Proceeding 2nd Medan International Economics and Business

Volume 2, Issue 1, 2024
"Human Resource Transformation and Collaborative Innovation to Build Independent and Competitive Business in the Digital Era"

ANALYSIS OF THE EFFECT OF EXPORTS AND IMPORTS ON ECONOMIC GROWTH IN INDONESIA

Sri Endang Rahayu*[1]
[1]Universitas Muhammadiyah Sumatera Utara
Jl. Kapten Mukhtar Basri No. 3 Medan
***Email:** sriendang@umsu.ac.id

ABSTRACT
Exports and imports are one of the components that influence Gross Domestic Product (GDP). The increase in GDP from the previous year is what is said to be economic growth. The role of exports and imports will influence economic growth in Indonesia. The aim of the research is to estimate the influence of exports and imports on economic growth in Indonesia. The research approach used is quantitative descriptive. The type of data taken is secondary data sourced from the Central Statistics Agency, where the data collection technique is documentation in the form of data on exports, imports and economic growth in Indonesia from 2000 to 2023. The results of the research show that exports have a positive effect and do not have a significant effect on economic growth and Imports have a negative effect and do not have a significant effect on economic growth. Taken together, exports and imports do not have a significant effect on economic growth.

INTRODUCTION

Every country will try to carry out its development activities evenly, where the ultimate goal is to optimally improve the welfare of its people. The current economic activity of a country can usually be seen from the amount of economic growth at the Gross Domestic Product (GDP) level. GDP is all economic activities that produce or provide goods and services which can be influenced by several internal factors in the country. GDP will increase if the value of exports from a country increases. This shows that the goods or services produced by that country are in demand by other countries, this means that the value of exports will dominate the value of imports and this will increase people's economic activities (Situmorang, 2023). GDP in each country is different and will change from year to year. There are some countries that have relatively stable GDP and some have experienced significant increases. This change in GDP every year is called economic growth. If GDP has increased from the previous year, then economic growth has increased and has a positive value. If GDP decreases from the previous year, economic growth will be negative, so that economic activity and people's abilities and lives will decline.

Table 1. Indonesia's Economic Growth 2000-2023

Number	Year	Economic growth (%)
1	2000	4,9
2	2001	3,4
3	2002	3,7

4	2003	4,10
5	2004	5,13
6	2005	5,6
7	2006	6,3
8	2007	6,3
9	2008	6,1
10	2009	4,5
11	2010	6,1
12	2011	6,5
13	2012	6,02
14	2013	5,3
15	2014	5,02
16	2015	4,88
17	2016	5,05
18	2017	5,07
19	2018	5,17
20	2019	5,02
21	2020	-2,07
22	2021	3,69
23	2022	5,31
24	2023	5,05

Source : Badan Pusat Statistik, 2024.

From table 1 data, the level of economic growth from 2000-2023 experienced fluctuations. Indonesia's economic growth in 2000-2013 experienced fluctuations in the range of 3%-6% per year. This shows instability that changes every year. During the above period there was a decline in the level of economic growth in 2001, 2002, 2009 and 2015. In 2014 - 2019 Indonesia's economic growth rate also fluctuated in the range of 4% -5% per year. In 2020, Indonesia's economic growth rate experienced a drastic decline, reaching -2.07%, where the level of Indonesian economic activity experienced a decline due to the Covid-19 pandemic which hit the world and spread to Indonesia. There is a ban on not leaving the house to reduce the spread of the Covid-19 virus. People's purchasing power decreases, thereby reducing people's consumption levels. As a result, production decreased so that many workers were unemployed due to layoffs from companies. In 2021, Indonesia's economic growth will slowly increase to 3.69% with reduced transmission of the Covid-19 virus. In 2022-2023, community activity will increase, where the economic growth rate will be around 5% per year. Indonesia's increasing economic growth is dominated by the role of high public consumption. Many factors can influence a country's economic growth. The factors that influence economic growth in Indonesia are exports and imports. This can be seen in research by Kinski, et al (2023) which states that economic growth in Indonesia is influenced by exports and imports. Export is an effort to sell commodities that we own to other nations or foreign countries with government regulations by expecting payment in foreign currency so that it can be said that the results obtained from exporting activities are in the form of a certain amount of money in foreign currency or commonly referred to as

foreign exchange which is also is one of the sources of state income (Agustina, et al. 2023). Thus it can be said that the greater the exports carried out by a country each year, the greater the country's ability to obtain national income from the value of these exports so that these export activities will encourage the country's economic growth, the better and the greater the country's ability to carry out activities. development of facilities and infrastructure for the progress of the country and the welfare of the community.

Apart from exports, a country's economic growth can be seen from the import activities carried out by that country. Indonesia is a country that has abundant natural resources, but it still lacks the ability to manage raw goods into semi-finished goods and finished goods to meet domestic needs. So Indonesia implemented an import policy of semi-finished goods into finished goods in order to meet domestic needs with a very large population (Rahayu and Febriaty, 2022). Putra, F.A (2022) explains that import activities are the process of transacting goods or services from one country to another legally and is generally carried out in the trade process. Apart from that, import process activities are generally the activities of goods or commodities from other countries heading into the country. Thus, it can be said that import activities show the amount of consumption that is proportional to income and the amount of dependence on goods and services needed by the population of a country because they are not yet able to produce and provide for their own needs. Judging from the aspect of imports and the amount of income, the amount of import value shows the community's ability to import imported goods. This means that imports are a reflection of the welfare and prosperity of society which is encouraged by good economic growth.

Table 2. Indonesian Exports and Imports 2000-2023

Number	Year	Exports (Million US$)	Imports (Million US$)
1	2000	61.118,6	33.514,8
2	2001	56.315,7	30.962,1
3	2002	57,154,8	31.288,9
4	2003	61.055,3	32.550,7
5	2004	71.579,0	46.524,5
6	2005	85.653,7	57.700,9
7	2006	100.792,7	61.065,5
8	2007	164.098,1	74.473,4
9	2008	137.016,8	129.197,3
10	2009	116.506,7	96.829,2
11	2010	157.774,3	135.663,3
12	2011	203.489,1	177.435,6
13	2012	190.018,3	191.689,5
14	2013	182.550,1	186.628,7
15	2014	176.292,3	178.178,8
16	2015	150.366,3	142 694,8
17	2016	145.134,0	135.652,8
18	2017	168.828,2	156.985,5
19	2018	180.012,7	188.711,3
20	2019	167,683,0	171,275.7

21	2020	163,191.8	141,568.8
22	2021	231,609.5	196,190.0
23	2022	291,904.3	237,447.1
24	2023	258,797.2	221,886.2

Source : Badan Pusat Statistik, 2024.

From the data in table 2, the value of Indonesia's exports from 2000-2011 fluctuated upwards. enhancement. Where in 2000 the value of Indonesia's exports was 61,118.6 million US$ to 164,098.1 million US$ in 2007. Likewise, the value of Indonesia's imports in 2000-2011 experienced increasing fluctuations. In 2000, the import value was 33,514.8 million US$ to 177,435.6 million US$. However, it decreased from 2008, 2009 and 2010 to 157,774.3 million US$. This was caused by the global crisis that hit the world which had an impact on Asian countries, including Indonesia. However, in 2011 the value of Indonesia's exports rose drastically to 203,489.1 million US$. However, from 2012 to 2017 the value of Indonesia's exports continued to decline. Where in 2012-2014 the export value was smaller than the import value. It can be seen that in 2012 the export value was 191,689.5 million US$, while the import value was greater than the export value of 191,689.5 million US$. In 2013 the export value was only 182,550.1 million US$ while the import value was 186,628.7 million US$. And in 2014 there was another decline where the value of Indonesia's exports became 176,292.3 million US$ and the value of imports amounted to 178,178.8 million US$. In 2015-2017, the value of Indonesia's exports was again greater than the value of imports. However, in 2018 and 2019 the import value was greater than the export value. In 2020-2023, the value of Indonesia's exports will again be greater than the value of Indonesia's imports. The factor causing Indonesia's imports to be greater than exports is due to the falling prices of Indonesia's mainstay export commodities. It was recorded that the average price of crude palm oil (CPO) in 2018 weakened by 9.1% compared to 2017. Likewise, the price of rubber fell by 20.1%.

Palm oil commodities have a very large role in Indonesia's export performance. In 2018, palm oil's share of total exports reached 11.3%. Only inferior to coal's share of 13.6%. At the same time, the price of petroleum commodities which are an import requirement soared high. The average price of Brent oil in 2018 rose 30.9% from the previous year. This has an impact on the trade balance which is attacked from two directions. Exports only grew 6.65% while imports skyrocketed to 20.15%. This is what makes the trade balance deficit swell. Ironically, the import portion of the consumer goods category in 2018 rose to 9.11% from the previous year's 8.97%. Meanwhile, the portion of capital goods and raw materials must be willing to be cut to just 15.88% and 75.01%. In fact, imports of capital goods and raw materials can encourage domestic industrial activity.

METHOD

The research approach used is quantitative descriptive. The type of data taken is secondary data sourced from the Central Statistics Agency, where the data collection technique is documentation, namely in the form of data on exports, imports and economic growth in Indonesia from 2000 to 2023. The analysis method in this research is descriptive quantitative. The quantitative analysis method is an approach to processing data through statistical or mathematical methods collected from secondary data where the data is analyzed descriptively and then presented with the help of diagrams or curves.

RESULTS

Regression Analysis Results

Estimation Model

$$PE_{rt} = \alpha_0 + \alpha_1 . X_{rt} + \alpha 2 . M_{rt} + \varepsilon_{rt} \quad \ldots\ldots (1)$$

PErt = Economic Growth in year t (%)
Xrt = Exports in year t (Million US$)
Mrt = Impors in year t (Million US$)
α_0 = Regression coefficient (constant)
α_1, α_2 = Parameters of each independent variable
εrt = *Error Terms*

After the research model is estimated, the value and magnitude of each parameter in the equation model above will be obtained. The values of the positive and negative parameters will then be obtained to test the research hypothesis. Next, the model will be estimated to obtain the value and magnitude of each parameter in the equation model. Below are the results of the regression analysis. Regression is carried out with the dependent variable being economic growth and the independent variables namely, Indonesian exports and imports. From the regression results in table 3 above, the export and import variables have a greater probability value ((sig α > 5%, 10% and 15%) which means that the export and import variables do not have a significant effect on the economic growth variable.

Table 3. Multiple Linear Regression Results

Dependent Variable: PE
Method: Least Squares
Date: 06/19/24 Time: 21:52
Sample: 2000 2023
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.349019	0.986471	4.408662	0.0002
X	6.75E-06	1.78E-05	0.378871	0.7086
M	-4.06E-06	1.72E-05	-0.236487	0.8153

R-squared	0.013482	Mean dependent var	4.839167
Adjusted R-squared	-0.080472	S.D. dependent var	1.695359
S.E. of regression	1.762254	Akaike info criterion	4.087533
Sum squared resid	65.21633	Schwarz criterion	4.234790
Log likelihood	-46.05040	Hannan-Quinn criter.	4.126600
F-statistic	0.143494	Durbin-Watson stat	1.436085
Prob(F-statistic)	0.867168		

Source : Eviews 12 dan diolah, 2024.

The time series regression results above have an R-Squared value of 0.013482, which means that the ability of the independent variable can influence the dependent variable by 1.3482% and the rest is influenced by other variables outside the research. Thus, retesting

will be carried out with transformation into the Natural Logarithmic (LN) function as follows.

Table 4. Multiple Linear Regression Results After Natural Logarithms (LN)

Dependent Variable: PE
Method: Least Squares
Date: 06/19/24 Time: 21:54
Sample: 2000 2023
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.880198	12.70853	-0.305322	0.7631
LN_X	1.506466	2.850444	0.528502	0.6027
LN_M	-0.784219	2.017377	-0.388732	0.7014

R-squared	0.023004	Mean dependent var	4.839167
Adjusted R-squared	-0.070044	S.D. dependent var	1.695359
S.E. of regression	1.753729	Akaike info criterion	4.077834
Sum squared resid	64.58687	Schwarz criterion	4.225091
Log likelihood	-45.93401	Hannan-Quinn criter.	4.116902
F-statistic	0.247226	Durbin-Watson stat	1.449395
Prob(F-statistic)	0.783206		

Source : Eviews 12 dan diolah, 2024.

From the regression results after carrying out the natural logarithm (ln) in table 4 above, the export variables and import variables do not have a significant effect on the economic growth variable, this can be seen from the larger probability values (sig $\alpha > 5\%$, 10%, and 15%). The time series regression results above have an R-Squared value that changes after the natural logarithm (ln) is 0.023004, which means that the ability of the independent variable can influence the dependent variable by 2.3004% and the rest is influenced by other variables outside the research.

Based on table 4 above, it can be seen that the resulting linear regression equation is:

$$\mathbf{PE = -3{,}880198 + 1{,}506466X_{rt} + (-0{,}784219)M_{rt} + e \quad \ldots . (2)}$$

From this equation it can be explained as follows:

1. The constant (c) = -3.880198 shows a constant value, where if the value of all independent variables is equal to zero, then the economic growth variable (PE) is equal to -3.880198%.
2. The export coefficient (X) is 1.506466, meaning that based on this research, if the other variables have a value of zero and exports increase by 1 million US$, then economic growth will increase by 1.506466%.
3. The import coefficient (M) is -0.784219, meaning that based on this research, if the other variables have a value of zero and imports increase by 1 million US$, then economic growth (PE) will decrease by 0.784219%.

Estimation Method

Coefficient of Determination (R-Square)

The Coefficient of Determination or R-Square shows that the total percentage value explains the dependent variable and the independent variable simultaneously. Based on the estimated regression model after using the Natural Logarithm (LN), the R-Square value is 0.023004. This means that simultaneously the export variable (X) and the import variable (M) account for 2.3004% explaining the economic growth variable (PE). Meanwhile, 97.6996% is explained by other variables that are not included in the estimation model.

F Test

The statistical F-test aims to test the significance of all independent variables together on the value of the dependent variable. From the regression results using autoregressive export variables and import variables on economic growth, it has a probability value (F statistic) of 0.783206 and an F statistic value of 0.247226. In this F-test, we use Probability or F-Statistics or p-value, which compares the p-value with the significance level or α (α = 5%). The p-value decision making is as follows:

1. If p-value > α, then Ho is accepted and Ha is rejected.
2. If p-value < α, then Ho is rejected and Ha is accepted

Dengan nilai p-value > α yaitu 0,247226 > 0,05, dapat disimpulkan bahwasanya variabel independen yaitu ekspor (X) dan impor (M) secara bersama-sama tidak berpengaruh secara signifikan terhadap variabel dependen (pertumbuhan ekonomi).

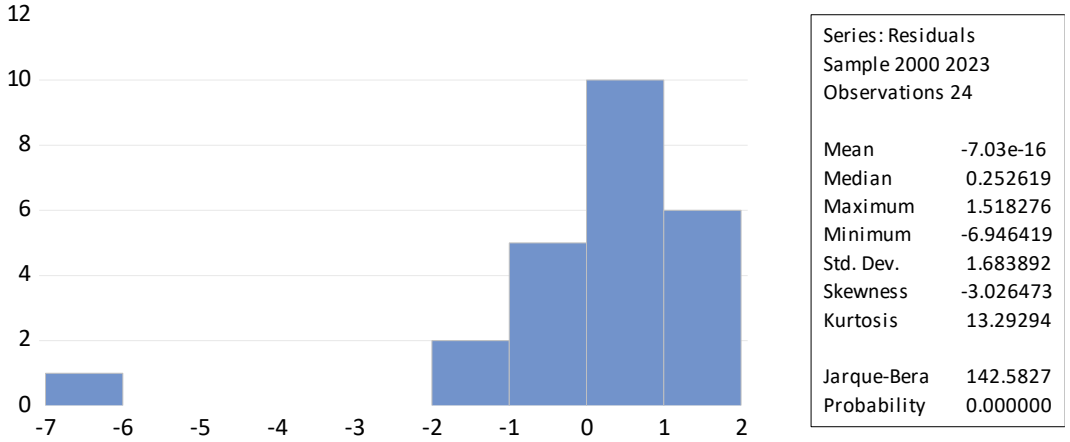
Statistic t Test

The statistical t-test is carried out to show how much influence individual independent variables have in explaining the dependent variables. Regression of the influence of export and import variables on economic growth. As for this research, to look at the ttable value using df (n)-k = 24-2 = 22 with (α = 5%) the ttable value is 2.07387. The results of partial testing of the influence of exports (X) on economic growth (PE) obtained tcount of 0.528502 while ttable was 2.07387 and had a significant figure of 0.6027 > 0.05, this shows that there is no significant influence between exports on economic growth. The results of partial testing of the influence of imports on economic growth obtained a tcount of -0.388732 while the ttable was 2.07387 and had a significant figure of 0.7014 > 0.05, this shows that there is no significant influence of imports on economic growth.

Classic assumption test

Normality test

To see whether the results of the processed data are normally distributed or not, you can look at the Jarque-Bera probability value. If the jarque-bera probability value is greater than 0.05 then the data is normally distributed. From the results of data processing, a jarque-bera probability value of 142.5827 (> 0.05) was produced, so it can be concluded that the data is normally distributed.



Source: Eviews 12 and processed, 2024

Figure 1. Normality Test

Multicollinearity Test

Table 6. Multicollinearity Test

Variance Inflation Factors
Date: 06/19/24 Time: 21:58
Sample: 2000 2023
Included observations: 24

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.973126	7.520437	NA
X	3.17E-10	64.17011	9.615188
M	2.94E-10	46.47694	9.615188

Source: Eviews 12 and processed, 2024.

This can be seen in table 6 where the multicollinearity test shows that the Centered VIF has 2 variables with values smaller than 10 (VIF < 10), namely exports and imports, which means that in the logarithmic regression results there is no multicollinearity.

Heteroscedasticity Test

Table 7. Heteroscedasticity Test Results

Heteroskedasticity Test: White
Null hypothesis: Homoskedasticity

F-statistic	0.579926	Prob. F(5,18)	0.7149
Obs*R-squared	3.329778	Prob. Chi-Square(5)	0.6493
Scaled explained SS	15.66957	Prob. Chi-Square(5)	0.0079

Source: Eviews 12 and processed, 2024.

Heteroscedasticity means that the residual variation is not the same for all variables. The decision taken to determine whether or not heteroscedasticity occurs in the linear

regression model is by looking at the value of the white test, where the test is if the R-squared observation probability value is > 5%, then the alternative hypothesis of heteroscedasticity in the model is rejected. . From the results of the processed data, it can be seen in the table where the observation probability R-squared is 3.329778.

Autocorrelation

Table 8. Autocorrelation Test Results

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.888823	Prob. F(2,19)	0.4276
Obs*R-squared	2.053336	Prob. Chi-Square(2)	0.3582

Source: Eviews 12 and processed, 2024.

There is no autocorrelation problem if the Obs*R-squared probability value is > 0.05. From the results above, it shows that there is no autocorrelation problem because the probability value is 0.3582.

DISCUSSION

The Effect of Exports on Economic Growth

From the research results, exports have a positive and insignificant effect on economic growth. This research is not in line with research conducted by Nurdani and Puspitasari (2023) and Nur, et al (2023) who concluded that exports partially have a positive and significant effect on economic growth in Indonesia. Meanwhile, research by Situmorang (2023) explains that partial exports do not have a positive and significant effect on economic growth. The same thing was conveyed by research by Kinski, et al (2023) concluding that exports have a negative and significant effect on economic growth in Indonesia. According to Adnan, M., Yulindawati., and Fernandi, M. (2022) explain that in the long term, exports have a positive and significant effect on economic growth. According to Affandi, et al (2018), the calculation results show that the export variable has a positive and significant effect on Indonesia's GDP. According to research by Dara Official Asbiantari, et al (2016), the results obtained are that in aggregate exports do not have a significant influence on economic growth. According to Ari Mulianta Ginting (2017), the ECM regression results show that exports have a positive and statistically significant influence on Indonesia's economic growth. Thus, it can be said that there are differences in previous research and gaps in research results from previous research explanations regarding exports on economic growth.

The Effect of Imports on Economic Growth

From the research results, imports have a negative and insignificant effect on economic growth, which means that if imports increase, economic growth will decrease. This research is in line with research by M. Nur, et al (2023) concluding that imports have a negative effect on economic growth in Indonesia. According to Alya S. Nurdani & Devy M. Puspitasari (2023) concluded that imports have a negative and significant effect on economic growth.

According to Adnan, M., Yulindawati., and Fernandi, M. (2022) explained that imports have a negative and significant effect on economic growth.

The Effect of Exports and Imports on Economic Growth

From the research results, exports and imports together have no effect on economic growth. The results of this research are not in line with research by Siti Hodijah and Grace Patricia Angelina (2021) which explains that long-term variables exports and imports have a significant effect on economic growth. According to Ismadiyanti Purwaning Astuti, Fitri Juniwati Ayuningtyas (2018), explains that in the short term, export and import variables influence economic growth. according to Tri Puspandari, et al (2022 explained that there is an influence of exports and imports on economic growth.

CONCLUSION

The conclusions in this research are 1). Exports have a positive and insignificant effect on economic growth in Indonesia, 2) Imports have a negative and insignificant effect on economic growth in Indonesia and 3) together exports and imports do not have a significant effect on economic growth in Indonesia.

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