
ANALYSIS OF THE INFLUENCE OF GROSS DOMESTIC PRODUCT (GDP), EXCHANGE AND OIL PRICES THE WORLD ON THE STATE BUDGET DEFICIT IN INDONESIA

Abi Waqqosh¹, HenyLiya Hasibuan², Iskandar Muda³, Andri Soemitra⁴, Sugianto⁵

^{1,2,4,5}Universitas Islam Negeri Sumatera Utara, Medan, Indonesia

³Universitas Sumatera Utara

²Corresponding Author:henyliyahasibuan@gmail.com

Abstract. This research is a quantitative type of research that aims to determine the relationship between GDP, Exchange Rate and Oil Prices on the State Budget Deficit. The variables used in this study consisted of 3 independent variables and 1 dependent variable. The sample in this study is Indonesia from 1988 to 2018. The analysis model uses Partial Least Square with the help of the WarpPls 7.0 application. Partial Least Square is a statistical data analysis methodology that is at the intersection between regression models, structural equation models, and multiple table analysis methods. The results show that gross domestic product has a significant negative effect on the APBN deficit, the exchange rate has an insignificant negative effect on the APBN deficit, and oil prices the world has an insignificant positive effect on the state budget deficit.

Keyword: State Budget Deficit, World Oil Price, Exchange Rate, Gross Domestic Product

JEL Codes :E21, E66

1. INTRODUCTION

The government of a country requires adequate funds to fulfill and improve the welfare of the community through equitable development in terms of economic, social, cultural and political. Indonesia is one of the developing countries that continues to develop in the economic sector to improve the ability of the community to meet their needs.

The government in each country will definitely plan a budget that will be used for 1 year, the Indonesia National Budget (APBN) that has been prepared by the government every year can be used to determine budget policies that are adjusted to the current economic conditions.

The existence of community needs that must be met by the state, the government must also harmonize the State Revenue and Expenditure Budget (APBN). Therefore, not only think about the budget that will be issued as state expenditure but also look at the state income that must be adequate, there should not be a state expenditure that is greater than state income.

When carrying out expenditures and financing, the government in carrying out its activities can go through a budget deficit policy. A budget deficit occurs when the government's expenditure is greater than its income. This budget deficit arose due to several factors such as accelerated economic growth, weakening of the exchange rate, spending due to the economic crisis, realization that deviated from the plan and expenditure due to the exchange rate. The deficit can be covered by financing sources, both domestic and foreign.

The state deficit that is too high will result in worsening the financial condition in the APBN. So to minimize this budget problem, the domestic party must work together in increasing GDP (Gross Domestic Product). An increase in GDP helps increase the APBN budget, so the higher the GDP, the higher the income from the budget.

When a country's GDP will increase, it can improve people's welfare and can affect the Indonesian exchange rate (exchange rate) getting better (strengthening) against foreign exchange

rates (US dollar \$). This directly strengthens the rupiah exchange rate and helps reduce the budget deficit/increase state revenue.

The rupiah exchange rate is an indicator found in macroeconomics that is closely related to the amount of a country's APBN. The assumption of the rupiah exchange rate is related to the number of transactions that occur in the APBN related to foreign currencies, such as foreign debt payments, loan receipts, oil receipts and the provision of fuel subsidies to the state. Thus, the macro basic assumptions variable greatly determines the amount of state revenues and expenditures in the APBN, as well as the amount of budget financing.

In terms of financing the budget deficit, another thing that can affect is the number of exports or imports, currently Indonesia is a country that imports oil, the rise and fall of oil prices greatly affects the economy in the community, ranging from the price of goods to necessities such as fuel and electricity.

Indonesia's imports of crude oil in the 2009-2018 period increased by 10.64% to 16.9 million tons. Similarly, imports of refined oil/oil products rose 35% to 26.6 million tons. The Indonesian crude oil exchange rate can be seen in the picture below, which has been in deficit since 2013.

Currently, there are two of the most widely used reference prices for crude oil in the world. Namely Brent and WTI (West Texas Intermediate) oil prices. Brent (Brent Crude) is a term for oil extracted from the North Sea (Europe), with the name Brent coming from a mining area in the North Sea which was opened in 1970. The price of Brent oil has been the basis for price formation since 1971 for almost 40% of the value of oil. around the world, and continues to be used today.

However, in its development the United States oil production has increased and has contributed greatly to the world market share, so that the price of WTI oil began to be used as a reference since around 2007. WTI (West Texas Intermediate) is petroleum that is produced in North America, and in its application is mostly used for gasoline products. This type of oil is lighter and easier to process, so it is in great demand. So that these two types of oil are the general benchmark in determining the price of petroleum.

Currently, oil prices are expected to continue to rise and could touch \$100 per barrel. Changes in world oil prices will greatly affect countries in Southeast Asia such as Indonesia. Indonesia is the second largest oil importer from Iran among other Southeast Asian countries, with total trade reaching \$645 million.

Indonesia consumes 1.7 million bpd, but this country is only able to produce 750.6 thousand bpd. That means Indonesia must import around 950 thousand bpd to meet domestic needs. At a price of \$80 per barrel, Indonesia is expected to spend \$76 million per day just to meet domestic oil needs. The impact of fluctuations in world oil prices on the Indonesian economy is a classic and recurring problem. On the one hand, the government cannot withstand the pressure of rising world oil prices which will cause an increase in the budget allocation for oil imports. In the end, it will burden the government's spending structure, causing several government programs to be canceled or postponed.

However, if the government raises the price of fuel oil (BBM to reduce the budget deficit, the people's purchasing power will weaken. The government's policy of allowing fuel prices to follow international market prices has resulted in the government increasing and then lowering fuel prices, as well as the basic electricity tariff.

The increasing amount of consumption and rising oil prices will affect the amount of costs that must be incurred to meet this demand, including rising production costs. This will also affect the fiscal balance and can cause a budget deficit to occur, given that state revenues from exports are lower than expenditures on imports, this condition will have more adverse or negative impacts on state expenditures in the APBN. Seeing these problems, this study was conducted which aims to determine how the influence of GDP, Exchange Rate and World Oil Prices on the State Budget Deficit in Indonesia.

2. LITERATURE REVIEW

2.1 State Budget Deficit

A budget deficit is a government policy to make expenditures greater than state revenues to make changes to the economy. This deficit policy is good when you want to experience domestic development. (Bird, 2000).

According to Suparmoko (1986) the budget is a detailed list or statement of expected state revenues and expenditures within a certain period of time. So a budget must have budget clarity in its receipts and expenditures so that the system in the budget is better and more controlled.

The government in each country will plan a budget that will be used for 1 year, in Indonesia the draft State Revenue and Expenditure Budget (APBN) is prepared by the government every year and can be used to determine (fiscal) budget policies that are adapted to current economic conditions, this will accelerate the economic recovery system as seen from its role in aggregate demand. When carrying out government spending and financing in carrying out its activities, it can be through a deficit budget policy.

The factors that cause the APBN deficit are:

- a. Accelerating economic growth, so that development can be accelerated, large investments with large funds are needed, this makes the government have a great responsibility in improving people's welfare such as programs to increase economic growth such as infrastructure development, defense and security, court projects and correctional institutions, education and health, transmigration and regional development and poverty alleviation.
- b. People's purchasing power is low, developing countries such as Indonesia have low per capita income, thus affecting the people's low purchasing power as well. However, the goods and services offered have quite high prices because some of their production is imported, causing low-income people to be unable to buy them. These goods and services include electricity, transportation facilities and fuel.
- c. The weakening of the Exchange Rate, Indonesia has made foreign loans since 1969, because of that Indonesia has problems every year there is a fluctuation in the exchange rate every year, because the value of the loan is calculated in foreign currency, while the payment of principal and interest on the loan is calculated in rupiah. If there is a depreciation of the rupiah currency, the money that must be paid will also increase.
- d. The realization deviates from the plan, in the preparation of the APBN, the government also makes a plan for the source of State revenue. If the realization of the revenue cannot reach the planned target, as a result, some activities, programs, and projects have to cut costs. Cutting costs is quite difficult because to achieve maximum development. If this happens, the government needs to cover the shortfall so that development can be realized according to what has been prepared in the APBN each year.

To overcome the problem of the government's budget deficit, the government can do it from two sides, namely the revenue side and the expenditure side. On the revenue side, the government can borrow from domestic banks, issue bonds, borrow from abroad, and increase tax revenues. Meanwhile, from the expenditure side, the government can reduce subsidy spending, save on each routine expenditure, select some expenditures based on priorities, reduce costs for unproductive and efficient programs.

2.2 Gross Domestic Product

According to Sukirno (2004:17), GDP is the value of goods and services in a country that have been produced within 1 year by production factors within 1 year by production factors. Both by production owned by that country and foreign countries, as long as they are in the territory of the same country.

Gross Domestic Product (GDP) is one of the important indicators to determine the economic development in a country in a certain period, GDP is basically the amount of added value generated

by all business units in a certain country in a certain period. The total value of the final goods and services provided from production must equal the value of the goods used. The calculation of Gross Domestic Product conceptually uses three approaches, namely:

a. Production Approach,

Gross Domestic Product is the amount of added value for goods and services produced by various production units in the territory of a country within a certain period of time in 17 business fields, namely (1) agriculture, forestry and fisheries, (2) mining and quarrying, (3) processing industry, (4) electricity supply, (5) water supply, waste management, waste and recycling, (6) construction, (7) wholesale and retail trade, car and motorcycle repair, (8) transportation and warehousing, (9) provision of accommodation from eating and drinking, (10) information and communication, (11) financial and insurance services, (12) real estate, (13) corporate services, (14) government administration, defense and compulsory social security, (15) education services, (16) health services and other activities and (17) other services.

b. Expenditure Approach

(1) Household Consumption Expenditure, (2) LNPRRT Consumption Expenditure, (3) Government Consumption Expenditure, (4) Gross domestic fixed capital formation, (5) Changes in inventory, (6) Export of goods and services, (7) Import of goods and services. And the calculation of output in the economy with the expenditure approach is explained by the following equation:

$$Y = C + I + G + (X - M)$$

Where :

Y = Gross Regional Domestic Product (GRDP)

C = Consumption

I = Investment

G = Government Expenditure

NX = Net Exports (Exports minus Imports)

c. Income Approach

Gross Domestic Product is the amount of remuneration received by production factors that participate in the production process in a country within a certain period of time (usually used in one year). The remuneration in question is wages and salaries, land rent, capital interest and profits. All before deducting income tax and other direct taxes. In this definition, GDP includes depreciation and net indirect taxes (indirect taxes minus subsidies).

2.3 Exchange Rates

The exchange rate or also known as the exchange rate is an agreement known as the currency exchange rate against current or future payments between the two currencies of each country or region. The exchange rate can be divided into two, namely the real exchange rate and the nominal exchange rate. The nominal exchange rate is the currency value in nominal terms of the currencies of two countries. While the real exchange rate is the currency value of two countries which is calculated based on the price of goods in each country or the nominal exchange rate multiplied by the domestic price divided by the price of domestic goods. (Nopirin, 1996 and Rambe et al 2018)).

According to Sadono Sukirno (2011) the exchange rate is: "The exchange rate (exchange rate) or often called the exchange rate is the price of currency against other currencies. The exchange rate is one of the most important prices in an open economy, given such a large influence on the current account balance and other macroeconomic variables".

There are several types of exchange rate systems determined by the government, namely:

a. Pegged exchange rate system

An exchange rate system in which the exchange rate of the domestic currency is fixed to a foreign currency.

b. Freely floating exchange rate system

An exchange rate system determined by market pressures without government intervention.

c. Fixed exchange rate system

An exchange rate system that is held in stages by the government or fluctuates within very narrow limits. If the exchange rate changes too much, the government will intervene to keep it within the desired limits.

d. Managed floating exchange rate system

The exchange rate system is located between the fixed system and freely floating, but has similarities with the fixed exchange system, namely the government can intervene to keep the currency value from changing too much and staying in a certain direction. While the difference with free floating, managed float is still more flexible to a currency.

In determining the exchange rate, according to Sukirno, 2003: 402, it is caused by many factors, namely:

a. Changes in people's tastes.

b. Changes in the prices of export and import goods.

c. general price increase (inflation).

d. Changes in interest rates and investment returns.

e. Economic growth

2.4 Oil Prices

Oil and its derivatives are one of the most important sources of energy in our modern world, where the share of oil is 36.8% of global energy consumption. (Khairuddin, 2008).

The World Crude Oil Price (Crude Oil Price) is measured from the spot price of the world oil market, generally West Texas Intermediate and Brent are used as standards. World oil traded on West Texas Intermediate (WTI) is a high quality crude oil. This type of oil is very suitable to be used as fuel, this causes the oil price to be used as a benchmark for world oil trade.

The price of world crude oil is measured from the spot price of the world oil market. Currently the benchmark for crude oil prices commonly used is West Texas Intermediate (WTI) or light-sweet. Crude oil traded on West Texas Intermediate (WTI) is high quality crude oil. This is because the crude oil has a low sulfur content and is very suitable to be used as fuel, so the price of this oil is used as a benchmark for oil trade in the world.

3. RESEARCH METHODOLOGY

This research is a type of quantitative research. The data in this study are secondary data originating from BPS and processed. data obtained by library resourch and search on the Internet. The variables in this study consisted of 3 independent variables, namely the variable GDP (X1), EXCHANGE (X2) and Oil Prices X3). And there is 1 independent variable, namely the State Budget Deficit (Y).

Stages in analyzing data using structural equation modeling (SEM) or the method of Structural Equation Modeling Analysis. Solimun (2017) explains "there are 7 steps in modeling structural equations with WarpPLS software, namely: 1) inner model, 2) outer model, 3) constructing path diagrams, 4) conversion of path diagrams, 5) estimation, 6) Godness of fit. and 7) Hypothesis testing".

To test the hypothesis, this research uses WarpPLS 7.0. Validity and reliability tests are used to test whether the instruments used are appropriate and reliable.

4. RESULTS AND DISCUSSION

4.1 Results

4.1.1 Test of Data Validity and Reliability

To meet the requirements of the data validity test according to Sholihin and Ratmono (2013), it must meet the requirements of Convergent Validity where Loading Factor > 0.7 and P value < 0.05

and for Determinant Validity of AVE Root in the construct > AVE root on other variables. The results of the validity of this study are:

Table 4.1.1 Cross Loading

	X1	X2	X3	Y	Type (a)	SE	P value
X1	1.000	0.000	0.000	0.000	Reflect	0.11	<0.001
X2	0.000	1.000	0.000	0.000	Reflect	0.11	<0.001
X3	0.000	0.000	1.000	0.000	Reflect	0.11	<0.001
Y	0.000	0.000	0.000	1.000	Reflect	0.11	<0.001

Based on the results of research for all indicators on variables X1, X2 and Y have met convergent validity, as evidenced by the results of factor loading > 0.70 and P < 0.005 and have met discriminant validity, for all indicators on variables X1, X2 and Y have met discriminant validity and proved from the value of Loading > Cross Loading.

And for the reliability of the variables are as follows:

Composite Reliability

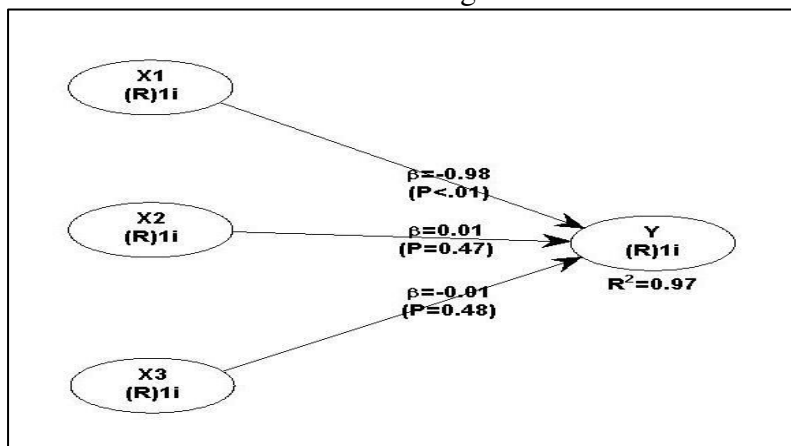
X1	X2	X3	Y
1.000	1.000	1.000	1.000

From the table above, it can be seen that the composite reliability value of each variable has a value above 0.6. Which means that all variables in the model have met a good reliability test.

4.1.2 Hypothesis Test

Hypothesis testing is essentially done to test the significance of the path coefficients in the model. To conclude whether the research path or hypothesis is proven, a cut-off value of p-value <0.05 is used (Sholihin, 2013). Thus, if the p-value on the path being tested is <0.05, then the research hypothesis is proven. The results of overall hypothesis testing can be seen in Figure 4 below.

Model Image



With path coefficient values as follows:

	X1	X2	X3	Y
Y	-0.984	0.014	-0.007	

From the figure and table above, it can be seen that the effect of X1 on Y has a value of -0.984, which means that X1 has a negative effect of -0.984 on Y. If the value of X1 increases one unit, then the value of Y decreases by -0.984. P value for X1 is 0.001 which means that X1 has a significant effect.

Furthermore, the value of X2 to Y is worth 0.014 which means that X2 has a positive effect of 0.014 on Y. If the value of X2 increases one unit, then the value of Y increases by 0.014. P value for X1 is 0.47 which means that X2 has no significant effect.

And the value of X3 to Y is -0.007, which means that X3 has a negative effect of -0.007 to Y. If the value of X3 increases by one unit, the value of Y decreases by -0.007. As for the P value, it is known to be 0.48, which means that X3 has no significant effect.

In addition to the path coefficient values listed above, there is an R value of 0.97 which means that 97% Y can be explained through variables X1, X2, and X3. The rest is explained through other variables that are not included in the model.

4.2 DISCUSSION

From the analysis of hypothesis testing, it is known that GDP has a negative and significant effect on the APBN Deficit. If GDP increases, it will have an impact on increasing economic activity, especially in the real sector and the business world in general. Increased economic activity will have an impact on increasing government revenues through the tax sector which is based on the increasing intensity of economic activity so that it has an impact on increasing the intensity of economic activity so that it has an impact on increasing profits. Increased activity and company profits will certainly increase income tax, value added tax, and excise. This tax revenue is the main post for domestic revenue. With an increase in tax revenues, the state budget deficit will decrease.

These results are in accordance with the results of research by Ratnah (2008) and research from Wiwin (2012) which states that there is an inverse or negative relationship between GDP and the APBN deficit. This shows that when there is an increase in GDP, there will be a reduction in the APBN deficit.

Furthermore, the exchange rate has a positive but not significant relationship. When the currency exchange rate increases or there is a weakening against the value of the rupiah, it will cause our APBN deficit to increase, due to the large amount of state debt that is used in United States dollars, where this will further burden the Indonesian State Budget. However, the impact of this chair cannot be felt directly, it may take a longer period of time compared to GDP.

The oil price relationship has negative and insignificant results. The world oil price is one of the variables in international trade and is one of the basic macroeconomic assumptions in the APBN. The increase in world oil prices will affect the State Revenue and Expenditure Budget (APBN) and have 2 impacts on the State Budget. Rising world oil prices will increase oil and gas exports which will later contribute to state revenues from the oil and gas side. However, Indonesia is also a net importer of oil, when the world's oil prices are higher, the imports of Indonesia's oil and gas will be greater so that this condition makes the burden on state energy subsidies heavier and will also have an impact on the budgeting system, where the government will need more budget to balance the economy so that the state budget does not there is a budget deficit. Similar to the exchange rate, oil prices also do not have a significant relationship. This means that the price of oil has no direct effect on the state budget deficit.

5. CONCLUSION

1. GDP (X1) has a negative and significant effect on the APBN Deficit (Y) with a coefficient of -0.984, which means that if GDP increases by one unit, the APBN Deficit will decrease by 0.984.

2. Exchange rate (X2) has a positive and insignificant effect on the APBN Deficit (Y) with a coefficient value of 0.014 which means that if GDP increases by one unit, the APBN Deficit will increase by 0.014.
3. Oil Price (X3) has a negative and insignificant effect on the APBN Deficit (Y) with a coefficient of -0.007 which means that if GDP increases by one unit, the APBN Deficit will decrease by 0.007.

REFERENCE

- A, A. (2009). *International Economics: History, Theory, Concepts and Problems in Its Application*. Yogyakarta: GrahaIlmu.
- Afandi. (2018). *Analysis of the Factors Affecting the Budget Deficit in Indonesia*. Afif, F. &. (2016). *Budget Deficit Financing according to UmerChapra*.
- al, N. T. (2017). *The Impact of Oil Price on the Growth, Inflation, Unemployment and Budget Deficit of Vietnam*.
- Appleyard DR, J. F. (2008). *International Economics*.
- RinekaCipta. Bernheim, B. D. (n.d.). *Budget Deficits and The Balance of Trade*.
- Script. Djunedi, P. (2008). *Rising Oil Prices and Anticipatory State Budget*.
- Gregory, M. N. (2006). *Macroeconomics, Translation: Fitria Liza, Imam Nurmawan*. Jakarta: Erlangga.
- Haerani, W. (2012). *Analysis of Factors Affecting the State Budget Deficit in Indonesia for the Period 2001-2010*.
- Harahap, I. (2015). *Causality Analysis of Macroeconomic Variables on the State Budget in Indonesia for the 1990-2015 Period*.
- Hasan, I. M. (2017). *Main Statistical Materials*. Jakarta: PT. Earth Literature. Hasan, I. M. (2017). *Main Statistical Materials*. Jakarta: PT. BumiAksara.
- Hasan, M. I. (2002). *Main Materials of Research Methodology and Its Applications*. Bogor: Ghalia Indonesia.
- Khairunnisa A, T. F. (n.d.). *Analysis of the Effect of Macro Variables and the Budget Deficit in Indonesia*.
- Krugman, P. R. (2005). *International Economics: Theory and Policy Edition 5*. Jakarta: PT. Index.
- Madura, J. (1997). *International Financial Management Volume 1 Fourth Edition*. Jakarta: Erlangga.
- Niskanen, W. A. (n.d.). *The Uneasy Relationship Between The Budget and Trade Deficits*. Nopirin. (1996). *Monetary Economics*. Yogyakarta.
- Qwader, A. (2018). *Impact of Oil Price Changes on Certain Budget Variables, Government and Tax Revenues, External Grants, and Government Expenditures in Jordan*.
- Rambe, P.; Dewi, C.; and Ginting, S. (2018). *Determinants of Intellectual Capital Disclosure by using Monetary and Non-monetary Variables*. In *Proceedings of the 1st Unimed International Conference on Economics Education and Social Science - Volume 1: UNICEES*, ISBN 978-989-758-432-9, pages 1097-1102. DOI: 10.5220/0009504810971102. <https://www.scitepress.org/PublicationsDetail.aspx?ID=7R4B+T8UR48=&t=1>
- R, M. B. (2000). *Fiscal decentralization in developing countries*. Jakarta: GramediaPustakaUtama.
- Rizki, N. (2011). *Parameter Estimation of Random Effect Panel Data Regression Model with Generalized Least Square (GLS) Method*.
- Rizki, N. A. (2011). *Parameter Estimation of Random Effect Panel Data Regression Model with Generalized Least Square (GLS) Method*. Malang: UIN Maulana Malik Ibrahim.
- S, R. (2012). *Factors Affecting the State Budget Deficit in Indonesia for the Period 2001-2010*.
- Satrianto, A. (2016). *Analysis of the Determinants of the Budget Deficit and External Debt in Indonesia*.
- Sukirno, S. (2004). *Introduction to Macroeconomic Theory*. Jakarta: PT RajaGrafindoPersada.

- Suliyanto. (2011). Applied Econometrics: Theory And Application With SPSS. Edition 1. Yogyakarta: ANDI Yogyakarta.
- Sunday, O. A. (2013). Deficit Financing and Trade Balance in Nigeria.
- UNDP. (1990). Human Development Report 1990. New York: Oxford University Press. W, S. (1986). State finances. Yogyakarta: BPF.