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Article

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An Analysis of Factors Affect the Export of Gayo Coffee in Bener Meriah Regency, Acheh, Indonesia

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Abstract   *This is a research which is conducted to observe the effects of the export prices, exchange rates, and the total production of the Gayo coffee export volume in Bener Meriah regency. The purpose of this research is to determine the effect of the export prices, exchange rates, and the total production of the Gayo coffee export volume in Bener Meriah regency, while it appliesthe documentary study for the data collection technique. The data analysis method used in this research is multiple linear regression analysis using the software and a computer program Eviews 5. Partially, the export prices and the production total have the significant effects on the Gayo coffee export volume in Bener Meriah regency. Simultaneously, the export prices, exchange rates, total production significantly influence Gayo coffee export volume in Bener Meriah, where the value of the effect (R squared) gained 0.91, or 91%.*

Key words   Export prices, exchange rates, total of production, export volume

JEL Codes: D12

1. Introduction

Export is the international trading activity which has been the engine of growth for the developing countries by their exports, they can increase the foreign exchange in order to increase the incomes and as it indirectly increases the society income (the export let growth hyphothesis) (Soekartawi, 1991; Ndayitwayeko *et al.*, 2014). In the international trading, the government of Indonesia has applied some rules and the regulations related to the international trade**.** The regulation of the international trade is arranged and is assigned by the minister of trade, the export regulation is arranged to improve the competition, to guarantee the enterprises and sustainability, industrial raw materials in the country, supporting the preservation of the environment/natural resources relating to health, safety, security, environmental, and moral (K3LM) and the existence of international agreements.

Grouping export goods stipulated in the decision of the Minister of Industry and Trade No. 558/MPP/Kep/12/1998 dated 4 December 1998 on general provisions in the export field as already amended by regulation of the Minister of Trade No. 01/M-DAG/PER/ 1/2007 Date January 22, 2007.In accordance with local autonomy, Bener Meriah

regency has the authority to regulate and manage the system of local governance. But in terms of foreign trade policy remain to be implemented by the central government. It is associated with the International agreement, the operational range of national character that requires coordination between relevant agencies, national and international institutions. Gayo coffee is a beverage ingredient that is familiar for the coffee lovers. With the aroma and properties that can give a fillip to the body, making it quite familiar and popular not only for Indonesians but also for many people around the world. Bener Meriah regency is famous for producing and processing coffee Arabica and Robusta. In the national and international coffee events, the predicate of Gayo coffee is highly favored and gets a good place in the middle of the consumers as well as economically able to raise the dignity of Bener Meriah regency society itself.

In Bener Meriah, the commodity of coffee has become the main commodity produced by smallholder plantations and is a mainstay commodity exports at the same time supporting the economic structure of the area Bener Meriah. In addition, through the Gayo Organic Coffee Farmers Union (PPKO), Bener Meriah has been certified by the International certificate organization. By obtaining the certification is increasingly the position of Gayo coffee from Bener Meriah such as organic coffee as it is the best in the world. In Bener Meriah, in 2005, the export of arabica coffee from this district is started, where in its first year of exporting, the amount of volume was around 11,589 tonnes. The volume of coffee exports continue to increase in subsequent years, in the year 2013 as many as 540 tons, coffee exports from Bener Meriah has reached 76059.24 tons. For more details on the realization of exports, it can be seen in Table 1 below.

Table 1. The realization of the Gayo Coffee export in BenerMeriah Regency
In 2005-2013

No	YEARS	BENUA TUJUAN					
		ASIA (Ton)	EUROPE (Ton)	AFRICA (Ton)	AUSTRALIA (Ton)	AMERICA (Ton)	TOTAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	2005	560	1.989	-	-	9.040	11.589
2	2006	875	2.123	-	-	14.650	17.648
3	2007	595	2.347	-	-	15.950	18.862
4	2008	873	1.160.8	-	-	15.772.20	17.806
5	2009	4.5	38.4	-	-	287.6	330.5
6	2010	131.59	558.42	9.64	174.70	3.069.00	3.943.35
7	2011	176.48	524.00	11.25	205.40	3.165.26	4.082.39
8	2012	-	278	-	-	980	1.258
9	2013	-	-	-	-	540	540

Source: BPS Bener Meriah Regency 2015

Gayo coffee future prospect is very promising, as the international market demand for coffee continues to rise Gayo. The United States is a country of coffee export destination of Gayo Bener Meriah as it is continuously imported coffee of Gayo from Bener Meriah. (Foyer, March 22, 2013). However, the demand fluctuates annually. Similarly with countries other Gayo coffee consumption. Hilariously Gayo Bener Meriah coffee demand is not constant in one state.

World coffee consumption reached 8.3346 million tons in 2010. This value is the sum of consumption in coffee-exporting countries and consumer countries. Aceh coffee export contribution is very small, only 0.09 percent of world coffee consumption. It is a very big opportunity to increase the quantity of Gayo coffee exports in order to increase local revenue of Bener Meriah regency of foreign trade sectors.

2. Literature review

2.1. Export

Export is an activity of distributing the things from the society and sending it to outside of the country as the term and condition from the government and expecting the purchasing in foreign exchange. Exporting is an effort to sell our commodity to other countries by expecting the purchasing of foreign exchange (Amir M.S., 2004: 1).

There are some factors affect the exporting things to foreign, i.e.:

a. International Rates. The higher deviation between the international market and the domestic market makes the quantity of the commodity to be exported increased.

b. Exchange rate. The higher of the exchange rates in a country (experiencing the appreciation) makes the exporting rates in the international market high. On the other hand, the lower of the exchange rates in a country (experiencing depreciation) makes the exporting rates of that country low.

c. Export and Import quota. It is a regulation of the international trade in the form of the things quantity.

d. Tariff and non-tariff. Tariff regulation aims at keeping the internal product rates in the certain level which is considered as it can improve the commodity.

2.2. Exchange Rates

Exchange rate is the price of the domestic currency against foreign currencies which is calculated based on the weighted average of the real exchange rate of the trading partner countries of Indonesia, Indonesian rupiah exchange rate is used as a projection of the exchange rate trading partner countries of Indonesia (Syarief, Iskandar, 2003: 4). Meanwhile, according to Krugman (2000: 335), the exchange rate is the price of a currency of a country that is measured or expressed in other currencies and is able to affect exports.

In theory, the exchange rate of the currency of a country plays a role in the development of the country's exports and imports. If the currency depreciates then exports will rise, because the price is cheaper export goods valued in another currency (trading partners) and imports decreased due to the price of imports in its own currency (Syarief, Iskandar, 2003: 2).

2.3. Production

Total production is the overall level of production or the amount of goods and services produced by the industry. To increase output, increase input is required in this case labor. The higher productivity of labor the higher the amount of production, and vice versa (Sumarsono 2003 in Fadlilah and Atmanti, 2012). Sukirno (2005) in Purnomo (2013) states that production function shows the relationship between the amounts of output produced for each combination of specified output. The production function can be expressed in the following formula:

$$Q = f\,(K, L, R, T) \tag{1}$$

Where:

        K = the amount of capital stock;
        L = the total of manpower;
        R = natural wealth;
        T = the level of technology used;
        Q =total production is generated from various types of factors of production.

In addition, the production function also describes production method of technically efficient, in the sense of the certain production, the method quantity of raw material used is minimal and other capital goods are also minimal. The efficient production method is highly expected by manufacturer
According to Purnomo (2013) In the production process, the company changes the production factors into a product or output. In economic theory, the basic assumptions about the nature of the production function are all producers considered subject to a law called The Law of Diminishing Returns. The law says if one kind of user input plus other input being fixed, the extra output produced from an additional unit of input, written earlier start to rise, but then it decreased when the input is continually added (Boediono, 2001).

3. The Formulation of the Problem

Based on the background of the research problem, it can be the formulation of the problem, namely:

1. How do the export prices, exchange rates, and total production partially to Gayo Bener Meriah coffee export volume?
2. How do the export prices, exchange rates, and total production simultaneously affect Gayo Bener Meriah coffee export volume?

4. The objectives of the study

The objectives of the study are:
1. To determine the effect of export prices, exchange rates, and total production partially to Gayo Bener Meriah coffee export volume.
To obtain the way to influence the export prices, exchange rates, and total production simultaneously towards Gayo Bener Meriah coffee export volume.

5. Methodology of research

To find out how the research was conducted in Bener Meriah regency and the type of data used in this study is a quantitative secondary data time series during 2005-2013. The data collection technique is a documentary study, namely how to get the data to investigate and study the documents obtained from the relevant institutions. the effect of export prices, exchange rates, and total production simultaneously towards Gayo Bener Meriah coffee export volume. To determine the effect of variable of export prices, exchange rates, total production of the export volume of Gayo coffee in Bener Meriah regency, it is used the method of quantitative data analysis with multiple linear regression techniques. According to Sugiyono (2005), the linear regression analysis is a linear relationship between two or more independent variables. Relationship model variables in this study will be analyzed according to the following regression equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mu \tag{2}$$

Where:

Y = dependent variable;
β_0 = constants;
$\beta_1, \beta_2, \beta_3$ = regression coefficients;
X_1, X_2, X_3 = independent variable;
μ = term of error.

Thus, in this study the regression equation will be formulated as follows:

$$Y = \beta_0 + \beta_1 P + \beta_2 K + \beta_3 TP + \mu \tag{3}$$

Where:

Y = the export volume of Gayocoffee in Bener Meriah;

β_0 = constants;
$\beta_1, \beta_2, \beta_3$ = Regression coefficients;
P = Gayo coffee export price (US $/Ton);
K = Exchange rate (Rp);
TP = Gayo Total Production (Ton);
μ = Term of Error.

6. Results and discussions

6.1. The Development of the Gayo Coffee Export Volume

Gayo coffee export volume annually shows fluctuating movement. It is influenced by several factors such as, the price of coffee exports, the exchange rate (exchange rate), and the total production. From the results of research on these factors illustrate that the above three variables affect the volume of Gayo Bener Meriah coffee exports.
Average number of Gayo coffee export volume with the destination of America countries, like the United States, Canada and Mexico show the fluctuated movement from year to year. Average number of Gayo coffee highest export volume in 2007 and the lowest export volume in 2009, but the increase in export sales volume occurred in 2011 which reached 4082.39 tons. The high volume of Gayo coffee exports in 2011 was driven by higher production of Gayo coffee and Gayo coffee prices in the international market (New York) reached a price of US $ 273.20 per lb. The increase in coffee prices, which reached 3:52 per cent compared with the previous year triggered coffee exporters to export Gayo coffee. Aside from rising coffee prices, this year also showed an increase in the exchange rate against the US dollar so that the value of coffee sales abroad provide great benefits for exporters. Data Gayo coffee export volume growth in Bener Meriah is shown in Table 2 as follow.

Table 2. The Development of the Gayo coffee Export Volume in Bener Meriah Regency in 2005-2013

No	Years	Export volume (Ton)	Development (%)
1	2005	11.589	-
2	2006	17.648	52.28
3	2007	18.862	6.87
4	2008	17.806	-5.59
5	2009	330,5	-98.14
6	2010	3.943,35	10.93
7	2011	4.082,39	3.52
8	2012	1.258	-69.18
9	2013	540	-57.07

Source: BPS Bener Meriah Regency

6.2. PerThe Development of the Foreign Gayo Coffee Export Price (US $)

Gayo coffee prices, particularly of Aceh in the New York market tends to show that the movement continues to increase from year to year, it is caused by the high demand Gayo coffee. Although American countries enforce food safety by establishing regulations and requirements which were very strict as efforts to protect consumers, but Gayo coffee can penetrate the American market share. The success of Gayo coffee penetrates the American market because of the support of all parties in order to improve the quality of gayo coffee produced.

In accordance with the market mechanism, the higher demand for a product, the higher price of the goods will be. This is consistent with the data analysis, where demand of Gayo coffee will increase in terms the increase of export volumes in line with the increase in the price of the Gayo coffee.

Table 3. Coffee Prices Overseas Developments Based on New York Market Prices
Year 2005 – 2013

No	Years	Gayo coffee rates US$	Development (%)
1	2005	114,30	-
2	2006	113,95	-0,31
3	2007	123,20	8,12
4	2008	138,32	12,27
5	2009	141,65	2,41
6	2010	194,40	37,24
7	2011	273,20	40,53
8	2012	187,52	-45,69
9	2013	141,08	-32,91

Source: International Coffee Organization (www.ico.org)

6.3. The development of the Currency Exchange (Exchange)

The rupiah against the US dollar from 2005 to 2013 shows the movement of fluctuating but tends to increase. The high value of the rupiah against the US dollar starting from 2008.Based on Table 5. We can see that, the exchange rate of the year 2005-2013 inclination is not too volatile. In 2005 the value of the rupiah against the US dollar at Rp 9,830/USD, whereas in 2006 the exchange rate against the USD weakened, amounting to Rp 9,020/USD. In the next year 2007 rupiah gained Rp 9,419/USD, and in 2008 the Rupiah has depreciated sizable namely to Rp 10,950/USD.

Although in 2008 the value of the rupiah against the US dollar is quite big, but because the economy is gradually improving able to reinforce the exchange rate, which is Rp 9,400/USD, and in subsequent years until 2012, the rupiah exchange rate against the

USD tends to be stable, namely the range of Rp 9083/USD to $ 9774/USD. But in 2013 rupiah depreciated sizable namely Rp 12.189/USD.

Table 4. The Development of US Dollar exchange rate against Rupiah at Bank Indonesia Jakarta Year 2005 – 2013

No	Years	Exchange rates (Rp)	Development (%)
1	2005	9.830	-
2	2006	9.020	-8,24
3	2007	9.419	4,42
4	2008	10.950	16,25
5	2009	9.400	-14,16
6	2010	9.083	-3,37
7	2011	8.774	-3,52
8	2012	9.670	9,26
9	2013	12.189	20,66

Source: Bank Indonesia (diolah), 2015

Fluctuation in the exchange rate of the year 2005-2013 are influenced by many factors, ranging from the demand-supply in the foreign exchange market, interest rates, real income to government policies that have a specific purpose in devalue or revalue the exchange rate.

6.4. Total Production of Gayo Coffee in Bener Meriah

Gayo contained in two districts placed in the highlands of Aceh, namely Central Aceh and Bener Meriah. Gayo production from these two of the districts for 24 years showed an increase, especially in the central highlands. Various attempts have been made to support the increased production of Gayo coffee , among others, with the expansion of planting areas, the use of quality seeds and maintenance of productive plants. Gayo coffee production in 2007 represents the highest production from 2005 until 2013. However, the highest production increase occurred in 2013 up to 23:12 percent. This was driven by an increase in Gayo coffee prices in 2007 so that the government and relevant parties seeks to increase coffee production to meet demand for Gayo coffee is quite high in 2013.

Table 5. Production development of Gayo Coffee in Bener Meriah Regency Year 2005 – 2013

No	Years	Gayo Coffee Production (ton)	Development (%)
1	2005	20.325,40	-
2	2006	22.321,24	8,94
3	2007	25.305,70	11,79

No	Years	Gayo Coffee Production (ton)	Development (%)
4	2008	25.189,28	-0,46
5	2009	15.973,82	-57,69
6	2010	18.660,30	14,39
7	2011	21.404,03	12,81
8	2012	13.294.54	-60,99
9	2013	17.294.33	23,12

Source: Forestry and Plantation Bener Meriah Regency 2013

In 2012 Gayo coffee production declined by -60.99 percent compared to coffee production in 2011, this is caused by the renovation of coffee plants that have been unproductive and climatic influences global warming which significantly affect the condition of the coffee plant habitat.

6.5. Discussions

To analyze the factors that affect the export of coffee Gayo Bener Meriah, it is used multiple linear regression analysis, where the dependent variable is the export volume from 2005 to 2013. While the independent variables are the export prices, exchange rates, and the total production of the period 2005 to 2013. The results of data processing are shown in Table 6.

Table 6. Regression Analysis Factors Affecting ExportsGayo Bener Meriah

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2523.378	14409.44	0.175120	0.8679
X1	-63.43945	22.80830	-2.781419	0.0388
X2	-1.452633	1.057706	-1.373380	0.2280
X3	1.514363	0.272151	5.564427	0.0026

Source: Secunder Data processed. 2016

Based on the multiple linear regression with existing data, the regression analysis results can be obtained by applying the OLS (Ordinary Least Square) as it is using the program Eviews. The multiple regression equation that can be after the transformation of the logarithm of the data as follows:

$Y = 2523.37 - 63.43X_1 - 1.45X_2 + 1.51X_3$

The linear regression equation shows constant value obtained at 2523.37 it means that if the export price, the exchange rate, and the total production value are fixed (constant), the export volume of Gayo coffee in Bener Meriah district amounted to 2523.37.

The export price to the Gayo coffee export volume in Bener Meriah is negative. The coefficient of the export price of -63.43 shows that if the export price increased by 1 percent, then the volume of Gayo coffee exports will decrease by 63.43. This means that the higher export prices, the lower the Gayo coffee export volume in Bener Meriah (ceteris paribus).

The value of the exchange rate against Gayo coffee export volume in Bener Meriah is negative. The coefficient of the exchange rate of -1.45 indicates that if the exchange rate increased by 1 percent, then the volume of Gayo coffee exports will decrease by 1.45. This means, the higher the rate, the lower the Gayo coffee export volume in Bener Meriah (ceteris paribus).

The total production to the Gayo coffee export volume in Bener Meriah is positive. The exchange rate coefficient value of 1.51 indicates that if the total production increased by 1 percent, then the Gayo coffee export volume will increase by 1.51. This means, the higher the total production, the higher the volume of coffee exports Gayo in Bener Meriah (ceteris paribus).From the calculations it is obtained the value of R^2 of 0.91. This shows that the variable export prices, exchange rates, and total production are able to provide an explanation for Gayo coffee export volume by 91% while the remaining 9% is not included in this estimation model or is in a disturbance error term.

7. Conclusions

Based on the results of the analysis conducted in this study, it can be summarized as follows:

1. Partially or separately, the export price variables significantly has negative effect on the volume of Gayo coffee exports in Bener Meriah. Variable exchange rates has negative effect on the volume of Gayo coffee exports in Bener Meriah regency. While total production has possitive and significant effect on the volume of Gayo coffee exports in Bener Meriah regency.

2. Simultaneously or jointly, variable export prices, exchange rates and the total production have significantly effect on the volume of Gayo coffee exports in Bener Meriah regency.

8. Suggestions

Based on the research, there are some suggestions as follows:

1. Government BenerMeriah can give more attention to policies related to Gayo coffee production so that the quantity and quality of coffee can be better, and the local Government through the relevant agencies are expected to be more assertive in doing outreach to the coffee growers, as development in coffee processing technology. Especially ensure the provision of fertilizers to farmers as well as maintaining the quality and quantity of Gayocoffee.

2. Bener Meriah regency government is expected to give more promotion for Gayo coffee to the international world so that exports increasing from year to year..

3. The Government of Bener Meriah and Aceh provincial government is expected to open a coffee export port in Aceh without having to go through the port of Belawan (North Sumatra). So as to save the cost of freight and menyumbangan levy to Bener Meriah and Aceh Province

For researchers who want to do the same research with this study, other variable as an independent variable can be added and pay attention to the time interval that is used in order to obtain significant results.

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