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“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

The Analysis Affects Non Migas Imports in Indonesia**Heni Widiya^{1*}**¹Departement Of Economic Post Graduate, Universitas Negeri Medan

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*Email: heniwidia849@gmail.com**ABSTRACT**

Non Migas goods are natural and industrial products but do not include goods whose categories are petroleum and natural gas. Non migas commodities in the form of agricultural products, plantations, animal husbandry, forestry, mining minerals and industrial goods. In this case, the investigator analyzes the effect of non migas imports on national income and foreign exchange reserves in the long and short term. The data in this study uses secondary data in the form of time series 2005 Q1 – 2020 Q4 data from Bank Indonesia and the Central Statistics Agency (BPS). In this case using the Error Correction Model (ECM) analysis method, results showed in the long term that national income is negative and insignificant while foreign exchange reserves have a positive and significant effect. Meanwhile, in the short term, national income and foreign exchange reserves have a positive and insignificant effect on non migas imports in Indonesia.

Keywords: Analysis, Affects, Non Migas Imports

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INTRODUCTION

The activities of the two countries, called exports and imports. Import is the activity of entering or purchasing goods or services from abroad. The goods in question are goods in physical form and also services. The existence of imports, the fulfillment of the needs of a country can be met. Imports are beneficial for obtaining raw materials that cannot be produced by the state itself. While export, as opposed to import, is the activity of selling goods or services abroad.

The principle of import activities in the economic system includes three (3) things, namely in production, distribution and consumption. In relation to import activities, the three economic principles can run if they are supported by infrastructure and facilities for goods and services from the results of import activities. To produce these goods and services, producers need raw and auxiliary materials, consumer materials and capital goods so that production activities run as expected. For the achievement and distribution of goods and services, means are needed such as examples of mobilization tools, spare parts and others obtained from imported components of goods and services.

Imports as a function of a country's demand for commodities from the international market. Import is the flow of goods and services to the market of a country for use. The state improves the progress of society by importing a variety of quality goods and services at lower prices than can be produced domestically (Smith and Blakeslee, 1995). In developing countries many industries turned to import substitution strategies in the development of urban industries in the post-WWII decades.

International trade is buying and selling activities carried out to make a profit by involving two or more countries, while export and import activities are part of international trade. The main purpose of enacting imports in a country because it is unable to meet its consumption needs is to carry out trade with other countries. A country imports because it is short or failing to produce goods and services for the consumption needs of its population. In Indonesia, it turns out that imported products are more widely circulated in the market than domestic products which can be known from the development of the total value of oil and gas and non-oil and gas imports. This phenomenon is mentioned by the large demand for non-oil and gas products every year. The development of Indonesia's non-oil and gas imports from year to year has fluctuated (Kuswontoro, Gita 2016).

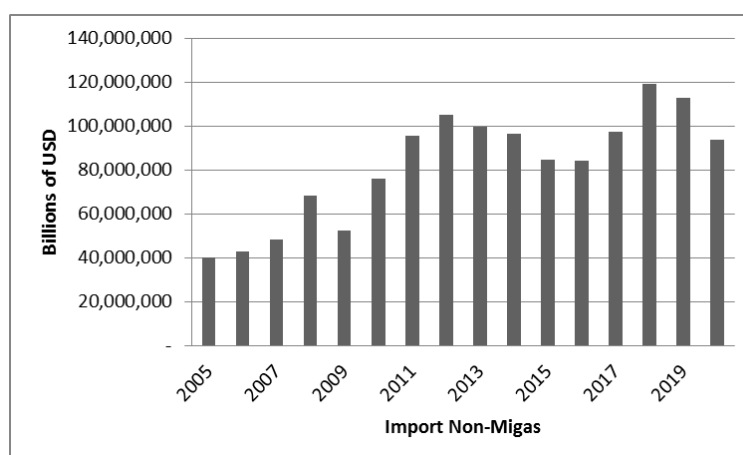


Figure 1. Non Migas Import Data for 2005-2020

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In the picture above, non-oil and gas data experiences fluctuations in the growth and development of non-oil and gas in Indonesia. The value of non-oil and gas imports is the import value of non-oil and gas commodities consisting of mining, industrial and agricultural commodities based on cif (cost insurance freight) of non-oil and gas imported goods entering the Indonesian customs area. Non-oil and gas imports for the January-December 2020 period decreased by 93,526,542, from 112,870,670 in 2020. This indicates that national economic activities that rely on supply from imports have not contracted too deeply

The high value of Indonesia's imports compared to the previous year is related to the characteristics of the current Indonesian economy that encourages economic growth, where there are still many components of raw materials and auxiliaries that are still imported, because the scarcity of raw materials and auxiliaries will disrupt the production process of several types of commodities in the country (Yuliadi, 2008: 90). Imports of capital goods are closely related to the production process, although imports must be carried out, it is hoped that these goods can support national production activities and in the end will have an impact on the development of good export value.

METHOD

The Error Correction Model (ECM) method is a form of model to estimate the short- and long-term relationship between the variables of national income, foreign exchange reserves and non-oil and gas imports in Indonesia. The ECM model can determine not only the effects of short-term and long-term economic models, but also their usefulness, such as addressing 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 an imbalance occurs in the short term. The error correction mechanism corrects some imbalances in one period in the next. Adaptive processes become a tool for reconciling short-term and long-term behavior. Based on this concept, long-term relationships are evaluated with short-term relationships (Utomo, 2012). If the ECT coefficient (λ) is insignificant and its value is not between 0 and 1, it means that there is no balance or long-term relationship. The results of the estimation do not correspond to economic theory. The ECM model for this study is:

$$\text{Import Non Migas}^* = \beta_0 + \beta_1 \text{NasionalIncome}_{t-1} + \beta_2 \text{ForeignExchange}_{t-1} + e_i \quad (1)$$

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

$$\text{Import Non Migas}^* = \beta_0 + \text{NasionalIncome}_{t-1} + \beta_2 \text{ForeignExchange}_{t-1} + e_i \quad (2)$$

The Error Correction Model (ECM) approach is applied to time series data to investigate both long-term and short-term dynamic behavior. Long-term relationships between explanatory variables and dependent variables are found using cointegration techniques. The ECM model is also used because it allows the analysis of more variables regarding economic phenomena and because it can assess whether empirical models and economic theories are consistent. Researchers can use ECM models to solve problems of false regression and non-stationary time series data (Shochrul, 2011: 133). When the error correction coefficient

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(ECT) is positive and statistically significant, the ECM model is appropriate and valid. (Widarjono, 2009).

RESULT AND DISCUSSION

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 the 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 1st Difference

Variable	ADF T - Statistic	Value Critic A = 5%	Prob	Conclusion
Importnonmigas	-4.048228	-2.911730	0.0023	Stasioner
Nationalincome	-10.60602	-2.909206	0.0000	Stasioner
Foreigntaxchange	-6.451996	-2.909206	0.0000	Stasioner

Source: Data processed

Cointegration Test

This method uses the Augmented Dickey Fuller (ADF) statistical test, namely by observing the 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. ADF test results 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 SIC, maxlag=10)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.822651	0.0000
Test critical values:		
1% level	-3.538362	
5% level	-2.908420	
10% level	-2.591799	

*MacKinnon (1996) one-sided p-values.

Source : Data Processed

You can see the results of the cointegration test, where the ADF test value (-5.822651) > 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 the zero degree (0) or level level. This means that there is a significant relationship

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(cointegration) in the long term between non-oil and gas imports and the variables that affect them, namely national income and foreign exchange reserves.

Result Error Corection Model (ECM)

The Error Corection Model (ECM) has a use, but the most important use is to solve the problem of non-stationary time series data or regression problems. 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: IMPORNONMIGAS(-1)

Method: Least Squares

Date: 12/16/22 Time: 13:04

Sample (adjusted): 2005Q2 2020Q4

Included observations: 63 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NationalIncome(-1)	-0.342758	0.445296	-0.769731	0.4445
ForeignExchange(-1)	63.86174	10.41649	6.130832	0.0000
C	1515153.	361308.7	4.193513	0.0001
R-squared	0.803966	Mean dependent var		6765284.
Adjusted R-squared	0.797431	S.D. dependent var		2029264.
S.E. of regression	913323.8	Akaike info criterion		30.33402
Sum squared resid	5.00E+13	Schwarz criterion		30.43607
Log likelihood	-952.5215	Hannan-Quinn criter.		30.37415
F-statistic	123.0344	Durbin-Watson stat		1.369951
Prob(F-statistic)	0.000000			

Source : Data Processed

The long-term Error Correction Model (ECM) model is as follows:

$$\text{ImportNonMigas} = 15,15153 - 0,342758 \text{ NationalIncome}_{t-1} + 63,86174 \text{ ForeignIncome}_{t-1} + \varepsilon_i$$

The results of the ECM estimate show that in the long term, the national income variable has a negative effect on non-oil and gas imports and the variable that has a significant effect on non-oil and gas imports in the long term is foreign exchange reserves with a significant level below 5%. Meanwhile, the national income variable does not have a significant effect because the resulting value is above 5%.

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

Dependent Variable: D(IMPORNONMIGAS)

Method: Least Squares

Date: 12/16/22 Time: 13:05

Sample (adjusted): 2005Q2 2020Q4

Included observations: 63 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NationalIncome)	0.568557	1.218058	0.466773	0.6424

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D(ForeignExchange)	19.28434	22.12665	0.871543	0.3870
ECT(-1)	-0.709369	0.120909	-5.866948	0.0000
C	32231.76	125438.8	0.256952	0.7981
R-squared	0.377542	Mean dependent var	93014.53	
Adjusted R-squared	0.345891	S.D. dependent var	1055670.	
S.E. of regression	853793.7	Akaike info criterion	30.21415	
Sum squared resid	4.30E+13	Schwarz criterion	30.35023	
Log likelihood	-947.7458	Hannan-Quinn criter.	30.26767	
F-statistic	11.92850	Durbin-Watson stat	1.880898	
Prob(F-statistic)	0.000003			

Source: Data processed

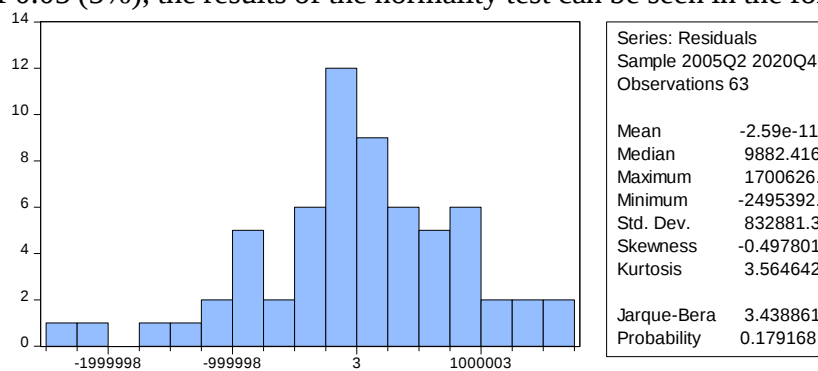
The long-term Error Correction Model (ECM) model is as follows:

$$\text{ImportNonMigas} = 32231.76 + 0.568557 \text{ NationalIncome}_t + 19.28434 \text{ ForeignExchange}_t + \varepsilon_t$$

The results of the ECM estimate show that in the short term the variables of national income and foreign exchange reserves have a positive effect on non-oil and gas imports because the value produced is above 5%.

Normality Test Results

Normality test is a test used to look at 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 – Flow) calculated with an alpha level of 0.05 (5%), the results of the normality test can be seen in the following figure:



Source : Data Processed

Figure 2.1 normality test results

Based on the figure, it is known that the J-B statistical probability value of $3.438861 > 0.05$ thus it is said that the data used in the ECM model has a normally distributed residual.

t-Test Statistics

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 calculated value with the value of $t_{table} \alpha = 5\%$ and $df = n - k$ ($df = 64 - 3 = 61$) was 2,000.

1. The national income variable has a calculated value of -0.769731 as a result of processing the national income value data has a negative marked coefficient of -0.342758. Then with the t_{table} value = 2,000, it can be seen that the calculated value is smaller t_{table} (0.769731

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< 2.000), meaning that in the long term national income has a negative effect and has an insignificant effect on non-oil and gas imports in Indonesia.

2. The Foreign Exchange Reserve variable has a calculated value of 6.130832 as a result of data processing the value of foreign exchange reserves has a positive marked coefficient of 63.86174. Then with the ttable value = 2,000, it can be seen that the calculated value is greater than the ttable (2.878487 > 2.002), meaning that in the long term foreign exchange reserves have a positive effect and have a significant effect on non-oil and gas imports in Indonesia.

F-Statistical Test Results

The results of data processing using the Error Correction Model (ECM) method in the long term can be obtained a probability value of 0.00000 and in the short term 0.000003 where both are 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 and foreign exchange earnings simultaneously have a significant effect on non-oil and gas imports in Indonesia. The results of data processing using the Error Correction Model (ECM) method in the long term can be obtained a probability value of 0.00000 and in the short term 0.000003 where both are 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 and foreign exchange earnings simultaneously have a significant effect on non-oil and gas imports in Indonesia.

Coefficient of Determination Test Results (R²)

Based on the results of the Error Correction Model (ECM) analysis, the R-Squared value in the long term is 0.803966 and the short-term is 0.377542, this means that in the long term the variables of national income and foreign exchange reserves contribute 80.40% to Indonesia's non-oil and gas imports, the remaining 19.6% is influenced by other variables outside this study. Meanwhile, in the short term, the variables of national income and foreign exchange reserves contributed 37.75% to imports of Indonesian capital goods, the remaining 62.25% was influenced by other variables outside this study.

Effect of National Income on Non-Oil and Gas Imports

The variable of national income based on the results of research in the long term is a negative and insignificant effect on non-oil and gas imports in Indonesia showing a probability value of $0.4445 > \alpha = 0.05$ and a calculated value smaller than the ttable of $0.769731 < 2,000$ and the value of the coefficient marked negative -0.342758. In the short term, the variable of national income has a positive and insignificant effect on non-oil and gas imports in Indonesia, indicating a probability value of $0.6424 > \alpha = 0.05$ and a calculated value smaller than the ttable of $0.466773 < 2.000$ and the value of the coefficient marked positive 0.568557, it can be concluded that national income in the long term and in the short term does not have a significant effect on non-imports oil and gas in Indonesia.

The regression results in this study show that in the long term national income has a negative effect not significantly while in the short term national income has an insignificant positive effect on non-oil and gas imports in Indonesia. From the data on Indonesia's national income fluctuations so that in this case national income has decreased or increased at unexpected times, this means that national income has increased not because non-oil and gas imports have also increased, but the influence of this national income can be influenced by every company or industry that needs non-oil and gas imports. So that in this case national

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income does not affect the number of non-oil and gas imports in Indonesia, this influence can be said if every company or industry will buy non-oil and gas goods if needed.

Effect of Foreign Exchange Reserves on Non-Oil and Gas Imports

The variable of foreign exchange reserves based on the results of research in the long term is a positive and significant effect on non-oil and gas imports in Indonesia, showing a probability value of $0.0000 < \alpha = 0.05$ and a calculated value smaller than the t-table of $6.130832 < 2,000$ and a positive marked coefficient value of 63.86174. In the short term, the variable of foreign exchange reserves has a positive and insignificant effect on non-oil and gas imports in Indonesia, indicating a probability value of $0.3870 > \alpha = 0.05$ and the calculated value is smaller than the t-table $0.871543 < 2,000$ and the value of the coefficient marked positive 19.28434, it can be concluded that national income in the long term has a significant effect and in the short term does not have a significant effect on non-oil and gas imports in Indonesia.

The results of the regression of foreign exchange reserves in the long term have a positive and significant effect on non-oil and gas imports in Indonesia, which means that the country is able to meet its import needs. In addition, a country's foreign currency foreign exchange reserves are very important in international trade. Therefore, the nation's economy will fall apart without large enough foreign exchange reserves. Consequently, foreign exchange reserves are very important in meeting the import needs of a country.

IMPLICATIONS

National income is defined as the annual market value of all new goods and services produced in a country. Evaluation of regional potential for natural resource management taking into account regional priorities and possibilities. National Income is a form of benchmark that is used to provide an overview of the economic value and expenditure achieved considering the economy of a country. The economic position of a country can obviously be measured by its national income. National income is also the amount of money that people earned in a special age (usually a period). So that national income is part of the expenditure of a company or as capital so that in this case national income is able to influence the financing of non-oil and gas imports in Indonesia, but the income must be adjusted to the owner of the industry itself with the ability and capacity of goods to be imported from outside.

Foreign exchange reserves are safe if import operations meet import demand within a period of three months or more. A country's economy can experience a crisis if its foreign exchange reserves run out. Foreign currency reserves have a significant influence on a country's ability to withstand import costs, debt repayments and economic shocks. (Tirta, 2005). On the other hand, reserve variables have a rather favorable short-term impact. In other words, the increase in foreign exchange reserves has no impact on non-oil and gas imports. Because the volume of imported non-oil and gas goods is a function of the state's need for non-oil and gas goods, imports boost the value of foreign exchange reserves. In addition, the government in the future must be able to design new strategies in the economy to further suppress imports in the non-oil and gas sector and be able to stimulate the increase in foreign exchange reserves such as agricultural products should be able to be optimized in domestic production to suppress imports considering that the Indonesian country is an agricultural country with an archipelago tropical climate and has a lot of agricultural land.

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CONCLUSION

Based on the results of the Error Correction Model test in this study, in the long term, the national income variable has a negative and insignificant impact on non-oil and gas imports in Indonesia, showing a probability value of $0.4445 > \alpha = 0.05$ and a calculated value smaller than the ttable of $0.769731 < 2,000$ and the value of the coefficient marked negative -0.342758 while the variable of foreign exchange reserves has a positive and significant effect on non-oil and gas imports in Indonesia showing the value of The probability of $0.0000 < \alpha = 0.05$ and the calculated value is less than the ttable $6.130832 < 2.000$ and the value of the coefficient marked positive 63.86174. Meanwhile, in the short term, the variable of national income has a positive and insignificant effect on non-oil and gas imports in Indonesia, showing a probability value of $0.6424 > \alpha = 0.05$ and a calculated value smaller than the ttable of $0.466773 < 2.000$ and a coefficient value marked positive 0.56855 while the variable of foreign exchange reserves has a positive and insignificant effect on non-oil and gas imports in Indonesia, indicating a probability value of $0.3870 > \alpha = 0.05$ and a smaller calculated value from the table $0.871543 < 2.000$ and the value of the coefficient marked positive 19.28434

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