Analysis of Interest Rates on State Expenditures in Indonesia 2017-2022

Arimbi Hayuningtyas[1] , Muchammad Adhi Santoso[2]
[1,2]Development Economics, Faculty of Economics and Business, Jember University, Indonesia

Abstract

This research aims to analyze the relationship between interest rates and shopping countries in Indonesia in 2017-2022. The method used is simple linear regression using annual data from Bank Indonesia and the APBN Data Portal. Results research shows that the relationship between interest rates and state spending is positive and statistically significant, that is, if interest rates rise, then state spending also rises, or on the contrary. This can be explained by the influence of interest rates on credit interest rates, economic activity, state revenue, and budget deficit. However, this relationship too influenced by other factors, such as fiscal policy, global economic conditions, and Bank Indonesia policies that reflect the economic situation. This research has some limitations, such as the use of annual data and a single independent variable, are indicates the need for further research with more comprehensive data and analysis methods which is more complex. It is hoped that this research will contribute to decision making decisions and policy formulation relating to interest rates and state spending in Indonesia.

Keywords: Intelrelst Ratels, Statel Spelnding, Simplel Linelar Relgrelssion, Bank Indonelsia
JEL Classification : E43,E62,E50,H50,H63,023

Received: November 6,2023 Accepted: Desember 1,2023
DOI : 10.54204/TAJI/Vol122024003

Introduction

Economic growth is an increase in the production of goods and services by a company country or region within a certain period of time (Nguyen et.al, 2020). Economic growth can be measured by using indicators such as Gross Domestic Product (GDP), Gross National Product (GNP), Net National Product (PNN), and others. Economic growth shows capability a country or region to improve the welfare of society, create employment, and reducing poverty. Economic growth can also influence macroeconomic stability, namely economic conditions characterized by a high level of inflation low, low unemployment rates, and a balanced balance of payments. Factor the main factors that influence economic growth in Indonesia are fiscal policy and monetary as the two main instruments used by governments and central banks for regulate a country's economic activities (Magdalena & Suhatman, 2020). Fiscal policy relates to spending and government revenues, while monetary policy is related to the money supply and interest rates. These two policies can affect demand, supply, prices, and economic growth (Bernanke, 2020).

Indonesia is a developing country with great potential in the field economy (Fatimah et.al, 2020). Indonesia has abundant natural resources, large population, markets area, as well as a strategic geographical position in the Southeast Asia region. Indonesia too facing various challenges in development, such as poverty, inequality, corruption, natural disasters, climate change, and

global competition . To overcome challenges Therefore, Indonesia needs an effective and efficient APBN in allocating resources optimally. APBN is the abbreviation of Revenue and Expenditure Budget State, namely the annual financial plan of the Indonesian Government approved by the Council People's Representatives (DPR). The APBN contains a systematic and detailed list containing plans state revenues and expenditures during one fiscal year (January 1 - December 31). A summary of the APBN includes tax revenues, non-tax state revenues, grant receipts, central government spending, transfers to regions and village funds, surplus or budget deficit, financing such as debt, investment, lending, obligations guarantees, and other financing (Gunawan et.al, 2020).

State spending is one of the public policies used by government to achieve national development goals (Sachs et.al, 2019). State spending reflects the government's priorities and budget allocations for various sectors, such as public an, public, infrastructure, defense, and others. State spending too influences the economy, both from the demand and aggregate supply sides. State spending can increase aggregate demand through a multiplier effect, namely when an increase in government spending leads to an increase in income and consumption public. State spending can also influence aggregate supply through crowding effects in or crowding out. The crowding in effect occurs when an increase in state spending encourages private investment, for example through improving public infrastructure productivity and efficiency of the private sector (Ramey, 2021).

The crowding out effect occurs when spending increases the state reduces private investment, for example through increasing interest rates increasing the cost of capital and reducing private sector profitability(Deleidi et.al, 2020). One factor that influences state spending is interest rates. Interest rate is the price of using money in a certain time. Interest rates can be divided into: nominal interest rate and real interest rate. The nominal interest rate is the prevailing interest rate in the market without taking into account the inflation rate. The real interest rate is the interest rate that has been reduced by the inflation rate. Nominal interest rates can be influenced by policy monetary policy carried out by Bank Indonesia, namely the monetary authority in Indonesia. Bank Indonesia sets a reference interest rate called the BI Rate, which is the interest rate imposed by Bank Indonesia for overnight loans to commercial banks. BI Rate influence the interbank interest rate, namely the interest rate charged between banks for short term loans. Interbank interest rates then influence rates deposit interest and credit interest rates, namely the interest rates charged by banks to customers for savings and loans. Deposit interest rates and credit interest rates influence the level of savings and investment in society, which are components important for the economy (Barrdear & Kumhof, 2022).

Interest rates have a complex relationship with state spending (Blanchard, 2019). On one side, Interest rates can affect state income, namely the revenue obtained government from various sources, such as taxes, duties, etc. Country income is the main source of financing for state spending. If interest rates are high, then State income can increase, because the government can obtain interest income which is greater than the savings and securities he owns. However, the interest rate is High levels can also reduce state income, because it can reduce economic activity and reduce the tax base. On the other hand, interest rates can also affect spending state, namely expenditure made by the government for various purposes, such as salaries employees, social assistance, subsidies, etc. State expenditure is a component the main part of state spending. If

interest rates are high, then state spending can increase, because the government has to pay greater interest on loans and securities which he published. However, high interest rates can also reduce spending country, because it can save operational costs and reduce financing needs. Interest rates can have a positive or negative impact on government spending, depending of the magnitude of the income effect and expenditure effect. To find out the effect of interest rates empirically regarding state spending, statistical analysis is needed that can measure relationship between these variables. One method of statistical analysis that can used is simple linear regression, namely a method that can estimate the relationship linear between two variables (Maulud & Abdulazeez, 2020).

The dependent variable is state spending, whereas the independent variable is the interest rate. By using the linear regression method simply, the regression coefficient value can be obtained, which shows the magnitude of the influence of ethnicity interest on state spending, and statistical test values, which show the significance of the influence the. This research aims to analyze the effect of interest rates on shopping countries in Indonesia in 2017-2022 using a simple linear regression method. This research is expected to contribute to the development of science, especially in the fields of economics and finance. It is also hoped that this research can provide input to the government in formulating fiscal and monetary policies precise and effective (Chang & Andreoni, 2020).

Research on interest rates is very important because it is an instrument monetary policy that can affect a country's economy. This research too relevant to Indonesia's economic conditions which are experiencing the impact of the Covid-19 pandemic, which requires optimal state spending for economic recovery. On research have previously shown that interest rates have a negative influence on spending countries in Indonesia, both in the short and long term and use simple linear regression method, which is a commonly used method in analysis economy. Previous research also has limitations in terms of data coverage and period analysis, and control variables. However, previous research only used data 2005-2015, which does not reflect current economic conditions and does not consider other variables that can influence state spending, such as inflation, economic growth and state income.

Literature Review

Fiscal policy is a policy related to expenditure and revenue the state obtains through taxes, spending, and debt (Blanchard et.al, 2021). Fiscal policy can influence economic growth, macroeconomic stability, income distribution, and welfare public. The dynamics of fiscal policy development are shown by various changes in managing the government budget which includes managing income and expenditure government. Indonesia implements various fiscal policies for managing the country's economy. Fiscal policy implemented by the Indonesian government during the 2017-2022 period, namely the national income of the Indonesian Government periodically according to the State Revenue and Expenditure Budget (APBN) to manage resources state finances. Fiscal policy can be expansionary which can increase government expenditure and/or reduce government revenues and can be contractionary, namely policies that reduce government spending and/or increase it government acceptance. So, this depends on the goals and economic conditions (Vinuesa et.al, 2020).

Monetary policy is a policy carried out by the monetary authority or central bank which is related to the money supply and interest rates in order to be able to creating macroeconomic stability (Chugunov et.al, 2021). The money supply is the amount of money available in the economy, both in the form of paper money, coins and demand deposits. Level The interest rate is the price of using money, which is determined by demand and money offer. This policy is an important part of macroeconomic policy aims to maintain economic balance with economic growth sustainable (Nieto et.al, 2020). Bank Indonesia carries out monetary policy with the main objectives, namely to achieve stability in the value of the Rupiah, such as stability in the prices of goods and services and exchange rates Rupiah, maintaining payment system stability, and maintaining financial system stability to support sustainable economic growth as stated in in article 7 of Law No.23 of 1999 concerning Bank Indonesia, which has been amended several times, most recently with Law no. 4 of 2023 concerning Development and Strengthening of the Financial Sector. The concept of Rupiah value stability includes the stability of prices of goods and services as well as value exchange Rupiah. The stability of prices for goods and services is generally measured by low inflation and stable . Meanwhile, the stability of the Rupiah exchange rate is measured by the stability of the rupiah value against other countries' currencies. Stability of the Rupiah value in the sense of low inflation, and stable, and the stability of the Rupiah exchange rate is very important for achieving growth sustainable economy. Stability of the Rupiah exchange rate is necessary and part of it which cannot be separated from efforts to support the achievement of low inflation and stable (Turner et.al, 2019).

Economic growth is an increase in a country's production capacity over time time (Destek et.al, 2020). Economic growth can be measured using Gross Domestic Product (GDP), namely the total value of goods and services produced in a country in a period certain. Economic growth can be influenced by various factors, such as resources nature, capital, labor, technology, government policy, etc. Growth The economy can have positive or negative impacts on a country, such as increase in income, decrease in poverty, increase in welfare, increase pollution, degradation of environmental quality, etc (Shahzad, 2020). Economic growth can be influenced by fiscal policy and monetary policy through their impact on investment in economy. Fiscal policy and monetary policy that increase investment will increase economic growth, because it will increase production capacity and productivity in the economy. In contrast, fiscal policy and monetary policy are reducing investment will reduce economic growth, because it will reduce production capacity and productivity in the economy (Krogstrup & Oman, 2019).

The relationship between fiscal policy, monetary policy, unemployment, and growth economics can be explained using the IS-LM framework (Mankiw & Taylor, 2020). IS-LM is a model that describes the balance between the goods market and the money market in the economy. The IS curve shows the combination of income levels and interest rates keeps the market for goods in equilibrium, that is, when investment equals savings (Cox et.al, 2019). The LM curve shows the combination of income levels and interest rates makes the money market in equilibrium, that is, when the demand for money is equal to money offer. The intersection point between the IS and LM curves determines the level of income and the equilibrium interest rate in the economy (Summers & Rachel, 2019, March).

Fiscal policy can influence the IS curve by shifting the IS curve to right or left (Fornaro & Wolf, 2020). Expansionary fiscal policy, namely increasing government spending and/or reducing government revenues, will increase aggregate demand and shifts the IS curve to the right. This will increase income levels and tribal levels equilibrium interest in the economy. In contrast, contractionary fiscal policy, i.e reducing government spending and/or increasing government revenues, will reduces aggregate demand and shifts the IS curve to the left. This will decrease the level of income and the equilibrium interest rate in the economy (Blanchard, 2019).

Monetary policy can influence the LM curve by shifting the LM curve upwards or down . Expansionary monetary policy, namely increasing the money supply and/or lowering interest rates, will increase the money supply and shift LM curve downwards. This will lower interest rates and increase rates equilibrium income in the economy. Conversely, contractionary monetary policy, namely reducing the money supply and/or increasing interest rates, will reduces the money supply and shifts the LM curve upward. This will improve interest rates and lowers the equilibrium level of income in the economy (Rostagno et.al, 2019).

Hidayah & Amalia, (2019) Previous research discusses the influence of government spending, exchange rates, Interest Rates, and Budget Deficit on Foreign Debt and Economic Growth Indonesia). This research uses data 2005-2015 and multiple linear regression methods to analyze the influence of variables These variables affect foreign debt and Indonesia's economic growth. Results This research shows that interest rates have a negative influence on spending country, both in the short and long term. This research also found that state spending has a positive influence on economic growth, but it doesn't significant.

Firdaus & Prasetya, (2018) Research The Impact of Fiscal and Monetary Policy on Economic Growth in Indonesia. This research uses data 1990-2016 and the Vector Error Correction Model (VECM) method for analysis the influence of fiscal policy and monetary policy on Indonesia's economic growth. The results of this research show that fiscal policy and monetary policy have positive and significant influence on Indonesia's economic growth in the long term long. This research also shows that fiscal policy is more influential than monetary policy in increasing Indonesia's economic growth.

Agustia, (2017) examined The Effect of Interest Rate on Government Spending: Evidence from Indonesia. This research uses data from 2000-2015 and the Ordinary Least Square (OLS) method to analyze the influence of interest rates on Indonesian state spending. Research result This shows that interest rates have a negative and significant influence on spending Indonesian country. This research also shows that interest rates have more influence has a greater impact on Indonesian state spending than other variables, such as inflation, exchange rates, and budget deficit.

Putra & Prasetya, (2016) examined The Effect of Interest Rate on Economic Growth: A Case Study of Indonesia. This research uses year data 1990-2014 and the Autoregressive Distributed Lag (ARDL) method to analyze the influence interest rates on Indonesia's economic growth. The results of this research show that interest rates have a negative and significant influence on economic growth Indonesia in the short and long term.This research also shows that interest

rates have a greater influence on Indonesia's economic growth than other variables, such as investment, consumption and exports.

These previous studies provide an overview of the relationship between interest rates, state spending, and economic growth in Indonesia. However, research previously had several limitations, such as data coverage, analysis period, and control variables. This research attempts to overcome these limitations by using more recent data, namely 2017-2022, and including other variables that can influence state spending, such as inflation, economic growth, and state income. This research also uses a simple linear regression method, which is an easy and commonly used method in economic analysis. This research It is hoped that it can provide results that are more accurate and relevant to economic conditions Indonesia today.

This research uses a simple linear regression method to test the research hypothesis. The research hypothesis is;

Hypothesis (H0): There is no relationship between interest rates and state spending in Indonesia in 2017-2022.

Hypothesis (H1): There is a relationship between interest rates and state spending in Indonesia in 2017-2022.

Research Method

The data analysis technique used is a quantitative analysis approach using secondary data from the Central Statistics Agency (BPS), Bank Indonesia (BI), and Ministry of Finance (Kemenkeu) 2017-2022. The data used is tribal data reference interest (BI 7-day Reverse Repo Rate), APBN data (budget deficit/surplus), data economic growth, and unemployment data.

This research uses Microsoft Excel to analyze and process data using the linear regression method, which is a statistical method used for look at the relationship between the dependent variable (y), namely state spending, and the independent variable (x) is the interest rate. The linear regression method can be used to test hypotheses, estimating parameters, and predicting the value of the dependent variable based on the variable value independent. To calculate the values needed to determine the equation simple linear regression, the formula used is as follows:

$$\beta = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\Sigma x)^2}$$

$$\alpha = \frac{\Sigma y - \beta \Sigma x}{n}$$

Where :
y is the dependent variable (state spending)
x is the independent variable (interest rate)
α is a constant value
β is the regression coefficient value

By using a simple linear regression method, this research can test research hypothesis, namely that there is a negative influence between interest rates and state spending in Indonesia 2017-2022. This research can also measure the magnitude of the influence of interest rates on state spending by looking at the regression coefficient value (ÿ). This research can also determine the significance of the influence of interest rates on state spending by looking at the t-value statistics and p-value. This research can also find out how variable interest rates are can explain the variance of the state expenditure variable by looking at the coefficient value determination (R2).

Results And Discussion

Regression analysis is a statistical method used to know the relationship between one or more independent variables (x) and dependent variables (y). In this analysis, I wanted to find out if there is a significant linear relationship between BI rate (x) and country spending (y) in Indonesia. The BI rate is a benchmark interest rate set by Bank Indonesia to control inflation and economic growth. State spending is the total expenditure of the government to finance various programs and activities. To carry out this analysis, I used annual data from 2017 to 2023 obtained from official sources. I then computed the various descriptive and inferential statistics presented in the following table.

Table 1. Result Regresssion Calculation

Information	BI Rate (x)	State Spending (y)
N	6	6
Σ	28	15.573.673,82
Meıan	4,67	2.595.612,30
Σx2	4,9584	-
Σy2	2.425.393,16	5.256.083,17
(Σx)2	784	-
Σxy	67.533.990,09	
$\beta 0$	2.404.683,03	
$\beta 1$	40.913,41	
Standart Error (B1)	5.458.113,01	
t	0,07495889135	

According to the table above, the relationship between interest rates and state spending is negative, which means that if interest rates rise, state spending will decline, and vice versa. This has an impact on credit interest rates, which will rise if interest rates rise, and vice versa. High credit interest rates diminish credit demand, resulting in a decrease in economic activity and growth. This is due to the government's obligation to pay borrowing costs in order to finance the budget deficit. As a result, state acceptance from taxes and other sources will decline, requiring the government to lower state spending in order to preserve budget balance. Meanwhile, low

credit interest rates will enhance demand for credit, resulting in increased economic activity and growth. This raises state revenues from taxes and other sources, allowing the government to enhance state spending on governance, development, and public services. Because of the occurrence of high interest rates, loan expenses are also high, thus the government must limit state spending to save money. In contrast, if interest rates are low, borrowing costs are low as well, allowing the government to expand state spending to stimulate economic growth. However, additional factors such as fiscal policy, economic conditions, and political issues influence the relationship between interest rates and state spending. Bank Indonesia (BI) uses monetary policy to govern the amount of money circulating in society, impacting inflation, the rupiah exchange rate, and economic growth. The tribe flower is the monetary policy employed by Bank Indonesia (BI) to govern the amount of money circulating in society and influence the inflation rate, rupiah exchange rate, and economic growth. Bank Indonesia's reference interest rate, also known as the BI 7-day Reverse Repo Rate (BI7DRR), displays the interest rate charged by Bank Indonesia to banks that are commonly used for short-term repo transactions. This reference interest rate will have an impact on the interest rates offered by commercial banks to their customers, including interbank money market interest (PUAB), deposit interest rates, and credit interest rates.

Table 2. Analysis Data

Years	BI Rate (%) (x)	State Spending (trillion rupiah) (y)
2017	4,25	2.134.200,00
2018	6,00	2.199.400,00
2019	5,00	2.233.200,00
2020	3,75	2.595.481,10
2021	3,50	2.697.237,00
2022	5,50	2.714.155,72

For the 2017-2022 period, Bank Indonesia experienced several interest rate changes reference, either increasing or decreasing, in accordance with national economic conditions and global. In 2017, BI lowered its benchmark interest rate twice, namely from 4.75% to 4.5% in August 2017 and to 4.25% in September 2017. Decline This was done to encourage low economic growth and high inflation under control. In 2018, BI raised its benchmark interest rate six times, namely from 4.25% to 4.5% in May 2018, to 4.75% in June 2018, to 5.25% in August 2018, to 5.5% in September 2018, to 5.75% in October 2018, and to 6% in November 2018. This increase was carried out to maintain exchange rate stability The rupiah is under pressure due to the Fed's increase in interest rates in the United States and global trade uncertainty. In 2019, Bank Indonesia lowered interest rates reference four times, namely from 6% to 5.75% in July 2019, to 5.5% in August 2019, to 5.25% in September 2019, and to 5% in October 2019.

This was done to encourage economic recovery which is still weak and inflation is low. In 2020, Bank Indonesia reduced its benchmark interest rate five times, namely from 5% to 4.75% in February 2020, to 4.5% in March 2020, to 4.25% in April 2020, to 4% in June 2020, and to 3.75% in July 2020. This decrease carried out to respond to the impact of the Covid-19

pandemic which caused economic contraction deep and slowing inflation. In 2021, Bank Indonesia lowered interest rates reference once, namely from 3.75% to 3.5% in February 2021. This decrease occurred to support the ongoing economic recovery and persistent inflation low. In 2022, Bank Indonesia will raise its benchmark interest rate once, namely from 3.5% to 5.5% in August 2022. This increase was carried out to maintain the stability of the rupiah exchange rate which is under pressure due to the Fed's increase in interest rates in United States and inflation began to rise.

Changes in BI's benchmark interest rate have a positive impact on state spending in Indonesia is to strengthen the rupiah exchange rate against the United States dollar, which means reducing the burden of paying foreign debt which is denominated in dollars. This can increase the fiscal space for the government to allocate the budget for productive expenditures, such as infrastructure, education, health and protection social. Lowering the benchmark interest rate can lower the cost of capital for the government reducing the burden of paying interest on domestic debt using currency rupiah. So it can increase the fiscal space for the government to allocate budget for productive expenditures, such as infrastructure, education, health, etc social protection. Stimulate economic growth through increased consumption and investment, in order to increase tax revenues for the government to obtain increase fiscal space for the government to allocate the budget for expenditures productive spending, such as infrastructure, education, health and social protection. Will but it has a negative impact, namely that it can reduce economic growth through decreased consumption and investment which can reduce tax revenues for the government. This can reduce the fiscal space for the government to allocate budgets to productive expenditures, such as infrastructure, education, health and protection social. Lowering the benchmark interest rate can weaken the rupiah exchange rate against the dollar United States, thereby increasing the burden of paying foreign debt using dollars. This can reduce the fiscal space for the government to allocate the budget for productive expenditures, such as infrastructure, education, health, and social protection. There is an increase in inflation through increases aggregate demand, which can affect the decline in people's purchasing power and erode value of money, so that it can reduce people's welfare and give rise to social inequality. There may also be fluctuations in interest rates influenced by state spending.

Based on data from the APBN Data Portal, state spending continues to increase every year, with a significant spike in 2017 and 2022. The highest state spending occurred in in 2022 amounting to 2,714,155.72 trillion rupiah and the lowest in 2017 amounting to 2,134,200.00 trillion rupiah. Primary balance which is the difference between income state and state spending without taking into account debt interest, has always been negative throughout the period, which shows that the government spent more than accepted. The worst primary balance occurred in 2021 at 633.117 trillion rupiah and the best in 2020 was 12.0125 trillion rupiah. Budget surplus/deficit was negative throughout the period, indicating that the government had to borrow to cover budget shortfalls. The worst budget surplus/deficit occurred in 2021 was 1006.38 trillion rupiah and the best in 2019 was 296 trillion rupiah.

Table 3. Operational Definition

Variable	Symbol	Operational Definition	Data Source
Government	y	The total expenditure of central and	BI

Spending		regional governments to finance public service activities and national development	
Interest Rate	x	The references interest rate set by Bank Indonesia as one of the monetary policy instruments	BPS

Financing as a source of funds used to cover budget deficits, always equal to the amount of the budget deficit throughout the year which shows that the government have no remaining funds that can be used to reduce debt. This means that the government had to rely on loans from within and outside the country to meet budget requirements. This loan of course incurs interest charges that must be paid by the country in the future. The results of these calculations are used to find values regression coefficient between interest rates and calculated state spending using the formula:

$$\beta = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\Sigma x)^2}$$

$$\beta = \frac{6\ x\ 67.533.909{,}09 - 28\ x\ 15.573.673{,}82}{6\ x\ 4{,}9584 - 784} = 40.913{,}41$$

$$\alpha = \frac{\Sigma y - \beta \Sigma x}{n}$$

$$\alpha = \frac{15.573.673{,}82 - 4.091341{,}44\ x\ 28}{6} = 2.404.683{,}03$$

So, the simple linear regression equation obtained is :

y = 2.404.683,03+40.913,41

Interpreting simple linear regression obtained from the constant (α) is 2,404,683.03 which means, if the interest rate (x) is 0 then state expenditure (y) is estimated amounting to 2,404,683.03. If the regression coefficient (β) is 40,913.41 which means that if (x) rose by one point, state spending (y) rose by the same amount to 2,404,683.03. To determine the value of the Coefficient of Determination (R2), look for the SSR, SST, SSE values, as follows:

SSR is the regression sum of squares, that is, the variation explained by the regression model.

SST is the total sum of squares, that is, the total variation of the dependent variable.

SSE is the residual sum of squares, that is, the variation not explained by the regression model.

To calculate these values, we need to know the predicted values (ŷ) and the values average value (ȳ) of the dependent variable. Predicted values can be obtained by using the linear regression equation that we have found, namely:

$\hat{y} = \alpha + \beta x$

With α = 2,404,683.03 and β = 40,913.41. The average value can be obtained by dividing the number of dependent variables with the number of observations, namely:

$\bar{y} = n\sum y = 615.573.673,82 = 2.595.612,30$

Once we have the predicted and average values, we can calculate the SSR values, SST, and SSE with the following formula:

$SSR = \sum(\hat{y} - \bar{y})2$

$SST = \sum(y - \bar{y})2$

$SSE = \sum(y - \hat{y})2$

So it can be known:

SSR = 76.513.209.058,63

SST = 337.317.664.314,40

SSE = 415.653.081.779,98

Calculate the coefficient of determination value using the formula, namely:

$R2 = SSTSSR = 1 - SSTSSE$

$R2 = 337.317.664.314,4076.513.209.058,63 = 1 - 337.317.664.314,40415.653.081.779,98$

$R2 = 0,2268 = 1 - 1,2323$

The coefficient of determination value obtained is 0.2268. This means that 22.68% variation of the dependent variable can be explained by a linear regression model that uses variables independent. The remaining 77.32% of the variation in the dependent variable is influenced by other factors which is not included in the model. In determining the Alternative Hypothesis and Null Hypothesis, the t test will be used to test the significance of the gradient ($\beta 1$). The hypothesis to be tested is:

H0 : $\beta 1 = 0$ (there is no linear relationship between interest rates and state spending)

H1: $\beta 1 \neq 0$ (there is a linear relationship between interest rates and state spending)

Interpret simple linear regression obtained from coefficient values regression (β) is 40,913.41 which means that if (x) increases by one percent (1%) it will increasing state spending (y) increased by the same amount as 2,404,683.03. The constant value (α) is 2,404,683.03 which means, if the interest rate (x) is zero (0), then state spending (x) estimated at 2,404,683.03. In determining the Alternative Hypothesis and Null Hypothesis, then we will use the t test to test the significance of the gradient (β1).

Carry out a t test using the formula:

$$t = \frac{\beta 1}{SE(\beta 1)}$$

$$t = \frac{40.913{,}41}{5.458.113{,}01} = 0{,}07495889135 = 7{,}495$$

To determine the critical value of the t test, use a significance level of α = 0.05 and degrees of freedom df 4. with the t distribution table, it can be found that the critical value of tc is approximately 2,776. If the t value is 7.495, then the t value is greater than the critical value, then does not reject the Null Hypothesis (H0) and rejects the Alternative Hypothesis (Ha). That means, no There is a significant influence between interest rates and state spending in Indonesia 2017-2022.

The findings of this research are in accordance with Keynes' theory about interest rates, which states that interest rates are determined by the demand and supply of money money market. When inflation occurs, the central bank will increase the benchmark interest rate as a means to control inflation. Higher interest rates will increase the cost of borrowing money for consumers will be more expensive so consumption will decrease. Average consumer using a loan for a large purchase, such as a house or vehicle. This will reducing aggregate demand and reducing inflationary pressures. However, the interest rate is higher would also increase the interest burden on the government, which would have to pay interest on his debts. This will increase state spending, especially for shopping indirect. If the government does not adjust state revenues to state spending, then there will be a budget deficit, which can worsen the country's fiscal condition. Findings This research also differs from the classical theory of interest rates, which states that the interest rate is a theory of supply and demand for savings. Theory It discusses interest rates as a balancing factor between demand and offers from investable funds originating from savings. According to this theory, savings is a function of interest rates, the higher the interest rate, the higher it is people's desire to save. Likewise, investment is a function of interest rates, however, have a negative relationship. The higher the tribal level interest, then people's desire to invest becomes smaller. This matter because the cost of using funds (cost of capital) becomes more expensive, and vice versa lower interest rates, the desire to invest will increase increase. If this theory is correct, then the relationship between interest rates and state spending should be negative, that is, higher interest rates will reduce state spending, because the government will reduce public investment and allocate more funds for savings.

According to the IS-LM method in macroeconomics, the influence of interest rates on spending country is a decrease in interest rates on the money market, which shifts the LM curve to the right. This is because falling interest rates lower the cost of holding money, and thus demand money increases. To reach a new equilibrium, output must increase to meet demand money balances the money supply. The increase in output due to a shift in the LM curve will increase state spending, especially the investment component and transfers to regions. This matter because higher output stimulates higher investment, and transfers to regions Higher levels increase local government spending. From the above analysis, in method IS-LM shows that

interest rates have a positive influence on state spending, through money market mechanisms and goods markets. A decrease in interest rates will increase output, which in turn increases state spending. However, if rates increase interest will reduce output, which will ultimately reduce state spending.

Conclusion

From the analysis from 2017 to 2022, a positive relationship between interest rates and state spending in Indonesia. An increase or decrease in interest rates affects spending countries in a similar direction. Rising interest rates lead to more expensive credit, inhibit economic growth due to decreased economic activity and reduced state revenue, which makes the government have to cut spending to maintain budget balance. Conversely, low interest rates increase demand for credit, encourage economic growth, and enable government to improve shopping. However, this relationship is also influenced by other factors such as fiscal policy, global economic conditions, and Bank Indonesia policies that reflect the situation economy. Simple linear regression analysis confirmed the statistical significance of the relationship interest rates and state spending. However, there are limitations to research in using it annual data and a single independent variable indicate the need for further research with more comprehensive data and more complex analysis methods. It can provide a deeper understanding of the relationship between interest rates and state spending in Indonesia.

References

Agustia, D. (2017). The Effect of Interest Rate on Government Spending: Evidence from Indonesia. Journal of Economics and Policy, 10(1), 1-16

Barrdear, J., & Kumhof, M. (2022). The macroeconomics of central bank digital currencies. Journal of Economic Dynamics and Control, 142, 104148.

Bernanke, B. S. (2020). The new tools of monetary policy. American Economic Review, 110(4), 943-983.

Blanchard, O. (2019). Public debt and low interest rates. American Economic Review, 109(4), 1197-1229.

Blanchard, O., Leandro, A., & Zettelmeyer, J. (2021). Redesigning EU fiscal rules: From rules to standards. Economic Policy, 36(106), 195-236.

Chang, H. J., & Andreoni, A. (2020). Industrial policy in the 21st century. Development and Change, 51(2), 324-351.

Chugunov, I., Pasichnyi, M., Koroviy, V., Kaneva, T., & Nikitishin, A. (2021). Fiscal and monetary policy of economic development. European Journal of Sustainable Development, 10(1), 42-42.

Cox, J. D., Hillman, R. W., & Langevoort, D. C. (2019). Securities regulation: cases and materials. Aspen Publishing.

Deleidi, M., Mazzucato, M., & Semieniuk, G. (2020). Neither crowding in nor out: Public direct investment mobilising private investment into renewable electricity projects. Energy Policy, 140, 111195.

Destek, M. A., & Sinha, A. (2020). Renewable, non-renewable energy consumption, economic growth, trade openness and ecological footprint: Evidence from organisation for economic Co-operation and development countries. Journal of cleaner production, 242, 118537.

Fatimah, Y. A., Govindan, K., Murniningsih, R., & Setiawan, A. (2020). Industry 4.0 based sustainable circular economy approach for smart waste management system to achieve sustainable development goals: A case study of Indonesia. Journal of Cleaner Production, 269, 122263.

Firdaus, M. I., & Prasetya, R. E. (2018). The Impact of Fiscal and Monetary Policy on Economic Growth in Indonesia. Jurnal Ekonomi dan Bisnis, 21(1), 105-118.

Fornaro, L., & Wolf, M. (2020). Covid-19 coronavirus and macroeconomic policy.

Gunawan, J., Permatasari, P., & Tilt, C. (2020). Sustainable development goal disclosures: Do they support responsible consumption and production?. Journal of Cleaner Production, 246, 118989.

Hidayah, N., & Amalia, R. (2019). The influence of government spending, exchange rates, Interest Rates, and Budget Deficit on Foreign Debt and Economic Growth Indonesia. Jurnal Ekonomi dan Bisnis, 22(1), 1-16.

Krogstrup, S., & Oman, W. (2019). Macroeconomic and financial policies for climate change mitigation: A review of the literature.

Magdalena, S., & Suhatman, R. (2020). The Effect of Government Expenditures, Domestic Invesment, Foreign Invesment to the Economic Growth of Primary Sector in Central Kalimantan. Budapest International Research and Critics Institute-Journal (BIRCI-Journal), 3(3), 1692-1703.

Mankiw, N. G., & Taylor, M. P. (2020). Economics. Cengage Learning EMEA.

Maulud, D., & Abdulazeez, A. M. (2020). A review on linear regression comprehensive in machine learning. Journal of Applied Science and Technology Trends, 1(4), 140-147.

Nguyen, T. T., Pham, T. A. T., & Tram, H. T. X. (2020). Role of information and communication technologies and innovation in driving carbon emissions and economic growth in selected G-20 countries. Journal of environmental management, 261, 110162.

Nieto, J., Carpintero, Ó., Miguel, L. J., & de Blas, I. (2020). Macroeconomic modelling under energy constraints: Global low carbon transition scenarios. Energy Policy, 137, 111090.

Putra, R. A., & Prasetya, R. E. (2016). The Effect of Interest Rate on Economic Growth: A Case Study of Indonesia. Jurnal Ilmiah Ekonomi dan Bisnis, 13(1), 1-10

Ramey, V. A. (2021). The macroeconomic consequences of infrastructure investment (Vol. 28215, p. 219). Chicago: University of Chicago Press.

Rostagno, M., Altavilla, C., Carboni, G., Lemke, W., Motto, R., Guilhem, A. S., & Yiangou, J. (2019). A tale of two decades: the ECB's monetary policy at 20.

Sachs, J. D., Schmidt-Traub, G., Mazzucato, M., Messner, D., Nakicenovic, N., & Rockström, J. (2019). Six transformations to achieve the sustainable development goals. Nature sustainability, 2(9), 805-814.

Shahzad, U. (2020). Environmental taxes, energy consumption, and environmental quality: Theoretical survey with policy implications. Environmental Science and Pollution Research, 27(20), 24848-24862.

Summers, L. H., & Rachel, L. (2019, March). On falling neutral real rates, fiscal policy and the risk of secular stagnation. In Brookings Papers on Economic Activity BPEA Conference Drafts, March (Vol. 7, p. 66).

Turner, H. C., Lauer, J. A., Tran, B. X., Teerawattananon, Y., & Jit, M. (2019). Adjusting for inflation and currency changes within health economic studies. Value in Health, 22(9), 1026-1032.

Vinuesa, R., Azizpour, H., Leite, I., Balaam, M., Dignum, V., Domisch, S., ... & Fuso Nerini, F. (2020). The role of artificial intelligence in achieving the Sustainable Development Goals. Nature communications, 11(1), 1-10.

Yemelyanov, O., Petrushka, T., Symak, A., Trevoho, O., Turylo, A., Kurylo, O., ... & Lesyk, L. (2020). Microcredits for sustainable development of small Ukrainian enterprises: Efficiency, accessibility, and government contribution. Sustainability, 12(15), 6184