THE INFLUENCE OF REVEALED COMPARATIVE ADVANTAGE (RCA) INDEX, INDIA'S GDP, AND INDIA PALM OIL CONSUMPTION TOWARD CRUDE PALM OIL EXPORT VOLUME TO INDIA

(2000 – 2014)

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ABSTRACT

This research aims to analyze the influence of RCA Index, India's GDP, and India Palm Oil Consumption toward Crude Palm Oil Export to India. The data that were used was secondary data during period 2000 – 2014, which were analyzed using multiple regression analysis to estimate the influential factors, and RCA Formula were used to determine the comparative advantage of the Indonesian crude palm oil in international market. According to data analysis report it shows that RCA Index, India's GDP, and India Palm Oil Consumption simultaneously had significant influence toward Crude Palm Oil export to India. Nevertheless, partially only RCA Index and India's GDP that has significant influence toward Crude Palm Oil export to India. While the Determination Coefficient (Adjusted R^2) = 0.913 or 91.3%, it means that the Crude Palm Oil Export (variation) to India was 91.3% which was explained by RCA Index, India's GDP, and India Palm Oil Consumption, and the rest of 8.7% were affected by any other factors outside the models, such as Interest Rate, Crude Palm Oil Domestic Consumption, Indonesia's GDP, etc.

Keywords : *Crude Palm Oil, RCA Index, India's GDP, Consumption, Export*

INTRODUCTION

In this era, world trade globalization can cause the development of open economy system among countries, which is open minded on international trade system. In the context of open economy, international trade is an export and import activity. International trade relations arise from the fact that every country need each other, because many countries are still not able to fulfill their needs with own capabilities.

Indonesia has abundant resources that can be used as a trade commodity. Agriculture is one of trade sector which has important role in Indonesia economic growth. Agriculture product becomes one of export sources that can be a potential commodity, it is supported by many industries in agricultural sector which is develop and produce the quality products for export. Export Achievement in 2014 amounted to US$ 31.03 Billion, which are mostly contributed by Agriculture sector by US$ 29.72 Billion, and the other sector only contributed less than 1 Billion Dollar. That amount caused by export performance of crude palm oil as the biggest contributor of export. It takes almost more than 50% of total Indonesia export, amounted to US$ 19.55 billion.

Because of the reason, Indonesia should has a comparative advantage is not owned by other countries. It makes a lot of countries depend on Indonesia, especially in case of crude palm oil import. Based on Badan Pusat Statistik data, the destination country which has largest Indonesia export of crude palm oil is India. This country always becomes the main importer of Indonesia. The rising urban population, changes in consumption patterns and limited domestic production have led to India’s increasing imports of this oils.

Nevertheless, total export to India get fluctuation for some periods, it was increase in 2011 accounted for US$ 5,256.4 million and always decreased until 2014 amounted to US$ 3,635.3. The fluctuation can caused by some factors, such as competitiveness, India's GDP, and India Consumption. This research aims to analyze partially and simultaneously the influence of RCA Index, India's GDP, and India Palm Oil Consumption toward Crude Palm Oil Export Volume to India. It is expected to be beneficial for Indonesia Government in decision making about export policy to some countries and also for Palm Oil Company to provide knowledge of corporate management about crude palm oil in foreign market.

LITERATURE REVIEW

International Trade

International Trade is the exchange of capital, goods, and services across international borders or territories, which could involve the activities of the government and individual. Whereas Sasono (2013 : 184) stated that "International trade is a trade or growth of goods and services among inhabitants of one country to another country."

Based on Sasono (2013: 185), there are some conditions which caused the international trade, such as :

a. Differences in factors of natural resources
b. Differences in production factors are owned by each country
c. Differences in flavor / taste of consumers by each country
d. Differences in technology authority
e. Differences in prices factor

Export

According to the Regulation of Republic Indonesia Finance Minister No. 145/PMK.04/2007 concerning Customs Provisions in Export, the

export is the activity of issuing goods from the customs area. While the definition of Customs Area is a territory of the Republic Indonesia covering land, sea, and air, as well as certain places in the ZEE.

The most important factors of export demand are below (Anggraini, 2006) :

a. The price of the goods themselves
b. The prices of other goods
c. Household income and the average income of the community
d. The total population
e. Taste
f. Prediction is going to happen in the future.

Revealed Comparative Advantage

According to Ortmann (2000) the comparative advantage explained how the trade could give the benefit for the country by the way to use the natural resources which were more efficient when the trade became very limited. To analyze the comparative advantage it is often used by RCA (Revealed Comparative Advantage) method.

RCA is the index measuring the export performance of a commodity from a country by evaluating the role of export of a commodity in the total export of the country, compared to the commodity segment in the world trade (Tambunan, 2001 : 92). The formula of RCA Index is :

$$\mathbf{RCA = (X_{ij} / X_{jt}) / (W_{it} / W_t)}$$

where:

X_{ij} : Exports of product i from country j to country x

X_{jt} : Total exports from country j to country x

W_{it} : World total exports of product i to country x

W_t : World total exports to country x

According to Tambunan, a country is said to have a comparative advantage in a commodity, if the RCA index value for that commodity more

than 1, and if the RCA is less than 1 then the country has no comparative advantage (comparative disadvantage) in that commodity.

Gross Domestic Product

The gross domestic product (GDP) is one of the primary indicators used to gauge the health of a country's economy. It is a monetary measure of the value of all final goods and services produced in a period (quarterly or yearly), but not total output or total sales along the entire production process.

According to Putong (2003 : 163), there are three method to calculate GDP: by adding production by sector of activity (production approach), by adding up what everyone earned in a year (income approach), and by adding up what everyone spent (expenditure method). Logically, all measures should arrive at roughly the same total.

In this study the writer using the concept of the real GDP because the real GDP is closely related to the rise and fall of exports and imports.

Consumption

Consumption is any activity that is used for the purpose of taking the usefulness of a product and services. It is intended to fulfill all needs that are important or even only for pleasure and satisfaction in real time.

In macroeconomic theory, people behavior spend most of their income to buy something called consumption (consumption expenditure). The concept is believed to have been introduced into macroeconomics by John Maynard Keynes in 1936, who used it to develop the notion of a government spending multiplier.

The consumption function has a relationship between the level of consumption expenditure and the level of disposable income. Consumption of

Keynes's theory states that when the disposable income increases, so it also rises the consumption and savings. At the household expenses, there is always the consumption expenditure despite having no income. It is called an Autonomous Consumption.

Keynes had absolute consumption theory called the Theory of Consumption Keynes (absolute income hypothesis). Keynes argued that the level of household consumption, depending on the revenue that acquired.

Hypothesis

Based on the purpose of this research, the formulation of hypothesis are :

Ha_1: There is a significant influence of Revealed Comparative Advantage Index toward crude palm oil export volume to India.

Ha_2: There is a significant influence of India's GDP toward crude palm oil export volume to India.

Ha_3: There is a significant influence of India Consumption toward crude palm oil export volume to India.

Ha_4: Simultaneously RCA Index, India's GDP, and India Palm Oil Consumption have significant influence toward palm oil export volume to India.

RESEARCH METHOD

The method used by the writer in writing this Undergraduate Thesis is Quantitative Method. The data in this research are obtained from some websites, such as UN Comtrade, World Bank, Central Bureau of Statistics, Open Government Data Platform India, Trading Economics, Index Mundi, journals and books, etc. Then, the analysis technique used in this study is multiple regression analysis. It is used to describe the cause and effect relationship of independent variables and dependent variable.

RESULT AND DISCUSSION

Multiple Linear Regression Analysis

This multiple regression analysis used for determine the functional relation or causal relation between an independent variable to a dependent variable. The equation of multiple regression is :

Log Y = -7.574 + 1.391 LogX_1 + 1.511 Log X_2 + 1.075 Log X_3

The resulting value is obtained from the Logarithm Regression Equation, then to interpret the value firstly it will conducted Antilog.

$Y = 0.0000000266 + 24.6\ X_1 + 32.4\ X_2 + 11.9\ X_3$

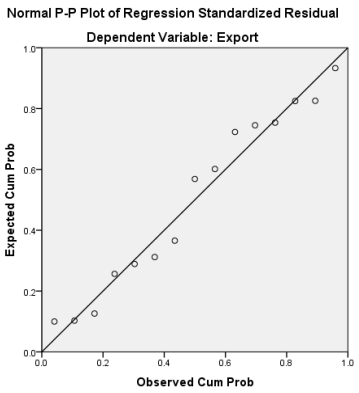
The Interpretation :

a. The Constanta is positive it means that if RCA Index (X1), India's GDP (X2), and India Palm Oil Consumption (X3) aren't change or 0, so CPO Export to India (Y) will increase accounted for 0.0000000266 million USD or 0.026 USD.
b. RCA Index (X1) influence CPO Export to India (Y) positive and significantly with coefficient regression of 24.6. It means that if RCA Index (X1) increase as 1 unit, so CPO Export to India (Y) will rises amounted to 24.6 million USD, ceteris paribus.
c. India's GDP (X2) influence CPO Export to India (Y) positive and significantly with coefficient regression of 32.4. It means that if India's GDP (X2) increases as 1 million USD so CPO Export to India (Y) will rises amounted to 32.4 million USD, ceteris paribus.
d. India Palm Oil Consumption (X3) is not influence significantly CPO Export to India (Y) but it has positive coefficient regression as 11.9. It means that if India Palm Oil Consumption (X3) increases as 1 million USD so CPO Export to

India (Y) will rises amounted to 11.9 million USD, ceteris paribus.

Normality Test

According to the P-Plot Regression, it was shown the dots spread around and follow the diagonal line. It was clear the model of regression distributed normally so that it is worth to use to predict the factors that influence CPO export to India.



Multicollinearity Test

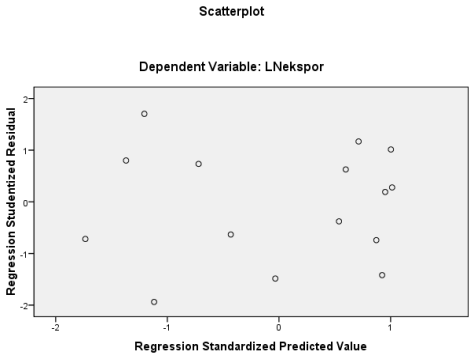
Table 1 Multicollinearity Test Result

Variables	Tolerance	VIF
RCA	.452	2.210
GDP	.168	5.936
Consumption	.118	8.504

From the table 1, it shows that each independent variable has Tolerance value > 0.1 and VIF < 10. Therefore, it can be concluded that there is no multicollinearity between independent variables in this regression model.

Heteroscedasticity Test

On the scatterplot graph, the dots are scattered randomly and spread both above and below zero on the Y-axis. It also do not form any visible pattern. It proofs that there is no heteroscedasticity on the following regression model.



Autocorrelation Test

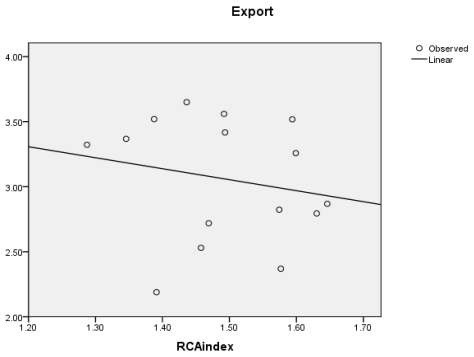
The test carried out results in Durbin-Watson value of 0.913. DW value between DL = 0.685 and DU = 1.977 or 0.685 < 0.913 < 1.977. The test shows that there is no certainty or defitinely conclusion.

Because there is no certainty conclusion, autocorrelation can also analyzed by using Run Test. The result shows that Asymp. Sig. (2-tailed) = 0.110 > 0.05 (α), it means that the data which used is random, so there is no autocorrelation in the test.

Linearity Test

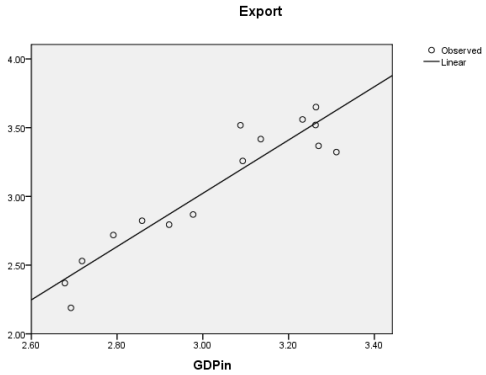
1. Linearity Test between RCA Index and Export Volume

   From the curve, it shows that the point is not follow a straight line on a curve, it means that there is no linear relationship between RCA Index and Export Volume.



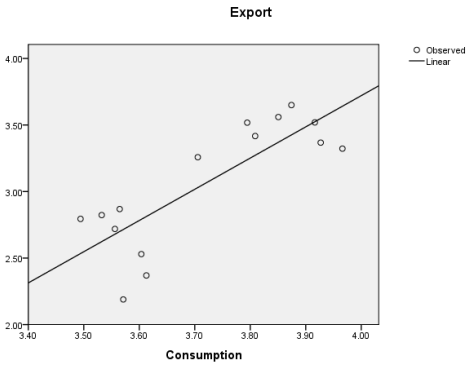
2. Linearity Test between India's GDP and Export Volume

   From the curve, it shows that the point is following a straight line on a curve, it means that there is a linear relationship between India's GDP and Export Volume.



3. Linearity Test between India Palm Oil Consumption and Export Volume

   From the curve, it shows that the point is following a straight line on a curve, it means that there is a linear relationship between India Palm Oil Consumption and Export Volume.



The conclusion is relatively, this model specification is a good model because it has linear relationship between their variables.

Determination Coefficient

According to the amount of Adjusted R^2 by 0.913, it means that number of variance CPO Export Volume to India variable is 91.3% which explained by variance of RCA Index, India's GDP, and India Palm Oil Consumption. Whereas, for the rest 8.7% will be explained by other factors (Exchange Rate, Domestic Production, Domestic Consumption, etc.) which out of this model.

F-Test

Table 2 Result of F-Test

ANOVA[b]

Model		Sum of Squares	F	Sig.
1	Regression	15.530	49.816	.000[a]
	Residual	1.143		
	Total	16.673		

a. Predictors: (Constant), RCA, GDP, consumption

b. Dependent Variable: Export

For N=15 and k=4, so F_{table} is 3.59.

Result of SPSS calculation that $F_{Calculated}$ (Table 18) is 49.816 and the sig. probability is 0,000. The comparison statement is $F_{Calculated} > F_{Table}$ which 49.816 > 3.59 or sig. < α which 0.000 < 0.05 , It means that Ha_4 is accepted. There is a significant influence of RCA Index, India's GDP, and India Palm Oil Consumption towards CPO Export to India simultaneously.

t-Test

Table 3 Result of t-Test

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	t	Sig.
1	(Constant)	-20.966	3.698	-5.669	.000
	RCA	1.391	.508	2.738	.019
	GDP	1.511	.397	3.809	.003
	Consumption	1.075	.661	1.625	.133

a. Dependent Variable: Export

1. Hypothesis 1

According to table 3, the result of t-test for RCA Index variable is $t_{calculate}$ = 2.738 > 2.17881 with sig 0.019 < 0.05 therefore, Ho_1 is rejected which means that RCA Index has a positive and significant

influence towards CPO Export to India. Ha_1 is accepted.

2. Hypothesis 2

   According to table 3, the result of t-test for leverage variable is $t_{calculate}$ = 3.809 > 2.17881 with sig 0.003 < 0.05 therefore, Ho_2 is rejected which means that India's GDP has a positive and significant influence towards CPO Export to India. Ha_2 is accepted.

3. Hypothesis 3

   According to table 3, the result of t-test for India CPO Consumption variable is $t_{calculate}$ = 1.625 < 2.17881 with sig 0.133 > 0.05 therefore, Ho_3 is accepted which means that India CPO Consumption has influence but it is not significant towards CPO export to India. Ha_3 is rejected.

CONCLUSION

1. The regression analysis shows that RCA Index, India's GDP, and India Palm Oil Consumption simultaneously have significant influence toward Crude Palm Oil Export to India during period 2000-2014.
2. The regression analysis shows that only RCA Index and India's GDP partially have significant and positive influence toward Crude Palm Oil Export to India during period 2000-2014.

   India Palm Oil Consumption doesn't have significant influence may be caused palm oil consumption in India is not only Crude Palm Oil (KPO, palm oil stearine, palm fatty, etc.). Whereas Indonesia mostly exported in crude form, so it is not necessarily more palm oil consumption in India will increase Indonesia's exports.
3. Coefficient of adjusted R squared is amount of 0.913, it means that number of variance dependent variable is 91.3% which explained

by variance of independent variables. Whereas, for the rest 8.7% will be explained by other factors which out of this model.

SUGGESTION

1. The palm oil industry can increase productivity by improving the quality and use new technology, so Indonesia is not only export crude palm oil but also can export finished goods.
2. The government is expected to stabilize the national consumption needs of crude palm oil and also for export crude palm oil because any government intervention (determination of duties, subsidies, etc.) can significantly affect the competitiveness of Indonesia exports of crude palm oil.
3. RCA Variable Index has shown that Indonesia has great competitiveness, therefore the government should be in good relationship (bilateral agreement) with India, the main importer of crude palm oil to know about the India sides.
4. Suggestions for further research are it is expected that there is development of variables which can be examined more detail about factors that affect the export of crude palm oil.

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