



## **The Effect of Export, Import and Investment to Economic Growth of Riau Islands Indonesia**

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### **ABSTRACT**

This study aimed to analyze the effect of export, import, and investment to economic growth of Riau Islands Indonesia. Data were obtained from the quarterly regional economic report of Riau Islands Province Indonesia in the period of 2009-2016 or 8 years. Export and import were free on board value reported by importer/exporter to Indonesia customs. While investment was measured by investment credit reported by all banks to Bank Indonesia, and economic growth by gross regional domestic product provided by central bureau of statistic. Panel data regression analysis was implemented to analyze the influence of independent variables to the dependent variable. The most suitable panel data regression model in this study was a random effect model. The study found that partially, export had an insignificant negative effect on economic growth, while import had a significant negative impact and investment had a significant positive impact. Simultaneously, the three variables had statistically significant effect to the economic growth of Riau Islands Province Indonesia.

**Keywords:** Export, Import, Investment, Economic Growth, Panel Data

**JEL Classification:** F43

### **1. INTRODUCTION**

Macroeconomics describes the factors that may affect companies and society. It can analyze some government targets, such as economic growth, price stability or inflation rate, investment, employment and government balance sheet performance (Prasetyo, 2009).

Indonesia has many Islands including Riau Islands Province, the 33<sup>th</sup> province out of 34 Provinces. The province is very special because three out of its seven districts or cities are special zones where international trade is promoted to boost export, import, and investment. The government expects to improve local economic growth by promoting international trade. This expectation is supported by Schumpeter's theory in Sukirno (2012. p. 434) that alludes the importance of international trade conducted by entrepreneurs in realizing economic growth.

International trade has an important role considering the strategic location of the Riau Islands which borders directly with foreign countries. The special zones in Riau Islands are Batam, Bintan, and Karimun (BBK). While the other districts i.e., Anambas

Islands, Lingga, Natuna, and Tanjung Pinang are supporting the implementation of special zones in BBK by providing manpower, food, etc. Given the strategic location of Riau Islands and the government support to the special zones of BBK, Riau Islands trade balance reached 20% of total gross domestic regional product (GDRP) in 2010-2014. However, in the last 4 years, both export and import are facing a decline. Under this condition, the author hopes to find empirical evidence whether export and import really influence economic growth as expected by the government.

Meanwhile, the author recognizes the importance of investment to economic growth. Keynes's theory that is expanded and developed by R.F. Harrold and E.D. Domar (Gilarso, 2004. p. 398), emphasizes the balance between the amount of savings and investment required for a harmonious economic growth. Investment can be interpreted as expenditure to buy capital goods and production equipment to increase the capability of a company to produce goods and services available in the market. One way to catch investment expenditure data is through financial institutions or banks. Funds disbursed by financial institutions include investment credit. Investment credit is a type of long-term credit

used to finance capital expenditure in the context of rehabilitation, modernization, land expansion or the establishment of new projects. The author used data of investment credit from Bank Indonesia, the central bank in Indonesia.

This article intends to explain the influence of export, import, and investment to the economic growth of a region, especially Riau Islands province in Indonesia, both partially and simultaneously. The author conducted the research using secondary data obtained from Bank Indonesia in the form of panel data within the period 2009-2016 and processed the data using panel data regression method. The author has not found previous research involves the three independent variables simultaneously to the dependent variable. More unlikely, in the case of Riau Islands province. Thus, the author hopes to contribute to enrich the literature in this field. The author also hopes to motivate companies to conduct international trade and motivate the government to attract investment as they will contribute heavily to the local economic growth.

## 2. LITERATURE REVIEW

Sari et al. (2016) examined the effect of investment, labor, and government expenditure to the economic growth of Indonesia. This study showed that investment, labor, and government expenditure simultaneously affect the economic growth of Indonesia. Partially, investment has a positive impact to the economic growth in Indonesia significantly.

Mohsen (2015) examined the effects of export and import on the economic growth of Syria. Using Johansen Cointegration test, he showed that export and import have a positive and significant effect on gross domestic product (GDP). Using Granger Causality test, he found that there was a two-way causal relationship between export, import, and GDP in the long and short term. The impulse response functions indicated that when there is a shock to exports, GDP will respond positively in the following years, but when there is a shock to imports, GDP will respond negatively in the following years. The variance decomposition analysis showed that at a 10-year forecasting horizon, exports and imports shocks explain 28% and 25% of the GDP forecast error variance, respectively.

Dewi and Sutrisna (2015) examined the effect of investment and export on the absorption of labor through economic growth. The results of this study showed that investment has a significant positive effect on economic growth, while exports have an insignificant negative effect on economic growth.

Susi et al. (2015) examined the effect of investment, labor, and export to economic growth in Buleleng regency period of 2008 to 2012. This study showed that investment, labor, and export have a positive effect on economic growth. Partially, both investment and export have a positive effect.

Hasan et al. (2013) examined the effect of investment, labor, and government expenditure on economic growth in West Sumatera province. This study showed that there is a significant influence of investment on economic growth in West Sumatera province.

Kholis (2012) examined the impact of foreign direct investment on the growth of Indonesian economy. Using pooled least square method, he showed that export growth has a positive effect on economic growth in Indonesia but import growth has a negative impact on economic growth. Export was the main driver of economic growth.

### 2.1. Export

According to the Law of the Republic of Indonesia Number 17 years 2006, export is the activity of removing goods from customs areas. If the buyer comes from abroad and the seller comes from within the country, then the activity can be regarded as export. Export of goods can be judged according to the price of free on board (FOB), the calculation of the export of goods is done by multiplying the value of goods (according to notification of export of goods or PEB) with the exchange rate.

FOB means that the seller (exporter) is delivering the goods to the port mentioned in a contract, this means that the buyer (importer) shall bear all costs and risks of loss or damage of goods starting from that point (Amir, 2007).

Export is vital on a country's economic growth, as has been explained in Hecksher-Ohlin's theory in Pridayanti (2014) that a country will export products that production cost is less expensive and raw materials are abundant. This will benefit the exporting country as it will increase the national income and economic growth.

### 2.2. Import

According to the Law of the Republic of Indonesia, import is the activity of entering goods into the customs area. Literally, imports can be interpreted as the activities of entering goods from foreign country into the customs territory of our country (Susilo, 2008).

### 2.3. Investment

Investment is one of the decisive factors in economic growth (Prasetyo, 2011. p. 88). Credit investment is a credit to finance investment activities of a company with a credit period of more than 1 year (Supriyono, 2011).

### 2.4. Economic Growth

Economic growth can be defined as the development of activities in the economy that cause goods and services produced in the community to increase (Sukirno, 2012). One of indicators to see the economic conditions of a region is GDRP. GDRP is basically the amount of value added generated by all business units within a particular country, or is the sum of the value of final goods and services produced by all economic units. Sjafrizal (2008. p. 93) mentioned that GDRP is a sum of consumption, investment, government expenditure, and exports, minus imports.

## 3. METHODOLOGY

This research used secondary data from quarterly report of regional economy published by Bank Indonesia in the period of 8 years from 2009 until 2016, hence 32 data were observed. Whenever necessary, the author confirmed the data with those of the central

bureau of statistics and customs report. All data obtained were in thousand rupiahs.

SPSS 22.0 was used for classical assumption tests and E-views 8.1 was for panel data regression. Research activities were carried out as follows. First, the author confirmed that data passed classical assumption tests. Second, she selected the best panel data regression model. Panel data regression consists of three models, namely common effect, fixed effect and random effect. To choose the best model model(s), she conducted three tests that is Chow, Hausman, and LM test. Chow test is usually implemented to select the best model among common effect and fixed effect. Hausman test is to select the best model among fixed effect and random effect. While the LM test is to select between common effect and random effect model. Last, she conducted panel data regression, interpreted the model output, and drew conclusions.

## 4. RESULTS AND DISCUSSIONS

In line with sluggish global demand, Riau Islands exports recorded a contraction starting in the beginning of 2014 until 2016. The decline in exports was recorded by almost all of Riau Islands' flagship commodities, i.e., Natural gas, electronic equipment, iron products, and crude palm oil processed products. However, net exports in 2014-2016 were more frequently reported than the period before.

### 4.1. Measures of Central Tendency

Table 1 describes statistics parameters on 8-year-data. The table shows that the average export is Rp 28,991,048, the highest value is Rp 40,144,000, the lowest value is Rp 16,824,990, and standard deviation Rp 5,175,006. Batam city has the largest contribution in the export value of Riau Islands with its four main ports namely Batu Ampar, Sekupang, Kabil and Belakang Padang, contributing approximately 75.98% in year 2016. This figure is followed by Tarempa port in Anambas Islands contributing 12.30%. While export based on volume, Tanjung Balai Karimun has the largest contribution of 41.86%.

Import has an average of Rp 28,568,483 with the highest value of Rp 38,044,240, the lowest Rp 20,829,640, and standard deviation of Rp 5,204,136. Like export, Batam city has the largest contribution in the import value of Riau Islands with its two main ports namely Batu Ampar, Sekupang and one airport which is Hang Nadim, contributing approximately 73.98% in year 2016. This

**Table 1: Descriptive statistics**

Statistics	Variables			
	Export	Import	Investment	Economic growth
Mean	28,991,048	28,568,483	6,160,718	21,423,508
Median	29,788,590	29,036,995	6,138,017	12,215,082
Maximum	40,144,000	38,044,240	10,019,346	41,620,151
Minimum	16,824,990	20,829,640	2,332,006	9,212,961
SD	5,175,006	5,204,136	2,957,713	13,724,235
Skewness	0.31	0.23	0.05	0.52
Kurtosis	2.75	2.02	1.39	1.32
Jarque-Bera	0.59	1.56	3.48	5.24
P	0.74	0.46	0.18	0.07

SD: Standard deviation

figured is followed by Tanjung Uban, Bintan regency of 9.58%, and the smallest contribution is given by the port of Tanjung Balai Karimun, Balai Karimun Regency at 8.73%.

Investment variable has an average of Rp 6,160,718, the highest value of Rp 10,019,346, the lowest value of Rp 2,332,006, and the standard deviation of Rp 2,957,713. According to a report published by Bank Indonesia in first quarter on 2017, the largest portion of investment variable was absorbed by the manufacturing sector by 17.35%, the commercial sector of 14.22% and the transportation, warehousing and communications 10.52%.

The economic growth variable has an average of Rp 21,423,508, the highest value of Rp 41,620,151, the lowest Rp 9,212,961, and the standard deviation of Rp 13,724,235. Based on the above figures, Riau Islands' economic growth throughout 2012-2016 is higher than the national economic growth, However, economic growth decelerated from year to year, this could be caused by one of the weakening of industrial and mining sector demand, and low prices of oil and gas.

### 4.2. Panel Data Regression

Classical assumptions must be met in order to obtain a good regression model. Data in this study can be said to be of normal distribution when probability of JB is more than 0.05. As can be seen from Table 1, the probability in all variables are more than 0.05 so it can be concluded that the data is normally distributed.

A good regression model is considered free of multicollinearity once the correlation between independent variables does not exceed 0.90. A correlation matrix of this study follows:

Table 2 shows that correlation values are all <0.90, thus, the author concludes that multicollinearity is not present in the model.

To choose the best model between common effect and fixed effect model, we conducted Chow test.

Table 3 shows that the probability of cross-section F is more than 0.05, thus the model chosen is a common effect.

Next, Table 4 shows that the probability of cross-section F is more than 0.05, thus the model chosen is a common effect.

**Table 2: Multicollinearity test**

	Export	Import	Investment
Export	1.00	0.53	0.25
Import	0.53	1.00	0.34
Investment	0.25	0.34	1.00

**Table 3: Chow test**

Effects test	Statistic	P
Cross-section F	0.186464	0.9046

**Table 4: Hausman test**

Test summary	$\chi^2$ , statistic	$\chi^2$ , df	P
Cross-section random	0.559392	3	0.9057

Last test to choose the best model is LM test.

Next, Table 5 shows that the probability of cross-section random is more than 0.05, Thus, the model chosen is a random effect.

Table 5 indicates that Prob. Breusch-Pagan in both columns shows the number  $0.000 < 0.05$ , thus the appropriate model is a random effect. The results of the three tests are in Table 6.

Of the three tests above, the author selected the most dominant results. Therefore, she concluded that the best model is random effect model. Using Eviews, she obtained the following output as shown in Table 7.

**Table 5: LM test**

Test summary	Both
Breusch-pagan	0.00000

BP: Breusch-pagan, LM: Lagrange multiplier

**Table 6: Tests to select the best model**

Test type	Choose between	Decision
Chow test	Common effect and fixed effect	Common effect
Hausman	Random effect and fixed effect	Random effect
LM test	Common effect and random effect	Random effect

LM: Lagrange multiplier

**Table 7: Panel data regression (random effect model)**

Variable	Coefficient	SE	t-statistic	P
C	22527200	7126967	3.1608	0.0038
Export	-0.2839	0.2698	-1.0524	0.3016
Import	-0.5849	0.2762	-2.1176	0.0432
Investment	3.8694	0.4264	9.0738	0.0000
Effects specification - cross-section random (idiosyncratic random)				
R <sup>2</sup>	0.861900	F-statistic	58.25040	
Adjusted R <sup>2</sup>	0.847103	P (F-statistic)	0.000000	

Regression method is pooled least squares with 32 pool (balanced) observations, SE: Standard error

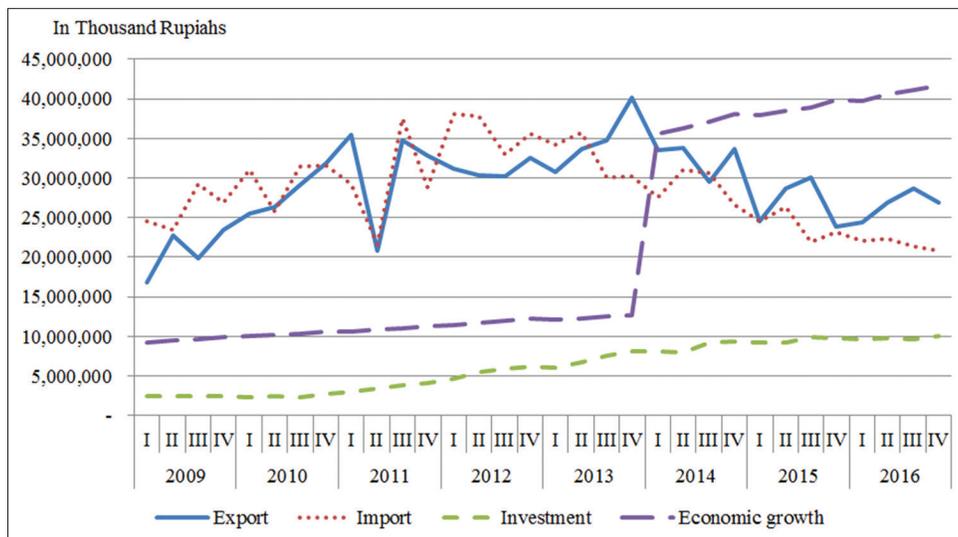
Table 7 above shows the coefficient of determination (adjusted R<sup>2</sup>) of 0.847103 indicates that the model explains 84.71% of the variability of economic growth, while the remaining 15.29% of economic variance should be explained by other variables which do not exist in the regression model. Table 7 also exhibits that export, import and investment have significant effect on economic growth simultaneously as concluded from the probability value (F-statistics) of 0.00 ( $P < 0.05$ ).

However, when the author looks at each variable partially, she concluded that import dan investment influence the economic growth of Riau Islands province in Indonesia. This conclusion is based on the probability value (t-statistics) of 0.0432 for import and 0,0000 for investment. The other variable, that is export, has insignificant effect on profitability because its probability value (t-statistics) is >5% amount 0.3016.

The result of this paper indicates a negative relation between import and economic growth which is logically accepted because when a country imports goods, it buys them from foreign producers, thus imports bring out money from this country and decrease economic growth. The finding of this study is compatible in a way that significance is proved by that of Mohsen (2015) and Kholis (2012). This finding supports the theory of GDP but contradicts some empirical evidence of import-led growth where imports of competing products may spur innovation and finally lead to economic growth.

Further, this research shows a negative but insignificant relation between export and economic growth which is supported by previous research such as Dewi and Sutrisna (2015). At first, this finding sounds confusing because exports bring money to a country, thus increase economic growth. Broadly speaking, export growth can promote economic growth and vice versa. However, the empirical evidence associated with the effect of export on economic growth is mixed. The negative correlation between exports and GDP is supported by the theory of the paradox of

**Figure 1:** Export, Import, Investment, and Economic Growth of Riau Islands 2009-2016.



Economic growth as proxied by GDRP looks increasing during the period of research. This increase is influenced by the increase in prices and net exports. Investment increases slowly but sure during the period of research

plenty that states that a country can sometimes focus too heavily on exporting only one lucrative export that is not a value-added export and thus neglects the rest of its economy and decreases its GDP. This condition might be the case of Riau Islands that depends on exporting primary commodities such as natural gas and machineries/electronic equipment.

Last, this research supports the abundant empirical evidence that investment has significant positive effect on economic growth. This result is similar with that of Sari et al. (2016), Dewi and Sutrisna (2015), Susi et al. (2015), Wahyuni et al. (2014), Hasan et al. (2013) that indicate a significant positive influence. Hypothetically, investment improves productivity then it can lead to an increase in the long run trend rate of economic growth. However, if the economy is close to full capacity or investment is inefficient then an economy could not enjoy growth prospects.

## 5. CONCLUSIONS AND RECOMMENDATIONS

In this study, data were obtained from the quarterly regional economic report of Riau Islands province Indonesia in the period of 2009-2016 for 8 years. Export and import were FOB value reported by importer/exporter to Indonesia customs. While investment was measured by investment credit reported by all banks to Bank Indonesia, and economic growth by gross regional domestic product provided by Central Bureau of Statistic. Panel data regression analysis was implemented to analyze the influence of independent variables to the dependent variable.

In line with sluggish global demand, Riau Islands exports recorded a contraction starting in the beginning of 2014 until 2016. Economic growth as proxied by GDRP as well as investment looks increasing during the period of research (Figure 1).

Data in this study can be said to be of normal distribution and multicollinearity is not present in the model. Chow test selects common effect, Hausman test chooses random effect, and LM test picks random effect. Therefore, the author concludes that the best model is random effect model.

Panel data regression model indicates that the model explains 84.71% of the variability of economic growth and that export, import and investment have significant effect on economic growth simultaneously. In detail, this study indicates a negative relation between import and economic growth which is logically accepted and supported by previous research. Further, this research shows a negative but insignificant relation between export and economic growth which is supported both by empirical evidence and the theory of the paradox of plenty that states that a country can sometimes focus too heavily on exporting only one lucrative export that is not a value-added export and thus neglects the rest of its

economy. This condition might be the case of Riau Islands that depends on exporting primary commodities such as natural gas and machineries/electronic equipment. Last, this research supports the abundant empirical evidence that investment has significant positive effect on economic growth.

Further research is expected to add more independent variables and period of observation in examining the factors of economic growth. Comparison study with other countries or regions in the most updated period with the same research methodology would be beneficial for international investors.

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