

Do Exports Increase Economic Growth in Indonesia?

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Indonesia is experiencing a wild fluctuation in their exports in the last 15 years, even though the overall trend was increasing, and as a result, GDP growth has been showing a decline in the last few years. This study aims to estimate the effect of exports on Indonesia's economic growth using Ordinary Least Square (OLS) model. The results showed that exports significantly and positively affected GDP growth in Indonesia. In addition to exports, exchange rate and foreign exchange reserves were also found to be influential to GDP growth. It is not surprising that those variables play a major role in a country's economy, so maintaining appropriate levels of them is crucial in order to ensure a country's prosperity.

Key words: *Economic growth, Exports, OLS model, exchange rate, foreign exchange reserves.*

Introduction

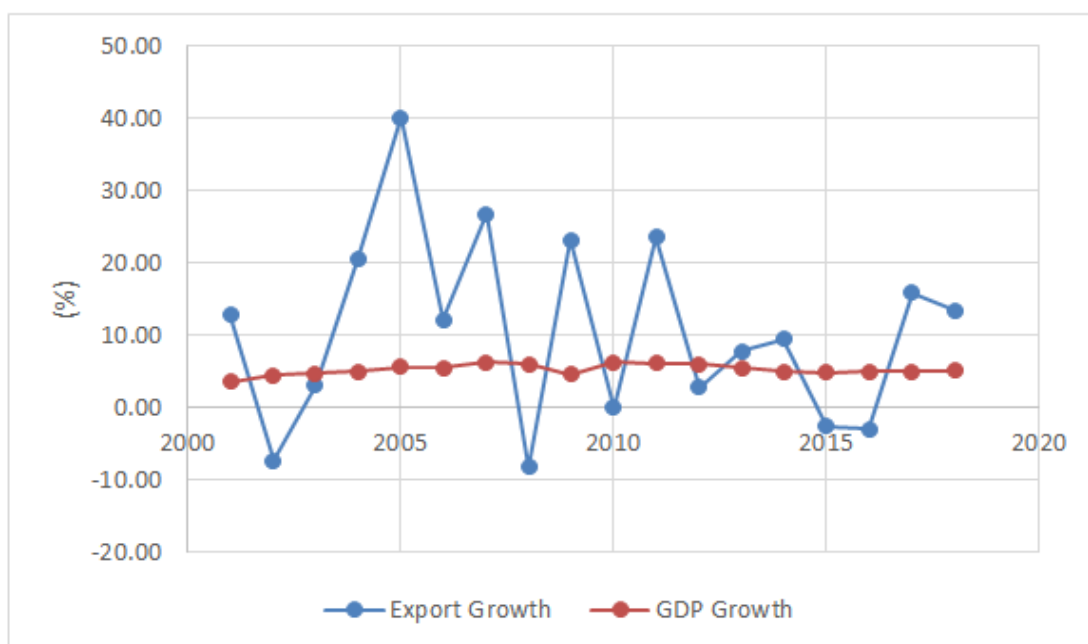
Economic growth can be linked to an increase in the production capacity of an economy that is realised in the form of an increase in national income. Economic growth is related to the process of increasing the production of goods and services in community activities. If an increase in demand for goods and services will force the economy to increase the production of goods and services, it will cause an increase in economic growth (Silvia, Wardi, & Aimon, 2013). Economic growth shows the extent to which economic activity will generate additional community income in a given period. It is because basically, economic activity is a process of using factors of production to produce outputs that will produce a flow of compensation for factors of production owned by the community so that the prosperity of the community increases (Asbiantari, Hutagaol, & Asmara, 2016).

Development in developing countries, like Indonesia, is emphasised more on economic development. It is because economic development encourages economic growth and vice versa; economic growth will play an essential role in the process of accelerating economic development (Pridayanti, 2012). One important role in economic growth is development progress, which is at the core of measuring a country's ability to expand its output at a faster pace of development than its population growth rate (Ernita, Ammar, & Syofyan, 2013).

Gross Domestic Product (GDP) is one of the macroeconomic indicators in an economy in a country (Kummu and Guillaume, 2018). The phenomenon of Gross Domestic Product in Indonesia for 20 years has increased every year. However, due to the Asian financial crisis disrupting economic stability and the rate of economic growth, it dropped dramatically (Sari & Fakhruddin, 2016). Changes in Gross Domestic Product are influenced by many other macroeconomic indicators, such as exports (Dutt, Ghosh, & Austin, 2015; Ee, 2016), imports (Saputra, 2015), foreign investment (Iamsiraroj & Ulubaşođlu 2015; Iamsiraroj, 2016), exchange rate (Dai, Delpachitra, & Cottrell, 2016; Low & Chan, 2017), and foreign exchange reserves (Benny, 2013). Based on this phenomenon, this study wants to show that in Indonesia, the role of exports is still hoped for economic growth.

Export is considered to be highly influential for a country's economy (Primandari, 2017). That is because economic growth can be maintained when export is at the appropriate level (Hai, Hai, & Hung, 2017). However, export growth in Indonesia has been unstable in the last 15 years (Figure 1). Thus, that might be why economic growth tends to decrease since 2010.

Figure 1. Export and GDP growth in Indonesia



Source: World Bank

Figure 1 shows that, in the last 10 years, Indonesia's export has experienced a decline despite some fluctuations. During the same period, GDP growth has also been decreasing. Considering the importance of export to enhance economic growth, it can be said that the decline has been because of the fluctuation of exports. Based on the problems above, this study aims to estimate the importance of export in maintaining and enhancing economic growth in Indonesia.

Literature Review

Exports are goods and services produced in the country, which will then be sold abroad to earn more income for the country. The success in increasing exports also reflects an increase in competitiveness, and at the same time, is an indication of the growth of positive dynamics in a country's entrepreneurship (Bustami, 2013). Long-term export activities can provide foreign exchange earnings for export countries and exporters, which will be used to increase the country's economic growth, and also finance the needs of imports and domestic development (Mustika, 2015). Therefore, exports become an important benchmark to find out how much economic growth in a country and as a means of sustainable development, which is an important source for developing countries such as Indonesia (Mahendra & Kesumajaya, 2015).

Export transactions will increase the country's foreign exchange, which is one of the state's revenues and expand employment for the community because the more exports, the more production will produce, which will increase employment (Farina & Husaini, 2017). In the study (Suryono, 2019), the development of the value of Indonesia's exports from 2013 to 2017 experienced a slowdown, due to slowing national economic growth and world economic growth. Export is very influential in economic growth because a country will export its products whose production uses cheap and abundant production factors intensively so that this activity is very profitable and will increase national income (Pridayanti, 2012).

According to Imam (2013), import activity is an activity of public consumption of goods from abroad. GDP must support Indonesia's increasingly high imports. Imports are very dependent on GDP because GDP is one source of import financing. Imports have a positive relationship to GDP, which means that if imports are high, then GDP will decline (Saputra, (2015). Imports of a country are affected by the level of people's income; the higher the level of people's income, the more imports will be done (Sedyaningrum, 2016). Import activities will lead to a flow of money abroad, and the rewards are foreign goods and services that enter the country, which have the potential to threaten domestic companies because of the many goods and services that reduce national income (Junaidi, Sulasmiyati, & Nurlaili, 2018).

Import activities can be affected by inflation as prices of domestic production, which are higher, causing imported goods to be relatively cheap and causing more imports to be made (Junaidi, Sulasmiyati, & Nurlaily, 2018). The high level of Indonesian imports in 2018 was due to the trade wars of the United States and China that triggered the weakening of the world economy, which then has implications for Indonesia (Putri & Suhadak, 2019).

Foreign Investment (PMA) is a flow of capital originating from abroad that flows to the private sector (Nuritasari, 2013). Foreign direct investment is a stable investment in the long-run, so it helps in the recovery of the economic sector which requires many funds and quite extensive employment absorption, and shows the confidence of foreign investors in carrying out activities in sectors of the Indonesian economy that encourage capital inflows (Dewata & Swara, 2013).

Investments are made because of expectations of higher profits in the future than at present. Therefore, the amount of profit to be gained will significantly affect the amount of investment made by investors (Appa, 2014). Investment is the formation of capital that can increase people's income in the economy of a region. Therefore, the higher the value of the investments that are managed, the economic conditions will increase and affect the level of economic growth (Jufrida, 2016). Foreign direct investment activities are seen from the main perspective of focusing on multinational companies (MNCs) as suppliers of foreign investment and host countries as recipients of foreign investment (Chen, Yu, & Zhang, 2019).

The exchange rate is the price or the value of the currencies of other countries expressed in the value of the domestic currency or the ratio of the value or price between the two currencies that is determined from the balance between demand and supply in the market (Ardiyanto & Ma'ruf, 2014). Appreciation of the exchange rate in a country will reduce the price of its exported goods and increase the price of imported goods for trading partners (Agustina, 2014; Muchlas, 2015).

Research conducted by (Asih & Akbar, 2016) suggests changes in exchange rates between other countries' currencies and domestic exchange rates are influenced by various factors, namely the inflation rate, discount rate, output level, government intervention in the foreign exchange market, and the market expectations for the value of future currencies. Currency systems are generally used by a country to regulate the value of its currency against the exchange rates of other countries' currencies. In this case, for the stability of the Indonesian exchange rate, the government gets input from Bank Indonesia as the monetary authority and the agency responsible for conducting a review of the state of the national and international economy (Farina & Husaini, 2017).

The foreign exchange reserves which are called the International Reserves and Foreign Currency Liquidity (IRFCL) or Official reserve assets, are defined as foreign assets held by the monetary authority to finance the balance of payments balance and is useful to maintain the stability of the exchange rate and can be used to finance deficits in the balance of payments (Benny, 2013). For developing countries like Indonesia, the way to increase foreign exchange reserves is to increase exports because they play an important role in national development. Foreign exchange gained from export activities will increase, a country's foreign exchange reserves are affected by net exports recorded in the current account and capital account balance (Febriyenti, Aimon, & Azhar, 2013; Ameen et al., 2018).

Foreign exchange reserves are very influential in a country's economy. It is because the large foreign exchange reserves can be used as a monetary indicator of the strength and weakness of a country's economic fundamentals to assess the level of resilience in dealing with economic crises. If the higher the value of foreign exchange reserves owned by a country, it will be resistant to facing economic crises (Sayoga & Tan, 2017; Dianita & Zuhroh, 2018; Khalil et al., 2019).

Research conducted by Pridayanti (2012) using time series data and Ordinary Least Square (OLS) method, showed that export variables have a positive effect on economic growth in Indonesia, and import variables have a negative effect on economic growth in Indonesia, while the exchange rate variable has a negative effect on economic growth in Indonesia. Likewise, Saputra (2015) by using the Ordinary Least Square (OLS) method, showed a result that Indonesia's foreign exchange reserves and rupiah exchange rate are significant against Indonesian imports from China.

Dewi & Triyati (2015) conducted research using a non-participant observation method, where the method was a method of collecting data by making observations. The researcher was not directly involved in the activity but only as an independent observer. The analysis shows that economic growth has a significant positive effect on foreign direct investment.

Research conducted by Sedyaningrum (2016) showed that simultaneous exports, imports, and economic growth have a significant effect on the exchange rate of the rupiah. In this case, the increased economic growth is influenced by the rupiah exchange rate.

Whereas, Dianita & Zuhroh (2018) in their research using the error correction model, found that in the short and long term, the gross domestic product has a significant effect on Indonesia's foreign exchange reserves. In the case of this research, foreign exchange reserves affect economic growth.

In this study, an OLS model will be conducted to estimate the long-term effect of export on economic growth. Several studies mentioned above mostly used short-term models to estimate the effect, such as ECM that was conducted by Mustika, Haryadi, and Hodijah (2015) and Kurniasih (2019). We believe that the total impact of export activities on a country's economy can only be felt in the long run, thus the use of long-run (OLS) model.

Methods

The type of data used in this study was quantitative data. The data source used in this research was secondary data in the form of time series from 1999 to 2018. Data used included data on economic growth, exports, imports, foreign investment (FDI), the exchange rate of the rupiah, and foreign exchange reserves. This research took place in Indonesia. The data were obtained from World Bank, the Ministry of Trade, Central Bureau of Statistics (BPS).

In this study, the method used was multiple linear regression analysis with the OLS (Ordinal Least Square) model, as used by Fumo (2015) and Syaikhu & Haryati (2017). The OLS method is a regression that minimizes the number of quadratic errors by meeting the BLUE (Best Linear Unlimited Estimator) assumption in estimating intervals and testing. EViews 8 was used to process the data in this study.

The estimation model that would be used was:

$$GDP_t = \beta_0 + \beta_1 EX_t + \beta_2 FDI_t + \beta_3 ER_t + \beta_4 FER_t + \mu_i \quad (1)$$

We aimed to find out the elasticity of the impact of each regressor on the regressand. With that aim, the double-log model was applied by transforming each variable into natural logarithmic (ln) form. However, FDI was not transformed due to the fact that there are several negative values in the data. The double-log model is as follows:

$$\ln GDP_t = \beta_0 + \beta_1 \ln EX_t + \beta_2 FDI_t + \beta_3 \ln ER_t + \beta_4 \ln FER_t + \mu_i \quad (2)$$

Where:

GDP: Indonesia's GDP (billion Rp), EX: Exports (billion Rp), FDI: Foreign Direct Investment (million US\$), ER: Exchange rate (Rp), FER: Foreign Exchange Reserves (million US\$).

Results and Discussion

Estimation results and their supplementary tests are summarised in Table 1.

Table 1: Estimated Results of Econometrics Model

$LnGDP_t = 6.497 + 0.123lnEX_t + 0.000FDI_t + 0.471lnER_t + 0.279lnFER_t$				
Prob _t =	0.034**	0.564	0.000*	0.000*
$R^2 = 0.9897$; DW-Stat = 1.719; F-Stat = 361.262; Prob. F-stat = 0.000				

Note: * indicates that the variable is statistically significant at 1% level of α

** indicates that the variable is statistically significant at 5% level of α

Table 2: Diagnostic Results

Diagnosis	Test	Stat.	Prob.	Result
Normality distribution of residuals	Jarque-Bera	1.089	0.580	Residuals are normally distributed
Autocorrelation	Breusch-Godfrey	2.447	0.485	No autocorrelation
Heteroscedasticity	White	15.469	0.347	No heteroscedasticity
Linearity	Ramsey RESET	1.769	0.209	Model is linear

The multicollinearity test used was the Klein test. According to Imdadullah, Aslam, and Altaf (2016), if R^2 values from the auxiliary regressions are higher than the overall R^2 , then multicollinearity is considered troublesome. Conversely, if overall R^2 is higher, then the multicollinearity can be ignored.

Table 3: Klein Test Results

Dependent Variable	Regression	R^2	Criteria	Decision
LnPDB	Overall	0.9897	-	-
LnEks	Auxiliary	0.9389	Lower than overall R^2	Multicollinearity is not troublesome
FDI		0.8052		
LnER		0.6071		
LnCaDev		0.9232		

From Table 2, we can see that all classical assumptions of a regression model was fulfilled. From Table 3, it can be seen that all auxiliary R^2 values are lower than the overall R^2 , even though the regressions with export and foreign exchange reserves as the dependent variables resulted in a fairly high R^2 . Thus, it can be concluded that the multicollinearity can be ignored. In conclusion, the model estimated in this study can be considered robust.

The Goodness of the Fit Model Test

The overall model is statistically significant if all the independent variables simultaneously influence the dependent variable. This study used the F-test with a hypothesis formulation:

$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$; the model used does not exist,

$H_A : \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$; the model used exists, with H_0 testing criteria accepted if the statistical probability $F > \alpha$ and H_0 is rejected if the probability $F \leq \alpha$.

From Table 1, it is known that the probability value of the statistical F is 0.000, and therefore H_0 is rejected, hence the overall significance of the model. Also from Table 1, the R^2 value is 0.9897, which means that the variations of Indonesia's GDP growth are almost 99% caused by the variations of export, FDI, exchange rate, and foreign exchange reserves, whereas the remaining 1.03% are caused by other factors.

The Effect Validity Test

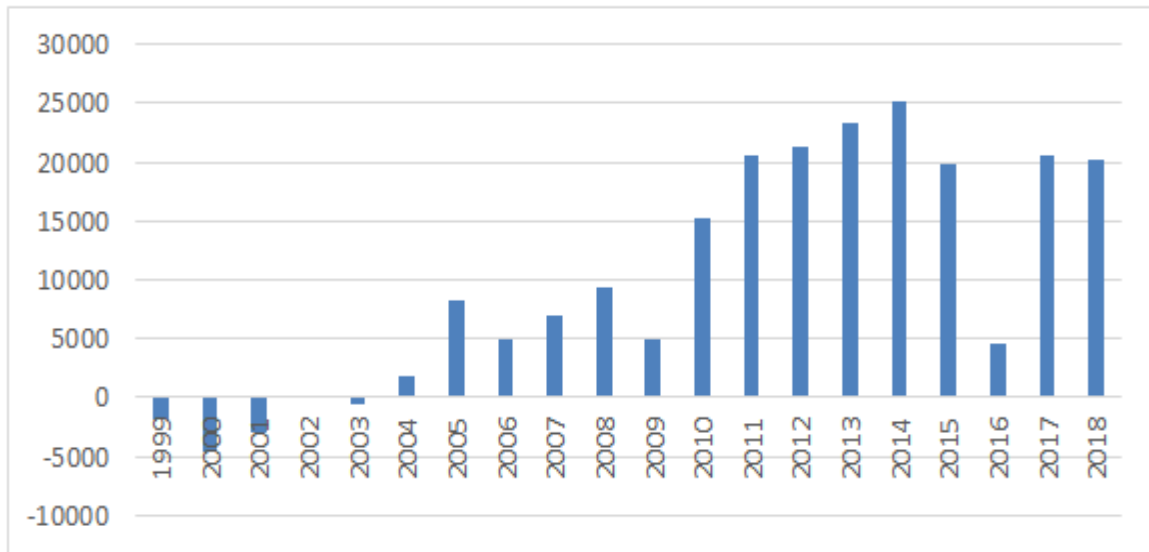
The effect validity test examines the significance of the effect of the independent variables individually. The effect validity test is the t-test. The hypothesis formulation is $H_0: \beta_i = 0$, the independent variable i has no significant effect, and $H_A: \beta_i \neq 0$, the independent variable i has a significant effect. With testing criteria, H_0 is accepted if probability $t_i > \alpha$, and H_0 is rejected if probability $t_i \leq \alpha$. T-test results can be seen in Table 4.

Table 4: t-test Results

Variable	t stat.	Prob.	Result (1-tailed)
Export (EX)	2.333	0.034	Statistically significant at α 0.05
FDI	0.590	0.564	Not statistically significant
Exchange rate (ER)	6.315	0.000	Statistically significant at α 0.01
Foreign exchange reserves (FER)	5.528	0.000	Statistically significant at α 0.01

From Table 4, it can be seen that all independent variables except FDI significantly affect economic growth. It is proven that the effect of export on GDP is positive. This result is in line with that of Mustika (2015), which stated that exports can increase a country's income and then to enhance domestic development. Not only that, a country's competitiveness can also be based on its exports (Bustami, 2013). Exports from a country with cheap production factors can be very profitable and increase national income and create job opportunities (Pridayanti, 2012). From Table 1, we can see that the regression coefficient is 0.123 with log-log correlation, which means that an increase of 1% in exports will cause GDP to increase by 0.123%. Although the effect is inelastic, the coefficient is still positive.

Figure 2. FDI Inflows in Indonesia (million US\$)



Source: World Bank

FDI is found to be statistically insignificant, which means that FDI does not have any effect on Indonesia's GDP. This result contradicts that of Dewata & Swara (2013), Appa (2014), and Jufrida (2016) which stated that investment will increase production activities and eventually economic growth. The insignificant effect of FDI on GDP growth in this study is a result of the wild fluctuation of FDI, as seen in Figure 2. The trend of FDI has been decreasing in the last five years, and thus there has been lower amount of investment.

Rudiawan & Meirinaldi (2019) stated that the Indonesian government urged improvements in foreign investment policies and regulations that supported these policies so that foreign investors obtained legal certainty and security guarantees for their investments in the territory of the Republic of Indonesia. Also, no less important is that government policy in accommodating the interests of foreign investments must contribute significantly to the absorption of the domestic workforce and greater use of domestic material.

The Rupiah exchange rate variable has a regression coefficient of 0.471 and the correlation between that and GDP is log-log, so that if the exchange rate rises by 1%, the GDP will rise by 0.47%. These results are consistent with research conducted by Sedyaningrum (2016), which reveals that economic growth has a positive effect on the Indonesian exchange rate. The exchange rate of the Rupiah against the US Dollar has a positive and significant influence on GDP fluctuations, so the Indonesian government, together with Bank Indonesia, should adopt the right policy to stabilise the value of the rupiah. It is because the exchange rate has a very positive effect on the export/import of goods and services. With the controlled value of the rupiah, it is expected that the current account will experience a surplus so that it

can increase Indonesia's GDP specifically and stabilise Indonesia's economic growth generally (Seydhoseini et al., 2019).

The foreign exchange reserves variable has a regression coefficient of 0.279, which means that if it increases by 1%, GDP will rise by 0.279%. These results are consistent with research conducted by Dianita & Zuhroh (2018), which reveal that in the short and long-term, the gross domestic product has a significant effect on Indonesia's foreign exchange reserves. In this study, the increase in foreign exchange reserves affects economic growth. This foreign exchange reserve is very influential on a country's economy because of the higher its fundamentals, the more economic stability. Foreign exchange reserves are used by Bank Indonesia (BI) for financing needs and foreign obligations of the country concerned, which include financing for imports and other payments to foreign parties. Adequate foreign exchange reserves are guarantees for the achievement of a country's monetary and macroeconomic stability.

Conclusion

There are several findings in this study. What is considered important in changing economic growth in Indonesia are exports, exchange rates, and foreign exchange reserves. These three variables show a positive effect, where this condition indicates that if the export variable, exchange rate, and foreign exchange reserves increase or strengthen, it will affect the increase in economic growth. On the other hand, the phenomenon is shown that, although the import and foreign investment variables show a positive effect on economic growth, it is not significant. These conditions show that if the variable increases, it does not affect economic growth. In this condition, export activity remains the mainstay in increasing Indonesia's economic growth.

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