

FACTORS INFLUENCING INDONESIA COFFEE EXPORTS VOLUME

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Abstract

This study aimed to analyze factors influencing coffee exports volume in Indonesia. The study belonged to quantitative research with secondary data of time series in the period of 1983-2017. For more, the technique of analysis employed in this study was Multiple Linear Regression Analysis with Ordinary Least Square (OLS) method using Eviews 10 software. Based on the findings derived from multiple linear regression analysis, it could be concluded that the variable of domestic coffee production partially contributes positive and significant influence on coffee exports volume in Indonesia. However, the variables of domestic coffee prices, world coffee prices and rupiah exchange rate toward US dollar do not significantly influence on coffee exports volume in Indonesia. Meanwhile, the variables of coffee production, domestic coffee prices, world coffee prices, and rupiah exchange rate against US dollar simultaneously or jointly influence coffee exports volume in Indonesia.

Keywords: Export, Coffee, Production, Price, Exchange Rate

I. INTRODUCTION

Indonesia is an agricultural country with plentiful agricultural commodity potentials. As an agricultural country, agricultural commodities are surely the backbone of Indonesia economy. In addition, Indonesia agricultural commodities are not only traded in domestic markets, but also in foreign markets or known as export. The export activity certainly increases the state revenue, particularly the foreign exchange revenue. For more, there are various agricultural commodities which are potential in export markets. One of which is coffee. In fact, 67% of Indonesia coffee total production is marketed for export purposes, while the rest 33% is to meet domestic coffee needs (Indonesia Directorate General of Plantation, 2018).

Coffee is an agricultural commodity favored by many people around the world. The culture of coffee drinking exists in many countries makes this commodity sell well in markets (Rahna, 2018). The abundant Indonesia coffee production makes it positioned in the third rank of the world's largest exporter with the percentage of 9.85% of the world's coffee export total, namely after Brazil of 28.65%, Vietnam of 17.84%, and above Colombia of 8.75%, India of 4.55%, Honduras of 3.79%, and Peru of 3.59% (ICO, 2013). It proves that Indonesia coffee commodity is really favored by international markets. USA, Japan, Germany, Italia, and

Malaysia are the main export destinations of Indonesia coffee. When viewed from its development, Indonesia coffee exports volume experienced fluctuation. This phenomenon can be seen in the following figure:

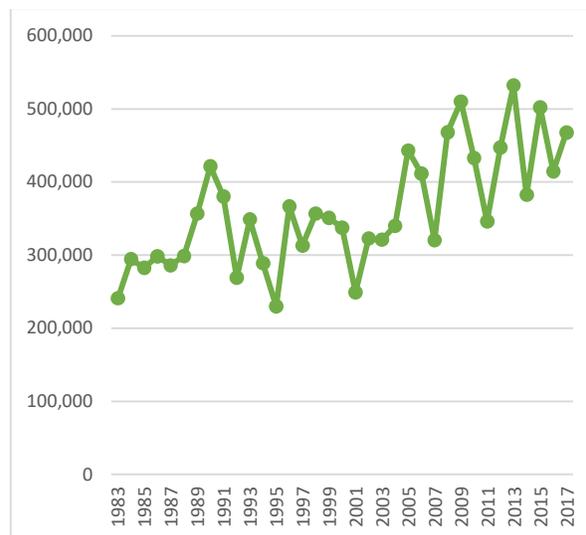


Figure 1. The Development of the Volume of Coffee Exports in Indonesia in the Period of 1983-2017

Source: Central Bureau of Statistics, 2018.

Based on graph 1, it can be seen that the development of Indonesia coffee exports volume experienced fluctuation. However, in the last ten years, starting from 2007 until 2017, Indonesia coffee exports volume experienced sharp decline, namely in 2010, 2011, 2014, and 2016. This fluctuation was caused by several internal and external factors.

Desnky et al's study (2018) explains several factors influencing Indonesia coffee exports volume, such as domestic coffee production, domestic coffee prices, coffee consumption in the export countries, world coffee prices, and rupiah exchange rate. Another study done by Sihotang (2013) mentions that Indonesia coffee exports are influenced by some factors, namely production, international markets coffee prices, and rupiah exchange rate. For more, Hidayah's study (2017) explains that international market coffee prices, rupiah

exchange rate, and export countries Gross Domestic Products (GDP) are factors that influence Indonesia coffee exports volume. Next, Soviandre in his study (2014) states that factors influencing Indonesia coffee exports volume are domestic coffee production, international coffee prices, and

rupiah exchange rate. By referring to these studies, it is known that domestic coffee production contributes positive and significant influence on Indonesia coffee exports volume. On the other hand, there is also a difference in Soviandre's (2017) and Hidayah's (2017), namely rupiah exchange rate against US Dollar does not significantly affect Indonesia coffee exports.

Coffee exports volume is strongly influenced by domestic coffee production. Setiawan and Sugiarti (2016) argue that domestic coffee production contributes positive and significant influence on Indonesia coffee exports volume. The higher domestic coffee production, the higher coffee exports will be. Even though domestic coffee production influences the coffee exports, coffee quality must also be considered. For more, Batista et.al (2016) report that the well-maintained coffee quality will affect the taste of the coffee, and further make it more marketable. Another aspect influencing coffee exports is rupiah exchange rate. Densky (2018) says that rupiah exchange rate against US dollar holds positive and significant influence on the coffee exports. Exchange rate is the price level of the rupiah against a foreign currency. The more appreciation of the rupiah, the more expensive the price of domestic coffee will be, and as a result, will reduce the volume of coffee exports. In contrast, Sihotang's study (2013), Soviandre's study (2014) and Hidayah's study (2017) mention that the exchange rate of the rupiah against the United States Dollar has no significant effect on coffee exports in Indonesia.

Another variable influencing coffee exports volume is domestic coffee prices, and world coffee prices. Ramadhani (2018) mentions that when domestic coffee prices rise, the export volume will decline because coffee producers choose to sell their coffee domestically. Meanwhile, when international coffee prices rise, the export volume will also rise because based on the theory of offering, exporters will offer more coffee in international markets. Other than that, the aforementioned factors do not completely mention the whole factors influencing Indonesia coffee exports volume because there are also other factors such as coffee quality, taste, and the economy condition of the export destination countries. Therefore, the aim of this study was to analyze factors influencing coffee exports volume in Indonesia..

II. RESEARCH METHODS

This study was a quantitative descriptive research. It used secondary data collected from Central Bureau of Statistics (BPS), Bank Indonesia (BI), Indonesia Directorate General of Plantation and International Coffee Organization (ICO). Secondary data are data collected from other parties, and not directly obtained from subjects of the study by the researchers

(Azwar, 2013). Moreover, the type of data used in this study was time series ranging from 1983-2017.

Research variables are anything determined and investigated by researchers aimed to obtain its information, and draw conclusion (Sugiyono, 2017). Accordingly, this study had dependent and independent variables. The dependent variable (Y) was coffee beans exports volume, while the independent variables were domestic coffee production (X1), domestic coffee prices (X2), world coffee prices (X3), and Rupiah/ US Dollar exchange rate (X4).

The data analysis method used in this study was Multiple Linear Regression with the ordinary least squares (OLS) method using software Eviews 10. Multiple linear regression analysis is used when the independent variables are two or more. This analysis aimed to determine the factors influencing the volume of coffee exports in Indonesia. The essence of the Ordinary Least Square (OLS) method is to estimate a regression line by minimizing the number of squares of errors for each observation of the line (Kuncoro 2007: 79). The models used in this study are as follows:

$$Y = \beta_0 + \beta_1X_1+ \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + e_i.....(1)$$

Information:

Y: Indonesia Coffee Export Volume

β_0 : Intercept / constant

X1: Coffee Production in Indonesia

X2: Domestic Coffee Prices

X3: World Coffee Prices

X4: Exchange Rate of Rupiah / United States Dollar.

β_1 ..., β_3 : Slope or direction of the regression line that states the value of Y due to change in one unit of variable X,

e_i : Residual error representing other factors influencing on Y but not included in the model

To obtain the expected results based on the study hypotheses, the researchers conducted several tests to collect any influences existed between independent and dependent variables simultaneously (F test), and partially (t test). Prior to these tests, the researchers carried out some classical assumption tests to see whether the data used in the analysis had feasibility or not. The tests covered Normality Test, Multicollinearity Test, Heteroscedasticity Test, and Autocorrelation Test.

III. RESULT AND DISCUSSION

The results of data analysis carried out using multiple linear regression method through eviews 10 software are presented as follows:

Table 1. The Results of Data Analysis Carried Out Using Multiple Linear Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.539540	1.966113	1.800273	0.0819
X1	0.613425	0.219249	2.797841	0.0089
X2	-0.038461	0.164870	-0.233283	0.8171
X3	0.092658	0.088684	1.044810	0.3045
X4	0.059110	0.144966	0.407753	0.6864
R-squared	0.518953	Mean dependent var		12.74919
Adjusted R-squared	0.454813	S.D. dependent var		0.245341
S.E. of regression	0.181152	Akaike info criterion		-0.447398
Sum squared resid	0.984480	Schwarz criterion		-0.225206
Log likelihood	12.82947	Hannan-Quinn criter.		-0.370698
F-statistic	8.090989	Durbin-Watson stat		1.663151
Prob(F-statistic)	0.000150			

Sumber: Eviews Data Processing Results, 2019.

Based on the estimation results from multiple linear regression, it can be seen that the model used in this study was good. It was proven by the value of determination coefficient (R^2) of 0.518. This number showed that 52% of Indonesia coffee exports volume was able to be explained by independent variables in the model, while the rest 48% was explained by the other variables outside the model.

T test was carried out to determine the extent to which one independent variable individually or partially influences the dependent variable. This test was done by comparing the probability value of each variable with the alpha used. When the probability value was smaller, the variable had significant influence. In addition, the amount of alpha used in this study was 5%. Based on the t test carried out by the researchers, the probability value of coffee production variable (X1) was $0.0089 < 0.05$, meaning that this variable significantly influenced the coffee exports. Meanwhile, the coefficient value of production variable was 0.613425, meaning that this variable had positive influence on Indonesia coffee exports volume. Next, the probability value of domestic coffee prices (X2) was $0.8171 > 0.05$, meaning that this variable did not significantly influence the coffee exports volume. After that, the probability value of world coffee prices (X3) was $0.3045 > 0.05$, meaning that world coffee prices did not significantly influence the coffee exports volume. The last, the probability value of rupiah exchange rate against US dollar (X4) was $0.6864 > 0.05$, meaning that rupiah exchange rate against US dollar did not significantly influence the coffee exports volume.

The F test is performed to determine whether all the independent variables included in the model have a joint or simultaneous influence on the dependent variable or not. The F test can be done by comparing the probability value of F-

statistic with alpha. If the F-statistic probability value $< \alpha$, it means that the independent variables jointly affect the dependent variable. From the results of regression estimation, the F-statistical probability value was 0.000150.

This number showed that the dependent variable in this study, namely domestic coffee production (X1), domestic coffee prices (X2) and world coffee prices (X3) jointly influenced Indonesia coffee exports volume.

DISCUSSION

The Influence of Coffee Production on Indonesia Coffee Exports Volume

The regression analysis results showed that domestic coffee production variable (X1) contributed positive and significant influence on the coffee exports volume in Indonesia with the coefficient value of 0.613425. It indicated that each increase in domestic coffee production would increase the coffee exports volume in Indonesia. In details, when there is an increase of coffee production by 1 unit, there will be an increase in the coffee exports volume of 0.613425 by assuming other variables have constant values. This finding is in line with Jamilah et.al's study (2016) which states that domestic coffee production contributes positive and significant influence on coffee exports volume.

Production is a variable that has direct and significant influence on coffee exports volume that is when Indonesia coffee production increases, the coffee exports will increase as well. It is because of the abundant amount of coffee that makes it not only being sold in domestic area, but also exported abroad. Conversely, when coffee production decreases, the export of coffee beans will also decrease because of limited stock. In addition, the level of coffee

production is greatly influenced by available land space, and also its care (Nair, 201). In line with this, the coffee production in Indonesia increased during 1983-2017. It was also followed by the increase in its exports volume. However, in the last five years, the coffee production in Indonesia tended to decline, so did the exports. The increase in the coffee production will surely increase the number of export, but it should also be balanced with the improvement

in the quality of coffee. It is because the quality of coffee strongly influences the interest of importing countries to import coffee from Indonesia. If the increase in coffee production is not offset by an increase in quality, Indonesia coffee will not be enthused by coffee importing countries. The quality of coffee is actually influenced by the planting and care (Loreto, 2017). Alternatively, the method of processing post-harvest coffee will also greatly affect the quality of coffee (Carlos, 2017). The quality of coffee must always be maintained in order to increase the competitiveness of coffee itself (Stijn, 2016). Therefore, increasing the quality of coffee is very important besides increasing the production in order to increase the volume of Indonesia coffee exports.

The Influence of Domestic Coffee Prices on Indonesia Coffee Exports Volume

The results of multiple linear regression estimation showed that domestic coffee prices variable (X2) had negative and significant influence on the coffee exports volume in Indonesia. The results of estimation showed that the coefficient value of this variable was -0.038461. It meant that the influence of domestic coffee prices on the volume of coffee exports was negative. When the domestic coffee prices increase by 1 unit, the volume of coffee exports in Indonesia will decrease by -0.038461, by assuming other variables are constant. This result is in line with the results of Hidayah's study (2017) which states that domestic coffee prices are negatively related to the volume of coffee exports. However, the result of this study is different from the study of Ramadhani (2018) which states that domestic coffee prices are positively related to the volume of coffee exports.

The negative influence was caused by the tendency of coffee producers to sell their coffee to domestic markets rather than to international markets with hope that they will earn higher profits, as a result, the coffee exports will decrease. Oppositely, when domestic coffee prices decline, domestic producers will choose to sell their goods abroad rather than to the domestic market because they expect greater profits so that the export volume of coffee will increase.

The development of domestic coffee prices in Indonesia during the 1983-2017 period tended to fluctuate and increase more frequently. However, it was not in line with the volume of coffee exports in Indonesia. When domestic coffee prices decline, the volume of coffee exports should increase. Unfortunately, what happened in Indonesia was the opposite, when a decline in domestic coffee prices took place, the coffee exports in Indonesia also declined. This was because the volume of coffee exports was not only influenced by domestic coffee prices, but also was also influenced by the quality and taste of the coffee. When quality and taste are not maintained, even though domestic coffee prices decline, the export volume of coffee will not increase.

The Influence of World Coffee Prices on Indonesia Coffee Exports Volume

Based on the results of model estimation, world coffee prices (X3) had positive and insignificant influence on the coffee exports volume in Indonesia. The coefficient value of this variable was 0.092658. It meant that when world coffee prices increase by 1 unit, the volume of coffee exports in Indonesia will increase by 0.092658. Likewise, when world coffee prices decrease by 1 unit, the volume of coffee exports in Indonesia will also decrease by 0.092658 by assuming others variables have constant values. This finding is in line with Densky's study (2018) that the world coffee prices do not significantly influence the volume of coffee exports. However, the result of this study was not in line with Soviandre's study (2014), and Ramadhani's study (2018) which state that the world coffee prices significantly influence the volume of coffee exports.

World coffee prices have a great influence on Indonesia coffee exports because the coffee trade in the world market does use the benchmark price of coffee on the world market. Additionally, the result of this study was not in accordance with the theory of offering, namely when the price of an item increases, the amount of goods demanded will decrease. In the same way, when the price of an item falls, the number of items requested will increase by assuming *ceteris paribus*. Apparently, what happened in this study was in contrast with the theory of demand. The inconsistency of the results of this study with the theory of demand was because when there is a decline in world coffee prices, coffee producers are more interested in selling their coffee domestically. The declining price of coffee in the world market will reduce the income of coffee producers because the selling price they receive is cheap so they prefer the domestic market.

In the period of 1983-2017, world coffee prices experienced developments and tended to increase in recent years. This definitely influenced Indonesia coffee exports volume. Even though world coffee prices increased, the volume of Indonesia coffee exports tended to decrease. The decrease was caused by the reduction of import volume by the importing countries. There was also a limitation on export quota from International Coffee Organization (ICO) greatly influenced the limit of Indonesia coffee exports volume.

The Influence of Rupiah Exchange Rate on Indonesia Coffee Exports Volume

The results of estimation in this study showed that rupiah exchange rate against US dollar contributed positive, but insignificant influence on Indonesia coffee exports volume. The coefficient value of this variable was 0.059110. This value asserted that when rupiah exchange rate against US dollar decreases by 1 unit, the Indonesia coffee exports volume will decrease by 0.059110 by assuming other variables have constant values. This finding is in line with studies done by Soviandre (2014), Hidayah (2017), and Ramadhani (2018) which mention that rupiah exchange rate against US dollar does not have significant influence on the volume of Indonesia coffee exports.

Sukirno (2010) states that export transactions from one country to another requires a foreign exchange market, namely a market that carries out an exchange (or trade) between a currency with various other currencies. To do so,

foreign exchange market is needed. When rupiah exchange rate appreciates against the US Dollar, it will result in the price of coffee in Indonesia that is being considered expensive by importers, so that there will be a decline in the volume of Indonesian coffee exports. In the same way, when rupiah exchange rate against the US Dollar depreciates, the price of coffee is considered cheaper by the importer, so competitiveness will increase and the profits that can be obtained also increase. This will cause the volume of Indonesian coffee exports to increase. The fluctuation of the rupiah exchange rate is undeniable because it is something natural in the economy. But what must be considered is that the stability of the rupiah exchange rate must always be maintained so as not to disrupt Indonesia's export and import processes.

IV. CONCLUSION

Based on the results and discussion chapter, the results of multiple linear regression analysis show that domestic coffee production variable partially contributes positive and significant influence on Indonesia coffee exports volume. However, other variables, namely domestic coffee prices, world coffee prices, and rupiah exchange rate against US dollar have no significant influence on the volume of Indonesia coffee exports. Meanwhile, the variables of coffee production, domestic coffee prices, world coffee prices, and rupiah exchange rate against US dollar simultaneously or jointly influence the coffee exports volume in Indonesia.

Coffee production in Indonesia must always be increased because this variable has a significant effect on coffee exports in Indonesia. The increase in coffee production will increase the volume of Indonesian coffee exports so that it will be a benefit for Indonesian exports. The government must strive to increase coffee production both in terms of increasing land area and by providing incentives to increase productivity. Then for other variables such as domestic coffee prices, world coffee prices and the rupiah exchange rate, although the three variables do not have a significant effect, all three must still be considered so as not to interfere with the performance of coffee exports in Indonesia.

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