

Comparison analysis of imported coffee of Malaysia from Indonesia and Vietnam

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Abstract

Malaysia is an important coffee export destination for Indonesia. Recently Vietnam shifts Indonesian position as a number one coffee exporter in Malaysia. Based on this background, this study compares the position of Indonesian and Vietnamese coffee in the eyes of Malaysians by using demand function. The data is time series and co-integration test should be applied. Co-integration test is using Bound Test in ARDL method. Indonesian coffee demand by Malaysians is co-integrated, whereas the demand for Vietnamese coffee by Malaysia does not contain co-integration. It means, Vietnamese coffee is not a serious competitor to Indonesian coffee in Malaysian market.

Introduction

Indonesia is the world's fourth largest exporter of coffee after Brazil, Vietnam, and Columbia. Before 2000, the top three world coffee exporters were Brazil, Columbia and Indonesia (Pendergrast, 2010; Samper & Fernando, 2003). However, after 2000, Indonesia's ranking goes to the fourth after Vietnam entered the market and surprisingly succeeded in producing and exporting its coffee enormously. Hence, along with Vietnam's rise in world coffee exports and become the second largest coffee exporter, Indonesia's major coffee export destination countries were shifting their imports of coffee from Indonesia to Vietnam. The ranking of the top three Vietnamese coffee export destination countries—USA, Japan, and Germany—is equal to the ranking of the top three destinations of Indonesian coffee exports. For the top three coffee importing countries, Vietnamese coffee provides a new alternative to Indonesian coffee but at a more competitive price.

The aggressiveness of Vietnam in its attempt to dominate world coffee has begun to appear in Malaysia, the fifth top Indonesian coffee importers. In order to maintain Indonesian coffee domination in Malaysia, some actions should be done. One of the things is to know the taste of coffee lovers in Malaysia to coffee from Indonesia and Vietnam. This study will compare the tastes of Malaysians to Indonesian coffee and Vietnamese coffee. The conclusion of the taste is taken from the estimation of Indonesian and Vietnamese coffee demand of Malaysian. For the purpose, the data should be collected fifteen years back when Vietnamese coffee began to enter the Malaysian coffee market. Because the data is in time series, several tests should be applied before estimating the demand function.

The third wave in the coffee industry brings the culture of drinking coffee to an incredible level. In the last ten years, the coffee-drinking culture has ceased to be a routine and a companion of social events but has become a tradition with special coffee ceremonies (Manzo, 2010). With the increasing status of coffee as a globally styled drink, the demand for coffee has increased, which has resulted in doubling coffee production in the last fifty years (Pokorna & Smutka, 2010). Even in the last fifteen years world coffee production has increased sharply.

The change in drinking coffee style alters the pattern of world coffee import demand (Food and Agriculture Organization, 2015). The study of Goddard & Akiyama (1989) demonstrates that there was increasing of price elasticity of each type of coffee and the income elasticity of the United States coffee demand between 1962-1984. The results of cross elasticity indicated that there were types of coffee that mutually substituting and complementary. The conclusion of the study, coffee is an increasingly unappreciated commodity as a classy drink. Most of these coffee imports are for instant coffee production. But different conclusions occurred after 1990. Since the 1980s in the United States, the coffee drinking patterns have slowly changed where coffee drinkers are not satisfied with just instant coffee and ground

coffee only. New products of ready-to-drink coffee are emerging and the number of new wave coffee lovers is increasing very rapidly and in greater numbers than regular coffee lovers in the next twenty years (Lewin, Giovannucci, & Varangis, 2004). According to Igami (2015), price elasticity for coffee consumption decreased from 1989 to 2014 along with the declining income elasticity. These results support Lewin's estimation that there has been a massive pattern of consumption changes and coffee becomes more luxurious commodity.

For Indonesia, Hutabarat (2010) shows that up to 2001, Indonesia's coffee position in the eyes of consumers in major Indonesian coffee importing countries is inferior goods except for Japan, Germany and the Netherlands. With such a position it is concluded that Indonesian coffee products are the main ingredient for instant coffee making in instant coffee producing countries. However, Nugroho (2016) found that Indonesia's global coffee income elasticity value is 0.15 from 1990 to 2008. This shows that Indonesian coffee since the era of second wave drinking coffee pattern has been a necessity. Coffee patterns involving baristas in coffee shops increase the need for Robusta coffee. For the baristas, the advantage of Robusta coffee, which is the main product of Indonesian coffee, is easier to be processed into a variety of coffee drinks, as well as its cheaper price.

Research Method

The competition between Indonesian coffee and Vietnamese coffee is due to the fact that the two countries have the same advantages over coffee from Brazil and Columbia that is primarily robusta coffee. In Malaysia, coffee from both countries began to compete since 2000 when Vietnam entered the world coffee market and directly dominated robusta coffee market. This study uses data from 2000-2014. Data is taken from the comtrade website where the data of world commodity trade is recorded. The variables used are the import volume of Indonesian and Vietnamese coffee (in kilograms) for Malaysia, the price of imported coffee from Indonesia and Vietnam (in US \$), then the per capita income of the Malaysian population (in US \$). For data on coffee prices from Indonesia and Vietnam are obtained by dividing the value of coffee imports with the volume of coffee imported coffee country of the origin. This is a proxy of the real Indonesian and Vietnamese coffee prices. The real price of Indonesian and Vietnamese coffee is the composite price which is the sum of the weighted average price of each type of coffee imported. The weighted use is the share of coffee volume of each type of coffee from the total volume of coffee imported in each country. One problem that arises when using real coffee prices, real coffee import price and volume data is too micro to note on import data. International trade data usually uses aggregate data and thus requires special techniques to proxy from individual data. The next variable is per capita Nominal Gross Domestic Product which is the value of nominal GDP per capita in US \$.

Because this study is using time series data, then three tests should be completed before making a final estimation. The first test is to find out whether the data is stationary at the level or the first difference. Since most time series data is stationary at first level it is necessary to do a second test that is co-integration test. The purpose of the co-integration test is to find out whether long-term analysis exists in this study. If it does not pass the co-integration test, short-term analysis will be performed. The relationship between long-term and short-term will be detected using the model ECM (Error Correction Model). The third test is the classical assumption test.

The estimated model is the Malaysian import demand for Indonesian coffee and Vietnamese coffee. There will be two models to compare the result of price elasticity and income. The results of this comparison will show the tastes of Malaysian coffee consumers to Indonesian coffee and Vietnamese coffee. The second formulation of the model is as follows.

Model I:

$$\text{Log(INAVOL)} = \alpha_0 + \alpha_1 \text{Log(INAPR)} + \alpha_2 \text{Log(VIPR)} + \alpha_3 \text{Log(MGDPCAP)} \quad (1)$$

Model II:

$$\text{Log(VIVOL)} = \beta_0 + \beta_1 \text{Log(VIPR)} + \beta_2 \text{Log(INAPR)} + \beta_3 \text{Log(MGDPCAP)} \quad (2)$$

Where,

INAVOL is volume of Malaysian coffee imports from Indonesia (kilogram).

INAPR is price of Malaysian coffee imports from Indonesia (US\$)

VIVOL is volume of Malaysian coffee imports from Vietnam (kilogram)

VIPR is price of Malaysian coffee imports from Vietnam (US\$)

MGDPCAP is per capita nominal GDP of Malaysia (US\$)

Results and Discussion

Stationarity test of each variable is the first test. The results from Table 1 show that all variables contain first difference stationarity except for the price of Vietnam coffee which is stationary at level. Due to differences in the degree of stationarity in the variables, the Engle-Granger method for co-integration test could not be performed. The ARDL (Autoregressive Distributed Lag) method of Pesaran and Shin which is bound test (Pesaran, Shin, & Smith, 2001) was applied to test the co-integration of this study. Therefore Bound test is employed to determine whether there is co-integration or not. The results of the Bound test (at Table 2) show that model 1 is a co-integrated. It means there is a relation between short-term and long-term patterns of Indonesian coffee import demand. In the second model, it shows that the Malaysian import demand of Vietnamese coffee only valid for short-term behavior.

Table 1. Unit Root Test using Augmented Dickey-Fuller Test

Variable	ADF test for Level	Decision	ADF test for First Difference	Decision
Log(INAVOL)	-0,557036	Not Stationary	-3,027549**	Stationary
Log(VIVOL)	-0,890933	Not Stationary	-4,229379**	Stationary
Log(INAPR)	-1,250600	Not Stationary	-4,123190**	Stationary
Log(VIPR)	-3,328860**	Stationary	-4,653650**	Stationary
Log(MGDPCAP)	-0,446510	Not Stationary	-4,419730**	Stationary

Note: ** significance at 5% using Mackinnon critical value.

Table 2. Result of Co-integration Test Using Bound Test

Variables	F-statistic	0 Bound	1 Bound	Decision
Model 1: Log(INAVOL), Log(INAPR), Log(VIPR), Log(MGDPCAP)	10.77998*	2.72	3.77	Co-integrated
Model 2: Log(VIVOL), Log(VIPR), Log(INAPR), Log(MGDPCAP)	2.474453	2.72	3.77	Not Co-integrated

Note: * significance at 1%

No asterix means insignificant

Next tests are classical assumption tests. All tests are presented in Table 3. From the table indicates that heteroscedasticity and autocorrelation do not exist in the data for the estimation of the import of Indonesian coffee and the estimation of the import of Vietnamese coffee. The White test for heteroscedasticity and Breusch-Godfrey test for autocorrelation for both estimations are low which are not rejected at significance level at 40% and 80%. However, this study does not apply multicollinearity test since the fact that an estimation will still obtain a good fit even though all predictor variables are correlated among themselves. (Kutner et.al., 2005)

Table 3. Heteroscedasticity and Autocorrelation Test

Models	White Test for Heteroscedasticity		Breusch-Godfrey Test for Autocorrelation	
	F-statistics	Conclusion	F-statistics	Conclusion
Indonesian coffee demand	0.224278	No Heteroscedasticity	0.929324	No Autocorrelation
Vietnamese coffee demand	0.415334	No Heteroscedasticity	0.003575	No Autocorrelation

After co-integration test, the next step is to estimate ECM (Error Correction Model) to find out whether short-term pattern can adjust long-term pattern. The results of the ECM estimation of Indonesian coffee import demand are listed in Table 4. The next estimation is a long run demand for Indonesian coffee. It is in the Table 5. Vietnam coffee demand estimation for short run will be in Table 6.

Table 4. ECM Estimation of Import Demand Indonesian Coffee of Malaysia

Variables	Coefficients	Std. Error	t-Statistic	Prob.
Constant	0.022	0.073	0.305	0.767
D(Log(INAPR))	-1.148	0.345	-3.331	0.009*
D(Log(MGDPCAP))	2.522	0.857	2.943	0.016**
D(Log(VIPR))	-0.389	0.175	-2.222	0.053**
ECT(-1)	-0.752	0.331	-2.268	0.050**
R-squared	0.645	Mean dependent var		0.098
Adjusted R-squared	0.487	S.D. dependent var		0.258
S.E. of regression	0.185	Sum squared resid		0.307
F-statistic	4.088	Log likelihood		6.869
Prob(F-statistic)	0.037	Durbin-Watson stat		1.503

Note: *,** significance at 1% and 5%

From the result in Table 4, in the short run, the signs of the coefficients are matched with the theory which are negative on own price, positive on income per capita, and negative on other commodity's price. The signs from short run estimation are matched with the signs from long run estimation (Table 5). The behavior of Malaysia coffee drinkers for Indonesian coffee are normal. They will respond just like law of demand when price changes, then will consider Indonesian coffee as normal goods when their income increase. For them who prefer Indonesian coffee, Vietnam coffee is just for complementary. First priority is Indonesian coffee and Vietnam coffee is just to try it or complement. From the coefficient of ECT(-1) shows that Malaysian coffee drinkers are loyal to Indonesian coffee. If there is a shock of the demand of Indonesian coffee, they will come back to Indonesian coffee eventually. However, based on Table 5, Indonesian coffee is expensive and considered as luxurious coffee generally for Malaysians. It is a good indication for Indonesia that Malaysia is a reliable market for Indonesian coffee. If Indonesian coffee producers or exporters can manage the price until considered inexpensive, the future is bright. It is difficult for other countries of coffee producers to dominate Malaysian coffee market because Indonesian coffee still dominates the market. However, if the condition of Indonesian coffee price is persistent, the coffee from other countries would replace the domination of Indonesian coffee in Malaysia. Vietnam coffee is the nearest candidate to replace Indonesian coffee.

Table 5. Estimation of Long Run Import Demand Indonesian Coffee of Malaysia

Variables	Coefficients	Std. Error	t-Statistic	Prob.
Constant	-11.082	5.219	-2.123	0.057
Log(INAPR)	-1.025	0.448	-2.287	0.043**
Log(MGDPCAP)	3.173	0.604	5.251	0.000*
Log(VIPR)	-0.708	0.266	-2.658	0.022**
R-squared	0.913	Mean dependent var		16.448
Adjusted R-squared	0.889	S.D. dependent var		0.668
S.E. of regression	0.223	Sum squared resid		0.545
F-statistic	38.359	Log likelihood		3.583
Prob(F-statistic)	0.000	Durbin-Watson stat		1.375

Note: *,** significance at 1% and 5%

The signs result of Table 6 is slightly different with Indonesian coffee demand. The cross elasticity in Table 5 is negative while the cross elasticity in Table 6 is positive. For Malaysian coffee drinkers who enjoy Indonesian coffee, for the moment, Vietnamese coffee is only the complement of Indonesian coffee. However, for people who drink Vietnamese coffee, Indonesian coffee is the substitution. Malaysian coffee drinkers only enjoy Vietnamese coffee for short term. In the long term, there is no statistical evidence that they enjoy Vietnamese coffee.

Table 6. Estimation of Short Run Import Demand Vietnam Coffee of Malaysia

Variables	Coefficients	Std. Error	t-Statistic	Prob.
Constant	0.129	0.089	1.455	0.176
D(Log(VIPR))	-1.121	0.214	-5.243	0.000*
D(Log(MGDPCAP))	-0.079	1.099	-0.072	0.944
D(Log(INAPR))	1.296	0.425	3.046	0.012*
R-squared	0.831	Mean dependent var		0.122
Adjusted R-squared	0.781	S.D. dependent var		0.510
S.E. of regression	0.239	Sum squared resid		0.571
F-statistic	16.436	Log likelihood		2.537
Prob(F-statistic)	0.000	Durbin-Watson stat		1.832

Note: * significance at 1%

Statistical proof shows that Indonesian coffee is still superior to Vietnamese coffee in Malaysians market. Probably, Malaysian market cannot attract Vietnamese coffee producers to intervene the market. Even though in 2006, 2007, and 2009 Vietnam export of coffee to Malaysia were larger than the coffee export of Indonesia, the domination went back to Indonesian coffee again until 2014. Vietnam is the new comer in international coffee market in the last 20 years. The focus probably was to the main countries which have largest consumption of coffee such as, USA and Europe. In reality, Malaysia is not an important coffee-consuming country in the world. On the average, every Malaysian consumes 1.3 kg coffee per year, fourth in Southeast Asia after the Philippines, Singapore, and Thailand, and also is 54th in the world. From this point of view, it is understandable if Vietnam was not attracted to penetrate to Malaysian market any further.

Nevertheless, along with the growth of world coffee consumption, Malaysia experienced a significant increase in coffee consumption. Coffee culture in Malaysia is rapidly growing not only because of the growth of population but also because of the influence of western coffee beverage products which change the people's taste of coffee in Malaysia (Rahman, 2010). The changing taste of drinking coffee is not only happening in Malaysia but also in the whole Asia (International Coffee Organization, 2014). Coffee shop invasion of western culture which is then counteracted by the growth of the local coffee shop is one of the main causes of the increase in coffee consumption of people in Asia and particularly in Malaysia (Isa, Subhan, & Saud, 2018). This situation is the indication that Malaysian coffee market will increase dramatically. This is good news and a bad news for Indonesia. Good news means the demand of Indonesian coffee in Malaysia will be much larger than before. However, it will attract Vietnam to penetrate Malaysian coffee market. Indonesian coffee exporter should aware because Vietnam had beaten Indonesia in coffee market domination in Malaysia easily in three years. For preparation of the next battle, Indonesian coffee producers should increase the productivity of coffee production in order to escalate the efficiency and the comparative advantage to Vietnam (Baroh, Hanani, Setiawan, & Koestiono, 2014; Egger & Orr, 2014; Hidayat & Soetrisno., 2010). It is not such an easy task, however. The payoff of such task, it will continue the domination of Indonesian coffee even under the dynamism of Malaysia coffee market, such as the change of the coffee taste.

Conclusion

According to statistical evidence, Indonesian coffee still dominates Malaysian market even under the threat of Vietnamese coffee. Vietnamese coffee had been dominant in Malaysian market for three years, but Indonesian coffee took over the domination again. There are two reasons why Indonesian leads again. Firstly, Malaysian market is not top priority for Vietnamese coffee exporters. They focus on the USA and European market because the demand is immense. Secondly, Malaysian coffee drinkers are loyal to Indonesian coffee. If there is a shock on the Indonesian coffee demand in Malaysian market, they will look for Indonesian coffee again. The negligence of Indonesian coffee is only temporary. However, Indonesian coffee producers should be aware of the weaknesses of Indonesian coffee, i.e., the expensive price, and the dynamism of Malaysia coffee market. To overcome the price's problem, Indonesian coffee producers should increase the productivity of coffee production in order to escalate efficiency of production. For anticipating the dynamism of Malaysian coffee market, Indonesian coffee producers should watch over on changing consumer tastes. Besides, it is appropriate for Indonesian coffee producers to remember that Vietnam had been taken over the Malaysian market domination from Indonesia for three years. Therefore, the coffee exporters should always be aware with the competitors from Vietnam, and are able to make correct strategy to anticipate the change of Malaysian demand.

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