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The Influence of Exports and Imports on Economic Growth in Indonesia in 2001-2020

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Abstract

The study uses an associative quantitative approach method which aims to determine the influence of exports and imports on economic growth both partially, and simultaneously research was carried out using several analyses and multiple regression tests, including the Classical Assumption Test and the Hypothesis Test to see the influence between variables. This study uses secondary data regarding related variables sourced from the Central Statistics Agency (BPS). The results of this study show that partially exports have a positive and significant effect. This result also explains that the higher the export, the more economic growth will increase, but on the contrary, if imports increase, economic growth will decrease. The benefits of global economic openness can be seen from the condition of a country's economic balance. Participation in import export activities will bring great benefits to the countries involved. In future research, it is important to dig deeper into how certain factors in exports and imports can have different impacts on economic growth.

Keywords: Export ; Import; Economic Growth

INTRODUCTION

The state of a country's economy is greatly influenced by the conduciveness of the global economy. Economic cooperation between countries is an important reason that affects the economic growth of each country. According to neoclassical theory and competitive advantage, trade occurs because a country has an advantage in certain resources. As a result, the process of accumulating output from these trade activities will encourage economic growth.(Pridayanti, 2014) (Bakari & Mabrouki, 2017)

This is clearly illustrated in the current era of globalization, where international trade plays an important role in the process of building economic stability of a country, especially Indonesia. As a developing country with a fairly stable and developing economy, Indonesia has shown significant dynamics in exports and imports over the past two decades. From 2001 to 2020,

Indonesia faced various challenges and opportunities in international trade. Indonesia's import and export performance is affected by several factors, such as changes in raw material prices, the global economic crisis and changing international trade policies. For example, the global financial instability that occurred in 2008 had a significant impact on Indonesia's international trade, while high commodity prices in the early 2010s gave a positive boost to the country's exports.

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In the context of international trade, exports and imports play a crucial role in driving economic growth. Participation in import export activities brings significant benefits to the countries involved. One of the functions of exports is as the main source of foreign exchange for countries with open economies, because exports that expand to various countries can increase production and ultimately spur overall economic growth, making a great contribution to the country's economic stability. On the other hand, imports provide access to raw materials, capital goods, and technology that are not available domestically, which in turn increases productivity and economic efficiency. On the other hand, imports can meet domestic needs that,cannot be manufactured,own by,a country, thereby reducing the price of goods and services. (Hodijah & Angelina, 2021)

Growth,economy, which is reflected in changes in domestic income or GDP, could increase if the net,A country's exports move positively. This shows the high demand of other countries for the goods and services produced, so that the value of exports exceeds imports. When exports are greater than imports, people's economic activities will increase. (Kusuma, Sheilla, & Malik, 2020)

According to previous research conducted by Sity Hodijah and Angelina (2021) with,using the ECM model (Error Correction Model). At the same time, exports and imports have a significant impact,for Indonesia's economic growth. However, in the short term, imports have a negative and significant effect on Indonesia's economic growth. In connection with the theory of international trade, the increase in the number of exports indicates an increase in demand for goods or services from other countries, which requires domestic producers to increase production. Conversely, an increase in imports means more manufactured goods,imported from abroad, which can reduce domestic productivity and potentially reduce growth,domestic economy. While ,In the study by, export and import variables do not have a significant influence on the rate of economic growth, both in the short and long term.(Hanifah, 2022)

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Table 1. Data on the Development of Indonesia's Exports, Imports and Economic Growth in 2001-2020

Tahun	Ekspor (US$)	Impor (US$)	Pertumbuhan Ekonomi (%)
2001	56323.1	30962.1	3,64
2002	57105.8	31288.9	4,5
2003	61034.5	32550.7	4,78
2004	71584.6	46524.5	5,03
2005	85659.9	57700.9	5,69
2006	100798.6	61065.5	5,5
2007	114101.0	74473.4	6,35
2008	137020.4	129197.3	6,01
2009	116510.0	96829.2	4,63
2010	157779.0	135663.3	6,22
2011	203496.6	177435.7	6,17
2012	190031.8	191691.0	6,03
2013	182551.9	186628.7	5,56
2014	176292.7	178178.8	5,01
2015	150393.3	142694.5	4,88
2016	144489.7	135652.8	5,03
2017	168828.2	156985.5	5,07
2018	180012.7	188711.2	5,17
2019	167683.0	170727.4	5,02
2020	163306.5	141568.8	5,05

Source : BPS and Word Bank

The table above provides an overview of Indonesia's exports, imports and, economic growth that occurred from 2001 to 2020. During this period, the value of exports and imports showed a significant but unstable increase. Indonesia's exports increased rapidly from 56,323.1 million USD in 2001 to a peak of 203,496.6 million USD in 2011. However, after 2011, the value of exports fluctuated and declined quite sharply in 2015, reaching 150,393.3 million USD, before experiencing a slight recovery to 163,306.5 million USD in 2020. The value of imports also increased significantly from 30,962.1 million USD in 2012 to 191,691.0 million USD in 2012, reflecting the growth of domestic demand and industrialization. However, after 2012, imports also showed considerable fluctuations, falling to 142,694.5 million USD in 2015, and reaching 141,568.8 million USD in 2020.

Indonesia's economic growth during this period has fluctuated considerably, with the lowest figures recorded in 2001 (3.64%) and 2009 (4.63%) which may have been affected by the global economic crisis. In 2007, it became the highest economic growth with 6.35%, before the global financial crisis. After 2011, economic growth stabilized in the range of 5%, indicating a challenge in maintaining strong growth momentum amid changing global conditions. Fluctuations in exports and imports as well as global economic challenges have become the main concerns in analyzing Indonesia's economic growth over the past two decades.

Based on this explanation, the researcher is interested in continuing the previous research and will review how exports and imports will drive economic organizations starting from 2001 to 2020, by analyzing the data statistically. Through this analysis, the researcher hopes to provide a

deeper understanding of the role of international trade in Indonesia's economic development and its implications for future economic policies.

METHODS

Types and Methods of Data Collection

This study adopts a quantitative approach. Method The quantitative approach is a scientific approach that assumes that truth can be classified, observed, and measured. Variables have a causal relationship, and (Sugiyono, 2016) The research data is in the form of numerical data. This study focuses on exposing the relationship between economic growth as a dependent variable and exports and imports as independent variables in Indonesia, using time series data from 2001 to 2023.The Central Statistics Agency of Indonesia and the World Bank are the sources of data in this study. The author collects the necessary data using the secondary data method through documentation techniques. This data is obtained from available documents, such as annual reports from the Central Statistics Agency, as well as reference books, journals, and other sources. (Sugiyono, 2019)

Data Analysis Methods

To understand the impact of exports and imports on Indonesia's economic growth, this study applies multiple regression analysis. The testing process involves the Classical Assumption Test and the Hypothesis Test to evaluate the influence of the two independent variables that have been determined on the dependent variables. The data collected is generally in the form of numbers and then processed and analyzed using statistical techniques. The data analysis process in this study uses Eviews 12, especially the multiple linear regression method with the equation given:

$$\mathbf{Y = a + \beta 0 + \beta 1x1 + \beta 2x2 + e}$$

In this quantitative framework, researchers obtain and analyze data in the form of numbers, which are then processed using statistical methods. In this context, information relevant to this study was obtained from the Central Statistics Agency (BPS) which functions as the main data provider.

RESULTS AND DISCUSSION

I. Classical Assumption Test

Before presenting the results of regression tests in this analysis, it is important to ensure that the data meet the classical assumptions necessary for accurate statistical analysis.

Analysis of the Normality Test

The normality test aims to determine whether the analyzed data follows the normal distribution or not with the predetermined level of provisions.

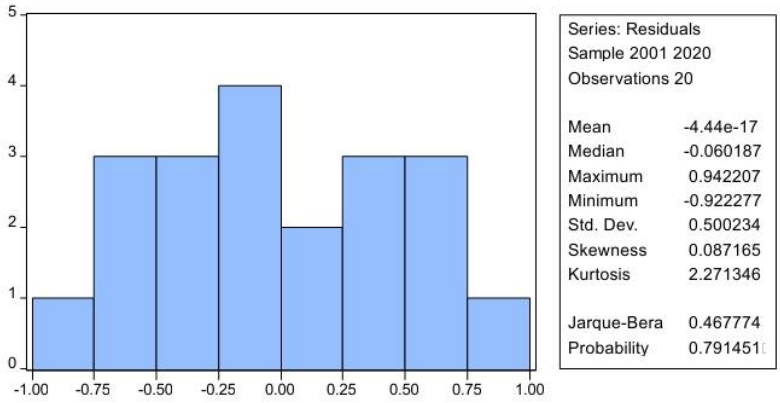

Figure 1. Normality Test Output Using Eviews

The results of the classical assumption test using the EViews application show that the residuals of the normally distributed regression model, are indicated by the probability value of Jarque-Bera which has a value of (0.791451>0.05). This indicates that the regression model passes the normality test, which is one of the important requirements in regression analysis to ensure the validity of the estimation results.

Heteroscedasticity Test

The following are the results of Heteroscedasticity tests conducted to ensure the reliability of the regression model used.

Table 2. Heteroscedasticity Test Output

F-statistic	0.461139	Prob. F(5,14)	0.7987
Obs*R-squared	2.828088	Prob. Chi-Square(5)	0.7265
Scaled explained SS	1.298866	Prob. Chi-Square(5)	0.9350

Source :Estimation using Eviews 12

The results of the Heteroscedasticity test using the EViews application showed a value (Prob Chi-Square) of (0.7265>0.05), it can be concluded that the assumption of Heteroscedasticity has been met or the data has passed the heteroscedasticity test.

Multicollinearity Test Analysis

The following are the results of Multicollinearity testing that have been carried out and presented in the form of the table below.

Table 3. Multi-Linear Test Output

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.347438	24.84594	NA
X2	1.19E-10	147.4686	27.86237
X1	1.78E-10	257.6974	27.86237

Source: Estimation using EViews 12

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The results of the multicollinearity test using the EViews application showed the values of Variance Inflation Factor (VIP) in the independent variable (>10). This suggests that the assumption of multicollinearity *is not being met*. Multicollinearity is a situation in which two or more free variables in a regression model show a very strong or high correlation. VIF values that exceed the threshold of 10 indicate that the independent variables influence each other significantly, which can cause difficulties in interpreting the regression results.

Autocorrelation Test

The table below is the results of an autocorrelation test conducted to verify the existence of autocorrelation in the regression model:

Table 4. Autocorrelation Test Results

F-statistic	0.299720	Prob. F(2,15)	0.7454
Obs*R-squared	0.768541	Prob. Chi-Square(2)	0.6809

Source :Estimation using Eviews 12

The results of the autocorrelation test with the EViews application showed a Probability Chi-Square value of 0.6809, which the significance level (0.6809>0.05). This means that the data has passed the autocorrelation test. This condition indicates that the residuals of the regression model do not correlate between observations, which is one of the important conditions in regression analysis to ensure unbiased and efficient estimation. Therefore, the regression model used can be trusted in the absence of autocorrelation in residuals.

B. Multiple Regression Analysis

The following are the results of the test regression carried out to evaluate the influence of the independent variable on the bound variable in this study:

Table 5. Multiple Regression Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.123495	0.589439	5.299100	0.0001
X2	-2.89E-05	1.09E-05	-2.642400	0.0171
X1	4.14E-05	1.34E-05	3.101850	0.0065

R-squared	0.454303	Mean dependent var	5.267000
Adjusted R-squared	0.390103	S.D. dependent var	0.677170
S.E. of regression	0.528842	Akaike info criterion	1.701227
Sum squared resid	4.754454	Schwarz criterion	1.850587
Log likelihood	-14.01227	Hannan-Quinn criter.	1.730383
F-statistic	7.076398	Durbin-Watson stat	1.611856
Prob(F-statistic)	0.005809		

Source: Estimation using EViews 12

From the output of the multiple linear regression table, the equation is obtained:

$$\mathbf{Y= 3.12 + 4.14\ X1 – 2.89\ X2 + e.}$$

In the simple linear regression model, the constant value of the economic growth figure is 3.12 which means that if the value of the export (X1) and import (X2) variables is 0, it means that there are no exports and no imports, then the economic growth bound variable (Y) has a value of 3.12. In other words, the value of this constant indicates the "base value" of the economic growth rate that is not affected by exports or imports. This is the starting point of the analysis, which helps to understand how changes in independent variables can affect the rate of economic growth. So, if exports and imports change from zero, then this regression model can be used to estimate how much change occurs in the rate of economic growth.

The Influence of Exports on Economic Growth

Based on the output of the multiple regression test results in table 5, the coefficient for variable X1 (Export) is 4.14 with a probability value of 0.0065. This shows that any 1% increase in exports is expected to increase economic growth by 4.14%. Because the probability value is smaller than the significance level (0.0065<0.05), the relationship between exports and economic growth shows statistical significance.

Based on the results of the analysis, it can be concluded that the X1 variable (Export) has a positive and significant impact on the Y variable (Economic Growth). In other words, an increase in the value of exports will increase economic growth.

The Influence of Imports on Economic Growth

Based on the output of the multiple regression test, it can be known that the coefficient for the variable X2 (Import) is -2.89 and the value of the prob. Its is 0.0171. This shows that if the import sector rises by 1%, it is estimated that the growth rate will decrease by 2.89%. A probability value lower than the predetermined significance level (0.0171 < 0.05) indicates that the relationship between the variables Import (X2) and Economic Growth (Y) is statistically significant. This shows that changes in Imports correlate with changes in Economic Growth.

Thus, it can be concluded that the relationship between imports and economic growth shows a negative value, where the same percentage change in imports will result in a larger percentage change in the opposite direction in economic growth.

Simultaneous Hypothesis Testing (F TEST)

Based on the results of the multiple regression table, it is known that the value of F calculation (*F-Statistic*) is greater than that of F table, which is (7.076398>3.591531), and the

significance value (*prob (F-Statistic))* is 0.005809. The value illustrates that the regression model as a whole is statistically significant, and the significance value is lower than the established significance level (0.0058<0.05). Therefore, H0 is rejected and Ha is accepted, which means that the variables X1 (exports) and X2 (imports) have a positive and significant influence on Y (economic growth).

Simultaneously, these two variables have a complex and interrelated role in shaping the dynamics of a country's economic growth. Through the regression analysis, it can be seen how changes in the volume of export and import activities simultaneously play a role in driving the pace of economic growth in Indonesia. In many cases, the relationship between exports and imports with economic growth can go hand in hand or even affect each other. For example, increasing exports can increase income and consumption, which in turn can fuel economic growth. On the other hand, large imports can indicate high demand for goods and services, which can reflect strong economic activity. However, over-reliance on imports as well can have negative impacts, such as a high trade deficit that can weigh on the economy.

Partial Test (T-Test)

The results of the t-test for the X1 variable (export) showed that the calculated t of 3.101850 was greater than the table t of 2.100922 and the significance value of 0.0065< 0.05. This means that H0 is rejected and Ha is accepted, so the variable X1 (exports) has a positive and significant influence on Y (Economic Growth)

For the X2 (import) variable, the calculated t of -2.642400 is greater than the table t of 2.100922 and the significance value of 0.0171 < 0.05. Thus, H0 is rejected and Ha is accepted, indicating that the variable X2 (imports) has a negative and significant influence on Y (economic growth).

Determination Coefficient Index (R2)

An adjusted R-squared value of 0.390103 or 39.0103% indicates the level of ability of the regression model in explaining the differences in the variables studied (Economic Growth) by taking into account independent variables (Exports and Imports). The results indicate that export and import factors contribute 39.0103% to the variation in economic growth in Indonesia, while the remaining 60.9897% is influenced by various other factors that are not included in this analysis.

CONCLUSION

Based on the discussion and data processing that has been carried out in the research on the influence of exports and imports on economic growth in Indonesia, it can be concluded that Exports (X1) have a positive and significant influence on Economic Growth (Y) with a coefficient

of 4.14 and a Probability value (0.0065<0.05). In contrast, Imports (X2) have a negative and significant influence with a coefficient of -2.89 and a Probability value of 0.017<0.05. This indicates that every 1% increase in exports will boost economic growth by 4.14%, while a 1% increase in imports is expected to reduce economic growth by 2.89%. Although the regression model can explain about 39.0103% variation in economic growth, there are many other factors influencing growth that are not covered in this study. Therefore, the formulation of a comprehensive economic policy must consider not only aspects of international trade but also other factors that affect economic growth as a whole

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