Competitiveness and Factors Influencing Indonesian Clove Exports to Eight Export Destination Countries from 2005-2020

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Abstract. Indonesia is the largest clove producer and exporter in the world, but from 2005 to 2020 the average clove export was dominated by Madagascar. As the largest clove producer, Indonesia should be able to dominate the export market, especially cloves. Therefore, this study aims to determine the competitiveness position of Indonesian cloves and analyze the economic factors that affect Indonesian cloves exports. This research uses panel data from eight export destination countries from 2005–2020. In this study, the analysis method use Revealed Comparative Advantage (RCA), Export Product Dynamics (EPD), and a Fixed Effect Model (FEM) for panel data of eight export destination countries from 2005-2020. The results show that the competitiveness of Indonesian cloves is above the world average. The competitive position of Indonesia's clove exports in the Netherlands, Pakistan, Saudi Arabia, United Arab Emirates, United States, and Vietnam is a rising star. At the same time, the other two markets (India and Singapore) are falling stars. In addition, the export prices have a significant effect on the volume of Indonesian clove exports. Indonesian clove production and destination countries' GDP per capita have a positive effect, while economic distance has a negative effect on the volume of Indonesian clove exports.

1. Introduction

Clove is a particular commodity because Indonesia is known as the world's largest clove producer. Indonesian clove production has fluctuated and has an increasing trend in line with increasing domestic consumption and world market demand. The clove production period has periodic cycles and can impact clove prices. The main harvest every four years results in seasonal fluctuations in domestic prices [1]. During the last sixteen years, the cost of domestic cloves has fluctuated. Changes in Indonesian clove production and price can affect exports to world markets.

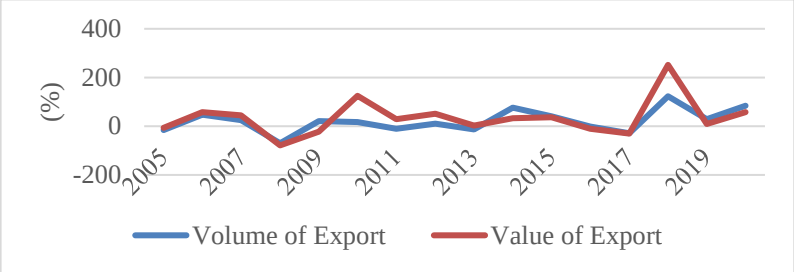

Figure 1. Growth in volume and value of Indonesian clove exports from 2005–2020.

In Figure 1, the growth in the volume of Indonesian clove exports fluctuated but was relatively static from 2005-2017. The growth followed a fluctuating pattern in the value of Indonesian clove exports. Then, the volume and value of clove exports decreased in 2019. The decrease in Indonesia's clove exports could impact Indonesia's clove market share. The impact is the instability of market share, which will then affect the decrease in the competitiveness of Indonesian cloves. A low export value can reduce Indonesia's position in clove export competition. Low competitiveness allows the Indonesian clove market to be shifted to other clove-exporting countries. Indonesia's clove export competitors are Madagascar, Comoros, Sri Lanka, and Singapore. Compared with clove production, the export increase is still relatively low in the last two years. Compared with other clove export countries, this figure is still inferior to Madagascar's average clove exports from 2005-2020.

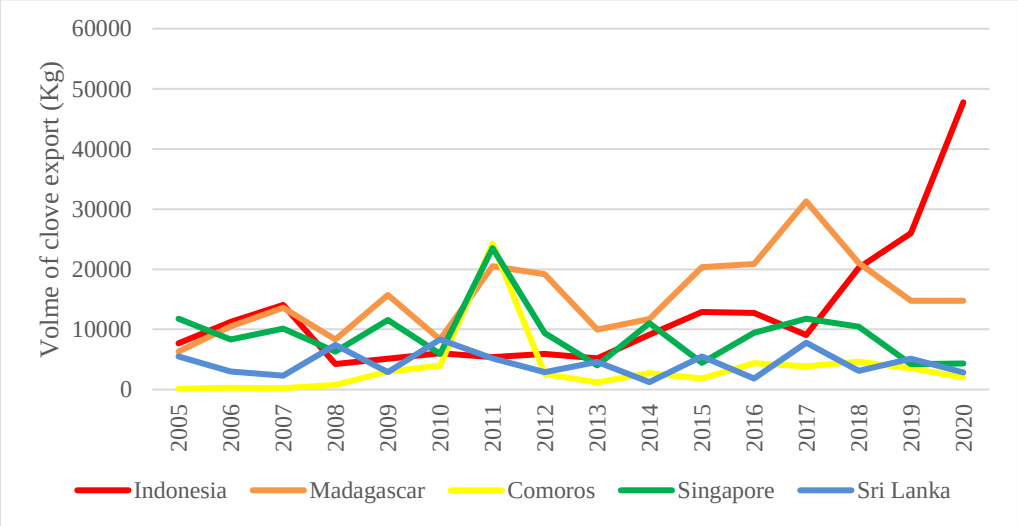

Figure 2. Clove export volume for Indonesia, Madagascar, Comoros, Singapore, and Sri Lanka from 2005 – 2020.

The average volume of clove exports reached 12.67 thousand tons from 2005-2020. Figure 2 shows that competing countries for world clove exports are still inferior to the average exports of Madagascar cloves, which dominated world clove exports from 2005-2020. Singapore which only re-exports cloves, can become a country that can compete with Indonesia, Madagascar, Comoros, and even Sri Lanka. Singapore's export price is also above those of the four countries. As the largest clove production country in the world, Indonesia should be able to dominate the world's clove exports. High production can affect cloves export to destination countries. Indonesia's high clove production indicates an increased supply. High supply allows Indonesia to export large quantities of cloves. It is the same as the theory of absolute advantage from Adam Smith (1776), which states that a country will specialize and export if the goods produced have an absolute advantage [2]. Countries with high clove production can increase their export

volume. This shows that it is still possible for Indonesia to increase the quantity with the best quality of its clove exports.

Several previous studies have been carried out to examine competitiveness and analyze the variables affecting export volume, especially clove commodities. Research by Segarani & Dewi [3] shows that the amount of production has a positive and significant effect on Indonesian clove exports. Nurhayati, Hartoyo, & Mulatsih's research shows that Indonesian clove exports on the world market have strong competitiveness [4]. This study also indicates that the variable GDP per capita of the destination country has a positive and significant effect on the volume of Indonesian clove exports. In comparison, the economic distance variable has a negative and significant impact. Then, research by Zuhdi & Rambe shows that RCA Indonesia has increased for 17 years from 2002 until 2019 [5]. Furthermore, the research by Wijaya shows that the export price variable significantly affects the volume of Indonesian clove exports in the short and long term [6]. The exchange rate variable only has a significant effect in the long term.

Based on the description above, a study is needed to look at the position of Indonesia's export competitiveness in the world market and the factors that influence Indonesia's clove export. This research is focused on the export of clove commodities (HS code 0907) to eight export destination countries. The eight countries that were the destinations for Indonesian clove exports in this study were India, United States of America, Pakistan, Vietnam, Saudi Arabia, Netherlands, United Arab Emirates, and Singapore. This study aims to provide an overview of export development, competitiveness, position of Indonesian clove competitiveness and determine the variables influencing the volume of Indonesian clove exports to eight export destination countries.

2. Literature Review

International trade is a trading activity carried out by two countries or more countries. International trade arises as a result of a country's dependence on other countries to meet a country's consumption and industrial needs [7]. The parties involved are individuals and individuals, between individuals and the government of a country or the government of a country and the government of another country [8]. The basic principles of international trade are explained in several theories, including the following.

2.1. Absolute Advantage Theory

The theory of absolute advantage was put forward by Adam Smith in 1776 in his book entitled "The Wealth of Nations". Adam Smith states that trade between two countries is based on absolute advantage. A country can specialize in producing commodities with an absolute advantage and importing commodities with an absolute disadvantage [9]. Commodity specialization occurs if a country produces commodities more efficiently than other countries.

2.2. Comparative Advantage Theory

According to the theory of comparative advantage, trade that benefits two countries can still be carried out if a country is less efficient (has an absolute loss) compared to other countries in producing two commodities. This can be done if one of the two countries specializes in producing and exporting commodities with a comparative advantage and imports commodities with a comparative disadvantage [10].

2.3. The Heckscher-Ohlin Theory (H-O)

The Heckscher-Ohlin theory (H-O) was coined by two economists from Sweden, namely Eli Heckscher and his student Bertil Ohlin. The Heckscher-Ohlin theory states that international trade occurs because opportunity costs are different between countries caused by differences in the number of factors of production for each country [9].

Salvatore defines international competitiveness as the ability of a company or a country to generate more wealth for its residents than its competitors in world markets [10]. According to Arianti & Lubis, competitiveness is the primary indicator to determine whether a country can compete with another to

impact international trade positively [11]. Competitiveness can determine the success of a country's international trade. The high competitiveness of a country will bring benefits to its residents.

The amount of production can affect clove exports to destination countries. Indonesia's high clove production indicates an increased supply. High supply allows Indonesia to export large quantities of cloves. It is the same as the theory of absolute advantage from Adam Smith (1776), which states that a country will specialize and export if the goods produced have an absolute advantage [2]. The price of a commodity is a consideration in deciding what quantity to be imported by the importing country. According to Sukirno, the lowest prices of goods will reduce imports and increase exports [12]. Geographical factors become one of the considerations that encourage choosing import destination countries. Tinbergen (1962) explains that trade between two countries is affected by the distance between the two countries and national income [13]. The size of an economic country can also affect export activities. One measure of an economic country is the Gross Domestic Product (GDP) per capita. GDP per capita reflects the power ability of people's purchasing and consumption of goods and services. If GDP per capita in a country is higher, then the ability of a country to finance imports is high [14].

3. Research Method

3.1. Method of Collecting Data

The data used a secondary data obtained from United Commodity Trade (UN Comtrade), the Food and Agriculture Organization (FAO), Center d'Etudes Prospectives d'Informations Internationals (CEPII), and the World Bank. The type of data used in this study is panel data with eight country observations from 2005 -2020. The data used in this study are the value of Indonesian clove exports to destination countries, the total value of Indonesian exports to destination countries, the world clove export value to destination countries, the total world export value to destination countries, the volume of Indonesian clove exports to destination countries, clove production Indonesia, the price of Indonesian clove exports to the destination country, the economic distance between Indonesia and the destination country, and the GDP per capita of the destination country. Economic distance is the product of geographic distance and the ratio of the GDP of an export destination country to the total GDP of all export destination countries. Economic distance shows the costs of trade between countries [15].

3.2. Data Analysis Methods

Descriptive research was conducted to provide an overview of Indonesia's clove exports to eight export destination countries. In addition, this study also provides an overview of the competitiveness of Indonesian clove exports using Revealed Comparative Advantage (RCA) and the position of the Indonesian clove export market using Export Product Dynamics (EPD). The inferential analysis is a confirmatory analysis used to determine the variables influencing the volume of Indonesian clove exports to eight export destination countries through a panel data regression. Panel data is defined as a collection of data where the behavior of cross-sectional units (individuals, companies, countries) is observed over several time periods [16]. Panel data regression is influenced by individuals (i) which shows the cross section aspect and time (t) as the time series aspect. Baltagi [17] , states that panel data has double subscripts on the variables which are modeled as follows:

$$y_{it} = \alpha + \boldsymbol{X}'_{\boldsymbol{it}}\,\boldsymbol{\beta} + \varepsilon_{it} \;\; ; i = 1, 2, \dots, N \;\; ; t = 1, 2, \dots, T \qquad (1)$$

Where,

i : cross section data (observations)
t : time series data (period)
y_{it} : dependent variable of *i*-observation in *t*-period
α : constant
$\boldsymbol{\beta}$: slope vector of size K × 1 where K is the number of independent variables
$\boldsymbol{X}'_{\boldsymbol{it}}$: transposed vector of independent variables of size 1 ×K for *i*-observation in *t*-period
ε_{it} : random variable for *i*-observation in *t*-period

X is assumed to be nonstochastic and Y is assumed to be stochastic. The random variable ε follows the classical assumption, namely $\varepsilon_{it} \sim N(0, \sigma^2)$ and non-autocorrelation between its components. Most panel data applications use a one-way error component model, with

$$\varepsilon_{it} = \mu_i + v_{it} \quad (2)$$

where μ_i is person-specific random variable and $v_{it}$is the residual random variable.

Before analyzing panel data regression, several stages of data preprocessing are equalizing the units of all variables used using natural logarithms, checking the distribution of the dependent variable, and exploring the correlation between the independent variables. Fluctuations in the volume of clove exports are caused by variations in the quantity of each export to the eight destination countries. There are indications of heterogeneity in the volume of exports to the eight destination countries. Therefore, the suspected to be the best model in this study is the Fixed Effects Model (FEM) to determine the effect of variations between the specified export destination countries. Beside, if T>N (number of research periods > number of country observations) indicates that the fixed effect model is more suitable [18]. The model of Indonesian clove exports to the eight export destination countries can be written as follows:

$$\ln Vol_{it} = (\alpha + \mu_i) + \beta_1 \ln production_t - \beta_2 \ln price_{it} - \beta_3 \ln ED_{it} + \beta_4 \ln GDP_{capita_{it}} + v_{it} \quad (3)$$

Where,

Vol_{it} : volume of Indonesian clove exports to *i*-country in *t*-period
α : constant
$production_t$: Indonesian clove production in *t*-period
$price_{it}$: price of Indonesian clove exports to *i*-country in *t*-period
ED_{it} : the economic distance between Indonesia and *i*-country in *t*-period t
$GDP_{capita_{it}}$: GDP per capita of *i*-country in *t*-period
μ_i : *i*-country specific effect
v_{it} : general residual term
i =1, 2, … ,8 (eight export destination countries for Indonesian cloves)
t = 1, 2, ….,16 (time period from 2005 to 2020)

The fixed Effect Model (FEM) is considered the best in this study, then the Hauman test is carried out. If the FEM model is selected, the next step is to examine the variance-covariance structure using the LM test and λ_{LM} test. The results of this examination will determine the method of the parameter estimation models to be used.

To build a regression model, start by detecting multicollinearity problems and checking the normality assumption. Examine the normality assumption through the dependent variable boxplot and confirm through the Jarque-Bera test on the dependent variable. Multicollinearity detection is carried out by examining the correlation matrix between independent variables [19]. After the model satisfies these two assumptions, the next step is to test the significance of the model with the F-test and the t-test. The F-test is whether the independent variables jointly affect the dependent variable. The t-test is used to partially test the independent variables' effect on the dependent variable, assuming other variables are constant. After carrying out these stages, the next step is interpreting the results.

4. Result and Analysis

4.1. Development of Indonesian Clove Export Volume

Indonesia is the largest clove producer in the world. The abundant availability of cloves makes cloves one of Indonesia's mainstay spices for export. Indonesia is also one of the largest clove commodity exporters in the world. The volume of Indonesian clove exports from 2005 to 2020 fluctuated and tended to increase. In several years, the volume and value of Indonesian clove exports have declined and increased. The majority of Indonesia's clove export volume is exported to India. Indonesia's share of

clove exports is not only focused on India. Apart from India, the destination countries for Indonesian clove exports include Vietnam, Singapore, Saudi Arabia, the United Arab Emirates, the United States, Pakistan, and the Netherlands. The average contribution to eight countries is 76.46 percent of Indonesia's global clove exports from 2005 to 2020. The development of Indonesia's clove export volume to the eight export destination countries is as follows:

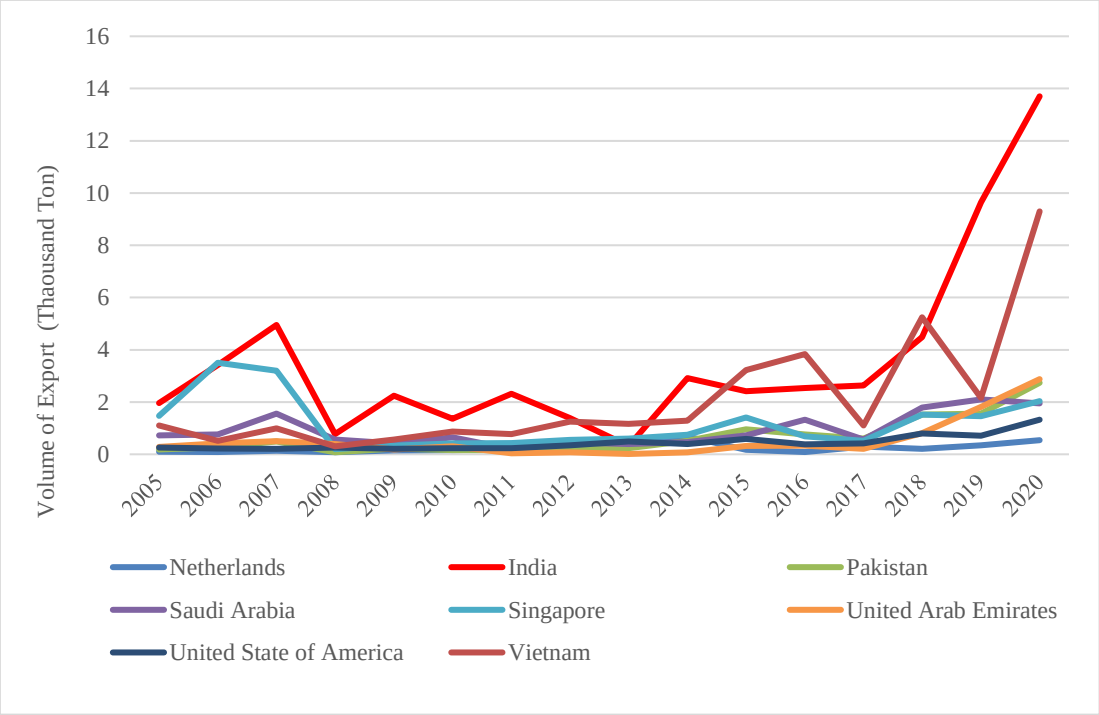

Figure 3. The volume of Indonesian clove exports to eight export destination countries from 2005 – 2020.

Based on Figure 3, Indonesian clove exports to the eight export destination countries fluctuated from 2005-2020. The development of Indonesia's clove export volume to Singapore in 2005-2020 tended to decline. The fluctuation of clove export volume was seen in the Netherlands and Saudi Arabia. Meanwhile, the development of of Indonesia's export volumes to India, Pakistan, the United Arab Emirates, the United States, and Vietnam tended to increase.

4.2. Competitiveness Development and Competitiveness Position of Indonesian Cloves

The Revealed Comparative Advantage (RCA) value indicates the competitiveness of Indonesian clove exports. This study used RCA values to see the comparative advantages of Indonesian cloves in eight world clove-importing countries. If the RCA value is more than one, it can be concluded that Indonesian cloves have a comparative advantage over the world average. Conversely, if the RCA value is less than one, Indonesian cloves have a comparative advantage below the world average. The following figure shows the RCA development of Indonesian clove exports in 8 export destination countries from 2005-2020.

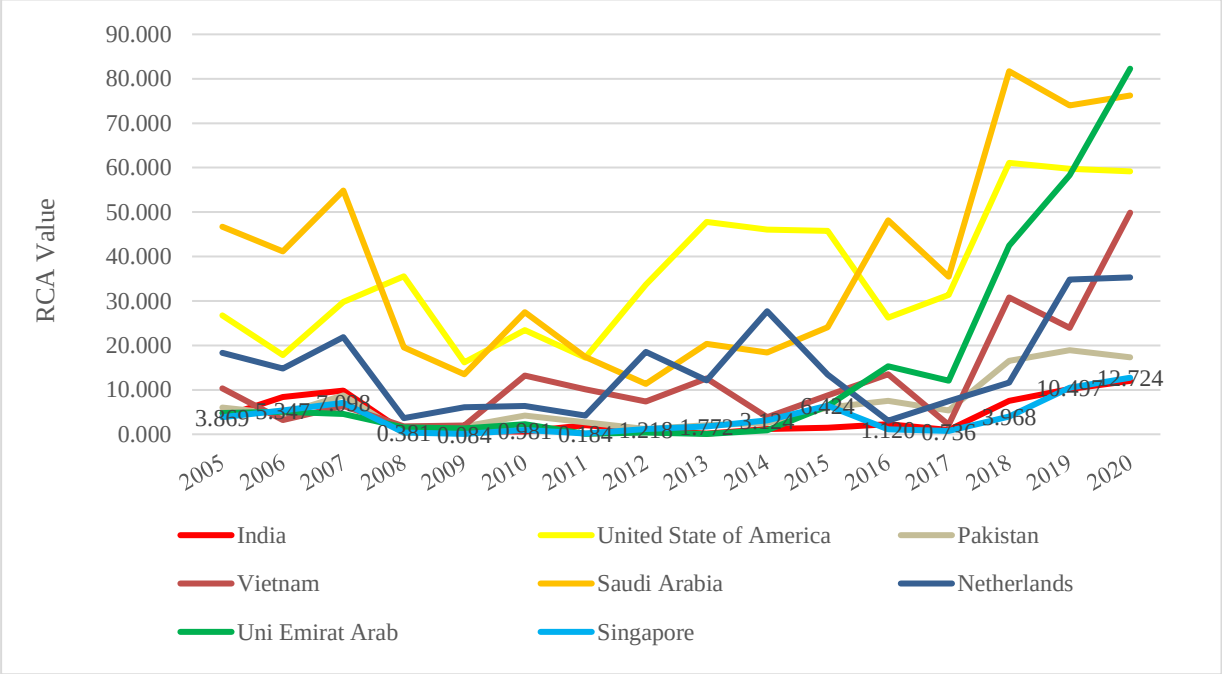

Figure 4. RCA value of Indonesian cloves to eight export destination countries from 2005 – 2020.

Figure 4 shows that the United States and Saudi Arabia dominated the highest RCA value of Indonesian cloves during the study period. The average RCA value of Indonesian cloves is 36.1 in the United States and 38.15 in Saudi Arabia. Meanwhile, the lowest average RCA value of Indonesian cloves was in Singapore, which was 3.72. The average value of Indonesian clove RCA is above one, which means the competitiveness of Indonesian cloves is above the average of world clove exporting countries. The RCA values for India and Singapore in 2017 less than one so the competitiveness of Indonesian cloves was weak in both countries. Furthermore, this study also observed the competitiveness position of Indonesian clove exports in eight export destination countries using Export Product Dynamics (EPD). The EPD results of Indonesian cloves in eight export destination countries in 2005-2020 are as follows:

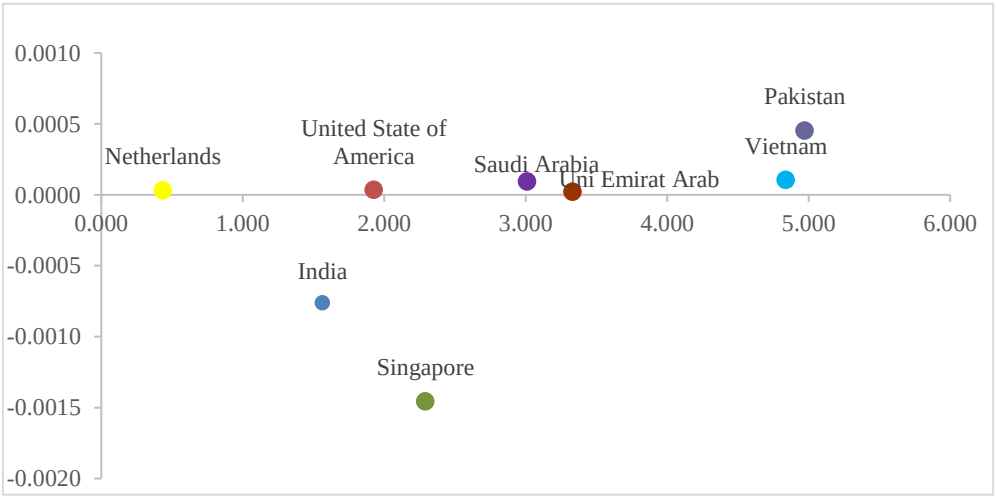

Figure 5. The competitiveness position of Indonesian Clove in eight export destination countries from 2005 – 2020.

Figure 5 shows that the competitiveness position of Indonesian cloves in Netherlands, United States, United Arab Emirates, Pakistan, and Vietnam are in a rising star position. The rising star position shows that Indonesia's clove market share has increased, followed by an increase in Indonesia's total export market share. Pakistan's position point is higher and more to the right, so it can be said that Pakistan's competitiveness and business strength are more substantial than the other five countries in the rising star position. Meanwhile, the competitiveness of Indonesian cloves in India and Singapore is in a falling star position. This shows that there has been an increase in the market share of Indonesian cloves, but the market share of Indonesia's total exports has decreased. The smallest decline in total export market share occurred when clove exports were to India and the largest occurred in Singapore.

4.3. Variables Influencing Indonesian Clove Exports to Eight Export Destination Countries from 2005-2020

After several tests to get the best model, the Fixed Effect Model with Seemingly Unrelated Regression (FEM-SUR) was the most appropriate estimation method. The results of the estimation and parameter test of the volume of Indonesian clove exports model to eight export destination countries from 2005-2020 are in Table 1 as follows.

Table 1. Estimation results and parameter tests of the fixed effects model with SUR.

Variable	Coefficient	Std. Error	*t-Statistic*	*p-value*
Constant	-11,1501	3,3628	-3,3157	0,0012*
ln $Production$	1,1931	0,2495	4,7816	0,0000*
ln $Price$	0,2023	0,0759	2,6662	0,0088*
ln ED	-3,2595	0,7194	-4,5311	0,0000*
ln GDP_capita	2,9118	0,5742	5,0713	0,0000*
Dependent Variable: Ln Volume				
R-squared	0,8699			
Adj. R-squared	0,8576			
F-statistic	70,5037			
Prob(F-statistic)	0,0000			

* indicates significant at 5 percent level

Table 1 shows that the probability value of the F-statistic obtained is less than five percent, meaning that from the variables of Indonesian clove production, export prices, Indonesia's economic distance to the destination country, and GDP per capita of the destination country, at least one variable that has a significant effect on volume Indonesian clove exports to eight export destination countries. A partial test is required to find out one or more of these variables significant to the volume of Indonesian clove exports to the eight export destination countries. The results show that export prices have a significant effect on the volume of Indonesian clove exports. Then, variables of Indonesian clove production and GDP per capita of the destination country have a positive significant effect on the volume of Indonesian clove exports to the eight export destination countries. Meanwhile, Indonesia's economic distance to the country of destination has a negative significant effect on the volume of Indonesian clove exports to the eight export destination countries. Overall, the variation in the volume of Indonesian clove exports to the eight export destination countries can be explained by the variables of Indonesian clove production, export prices, economic distance, and GDP per capita of the destination countries is 85.7 percent, and the rest explain on other variables outside the model.

Indonesian clove production has a positive significant effect on the volume of Indonesian clove exports to eight export destination countries. The coefficient value of 1.1931 indicates that every one percent increase in Indonesian clove production will increase the volume of Indonesian clove exports to the eight export destination countries by 1.1931 percent, assuming other variables are constant (ceteris paribus). Research by Segarani & Dewi showed that Indonesian clove production significantly and

positively influences Indonesia's clove export volume [3]. Clove production illustrates cloves' availability to fill domestic consumption and export. According to Salvatore, exports occur because a country tends to export goods with abundant production [10].

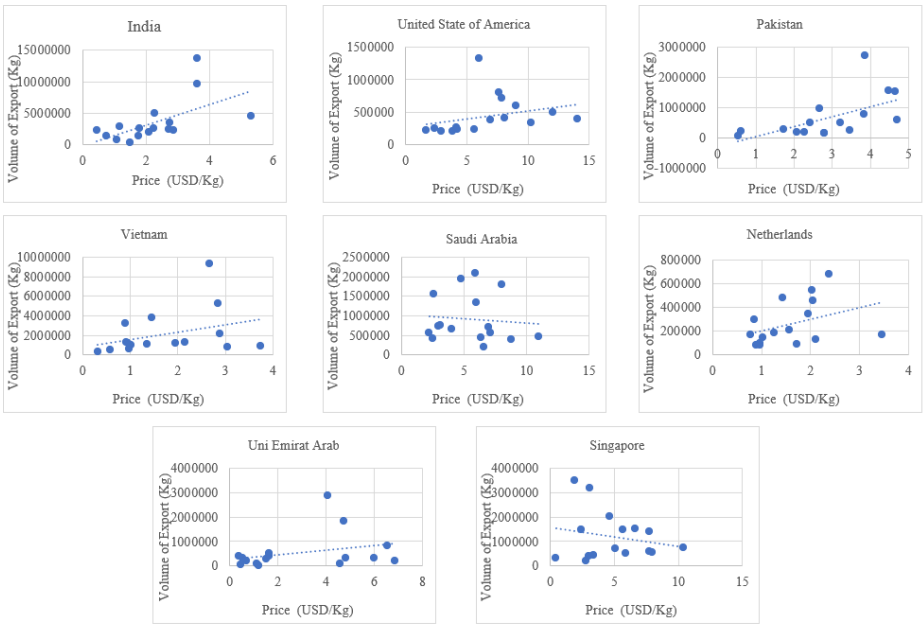

Figure 6. Scatter plot of the relationship between export prices and volume of Indonesian clove exports from 2005-2020.

Export prices have a significant effect on the volume of Indonesian clove exports to eight destination countries. The coefficient value of 0.2023 indicates that every one percent increase in export prices will increase the volume of Indonesian clove exports to the eight export destination countries by 0.2023 percent, assuming other variables are constant (ceteris paribus). The relationship between export prices and the volume of Indonesian clove exports to the eight export destination countries is shown in Figure 6. Six countries have a positive correlation because these countries import a lot of Indonesian cloves. This study shows that cloves are giffen goods. Gifen goods are inferior goods whose income exceeds the substitution effect [20]. It proves that when the export price of cloves increases, the demand for cloves also increases. When viewed from the supply side, when the price of an item is higher, the quantity supplied will increase. It has made domestic clove producers increasingly keen to offer their products to the world. As the largest clove producer and exporter in the world, Indonesia is a determinant of the export price of clove commodities. Therefore, increasing the export price of cloves can increase the volume of Indonesian clove exports.

The economic distance between Indonesia and the export destination countries has a negative significant effect on the volume of Indonesian clove exports to the eight export destination countries. The coefficient value of -3.2595 indicates that every one percent increase in economic distance between Indonesia and export destination countries will reduce the volume of Indonesian clove exports to the eight destinations by 3.2595 percent, assuming other variables are constant (ceteris paribus). It follows Krugman, Obstfeld, and Melitz, who state that the distance between two countries reflects transportation costs [21]. In international trade, the farther the economic distance indicates increased transportation costs. Therefore, the farther the distance traveled, the less quantity of goods exported because increasing exports requires a high price.

GDP per capita of the destination countries has a positive significant effect on the volume of Indonesian clove exports to eight export destination countries. The coefficient value of 2.9118 indicates that every one percent increase in GDP per capita of the destination country will increase the volume of Indonesian clove exports to the eight export destination countries by 2.9118 percent, assuming other

variables are constant (ceteris paribus). Research conducted by Nurhayati, Hartoyo, & Mulatsih shows that the GDP per capita of the destination country has a positive significant effect on the volume of Indonesian clove exports [4]. A country with a high per capita GDP indicates that the purchasing power of its population is also high, so the demand for Indonesian cloves in that country will increase.

Table 2. Country effects on the fixed effects model with SUR

Country	Coefficient
India	10,5279
United States of America	8,9834
Pakistan	2,8644
Vietnam	-0,1499
Saudi Arabia	-0,9893
Netherlands	-2,1151
United Arab Emirates	-6,1389
Singapore	-12,9825

Based on Table 2, the highest destination country effect value is owned by India, which is 10.5279 percent. It means that when the variables of Indonesian clove production, export prices, economic distance, and GDP per capita in each country are fixed, the most significant increase in the volume of Indonesian clove exports is to India. This situation follows the actual situation in which India mainly absorbs Indonesia's clove exports. Meanwhile, the lowest destination country effect value is owned by Singapore, which is -12.9825 percent. It means that when all variables of Indonesian clove production, export prices, economic distance, and GDP per capita of destination countries are fixed, the average increase in Indonesian clove export volume is the lowest is to Singapore.

5. Conclusion

Based on the results of the analysis and discussion that has been carried out in the previous chapter, it can be concluded as follows:

1. Developments in the volume of Indonesian clove exports in the 2005-2020 period to Singapore tended to decline, to the Netherlands and Saudi Arabia fluctuated, while to five other countries (India, Pakistan, the United Arab Emirates, the United States, and Vietnam) tended to increase.
2. The competitiveness of Indonesia's clove exports in 2005-2020 to the Netherlands, Saudi Arabia, the United States, and Vietnam was above the world average. Meanwhile, the competitiveness of Indonesia's clove exports to India, Pakistan, Singapore, and the United Arab Emirates has been below the world average for several years. The competitiveness position of Indonesia's clove exports to the Netherlands, Pakistan, Saudi Arabia, the United Arab Emirates, the United States, and Vietnam is a rising star where the growth of clove exports to these countries is fast (dynamic). At the same time, the other two markets (India and Singapore) are in the position of a falling star where clove export growth in that country has increased, but clove exports to the world have decreased.
3. The export price has a significant effect on the volume of Indonesian clove exports to the eight export destination countries. The variables of Indonesian clove production and GDP per capita of the destination country have a positive significant effect on the volume of Indonesian clove exports to the eight export destination countries. Meanwhile, the economic distance variable between Indonesia and the destination country has a negative significant effect on the volume of Indonesian clove exports to the eight export destination countries.
4. India is a country that imports many cloves from Indonesia. otherwise, Singapore is a country that imports the least cloves from Indonesia.

6. Recommendation

Based on the results and discussion, the suggestions that can be provided are as follows:

1. The competitiveness position of Indonesian clove exports to India has a falling star position. It needs to be reviewed for factors that can increase its competitiveness so that the competitiveness position is ideal (rising star), considering India importing Indonesian cloves with the most significant volume.
2. The government and relevant parties who Indonesian clove exports can develop clove exports to Netherlands, Pakistan, Saudi Arabia, United Arab Emirates, United States, and Vietnam. This can be done by maintaining and improving the quality of Indonesian cloves so these markets remain in an ideal competitive position for the following years.
3. The economic distance has a negative effect indicated that transportation costs can become an obstacle for Indonesia's clove exports, so it is necessary to make transportation costs efficient. The government and relevant parties can establish economic cooperation regarding clove exports through bilateral relations with export destination countries.
4. For future researchers, it is better to consider Singapore as an object of research because Singapore can become a competitor to Indonesia in clove export activities.

References

[1] I. Gonarsyah, "Kebijakan Tata Niaga Cengkeh dalam Perspektif: Tinjauan Teoretis dan Temuan Empiris," *Ekonomi dan Keuangan Indonesia Volume XLVI Nomor 1,* pp. 35-77, 1998.

[2] T. Tambunan, Perdagangan Internasional dan Neraca Pembayaran: Teori dan Temuan Empiris, Jakarta: LP3ES, 2000.

[3] L. P. M. Segarani and P. M. Dewi, "Pengaruh Luas Lahan, Jumlah Produksi, dan Kurs Dollar pada Ekspor Cengkeh di Indonesia," *E-Jurnal Ekonomi Pembangunan Universitas Udayana Vol. 4 No. 4,* pp. 272-283, 2015.

[4] E. Nurhayati, S. Hartoyo and S. Mulatsih, "Analisis Pengembangan Ekspor Cengkeh Indonesia," *Jurnal Ekonomi Dan Kebijakan Pembangunan Vol. 7 No. 1,* pp. 21-42, 2018.

[5] F. Zuhdi and K. R. Rambe, "Daya Saing Ekspor Cengkeh Indonesia Di Pasar Global," *SEPA: Jurnal Sosial Ekonomi Pertanian dan Agribisnis Vol. 17 No. 2,* pp. 165-173, 2021.

[6] P. S. Wijaya, Analisis Faktor – Faktor yang Mempengaruhi Volume Ekspor Cengkeh Indonesia Tahun 1980 – 2018, Yogyakarta: Universitas Islam Indonesia, 2021.

[7] d. Rinaldy, D. Ikhlas and A. Utama, Perdagangan Internasional: Konsep dan Aplikasi, Jakarta: Bumi Aksara, 2021.

[8] M. Ekananda, Ekonomi Internasional, Jakarta: Erlangga, 2014.

[9] Apridar, Ekonomi internasional : sejarah, teori, konsep, dan permasalahan dalam aplikasinya, Yogyakarta: Expert, 2018.

[10] D. Salvatore, International Economics, Eleventh Edition, New Jersey: Wiley, 2013.

[11] R. K. Arianti and A. D. Lubis, "Analisis Daya Saing dan Kesiapan Indonesia dalam Rangka Integrasi Asean: Studi Kasus Automotives, Rubber Based, dan Agro Based Products," *Buletin Ilmiah Litbang Perdagangan Vol. 5 No. 1,* pp. 1-21, 2011.

[12] S. Sukirno, Makroekonomi Teori Pengantar Edisi Ketiga, Jakarta: Rajawali Press, 2012.

[13] M. J. G. Bun and F. Klaassen, The Importance of Dynamics in Panel Gravity Models of Trade, 2002.

[14] S. T. Wahyudi and R. S. Anggita, "The Gravity Model of Indonesian Bilateral Trade," *International Journal of Social and Local Economic Governance Vol. 1 No. 2,* pp. 153-156, 2015.

[15] K. Li, L. Song and X. Zhao, "Component Trade and China's Global Economic Integration," *China: Linking Markets for Growth,* 2008.

[16] I. Ghozali and D. Ratmono, Analisis Multivariat dan Ekonometrika dengan Program Eviews 10 (Edisi 2), Semarang: Badan Penerbit Universitas Diponegoro, 2017.

[17] B. H. Baltagi, Econometric Analysis of Panel Data, Third Edition, Chichester: John Wiley & Sons Ltd, 2005.

[18] D. N. Gujarati and D. C. Porter, Basic Econometrics Fifth Edition, New York: McGraw-Hills Inc, 2009.

[19] M. H. Kutner, C. J. Nachtsheim, J. Neter and W. Li, Applied Linear Statistical Models Fifth Edition, New York: McGraw-Hill, 2005.

[20] C. T. Ragan and R. G. Lipsey, Microeconomics, 14th Canadian Edition, Pearson Education Canada, 2013.

[21] P. R. Krugman, M. Obstfeld and M. J. Melitz, International Economics: Theory and Policy, Eleventh Edition, Global Edition, London: Pearson Education, 2018.