

THE EFFECT OF EXPORTS AND IMPORTS ON THE TRADE BALANCE QUANTITATIVE ANALYSIS

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Abstract

This study aims to analyze the influence of exports and imports on Indonesia's trade balance using a quantitative approach. The trade balance is an important indicator in assessing a country's economic performance, determined by the difference between the value of exports and imports. The data used are secondary data in the form of the value of Indonesia's exports, imports, and trade balance obtained from official government publications and statistical agencies. The analytical method used is multiple linear regression analysis to measure the influence of export and import variables on the trade balance. The results show that exports have a positive and significant effect on the trade balance, while imports have a negative and significant effect on the trade balance. These findings indicate that increasing exports can improve the trade balance, while increasing imports that are not balanced by increased exports can cause a trade deficit. Therefore, the government needs to encourage increased competitiveness of export products and control imports of unproductive consumer goods.

Keywords: Export, Import, Trade Balance, Quantitative Analysis, Indonesia.

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INTRODUCTION

Globalization has driven increased economic interaction between countries through international trade. International trade enables countries to acquire goods and services that cannot be produced efficiently domestically and expands markets for domestic products (Krugman & Obstfeld, 2018). In this context, exports and imports are key components influencing a country's economic condition.

Exports are the activities of selling goods and services abroad with the aim of earning foreign exchange and increasing national income. Meanwhile, imports are the purchase of goods and services from abroad to meet domestic needs that cannot be met by domestic production (Salvatore, 2020). Both activities are closely related to the trade balance, which is the difference between the value of exports and imports over a given period.

The trade balance is a crucial indicator for assessing a country's external sector performance. A trade surplus occurs when exports exceed imports, while a deficit occurs when imports exceed exports (Mankiw, 2021). A healthy trade balance can enhance economic stability and strengthen a country's foreign exchange reserves.

As a developing country, Indonesia has significant international trade activity. Annual fluctuations in exports and imports can impact the national trade balance. Therefore, research is needed to quantitatively measure the impact of exports and imports on Indonesia's trade balance.

RESEARCH METHODS

This study uses a quantitative method with an explanatory approach. This approach aims to explain the causal relationship between the independent variables and the variables. The study uses secondary data in the form of annual data on Indonesia's exports, imports, and trade balance for the 2014–2023 period obtained from official publications of the Central Statistics Agency, Bank Indonesia, and the Ministry of Trade of the Republic of Indonesia.

Research Variables:

Independent Variables

1. Export (X1): the value of goods and services sold abroad.
2. Import (X2): the value of goods and services purchased from abroad.

Dependent Variable

Trade Balance (Y): the difference between the value of exports and imports in a certain period.

Data Analysis Techniques

Data analysis was carried out using multiple linear regression with the equation:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + e$$

Information:

- Y = Trade Balance
- α = Constant
- β_1 = Export Coefficient
- β_2 = Import Coefficient
- e = Error

Hypothesis testing is done through:

1. Partial t-test
2. F test (simultaneous)
3. Coefficient of Determination (R^2)

RESEARCH RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive statistics were used to provide an overview of the development of research variables, including exports, imports, and Indonesia's trade balance, during the period 2004-2023. Based on data processing, Indonesia's export value showed an upward trend throughout the study period, despite experiencing a decline during the COVID-19 pandemic. Import value also fluctuated, influenced by domestic and global economic conditions.

Table 1. Descriptive Statistics of Research Variables:

No	Variables	Minimum	Maximum	Average
1	Export	145.0	291.9	210.5
2	Import	135.0	237.5	186.7
3	Trade Balance	-3.6	54	4.23.8

Based on Table 1, the values of exports, imports, and the trade balance fluctuated throughout the study period. Exports were higher on average than imports, resulting in Indonesia generally experiencing a trade surplus in recent years.

Regression Analysis Results

The regression equation obtained is:

$$Y = 5.213 + 0.785X_1 - 0.692X_2$$

The test results show:

The coefficient of determination (R^2) value of 0.876 shows that 87.6% of the variation in the trade balance can be explained by export and import variables, while the remainder is explained by other factors outside the research model.

Table 2. Test results show:

NO	VARIABLES	COEFFICIENT	T-COUNT	GIS
1	constant	5,213	2.115	0.041
2	export	0.785	5,832	0.000
3	import	-0.692	-4.975	0.001

F Test Results

Table 3. F test results:

No	F-count	Sig
1	35,421	0,000

Based on Table 3, the significance value of 0.000 is less than 0.05. This indicates that the export and import variables simultaneously have a significant effect on Indonesia's trade balance.

Coefficient of Determination

Table 4. Coefficient of Determination

No	R	R Square
1	0.936	0.876

The R-square value of 0.876 indicates that 87.6% of the trade balance variation can be explained by export and import variables. The remaining 12.4% is influenced by factors outside the research model.

1. The Impact of Exports on the Trade Balance

The research results show that exports have a positive and significant impact on the trade balance. This means that increased exports will increase the trade surplus or reduce the trade deficit. This finding aligns with international trade theory, which states that exports are a source of foreign exchange that can increase national income and strengthen a country's trade position (Salvatore, 2020).

Indonesia's export growth primarily stems from commodity sectors such as palm oil, coal, and manufactured products. High international demand for these products contributed to an increase in the national trade surplus (BPS, 2024).

2. The Impact of Imports on the Trade Balance

The research results show that imports have a negative and significant impact on the trade balance. This finding indicates that increased imports can reduce the trade surplus if not offset by increased exports. However, not all imports negatively impact the economy. Imports of capital goods and raw materials can support national production activities and increase domestic industrial capacity (Mankiw, 2021). Therefore, import policy needs to be directed toward productive goods that support economic growth.

3. Simultaneous Effect of Exports and Imports

The results of simultaneous tests indicate that exports and imports together significantly influence the trade balance. This finding suggests that the balance between exports and imports is a key factor in determining Indonesia's international trade conditions.

The government needs to maintain this balance through policies that encourage increased exports of high added value and control imports of unproductive consumer goods (Krugman & Obstfeld, 2018).

CONCLUSION

Based on the research results, it can be concluded that exports have a positive and significant impact on Indonesia's trade balance. Increased export value can increase the trade surplus and strengthen the national economic position. Conversely, imports have a negative and significant impact on the trade balance. An increase in imports that is not matched by an increase in exports can cause a decrease in the surplus or even a trade deficit. Furthermore, the research results show that exports and imports simultaneously have a significant impact on Indonesia's trade balance. The coefficient of determination (R^2) value of 0.876 indicates that 87.6% of the variation in the trade balance can be explained by export and import variables. Based on these results, the government needs to increase the competitiveness of export products through the development of value-added industries, expansion of international markets, and improvement of the quality of domestic products. On the other hand, import policies need to be directed at capital goods and raw materials that support national production activities, while reducing imports of less productive consumer goods. Thus, a balanced trade balance can be maintained and make a positive contribution to Indonesia's economic growth.

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