

The Analysis of Affecting Factors to the Export of Rattan Furniture Indonesia in the International Market

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Abstract: *Rattan is among the leading commodities to Indonesia for almost 80% of the world's rattan filled by Indonesia. Furniture discussed here are the type of HS 940151 (Seat Of Rattan) and HS 940381 (Furniture Of Rattan). Applicability of government policy in 2011 by decree of the Minister of commerce 35 / M-DAG / PER / 11/2011, which contains about banning the export of raw rattan is expected to grow back the furniture industry had dimmed in the years before the enactment of the policy, so it is necessary analysis related which factors that give effect at rattan furniture trade. This research use approach of Gravity model and ratio of potential trade to know which countries can be expand for export. Factors that affect the export for HS 940151 are GDP per capita importer, GDP per capita Indonesia, economic distance, real exchange rate, price, and government policy. And then factors that affect the export for HS 940381 are GDP per capita importer, GDP per capita Indonesia, economic distance, and price. The potential countries to expand trade HS 940151 are Japan, Netherland, and Belgium. And for HS 940381 the potential countries are all countries in this research.*

Keyword: Export, Rattan Furniture, Gravity Model, Potential Trade

1. Introduction

Indonesia is a country that producing rattan commodity for the world. Almost every year about 80% of raw rattan canes absorbed by the industry in many parts of the world come from Indonesia. Rattan is an industrial raw material classified as environmentally friendly, so that the industrial products directly processed rattan is also an environmentally friendly product. Indonesia has a comparative advantage in the supply of raw material for the rattan industry, because production of raw rattan in the world is dominating by Indonesia, but the change of policy make the situation for rattan industry unstable. Domestic rattan industry is expected to contribute foreign exchange as a period in 1988 when the rattan industry was victorious, because the current situation in 1988 is equal to the current situation that the government conducts a policy of protection by banning the export of raw rattan.

Then setback rattan industry going back to the issuance of export of raw rattan faucet opening in 1996 by lowering the export tax of 10 percent, the policy relating to the Letter of Intent agreed between the Indonesian governments with IMF which one of the points deal is remove the export ban except for health and safety reasons. Circumstances worsened by the financial crisis in 1997-1998 which made Indonesia should revoke the export of rattan mats trough Minister of Trade Decree No.33 / MPP / Kep / 1998.

In mid-2005 upstream industries are demanding the government to regulate the export of rattan that contains policies raw rattan export ban, the policy contained in the Minister of Trade Decree No.12 / M-DAG / PER / 6/2005. In the policy of rattan which can be exported are mixed rattan with a diameter of 4-16 mm and semi-finished rattan from any rattan species.

Opened the faucet exports in 2005 making state competitors Indonesian rattan furniture industry experienced a heyday for feedstock easily obtained by them. These countries include China importing raw rattan Indonesia in large numbers. Chinese are buying raw rattan Indonesia controlled nearly 20.72% market share and rattan furniture world, while Indonesia, which is the producer of the raw material world only controlled 7.68% of world market share. China is able to produce better goods at a cheaper price and market their products to Indonesia's export destination countries such as America, Japan, Germany, and others [7].

Post-enactment of the opening of the tap export of raw rattan in 2005 that led Indonesian rattan industry to deteriorated state, the government again issued a policy through a decree of the Minister of Trade No.36 / M-DAG / PER / 8/ 2009 on rattan export restrictions for certain types of diameter. These regulations prohibit the export of mixed rattan from any rattan species. Then in 2011 the government confirmed the ban on export of raw rattan contained in Minister of Trade Decree No.35 / M-DAG / PER / 11/2011.

Which raised the question underlying this study, are as follows: what are the factors that affect the export value of Indonesian rattan furniture? Then how is the trade potential of Indonesian rattan furniture?

2. Literature Survey

International trade limitations based on their differences and differences in the availability of resources possessed by each country. Such conditions led each country to export and import. In practice, political constraints and policies of each country is different. Protectionism is a deliberate policy as an attempt to establish trade barriers, such as tariffs and quotas in order to protect domestic industry from foreign competition. Another problem is the currency exchange rate, these problems arise from each country has its own national currency, so that

when trade with other countries should be taken into account exchange rate agreed by the country in trade relations [13].

A country will tend to export goods whose domestic production costs are relatively lower compared to the same goods abroad and be able to compete in international markets (comparative advantage). On the contrary, a country will import goods cost of production in the country is relatively more expensive than the same goods abroad. Several factors support a country can compete in the international market is human resources, natural resources, technology and social culture in which these factors as determinants of price and quality of goods and services produced.

Schaak [15] conducted a study entitled The Impact of Free Trade Agreements on International Agricultural Trade: A Gravity Application on the Dairy Product Trade and the ASEAN-China FTA. This study aims to determine the impact of the free trade agreement between ASEAN and China on the world dairy products. The data used for this study from the year 1995-2013 with disaggregated data covering 36 countries producing dairy products, including ASEAN and China. The results showed that there was the creation of trade, import and export diversion effects of four groups of commodities. Estimated net effect overall trade is negative. Therefore, the current implementation of the FTA should be critically evaluated to dairy products.

Shrerif [16] conducted a study with the title Intra-Regional Trade, Evidence from the UAE: A Gravity Model Approach to determine the flow of bilateral trade between the United Arab Emirates to the two country group, namely group A (Bahrain and Qatar) and group B (Oman and Kuwait). The model used in this study is a model of gravity by using panel data from 1991-2009. These results indicate that the coefficient of GDP in each country importer and exporter is positive, it indicates that increased trade under the proportional GDP importing countries but increased over proportionally GDP exporting countries (UAE). While the positive effect on the distance of the bilateral trade.

Khan [8] studied the bilateral trade between Pakistan with its trading partners, namely Japan, Turkey, Malaysia, India and Iran under the title An Empirical Analysis of Pakistan's Bilateral Trade: A Gravity Model approach. The data used for the analysis starting from the year 1990-2010 with a frequency of 2 years. Results from these studies showed that GDP and GDP per capita has positive influence on trading volume while the distance and dummy variable (cultural similarity) showed a negative effect on trading volume. The ratio of the actual trade is predicted for the year 2010 against Pakistan trading partner countries are not well realized because hampered by policy applied Pakistan. It is almost similar happened in the state of Georgia, the research conducted by Dilanchiev [3] with the title Empirical Analysis of Georgian Trade Pattern: Gravity Model shows that trade Georgia positively influenced by the following factors: the economic level, GDP per capita, and history general. The results also show that the hypothesis of foreign direct positive effect on trade Georgia.

3. Research Method

3.1. Types and Sources of Data

The focus of this research is directed to observe the flow tendency rattan commodity export trade that occurred in the period 2007-2015 using the 6-digit HS code is 940151 (Seat of rattan) and HS 940381 (Furniture of rattan). The data used is secondary data from Central Bureau of Statistics of Indonesia, UNCOMTRADE, and the World Bank. Countries surveyed are America, Germany, Japan, France, Netherland, United Kingdom, Belgium, and Italy. The research variables observed value of exports as the dependent variable, and gross domestic product per capita, economic distance, the real exchange rate, the price of goods, and the government's policy as an independent variable.

3.2. Data analysis method

In this study, the data collected was analyzed using a model of gravity with the help of software EVIEWS 9. After got the regression coefficients then can do the calculations to analyze the ratio of trade potential.

3.2.1. Gravity Model

The gravity model is a model that was first introduced by Jan Tinbergen in 1961. This model is based upon the performance of the law of gravity discovered by Sir Isaac Newton and used to guess the trade based on the distance between countries and the interaction between countries. The law of gravity states that an interaction between two objects is proportional to its mass and inversely proportional to the distance of each. If the equation is then applied to international trade [1]:

$$F_{ij} = G \frac{M_i M_j}{D_{ij}}$$

Where:

F = Volume of trade flows

M = size of the economy for the both country

D = Distance to the economies of both countries

G = Constant

Analogy above can be explained that the volume of trade flows (exports) are directly affected by the size of each country's economy (GDP) and is inversely related to the distance of each country. Thus a country which has a large volume of trade flows which it will do greater trade and on the other side of the country which has a distance apart will have relatively smaller trades.

Gravity Model in practice has been used by many researchers and based on research results, it is evident that the gravity model of a model that has a great predictabilities to empirical experience [1],[10]. Research by Funk [4], with the title Intra-NAFTA Trade in Mid-South Industries: A gravity model concluded that gravity model show a significant difference to the Intra-NAFTA trade both between countries and the magnitude of the industry. So the measures taken are

providing variety of import and export between nations. Gravity model is also used by Tran [17] in the research of Choosing The Best Model In The Presence Of Zero Trade: A Fish Product Analysis, which explains that the model of gravity is able to explain the trade of fish products have good potential if the standard treatment in developing countries in accordance with international standards. Khiyavi [9], revealed that the gravity model of providing information that trade in agricultural products increased both for the State of the exporter or importer countries.

From the above theory, the researchers created a model adapted to the conditions of the rattan industry at this time by adding the policy as a dummy variable. The model is as follows:

$$\ln (EX_{ijt}) = \beta_0 + \beta_1 \ln (GDPCAP_{jt}) + \beta_2 \ln (GDPCAP_{it}) + \beta_2 \ln (ER) + \beta_3 \ln (DIST) + \beta_4 \ln (PRICE) + \beta_5 Policy + E_{ijt}$$

Where:

- EX_{ijt} :The export value of rattan furniture Indonesia to country j in year t (USD)
 GDPCAP_{jt} :GDP per capita in the country j t year (USD)
 GDPCAP_{it} : GDP per capita of Indonesia in t year (USD)
 ER_{ijt} :The real exchange rate between countries Indonesia with state j at year t (IDR / LCU)
 ECODIST_{jt} :The distance between the Indonesian economy with country j in year t
 PRICE_{jt} :Indonesian rattan furniture price in country j in year t
 Policy :Dummy variable policy government about banning raw rattan raw materials (2007-2010 = 0, 2011-2015 = 1)
 E_{ijt} :Error Term

Operational definition

To clarify the variables are written in equation (6), the operational definition of these variables are:

1. Export Value (Y) nominal become the dependent variable in the model which is the total value of prospective Indonesian exports to the importing country that is expressed in US \$.
2. GDP per capita (GDP) is a measurement of total GDP per year divided by the total population or the population.
3. The real exchange rate (RER) is a real exchange rate of the currency against the Indonesian Rupiah destination country, is denominated in foreign / local currency. The formula to get the real exchange rate of Rupiah to destination countries are:

$$RER = \text{Nominal exchange rate} \times \frac{CPI_{\text{Importer}}}{CPI_{\text{Exporter}}}$$
4. Distance economics (ECODIST) is an approach that represents the cost of transport between Indonesia and destination countries is the result times the distance from the state capital to the capital of the country of destination Indonesia expressed in terms of US Dollars. The farther the distance between the two countries, the greater the cost of transportation as needed. Economic distance is obtained by the formula:

$$ECODIST = \frac{\text{Geographic Distance Between Country}}{\sum GDP_j}$$

5. PRC is an Indonesian furniture export prices in the destination country is obtained by dividing the value of exports in year t with total production in the same year.
6. Policy is a dummy variable on raw rattan export ban policy issued in 2011 with a number of Trade Ministerial Decree No.35 / M-DAG / PER / 11/2011.

Potential Ratio Trading

Measurement of potential trade between countries is used to analyze the purpose of trading in the future. The potential of trade between countries can be measured by the coefficient estimates generated from the gravity model equations to predict the value of the trade and actual trade value of a country[18], [6], [11]. The ratio formula actual trade potential of a country is as follows.

$$TP = \frac{P}{A}$$

Where:

- TP = Ratio trade potential
 P = the prediction trading value in of gravity model estimation
 A = the actual trading value of gravity model estimation

The ratio of trade potential between countries has two possible outcomes, namely:

1. TP > 1, meaning that Indonesia's trade with trading partners experiencing under trade or have not exceeded the existing trade potential. The implication is that Indonesia has the potential to expand trade to trade partner countries in the future.
2. TP < 1, meaning that Indonesia's trade with trading partners experienced over trade or have exceeded the existing trade potential. The implication is that Indonesia has no potential to expand trade to the partner country in the future.

3. The Result of Research

3.1. Analysis of Factors that Influence the Indonesian Rattan Furniture Export Value in Eight Export Destination

The determinants of commodity exports of Indonesian rattan furniture importer in eight countries analyzed using panel data with gravity model. This model has been widely applied in various trade flow analysis to analyze the bilateral and multilateral trade cooperation. The gravity model in this study will learn about the effect of economic variables and non-economic to export commodities from Indonesia to the largest exporting country. The independent variables are predicted to influence the value of exports (EX) are the GDP per capita of the exporting country (GDPCAPI), the GDP per capita of the importing country (GDPCAP), the real exchange rate (ER), economic distance between country (DIST), the price of goods

(PRICE) and government policy banning the export of raw rattan (Policy).

The main focus of studies using gravity models were originally GDP variable and distance, but the development of trade and the countries of the world began to make protection of the domestic industry, then the variable tariff and non-tariff also became increasingly influential. The GDP variable in this study using the GDP per capita to be a reflection of a country's ability to pay or consume goods. Variable distance is a proxy of transport costs in the trade. In this study, the distance used is the economic distance compares between geographical distances with GDP. Policy variable used to see the impact of the implementation of the policy on a commodity, so the results can be used as a study in determining the policies to be implemented in the next period.

Table 1: Results of the gravity model estimation rattan furniture export value HS and HS 940 381 940 151 Indonesia

Variables	Commodities	
	HS 940151	HS 940381
C	-8,096522**	-23,45230**
GDPCAP	9,876350*	9,569146*
GDPCAPI	-2,330566*	-1,060702*
DIST	-7,585196*	-7,870022*
ER	-1,323929*	-0,218543
PRICE	0,422221*	0,511211*
Policy	0,332006*	-0,054431
R-squared	0,992887	0,931370
Adjusted R-squared	0,991292	0,915988
Prob(F-statistic)	0,000000	0,000000
DW stat	2,158904	2,171986

*signified at 1%

**signified at 5%

3.1.1. GDP per capita importer

GDP per capita of importer rattan furniture destination countries show the purchasing power of the specific goods and services. Based on estimation model, GDP per capita importer of rattan furniture for both HS 940151 and HS 940381 significant at 1% significance level. Sign of the coefficient on the variable consistent with the hypothesis that 9.87 and 9.56. This gives us the sense that if real GDP export destinations of Indonesian rattan furniture increased by one percent, then the value of commodity exports rattan furniture increased by 9.87% and 9.56%, ceteris paribus. In the estimation result can be seen that real GDP variable export destination countries have a significant effect on the real level of 1%. This means that real GDP variable of America, Germany, Japan, France, Netherlands, United Kingdom, Belgium and Italy have a significant impact in affecting demand for Indonesian rattan furniture exports. This shows that the America, Germany, Japan, France, Netherlands, United Kingdom, Belgium, and Italy have a high purchasing power for commodities Indonesian rattan furniture.

3.1.2. GDP per capita Indonesia

Based on estimation models show that the probability value of GDP per capita Indonesia variables for both models is 0.0000

smaller than real level of 1%. This shows that the GDP per capita Indonesia variables significantly influence the export value of Indonesian rattan furniture. Variable GDP per capita Indonesia also has a negative effect on the competitiveness of Indonesian products processed rattan evident from the magnitude of the coefficient parameters -2.33 and -1.06. This shows that when there is an increase in GDP per capita Indonesia by one percent, there will be a decrease in the value of exports of rattan furniture Indonesia amounted to 940 151 HS, and HS 940 381 2.33% 1.06%, ceteris paribus. Growth in GDP per capita Indonesia (exporter) is one indicator for Indonesian rattan furniture exports to the country of destination.

Increased GDP per capita Indonesia can be interpreted as an increase in the average purchasing power of Indonesian people which will necessarily increase the demand for goods and services in domestic demand for refined products including rattan furniture Indonesia. Increased domestic consumption would reduce the amount of exports of refined products export of rattan because basically done when there is excess production of domestic level. Product rattan furniture Indonesia are usually trafficked abroad is a product of higher quality than the publicly traded in the domestic market, but with the increasing purchasing power of the domestic people, products processed rattan with high quality becomes more affordable to local consumers that demand will increased.

3.1.3. Economic Distance

Economic distance indicates that the probability of a significant effect on the real level of 1% in both models. Signs coefficient HS 940151 and HS 980381 of these variables in accordance with the hypothesis, that is -7.58 and -7.87. This explains the value if the distance of the Indonesian economy with export destinations rose one percent, there will be a decrease in the magnitude of demand for commodity exports rattan furniture HS 940151 Indonesia amounted to 7.58% and rattan furniture HS 940381 Indonesia amounted to 7.87%. This is consistent with the hypothesis that the economic distance had negative effect on the value of commodities export Indonesian rattan furniture. Increasing the distance of the Indonesian economy with export destinations indicates the distance that must be taken so that the cost of transport for the transport of goods (distribution cost) increases that will take effect to the decline in demand for the commodity exports of Indonesian rattan furniture. Likewise, if the economy distance is getting smaller, transport costs of transporting goods (the cost of the distribution) will be reduced which will affect the increased demand for Indonesian rattan furniture in the destination country.

3.1.4. Real Exchange Rates

The real exchange rate shows that the probability of a significant effect on the real level of 1% for HS 940 151 but not significant for HS 940 381 for the probability value above the real level of 10% is equal to 0.60. Sign of the coefficient on the variable is not consistent with the hypothesis, namely -1.32 and -0.21, the value is clear that if the real exchange rate has appreciated Indonesia then it will reduce the value of

Indonesian rattan furniture exports amounted to 1.32% for HS 940 151, HS 940 381 while for the real exchange rate does not affect the value of exports. However, this is according to research conducted by [14], [2], [5]. That study concluded that the exchange rate has a significant negative effect on the export performance. The same opinion was expressed by Nasution in Ginting [5], said that the depreciation of the exchange rate against the US dollar actually has a positive effect on Indonesia's current account (if the rupiah weakened then it will encourage exports become larger). However, according to Chairman of the Indonesian Employers Association (APINDO) Sofjan, Indonesia will be difficult to increase the volume of exports because it is influenced by internal factors in the country. The increase in the provincial minimum wage, the increase in electricity tariff, and fuel oil will indirectly affect the cost of production. As a result, products in the country increasingly difficult to compete with products from other countries in the international market [12].

3.1.5. Price of Rattan Furniture Indonesia

The coefficient of Indonesian rattan furniture export prices to the destination country shows a significant effect on the real level of 1% for both models. This shows that the variable export prices of Indonesian rattan furniture is one of the factors that affect the export value of Indonesian rattan furniture both for HS 940151 and HS 940381. The coefficient of export prices was 0.42 and 0.51, meaning that if the price of HS 940151 Indonesian rattan furniture rose by 1%, the value of Indonesian rattan furniture exports will increase by 0.42%, *ceteris paribus*. The same result for HS 940381, if the price of rattan furniture rose by 1%, the value of exports will increase by 0.51%, *ceteris paribus*. Basically, the increase in export prices illustrates the quality and the quality of products processed rattan, the higher the price of Indonesian rattan furniture exports indicates that the quality and the quality of products processed rattan Indonesia is getting better so the price is also higher in the international market.

3.1.6. Government Policy

The government's policy is a dummy variable that explains the influence of raw rattan export ban on the export value of Indonesian rattan furniture. The policy has a positive and significant coefficient for rattan furniture HS 940151 with a coefficient of 0.33, it indicates that the policy is influential in the increase in the export value of rattan furniture HS 940151 0.33%. As for rattan furniture HS 940381 is negative coefficient of -0.05 and not significant at the level of 10% with a probability value of 0.62, it means that the policy banning the export of raw rattan does not affect the trading of commodities HS 940 381.

3.2. Indonesia Rattan Furniture Trade Potential HS 940151 and HS 940381 to Eight Countries Major Trading Partners

Discussion about the export potential of rattan furniture to the eight export country's destinations there are; USA, Germany, Japan, France, Netherland, United Kingdom, Belgium, and Italy begins by estimating the factors that affect the value of

the export of rattan furniture to the eight countries with gravity model which further based on the results of these estimates will be measured potential of the eight countries in the absorption of rattan furniture from Indonesia. To make predictive ratio value of the model of gravity with the actual value of the model of gravity so that it can be known which countries of the eighth destination countries which still have a high potential to export rattan furniture from Indonesia (under estimate) and any country that has the low potential on exports of rattan furniture from Indonesia (over estimate).

Based on the calculation of the ratio of export value, if the ratio P / A is greater than 1 then the real trading is still smaller than the existing potential and the implication is there is a high potential for export of rattan furniture Indonesia to these eight countries, and if the ratio P / A is smaller than 1 then the actual trade is already larger than the existing potential, and the implication is markets in eight countries is already not a potential importers. Results of analysis for commodities HS 940151 can be seen in Table 2 and for commodities HS 940381 in table 3.

Table 2: The Average of trading potential for HS 940151 Indonesia to eight importer country

<i>Countries</i>	<i>Average of Trading Potential</i>
America	0,89
Germany	0,95
Japan	1,79
France	0,91
Netherland	1,05
United Kingdom	0,98
Belgium	1,02
Italy	0,85

Only three countries that have trade potential for commodity HS 940151 Indonesia, there are Japan, Netherlands, and Belgium. Japan had the highest average trading potential value that is 1.79 higher from the actual trade. Thus, Indonesia has the potential to expand trade to Japan. As for trade in the Netherlands and Belgium can still be improved although only a small effect to the value of exports of HS 940151 for the potential value of trading respectively at 1.05 and 1.02. As for commodities rattan furniture HS 940381 has potential trade in the all importing country and Japan who has the greatest trade potential is 1.30, followed by the Netherland, Belgium, French, Germany, United Kingdom, American, and Italian.

Table 3: The Average of trading potential for HS 940381 Indonesia to eight importer country

<i>Countries</i>	<i>Average of Trading Potential</i>
America	1,03
Germany	1,10
Japan	1,30
France	1,11
Netherland	1,21
United Kingdom	1,07
Belgium	1,18
Italy	1,02

4. Conclusions and Suggestion

4.1. Conclusions

Factors that influence the value of commodity exports 940 151 HS is the per capita income of export destination countries, Indonesia's per capita income, the economic distance between Indonesia and destination countries, the real exchange rate, the price of goods, and government policies.

Factors that influence the value of commodity exports 940 381 HS is, income per capita export destination countries, Indonesia's per capita income, the economic distance between Indonesia and destination countries, and the price of goods.

Indonesia has the potential to develop markets in Japan, the Netherlands and Belgium for the commodities for trading 940 151 HS Indonesia in these three countries are still under trade. As for the commodity HS 940381 Indonesia likely to develop markets in all trades partner countries.

4.2. Suggestion

The government's policy of banning the export of raw rattan has not been able to increase production and competitiveness of commodities HS 940 381, so expect any other support such as improving infrastructure, facilities, permissions, and security trading, because these commodities still has a chance to be developed export value in the destination country ,

Basically, raw rattan export ban has the support of several parties aim to secure the raw materials of rattan and develop the domestic rattan industry. But the government should provide more support to entrepreneurs both domestic rattan entrepreneurs in the downstream and upstream, among others, to improve infrastructure, security against the illegal exports, and provide facilities that support such as trade financing.

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