Jurnal Ekonomi, Bisnis & Entrepreneurship
Vol. 18 No. 1, April 2024, 100 - 111
ISSN: 2443-0633, E ISSN: 2443-2121

Exports And Their Implications for The Position of Foreign Exchange Reserves in Indonesia 2005-2022

Muhammad Ali[1], Ingrid Larasati Agustina[2], Tria Apriliana3, Syafrizal Ikram[4], Suryana[5], Dudi Abdul Hadi[6]

[1,2,3,4,5,6] Universitas Widyatama, Bandung

E-mail: muhammad.ali@widyatama.ac.id[1], ingrid.larasati@widyatama.ac.id[2], tria.apriliana@widyatama.ac.id[3], syafrizal.ikram@widyatama.ac.id[4], suryana.se@widyatama.ac.id[5], dudi.abdul@widyatama.ac.id[6]

ABSTRACT

The purpose of this study was to determine the effect of oil and gas exports and non-oil and gas exports on the position of foreign exchange reserves in Indonesia for the period 2005–2022. The discussion of this research relates to oil and gas exports, non-oil and gas exports, and the position of foreign exchange reserves. In this regard, the approach taken is theories related to the field. This research was conducted in Indonesia. This type of research is quantitative research. The data used in this study are secondary data of the time series type in the form of publications on oil and gas exports, non-oil and gas exports, and the position of foreign exchange reserves from 2005 to 2022 obtained from the Central Bureau of Statistics. The research method used in this study is the explanatory method. The data analysis technique in this study is descriptive analysis and multiple linear regression analysis. The results of this study partially show that there is no effect of oil and gas exports on the position of foreign exchange reserves, while non-oil and gas exports have an effect on the position of foreign exchange reserves. Simultaneously, it shows that there is an influence of oil and gas exports and non-oil and gas exports on the position of foreign exchange reserves.

Keywords: Oil And Gas Exports, Non-oil And Gas Exports, Position of Foreign Exchange Reserves

INTRODUCTION

A country that will be able to finance all imports using foreign exchange reserves is a sign that the country's financial sector is running stably so that the country can carry out international trade and also expand their production markets. If there is a country that only has foreign exchange reserves and it is getting smaller then this is a sign that the country is unable to produce this foreign exchange. Therefore, a country must be able to maintain its foreign exchange reserves well so that in the future it can give a good impression to its own country and other countries. Basically, foreign exchange reserves and the domestic economy will be interconnected so that they can influence each other's value. If the domestic economy is weakening, foreign exchange reserves could decline. Likewise, vice versa, if the economy is improving then foreign exchange reserves will increase. Therefore, the domestic economy must be managed well and comprehensively so that in the future foreign exchange reserves can continue to experience an increase (Mihmii, 2022).

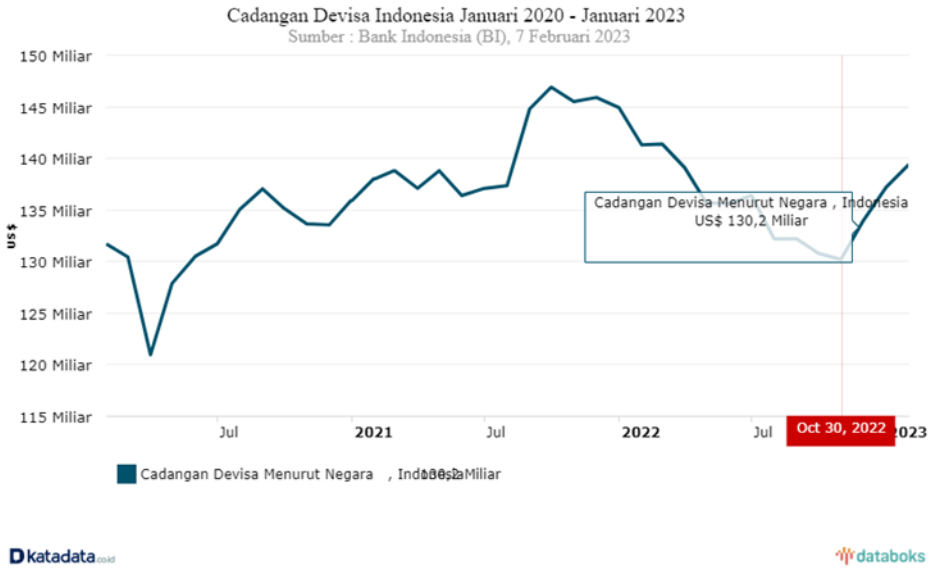

Figure 1. Foreign Exchange Reserves January 2020 – January 2023

Bank Indonesia (BI) recorded that Indonesia's foreign exchange reserves at the end of January 2023 reached US$139.4 billion. This figure has increased compared to the position at the end of December 2022 of US$137.2 billion. Executive Director of the Head of the BI Communications Department, Erwin Haryono, said that the position of foreign exchange reserves was equivalent to financing 6.1 months of imports or six months of imports and payment of government foreign debt. Apart from that, Indonesia's foreign exchange

reserves are also above the international adequacy standard of around three months of imports (Annur, 2023).

Bank Indonesia assesses that foreign exchange reserves are capable of supporting the resilience of the external sector and maintaining macroeconomic and financial system stability. In the future, according to Erwin, the central bank estimates that foreign exchange reserves will remain adequate. Erwin continued, supported by maintained economic stability and prospects, along with various policy responses in maintaining macroeconomic and financial system stability to support the national economic recovery process. (Annur, 2023).

As for trends, Indonesia's foreign exchange reserves have tended to fluctuate in the last three years. This looks like the graph above. Indonesia's foreign exchange reserves were the highest in the last three years, namely in September 2021 at US$146.9 billion, while the lowest were in March 2020 at US$121 billion. It was recorded that Indonesia's foreign exchange reserves at the end of last month were the highest in the last 11 months or since February 2022, amounting to US$141.4 billion (Annur, 2023).

This increase in foreign exchange can be done in several ways. This method can be improved by optimizing all the functions of this foreign exchange itself. Such as increasing investment from abroad, increasing interest rates, increasing natural resources and human resources, building tourist attractions, improving the quality of export goods, and also exporting (Mihmii, 2022).

Head of the Fiscal Policy Agency of the Ministry of Finance, Febrio Kacaribu, reported that the positive performance of Indonesia's exports in December 2022 was recorded at USD23.83 billion, or growth of 6.58% (yoy) and 26.07% (ytd). However, on a monthly basis (mtm), December 2022 exports decreased slightly by 1.1% (mtm) when compared to November which was recorded at USD24.09 billion. Export figures recorded a slight decline compared to last month as the Manufacturing PMI for several major trading partner countries continued to contract. However, year on year, exports are still growing positively, supported by exports of superior commodities such as mineral fuels, palm oil products, and iron and steel. Non-oil and gas exports in December 2022 reached USD22.35 billion, up 4.99% (yoy) or down 2.73% (mtm). The largest decline in non-oil and gas exports in December 2022 occurred in mineral fuel commodities amounting to USD483.1 million (9.44%), while the largest increase in non-oil and gas exports occurred in nickel and its processed products amounting to USD220.0 million (41.50%). Cumulatively, Indonesia's

Vol. 18 No. 1, April 2024, 100 - 111
ISSN: 2443-0633, E ISSN: 2443-2121

export value from January to December 2022 reached USD291.98 billion or an increase of 26.07% compared to the same period in 2021. Meanwhile, non-oil and gas exports reached USD275.96 billion or an increase of 25.80%. Based on sector, in the period January to December 2022, exports of mining and other products recorded the highest increase of 71.22%, followed by an increase in non-oil and gas exports from the processing industry of 16.45% and exports of agricultural, forestry and fisheries products of 10.52%. On the other hand, imports in December 2022 were recorded at USD19.94 billion or an increase of 5.16% compared to the period in November 2022 which was recorded at USD18.96 billion. This increase is in line with the increase in Indonesia's manufacturing PMI, which is still expansive (December 2022: 50.9; November 2022: 50.3). Indonesia's main import commodities during 2022 will still be dominated by imports of raw/auxiliary materials and capital goods such as machinery and mechanical equipment, electrical machinery and equipment, vehicles and their parts. This shows that the domestic economy is still on a recovery trend (Kacaribu, 2023).

With these export-import developments, the trade balance in December 2022 recorded a surplus of USD3.89 billion and continued the surplus trend for 32 consecutive months since May 2020. Cumulatively, the total surplus for the period January to December 2022 reached USD54.46 billion, increased quite high compared to the period January to December 2021, namely USD35.42 billion. Indonesia's trade balance in 2022 recorded the highest surplus in history, namely USD54.46 billion. Overall, export performance grew quite well, thus supporting Indonesia's economic growth target in 2022. In the future, the Government will be alert to the risk of decreasing demand for exports from the main trading partner countries, namely the United States, China, the European Union and Japan in line with the decline in the manufacturing PMI index. those countries. On the other hand, the Government in parallel also continues to develop exports to other countries such as India and ASEAN countries (Kacaribu, 2023).

Two advantages of international trade are: it allows a country to expand its market or production results and it allows the country to use technology developed abroad, which is better than domestically (Sukirno, 2011).

International trade is trade carried out by residents of one country with residents of another country on the basis of mutual agreement. One of the things that determines a country's economic growth is international trade which includes import-export activities.

One of the advantages of international trade is that it allows a country to specialize in producing cheap goods and services (Manik, 2022).

International trade is a good measure of demand for foreign exchange reserves. The ups and downs of international trade really depend on a country's export and import sales and purchase activities. A country really hopes for a high level of exports compared to its imports, this condition will cause foreign exchange reserves to increase very effectively and efficiently. Apart from that, foreign exchange reserves can also be used to maintain a favorable exchange rate for export growth and more Foreign Direct Investment (FDI) flows in Indonesia (Yanuar & Akbar, 2022).

Indonesia, with its products from oil and gas and non-oil and gas commodities, has always been focused on producing natural resources as a comparative advantage. Many other indicators can be traded for international trade, especially exports. Trading with other countries may result in profits, namely being able to buy goods at lower prices and perhaps being able to sell abroad at relatively high prices. Foreign trade often arises because of differences in the prices of goods in various countries (Nopirin, 1997).

With export activities, the government earns income in the form of foreign exchange. The more export activity, the more foreign exchange the country earns. Generally, goods exported by Indonesia consist of two types, namely petroleum and natural gas (oil and gas) and other than petroleum and natural gas (non-oil and gas). Goods that include oil and gas include kerosene, gasoline, diesel and LPG. Non-oil and gas goods include industrial products, for example plywood, confectionery, palm oil, office equipment, chemicals, fertilizer and paper. Agricultural and plantation products, for example sugar, coconut, rubber, coffee and copra. Sea and lake products, for example fish, shrimp and shellfish. Non-oil and gas mining products, for example gold ore, nickel ore, copper ore and coal (Wijayanto & Luase, 2022).

Physically, exports can mean sending and selling domestically made goods to other countries. This delivery will create a flow of expenditure into the corporate sector. Thus, aggregate expenditure will increase as a result of exporting goods and services, ultimately this situation will cause an increase in national income or the same as an increase in the country's foreign exchange reserves (Dananjaya et al., 2019).

Foreign exchange reserves have an important role in reducing exchange rate fluctuations and encouraging a country's economic progress. Foreign exchange reserves are

used as a tool to stabilize exchange rate fluctuations to reduce demand and finance imports, so that the domestic currency exchange rate can be maintained (Wahongan et al., 2022).

The results of research conducted (Wahongan et al., 2022) show that oil and gas exports and non-oil and gas exports have an effect on foreign exchange reserves for the 2001-2020 period.

Thus, discussions with various countries and Indonesia's participation in international trade, apart from increasing foreign exchange, can increase other cooperation, both bilateral and multilateral, which can support the wider Indonesian economy.

The aim of this research is to determine the influence of oil and gas exports and non-oil and gas exports on the position of foreign exchange reserves in Indonesia for the period 2005-2022.

METHOD

The research was conducted in Indonesia using two independent variables, namely oil and gas exports, non-oil and gas exports and one dependent variable, namely the position of foreign exchange reserves from 2005 to 2022. The time of this research was carried out from May 2023 to October 2023. The implementation used in this research obtained from BPS (Central Statistics Agency) publications via www.bps.go.id.

The type of research that will be used is quantitative research. Where quantitative research is a type of research that produces discoveries that can be achieved using statistical procedures or other means of quantification (measurement). Quantitative data is data in the form of numbers and analysis using statistics.

In this research, the population is all data on oil and gas exports, non-oil and gas exports and the position of foreign exchange reserves in Indonesia published by the Indonesian Central Statistics Agency for the period 2005 to 2022.

In this research, the data collected is secondary data. Where secondary data is data that we obtain from a second source and usually this data is ready to use. This secondary data is easy to obtain and is widely distributed in various sources, including economic data issued by the government from the Central Statistics Agency which is completely available. The type of data used is time series data from 2005 to 2022.

To obtain research results that are in accordance with the research objectives, technical data analysis needs to be carried out. The collected data will be processed and analyzed. The data analysis techniques in this research are descriptive analysis and multiple linear

Vol. 18 No. 1, April 2024, 100 - 111
ISSN: 2443-0633, E ISSN: 2443-2121

regression analysis. To assess the validity of the data, a classical assumption test is needed before carrying out multiple linear regression analysis. Hypothesis testing in this research was carried out in two stages, namely partial testing (t-test) and simultaneous testing (F-test).

RESULTS AND DISCUSSION

In this study the dependent variable used is the position of foreign exchange reserves in millions of US$. Meanwhile, the independent variables are oil and gas exports in millions of US$ and non-oil and gas exports in millions of US$. The following are the results of descriptive statistical tests presented in table 1.

Table 1. Descriptive Statistics

Description	Oil and Gas Exports (US $ million)	Non-oil and Gas Exports (US $ million)	Posisi Cadangan Devisa (juta US $)
Average	21,816.77	142,774.8	100,149.8
Median	19,124.9	147,939.9	110,992.5
Maximum value	41,477	275,906.1	144,905.4
Minimum value	8,251	66,428.4	34,724
Standard deviation	9,276	49,125.79	34,731.02
Number of observation	18	18	18

Table 1 shows a statistical summary which includes the average value, middle value, maximum value, minimum value, and standard deviation, minimum and standard deviation of data on oil and gas exports, non-oil and gas exports and the position of foreign exchange reserves. The average value of oil and gas exports was US$21,816.77 million. The median value was US$19,124.9 million. The maximum value is US$41,477 million. The minimum value is US$8,251 million, with a standard deviation of US$9,276 million.

The average value of non-oil and gas exports was US$142,774.8 million. The median value was US$147,939.9. The maximum value is US$275,906.1. The minimum value is US$66,428.4, with a deviation of US$49,125.79.

The average value of foreign exchange reserves is US$100,149.8 million. The median value was US$110,992.5. The maximum value is US$144,905.4. The minimum value is US$34,724, with a deviation of US$34,731.02.

Before calculating the regression, normality, heteroscedasticity, autocorrelation and multicollinearity tests were first carried out, with the following results.

Based on the normality test results, it was found that the Jarque-Bera Normality test statistic was 1.864877, with a probability value of 0.393593. Based on this, it can be explained that the empirical model used has residuals or confounding factors that are normally distributed, because the probability value with α = 5% is 0.393593 > 0.05. The following is a diagram of the data normality test results.

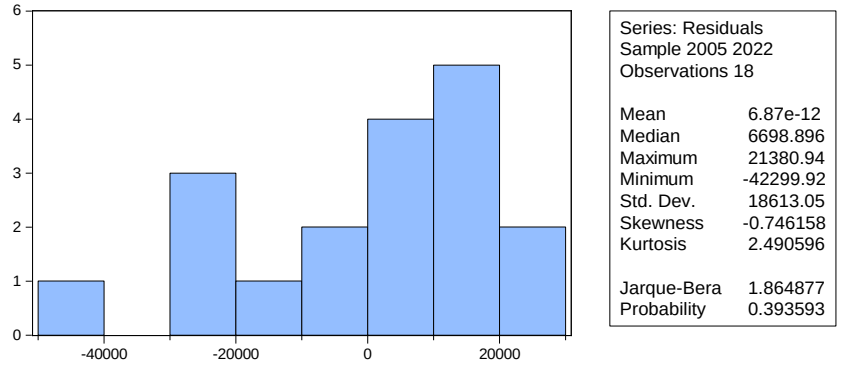

Figure 2. Normality Test Results

Testing the heteroscedasticity problem in this research uses the Breusch-Pagan-Godfrey test with the following results.

Table 2. Breush-Pagan-Godfrey Test Results

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.060885	Prob. F(2,15)	0.1619
Obs*R-squared	3.879968	Prob. Chi-Square(2)	0.1437
Scaled explained SS	2.008147	Prob. Chi-Square(2)	0.3664

The probability of Obs*R-squared is 0.1437, this value is greater than 0.05 or 0.1437 > 0.05 which indicates that the model does not have a heteroscedasticity problem.

One method that can be used to detect whether there is autocorrelation is the Durbin–Watson Test (DW test) which is used for first order autocorrelation and requires the presence of an intercept (constant) in the regression model and no other variables among the independent variables. . Where the d value is compared with d table with a significance level of 5% with df = n - (k + 1). Decision making on whether there is autocorrelation can be seen from the following provisions (Santoso, 2012).

1. The DW number is below -2, which means there is positive autocorrelation

2. The DW number is between -2 to +2, which means there is no autocorrelation

3. The DW number is above +2, which means there is negative autocorrelation

After correcting the autocorrelation problem, the autocorrelation test results were obtained as follows:

Table 3. Durbin-Watson Statistical Test

Durbin-Watson stat	**Conclusion**
0.609062	no autocorrelation

Based on table 3, it can be seen that the final Durbin-Watson value is 0.609062, which is between -2 and +2 (-2 < 0.609062 < +2). These results indicate that in the regression model there is no autocorrelation, thus the model meets the requirements for regression testing.

To test the multicollinearity problem, it was tested by looking at the VIF value, with the following results.

Table 4. Multicollinierity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	4.02E+08	18.41204	NA
X1	0.274836	7.020794	1.023783
X2	0.009798	10.17998	1.023783

In the table it can be seen that all variables X1 and X2 has a VIF value > 0.10 and VIF < 10. So it can be concluded that in this model there is no multicollinearity problem.

Table 5. Estimation Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	30325.30	20040.61	1.513192	0.1510
X1	-0.545644	0.524248	-1.040812	0.3144
X2	0.572431	0.098984	5.783050	0.0000
R-squared	0.712790	Mean dependent var		100149.8

Adjusted R-squared	0.674495	S.D. dependent var	34731.02
S.E. of regression	19815.10	Akaike info criterion	22.77729
Sum squared resid	5.89E+09	Schwarz criterion	22.92568
Log likelihood	-201.9956	Hannan-Quinn criter.	22.79775
F-statistic	18.61327	Durbin-Watson stat	0.609062
Prob(F-statistic)	0.000086		

Based on the results of testing the coefficient of determination in table 5, it shows that the R2 value is 0.71279 or 71.279%. From the tests carried out, it can be concluded that the variability of the foreign exchange reserve position variable is explained by independent variables, namely oil and gas exports and non-oil and gas exports, in this study it is 71.279%, while 28.721% is explained by other factors that are not contained in the regression model in the study This.

Based on table 5, the coefficient constant value can be seen, so that it can be formed in a multiple linear regression equation as follows:

$$Y = 30{,}325.3 - 0.545644\ X1 + 0.572431\ X2$$

- The above equation can be interpreted as follows:
- α is 30,325.3, which means that if oil and gas exports and non-oil and gas exports are zero, then the foreign exchange reserve position is worth 30,325.3 units.
- The regression coefficient for the oil and gas export variable is -0.545644, which means that if there is a change in the increase in oil and gas exports of 1 unit (assuming other variables are constant), then the position of foreign exchange reserves will decrease by 0.545644 units.
- The regression coefficient for the non-oil and gas export variable is 0.572431, which means that if there is a change in the increase in non-oil and gas exports of 1 unit (assuming other variables are constant), then the position of foreign exchange reserves will increase by 0.572431 units.

Based on table 5, it can be concluded that the p-value of the oil and gas export variable is 0.3144. Due to the value of prob. (p-value) > 0.05 (5% significance level) or 0.3144 > 0.05, then H0 is accepted and the conclusion is that oil and gas exports do not have a significant effect on the position of foreign exchange reserves. The p-value of the non-oil and gas export variable is 0.00. Due to the value of prob. (p-value) < 0.05 (5% significance

level) or 0.00 < 0.05, then H0 is rejected and the conclusion is that non-oil and gas exports have a significant effect on the position of foreign exchange reserves.

Based on table 5, it is found that the value of prob. (F-statistic) of 0.000086 < 0.05; then H0 is rejected, which means that oil and gas exports and non-oil and gas exports simultaneously have an influence on the position of foreign exchange reserves.

CONCLUSION

Based on the results of research on the influence of non-oil and gas exports and non-oil and gas exports on the position of foreign exchange reserves in Indonesia for the period 2005-2022, the following conclusions can be drawn, oil and gas exports have no effect on the position of foreign exchange reserves, non-oil and gas exports influence the position of foreign exchange reserves. Then, oil and gas exports and non-oil and gas exports simultaneously have an influence on the position of foreign exchange reserves. In contrast to non-oil and gas exports, partially, oil and gas exports have no effect on the position of foreign exchange reserves. This is because export data from 2005 to 2022 shows inconsistent effects. Some of the increase in oil and gas exports caused an increase in the position of foreign exchange reserves, but there is also a lot of data showing that the decline in oil and gas exports caused an increase in the position of foreign exchange reserves. With these results, it is recommended that Indonesia focus more on increasing non-oil and gas exports such as mineral fuels, vegetable fats and oils, iron and steel, electrical machinery and equipment, chemical products, metal ore, precious metals and jewelry, nickel, cocoa, fertilizer, and etc.

REFERENCES

Annur, C. M. (2023). BI: Cadangan Devisa RI Meningkat Jadi US$139,4 Miliar pada Januari 2023. Databoks.Katadata.Co.Id. https://databoks.katadata.co.id/datapublish/2023/02/08/bi-cadangan-devisa-ri-meningkat-jadi-us1394-miliar-pada-januari-2023

Dananjaya, I. P. A. B., Jayawarsa, A. A. K., & Purnami, A. A. S. (2019). Pengaruh Ekspor, Impor, Kurs Nilai Tukar Rupiah, Dan Tingkat Inflasi Terhadap Cadangan Devisa Indonesia Periode 1999-2018. Warmadewa Economic Development Journal, 2(2), 64–71. https://www.ejournal.warmadewa.ac.id/index.php/wedj/article/view/1359

Kacaribu, F. (2023). Tumbuh Positif, Surplus Neraca Perdagangan Tahun 2022 Catatkan Level Tertinggi dalam Sejarah. Kemenkeu.Go.Id. https://www.kemenkeu.go.id/informasi-publik/publikasi/berita-utama/Tumbuh-Positif-Surplus-Neraca-Perdagangan-2022

Manik, M. (2022). Pengaruh Perdagangan Internasional terhadap Pertumbuhan Ekonomi Indonesia. Jurnal Ekonomi Manajemen Dan Bisnis, 23(2), 13–20. https://journal.unimal.ac.id/emabis/article/view/855

Mihmii, W. (2022). Devisa Negara; Fungsi, hingga Cara Meningkatkannya. Gicindonesia.Com. https://www.gicindonesia.com/jurnal/trivia/devisa-negara-adalah

Nopirin. (1997). Ekonomi Internasional (Ketiga). BPFE.

Santoso, S. (2012). Statistik Parametrik. PT Gramedia Pustaka Umum.

Sukirno, S. (2011). Ekonomi Pembangunan Proses, Masalah dan Dasar Kebijakan. Prenada Media Grup.

Wahongan, G. F., Kumaat, R., & Mandeij, D. (2022). Analisis Ekspor Migas, Ekspor Non-Migas dan Penanaman Modal Asing terhadap Cadangan Devisa di Indonesia Periode 2001-2020. Jurnal Berkala Ilmiah Efisiensi, 22(4), 100–111. https://ejournal.unsrat.ac.id/v3/index.php/jbie/article/view/42236

Wijayanto, A., & Luase, N. M. E. (2022). Analisis Pengaruh Ekspor dan Impor Terhadap Cadangan Devisa Indonesia. Yos Soedarso Economics Journal, 4(1), 12–27. https://ejurnal.uniyos.ac.id/index.php/ysej-server/article/view/yej4102

Yanuar, E., & Akbar, A. (2022). Pengaruh Ekspor Dan Impor Migas terhadap Cadangan Devisa Indonesia. KLASSEN: Journal of Economics and Development Planning, 2(2), 108–125. https://unbara.ac.id/journal/index.php/klassen/article/view/1701