

Determinant Analysis of Capital Goods Imports in Indonesia

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Abstract. Capital goods are man-made goods that are useful for the production of goods or the provision of services. In this case, the impact of the import of capital goods on national income, exchange rates, currency reserves, inflation and interest rates are analyzed in the long and short term. The data for this study used secondary data from Bank Indonesia and the Central Statistics Office time series from the first quarter of 2005 to the fourth quarter of 2020. In this case, using the error correction model analysis method. The results showed that in the long run national income, inflation, interest rates have a positive insignificant effect, while the exchange rate has a significant negative effect, foreign exchange reserves have a significant positive effect. In the short term, the national income, exchange rates, foreign exchange reserves, inflation, interest rates do not significantly affect the import of capital goods to Indonesia.

Keywords : National Income, Exchange Rate, Foreign Exchange Reserves, Inflation, Interest Rates, Imports of Capital Goods

1. Introduction

International trade is the exchange of goods between countries, including the process of import and export, which affects government revenue. In macroeconomic analysis, the share of international trade in economic activity can be seen mainly in export and import activities that exceed total expenses (Sadono, 2014)¹.

These challenges and limitations include the exploitation of developing countries that only produce raw materials, weak local industries without competitive advantages in products, the emergence of consumer culture and dependence on other countries. Developing countries have difficulties in creating technological assets due to limited financial resources, infrastructure and knowledge, so they are more likely to depend on developed countries (Serian and Ariawan, 2014;112)².

Import and export activities in Indonesia are now very common to support the country's economy. Import and export activities have a positive impact on traders and buyers. Imports have a positive role, as evidenced by the function of imports in the country's economy. Import operations include the purchase of consumer goods, industrial raw materials and manufactured goods. The means of production are very important to the industry because the means of production exist in the industry that increase the productivity of the production of goods or services (Suswati, 2012)³. This is explained by (Dahlia, 2005)⁴, who claims that the means of production play an important role in accelerating economic growth. Without the means of production, it is difficult for a country to achieve economic progress.

Capital goods are needed as means of production that are necessary for the production of goods and services as drivers of economic growth, such as factories, machinery, equipment and production equipment or various buildings and commercial premises. Capital goods can also be considered as finished and semi-finished goods, where finished goods are goods made for economic activity and used for consumer needs, for example durable goods such as cars, televisions, cabinets, etc. In addition, non-perishable goods such as fresh food, fruits, vegetables and more are available. However, the intermediate is not an active product because it still needs to be processed before it can be used for final human consumers (eg iron, steel and textiles).

The high value of Indonesia's annual imports is related to the nature of Indonesia economy, which is currently the engine of economic growth, as many components such as consumer goods, raw materials and capital are still imported. The scarcity of these goods interrupts the production of many types of goods in the country, so the faster the economic growth, the greater the value of imports, which increases with each period (Yuliadi, 2008)⁵. This is clear through the statement of Dahlia (2005)⁴ that the growth of a country's imports goes hand in hand with the growth of development. The movement of imports reflects the rapidly growing structure of domestic production. With the Advancement of production, along with the development of the national economy, imports are also increasing, especially in terms of raw materials and production materials. However, Indonesia's import behavior, which is generally unpredictable, strongly affects economic activity. Therefore, the revival of the manufacturing industry continues, which requires an increase in the import demand for raw materials and production aids.

The following is data on imports of goods according to economic categories, where imports of raw materials imports of consumer goods and imports of capital goods:

⁴ Dahlia. *Faktor-faktor Yang Mempengaruhi Impor Barang Modal di Indonesia Tahun 1998 – 2003*. Skripsi. Universitas Jember. 2005.⁴

⁵ Imamudin, Yuliadi. *Analisis Impor Indonesia Pendekatan Persamaan Simultan*. Fakultas Ekonomi. Universitas Muhammadiyah Yogyakarta. April 2008

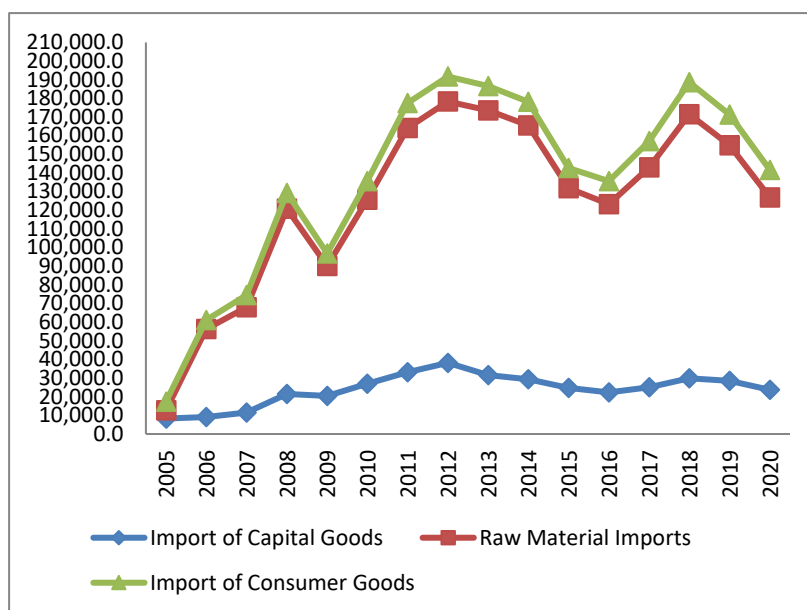


Figure 1. Import of Raw Materials, Import of Consumer Goods and Import of Capital goods 2005-2020

Source : BPS, Data processed

In the picture above, it is explained that imports of capital goods in 2005-2008 experienced a gradual increase, an increase in 2005 of 8,288.4 million USD, while in 2008 it was 21,400.9 million USD. The occurrence of the crisis in 2008 had a negative influence on the development of imports both on imports of capital goods and total imports in 2009 decreased by 20,438.5 million USD. In the following year, imports of capital goods experienced a re-increase and the largest increase from 2010-2012, where in 2012 it was 38,154.8 million USD. The value of 2012 increased due to the increase in capital goods as a signal of the growth of the real sector, especially industry and manufacturing. Where in 2012 China and Japan were the highest suppliers. Because the price of the goods offered is relatively cheaper than from Europe. Imports of capital goods from 2013-2016 experienced a decline again until in 2017-2018 imports of capital goods increased again, amounting to 29,948.8 million USD.

The increase in capital goods is due to several factors, namely public consumption demand, fulfillment of industrial raw materials and capital goods for infrastructure projects. The increase in raw materials indicates that the industry is growing in the country so that it has received a positive response to investment and oppression of the manufacturing industry. However, in 2019-2020 imports of capital goods decreased by 28,465.6 – 23,702.9 million ²USD where this decrease was caused by some countries experiencing the Covid-19 pandemic so that imports carried out from outside experienced obstacles.

⁵ Universitas Muhammadiyah Yogyakarta. April 2008⁵

⁶ Ayodotun, A. & Farayibi, A. *Modelling the Determinant of Import Demand in Sub-Sahara Africa*. MPRA Paper. No.73225. 2016⁶

The growth of capital goods imports in Indonesia varies from year to year. Fluctuations in capital goods imports can be caused by domestic or foreign economic conditions, high or low demand for goods and services that meet productivity needs, the financial system, and labor market conditions related to a country's economic and political conditions.

The high value of Indonesia's imports compared to last year is related to the growth-promoting characteristics of the Indonesian economy today, which still has many raw components and auxiliary materials that are still imported, because the lack of raw materials and auxiliary equipment disrupts the production process of many types of goods in the country (Yuliadi, 2008: 90)⁵. The import of capital goods is closely related to the production process, although imports must take place, it is hoped that these goods will support national production activities and ultimately affect the formation of good export values.

Government policies that have an impact on investment and production for the development of a country if the country continues to rely on imports for domestic production. With demikian, one of its policies is the availability of foreign exchange in the process of growth. Therefore, it is important to know the determinants of import demand and how they can affect import demand (Ayodotun and Farayibi, 2016:2)⁶.

2. Theoretical Framework

2.1 Import of Capital Goods

Imports correspond to the raw material needs of a country in the international market. Imports are the flow of goods and services to the consumer market of a country. The state improves the progress of society by importing a wide variety of quality goods and services at prices below prices that can be produced locally (Smith and Blakeslee, 1995). In developing countries many industries turned to import substitution strategies in the development of urban industries in the post-World War II decades.

Some countries are still following strategies for economic and political reasons. Where import substitution requires efforts to replace imported goods, general consumer products are produced with domestic sources of production and supply. These efforts involved joint ventures with foreign companies that were given the impetus to create factories, they were with tariff protection and given tax and investment incentives. Although the cost of the first production may be higher than imports, this economic motive is emphasized more in the establishment of the import substitution manufacturing sector i.e. that this industry will eventually be able to profit from large-scale production and lower costs or what is known as the argument of the newly developed industry / infant industry for active protection.

The main mechanism of the import substitution strategy is the imposition of protective tariffs (taxes on imported goods) or quotas (restrictions on the quantity of imported goods) so that the IS industry is allowed to operate. Where for many industries in developing countries in its strategy theory is a prerequisite for EP strategy. It is for this reason, including the desire to reduce dependence and achieve self-sufficiency, the need to build a national industrial base, and easily increase large tax revenues from tariffs.

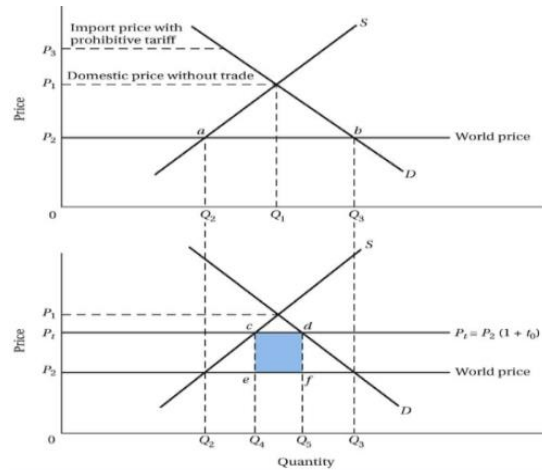


Figure 2. Import Substitution and Protection Theory

³Figure 2 shows the standard demand and supply curves for the industry if there is no international trade in a closed economy. The price and quantity of domestic equilibrium are P_1 and Q_1 . If the country opens its economy to world trade, its relatively small size compared to the world market means that it will face a horizontal demand curve of perfect elasticity, in other words it can sell or buy everything it needs from the lower import price, P_2 . At lower world prices, P_2 , the quantity of demand increased from Q_1 to Q_3 , while the quantity of supply from domestic producers decreased from Q_1 to Q_2 . The difference between some that domestic producers want to sell at a lower P_2 world price (Q_2) and what consumers buy (Q_3) is the amount to be imported, shown in the form of an ab line. The impact of the tariff is shown by t_0 , the tariff causes the domestic price to increase from P_2 to P_t i.e. $P_t = (1+t_0)P_2$. Local consumers will now have to pay a higher price and will reduce the quantity of their request from Q_3 to Q_5 . Domestic producers can now expand production and employment to Q_4 quantities from the previous Q_2 . The quadrangular field of $cdef$ shows the amount of tariff receipts imposed by the government on imported goods.

The higher the tariff, the amount of world prices plus import taxes will be closer to domestic prices. In the classic evolving industry IS scenario, the tariffs imposed will probably be so high that it may increase the price of imported products above P_1 to P_3 , so that imports are effectively prohibited and local industries can operate under the full protection of tariffs and sell Q_1 output at P_1 prices.

2.2 National Income

National income is the sum of the final accounting figures issued by the state on all products, goods and services that have been produced during the year. The range of data included in this record includes the total income earned by domestic companies, the total payment of wages to domestic and foreign workers, as well as the total income for income and sales taxes by individuals and business entities. In addition, the national income data obtained can be used to make predictions about the country's economy in the future. These predictions can be used by business people to make economic plans to achieve future development (Sukirno, 2008)⁷.

⁷Sukirno, Sadono. *Makro Ekonomi Teori Pengantar*. PT. Raja Grafindo Persada. Jakarta. 2008

National income includes a slightly different concept of income from GDP. There are several concepts of alternative income that are interrelated starting with GDP and an increase or decrease in different amounts. The following is a formula for calculating the gross national product (GNP).

2.3 Exchange Rate

The real exchange rate (real change rate) is the relative price of goods between two countries. The real exchange rate represents the rate at which we can exchange goods from one country for the goods of another country. The exchange rate is the price of one country's currency against the currency of another country. The nominal exchange rate is the relative price of the currencies of two countries. The real exchange rate is a nominal exchange rate that is adjusted for relative prices, that is, domestic prices compared to prices abroad. The exchange rate can be calculated using the formula below:

$$Q = S \frac{P}{P^*} \dots\dots\dots (1)$$

Where Q is the real exchange rate, S is the nominal exchange rate, P is the domestic price, and P* is the foreign price level. The formula is used to calculate the actual bilateral real exchange rate of the two countries. In international trade transactions, a country cannot trade with a country alone, but can trade with many countries.

2.4 Foreign Exchange Reserves

A country's foreign exchange reserves are influenced by trade and import flows according to Tjahjono. The development of a country's current account must be closely monitored, as a short-term current account deficit can weigh on foreign exchange reserves in the long run. Therefore, the current account deficit is often seen as a signal of macroeconomic imbalance, which requires exchange rate adjustment or tightening macroeconomic policy. The formula for calculating foreign exchange reserves is:

$$FER_t = (FER_{t-1} + Tbt + Tmt) \dots\dots\dots(2)$$

2.5 Inflation

The macro interest rate is the price of using money over a certain period of time. Interest is the price of credit because interest is a reward for the inconvenience of spending money. Interest rates relate to the role of time in economic activity. Interest rates come from the preference to own money at the moment. In classical theory, interest is the price of money that can be borrowed (mutual funds), so interest is the price issued in the market or investment. According to Keynes, interest rates are a financial phenomenon, and interest rates are determined by the demand and supply of money that occurs in the financial market.

The interest rate also means the income earned by those who temporarily transfer excess funds or surplus units of expenditure to those in need and use that money to cover the deficit or shortage of units of expenditure .

2.6 The Relationship of National Income To Imports of Capital

Goods The increase in gross domestic product can reflect the welfare of the people experienced by a country, the increase in gross domestic product indicates an increase in people's income. The increase in income led to a change in the tastes of people who increasingly liked imported products. It is believed that the use of imported goods is consistent with an increase in gross domestic product (Mankiw, 2008)⁸. According to Pakpahan (2012)⁹, the increase in imports should be supported by GDP. Imports are highly dependent on GDP, since GDP is a source of

financing imports. Imports have a positive relationship with GDP, meaning that if imports increase, Indonesia's GDP will also increase.

2.7 The Relationship of Exchange Rate To Imports of Capital Goods

The exchange rate is the price of one currency against another. Exchange rates arise because each country has its own currency, so a currency that is used globally as an international means of payment is required. The exchange rate will change depending on the change in demand for money supply. Then the rupiah exchange rate will affect the quantity of imports of capital goods if the rupiah exchange rate is nailed, then imports of capital goods increase, and if the rupiah exchange rate weakens, then imports of capital goods will decrease (Widiya, 2019)¹⁰.

2.8 Foreign Exchange Reserves Relationship to Imports of Capital Goods

Foreign exchange reserves play a very important role in a country's international trade. So without strong foreign exchange reserves, the country's economy will be in chaos. Therefore, the impact of reserve financing is very important for import purposes, debt financing, and to protect our economy from shocks that occur in the economy (Tirta, 2005:34)¹¹, foreign exchange reserves have a positive effect. Because the more foreign exchange reserves a country has, the better the country can meet its import needs.

2.9 The Relationship of Inflation to Imports of Capital Goods

Inflation affects imports of capital goods both in the long and short term. Inflation causes the price of domestic goods to rise steadily, among other things because the demand for domestic goods increases and the supply is scarce (Fuji Hastuti, 2005)¹².

2.10 The Relationship of Interest Rate To Imports of Capital Goods

The interest rate is the interest rate on the loan, the amount of interest received in one year divided by the loan amount, expressed as a percentage. Since the interest rate is determined by consideration, the set interest rate can represent a counterweight in the investment market. The higher the interest rate, the lower the import of capital goods, and the difference in the interest rate affects the level of investment in the country. Therefore, when interest rates fall, imports of capital goods increase (Widiya, 2019)¹⁰.

Conceptual Framework

In the study outline the Conceptual Framework is as follows:

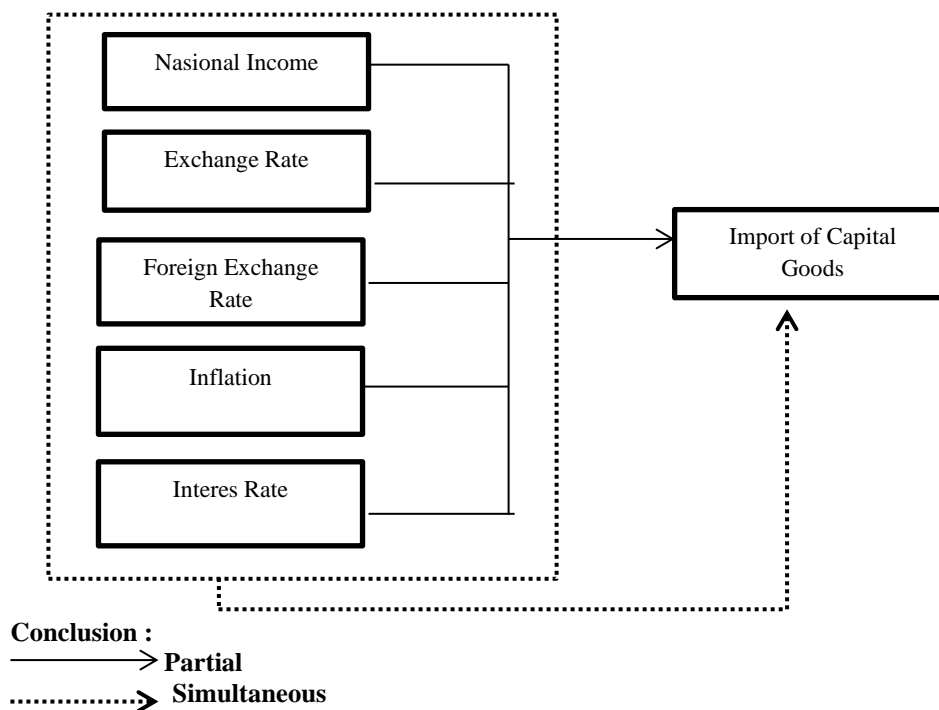


Figure 3. Conceptual Framework

3. Research Method

This study refers to the basic model of multiple linear regression using the error correction model (ECM) method. The Error Correction Model (ECM) method is a form of model to estimate the short-term and long-term relationship between the variables of national income, exchange rate, inflation, interest rates, and imports of capital goods in Indonesia. Ecm models can determine not only the effects of short-term and long-term economic models, but also their usefulness, such as overcoming problems with non-stationary data and slow regression.

Error Correction Model (ECM) assumes the existence of a long-term equilibrium relationship between two or more economic variables, but the imbalance occurs in the short term. The error correction mechanism corrects several imbalances in one period in the next. Adaptive processes become tools for reconciling short-term and long-term behaviors. Based on this concept, long-term relationships are evaluated with short-term relationships. If the coefficient of ECT (λ) is insignificant and the value is not between 0 and 1, it means that no balance or long-term relationship occurs. The results of the estimates do not correspond to economic theory. The ECM model for this study is:

$$IBM_t^* = \beta_0 + \beta_1 NASIONALINCOME_t + \beta_2 EXCHANGE RATE_t + \beta_3 FOREIGNEXCHANGERESERVES_t + \beta_4 INFLATION_t + \beta_5 INTERESTRATE_t + e_i \dots (3)$$

Furthermore, the equation is formulated in the form of an ECM then the equation is as follows :

$$IBM_t^* = \beta_0 + \beta_1 NASIONALINCOME_{t-1} + \beta_2 EXCHANGE RATE_{t-1} + \beta_3 FOREIGNEXCHANGERESERVES_{t-1} + \beta_4 INFLATION_{t-1} + \beta_5 INTERESTRATE_{t-1} + e_i \dots (4)$$

Where:

- IBM = Import of capital goods
- PEND.NASIONAL = Nasioanal income
- KURS = US dollar exchange rate
- INF = Inflation
- SUKU BUNGA = Interest Rate
- CAD.DEVIS = ForeignExchangeReserves
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = regression coefficient
- β_0 = constant
- e_i = *error term*

4. Analysis

4.1 Unit Root Test

Augmented Fuller Test (ADF) is a test developed by Dickey Fuller that aims to find out the stationarity of data on a field. In this study, a root unit test was carried out using the Augmented Dickey Fuller (ADF) test, with the rule that the data is stationary if the calculated ADF value is greater than Mackinnon Critical Values = 0.05. Conversely, if the calculated ADF value is smaller than the Mackinnon Critical Values at a 5% confidence level, then the data is not stationary. The following root unit test results can be seen in the following table:

Table 1. Unit Root Test Results at Degree 1st Diference

Variable	ADF T - Statistic	Critical Value a = 5%	Prob	Conclusion
Import of Capital Goods	-3.780899	-2.91173	0.0052	Stasionary
Nasional Income	-10.60602	-2.90921	0.0000	Stasionary
Exchange Rate	-9.446038	-2.90921	0.0000	Stasionary
Foreign Exchange Rate	-6.451996	-2.90921	0.0000	Stasionary
Inflation	-5.50169	-2.91452	0.0000	Stasionary
Interest Rate	-12.66807	-2.91552	0.0000	Stasionary

Source : Processed Data

4.2 Cointegration Test

This method uses the Augmented Dickey Fuller (ADF) statistical test by observing residual regression of stationary cointegration or not. Then this residual value will use the Augmented Dickey Fuller (ADF) test to find out whether the residual value is stationary or not. The results of the ADF test can be seen in the following table:

Table 2. Cointegration Test Results

Null Hypothesis: ECT has a unit root		
Exogenous: Constant		
Lag Length: 0 (Automatic - based on HQ, maxlag=1)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.523156	0.0000
Test critical values:	1% level	-3.538362
	5% level	-2.908420
	10% level	-2.591799
*MacKinnon (1996) one-sided p-values.		

Source : Processed Data

The results of the cointegration test can be seen, where the ADF test value (-5.523156) > critical value (-2.908420) and with an ECT probability value of 0.0000 < 0.05. The stationary ECT value at the level level means that the residual equation has been stationary at degree zero (0) or level level. This means that there is a significant relationship (cointegration) in the long term between imports of capital goods and the variables that affect it, namely national income, exchange rates, foreign exchange reserves, inflation and interest rates.

4.3 Corection Model (ECM) Error Results

The Error Corection Model (ECM) has uses, but the most important use is to solve the problem of non-stationary time series data or the problem of continuous regression. The ECM aims to correct short-term imbalances towards long-term balances. Here are the long-term and short-term estimation models:

Table 3. Long-term Error Correction Model (ECM) results

Dependent Variable: Import of Capital Goods(-1)
Method: Least Squares
Date: 07/19/22 Time: 12:11
Sample (adjusted): 2005Q2 2020Q4
Included observations: 63 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NASIONALINCOME(-1)	0.278542	0.339232	0.821096	0.4150
EXCHANGERATE(-1)	-189.3367	54.75192	-3.458084	0.0010
FOREIGNEXCHANG ERESERVE(-1)	16.93071	5.881810	2.878487	0.0056
INFLATION(-1)	1591.970	23506.35	0.067725	0.9462
INTERESTRATE(-1)	1090.598	9951.506	0.109591	0.9131
C	2095364.	506724.9	4.135112	0.0001
R-squared	0.653629	Mean dependent var	2029110.	
Adjusted R-squared	0.623245	S.D. dependent var	641316.3	
S.E. of regression	393642.2	Akaike info criterion	28.69467	
Sum squared resid	8.83E+12	Schwarz criterion	28.89877	
Log likelihood	-897.8820	Hannan-Quinn criter.	28.77494	
F-statistic	21.51265	Durbin-Watson stat	1.320837	
Prob(F-statistic)	0.000000			

Source : Processed Data

The Error Correction Model (ECM) model in the long term is as follows: $IBM = 2095364 + 0.278542 \text{ PENDAPATAN}_{t-1} - 189.3367 \text{ KURSt}_{t-1} + 16.93071 \text{ CADEV}_{t-1} + 1591.970 \text{ INFLASIt}_{t-1} + 1090.598 \text{ SUKBUGt}_{t-1} + \epsilon_i$ ECM

Estimation results that show that in the long run the variables of national income, foreign exchange reserves, inflation and interest rates have a positive effect on imports of capital goods and only variable rates that negatively affect imports of capital goods and variables that a significant effect on the import of capital goods in the long term is the exchange rate and foreign exchange reserves with a significant level below 5%. Meanwhile, the variables of national income, inflation and interest rates have no significant effect because the resulting value is above 5%.

Table 4. Short-term Error Correction Model (ECM) results

Dependent Variable: D(IMPORTOFCAPITALGOODS)
 Method: Least Squares
 Date: 07/19/22 Time: 14:27
 Sample (adjusted): 2005Q2 2020Q4
 Included observations: 63 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23429.99	51641.66	0.453703	0.6518
D(NASIONALINCOME)	-0.082073	0.486516	-0.168695	0.8666
D(EXCHANFERATE)	-19.22658	74.61804	-0.257667	0.7976
D(FOREIGNEXCHANG ERESERVE)	5.187641	10.02938	0.517244	0.6070
D(INFLATION)	-27888.49	22284.93	-1.251450	0.2160
D(INTERESTRATE)	6051.619	9924.194	0.609784	0.5445
ECT(-1)	-0.671041	0.116013	-5.784162	0.0000
R-squared	0.409388	Mean dependent var	26213.35	
Adjusted R-squared	0.346108	S.D. dependent var	414733.5	
S.E. of regression	335368.4	Akaike info criterion	28.38829	
Sum squared resid	6.30E+12	Schwarz criterion	28.62641	
Log likelihood	-887.2310	Hannan-Quinn criter.	28.48194	
F-statistic	6.469482	Durbin-Watson stat	2.181055	
Prob(F-statistic)	0.000032			

Source : Processed Data

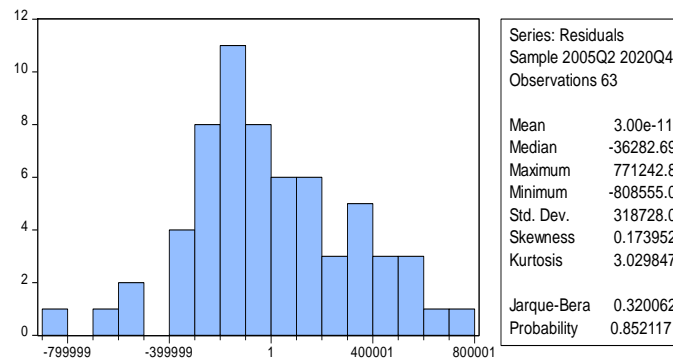
The ECM model in the short term is as follows:

$$D\text{ IBM} = 23429.99 - 0.082073_t - 19.22658_t + 5.187641_t - 27888.49_t + 6051.619_t + \epsilon_i$$

The ecm estimation results above explain that in the short term the variables of national income, exchange rate, and inflation negatively affect imports of capital goods while the variables of foreign exchange reserves and interest rates in the short term have a positive effect. However, the regression results of all variables have no significant effect on the import of capital goods in the short term, where the value obtained from each variable does not provide a condition that is greater than 5%.

4.4 Normality Test Results

The normality test is a test used to view data on independent variables, dependent variables and in regression models have a normal distribution or not. The normality test was carried out by comparing the probability value of JB (Jarque – Fallow) count with an alpha level of 0.05 (5%), the results of the normality test can be seen in the following figure:



Source : Processed Data

Based on figure, it is known that the J-B statistical probability value of $0.320062 > 0.05$ thus it is said that the data used in the ECM model have a normally distributed residual.

4.5 t-Statistical Test

This test is to find out whether or not each free variable has a significant effect on the bound variable. The test used in the study by comparing the calculation ratio with the ttable value of $\alpha = 5\%$ and $df + n - k$ ($df = 64 - 6 = 58$) which was 2,002.

1. The national income variable has a calculated value of 0.821096, the results of processing data on the value of national income have a positively marked coefficient of 0.278542. Then with the value of $t_{table} = 2.002$, it can be seen that the calculated value is smaller than t_{table} ($0.821096 < 2.002$), meaning that in the long run national income has a positive and insignificant effect on imports of capital goods in Indonesia.
2. The exchange rate variable has a calculated value of -3.458084, the result of processing exchange rate value data has a negatively marked coefficient of -189.3367. Then with the t_{table} value = 2.002, it can be seen that the calculated value is greater than the t_{table} ($-3.458084 < 2.002$), meaning that in the long run the exchange rate has a negative effect and has a significant effect on imports of capital goods in Indonesia.
3. The Foreign Exchange Reserve Variable has a calculated value of 2.878487, the result of processing data on the value of foreign exchange reserves has a positively marked coefficient of 16.93071. Then with the value of $t_{table} = 2.002$, it can be seen that the calculated value is greater than t_{table} ($2.878487 > 2.002$), meaning that in the long run foreign exchange reserves have a positive effect and have a significant effect on imports of capital goods in Indonesia.
4. The Inflation Variable has a calculated value of 0.067725, the result of processing inflation value data has a positively marked coefficient of 1591.970. Then with the t_{table} value = 2.002, it can be seen that the calculated value is smaller than t_{table} ($0.067725 < 2.002$), meaning that in the long run inflation has a positive effect and has an insignificant effect on imports of capital goods in Indonesia.
5. Variable Interest rates have a calculated value of 0.109591, the results of processing data on the value of inflation have a positively marked coefficient of 1090.598. Then with the t_{table} value = 2.002, it can be seen that the calculated value is smaller than the t_{table} ($0.109591 < 2.002$), meaning that in the long run the interest rate has a positive effect and has an insignificant effect on imports of capital goods in Indonesia.

4.6 F-Statistical Test Results

The results of data processing using the Error Correction Model (ECM) method in the long term can be a probability value of 0.00000 and a short-term 0.000032 where both are equally smaller than $\alpha = 5\%$, so that H_0 is rejected and H_a is accepted. It can be concluded that both in the long and short term the variables of national income, exchange rate, foreign exchange reserves, inflation and interest rates simultaneously have a significant effect on imports of capital goods in Indonesia.

4.7 Coefficient of Determination Test Result (R²)

Based on the results of the Error Correction Model (ECM) analysis, the long-term R-Squared value was obtained at 0.653629 and the short-term at 0.409388. This means that in the long run the variables of national income, exchange rates, foreign exchange reserves, inflation and interest rates contributed 65.37% to Indonesia's capital goods imports, the remaining 34.32% was influenced by other variables outside this study. Meanwhile, in the short term, the variables of national income, exchange rates, foreign exchange reserves, inflation and interest rates contributed 40.94% to imports of Indonesian capital goods, the remaining 59.06 were influenced by other variables outside this study.

5. Results

5.1 The Effect of National Income on Imports of Capital Goods

The national income variable based on the results of research in the long term is not significantly affected by capital goods imports in Indonesia showing a prob value of $0.4150 > \alpha = 0.05$ and a calculated value smaller than the table ($0.821096 < 2.002$) and a coefficient value marked positively 0.278542. In the short term the national income variable is not significantly influential on capital goods imports in Indonesia by showing a prob value of $0.8666 > \alpha = 0.05$ and the calculated value is smaller than the ttable ($-0.168695 < 2.002$) and the value of the coefficient marked negatively (-0.082073), it is concluded that national income in the long term and in the short term has no significant effect on imports of capital goods in Indonesia.

The results of the long-term regression show that national income has a positive and insignificant effect on Indonesia's capital goods imports, and has a negative and insignificant effect in the short term. The results of this study can be described by data from 2015-2016. The data explained that national income increased while imports of capital goods decreased. The recent decline in imports of capital goods was caused by sluggish domestic industrial activity, including a decrease in the number of investors which had an impact on reducing imports of capital goods. Therefore, national income is not interpreted as one of the basic considerations for imports of capital goods in this case, because industries or companies import capital goods based on needs. Therefore, the level of national income does not affect the import of capital goods. Influenced by other factors.

5.2 The Effect of Exchange Rates on Imports of Capital Goods in Indonesia

The exchange rate variable based on research in the long term is a significant effect on capital goods imports in Indonesia showing a prob value of $0.0010 > \alpha = 0.05$ and a calculated value smaller than the ttable ($-3.458084 < 2.002$) and a negatively marked coefficient value of -189.3367 . In the short term the exchange rate variable is not significantly influential on capital

goods imports in Indonesia by showing a prob value of $0.7976 > \alpha = 0.05$ and the calculated value is smaller than the ttable ($-0.257667 < 2.002$) and the value of the coefficient marked negative (-19.22658), it is concluded that the exchange rate in the long term has a negative and significant effect while in the short term it has a positive and insignificant effect on imports of capital goods in Indonesia.

The results of long-term exchange rate regression may show a significant negative impact on imports of capital goods, with the exchange rate depreciating and imports increasing from 2005 to 2016. This is due to the declining settlement performance and rupiah depreciation due to the increase in world crude oil prices and the effect of monetary tightening in the United States. However, in this case it does not affect the increase in imports. This is because companies that use capital goods continue to import because they need to increase production. Because every company has the right to import enough company products.

5.3 The Effect of Foreign Exchange Reserves on Capital Goods Imports in Indonesia

The variable of foreign exchange reserves based on research in the long term is a significant effect on capital goods imports in Indonesia showing a prob value of $0.0056 > \alpha = 0.05$ and a calculated value greater than the ttable ($2.878487 > 2.002$) and a positively marked coefficient value (16.93071). In the short term, the variable of foreign exchange reserves is not significantly affecting the import of capital goods in Indonesia by showing a prob value of $0.6070 > \alpha = 0.05$ and a calculated value smaller than the ttable ($0.517244 < 2.002$) and a coefficient value marked positively (5.187641), it is concluded that foreign exchange reserves in the long term have a positive and significant effect while in the short term it has a positive and insignificant effect on imports of capital goods in Indonesia.

Bank Indonesia (BI) also informed that Indonesia's foreign exchange reserves in December reached \$135.9 billion. This figure is an increase of 5.2% compared to \$129.2 billion for the same period in 2019. The position of reserve assets is equivalent to 10.2 or 9.8 months of import financing and servicing government external debt. In addition, foreign exchange reserves exceed international adequacy standards. The central bank indicated that the increase in foreign exchange reserves in 2020 was influenced by several factors, including: B. Collecting loans and tax revenues from foreign governments in foreign currency. Bank Indonesia is also optimistic that foreign exchange reserves will increase in 2021, supported by the issuance of global bonds and tax revenues.

5.4 Effect of Inflation on Imports of Capital Goods

The inflation variable based on research in the long term is an insignificant effect on capital goods imports in Indonesia showing a prob value of $0.9462 > \alpha = 0.05$ and a calculated value smaller than the table ($0.067725 < 2.002$) and a coefficient value with a positive sign (1591.970). In the short term, the inflation variable is not significantly affecting capital goods imports in Indonesia by showing a prob value of $0.2160 > \alpha = 0.05$ and the calculated value is smaller than ttable ($-1.251450 < 2.002$) and the value of the coefficient marked negative (-27888.49), it is concluded that inflation in the long term has a positive and insignificant effect while in the short term it has a negative and insignificant effect on imports of capital goods in Indonesia. The inflation variable based on research in the long term is an insignificant effect on capital goods imports in Indonesia showing a prob value of $0.9462 > \alpha = 0.05$ and a calculated value smaller than the table ($0.067725 < 2.002$) and a coefficient value with a positive sign (1591.970). In the short term, the inflation variable is not significantly affecting capital goods imports in Indonesia

by showing a prob value of $0.2160 > \alpha = 0.05$ and the calculated value is smaller than t_{table} ($-1.251450 < 2.002$) and the value of the coefficient marked negative (-27888.49), it is concluded that inflation in the long term has a positive and insignificant effect while in the short term it has a negative and insignificant effect on imports of capital goods in Indonesia.

The results of inflation regression based on long-term positive and insignificant effects indicate that higher inflation leads to higher and sustainable increases in commodity prices, so the nature of capital goods permanently reduces commodity imports. Thus, the purchase of capital goods can be postponed until the goods need to be produced, not in accordance with the existing theory. Due to the increase in the price of domestic products, consumers tend to prefer imported products that are cheaper than domestic products.

5.5 Effect of Interest Rates on Imports of Capital Goods in Indonesia

Variable Interest rates based on research in the long term are an insignificant effect on imports of capital goods in Indonesia showing a prob value of $0.9131 > \alpha = 0.05$ and a calculated value smaller than t_{table} ($0.087878 < 2.002$) and a coefficient value marked positively (1090.598). In the short term the interest rate variable is not significantly influential on capital goods imports in Indonesia by showing a prob value of $0.5445 > \alpha = 0.05$ and a smaller calculated value From the table ($0.609784 < 2.002$) and the coefficient value marked positive (6052.619), it is concluded that interest rates in the long term have a positive and insignificant effect while in the short term have a positive and insignificant effect on imports of capital goods in Indonesia.

The results of interest rate regression based on the long-term and short-term have a positive and insignificant effect on Imports of Indonesian capital goods. When interest rates rise in a country, the price of imports from abroad becomes so high that imports of capital goods decrease, and economic actors can stop importing goods for the time being.

5.6 Effect of Interest Rates on Imports of Capital Goods in Indonesia

Variable Interest rates based on research in the long term are an insignificant effect on imports of capital goods in Indonesia showing a prob value of $0.9131 > \alpha = 0.05$ and a calculated value smaller than t_{table} ($0.087878 < 2.002$) and a coefficient value marked positively (1090.598). In the short term the interest rate variable is not significantly influential on capital goods imports in Indonesia by showing a prob value of $0.5445 > \alpha = 0.05$ and a smaller calculated value From the table ($0.609784 < 2.002$) and the coefficient value marked positive (6052.619), it is concluded that interest rates in the long term have a positive and insignificant effect while in the short term have a positive and insignificant effect on imports of capital goods in Indonesia.

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6. Conclusions

International economic and political policies are one of the obstacles to international trade, so countries must protect the raw materials of their products from being controlled by foreign

products or other countries. It is not uncommon for countries to impose import restrictions or impose import duties. The imposition of an entry fee indirectly deters entrepreneurs who do business on imported goods for sale within the country. On the other hand, import duties benefit small business owners within the country, since commodity prices are lower than imported goods. In addition, the level of education also affects the quality of production. Because if a country is rich in natural products but does not have sufficient human resources to process them, then the products produced are also of little value, and make it difficult to compete with similar products from other countries. Therefore, in this case the government needs to facilitate the development of human resource activities by providing trainings that strengthen the mindset of the community and are able to compete in creating tools and capital goods needed in the country.

The Government of Indonesia continues to maintain the stability of economic growth by increasing the country's national income accompanied by the availability of adequate goods and services in local communities. When domestic goods and services are fully available, imports may decrease because over-importing countries can negatively affect the country's economic growth. Therefore, in this case the domestic society is able to compete with foreign products by maintaining low prices for the products used, and replacing goods and services with alternatives in case of an improvement in the quality of goods in this situation. goods in the country.

The Government and Bank Indonesia as monetary authorities are expected to maintain exchange rate stability in order to stabilize Indonesia's import trend. The reason is that fluctuations in the rupiah exchange rate against the dollar have a strong impact on Indonesia's import demand. The government must also be able to provide foreign exchange determined by the export of other foreign exchange-producing goods and services so that foreign import demand remains stable and does not import too much capital goods. However, in addition to achieving foreign exchange exports, they can compete for capital goods at home and abroad. , Forex diversification is used to buy more commodities for their value.

The following authors develop new models relating to the importation of capital goods and add new variables by other methods

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