Effect of Comparative Advantages, The Real Exchange Rate, Per Capita Income to Indonesia Export Value in ASEAN

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Abstract
One of the formulas in economics describes the trade (exports and imports) is one of the key economic growth of a country, in addition to consumption, investment and government spending. The goal of this study was able to formulate how much influence and relationship variables that have been determined are able to influence the export value of Indonesia in ASEAN. Variables contained in this research is the export value of Indonesia (V) as the dependent variable, then the comparative advantage (RCA), the real exchange rate (REER) and per capita income export destination countries (GDPP) as independent variables. This study uses regression analysis and panel data RCA, and found that based on the index of revealed comparative advantage, the pattern of Indonesia's comparative advantage in international trade is so dynamic. The data used is secondary data and panel data is the combination of time series and cross section (Philippines, Malaysia, Singapore, Thailand, and Vietnam) year period from 2005 to 2014, resulting in 50 observations. Overall results of the analysis of comparative advantage over Indonesia's trade with major partners at regional and country still shows a pattern that is consistent with the law of comparative advantage. Furthermore, the econometric estimation of equation exports resulted in the fact that the comparative advantage, the real exchange rate, and foreign demand, as reflected by the GDP per capita significantly affect Indonesia's export performance in ASEAN.
Keywords: Comparative Advantage, The Real Exchange Rate, Per capita Income, Exports, Endowment Factor.

1. Introduction

Based on one of the most popular formulas in economics, trade (exports and imports) is one of the key economic growth of a country, in addition to consumption, investment and government spending. The studies conducted by Tambunan (2001); Abdurohman and Zuladin (2012) illustrates the importance of the role of exports in sustaining economic growth and job creation. Therefore, the Indonesian government also makes export as one of the levers of economic growth in Indonesia. Indonesia is one country that is experiencing openness economic.

It is described from Indonesian export ratio to gross domestic product in 2012 was 24.59%, while the ratio of imports to GDP in 2012 reached 24.77%. This means that Indonesia's export to GDP ratio is greater than the ratio of the world. Data growth in the ratio of world exports to world GDP, indicating that the development of world trade showed a surge very rapidly. In 1965 the ratio of exports to world GDP is only around 3.3%, jumped to 10.2% in 1975, in 1985 grew to 14%, increasing to 17% in 1995. The latest data show that in 2013 the ratio of exports to world GDP reached 32% (World Bank, 2013).

According to the theory well known from the Heckscher-Ohlin international economy, a country that adopted the law of comparative advantage in exports based on factor endowment or factor gift of nature, will be able to export more products and receive more profit trade so as to create the sustained growth in economic development. As far as the abundance of labor in developing countries can be utilized, it is a potential force in the competitiveness in labor-intensive commodities in international trade. This also applies to raw commodities, such as minerals, oil, results of the agricultural sector where Indonesia should have a comparative advantage in it.

But in fact the overall proportion of international trade in Indonesia is still lagging behind when compared to ASEAN countries though, such as Thailand and Malaysia which incidentally factor endowment characteristics that these countries have almost similar to Indonesia and Indonesia even more superior. In 2015 marks the official ASEAN regional countries step forward in the effort to deeper economic integration through one of increased trade between its member countries through the AEC (ASEAN Economic Community). This is a great opportunity for Indonesia with an abundance of various factors of production owned. But otherwise if Indonesia cannot apply the proper export strategy with Indonesia it is not impossible it will be targeted member countries of ASEAN are from year to year has made remarkable progress in export, such as Vietnam and Myanmar who have very cheap labor or Singapore that have become industrialized countries as well as Thailand and Malaysia now has its share of world trade is larger than Indonesia.

For it is necessary to build an analytical model that allows able to reflect the pattern of exports of Indonesia in ASEAN. The model is able to give you an idea to what extent the factors that allegedly capable of influencing the amount of the export value of Indonesia in the ASEAN region. Therefore, in this study based on literature study, researchers chose a comparative advantage as reflected by 8 index RCA commodity groups according SITC one digit, the real exchange rate and the income per capita of export destination countries as independent variables suspected of having an influence on the value of Indonesian exports in ASEAN. The purpose of the study was able to formulate how much influence and relationship variables that have been determined are

able to influence the export value of Indonesia in ASEAN.

2. Literature Review

2.1 International Trade Theory

The economy is the case today in all parts of the world refers to an open economy, where every country will make trade between countries or international trade. Countries that trade are expecting an increase in welfare or the welfare state itself. According to Lipsey (1997), through trade, any person, region or nation can focus on producing goods or services that can be produced efficiently and then trade to obtain goods or services that are not produced. Source of comparative advantage of trade benefits are derived from the difference in opportunity costs between countries. The ability of a country to utilize the factors of production are owned by effectively has a comparative advantage in producing a commodity compared with other countries.

2.2 Concept of Comparative Advantage

The concept of the law of comparative advantage was first discovered by David Ricardo in the early 19th century the concept of comparative advantage Ricardo stated that a country will tend to produce and export commodities with production costs are relatively cheaper compared to other countries and production costs based on the production, namely labor (Salvatore, 1997). Heckscher and Olin (H-O) stress factors fare difference gifts of nature (endowment) and the prices of factors of production between countries as the most important determinant of trade.

H-O theory assumes that each country will export commodities which have relatively the factors of production are plentiful and cheap, and import the commodity factors of production are relatively scarce and expensive (Salvatore, 1997). According to Tambunan (2001), comparative advantage can be measured by using Revealed Comparative Advantage (RCA) and can be calculated from the value of the RCA.

One measure of the level of international trade performance was introduced by Balassa in 1965 based on the concept of comparative advantage is commonly called the RCA index. Simply put, RCA state i j to trade products measured by the percentage of the country's exports relative to world trade. So, if Xij is the value of exports of country j for product i, and Xit is the country's total exports, the RCA index can be described as follows:

$$RCA_{ij} = (X_{ij}/X_{tj})/(X_{iw}X_{tw})$$

Which w is a symbol to represent the value of the global total. RCA index is relatively easy to interpret. If the value obtained is less than the world comparison then the conclusion it has no comparative advantage for these products in the world market and vice-versa. If the RCA index of a country is equal to or greater than 1 then the country has a comparative advantage in international trade and vice-versa if the RCA index is below 1, the state does not have a comparative advantage in producing a commodity for international trade.

Table 1.1 Details Classification of Goods Based on SITC 1 Digit Code

SITC Code	Detailed	Analysis
0	*Food and Live Animals*	Food and live animals
1	*Beverages and Tobacco*	Beverages and Tobacco
2	*Crude Material, Inedible, Except Fuels*	Raw Materials, Not Edible, Except Fuels
3	*Mineral Fuels, Lubricants and Related Materials*	Mineral Fuels, Lubricants and the like
4	*Animal and Vegetable Oils, Fats and Waxes*	Vegetable and animal oils, fats and Candles
5	*Chemicals and Related Products, n.e.s*	Chemicals and the like
6	*Manufactured Goods Classified Chiefly by Material*	The results are classified according to Raw Material Industrial Chemicals, and the like
7	*Machinery and Transport Equipment*	Machinery & Transport Equipment
8	*Miscellaneous Manufactured Articles*	Various Kinds of Goods Industry Results
9	*Commodities and Transactions Not Calssified Elsewhere in The SITC*	Commodities and transactions not classified in the SITC

Source: Central Bureau of Statistics (BPS) and the UN Comtrade, Data Processed

In calculating the index of RCA, it must be done before each commodity grouping to simplify the calculation and analysis. International trade in the fixed rule, there are several kinds of basic standards of grading or so-called coding by classifying commodities according to specific criteria. One of the most commonly used is based on the commodity groups SITC (Standard International Trade Classification). Table 1.1 above outlines the details of classification by SITC one digit.

3. Research Methods

This research was conducted using a quantitative approach for the implementation of research based on the theory

that became the basis of research and trying to explain an issue in this case regarding the effect of comparative advantage, real exchange rate, and per capita income of the partner countries export value of Indonesia-year period 2005-2014. The data used is secondary data panel data is the combination of time series and cross section. In this study cross section data is the data of five major trading partner of Indonesia in ASEAN (Philippines, Malaysia, Singapore, Thailand and Vietnam) and the period of time series data from 2005 to 2014, resulting in 50 observations.

Variables contained in this research is the export value of Indonesia (V) as the dependent variable, then the comparative advantage (RCA), the real exchange rate (REER) and export income destination countries per capita (GDPP) as independent variables. The data used in this research is secondary data. Secondary data constituante quantitative data obtained from several institutions and agencies, including the Central bureau of Statistics (BPS), Bank Indonesia (BI), the International Monetary Fund (IMF), World Bank and United Nations Commodity of Trade (UNCOMTRADE).

All data used in this research is secondary data including export value comes from UN Comtrade (United Nations Commodity of Trade). Secondary data used comparative advantage represented by RCA index and index RRCA sourced from UN Comtrade Based on the classification SITC one digit which is then processed. SITC classification systems trade as identification code to represent certain trade commodities in international trade. Data real exchange rate rupiah consists of nominal exchange rate of Bank Indonesia sourced of publications and consumer price index data each partner country are sourced from IMF publications are then processed. Data per capita income, per capita GDP is represented by partner countries comes from the publication of the World Bank. Data collection techniques in this study using the method of documentation.

Analysis of the data in this study using quantitative descriptive method. Descriptive method chosen to determine how the condition and the development of Indonesia's export performance. The next stage is to conduct a quantitative analysis using panel data regression techniques, to make it easier to analyze the extent whether the independent variables have been determined affect Indonesia's export performance. Processing data using the help of software Eviews and Ms. Office.

Panel Data Regression analysis is a combination of cross section with time series data. According to Gujarati (2006), the panel data method is a method that can be used to perform empirical analysis which is not possible when only using cross section data or just using time series data. The regression model for cross section data and time series respectively, are as follows:

Model with cross section data

$$Y_i = \beta_0 + \beta_1 X_1 + \varepsilon i; I = 1,2,... N$$

N : the number of cross section data

Model with time series data

$$Y_t = \beta_0 + \beta_1 X_t + \varepsilon t; t = 1,2,..., T$$

T : the number of time series date

Given the panel data used to analyze the effect of comparative advantage (RCA0-RCA8), the real exchange rate (REER), per capita income (PDBKAP) of the export value of Indonesia (V). Data panel is a combination of cross section data and time series data. Equations panel data in this study using a log linear form or leave a symbol of the natural logarithm (In) as in the model below, are intended for a unit change different variables into a percentage (%). Furthermore, the panel data model is written as follows:

$$In\ V_{it} = \beta_0 + \beta_1 InRCA0_{it} + \beta_2\ InRCA1_{it} + \beta_3\ InRCA2_{it} + \beta_4\ InRCA3_{it} + \beta_5\ InRCA4_{it} + \beta_6\ InRCA5_{it} + \beta_7\ InRCA6_{it} + \beta_8\ InCA7_{it} + \beta_9 InRCA8_{it} + \beta_{10}\ InREER_{it} + \beta_{11}\ InPDBKAP_{it} + e_{it}$$

Explanation:

V	= Export value
RCA0	= SITC commodity RCA index 0
RCA1	= SITC commodity RCA index 1
RCA2	= SITC commodity RCA index 2
RCA3	= SITC commodity RCA index 3
RCA4	= SITC commodity RCA index 4
RCA5	= SITC commodity RCA index 5
RCA6	= SITC commodity RCA index 6
RCA7	= SITC commodity RCA index 7
RCA8	= SITC commodity RCA index 8
REER	= Real Exchange Rates
GDPP	= Income per capita
β_0	= Intercept
β_1	= Variable Regression coefficient SITC commodity RCA index 0
β_2	= Variable Regression coefficient SITC commodity RCA index 1
β_3	= Variable Regression coefficient SITC commodity RCA index 2

β_4 = Variable Regression coefficient SITC commodity RCA index 3
β_5 = Variable Regression coefficient SITC commodity RCA index 4
β_6 = Variable Regression coefficient SITC commodity RCA index 5
β_7 = Variable Regression coefficient SITC commodity RCA index 6
β_8 = Variable Regression coefficient SITC commodity RCA index 7
β_9 = Variable Regression coefficient SITC commodity RCA index 8
β_{10} = Variable Regression Coefficients Real Exchange Rates
β_{11} = Regression Coefficients Variable Income Per Capita
e = *Error Terms*
i   = Unit cross section major trading partners in ASEAN
t   = Unit time series 2005-2014

4. Results and Discussion

4.1 Comparative Advantage in Indonesia

Table 1.2 shows the RCA index of Indonesia in accordance with the commodity groups SITC 1 -digit in 2005 - 2014. Tabel 3.2 shows the group SITC 0 (food and live animals) Indonesia lost comparative advantage since 2007, but with RCA index is still close to 1 until year 2013, and in 2014 returned to have a comparative advantage. In 2006, the loss of Indonesia's comparative advantage due to the growth of this sector is lower than the average growth of other sectors.

Table 1.2: RCA Index SITC Group 1 Digit Indonesia Export 2005-2014

Year	SITC0	SITC1	SITC2	SITC3	SITC4	SITC5	SITC6	SITC7	SITC8
2005	1.041	0.50	3.304	2.253	15.815	0.493	1.207	0.415	1.037
2006	1.047	0.47	3.884	1.976	16.670	0.495	1.211	0.373	1.027
2007	0.868	0.43	3.176	1.713	17.438	0.454	0.979	0.307	0.814
2008	0.994	0.49	2.786	1.597	18.473	0.438	0.983	0.332	0.811
2009	0.929	0.59	2.828	2.041	19.267	0.412	1.102	0.382	0.823
2010	0.924	0.59	3.172	2.065	19.799	0.467	1.073	0.362	0.820
2011	0.865	0.53	2.745	2.123	17.441	0.524	0.955	0.326	0.753
2012	0.968	0.60	2.365	2.053	19.187	0.519	0.958	0.361	0.783
2013	0.998	0.70	2.645	1.960	20.367	0.561	0.984	0.366	0.831
2014	1.098	0.45	1.947	2.193	23.892	0.593	1.013	0.358	0.919

Source : UN Comtrade, the data is processed

Results of regression, comparative advantage (RCA index) SITC groups 0 does not have a significant effect on the export value of Indonesia in ASEAN. This is reflected by the p-value t-stat greater than *a*. No significant effect of variable comparative advantage SITC groups 0 one of them thought to be caused by poor export percentage Indonesia's top commodity groups in ASEAN. The latest data show that in 2014 the value of exports of SITC 0 Indonesia in ASEAN amounted to US $ 2,708,052,340, or only around 7% of the total export value of Indonesia in ASEAN. So that changes in comparative advantage SITC group 0 no affect the export value of Indonesia in ASEAN.

In Table 1.2 SITC groups 1 (Beverages and Tobacco) in 2005 and 2014 Indonesia did not have a comparative advantage. Nevertheless RCA index trend continues to experience growth from 2005 to 2013. This was driven by a rapid increase in the portion of donations SITC group 1 of Indonesian exports. But in 2014, the RCA index for this commodity has been going down, it motivated many restrictions against Indonesian tobacco products in the international market, especially the products of clove.

SITC group 2 (Raw Materials, Not Edible, Except Fuels) has RCA index values fluctuate, this group is very sensitive to global economic conditions. This was reflected in the RCA index trend since 2008 has fluctuated at which time it was going economic recession in many countries of the world. This is because the demand for this commodity group depends heavily on demand for heavy industry. When the recession caused collapse of heavy industry so that the effect on the demand for this commodity group in the world market. SITC Group 3 (Mineral Fuels, Lubricants, and the like) are still the group with the largest share in the total export of Indonesia with the percentages 25%. From the years 2005 - 2014 Indonesia's position in this commodity group always has a comparative advantage. In 2005 to 2008, the RCA index value continues to decline, it is driven by the group's share of exports in world trade has skyrocketed as the impact of increasing energy consumption, especially in developing countries. The current economic recession 2008 and 2011 indices RCA Indonesia has just raised, but this does not happen due to a surge in exports of Indonesia, but rather to a decline in the percentage of world trade this commodity as a result of falling prices and trading volume. In 2012 and 2013 RCA index again decreased due to the decline in the value of exports of this commodity.

SITC group 4 (vegetation and animal oils, fats and wax) has the greatest RCA index, which reached double digits. This is because Indonesia is one of the largest exporters of this commodity group in the international

market with a market share of 20% of world supply. From 2005 to 2014 Indonesia RCA index rose nearly 100%, which is consistent with the very rapid growth of export value of these commodities in the world market, even more than 500% from 2005 to 2014.

In the year of 2005 to 2006, Indonesia has a comparative advantage for SITC group 6 (Results Industries are classified according to Material Material), but in 2007 and 2008 indices RCA Indonesia is below 1, this is caused by the decline in the portion of the export value of Indonesia SITC group 6 to total exports Indonesia. The decline of the portion of the value of exports SITC group 6 Indonesia is still also continue until 2013. Only in 2009 and 2010, when the recession hit, the manufacturer contenders deeper decline so that in 2009 and 2010 Indonesia once again have a comparative advantage over the world although external factors act more as a trigger.

For SITC group 8 (Various Kinds of Goods Results Industry), Indonesia has a comparative advantage only until 2006. From 2007 to 2013 Indonesia have lost comparative advantage for labor-intensive commodity SITC group 8 with RCA index value is deteriorated. Attractions this can be caused by several factors, technology is increasingly able to replace human labor but can also be caused by other factors that make labor-intensive industries do not grow, such as poor logistics, labor costs are too high and so on. SITC Group 5 (Chemicals and the like) and SITC 7 (Machinery and transport) which is a group of capital-intensive industries and technologies that in fact a scarce resource in Indonesia has an index of RCA far below one during 2005 to 2014, or by word another Indonesia did not have the comparative advantage in international trade.

To learn more comprehensive comparative advantage, this study will also calculate the index RRCA (Regional Revealed Comparative Advantage). Referring to Richardson (1999), RCA Regional Index can be searched by replacing the letter symbol w be R.

$$RRCA_{ij} = (X_{ij} / X_{TJ}) / (X_{IR} / X_{TR})$$

In this RRCA analysis also conducted an analysis of the state of Indonesia's trading partners in ASEAN as well as China and Japan as a comparison, it aims to obtain a broader picture of the pattern of Indonesia's comparative advantage in international trade.

Table 1.3 shows the position of Indonesia on the comparative advantages of regional ASEAN. Compared by five major trading partner of Indonesia in ASEAN, the proportion of the factors of production are owned almost the same. Therefore RRCA patterns between Indonesia with ASEAN more complicated. Four out of five (SITC 0-4) natural resource intensive group had RRCA index greater than one, only the group of food and live animals (SITC 0) having a value <1 this indicates that the condition of the food processing industry five trading partner countries ASEAN regional primary is generally better than Indonesia, particularly Malaysia, Singapore and Thailand.

Table 1.3 Regional indexes RCA Indonesia on 5 Main Partner in ASEAN Countries

Regional	Year	SITC								
		0	1	2	3	4	5	6	7	8
	2005	1.16	0.98	4.64	2.52	4.25	0.66	2.43	0.30	1.20
	2006	1.14	0.91	4.98	2.37	4.62	0.64	2.32	0.27	1.17
	2007	1.07	0.90	5.13	2.19	5.01	0.70	2.08	0.27	1.08
	2008	1.05	0.89	4.37	1.92	4.80	0.69	1.89	0.30	0.97
	2009	0.95	0.99	4.73	2.34	5.16	0.62	1.87	0.30	0.93
ASEAN5	2010	0.91	0.85	4.61	2.37	4.66	0.61	1.79	0.28	0.85
	2011	0.80	0.70	3.44	2.31	4.00	0.60	1.54	0.27	0.76
	2012	0.93	0.73	3.60	2.30	5.19	0.59	1.51	0.29	0.80
	2013	1.02	0.83	3.83	2.24	5.89	0.66	1.47	0.29	0.83
	2014	1.08	0.90	3.05	2.19	6.96	0.69	1.58	0.29	0.91

Source : UN Comtrade, data processed

Judging from the index value RRCA, Indonesia has a comparative advantage in labor-intensive group (SITC 6) but at the same time does not have an edge on other labor intensive group (SITC 8). In general meaning in labor intensive industries Indonesia to compete against 5 major partner country in ASEAN, one of the reasons Indonesia still has a comparative advantage for commodity groups SITC 6 are groups other than labor-intensive also need a large proportion of the factors of natural resources which abound in Indonesia, In the group of SITC 8, since 2008 Indonesia has lost comparative advantage for this commodity group. This happens because when compared to the five main trading partner in ASEAN, Indonesia is a country with export value growth is the lowest for this group of SITC 8.

In the group of capital-intensive SITC 5 (Chemicals and the like) Indonesia did not have a comparative advantage over even the ASEAN countries which incidentally is also not the countries that have a proportion scattered capital resources and technology, especially against Malaysia, Thailand and Singapore this is an industrial base in ASEAN. In the SITC group 7 (machinery and transportation equipment) that is supported by the majority of automotive and machinery industry, the export value of Indonesia is the lowest when compared to the five countries of the ASEAN's major trading partners.

Selection of the Best Model

Of the three models that have been in will estimate which model is most appropriate/suitable for purposes of research. There three trials (test) that can be used as a tool in selecting a panel data regression model which will be concluded to choose among the three models, Pooled Least Square (PLS), Fixed Effect or Random Effect (PLS, FE or RE) based on the characteristics of the data held, namely : F Test (Chow Test) and Hausman Test. F Test (Chow Test) This test is performed to compare/select which model best among PLS or FE.

Table 1.4 *Chow Test* Result

Redundant Fixed Effects Tests

Pool: BS

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	11.396645	(4,34)	0.0000
Cross-section Chi-square	42.524249	4	0.0000

Source: Panel Data Regression Output Eviews 8

Table 1.4 is an output of the F Test (Chow Test) with the help of software Eviews 8. If the probability value (Prob .) For Cross section F > a (0.05), the PLS model is chosen, but if the < a then model elect is FE. In the picture above the value of Prob. Cross section F of 0,0000 or in other words < 0.05 so that it can be concluded that the FE models more precise than the PLS model.

Hausman Test

Hausman Test is done to choose the best model between Fixed Effects and the Random Effect. In testing using Hausman Test, if the value of the probability (Prob.) Cross section value > A (0.05) then the model chosen is the RE, but if <a (0.05) then the model chosen is FE.

Table 1.5 *Hausman Test Result*

Correlated Random Effects - Hausman Test

Test cross-section random effects

Test Summary	Chi-Sq. Stat	Chi-Sq. d.f.	Prob.
Cross-section random	198.201543	4	0.0000

Source: Output Eviews 8

In Table 1.5 which is the result output software Eviews 8 Cross section random probability value of 0.0000 or <a (0.05) so that it can be concluded that the best model selected is Fixed Effect.

4.2 Interpretation Panel Data Regression Results (Fixed Effect Model)

From table 1.6 obtained R^2 values of 0.995597, which means a variation of 99.55 % of the variation value of Indonesian exports in some destination countries can be explained by the independent variables in the model, namely the comparative advantages of each commodity group based encoding SITC one digit (RCA0, RCA1 , ... RCA8) real exchange rate (REER) and income per capita GDPP)

Table 1.6 Panel Data Regression Results (*Fixed Effect Model*)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(REER?)	-1.031632	0.141305	-7.300744	0.0000
LOG(GDDP?)	3.246747	0.273097	11.88862	0.0000
LOG(RCA0?)	0.252075	0.194915	1.293255	0.2046
LOG(RCA1?)	-0.086380	0.072876	-1.185305	0.2441
LOG(RCA2?)	-0.049883	0.054529	-0.914804	0.3667
LOG(RCA3?)	0.256419	0.047864	5.357239	0.0000
LOG(RCA4?)	-0.103005	0.037276	-2.763315	0.0092
LOG(RCA5?)	-1.70E-05	0.108501	-0.000156	0.9999
LOG(RCA6?)	-0.278808	0.140254	-1.987883	0.0549
LOG(RCA7?)	0.327102	0.105741	3.093436	0.0039
LOG(RCA8?)	-0.296281	0.116779	-2.537110	0.0159
C	-8.255153	2.439386	-3.384112	0.0018
Fixed Effects (Cross)				
FILIPPINA--C	2.652425			
SINGAPURA--C	-5.759823			
VIETNAM--C	3.783529			
MALAYSIA--C	-1.338758			
THAILAND--C	0.662627			
R-squared	0.995597	Mean dependent var		130.1199
Adjusted R-squared	0.993654	S.D. dependent var		87.28988
S.E. of regression	1.120930	Sum squared resid		42.72043
F-statistic	512.4851	Durbin-Watson stat		1.921405
Prob(F-statistic)	0.000000			

Source: Output Eviews 8

The model used in this study is the fixed effect model (FEM). As we have seen in the FEM, differences in individual characteristics and the time accommodated in the intercept that the intercept of each country is different as well as the constant owned by different so that the model equations are individually different. However, the general equation of this study are as follows:

V = -8,255153 -1,031632 REER + 3,246747 GDPP + 0,256419 RCA3 – 0,103005 RCA4 – 0,278808 RCA6 + 0,327102 RCA7 – 0,296281 RCA8 + e

4.3 Effect of Comparative Advantage (Revealed Comparative Advatage Index) Indonesia Export Value in ASEAN

Based on the analysis that has been carried out on 9 index RCA for commodity groups with the classification SITC one digit, 5 of the 9 groups of index RCA significantly affect the export value of Indonesia in ASEAN, two groups of index RCA has a positive relationship with export value of Indonesia, the index RCA commodity SITC 3 and 7 while RCA Commodity index SITC 4, SITC 6 and STIC 8 has a negative correlation with the export value of Indonesia in ASEAN. This means that five out of nine RCA became independent variable in accordance with the initial hypothesis that has a significant influence on the export value of Indonesia in ASEAN, while the other four did not have a significant effect on the export value of Indonesia in ASEAN so it does not correspond to the initial hypothesis.

4.3.1 Comparative Advantage SITC Group 3 (Mineral Fuels, Lubricants, and the like)

The regression results show a comparative advantage (RCA index) for export commodity groups SITC 3 significantly and positively associated with export value of Indonesia with a regression coefficient of 0.256419. This indicates if the RCA index of commodity SITC 3 increased by 1%, the export value of Indonesia in ASEAN will increase by 0.25%.

Commodity groups SITC 3 is the code for the commodity trade of mineral fuels, including petroleum, natural gas and coal as well as derivative products. Export commodity groups by SITC 3 is a commodity with factor endowment of natural resources are also contained in Indonesia. Although the balance of trade for commodities by SITC 3 deficit but this is still a commodity groups commodity groups contributed the largest export value of Indonesia in ASEAN with a value of 13,731,104,916 US dollars in 2014, or 35.5% of total export value of Indonesia in ASEAN.

The results of this study reinforced by research conducted by Yue (2001) where commodity exports of a country that has a factor endowments and comparative advantage was positively related to the value of exports. That is, if a country wants an increase of the value of exports then a country should focus on more focused resources in producing commodities that have a comparative advantage.

If based on the results of the regression then focus resources and investments to develop the sector will be able to increase the export value of Indonesia. However, it should also note group SITC 3 is a commodity groups most affected by the global recession, especially in terms of prices falling so deep, in addition to the discovery of shale gas which then have contributed to exacerbating the fall of the price of this commodity group. In addition the group SITC 3 included in the resource is not renewable, so that the dependence of the value of exports that are too large in this commodity group would be very dangerous in the long run.

4.3.2 Comparative Advantage SITC Group 4 (vegetation and animal oils, fats and wax)

SITC 4commodity groups are trademarks codes for oil and vegetable and animal fats, including palm oil, copra and so on. Judging from the value of RCA index, Indonesia has a comparative advantage for these commodity groups SITC 4. On the world market commodity group is a group of the fourth largest export commodity Indonesia with a value of 20.20 billion US dollars in 2014. However, in the ASEAN market value of exports of SITC 4 only took sixth place with export value amounted to 2,243,028,080 US $ or 5, 8% of the total export value Indonesia in ASEAN in 2014.

The regression results show a comparative advantage (RCA index) for export commodity groups SITC 4 significant but has a negative correlation with the value of Indonesian exports, with a regression coefficient -0.103005. That is, if the index RCA 4 SITC commodity increased by 1%, the value of Indonesia's exports fell by -0.10%.

Empirical data shows from 2009 to 2014 both exports nor RCA index for relative commodity groups experienced an increase, only once has decreased the value of exports and the RCA index in 2013 due to falling prices of this commodity group SITC 4 in the world market. However, although the value of exports and commodity groups SITC RCA index 4 relatively increased every year, but still not able to increase the downward trend in the export value of Indonesia that continue to occur from 2011 to 2014. The major reasons for the decline of the value of Indonesian exports since 2011 is the drop in value exports of the two main commodities, namely groups SITC 2 caused the drop in commodity prices on the world economy has not been able to get up after the crisis as well as the issuance of regulations banning the export of raw materials from mining, and the group SITC 3 due to falling prices for energy commodities world as the impact is not the global economic recovery as well as finding ways to harvest shale gas in the United States that became a source of cheap energy.

4.3.3 Comparative Advantage Group SITC 6 (Results Industrial Materials classified according to Material)

SITC 6 commodity groups are trademarks codes for manufactured products grouped by material, such as products processed leather, rubber, wood, textiles and others. This commodity group is the group's second largest export commodity Indonesia with a value of 22.68 billion US dollars in 2014. While in ASEAN, Indonesia's SITC group 6 is the group with the third largest export by value reaching 5,674,884,215 or 14.7 % of the total export value of Indonesia in ASEAN.

The regression results show a comparative advantage (RCA index) for export commodity groups SITC 6 significantly but negatively related to the value of Indonesian exports to the regression coefficient -0.278808. This indicates if the RCA index of commodity SITC 6 increased by 1%, the export value of Indonesia in ASEAN will decrease by 0.28%.

Empirical data show the development of Indonesia's RCA index SITC group 6 in ASEAN continued to decline, for example in 2005indeks RCA for SITC group 6 is 2.43. In 2010 down to 1.79, and the latest data in 2014 down to 1.58 or the lowest in the last 10 years. This condition can be explained by several reasons, including the increasing labor costs that are not offset by an increase in productivity led to Indonesia cannot compete with countries with production factor labor relatively cheaper as Vietnam, the Philippines and Myanmar, given the rewards factors play a key role the cost of production of this commodity group SITC 6. If seen from the results of the regression and the index value RCA, shifting the allocation of factors of production to other industries it will be able to increase the export value of Indonesia as a whole, (ceteris paribus).

4.3.4 Comparative Advantage Group SITC 7 (Machinery & Transportation Equipment)

SITC 7 Commodity groups is the code for the commodity trade machinery and transportation equipment, especially the automotive industry and its components. Theoretically Indonesia do not possess a comparative advantage for this group. Similarly, if seen from an index value of RCA Indonesia does not have a comparative advantage for these commodity groups SITC 5. Even when compared with the 5 main trading partner in ASEAN, Indonesia has a comparative advantage over Vietnam, and even then only until 2005, after which Indonesia did not have a comparative advantage against five major trading partners in ASEAN.

Although it does not have the comparative advantage, regression results indicate a comparative advantage (RCA index) for export commodity group SITC 7 significantly and positively associated with export value of Indonesia with a regression coefficient of 0.327102. This indicates if the RCA index of commodity SITC 3

increased by 1%, the export value of Indonesia in ASEAN will increase by 0.32%.

Several reasons can be stated as to why the coefficient estimate precisely significant positive relationship. The first, in the Products Cycle Theory and study by Vermon in Yue (2001) explained that industry capital intensive can turn out to be a relatively labor intensive when the technology has been at the mature stage or mature and standardized, this strategy is done to offset the competitor product from countries are relatively rich in capital resources. In addition, recent data show that in 2014 the value of exports of SITC 7 Indonesia in ASEAN amounted to US $ 8,084,371,587, or 20.9% of total export value of Indonesia in ASEAN. The percentage of the value of exports of SITC 7 causes changes in comparative advantage SITC group 7 will greatly affect the export value of Indonesia in ASEAN.

4.3.5 Comparative Advantage SITC 8 Group (Various Kinds of Goods Industrial Results)
SITC 8 Commodity groups is the code for the commodity trading results in the form of finished goods manufacturing industry. Export value of this commodity group in ASEAN only reached 1,327,631,515 or 3.4% of the total export value of Indonesia in ASEAN. The regression results show a comparative advantage (RCA index) for export commodity groups SITC 8 significantly but negatively related to the value of Indonesian exports to the regression coefficient -0.296281. This indicates if the RCA index of commodity SITC 6 increased by 1%, the export value of Indonesia in ASEAN will decrease by 0.29%.

According to Yue (2001) with the export commodity SITC groups 6 is a commodity labor-intensive manufacturing. Thus, a country with an abundance of labor factors of production such as Indonesia have an advantage in producing it. But in this study, the countries in the ASEAN export destination other than Singapore, are among the countries that have an abundance of similar factors. Data show of the year 2005-2014, consistently Indonesia has a comparative advantage over the Philippines and Singapore, while Thailand and Malaysia fluctuated from year to year. Meanwhile, when compared with Indonesia Vietnam did not have a comparative advantage for SITC groups 8.

This condition can be explained by several reasons, including the increasing labor costs that are not offset by an increase in productivity led to Indonesia cannot compete with countries with production factor labor relatively cheaper as Vietnam, given the rewards factors play a key role in the production cost group SITC commodity 8. If seen from the results of the regression and the index value RCA, shifting the allocation of factors of production to other industries such as industrial group SITC 7 it will be able to increase the export value of Indonesia as a whole, (ceteris paribus).

4.4 Effect of Real Effective Exchange Rate of the Export Value of Indonesia in ASEAN
Based on the analysis that has been made known that the real exchange rate variable has a negative and significant relationship to the value of Indonesian exports to the regression coefficient of -1.031632. This indicates that exchange rate real is 1%, the value of Indonesia's exports dropped by 1.03%. These results are consistent with the initial hypothesis where the real exchange rate has a significant influence on the export value of Indonesia in ASEAN. This means that in case of appreciation of the real exchange rate Rupiah against the currencies of export destination countries it will affect the decline in export value of Indonesia. Apply vice versa in case of depreciation of the real exchange rate of the rupiah against trade partner countries will increase the value of Indonesia's exports. It can happen because of the real exchange rate is one of the key level of competitiveness of export products to compete on price. When there is depreciation of the rupiah, the Indonesian products will have a cheaper price compared with competitors from other countries. Conversely, if the exchange rate has appreciated the products of Indonesia would have a more expensive price so it becomes less competitive in overseas markets.

Currency exchange rate plays a central role in international trade relations, because it allows the exchange rate can compare prices of goods and services produced from one country to another. In addition the event depreciation or devaluation policy by a country against their currency's value will make the country product prices become cheaper thus increasing the competitiveness of these products on the international market and resulted in increased volume and export value of these products.

From the research results obtained, Indonesia's export performance very significantly influenced by the position of the real exchange rate of the rupiah, a government policy that has directly or indirectly influence the exchange rate will be very significant effect on the position of Indonesian exports. The exchange rate is relatively low and stable would be advantageous in terms of export Indonesia. It is necessary synergy between the government and the monetary authorities in order to maintain the stability of the rupiah.

4.5 Effect of Per Capita Income Export Destination to Indonesia Export Value in ASEAN
Results of analysis of research have found a positive and significant relationship between income per capita export destination with ASEAN export value of Indonesia in the period 2005-2014 with a regression coefficient sebesar3,246747. That is, if there is an increase in GDP per capita export destination of 1% there will be an increase of the export value of Indonesia in ASEAN amounted to 3.24%.

Significant influence between income per capita export destinations of the export value of Indonesia in

accordance with the hypothesis expected. The level of per capita income which is a reflection of the level of per capita income of individuals in a country is one of the main factors affecting the level of consumption, according to the Keynesian consumption theory.

Empirical evidence indicates that not all consumer goods can be produced in a country, or at least inefficient to be produced by the state itself. It is closely related with the proportion of production factors as well as the mastery of technology as proposed in Heckscher-Ohlin theory. So the import of certain products to be more efficient and profitable than if they have to produce in the country. Like for example, Japan, which does not have an abundance of factors of labor and natural resources prefer to import goods labor-intensive industries and dense natural resources from countries with an abundance of labor, such as Indonesia and China. So when there is an increase in public consumption or as reflected by the increasing per capita income of a country, there will be an increase in imports from the country concerned, both imports of consumer goods and goods, industrial raw materials.

5. Conclusion

From the research results can be conclusions in this study. The first is based on the analysis of RCA index can be concluded that Indonesia is losing comparative advantages of both the ASEAN regional and world markets in labor-intensive commodities, as reflected in the trend decrease RCA group index SITC 6 and STIC 8 in the last ten years. As for the capital intensive commodity groups SITC 5 and STIC 8 Indonesia did not have a comparative advantage both in the region ASEAN and the world market. The regression results showed five of the nine groups of SITC have a significant influence on the export value of Indonesia in ASEAN, which groups SITC 3, SITC 4, SITC 6 SITC 7, and SITC 8. Furthermore, the regression results also indicate that the real exchange rate and the income per capita of export destinations also have a significant effect on the exchange rate Indonesia in ASEAN.

The results showed that the comparative advantage of a significant effect on the value of Indonesian exports to all commodity groups studied. For SITC groups that have a positive relationship with the export value increased investment and focus resources to the group will be able to increase the value of exports. As for the SITC group that has a negative correlation with the value of exports then slightly shifting the allocation of resources for commodity groups that have a positive relationship as group SITC 7 is largely the automotive industry and components will increase the export value of Indonesia in ASEAN, ceteris paribus.

Furthermore, of the research results obtained, Indonesia's export performance very significantly influenced by the position of the real exchange rate of the rupiah, the policy of the government which have direct or indirect influence of the exchange rate and inflation will be very significant effect on the position of Indonesian exports. Relatively low exchange rate will benefit from the export side Indonesia. Next is the per capita income of export destinations, as reflected by the level of per capita gross domestic product Country of also significantly affect the value of exports, so the government needs to continue to maintain competitiveness through price, product differentiation, and improve the quality of Indonesian products overseas. For yet amid uncertainty in the global economy will also impact on the unstable economies the main export destinations. The government should have a specific strategy to determine the tastes of the market and actively encourages exports to new markets of potential that has not been touched. For more extensive export market will make the less the risk is affected by the economic slowdown that hit the export destination countries, as happened in the Chinese economy lately which affect Indonesia.

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