ldots, \gamma_6, \beta_1, \beta_2, \theta_1, \theta_2, \lambda_1, \lambda_2, \sigma_1, \sigma_2, \pounds_1, \pounds_2, \phi_1, \phi_2$ = coefficient
p_{ind} = Indonesian palm oil prices (US$/ton)
p_{mly} = Malaysian palm oil prices (US$/ton)
p_{row} = Rest of the Worldpalm oil prices (US$/ton)
x/p* = the total value of real import(US$)
ER = real exchange rate (EUR/US$)
PS = the price of sunflower oil (US$/ton)
POP = population (person)
GDP = gross domestic bruto(US$)
IMP = total importof palm oil in the previous year (ton)
e = error

The level of competition is going on between the two countries can be seen through the average value of the shares and the calculation of the value of elasticity. The elasticity of each country exporters is determined based on parameters-parameters obtained from the model estimation. Elasticity value is calculated in the form of (1) own price elasticity, (2) cross-price elasticity, and (3) expenditure elasticity.

Further, the estimation of each model of AIDS used to answer the factors that affect demand for palm oil imports Indonesia and Malaysia in Italy. Variables that influence can be seen from the significance of each variable in the model estimation results. While the influence of variables seen by the coefficient value of each variable of the estimation.

4. Result

4.1 The Competition level ofIndonesian and Malaysian Palm Oil in Italy

Indonesia and Malaysia is the country's largest source of imports of palm oil commodities in Italy. The large amount of supplies of palm oil imported from Indonesia and Malaysia seen from the average share of palm oil imported from the two countries during the last 17 years. Share the average palm oil imports in Italy based on the amount over the last 17 years are presented in the following table.

Table 1: Average share of palm oil in Italy

	Average share
Indonesia	45.40%
Malaysia	27.05%
Lainnya	27.55%

Based on Table 1 shows that most imports of palm oil in Italy are from Indonesia. Share Average palm oil from Indonesia amounted to 45.40 percent. This value is greater than the average value of the share of palm oil from Malaysia and other countries. The share of imports of Indonesian palm oil in Italy was greater than in Malaysia. This indirectly indicates that over the last 17, the position of the average share of Indonesian palm oil products is above Malaysia in palm oil imports Italy.

Furthermore, the level of competition is going on between Indonesia and Malaysia for palm oil supply to Italy drawn from elastisitas values obtained from the model. The result of the calculation of the elasticity of the model are presented in the following table.

Table 2: The elasticity of palm oil in Italy

Indonesia			
Country	Own Price	Cross-Price	Expenditure
Indonesia	-2.19	-	0.145
Malaysia	-	1.642	-
Malaysia			

Country	Own Price	Cross-Price	Expenditure
Indonesia	-	2.757	-
Malaysia	-2.201	-	0.693

Table 2 shows that the price elasticity itself well to palm oil from Indonesia and Malaysia have a value above 1 means that Indonesian and Malaysian palm oil in Italy is elastic. Own Price elasticity obtained reflect that "if the price of palm oil from Indonesia increase 1 percent, the demand for palm oil from Indonesia will go down as much as 2.190 percent", while "if price of palm oil from Malaysia increase 1 percent, the demand for oil Malaysian palm oil from Malaysia will drop as much as 2.201 percent. These results indirectly conclude that Malaysian palm oil has more elastic properties than the Indonesian palm oil in Italy.

Indonesian and Malaysian palm oil has a substitute relationship in Italy. This relationship is shown by the cross-price elasticity values obtained for the two countries is a positive value (>0). Indonesia cross-price elasticity value obtained (Table 2) means that if the price of palm oil from Indonesia increase 1 percent then it will increase the share of imports of Malaysian palm oil amounted to 1.642 per cent in Italy. Malaysia cross-price elasticity value obtained (Table 2) means that if the price of palm oil from Malaysia increase 1 percent then it will increase the share of imports of Indonesian palm oil amounted to 2.757 percent in Italy.

Expenditure elasticities both in Indonesia and Malaysia has a positive value. Indonesian palm oil has the elasticity of the expenditure of 0.145, which means that an increase in the expenditure on imports of palm oil Italy by 1 percent will increase the demand for palm oil from Indonesia amounted to 0.145 percent. While Malaysian palm oil which has expenditure elasticity of 0.693 means that when an increase in expenditure on imports of palm oil Italy by 1 percent will increase the demand for palm oil from Malaysia amounted to 0.693 percent.

4.2 Factors Affecting Demand for Indonesian Palm Oil in Italy

The results of the data analysis on the model of Indonesia informed that there are several variables that affect the demand for Indonesian palm oil in Italy. It was significant at the 5 percent significance level. The detailed results of the estimation model of AIDS Indonesia is presented in the following table.

Table 3: Results of model estimation AIDS of Indonesian palm oil in Italy

Independent variabel	Coefficient	p-value
Pind	-0.716	0.225
Pmly	0.622	0.001*
Prow	0.093	0.843
x/p*	-0.388	0.005*
ER	-0.067	0.768
PS	0.154	0.074
POP	7.902	0.010
GDP	0.171	0.632
IMP	0.257	0.038*
Constanta	-142.506	0.010*
R-squared		96.67%
F (Stat)		0.0000

*) significant at the 5 percent significance level

Based on Table 3 shows that the variables affecting demand for imports of Indonesian palm oil in Italy is a variable price of Malaysian palm oil (Pmly), the total value of real imports (x/p*), and total imports of palm oil Italy in the previous year (IMP). Variable coefficient Malaysian palm oil prices which amounted to 0.622 means that if the price of Malaysian palm oil increased by 1 percent it will increase the amount of demand for Indonesian palm oil imports in Italy by 0.622 percent (ceteris paribus). Variable coefficient value of total real imports amounted to -0.388 means that if the value of total imports of the real Italy increased by 1 percent will decrease the amount of demand for Indonesian palm oil imports in Italy by 0.388 percent (ceteris paribus). Variable coefficient total imports of palm oil the previous year 0.257 means that when the total imports of palm oil Italy in the previous year increased by 1 percent it will increase the amount of the import demand of Indonesian palm oil in Italy by 0.257 percent (ceteris paribus).

4.3 Factors Affecting Demand for Malaysian Palm Oil in Italy

The results of the data analysis on the model of Malaysia informed that there are several variables that affect the demand for Malaysian palm oil in Italy. It was significant at the 5 percent significance level. The detailed results of the estimation model of AIDS Malaysia is presented in the following table.

Table 4: Results of model estimation AIDS of Malaysian palm oil in Italy

Independent variabel	Coefficient	p-value
Pind	0.622	0.001*
Pmly	-0.347	0.000*
Prow	-0.275	0.049*
x/p*	-0.082	0.213
ER	0.096	0.374
PS	-0.066	0.117
POP	0.704	0.616
GDP	-0.071	0.672
IMP	-0.047	0.434
Constanta	25.622	0.768
R-squared		96.67%
F (Stat)		0.0000

*) significant at the 5 percent significance level

Based on Table 4 shows that the variables affecting demand for Indonesian palm oil imports in Italy is Indonesian palm oil prices (Pind), Malaysian palm oil prices (Pmly), and Rest of World palm oil prices (Prow). Variable coefficient of Indonesian palm oil prices which amounted to 0.622 means that when the price of Indonesian palm oil increased by 1 percent it will increase the amount of demand for Malaysian

palm oil imports in Italy by 0.622 percent (ceteris paribus). Variable coefficient Malaysian palm oil prices are at -0.347 means that when the price of Malaysian palm oil increased by 1 percent will decrease the amount of demand for Malaysian palm oil imports in Italy by 0.347 percent (ceteris paribus). Variable coefficient Rest of World palm oil prices amounted -0.275 means that when the price of palm oil Rest of World increased by 1 percent will decrease the amount of demand for Malaysian palm oil imports in Italy by 0.257 percent (ceteris paribus).

5. Conclusion

Based on the description of the discussion it can be concluded:

1) Oil palm Indonesia and Malaysia compete in Italy where the Indonesian palm oil holds a larger share of imports compared to Malaysian palm oil in Italy.
2) Factors affecting demand for imports of Indonesian palm oil in Italy is Malaysian palm oil prices, the real value of total imports and total imports of palm oil Italy in the previous year.
3) Factors affecting demand for imports of Malaysian palm oil in Italy is Indonesian palm oil prices, Malaysian palm oil prices, dan Rest of World palm oil prices.

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