

The Effect of Macroeconomic Factors on GDP Growth in Indonesia

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ABSTRACTS

This study examines the Impacts of macroeconomic variables such as exports, imports, inflation, exchange rates, interest rates, foreign direct investment, labour force and unemployment rate on Indonesia's Gross Domestic Product (GDP) from 1991 to 2017. This study using secondary data, and multiple regression used to analyze information. The econometric model used consists of GDP as the dependent variable with its independent variables being exports, imports, inflation, exchange rates, interest rates, foreign direct investment, labour force and unemployment rate. Data on these variables is collected from the World Bank website. This study found that there was a significant effect of exports, exchange rates, inflation, labour and unemployment rates on GDP. Exports, inflation and labour have a positive impact on GDP. While the exchange rate and unemployment rate have a negative impact to GDP. Meanwhile, interest rates and direct foreign investment did not have a significant impact on GDP. Based on the results of the analysis it is suggested that the government carry out a strict monetary policy to maintain the exchange rate of the Rupiah against the US Dollar, so that GDP growth is well maintained. On the other hand the government must encourage exports and a well-educated labour force, as well as carry out integrated programs to reduce the unemployment rate so that the GDP growth rate can be achieved as expected.

Keywords: *Export, Import, Exchange Rate, Inflation, Interest, Direct Foreign Investment, Labour Force and Unemployment.*

INTRODUCTION

The economy is one of the most noticed issues in the contestation of the Indonesian Presidential Election in 2019. Problems with employment, infrastructure, debt, exports, and unemployment to the fate of the rupiah exchange rate are issues that often arise. After the voting of Presidential election on April 17, 2019, whoever the elected president is, Indonesia's economic projections

in the future are believed to have not changed much. A number of macroeconomic challenges are waiting for anyone elected president later. After the April 2019 presidential election, the global economy will be a major challenge in achieving the desired economic growth target. A number of issues in developed countries are effects that must be anticipated by developing countries such as Indonesia, because they have

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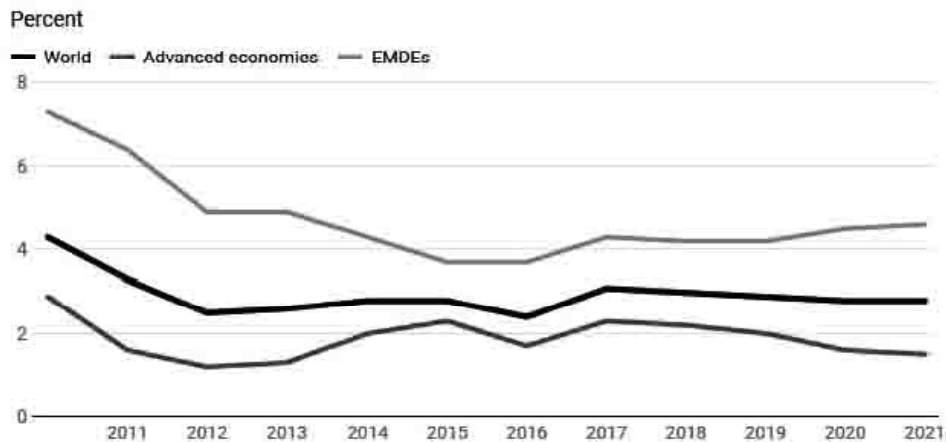
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a major impact on the Indonesian economy.

This can be seen from the global growth projections this year, called the International Monetary Fund (IMF) and the World Bank, which will slow down or even remain gloomy. The trade war between the US and China is a

problem for the world economy. The protectionist policies taken by a number of countries have become further concerns in influencing Indonesia's macroeconomic conditions.

Global Economic Growth



Note: EMDEs = emerging market and developing economies. Shaded area indicates forecasts. Aggregate growth rates calculated using constant 2010 U.S. dollar GDP weights. Data for 2018 are estimates.

Source: World Bank

Indonesia's GDP Growth (1961 - 2017)



Source: World Bank

LITERATURE REVIEW

Economic Growth

The economy of a country can be seen from the stronger or increasingly high economic growth of the country concerned. With better economic growth, it will have a positive impact on economic development, especially for economic sectors related to national income. Economic growth can be said to be a real increase in the Gross Domestic Product (GDP) of a country in a given year which shows an increase in per capita income in the economy (Mankiw, 2003).

Export

International trade activities that provide useful stimuli require domestic demand which causes the growth of large factory industries, together with a stable political structure and flexible social institutions. Based on the description above, it can be seen that exports reflect trade activities among nations that can provide a boost in the dynamics of growth in international trade, so that developing countries are likely to achieve economic progress on par with more developed countries (Todaro, 2002)

Import

Imports can be interpreted as the purchase of goods and services from abroad into the country with cooperation agreements between two or more countries. Imports can also be regarded as trading by entering goods from abroad into Indonesian territory by fulfilling applicable regulations (Hutabarat, 1996).

Exchange Rate

The rupiah exchange rate is a comparison of the value or price of the rupiah with other currencies, in this case US Dollar. Trade between countries where each country has its own

exchange tool requires a comparison of the value of a currency with another currency called the foreign exchange rate or exchange rate (Salvatore, 2008).

Inflation

In general, inflation can be interpreted as an increase in the level of prices of goods and services in general and continuously for a certain time. Another definition of inflation is the tendency of prices to increase in general and continuously over the long term. The price increase of just one or two items is not called inflation unless the increase extends to by causing a large increase in the price of other goods (Budiono, 2009). According to Sadono Sukirno (2003), the increase in general prices or inflation is caused by three factors, namely the money supply, the speed of circulation of money, and the amount of goods traded.

Interest Rate

According to Hubbard (2005), interest rates are costs that must be paid by the borrower (borrower) for loans received and rewards for the borrower (lender) for the investment. According to Karl and Fair (2001), interest rates are the annual interest payments from a loan in the form of a percentage of loans obtained from the amount of interest received each year divided by the number of loans. Interest is a measure of the price of resources used by debtors that must be paid to creditors.

Foreign Direct Investment

Kumar and Pradhan (2002) explain that Foreign Direct Investment (FDI) is the most important source of external resource flows to developing countries after the 1990s and has become a significant capital formation for these countries. According to Krugman (1991) what is meant by FDI is international capital flows

where companies from a country establish or expand their companies in other countries. Therefore there is not only a transfer of resources, but also the implementation of controls on overseas companies.

Labour Force

Labour force as one of the basic capital of development will not be effective if it does not have the quality as expected. The quality of the labour force depends on a large part of the level of education that the labour force has. Labour is a population in working age, aged 15-54 years or the total population in a country that can produce goods and services if there is a demand for them (Mulyadi, 2003).

Unemployment

In general unemployment is defined as a situation where a person belonging to the labour force category has no job and is actively seeking employment (Muana, 2005). Unemployment is a reality faced not only by developing countries but also by developed countries. A person who does not work, but who is not actively looking for work cannot be classified as unemployed.

Previous Research

Asbiantari, Hutagaol, Asmara (2016) used descriptive analysis and multiple linear regression with the Cochrane-Orcutt method with time series data from 2000 to 2016, analyzing the effect of exports on Indonesia's economic growth. His research conclusions show that exports in the industrial sector have a significant influence on economic growth both in the short term and in the long term period.

Septiatin, Mawardi, Rizki (2016) used multiple linear regression analysis in analyzing the influence of inflation and unemployment on economic growth in Indonesia, and using time series data for the period 2011-2015. Using two

independent variables, inflation and unemployment, the results of research revealed that the unemployment rate variable significantly affects economic growth in Indonesia.

Kustituantio and Istikomah (1998), in their study of the role of foreign investment in economic growth during 1977 - 1996, they concluded that in the short and long term, FDI did not affect economic growth. This is caused by (1) Country Risk of a small domestic market which causes a low rate of return from capital and lack of available supporting facilities and infrastructure (transportation, skilled labour, and technology); (2) the development of FDI is still hampered by the complexity of the management process, bureaucracy and lack of coordination between relevant departments; (3) the lack of information on sources of funds that can be used for project financing; (4) low quality of human resources, so that this has an effect on the purpose of implementing foreign investment in a country (transfer of assets) and (5) the occurrence of increasingly fierce competition between countries in attracting foreign investment by both developed and developing countries. The results of the study prove that Indonesia still needs to carry out a series of improvements, deregulation and network strengthening so that it will create a relatively conducive investment climate as expected by foreign investors.

Rinaldi, Jamal, Seftarita (2017) analyzes the Effect of International Trade and Macroeconomic Variables on Indonesian Economic Growth, using multiple regression analysis, time series data from 2000 to 2015, and the dependent variable consists of investment, current account, exchange rate and labour. The results of his research show that the exchange rate has a negative and significant relationship to Indonesia's GDP. While investment has no significant influence on Indonesia's GDP, and labour has a positive and

significant relationship to Indonesia's GDP.

RESEARCH METHODS

The Scope of Research:

The scope of this study is a macroeconomic field that discusses economic growth (GDP) in terms of the conditions of macroeconomic variables in Indonesia.

Data Sources:

The types and sources of data used in this study are secondary data in the form of annual time series from 1991 to 2017 obtained from the World Bank website at <https://www.worldbank.org/>

Analysis Method:

Regression analysis was performed using the Multiple Linear Regression method through data analysis Eviews 10. The data used in this analysis is the Data Time Series. The equation model used is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \epsilon$$

Where:

Y = Gross Domestic Product (GDP)

β_0 = Constant

X1 = Export (EXP)

X2 = Import (IMP)

X3 = Exchange Rate (EXCH)

X4 = Inflation (INF)

X5 = Interest Rate (RATE)

X6 = Direct Foreign Investment (FDI)

X7 = Work Force (LABOUR)

X8 = Unemployment Rate (UNEMPLOY)

ϵ = Term Error

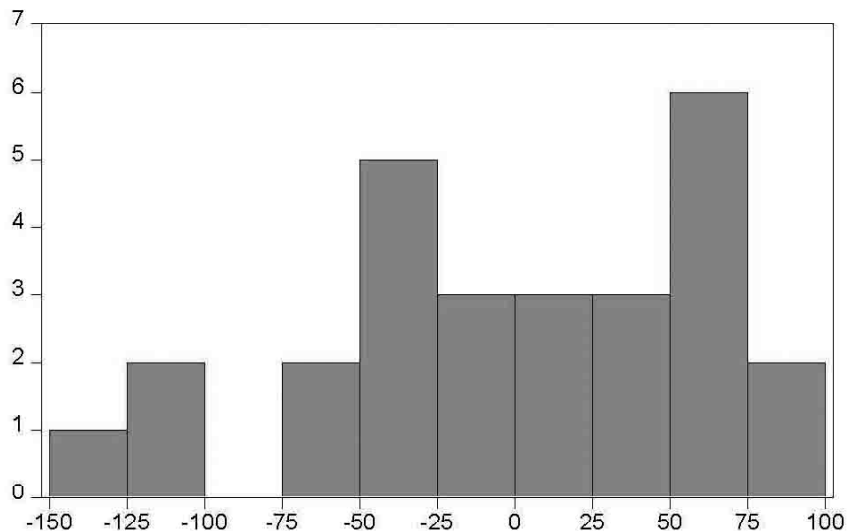
RESULTS AND DISCUSSION

Classic Assumption Test

Before using multiple linear regression models it is necessary to test the classical assumptions on the model. Testing is done so that the results to be obtained are not biased and in accordance with the provisions, so the results obtained from the multiple linear regression model can be accounted for.

Multicollinearity Test

The multicollinearity test aims to test whether the regression model takes the form of a high or perfect correlation between independent variables. If there is a high correlation between independent variables, it can be stated the symptoms of multicollinearity.



Series: Residuals
Sample 1 27
Observations 27

Mean	3.19e-13
Median	4.932496
Maximum	78.20470
Minimum	-145.3332
Std. Dev.	62.91803
Skewness	-0.592539
Kurtosis	2.534331

Jarque-Bera	1.823916
Probability	0.401737

	PDB	EXP	IMP	EXCH	INF	RATE	FDI	LABOUR	UNEMPLOY
PDB	1.000000	0.778927	0.749915	0.630629	0.722546	-0.783539	0.793716	0.769522	-0.085745
EXP01	0.778927	1.000000	0.741196	0.682207	0.729963	-0.787073	0.794228	0.704523	0.058794
IMP	0.749915	0.741196	1.000000	0.677687	0.706159	-0.698753	0.782054	0.758779	-0.075010
KURS	0.630629	0.682207	0.677687	1.000000	0.766556	-0.536449	0.432476	0.702045	0.470288
INF	0.722546	0.729963	0.706159	0.766556	1.000000	-0.780961	0.754298	0.777814	0.200550
RATE	-0.783539	-0.787073	-0.698753	-0.536449	-0.780961	1.000000	-0.664649	-0.782623	-0.193272
FDI	0.793716	0.794228	0.782054	0.432476	0.754298	-0.664649	1.000000	0.696450	-0.170778
LABOUR	0.769522	0.704523	0.758779	0.702045	0.777814	-0.782623	0.696450	1.000000	0.355162
UNEMPLOY	-0.085745	0.058794	-0.075010	0.470288	0.200550	-0.193272	-0.170778	0.355162	1.000000

Based on the table above it can be seen that the regression model does not experience multicollinearity. This is evidenced by the tolerance value of each independent variable which is less than 0.8. While the 1.000000 figure for each variable in the table shows the level of significance at the level of 100%.

Heteroscedasticity Test

Heteroscedasticity is used to determine the existence of variance inequalities from residuals for all observations in the regression model.

Heteroskedasticity Test: White

F-statistic	0.634329	Prob. F(8,18)	0.7392
Obs*R-squared	5.937909	Prob. Chi-Square(8)	0.6542
explained SS	2.024604	Prob. Chi-Square(8)	0.9802

Based on the table above it can be seen that the probability value for Obs * R-squared is 5.937909. Because the value of 5.937909 > from the degree of error $\alpha = 5\%$ (0.05), there is no heteroscedasticity. This informs that the proposed Ordinary Least Square (OLS) model can be said to be free from heteroscedasticity, so that further testing can be continued.

Normality Test

The decision to distribute normal residuals normally is simply by comparing the value of the JB (Jarque-Bera) probability with an alpha level of 0.05 (5%). If Prob. JB count is greater than 0.05 so it can be concluded that the residual is normally distributed and vice versa, if the value is smaller then there is not enough evidence to state that the residual is normally distributed.

Prob Value JB count is 0.401737 > 0.05 so it can be concluded that the residuals are normally distributed, which means that the classical assumptions about normality have been fulfilled.

Multiple Linear Regression

To analyze the influence of independent variables: exports, imports, exchange rates, inflation, interest rates, foreign direct investment, labour force and unemployment rates on Indonesia's economic growth (GDP), it is necessary to estimate using multiple linear regression methods through the Eviews 10. The output can be displayed as follows.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2370.066	770.6084	-3.075578	0.0065
EXP	7.59E-09	1.29E-09	5.889508	0.0000
IMP	-6.05E-10	8.91E-10	-0.678665	0.5060
EXCH	-0.125254	0.018745	-6.681982	0.0000
INF	14.04016	2.720087	5.161658	0.0001
RATE	11.35389	6.303196	1.801292	0.0884
FDI	-1.09E-09	5.03E-09	-0.216887	0.8307
LABOUR	3.90E-05	9.86E-06	3.949911	0.0009
UNEMPLOY	-154.4871	20.37838	-7.580932	0.0000
R-squared	0.997296	Mean dependent var	1832.347	
Adjusted R-squared	0.996095	S.D. dependent var	1210.017	
S.E. of regression	75.61807	Akaike info criterion	11.75047	
Sum squared resid	102925.7	Schwarz criterion	12.18241	
Log likelihood	-149.6313	Hannan-Quinn criter.	11.87891	
F-statistic	829.9255	Durbin-Watson stat	1.857426	
Prob(F-statistic)	0.000000			

Analysis of Multiple Linear Regression

The results of the Ordinary Least Square (OLS) equation are as follows:

$$\begin{aligned} \text{PDB} = & -2370.066 + 0.00000000759 \\ & \text{EXP} - 0.000000000605 \\ & \text{IMP} - 0.125254\text{EXCH} + 14.04016 \\ & \text{INF} + 11.35389 \\ & \text{RATE} - 0.00000000109 \\ & \text{FDI} + 0.0000390 \\ & \text{LABOUR} - 154.4871\text{UNEMPLOY} \end{aligned}$$

The regression equation above can be explained as follows:

1. A constant of -2370.066 means that if other factors are assumed to be constant or 0, then GDP will decrease by US\$2370.066.
2. The export regression coefficient (EXP) is 0.00000000759 significant with a significance level of $\alpha = 0.05$, meaning that it can be explained that the export variable has a significant positive relationship to GDP. In other words, when exports increase by US

\$1,000,000, GDP will increase by US\$0.00759.

3. The import regression coefficient (IMP) of -0.000000000605 is not significant with $\alpha = 0.5060$ which is greater than the significance level $\alpha = 0.05$. This means that it can be explained that this result shows the import variable has a negative relationship with GDP and has no significant effect.
4. The exchange rate regression coefficient (EXCH) is -0.125254 significant with a significance level of $\alpha = 0.05$, meaning that it can be explained that the exchange rate variable has a significant negative relationship to GDP. In other words, when the exchange rate increases by US\$1, GDP will decrease by US\$0.125254.
5. The inflation regression coefficient (INF) is 14.040 significant with a significance level of $\alpha = 0.05$, meaning

that it can be explained that the inflation variable has a significant positive relationship to GDP. In other words, when inflation increases by 1%, GDP will increase by US\$14.04. 6. Interest rate regression coefficient (RATE) of 11.35 is not significant with $\alpha = 0.0884$ which is greater than the significance level $\alpha = 0.05$, meaning that it can be explained that the interest rate variable has a positive and not significant relationship to GDP.

7. The regression coefficient of foreign direct investment (FDI) of -0.00000000109 is not significant with $\alpha = 0.8307$ which is greater than the significance level $\alpha = 0.05$. This means that it can be explained that these results indicate the variable of direct foreign investment has a negative relationship with GDP and has no significant effect.
8. The labour regression coefficient (LABOUR) of 0.0000390 is significant with a significance level of $\alpha = 0.05$, meaning that it can be explained that the labour force variable has a significant positive relationship to GDP. In other words, when the labour force experiences an increase of 1,000,000, the GDP will increase by US\$39.00
9. Regression coefficient of unemployment rate (UNEMPLOY) is -154.48 significant with a significance level of $\alpha = 0.05$, meaning that it can be explained that the variable unemployment rate has a significant negative relationship to GDP. In other words, when the unemployment rate increases by 1%, GDP will decrease by US\$154.48.

The results of the analysis and testing can

be explained as follows:

a. **Determination Coefficient Test**

Results (R²): This test is used to determine the percentage of the contribution of simultaneous effects of independent variables on the dependent variable. Based on the display of output Eviews 10 above, the result is that the adjusted R² value of Gross Domestic Product (GDP) is 0.99, which means that around 99% of the dependent variable (GDP) can be explained by variations in all independent variables, while the remaining 1% is explained by other factors outside the model.

b. **Simultaneous Testing of Regression Coefficients (Test F):**

This test is conducted to determine the effect of all independent variables contained in the model together (simultaneous) on the independent variable. With a significance level of 5%, the value of F ratio of each regression coefficient is then compared to the value of F table. If $F \text{ ratio} > F \text{ table}$ or $\text{prob-sig} < \alpha = 5\%$ means that each independent variable has a positive effect on the dependent variable. From the regression results above it can be seen that the $\text{Prob (F-statistic)} < 0.05$. Because the significance level is smaller than 0.05, the regression model can be used to predict the GDP dependent variable or together all independent variables have a significant effect on the GDP dependent variable. Then the conclusions are exports, imports, exchange rates, inflation, exchange rates, foreign direct investment, labour force and the unemployment rate together affect the Gross Domestic Product (GDP).

c. **Partial Testing of Regression**

Coefficients (t Test): This test is conducted to determine the significance of the partial role of the independent variable on the dependent variable by assuming that other independent variables are considered constant. If the $\text{prob-sig} < \alpha = 0.05$ means that the independent variable has a significant effect on the dependent variable. From the regression results above it can be seen that the independent variable $\text{Prob-sig} < 0.05$ is the variable of export, exchange rate, inflation, labour force and unemployment rate. This means that parsia, export variables, exchange rates, inflation, labour force and unemployment rate have a significant effect on GDP. While other independent variables due to $\text{Prob-sig} > 0.05$, namely imports, interest rates and foreign direct investment, can be concluded partially does not have a significant effect on GDP.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the results of the analysis and testing of data carried out statistically, some conclusions are obtained as follows:

1. The results of the study indicate that exports have a positive and significant effect on Indonesia's GDP. This means that when exports increase, GDP also increases.
2. Imports have a negative and not significant effect on GDP. This means that when imports increase, GDP will decline, but not significantly influence GDP.
3. Exchange rates have a negative and

significant effect on GDP. This means that if the exchange rate increases, the rupiah depreciates against the US Dollar, then GDP will drop significantly.

4. Inflation has a positive and significant influence on GDP. This means that if inflation increases then GDP will increase significantly.
5. Interest rates have a positive influence on GDP. This means that if inflation increases, GDP will increase as well, but it does not significantly affect GDP.
6. Direct Foreign Investment has a negative influence on GDP. This means that if foreign direct investment increases, GDP will decline, but the effect of the reduction is not significant to GDP.
7. The Labour Force has a positive and significant influence on GDP. This means that if the labour force increases, the increase in GDP also grows significantly.
8. Unemployment rate has a negative influence and is significant to GDP. This means that if the unemployment rate increases, the GDP decreases significantly.

Recommendations

1. Because the exchange rate (exchange rate) has a negative and significant influence on GDP fluctuations, the government should take the right policy in the national economy to stabilize the value of the rupiah; because the exchange rate is very influential in the activities of exports - imports of goods and services and it is expected that the current account has a surplus so that it can increase Indonesia's GDP.
2. Because exports have a positive and

significant effect on Indonesia's GDP growth, the government should not only rely on the export of raw material commodities (such as oil, gas, mining materials and minerals, and forestry products); but also encourages increasing other manufactured exports (Non-Oil and Gas exports). The way is to make quality manufactured goods, cost low-cost production, and rely on greater local content.

3. Because the labour force has a positive and significant influence on GDP growth, the government should stimulate the creation of new jobs such as paying attention to small and medium enterprises (SMEs) because in this sector unemployed people work a lot. If the government is fully supported, SMEs can absorb a lot of labour. Besides that, the government also needs to improve the labour force skills that are still not optimal in order to have added value and competitiveness for industries that need a labour force.
4. Because foreign direct investment has a negative and insignificant effect on Indonesia's GDP, the government should improve the improvement of foreign investment policies and regulations that support government policies to increase interest in foreign investment through labour law certainty, increase taxation regulations and ease in licensing. In addition, the government is expected to increase socio-political stability and security so that investors are not worried about investing their capital.

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