DOMESTIC AND EXPORT MARKETING MODEL OF COFFEE

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Abstract- The aim of this research is to examine the domestic and export marketing model of coffee characteristic by establishing marketing model for Aceh coffee. This research cunducted in Aceh province particulary in Kabupaten Aceh Tengah dan Bener Meriah as a biggest arabica coffee production in Indonesia and as one of the good quality on the world. Time series data in 28th year (1990-2017) used for this research and was analyzed by descriptive and Structural Equation Modelling (SEM). This research finds that domestic price and good subtitution price (tea) has no effect to demand and export coffee volume. Export price, exchange rate, coffee production of Aceh and world coffee production has a positive and significant effects on demand and export coffee volume. Then, There is an indirect effect of Aceh coffee production and wolrd coffee production on coffee export volume which partially mediating by demand of coffee. Exchange rate has moderation effect on price of coffee toward demand and export volume.

Keywords- Coffee, domestic and export marketing model

I. INTRODUCTION

Coffee becomes one of the primary commodities in the international export market (Aerts et al., 2017). As a key commodity, its role becomes important for the economy, including as a provider of employment, sources of income, foreign exchange and encouraging regional development and development of world agro-industry (Winkler, 2014).

Today, Arabica coffee dominates the contemporary coffee trade even though its market share has fallen from about 80% of world production during the 1960s to about 60% at the turn of the century, initially due to Robusta's high production growth in Brazil, Vietnam and parts of Africa. But recently, Asia has become an important player as the world's leading coffee producer (Pillai, 1984, Richerzhagen and Virchow, 2002).

Indonesia is one of the countries in Asia that has an important contribution in international trade for arabica coffee. In Indonesia, there are many areas that produce arabica coffee, one of the regions that has contributed to produce arabica coffee with the best grade and quality is Aceh. Aceh arabica Coffee is generally cultivated in the highlands of Gayo, including Aceh Tengah, Bener Meriah and Gayo Lues. Until 2016, the largest coffee producer in Aceh is Aceh Tengah with 31.375 tons of arabica coffee production per-year, Bener Meriah with 26,357 tons per-year (BPS, 2017). Arabica coffee production in Aceh is more dominant than robusta coffee, this is triggered by the higher selling price of arabica coffee when compared to the selling price of robusta coffee and because of geographic condition.

This research focuses on domestic and export marketing model to examine the influence and the direction of domestic price and export prices of Aceh coffee, coffee production, currency exchange rate, substitution goods price and demand for Aceh coffee export. Therefore, the purpose of this study is to examine the domestic and export marketing model of coffee characteristic by building marketing model for coffee. This study implements quantitative method by using time series data and the data was analyzed by Structural Equation Modeling (SEM), the coffee demand as a mediation variable and exchange rate as the moderating variable for export price toward export volume of coffee examination.

II. LITERATURE REVIEW

Exports are the process of selling products made in their own country for use or resale in other countries (Griffin & Pustay, 2015). Exports have long played a role in regional economic analysis, primarily through the concept of an economic basis. The need for export is based solely on economic reasons. The amount of export volume can be influenced by the magnitude of export demand. Export demand refers to demand by foreign countries for goods and services produced domestically which in the end goods are exported to foreigners (Adesoye, 2017).

The amount of export volume can also be influenced by domestic prices, export prices, currency exchange rates, productions and substitution goods. Domestic prices are based on export weights not using export prices and are entirely based on producer or wholesale prices (Lipsey, Molinari, & Kravis, 1991). Whereas, Export price is the price of free on board (FOB) which is the result of export value with export volume with unit of currency used per ton (Lestari, Barokah, & Nurkhayati, 2014). Currency exchange rates play a very important role in determining export prices, exchange rates can affect both production and demand for export volumes (Smith, 2004). Therefore, production capacity can positively be attributed to exports (Rahmaddi & Ichihashi, 2012). While the price of substitutes can affect the fluctuations of the demand for the main goods when the price of the main goods increases or decreases (Kroon and George, 2007).

There have been several previous studies which found that export prices and domestic prices may affect export demand and volumes (e.g. Schembri,

1989; Smith, 2004). Smith (2004) in his study also found that demand and export volumes may also be influenced by exchange rates and this findings was in line with some studies (e.g. Asseery and Peel, 1991; Doyle, 2001; Bredin, Fountas and Murphy, 2003). Schembri (1989 was also found that the elasticity of export prices with respect to exchange rate changes, so the exchange rate can directly affect export prices. Other research by Rahmaddi & Ichihashi (2012) found that the production capacity can positively affect exports, whereas Aw (1993) found that the price of substitutes could also affect export. Furthermore, Smith (2004) also examines how the impact of export demand affects the export volume in New Zealand, the results indicate that demand have an important role to the export volume.

In the sector of coffee especially in Indonesia, production, exchange rate and price of coffee have a positive impact on coffee export volume (e.g. Sihotang, 2013; Soviandre, Musadieq, & Fanani, 2014). Other study by Anggraini (2006) found that the world price coffee and the price of competitor (tea) was significant impact on Indonesian coffee export volume. Raharjo (2013) in his study was also found that exchange rate and domestic price has an effect on demand and export volume.

III. METHOD

A. Research Design

This research was conducted in Aceh Tengah and Bener Meriah Regency, Aceh Province with the consideration that the area is one of the largest producers of arabica coffee in Indonesia. This research using descriptive-quantitative research approaches and the data used time series for 28 years from 1990 to 2017.

B. Data Analysis

The data was analyzed by Structural Equation Modeling (SEM) method with AMOS and SPSS program for descriptive analysis. Before analyzed by SEM the data must be tested by assumption of SEM that consists of outlier and normality tests. The mediation or indirect effect tested by Sobel test and the moderation by interaction method where the moderated variable is the exchange rate which directly moderated by the effect of export price on export demand and export volume.

IV. RESULT

A. SEM Assumption

The assumption of SEM will be tested to see if the data from this study is feasible for analysis or not. First, we will test the assumption of outlier using Mahalanobis distance method, the value of mahalanobis cut of value is 21.666 (df=9). After the test, the result show there is no outlier data. Then, for normality, the overall skewness and kurtosis value show normal values (Table 1).

Table 1. The Results of Skewness and Kurtosis Values

Variable	Skewness	C.R.	Kurtosis	C.R.
Domestic Price of Coffee	0.546	1.179	-0.874	-0.944
The Price of subtitute (Tea)	0.392	0.846	-1.481	-1.600
World Coffee Production	0.202	0.435	-1.263	-1.364
Domestic Coffee Production	0.764	1.652	0.388	0.419
Export Price of Coffee	0.537	1.159	-0.249	-0.269
Exchange Rate (Rp-USD)	-0.482	-1.040	-1.043	-1.126
Interaction (Price × Exchange)	0.342	0.739	-1.238	-1.337
Coffee Demand	0.259	0.561	-0.459	-0.496
Export Coffee Volume	0.256	0.554	-1.283	-1.386
Multivariate			2.569	0.483

B. Structural Analysis

After fulfilling the assumption of outlier and normality, then subsequently built structural model to analyze the influence between variables in this study. After performing several stages of analysis, the structural model that have been built in this study is considered good enough to test the influence between variables with the value of goodness of fit is x^2 = 104.365, DF= 38, p= 0.000, CMIN/DF = 2.746, RMSEA= 0.062, GFI = 0.843, AGFI = 0.827, NFI = 0.911, CFI = 0.952, TLI = 0.963, PNFI = 0.794 and PGFI = 0.706 (Table 2).

Table 2. The Results of Total, Direct and Indirect Effect

Variable	Total	Dir.	Indr.	Sobel	C.R.	P	Infor.
Demand ← Interaction		0.602			2.074	0.038	Not rejected
Demand ← Export Price		-0.447			-2.979	0.003	Not rejected
Demand ←Exchange Rate		-0.303			-2.091	0.037	Not rejected
Demand ←Substitute		-0.104			-1.329	0.221	Rejected
Demand ←World Prod		0.439			4.305	0.000	Not rejected
Demand ←Domestic Prod		0.485			4.570	0.000	Not rejected
Demand ←Domestic Price	0.034	0.034			0.099	0.922	Rejected
Volume ←Substitute	-0.140	-0.110			-1.479	0.139	Rejected
Volume ←World Prod	0.616	0.492			5.213	0.000	Not rejected
Volume ←Demand		0.284			2.454	0.000	Not rejected
Volume ←Export Price	0.143	0.270			2.003	0.045	Not rejected
Volume ←Domestic Prod	0.283	0.145			2.217	0.022	Not rejected
Volume ←Exchange Rate	0.498	0.584			4.489	0.000	Not rejected
Volume ←Interaction	-0.429	-0.599			-2.333	0.020	Not rejected
Volume ←Domestic Price	-0.062	-0.071			-0.234	0.815	Rejected
Volume ←Demand ← Export Price			-0.127	1.833		0.066	Rejected
Volume ←Demand ←Exchange Rate			-0.086	1.520		0.128	Rejected
Volume ←Demand ←Substitute			-0.030	1.100		0.271	Rejected
Volume ←Demand ←World Prod			0.124	2.203		0.028	Not rejected
Volume ←Demand ←Domestic Prod			0.138	2.123		0.034	Not rejected
Volume ←Demand ←Domestic Price			0.010	0.092		0.927	Rejected

Table 3. R-Squared Before and After the Interaction of Exchange Rate toward Export Price

	R-Squared	
	Before	After
Demand	0.303	0.891
Export Volume	0.567	0.762

C. Decision and Implication

The test result shows that there are a significant positive influence between coffee demand and coffee volume. Then, world production and domestic production have a positive effect on the demand and volume of coffee exports. Furthermore, export prices and exchange rates have a significant negative effect on demand and have a significant positive effect on export volume of coffee. The price of substitutes and domestic prices has no significant effect on demand and volume of coffee exports. The result of the simulation of indirect effect through demand variable shows that only world production and domestic production variables has an effect on the export volume of coffee indirectly through demand, while the other variables have no effect. Furthermore, for the direct effect of moderation interaction exchange rate between export prices on demand and export volume indicates that the effect of moderation is quasi, because the interaction variables indicate significant value and price variables toward demand and export volume are also significant more than 5% (0,05) significant level.

The results also give the implications that demand and volume of coffee exports depend on world production and domestic production, as well as export prices and currency exchange rates, when export prices and rupiah exchange rates against the US dollar decrease, increasing demand for exports coffee and will affect the amount of coffee export volume. Correspondingly, the change of exchange rates directly moderated the effects of export prices on demand and the volume of coffee exports. In this study, the price of tea is simulated as a competitor's price and the price of the competitor price are no effects on demand and the export of coffee, as well as the domestic price which also has no impact on demand and export volume. Finally, from the results of this study, it is also known that along with the increasing demand for coffee, it can indirectly increase the amount of coffee export volume to the world through the amount of coffee production.

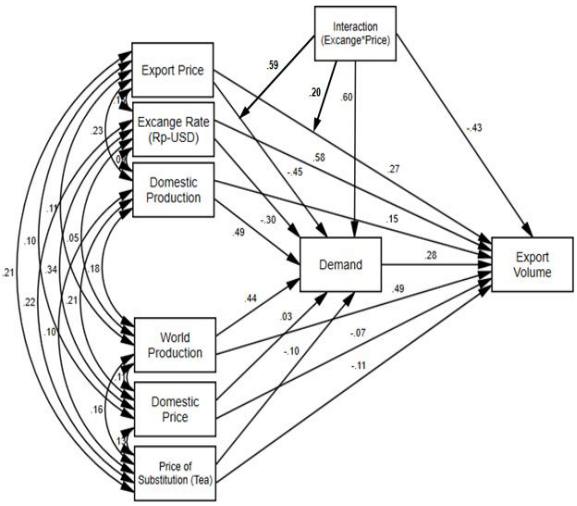

Figure 1. Structural Model

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