The Analysis Effect of International Price, GDP, Land Area and Substitutional Price on Export Volume of Indonesian Palm Oil

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ABSTRACT:

The objective of this study is determine and analyse effect of international price, GDP, land area and substitutional price on export volume of Indonesian Palm Oil. The data that the authors use in this study are secondary data types in the form of a 33-year time series, starting in 1986-2018. Secondary data were obtained from the Central Bureau of Statistics, the Directorate General of Plantations, the World Bank, UN Comtrade, the IMF, the US Department of Agriculture, several literatures, and sites related to research. The data analysis that the authors used in this study was by using the Error Correction Model (ECM) method with the analysis tool used to process the data, namely eviews 8. In this study, the data were obtained by means of documentation, namely, data collection was carried out in the classification category of written data that related to research problems from various sources, including books, journals, and existing publication websites. The conclusion from this study is that the variable land area has a significant positive effect on the volume of Indonesian palm oil exports to India for the 1986–2018 period in the short and long term. This result is in accordance with the hypothesized hypothesis. International price variables have a significant negative effect on the volume of Indonesian palm oil exports to India for the 1986–2018 period in both the short and long terms.

Keywords: palm oil, land area, international prices, Indonesian GDP, substitute prices

JEL Classification: L15; L16; P24; P22.

INTRODUCTION

International trade activities are defined as the exchange of goods or services between two or more countries for the purpose of mutual trust and mutual benefit. This international trade is not only intended to be carried out by developed countries but also by developing countries, including Indonesia and India, to carry out international trade activities. In terms of its relation to international trade, two terms that must be considered are exports and imports. If the value of exports is greater than the value of imports, there will be a surplus in the trade balance, but if the value of exports is lower than the value of imports, there will be a deficit in the trade balance.

Indonesia is one of the countries with an open economic system that relies heavily on international trade activities to increase its economic growth rate, one of which is exports. Along with the development of globalization, export activities are becoming increasingly important because they are one of the drivers of the economy for a country. The palm oil commodity ranks first as a commodity that has developed much more rapidly than other plantation commodities. This then makes the palm oil commodity one of Indonesia's leading export commodities, which plays an important role in spurring Indonesia's economic growth, because apart from acting as a foreign exchange earner, this commodity has quite a high economic value and also plays a role in providing job opportunities for millions of Indonesians.

In addition, according to Radifan (2014), palm oil has many benefits, so many countries use it as a basic ingredient for cooking oil and as a main industrial ingredient (soap industry, cosmetic industry, food industry) amidst the depletion of world crude. Palm oil is present as an alternative fuel for biodiesel and other ingredients.

LITERATURE REVIEW

International Trade

International trade is defined as the exchange of goods and services between citizens of one country and citizens of another (Budiono, 2014). The motive for or encouragement of international trade is due to the possible benefits derived from trade or gains from trade. Gains from trade are an exchange that is beneficial to each other, as shown by changes in consumption in each country involved in international trade (Krugman et al., 2012).

International trade is considered a result of the interaction between demand and supply that occurs. Known demand and supply are an interaction of production possibilities and consumer preferences (Lindert, 2014). International trade is expected to provide many benefits for the producers and consumers of the two countries that carry out the trade. Producers get the advantage that the goods produced can be sold abroad at different prices when they are sold domestically. Meanwhile, for consumers, the advantage is the large selection of goods that they want to consume, depending on their preferences. Export is part of international trade. Exports can be interpreted as the total sales of goods and services that can be produced by a country, then traded to other countries with the aim of earning foreign exchange. A country can export goods produced to other countries that cannot produce the exporting country's goods (Lipsey et al., 1995). Exports occur because countries tend to export goods when they have an abundance of these factors (Krugman et al., 2012).

Palm Oil

The palm oil industry is an agricultural sector-based industry that produces crude palm oil (CPO), which can be used for a variety of foods, cosmetics, and hygiene products, and can also be used as a source of biofuel or biodiesel. The palm oil commodity has bright prospects in the world vegetable oil trade because palm oil is one of the most consumed oils in the world. This prompted the government to accelerate the development of oil palm plantation areas, which could become a source of non-oil and gas foreign exchange earners for Indonesia. Oil palm, a plant that produces palm oil and palm kernel, is one of the prima donnas of plantation crops and a source of non-oil and gas foreign exchange for Indonesia. The bright prospects for the palm oil commodity in the world vegetable oil trade have encouraged the Indonesian government to spur the development of oil palm plantation areas.

Land Area

Land is one part of the factor of production that plays an important role in the agricultural sector. This is because

land is a place where farming efforts can be carried out and is a place for production produced by farmers because soil is a medium for growing plants. Land area is an important indicator in the production process or in farming. In farming, for example, narrow land ownership is certainly less efficient than wider land ownership. The narrower the business area, the more inefficient the farming is (assuming the technology used is the same).

International Prices

Price is the amount of money charged for a product or service, or the amount of value exchanged by consumers to obtain the benefits of having or using a product or service. The price solely depends on the policy of the company (manufacturer), but do not forget to pay attention to various other aspects. The cheap or high price of a product depends on the specifications and advantages of the product itself, which are very relative in nature. In general, prices can affect the quantity of goods and services that consumers will consume. When the price of a product or service increases, consumers will buy less of the goods or services, and vice versa.

International prices are prices that occur in international markets. These international prices can affect the demand for goods and services in the domestic market. If the domestic price is higher than the international price, exports will automatically decrease, conversely, if the domestic price is lower than the international price, exports will automatically increase.

Indonesian GDP

Gross domestic product is the market value of all final goods and services produced by a country in its economy during a certain period. This gross domestic product is one of the indicators that economists often use to measure a country's success in carrying out its economic activities.

Substitution Price

As with international prices, the prices of substitute and complementary goods can also affect the demand for goods and services in the domestic market. The greater the difference between the price of a particular product and the price of its substitute, the greater the increase in the number of substitute commodities purchased, and vice versa. The higher the difference between the price of a particular product and its complementary price, it will cause the number of substitute commodities purchased to decrease, and vice versa.

RESEARCH METHOD

The data that the authors use in this study are secondary data types in the form of a 33-year time series, starting in 1986-2018. Secondary data were obtained from the Central Bureau of Statistics, the Directorate General of Plantations, the World Bank, UN Comtrade, the IMF, the US Department of Agriculture, several literatures, and sites related to research. The data analysis that the authors used in this study was by using the Error Correction Model (ECM) method with the analysis tool used to process the data, namely eviews 8. In this study, the data were obtained by means of documentation, namely, data collection was carried out in the classification category of written data that related to research problems from various sources, including books, journals, and existing publication websites.

RESULT AND DISCUSSION

Based on the results of the long-term regression, the R^2 value was 0.379987, meaning that the variables land area (X1), international prices (X2), Indonesian GDP (X3), and substitute prices (X4) were able to influence variations in the volume variable of Indonesian palm oil exports to India by 37.9987%, while the remaining 62.0013% is explained by other variables not analyzed in the regression model in this study. The long-term test results for the probability value of the f-statistic are 0.009657. The probability value is less than (<) α = 10%, which means that all the independent variables studied jointly affect the dependent variable in the long term. The results of the long-term test show that the probability value of the land area variable (X1) is 0.0030 <α = 10%, meaning that the land area variable has a significant effect on the volume of Indonesian palm oil exports to India in the long term. The long-term probability value of the international price variable (X2) is 0.0571 <α = 10%, meaning that the international price variable has a significant effect on the volume variable of Indonesian palm oil exports to India in the long term. The

long-term probability value of Indonesia's GDP variable (X3) is 0.9622 > α = 10%, meaning that Indonesia's GDP variable has no significant effect on the variable volume of Indonesian palm oil exports to India in the long term. The long-term probability value of the substitute price variable (X4) is 0.0466 <α = 10%, meaning that the substitute price variable has a significant effect on the volume variable of Indonesian palm oil exports to India in the long term.

Based on the results of short-term regression testing, the value of R² is 0.612851, meaning that the variables land area (X1), international prices (X2), Indonesia's GDP (X3), and substitute prices (X4) can influence variations in the volume variable of Indonesian palm oil exports to India. 61.2851%, while the remaining 38.7149% is explained by other variables not analyzed in the regression model in this study. Short-term test results show an f-statistical probability value of 0.000091. The probability value is less than (<) α = 10%, which means that all the independent variables studied jointly affect the dependent variable in the short term. The results of the short-term test show that the probability value of the land area variable (X1) is 0.0010 <α = 10%, meaning that the land area variable has a significant effect on the volume of Indonesian palm oil exports to India in the short term. The short-term probability value of the international price variable (X2) is 0.0142 <α = 10%, meaning that the international price variable has a significant effect on the volume variable of Indonesian palm oil exports to India in the short term. The probability value of Indonesia's GDP variable (X3) in the short term is 0.0630 <α = 10%, meaning that Indonesia's GDP variable has a significant effect on the volume variable of Indonesian palm oil exports to India in the short term. The probability value of the short-term substitute price variable (X4) is 0.0049 <α = 10%, meaning that the substitute price variable has a significant effect on the volume variable of Indonesian palm oil exports to India in the short term.

Based on the estimation results, ECM is able to explain short-term and long-term relationships in a model. The long-term estimation model in linear form used in this study is as follows: DYt= -40.12845 + 0.000565*DX1t – 2.400349DX2t – 0.086006DX3t + 2.346147DX4t + μ. The short-term estimation model in linear form used in this study is as follows: DYt = -106.3564 + 0.000518DX1t – 2.558874DX2t + 3.255611DX3t + 2.810675DX4t – 0.776387DECTt-1. The EMC model estimation results obtained on the RES(-1) variable have a coefficient of -0.776387 with a probability value of 0.0005, which means that this variable is significant at the level of α = 10%. So it can be concluded that changes in land area, international prices, Indonesian GDP, and substitute prices affect changes in export volume with an imbalance value of 77.6387%. This balance will then be adjusted within 77.6387% of the data period used. In analyzing this, the independent variables studied, such as: land area, international palm oil prices, Indonesia's GDP, and substitute prices, are thought to influence the dependent variable, namely the volume of Indonesian palm oil exports to India over a period of 30 years.

Variable land area in the short term has a significant positive effect on the volume of oil exports. Indonesian palm oil to India. The coefficient value is 0.000518, meaning that for every 1% increase in land area, the volume of Indonesian palm oil exports to India will increase by 0.000518% in the short term. Calculations show that in the long term, the variable land area has a significant positive effect on the volume of Indonesian palm oil exports to India. The coefficient value is 0.000565, meaning that for every 1% increase in land area, the volume of Indonesian palm oil exports to India will increase by 0.000565% in the long term.

The international price variable in the short term has a significant negative effect on the export volume of Indonesian palm oil to India. The coefficient value is –2.558874, meaning that if the international price variable increases by 1%, the export volume of Indonesian palm oil to India will decrease by 2.55% in the short term. Calculations show that in the long term, the variable land area has a significant negative effect on the volume of Indonesian palm oil exports to India. The coefficient value is –2.400349, meaning that if the international price variable increases by 1%, the export volume of Indonesian palm oil to India will decrease by 2.40% in the long term.

Indonesia's GDP variable in the short term has a significant positive effect on the volume of Indonesian palm oil exports to India. The coefficient value is 3.255611, meaning that if Indonesia's GDP variable increases by 1%, the volume of Indonesian palm oil exports to India will increase by 3.25% in the short term. Calculations show that in the long run, Indonesia's GDP variable has no significant negative effect on the volume of Indonesian palm oil exports to India. The coefficient value is –0.086006, meaning that if Indonesia's GDP variable increases by 1%, the volume of Indonesian palm oil exports to India will decrease by 0.08% in the long term.

The substitute price variable in the short term has a significant positive effect on the export volume of Indonesian palm oil to India. The coefficient value is 2.810675, meaning that for every 1% increase in international soybean oil

prices, the volume of Indonesian palm oil exports to India will increase by 2.81% in the short term. Calculations show that in the long term, the substitute price variable has a significant positive effect on the export volume of Indonesian palm oil to India. The coefficient value is 2.346147, meaning that for every 1% increase in land area, the volume of Indonesian palm oil exports to India will increase by 2.34% in the long term.

CONCLUSION

The conclusion from this study is that the variable land area has a significant positive effect on the volume of Indonesian palm oil exports to India for the 1986–2018 period in the short and long term. This result is in accordance with the hypothesized hypothesis. International price variables have a significant negative effect on the volume of Indonesian palm oil exports to India for the 1986–2018 period in both the short and long terms. This result is not in accordance with the alleged hypothesis. The Indonesian GDP variable has a significant positive effect on the volume of Indonesian palm oil exports to India in the 1986–2018 period in the short term. This result is in accordance with the hypothesized hypothesis. However, for the long term, Indonesia's GDP variable does not have a significant negative effect on the volume of Indonesian palm oil exports to India for the 1986–2018 period. This result is not in accordance with the alleged hypothesis. The substitute price variable has a significant positive effect on the volume of Indonesian palm oil exports to India for the 1986–2018 period in both the short and long term. This result is in accordance with the hypothesized hypothesis.

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