

# Analysis of Export Determinants and Competitiveness of Indonesian Vanilla in the Period 2008-2019

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**Abstract:** *Export is an essential activity in national growth. Although vanilla is one of the competitive Indonesian export commodities, the export working performance of Indonesian vanilla is decreasing in few years. The cautions are both internal factors, i.e. the decrease of production and land area, and external factors, i.e. incapability to compete on quality with vanilla from the other countries. The research aims to analyze the export determinants and competitiveness level of Indonesian vanilla in the period 2008-2019. The Revealed Competitive Advantage (RCA) was applied for analyzing the competitiveness. Meanwhile, data panel regression was used for analyzing the export determinants of vanilla. The research result reveals the competitiveness of Indonesian vanilla is lower than Madagascar vanilla. The determinant variables of the vanilla export volume are domestic production, domestic consumption, and Growth Domestic Product (GDP). The strategies which should be conducted to enhance the competitiveness of vanilla are the adoption of knowledge and technology for increasing the quality and quantity of Indonesian vanilla, the value-added product development, and the marketing management improvement.*

**Keywords:** consumption, growth domestic product, production, strategy

## 1. Introduction

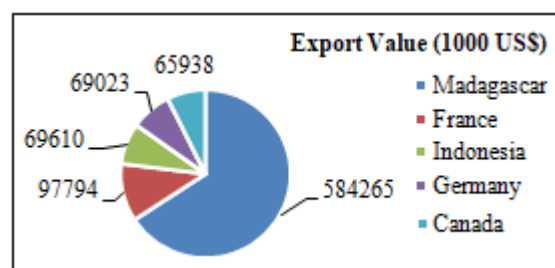
An export is a transaction activity among countries. Since it has an essential role as a national growth accelerator, the government releases various policy schemes to accelerate the export increase. The export in the international trade shows the domestic commodities are demanded and appreciated in the global market. Therefore, many countries compete to enhance the export-oriented product capability. The export is able to act as a catalyst for growing the domestic investment and labor absorption. By the export activity increase in the real term, the society's prosperity and welfare are achieved. Shintadevi & Setiawina (2018) confirmed the international trade has an essential role in the country's needs fulfillment, both individual and groups. Wang & Ma (2018) stated if the export intensity of a country is higher, then it will grow the innovation-based companies which are capable to enhance the country's competitiveness.

Because of its abundant natural wealth, Indonesia has some potentials and opportunities to enhance its competitiveness in the international level. Moreover, the soil topography and climates in Indonesia also support the simplification of commodity cultivation. Even, some commodities are endemic or just exist in Indonesia. Because of that condition, Indonesia has higher comparative competitiveness than other countries, by prioritizing the sustainability principles from various aspects, i.e. economic, social, and environmental.

One of the Indonesian commodities which is popular in the global market is vanilla. The vanilla exported from Indonesia is still in vanilla bean form. Anggraeni *et al.* (2019) stated vanilla is a herbal plant introduced from Mexico in 1819. In Indonesia, it was planted firstly in Bogor Botanical Garden. It has been cultivated commercially since 1850 in West Java and it had been spread to some areas in Indonesia in 1864. Chandrayani & Natha (2016), Menz & Fleming (1989)

explained the various benefits of vanilla, i.e. in the food sector, as flavoring agent, and in the non-food sector, as perfume material. Nuzula (2013) stated the food industries which use vanilla as industrial material are biscuits, candies, milk, bread, ice cream, etc. Pharmacies use it as bacterial killer and fragrant for solving medicinal smell. In addition, vanilla is also used as aromatherapy because of its specific and fragrant smell.

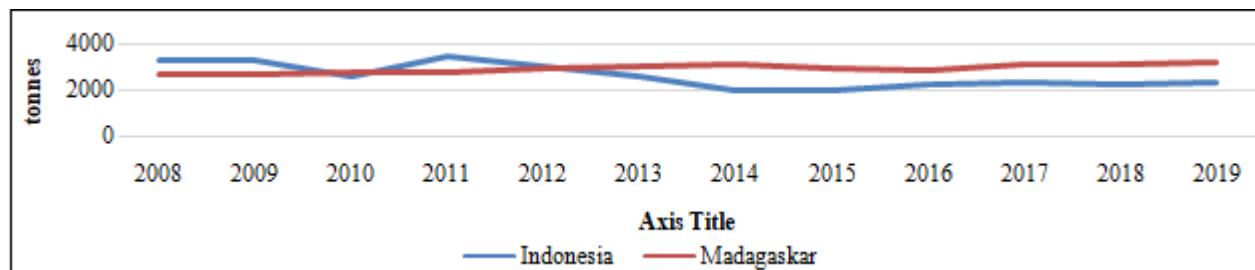
Figure 1 shows Indonesia is the third largest vanilla exporter country based on export value. Indonesia competes with the five largest vanilla exporter countries, i.e. Madagascar, France, Germany, and Canada. Therefore, vanilla is a competitive Indonesian export commodity because of its large contribution to GDP (Growth Domestic Product) (Kahane *et al.* 2008). It means vanilla commodity earns more attention from the government reflected by the policy implementation which orientates the competitiveness increase. Musalem (2002) stated the varieties which are most planted in Indonesia are Javanese and Bourbon varieties. Both varieties are in high quality, but their values are not similar to planifolia variety from Madagascar. Otherwise, Indonesian vanilla is able to compete and is demanded by the international market.



**Figure 1:** The top vanilla exporter countries in the world according to the export value in 2019 (source FAO, 2019)

Since the production of Indonesian vanilla is the second largest in the world, it competes with Madagascar which is the largest producer (Figure 2). Indonesia was the largest producer from 2008 to 2012; even it reached the peak point in 2011. Yet, the production had a decreasing trend from 2011 until 2018. Therefore, currently, the largest vanilla producer is Madagascar. Generally, Indonesian vanilla export dynamics tended to decrease in the period 2008-2018.

Besides decreasing production quantity, the Indonesian vanilla quality is predicted to be unable to compete with vanilla from other countries. The decreasing vanilla production is caused of natural factors, such as pest attacks, illness, and vanilla land area decrease. The unstable price is the main caution that farmers are reluctant to cultivate vanilla. The ineffective and inefficient marketing system also affects the export working performance of vanilla.



**Figure 2:** The comparison of Indonesian and Madagascar vanilla production from 2008 to 2019

According to the case analysis, it is essential to study the competitiveness and determinants which affect the Indonesian vanilla export to the main export destination countries. Based on FAO (2018), the main export destination country of Indonesian vanilla consists of United States, France, Canada, Germany, and India. The export dynamics of a commodity are influenced by both internal and external factors, i.e. the domestic vanilla production, the Gross Domestic Product (GDP), the rupiahs exchange rate to the destination countries' currencies, and the domestic vanilla consumption (Rosita *et al.* 2014). Generally, the research aims to assess the Indonesian vanilla competitiveness and to analyze the determinants which affect the export volume of Indonesian vanilla in the main international market from 2008 to 2019. By the results, the researcher formulated the strategies to enhance the export competitiveness of Indonesian vanilla.

## 2. Literature Survey

### 2.1 Export Theory

Nuzula (2013) stated the international trades are happened because of the production factor ownership difference among countries. In reality, there is no country can fulfill all of its needs by itself. Therefore, the fulfillment of needs is conducted by utilizing the existing resources. Because all needs cannot be covered just by owned-resources, the international trades become the essential matters. Krugman and Obstfeld (2000) stated the international trade theory mentions the determinants of export are viewed by the demand and bargaining sides.

Apridar (2012) explained an export is a process that transports some goods or commodities legally from one country to another, generally in the trade process. Sukirno (2006) defined an export is a process to transport some goods or commodities from one country to another. Therefore, it can be summarized that export definition is an activity to issue or sell some goods from domestic to abroad. Soekartawi (2005) stated the export determinants are 1) the international price, 2) the currency exchange rate, 3) the export-import quota, 4)

the tariff and non-tariff policies, and 5) the policy to enhance the non-oil and gaseous export commodities.

### 2.2 Competitiveness Concept

Daryanto (2009) stated the essences of industrial, company, or commodity competitiveness are efficiency and productivity. Coelli (1996) added that the productivity growth resources are technological change, technical efficiency, and business scale. Nurjati (2018) researched the technical, economic, and allocative efficiency of shallot farming in Pati District, Indonesia. Almost all agricultural commodities have the productivity growth resources of those three aspects which are still exposed widely and by the farming revitalization, the realization is very relevant. Hadi and Mardianto (2004) stated the competitiveness is a key of each country for developing its products to export in the trade globalization era. The country which can not develop and maintain its product competitiveness will be less competitive with innovative countries which have both competitive and comparative advantage.

### 2.3 Export Determinants

The export determinants analysis aims to identify the factors which influence the commodity export to the destination country. The analysis is applied to get an export improvement formulation by determinant condition. The researches about export determinants have been conducted by many researchers, i.e. Komaling (2013), Aulia (2020), Hardy (2015), and Rosita *et al.* (2014). Both Komaling (2013) and Aulia (2020) analyzed the export determinants of Indonesian coffee in the international market. Yet, Komaling (2013) utilized the Ordinary Least Square (OLS) method, while Aulia (2020) utilized the gravity model method.

### 2.4 The Conceptual Framework

The decreasing of vanilla export in Indonesia are causing the many factors, i.e. the decreasing of production quantity and quality, and inefficient of marketing system. According to the problems, it is important to analysis the export determinant and competitiveness of Indonesian vanilla. The export

dynamics of a commodity are affected by both internal and external factors, i.e. the vanilla domestic production, the vanilla domestic consumption, the GDP of the destination country, and the rupiahs exchange rate to destination country's currency. According to FAO (2018), the main export destination countries of Indonesian vanilla are the United States, France, Canada, Germany, and India. Indonesian vanilla competes with Madagascar vanilla in

export market. Accordingly, the competitiveness of Indonesian vanilla is compared the Madagascar vanilla. Based on the analysis, the researcher will formulate the policy implications to enhance the export competitiveness of Indonesian vanilla in the international market. Generally, Figure 3 explains the conceptual framework of this research.

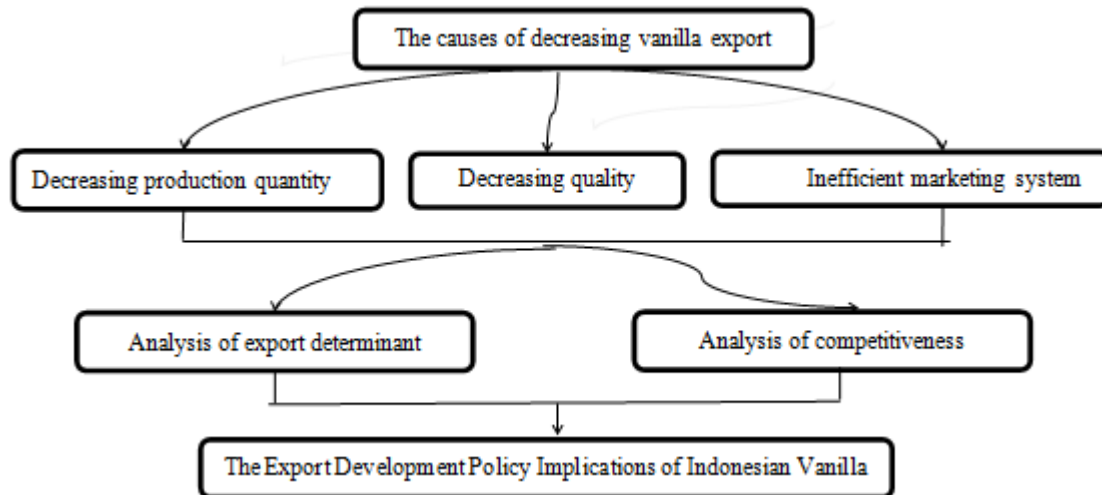


Figure 3: The Conceptual Framework

3. Methods

This research aims to analyze the export determinants and competitiveness of Indonesian vanilla. The scope is limited to the main export destination countries, i.e. the United States, France, Canada, Germany, and India. The selection of those countries is based on the consideration those countries are the main export destination countries of Indonesian vanilla (FAO 2018). The export determinants of vanilla that are analyzed in this research are the domestic vanilla production, the GDP, the rupiahs exchange rate to the destination country's currency, and the domestic vanilla consumption.

To achieve the first research aim, the researcher conducted an approach using Revealed Comparative Advantage (RCA). The RCA method is a competitiveness tool introduced by Balassa in 1965. The RCA is used to compare the market share of a particular sector in a country to the market share of a particular sector in the global market. The RCA index is utilized to recognize the competitive advantage of a commodity in the international market compared to other producer countries (Serin & Civan, 2008).

The export commodity is categorized as more competitive comparatively if the RCA index value is more than one (RCA index > 1). The formulation for calculating RCA is as follows:

$$RCA = \frac{X_{ij} / X_{it}}{X_{tw} / X_w} \quad (1)$$

Explanation:

X<sub>ij</sub> = the export value of commodity I from country j to related market (the US \$)

X<sub>it</sub> = total value export from country j to related market (the US \$)

X<sub>iw</sub> = the global export value of commodity I (the US \$)

X<sub>wt</sub> = total global export value (the US \$)

To achieve the second research aim, the researcher used the panel data regression method using software STATA/SE 15.0. This research utilized the panel data which were a combination of cross-section data with time-series data. There were three methods for estimating a panel data regression model, i.e. the Pooled Least Square or the Ordinary Least Square (OLS), the Fixed Effect (FE), and the Random Effect (RE) (Kuncoro 2011). The best model selection among the Ordinary Least Square, the Fixed Effect, and the Random Effect was conducted by two technical estimation models. Both techniques were used in the panel data regression for obtaining the exact model to estimate the panel data regression. This research utilized two tests, i.e. firstly, the Chow test for selecting between the Ordinary Least Square and the Fixed Effect. Secondly, the Hausman test is used for determining the best model between the Fixed Effect and the Random Effect model for estimating the panel data regression. For selecting the best model of panel data regression, both tests are shown in Figure 4.

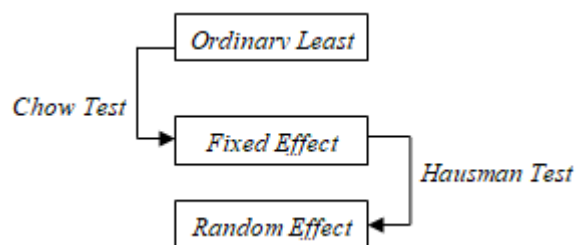


Figure 4: The best model for selecting the panel data regression

1) Chow Test

This Chow test aims to determine how a model is used; which one will be used, Ordinary Least Square or Fixed Effects; by using these hypotheses:

H<sub>0</sub>: the OLS Model

$H_1$ : the FE Model

For determining whether to deny or accept the hypotheses above, the researcher conducted a comparison between the F-table and the F-statistic calculation. If the F-statistic is higher than the F-table, then  $H_0$  is denied, which means the best model is the fixed effects model, and in the contrary, if the F-statistic is lower, then the best model is the OLS model.  
 $F\text{-statistic} > F\text{-table} = H_0$  is denied  
 $F\text{-statistic} < F\text{-table} = H_0$  is accepted

## 2) Hausman Test

The Hausman Test is a follow-up test for determining the panel data regression model. This test is conducted when the result of the Chow Test is the Fixed Effect Model, which is a better model. Afterward, in the Hausman Test, the researcher will select the best model between the Fixed Effects and the Random Effects model. The Hausman Test uses some hypotheses as follows:

$H_0$ : Random Effects Model

$H_1$ : Fixed Effects Model

To deny or accept the hypotheses above, this Hausman Test follows the statistical distribution Chi-Square with the degree of freedom at number  $k$ , in which  $k$  is the independent variable number. If Hausman's statistical value is higher than its critical value, then  $H_0$  is denied, and the best model is the Fixed Effect model. Meanwhile, if the Hausman statistical value is lower than its critical value, then the best model is the Random Effects model (Gujarati, 2012).

There are some benefits of using the panel data regression. Firstly, to enhance the observation number (sample), and secondly, to obtain both variations; i.e. the variation among different units according to the room and the variation according to the time (Kuncoro, 2012). Because it is just a bit collinearity among variables in the panel data, there is very little possibility to have multicollinearity (Gujarati, 2012). Based on that explanation, the classical assumption used in this research is the autocorrelation test and heteroscedastic test.

## 3) Multicollinearity Test

According to Ghazali (2001), this test aims to identify a correlation among independent variables in the regression model. There should be no correlation among independent variables in a good regression model. To detect multicollinearity in the regression model, the tolerance value or variance inflation factor (VIF) is evaluated.

## 4) Heteroscedastic Test

The heteroscedasticity appears if the residual value of a model has no constant variance. It means each observation has different reliability because the background condition change is not represented in the model (Kuncoro, 2011).

## 5) Autocorrelation Test

The autocorrelation appears because of the dependent residual between one observation to the other observation (Kuncoro, 2011). The caution is the errors of the individual tend to affect the same individual in the next period. The autocorrelation often happens in the time series data. After analyzing the export determinants and competitiveness of Indonesian vanilla in the international market, the strategy to enhance the competitiveness of Indonesian vanilla is formulated. The data resources used in this research are the secondary data from Faostat and Worldbank (Table 1).

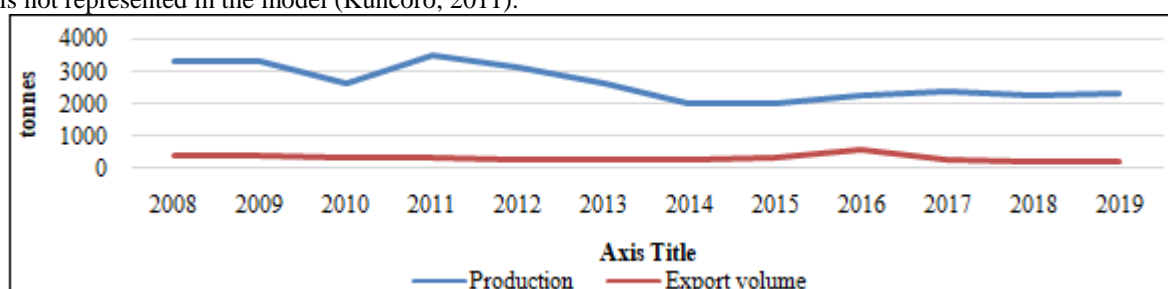
**Table 1: The Sorts and Resources of Data**

The Data Sorts	The Data Resources
The Indonesian vanilla export volume (tons) and export value (US\$) to the main export destination countries.	Faostat ( <a href="http://www.fao.org/faostat/">http://www.fao.org/faostat/</a> )
Domestic vanilla production.	Faostat ( <a href="http://www.fao.org/faostat/">http://www.fao.org/faostat/</a> )
Per capita income of the export destination country.	Worldbank ( <a href="https://data.worldbank.org/">https://data.worldbank.org/</a> )
The Indonesian currency rate to the export destination country's rate.	Worldbank ( <a href="https://data.worldbank.org/">https://data.worldbank.org/</a> )
Domestic vanilla consumption.	Faostat ( <a href="http://www.fao.org/faostat/">http://www.fao.org/faostat/</a> )

## 4. Results

### 4.1 The general view of Indonesian vanilla export to the export destination countries

The vanilla bean which is in trade in the international market is one of Indonesian competitive commodity in the sub-sector gardening, which constantly give a surplus in a trade balance. Yet, the vanilla bean export volume had a decreasing trend from 2008 to 2019 (Figure 5). One caution of the vanilla export volume decrease is the domestic vanilla production decrease. The Indonesian vanilla production decrease is caused by productivity decrease by crop failure, namely pests and diseases. In addition, the farmers' interest to cultivate vanilla is decreased because of the unstable and decreasing price. Malian *et al.* (2004) summarized the basic weakness of Indonesian vanilla agribusiness as follows: 1) the quality, the quantity, and the continuity of supply is not always fulfilled the export demand, 2) the location, the capacity, and the processing technology which is developed do not produce the quantity and quality as market's demand, and 3) generally, the vanilla marketing system in the production centers is inefficient. These conditions threaten the sustainability of vanilla both in the domestic and international markets.



**Figure 5:** The export volume and production of Indonesian vanilla in the period 2008 to 2018



Figure 6 shows a fluctuating dynamic of the Indonesian vanilla export to the main destination countries along the period 2008 to 2019. The export volume of Indonesian vanilla shows a similar movement for five export destination countries. In 2010, the export volume had an increasing trend, then it decreased in 2014. Afterward, it increased again in 2016, but unfortunately, it decreased from 2016 to 2019. The United States and Germany were the countries that continuously used to export the Indonesian vanilla in the period 2008 to 2019. Meanwhile, three other countries, i.e. Canada, France, and India in certain years did not export the

Indonesian vanilla. The United States is the main export destination country of Indonesian vanilla. The export volume of Indonesian vanilla to the main destination countries is decreased because the domestic vanilla production tends to decrease. In addition, there are some external factors that affect the vanilla export volume, i.e. the vanilla production in the export destination country, the destination country's currency rate to the rupiahs rate, per capita income of destination country, and the vanilla consumption of the destination country (Buana 2016).

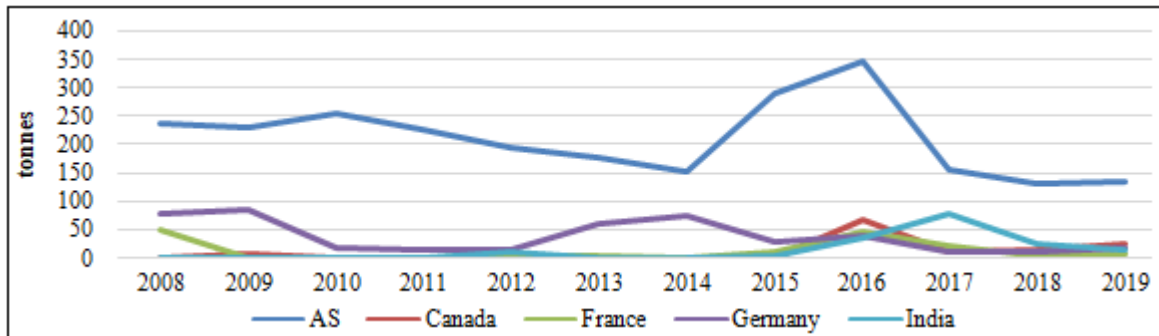


Figure 6: The Indonesian vanilla export volume to the main export destination countries in the period 2008 to 2019

#### 4.2 The Analysis of Vanilla in the Main Export Market Destination

FAO (2021) mentioned that Madagascar is the main competitor of Indonesian vanilla in the international market. Therefore, in this research, the competitiveness of Indonesian vanilla was compared to the Madagascar vanilla for determining the competitiveness level. This research used a competitiveness tool, namely RCA (Revealed Competitive Advantage) which considered the vanilla export value to the destination country, the total vanilla export value of exporter country to the destination country, the vanilla export value in the world, and total global export value.

Because Indonesia and Madagascar did not export the vanilla to the export destination countries in certain years, both

countries had RCA values at zero (Figure 7). The Indonesian RCA index was lower than Madagascar's. Even, the Indonesian RCA index was less than one in 2008 for export to India and in 2015 for exporting to Canada. And vice versa, the Madagascar RCA index had never been less than one, except no vanilla export activity in the certain years. Nihayah (2012) stated if the RCA value  $> 1$ , then the product or commodity will have a high comparative advantage in the market, and in contrary, if the RCA value  $< 1$ , then the commodity will not be feasible to compete in the global market because it is inefficient and it does not utilize the comparative advantage. Based on this analysis, it is summarized that the competitiveness of Indonesian vanilla is lower than Madagascar for five export destination countries, i.e. the United States, France, Canada, Germany, and India.



**Figure 7:** The vanilla competitiveness comparison between Indonesia and Madagascar in the period 2008 to 2019 (the data was processed from FAO 2019)

The RCA value is zero because no vanilla demand for the export destination country. In addition, the other caution is a low vanilla production in the exporter country. The vanilla quality which is not as required as the export demand also causes a low vanilla export value. This statement was confirmed by Nihayah (2012) who explained that the international market demanded the product requirements which is more competitive to protect the importer countries. The commodity requirement consists of the quality, the design, the price, and the service as consumers' demands.

**4.3 The Determinants Analysis Which Affects the Indonesian Vanilla Export Volume to the Main Export Destination Countries Years 2008-2018**

For analyzing the determinants which affect the export volume of Indonesian vanilla by using the panel data, the method test was conducted to estimate the regression model. This research used three methods, i.e.the Ordinary Least Square (OLS), the Fixed Effect (FE), and the Random Effect (RE). The first test to be applied was the Chow Test to determine the best model, whether OLS or FE.

Table 2 shows the regression test result by the OLS method. In this model, the data is treated similarly, or the data ignores the difference of individual and time dimensions. The Probability value is less than  $t-\alpha$  5%, which means this model has the ability to explain the variance effect from the independent variables to the dependent variables significantly. The OLS test result shows the exchange rate variable does not affect significantly the export volume.

Meanwhile, the variables which consist of production, the GDP, and consumption affect significantly to the vanilla export volume. The consumption variable affects negatively, while the production and the GDP variable affect positively to the export volume. The R-squared which value is 82, 68% means the model explains the variances by 82.86% to the vanilla export volume.

**Table 2:** The regression test analysis by the OLS method

Independent variables	Coefficient	Standard Error	t	P> t
Production ( $X_1$ )	0.2004	0.0439	4.56	0.000
GDP ( $X_2$ )	0.0126	0.0008	16.12	0.000
Exchange rate ( $X_3$ )	-0.0003	0.0009	-0.39	0.696
Consumption ( $X_4$ )	-0.1976	0.0443	-4.46	0.000
Prob > F	0.0000			
R-squared	0.8385			

After conducting the OLS test, then the FE test was conducted to determine the best model. Table 3 shows the regression analysis result by FE method which assumes the intercept from each individual is different, while it is fixed among individuals. That analysis shows the exchange rate variable does not affect significantly the vanilla export volume, while the production, the GDP, and the consumption variable affect significantly to the export volume of vanilla. The GDP and consumption variable affect negatively the export volume of vanilla, while the production variable affects positively the export volume of vanilla. Because the probability value in the FE model is less than  $t-\alpha$ , the FE model is better than the OLS model. Therefore, the Hausman test was conducted to determine the best model between FE and RE.

**Table 3:** The regression test analysis result by the FE method

Independent variables	Coefficient	Standard Error	t	P> t
Production (X <sub>1</sub> )	0.1593	0.0388	4.11	0.000
GDP (X <sub>2</sub> )	-0.0098	0.0047	-2.09	0.042
Exchange rate (X <sub>3</sub> )	0.0041	0.0037	1.09	0.279
Consumption (X <sub>4</sub> )	-0.1653	0.0381	-4.34	0.000
Prob > F	0.0003			
R-squared	0.5374			

Table 4 shows the regression result using Random Effect (RE) model which assumes each research object has a different intercept. That intercept is a random and stochastic variable. To get the best model between FE and RE, the P-Value in the RE model is analyzed. By the Hausman Test which shows the P-Value is higher than  $t-\alpha$  5 percentage, the best model for this analysis is the RE model. Satria (2018) stated if the selected model is OLS or FE, it should be continued by the classical assumption test for identifying the autocorrelation and heteroskedasticity in the panel data. Yet, if the selected model is the RE model, then no need to conduct the classical assumption test because the researcher has used the GLS method.

The export volume determinants analysis of Indonesian vanilla to the main international destination countries in the RE model is explained in Figure 10. The probability value chi-square is 0.0000, which means the model is able to explain the variances of independent variables to the dependent variables significantly. According to the panel data regression result by using the RE model, the dominant determinants which affect the Indonesian vanilla export volume to the main export destination countries are the domestic vanilla production, the GDP of the destination country, and the domestic vanilla consumption. Those three variables affect the Indonesian vanilla export volume significantly by the 95%-confidence interval (Table 4). Based on the analysis result, the exchange rate variable does not affect significantly the vanilla export volume by the 95%-confidence interval.

**Table 4:** The regression test analysis result by RE method

Independent variables	Coefficient	Standard Error	z	P> t
Production (X <sub>1</sub> )	0,2004	0,0420	4,77	0,000
GDP (X <sub>2</sub> )	0,0126	0,0007	16,84	0,000
Exchange rate (X <sub>3</sub> )	-0,0003	0,0008	-0,41	0,682
Consumption (X <sub>4</sub> )	-0,1976	0,0424	-4,66	0,000
Prob > F	0,0000			

According to the regression analysis result by using the RE method, the domestic vanilla production affected significantly the Indonesian vanilla export volume to the export destination countries in the period 2008-2019 in the 95%-confidence interval. It means if the domestic vanilla production increases by 10%, then the export volume will increase by 2%. This result is appropriate with the research result by Chandrayani & Natha (2016). Hardy (2015) summarized an increase in domestic commodity production affects positively export growth. Because the commodity demand level increases, the production tends to increase too. Therefore, the export strategy should be implemented to decrease the domestic surplus production.

A similar result is shown by the positive GDP value of the export destination country. This case indicates if the GDP of the export destination country increases by 10%, then the Indonesian vanilla export will increase by 1,26%. This value is significant to the 95%-confidence interval. This situation is appropriate with the theory that states if the GDP of a country increases, automatically, the import demand of that country will increase too. This result is similar to Komaling (2013) and Yuhendra (2017) who found out that the GDP of a country affects positively the export demand. This statement is confirmed by Aulia whose opinion is if the GDP of the business partner is larger, then the product demand will be larger too, including the imported products.

The different result is shown by the domestic vanilla consumption which value is negative. If the domestic vanilla consumption increases by 10%, then the Indonesian vanilla export will decrease by 1.97% at 95%-confidence interval. This result is supported by Rahmawati *et al.* (2012) who summarized both independent variables consisting of the Indonesian vanilla production and the domestic vanilla demand individually affect significantly to the Indonesian vanilla export volume. This statement is appropriate with the theory as follows. If there is a product surplus of domestic consumption, then the country will export it. Anggraeni *et al.* (2019) confirmed that export has various intentions, i.e. to expand the market share, to enhance the national income, and to expand the job field.

The rupiahs exchange rate to the destination country's currency does not affect significantly the export volume. This research is similar to the research by Azizah (2015) who found the exchange rate variable does not affect significantly the export of Indonesian Crude Palm Oil (CPO) to the Uni Europe. Yet, the exchange rate variable coefficient which value is negative indicates if the rupiahs exchange rate increases to the destination country's currency, then the vanilla export will decrease. This case is appropriate with the theory that the exchange rate affects the paid-value. Accordingly, if the value is higher, then the demand will decrease, then automatically, the export will decrease too. Buana (2016) stated the exchange rate has a central role in the international market because the exchange rate can compare the price of goods and services produced by a country. Huda and Widodo (2017) stated when the rupiahs currency has an appreciation to the export destination country's currency, the Indonesian commodity price in the export destination country will be expensive relatively. Therefore, it causes a decrease in export volume. The currency exchange rate is affected by some factors, i.e. the domestic interest rate, the inflation rate, and the central bank intervention in the money market.

#### 4.4 The Strategy for Enhancing the Indonesian Vanilla Competitiveness

The analysis of competitiveness and determinants which affect the Indonesian vanilla export volume to the export destination country indicates the Indonesian vanilla has low competitiveness and it has some variables which affect significantly to the export volume. The domestic vanilla production, the GDP of the export destination country, and the domestic vanilla consumption are some dominant determinants that affect the Indonesian vanilla export, high

and low. Because the Indonesian vanilla export is affected by some problems both from upstream and downstream, its competitiveness is lower than the competitor exporter country. In the upstream, the Indonesian vanilla has not yet fulfilled the standard quality as the international market's demand. In addition, the Indonesian vanilla has not yet fulfilled neither high quantity nor high supply continuity. The vanilla cultivation success is also affected by natural factors and plant pests and illness. Kariyawan et al. (2019) explained the strategy in the upstream level is prioritized to the production input optimization, namely the organic fertilizer and organic pesticide increase. In addition, the scientific and technological dissemination to the vanilla farmers is conducted to enhance productivity and product quality. The vanilla farming area extension needs to conduct. This strategy needs coordination with Stakeholders, i.e. the institutions of research and development, the universities, and related government.

In the downstream level, the Indonesian vanilla is not just limited to the post-harvest side, but also the marketing aspects should be supported. Hanke *et al.* (2018) explained the contract-farming system, namely the contract-farming with purchasers should be conducted to support effective marketing for vanilla cultivation. In addition, the post-harvest technological adoption and scientific dissemination to achieve a high-quality vanilla product should be implemented.

For enhancing the value, the processed vanilla product development needs to conduct for maintaining the sustainability of Indonesian vanilla. It means the Indonesian vanilla export should be in half-processed or processed products, not just in raw beans. This strategy is synergized with the government's program that the domestic export commodity is targeted to the processed products. Morgan *et al.* (2012) and Susanto *et al.* (2018) stated the marketing strategy strengthening is the main factor for developing the company's export. Therefore, besides the market share expansion, it needs to consider the company's exportability.

## 5. Conclusion

According to the analysis result, it is summarized that the Indonesian vanilla competitiveness position was lower than Madagascar's vanilla competitiveness in the period 2008-2019 to the export destination countries, i.e. the United States, Germany, France, India, and Canada by RCA analysis tool. There are many factors that causes low Indonesian vanilla competitiveness in the international market, namely low quality and productivity which border the vanilla export continuity. In addition, less innovation in the value-added product causes the Indonesian vanilla has no ability to increase its competitiveness.

The determinants analysis result which affects the vanilla export volume indicates there are some dominant variables that affect the Indonesian vanilla export, i.e. the domestic production, the GDP of export destination countries, and the domestic vanilla consumption. The rupiah exchange rate value to the export destination country's currency does not affect significantly the Indonesian vanilla export volume. The domestic vanilla production and the GDP of the export destination countries affect positively the vanilla export,

while the domestic vanilla consumption affects negatively the vanilla export. That case is appropriate with the theory, namely the bargaining surplus domestic product will be diverted to the export market. Meanwhile, if the GDP of a country is higher, then it will tend to increase consumption.

By the competitiveness and export determinants analysis result, the researcher formulated a strategy to enhance the Indonesian vanilla export competitiveness, namely the farming management improvement both in the upstream and the downstream. The first thing to conduct is the vanilla quality improvement for being capable to compete in the international market. The technological adoption acceleration and scientific dissemination is a strategy to enhance product quality and productivity. The government should conduct it by coordinating with other Stakeholders. The farming area extension is also a strategy to enhance upstream production. The downstream strategy is the post-harvest technological and scientific adoption, including the value-added product enhancement and the marketing management improvement. The export expansion is also an effective strategy to enhance the Indonesian vanilla competitiveness in the international market.

## 6. Future Scope

This research shows the Indonesian vanilla competitiveness position is lower than Madagascar's. There are some significant variables that affect the vanilla export volume, i.e. the domestic vanilla production, the domestic vanilla consumption, and the GDP of export destination countries. To enhance the Indonesian vanilla competitiveness, it needs to enhance the vanilla productivity and quality. Yet, the strategy formulation in this research is just limited to the descriptive analysis based on the research result. Therefore, the next research is considered to analyze and determine the best strategy to enhance the Indonesian vanilla competitiveness by a more comprehensive analysis method.

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