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Analysis of the Effectiveness of Indonesia's Fiscal and Monetary Policies from 1986 to 2023

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ABSTRACT

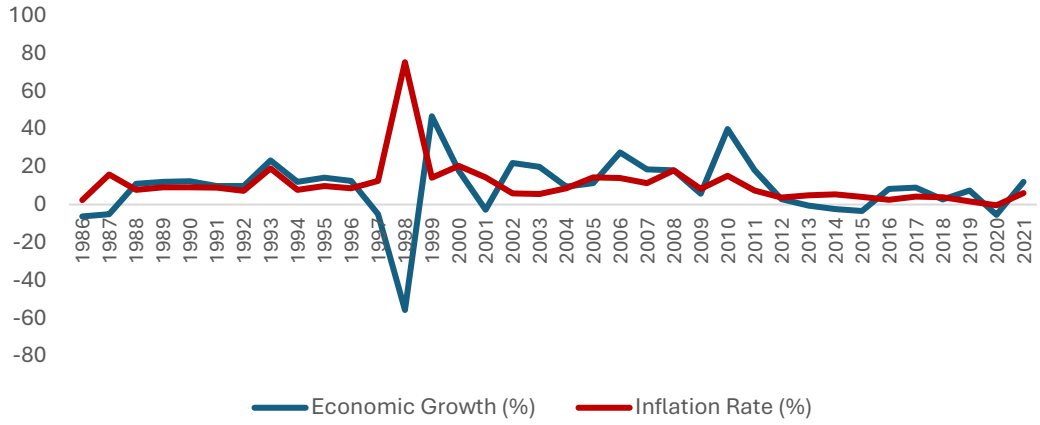
This research, titled "Analysis of the Effectiveness of Indonesia's Fiscal and Monetary Policies from 1986 to 2023" aims to determine the more effective policy between fiscal and monetary policies for the Indonesian economy. The study uses the IS-LM model and the Engle-Granger error correction model (ECM-EG) to estimate various variables, incorporating four structural equations, three exogenous variables, and two identity equations. Policy effectiveness is gauged by its impact on GDP, measured through policy multipliers. The study measures equilibrium interest rates and GDP in both goods and money markets, assuming fixed prices, using data on GDP, consumption, investment, government spending, exports, imports, money supply, national income, and interest rates. Findings reveal that from 1986 to 2023, the average equilibrium national income and interest rate in Indonesia were approximately 296.5% and Rp 332,662,805,450, respectively. The fiscal policy multiplier was found to be 0.83, while the monetary policy multiplier was 0.66. The results indicate that fiscal policy is more effective than monetary policy in influencing national GDP growth. This suggests that each unit increase in government expenditure has a greater impact compared to an equivalent increase in the money supply through monetary policy, thereby highlighting the importance of fiscal measures in economic growth.

INTRODUCTION

Economic growth is one of the main indicators used to measure the success of a country's economic development. Economic development has broader objectives than just economic growth. The primary goal of economic development is to improve the welfare of society. This is achieved through several means, including the optimal use of available resources, increased productivity, and job creation. In evaluating the success of fundamental economic development, several common metrics are used, such as increased economic growth, controlled inflation, low unemployment rates, and a surplus in the balance of payments (Agustina, 2024). All these factors are interconnected and contribute to the overall improvement of societal welfare.

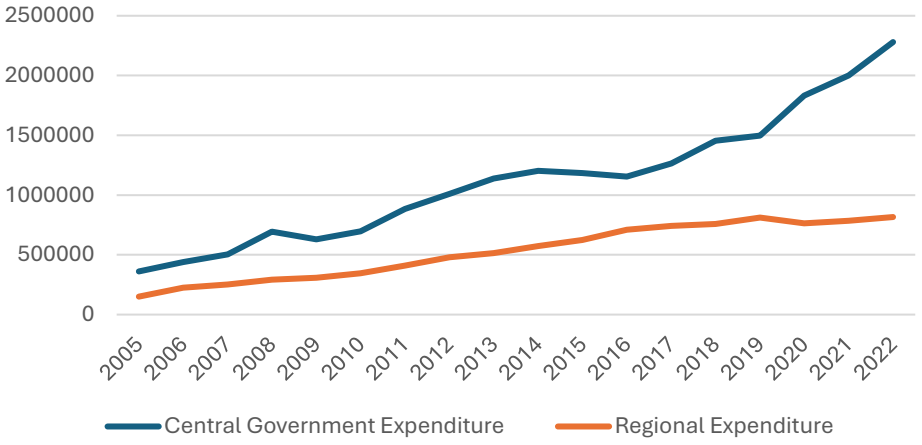
Economic growth refers to the increase in a country's output or national income over a specific period, usually measured in terms of Gross Domestic Product (GDP). GDP is the total national income and expenditure on the output of goods and services during a specific period. GDP consists of GDP at market prices or current prices and GDP at constant prices (Ridho, 2018). Based on empirical data, Indonesia's economic growth rate, measured through real GDP or based on constant prices, has shown fluctuating values over time. Based on GDP at constant 2010 prices, there was a decline in Indonesia's economic performance in 2020, marked by negative GDP growth in that year (see Figure 1). Meanwhile, the inflation rate also fluctuated but has been adequately controlled at single-digit figures since 2010, although it

briefly showed negative values in 2020. Indonesia's economic growth and inflation rates from 1986 to 2021 are presented in Figure 1 as follows.



Source: Word Bank
Figure 1. Indonesia's Economic Growth and Inflation Rates from 1986 to 2021

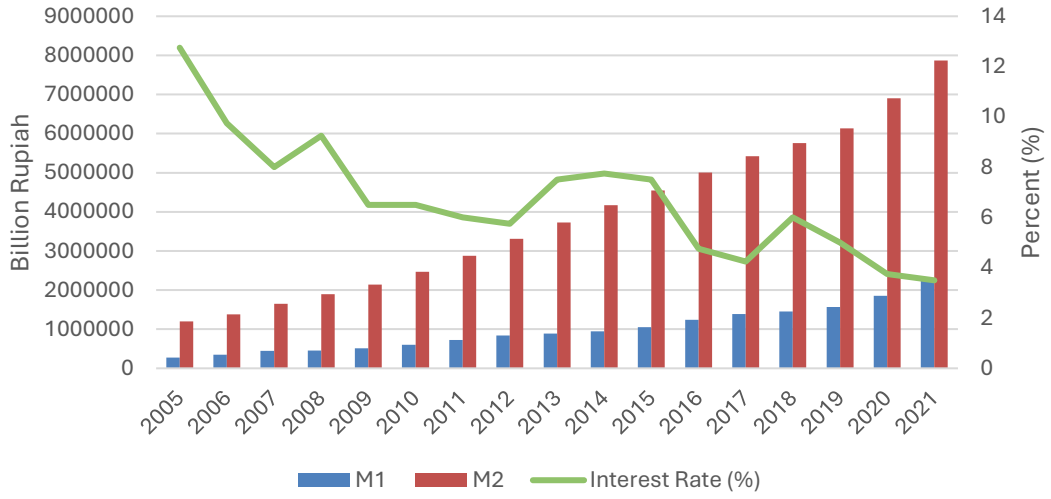
In Indonesia, economic growth is the primary focus of government policy. The Indonesian government continuously strives to achieve high and sustainable economic growth through macroeconomic policy instruments, namely fiscal policy and monetary policy. These two policies are closely interconnected and difficult to separate, as synergy in the management of fiscal and monetary policies generates positive impacts on the market and is crucial for maintaining macroeconomic stability, preventing financial market collapse, and countering global recession (Charpe et al., 2011). Fiscal policy involves managing the state budget, which includes government spending and tax revenue, to influence the economy. Meanwhile, monetary policy is implemented by the central bank through interest rate regulation and control of the money supply to achieve economic stability. Fiscal policy is reflected in the State Budget (APBN) document at the national level and the Regional Budget (APBD) for local governments (Figure 2).



Source: Directorate General of Budget, Ministry of Finance of Indonesia
Figure 2. Development of State Expenditure Realization from 2005 to 2022 (billion rupiah)

The development of state spending for central and regional governments from 2005 to 2022 (Figure 2) reflects the evolution of fiscal policies implemented by the government. Figure 2 shows that state expenditures have consistently increased, both in central government spending and in regional allocations. This rise in state spending indicates that the Indonesian government has been pursuing an expansionary fiscal policy.

In addition to fiscal policy, the growth of economic activities has also been promoted through the enhancement of capital market performance, driven by monetary policies enacted by monetary authorities or the central bank. The central bank, in this case, Bank Indonesia, implements policies such as controlling the money supply and regulating interest rates. Figure 3 presents the money supply and Bank Indonesia's interest rates from 2005 to 2021 as a reflection of monetary policy. M1 refers to currency and demand deposits held in commercial banks, which can be withdrawn using checks, while M2 includes M1 plus savings and time deposits in commercial banks.



Source: BPS

Figure 3. Money Supply and Bank Indonesia Interest Rate from 2005 to 2021

Based on Figure 3, it is evident that the money supply in Indonesia, both M1 and M2, has experienced rapid growth in recent years. Along with the increase in GDP, the demand for money by the public for transactions has also risen. Increased economic activity means more transactions are taking place, both in the consumption and investment sectors. Businesses require more money to operate and expand, while consumers need money to purchase goods and services. Meanwhile, the development of Bank Indonesia's interest rates has fluctuated but shows a generally downward trend.

The economic crisis has taught the Indonesian nation that even though some macroeconomic indicators show satisfactory results, it does not guarantee the strength of Indonesia's economy. To achieve the level of growth and economic activity as before the late 1990s economic crisis, the main policy options to stabilize the economy are fiscal and monetary policies. When the economy is considered too slow, marked by low growth and high unemployment rates, appropriate fiscal and monetary policies are expected to stimulate faster economic growth and reduce unemployment rates. Conversely, when the economy is

considered too fast, with high growth and rising inflation, fiscal and monetary policies are expected to curb inflation and steer the economy away from negative impacts.

One way to view the macroeconomic situation in Indonesia is by looking at GDP as an essential factor in assessing economic performance. Indonesia's macroeconomic conditions are constantly fluctuating and tend to be unstable. The problem faced by the government is that since the economic crisis of the late 1990s, the government has not succeeded in creating macroeconomic stability, which is a prerequisite for achieving economic goals. Macroeconomic indicators such as national income levels, inflation, employment opportunities, and the balance of payments position have not been as stable as desired. In the short term, appropriate policies are needed to stabilize the economy and keep it on the right track. Short-term economic equilibrium is influenced by the interaction between the money market and the goods market, where in macroeconomic theory, the goods market is depicted in the IS curve, and the money market is depicted in the LM curve. The goods market is determined by fiscal policy, while the money market is determined by monetary policy.

Given the background that has been outlined, it is important to analyze and understand the extent to which fiscal and monetary policies can influence economic growth. The IS-LM (Investment-Savings and Liquidity Preference-Money Supply) model approach becomes an effective analytical tool to understand the interaction between fiscal and monetary policies and their impact on the economy. The IS-LM model can be used to see how fiscal and monetary policies affect output levels and interest rates in the economy. Through this analysis, the effectiveness of each policy in supporting sustainable economic growth in Indonesia can be evaluated. This research aims to analyze the effectiveness of fiscal and monetary policies in Indonesia using the IS-LM Model approach. By understanding the dynamics and impacts of these two policies, it is hoped that valuable insights can be provided for the formulation of more effective economic policies in the future.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

A. National Income

National income, or national product, refers to the value of goods and services produced by a country within a specific year. The concept of national income includes the term Gross National Product (GNP), which represents all products produced by the factors of production owned by the country's citizens within a year, and Gross Domestic Product (GDP), which includes all products produced by the factors of production within a country, whether owned by citizens or foreigners, within a specific year. With the increasing openness of the global economy, the GDP concept is more commonly used in calculating national income.

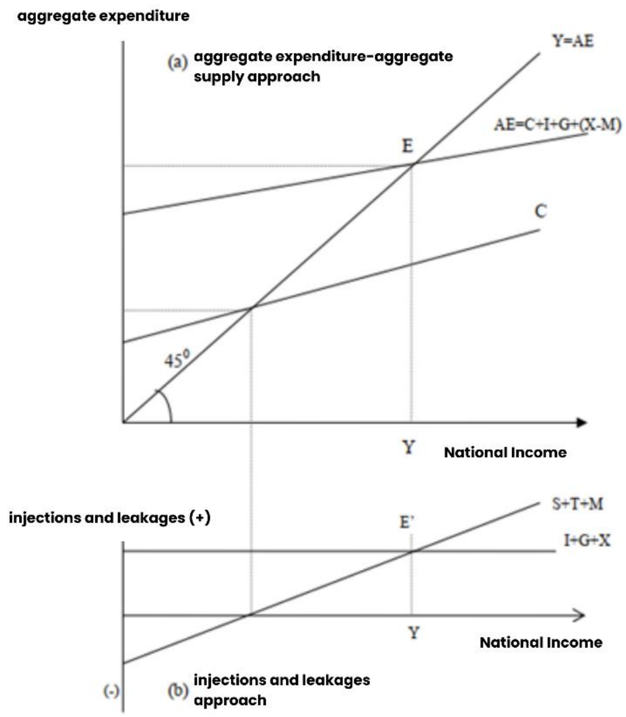
There are three approaches to calculating national income:

1. The production approach
2. The income approach
3. The expenditure approach

Of these three approaches, the expenditure approach is the most commonly used to measure the national income level of a country. This approach refers to the total expenditure made by all economic sectors within a country over a specific period. By using the expenditure approach, it is possible to determine the level of economic activity in a country, including the complexity of the economic problems faced or the extent of economic achievements attained.

B. National Income Equilibrium

National income equilibrium can be achieved through the expenditure-aggregate supply approach (Figure 4a) and the injection-leakage approach (Figure 4b).



Source: Sukirno, 2004

Figure 4. National Income Equilibrium

National Income Equilibrium refers to the condition where the public's desire to spend, reflected in aggregate expenditure or aggregate demand, equals aggregate supply, which is the producers' willingness to produce goods and services (Sukirno, 2004), as shown in Figure 4. National income equilibrium occurs when aggregate expenditure (AE) equals aggregate supply, that is, AE = C + I + G + X - M. This is illustrated graphically in Figure 4a. Additionally, national income equilibrium can also be explained through the leakage and injection approach to the flow of funds in national income. Equilibrium occurs when total leakages in national income, consisting of savings (S), taxes (T), and imports (M), equals total injections, consisting of investment (I), government expenditure (G), and exports (X), as seen in Figure 4b.

Mathematically, national income equilibrium in a three-sector economy with a proportional tax system is as follows (Reksoprayitno, 1982).

$$Y = AD = C + I + G$$
$$C_0 + c(1-t)Y + I_0 - b_i + G_0$$
$$Y = \frac{1}{\{1-c(1-t)\}} \times \{C_0 + I_0 + G_0 - b_i\} \quad \ldots\ldots (1)$$

In an open economy with a proportional tax system, national income equilibrium is as follows.

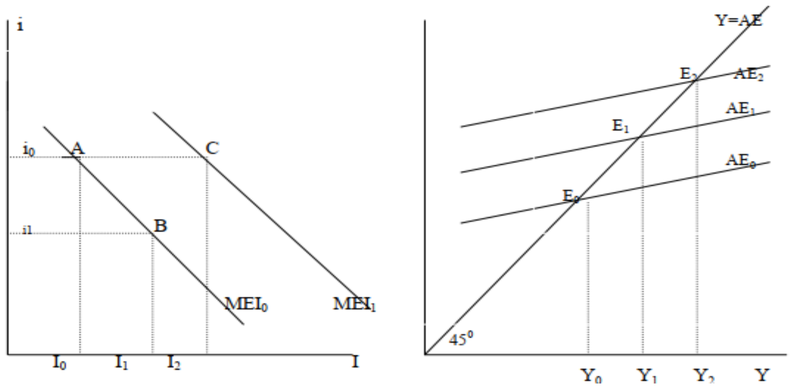
$$Y = C + I + G + (X - M)$$
$$Y = C_0 + c(1-t)Y + I_0 - b_i + G_0 + X_0 - (M_0 + mY)$$
$$Y = \frac{1}{\{1 - c(1-t) + m\}} \times \{C_0 + I_0 + G_0 + X_0 - M_0 - b_i\}$$
$$Y = \alpha \times \{C_0 + I_0 + G_0 + X_0 - M_0 - b_i\} \quad \ldots\ldots\ldots (2)$$

The multiplier (α) for C, I, G, and X is given by $\frac{1}{\{1-c(1-t)+m\}}$, which indicates that the real national income will change by the amount of the multiplier multiplied by the size of the change that occurs.

C. Goods Market and IS Curve: Goods Market Equilibrium

The IS-LM analysis describes the relationship between money, interest rates, and economic activity. In a simple Keynesian framework, the real sector or goods market explains how total expenditures in the economy, known as aggregate expenditure, affect national income. Changes in the goods market are heavily influenced by interest rates and investment levels. The relationship between interest rates, investment, and national income equilibrium is illustrated in Figure 5.

When interest rates are high, investment levels tend to be low, whereas a decrease in interest rates will boost investment. Variations in interest rates (i) will affect the level of investment, which in turn impacts aggregate expenditure, creating a new equilibrium in national income. Increases in investment driven by factors other than interest rates, such as economic expectations and efficiency improvements, will shift the Marginal Efficiency of Investment (MEI) curve to the right at the same interest rate. This relationship is depicted by the MEI curve in Figure 5a.



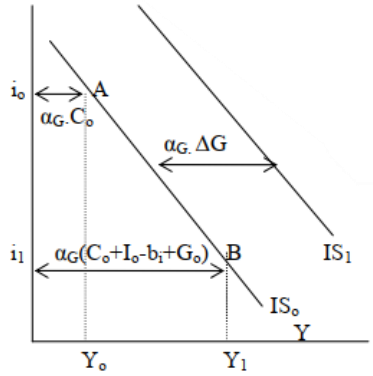
Source: Sukirno, 2005

Figure 5. Interest Rates, Investment, and National Income Equilibrium

Note:
Left (a): Marginal efficiency of capital
Right (b): National income equilibrium

The IS curve represents combinations of interest rates and income levels where the goods market is in equilibrium. Its slope is negative because an increase in interest rates tends to reduce investment spending, which decreases aggregate demand and lowers the equilibrium level of income. The IS curve becomes steeper when the multiplier effect is

smaller and investment spending is less sensitive to interest rate changes. Additionally, changes in government spending cause the IS curve to shift. Specifically, an increase in government spending shifts the IS curve to the right, as illustrated in Figure 6.



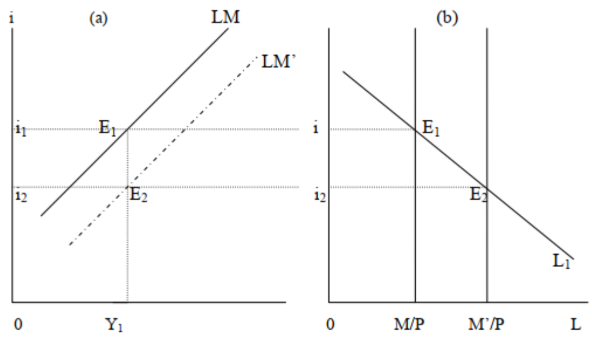
Source: Sukirno, 2005
Figure 6. Position of the IS Curve

D. Money Market and LM Curve: Money Market Equilibrium

The LM curve illustrates the relationship between interest rates and national income in the money market. The underlying theory of the LM curve is the liquidity preference theory, which posits that the interest rate is a key factor in deciding how much money to hold. This is because the interest rate represents the opportunity cost of holding money, as holding money means forgoing interest that could be earned from deposits or bonds. Interest rates are influenced by the demand and supply of money. When the money supply is fixed, changes in interest rates occur only if there is a change in the demand for money. An increase in aggregate expenditure leads to an increase in the demand for money, which in turn raises the interest rate.

The demand for money reflects the need for real balances, as people hold money for transactional purposes. As the price level rises, the nominal amount of money required to purchase a given quantity of goods increases. Real income affects the demand for money because individual spending is heavily influenced by their income level, while the interest rate relates to the cost of holding money. This cost is the interest foregone because the money is not invested or saved. Higher interest rates make holding cash less attractive. Therefore, the demand for money for real balances will increase with rising income and decrease with lower interest rates.

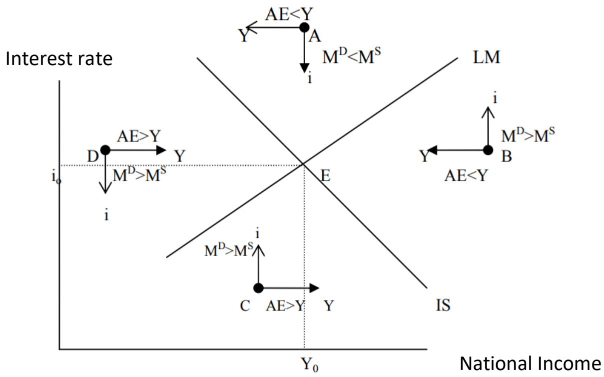
A brief explanation of the LM curve is as follows: (1) The LM curve represents the combination of interest rates and income levels where the money market is in equilibrium; (2) The LM curve has a positive slope; (3) Changes in the money supply will shift the LM curve, where an increase in the money supply shifts the LM curve to the right. When the money supply increases while the demand for money remains constant, the interest rate falls. If this decrease in interest rates is not accompanied by an increase in national income, it will lead to a lower equilibrium as shown in Figure 7.



Source: Dornbusch, 2001
Figure 7. Position of the LM Curve

E. Equilibrium in the Goods and Money Markets

The equilibrium in the goods and money markets occurs at the intersection of the IS and LM curves, represented by point E in Figure x. At this point, aggregate expenditure equals national income. Similarly, the demand and supply of money are in balance. In this condition, an interest rate of i0 and a national income of Y0 are applied in the economy.

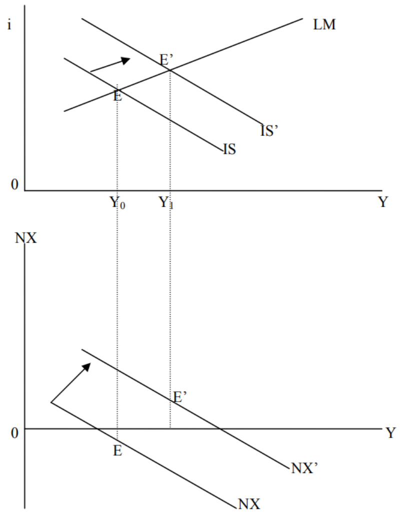


Source: Sukirno, 2005
Figure 8. Equilibrium in the Money and Goods Markets

Meanwhile, imbalances in the money or goods markets are illustrated by points A, B, C, and D in Figure 8. At point A, the supply of money is higher than the demand for money. This situation will lower the interest rate, indicated by i with a downward arrow. Additionally, at this point, aggregate expenditure is less than national income. This will reduce national income, shown by Y with a leftward arrow. At point B, with the same level of aggregate expenditure, the demand for money exceeds the supply of money, which will increase the interest rate. Conversely, at point C, where aggregate expenditure is greater than national income, this condition will increase both national income and the interest rate. At point D, where aggregate expenditure is greater than national income and the demand for money also exceeds the supply, the interest rate will decrease but national income will increase.

In an open economy, there is a slight adjustment to the equilibrium condition of the goods and money markets due to export and import activities, thus modifying the IS curve equation to:

$$Y = C + I + G + X - M \quad \ldots\ldots (3)$$



Source: Dornbusch & Fischer, 1994
Figure 9. The Impact of Exports on an Open Economy

The presence of international trade affects the increase in exports exogenously or an increase in foreign income, causing the NX curve to shift to the right (NX'). This occurs when there is a depreciation of the real currency, which increases exports and decreases imports, and vice versa. This increase will shift the IS curve to the right, resulting in a new equilibrium (Y'). Thus, an increase in foreign income and the real exchange rate affects national income.

The equilibrium of the IS-LM curve can also be obtained mathematically from the IS and LM equations. The equilibrium income is given by:

$$Y_0 = \frac{h\alpha_G}{h+kb\alpha_G}A + \frac{b\alpha_G}{h+kb\alpha_G}\frac{M}{P} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Meanwhile, the equilibrium interest rate can be obtained by:

$$i_0 = \frac{k\alpha_G}{h+kb\alpha_G}A + \frac{1}{h+kb\alpha_G}\frac{M}{P} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

It can be seen that equilibrium income depends on autonomous spending (A), which includes fiscal policy parameters and the money supply (M/P). Similarly, equilibrium interest rates are influenced by these factors. Therefore, equilibrium income will be higher if A and M/P increase, while the interest rate will decrease if there is an increase in M/P.

F. Fiscal Policy and Monetary Policy

The extent of the change in equilibrium income due to an increase in government spending (ΔG), assuming a constant money supply, is illustrated through the fiscal policy multiplier. Changes in government spending will affect autonomous income by the same amount (ΔA=ΔG), so the effect of this change can be calculated with (Dornbusch & Fischer, 1994):

$$\Delta Y_0 = \frac{h\alpha_G}{h+kb\alpha_G} \times \Delta G \ldots\ldots (6)$$

A large value of k indicates a significant increase in the demand for money due to higher income, resulting in a higher interest rate. Conversely, a large value of b means a substantial decrease in private aggregate demand. The larger the values of b and k, the smaller the effect of changes in government spending.

The extent of the change in equilibrium income due to an increase in the money supply is illustrated through the monetary policy multiplier. The effect of an increase in the money supply on equilibrium income can be determined from (Dornbusch & Fischer, 1994):

$$\Delta Y_0 = \frac{b\alpha_G}{h+kb\alpha_G} \times \Delta \frac{M}{P} \ldots\ldots (7)$$

The larger the values of b and α, and the smaller the values of h and k, the greater the effect of an increase in the money supply on equilibrium income.

The choice of which policy is more appropriate remains a subject of debate. Some views on fiscal and monetary policy include:

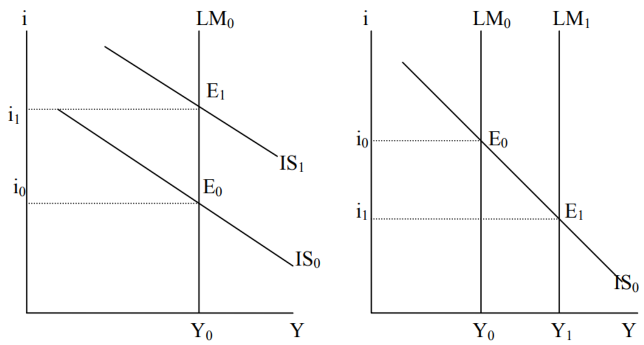
Classical View

The quantity theory of money serves as the basis for the classical view, which is expressed as (Sukirno, 2005):

$$MV = PT$$
$$M = \frac{1}{V}(PT) \ldots\ldots (8)$$

Where M is the money supply, V is the velocity of money, P is the price level, and T is the output of goods and services.

This view holds that the demand for money is determined by the public's demand for money used in transactions, not by the interest rate. Furthermore, fiscal policy only raises interest rates and does not affect national income. There is a term called "crowding out," which occurs when an increase in national income does not lead to an increase in national income. This is because an increase in government spending is accompanied by a decrease in private investment due to higher interest rates. The IS-LM model in the classical view can be seen in Figure 10.



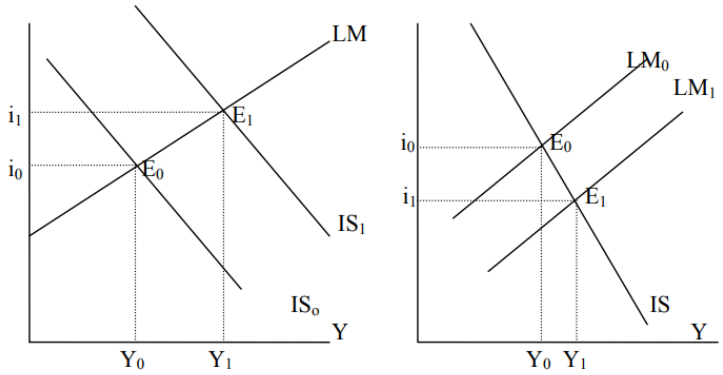
Source: Sukirno, 2005

Figure 10. IS-LM Curve According to the Classical View

Note:
Left (a): Fiscal Policy
Right (b): Moneter Policy

Keynesian View

In Keynesian view, the economy is more influenced by fiscal policy. This perspective believes that there is a relationship between the money supply and economic activity but does not consider the money supply to be the main cause of economic fluctuations. According to Keynesian economics, fiscal policy is deemed more effective because it significantly increases national income, while interest rates remain relatively low due to the steep IS curve and the flat LM curve. The IS-LM model from the Keynesian perspective can be seen in Figure 11.

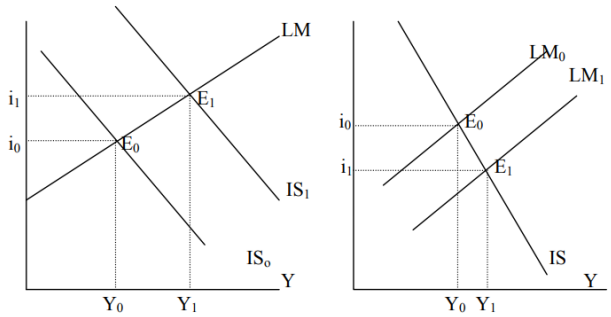


Source: Sukirno, 2005
Figure 11. IS-LM Curve According to the Keynesian View

Note:
Left (a): Fiscal Policy
Right (b): Moneter Policy

Monetarist View

This view holds that monetary policy is more effective in stabilizing the economy because it has a direct impact. The demand for money is not sensitive to interest rates, meaning the demand for money is inelastic and the LM curve will be steep. Additionally, interest rates are a determining factor for private investment. The IS-LM model from the monetarist perspective can be seen in Figure 12.



Source: Sukirno, 2005
Figure 11. IS-LM Curve According to the Monetarist View

Note:
Left (a): Fiscal Policy
Right (b): Moneter Policy

G. Previous Research

Many previous studies have been conducted related to Indonesia's macroeconomics. Research by Aliman (2004), which aimed to analyze the effectiveness of fiscal and monetary policy implementation in Indonesia, found that the Indonesian economy is more influenced by fiscal policy. Additionally, fiscal policy is more accurate and has a quicker impact on the Indonesian economy. Another study by Yuliadi (2001) sought to understand the equilibrium of the IS-LM curve in Indonesia for the period 1969 – 1998. The results showed that general equilibrium occurred when national income was 5,803.4707 and the interest rate was 12.3.

Paramita (2021), in research aimed at assessing the effectiveness of fiscal and monetary policies in addressing inflation in Indonesia from 1984 to 2019, found that fiscal policy was more effective in managing inflation during that period. The macroeconomic model in Indonesia was also studied by Ibrahim (1990), who found that the Marginal Propensity to Consume (MPC) in Indonesia was 0.475.

Research in other countries by Barro (1991) used various models and regression analysis with cross-sectional data and a sample of 98 countries during the period 1960-1985, finding that fiscal policy had a negative impact on economic growth and investment.

METHODS

A. Data and Data Sources

The data used in this study are secondary data sourced from the World Bank and the IMF (International Monetary Fund). The data are time series covering the period from 1986 to 2023, with Indonesia as the research subject. The names of the variables, data, data sources, and operational definitions of the variables used in this study are as follows.

Table 1. Research Variable

Variable	Data	Operational Definition	Unit	Data Source
Consumption (Cons)	*Household Final Consumption Expenditur*	The market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households. This excludes purchases of housing but includes estimated rental values for owner-occupied housing. It also includes payments and fees to the government for obtaining permits and licenses. This indicator includes expenditures by non-profit institutions serving households, even if reported separately by countries.	Rp	World Bank
Investment (I)	*Gross Fixed Capital Modal*	Gross fixed capital formation (formerly called gross fixed investment in domestic product) includes land improvements (fences, ditches, drainage, etc.); purchase of land, machinery, and equipment; and construction of roads, railways, and similar structures, including schools, offices, hospitals, private residences, and commercial and industrial buildings. According to the 1993 System of National Accounts, net acquisition of valuable objects is also considered capital formation.	Rp	World Bank
Imports (M)	Import	The value of all market goods and services received from abroad. This includes the value of merchandise, shipping costs, insurance, transportation, travel, royalties, license fees, and various other services such as communication, construction, finance, information, business, personal, and government services. Excludes employee compensation and investment income (formerly referred to as factor services) as well as transfer payments.	Rp	World Bank
National Income (INC)	*National Income*	Net national income adjusted is GNI minus fixed capital consumption and depletion of natural resources.	Rp	World Bank

Gross Domestic Product (Y)	GDP	The sum of gross value added by all domestic producers in the economy plus product taxes and minus subsidies not included in the value of the product. GDP is calculated without making deductions for depreciation of man-made assets or for depletion and degradation of natural resources. Data is expressed in current US dollars. GDP figures in dollars are converted from domestic currencies using official annual exchange rates. For some countries where official rates do not reflect the rates effectively applied to actual foreign exchange transactions, alternative conversion factors are used.	Rp	World Bank
Exchange Rate (Kurs)	*Exchange Rate*	The exchange rate determined by national authorities or the rate determined in legally recognized exchange markets. It is calculated as the annual average based on monthly averages (US$). The exchange rate is the price of one currency in terms of another. Official exchange rates and exchange rate arrangements are set by governments. Other exchange rates recognized by governments involve market rates, which are mostly determined by legal market forces, and for countries with dual exchange rate arrangements, there are primary, secondary, and tertiary exchange rates.	Rp	IMF
Interest Rate (INT)	*Real Interest Rate*	The borrowing interest rate adjusted for inflation as measured by the GDP deflator. However, the terms and conditions associated with borrowing interest rates vary between countries, which limits the comparability of these rates.	%	IMF

B. Analysis Method

This research employs both qualitative and quantitative analysis methods. The qualitative analysis aims to describe various phenomena related to the research problem. The quantitative analysis, on the other hand, aims to evaluate numerical information obtained from data testing used in the research, with the results presented in the form of equations, tables, and other formats. The quantitative analysis includes stationarity tests, cointegration tests, model specification, equation regression, and classical statistical tests. The model used is the Error Correction Model (ECM). The complete stages of quantitative analysis are as follows:

Stationarity Test

The stationarity test is used to check whether the regression result is a spurious regression or not. If the data is not stationary, there is a concern for spurious regression, indicated by a high R-squared value and a low DW value (Insukindro, 1995). According to Gujarati (2003), there are three ways to perform a stationarity test: plotting the data, examining the autocorrelation function correlogram, and performing a unit root test. In this study, the unit root test will be used with the Augmented Dicky Fuller (ADF) method for stationarity testing. The equation is as follows:

$$\Delta Y_t = \gamma Y_{t-1} + \beta \Delta Y_{t-1} + \varepsilon_t \text{ .... (9)}$$

Next, the hypothesis will be tested as follows:

$H_0: \gamma = 0$
$H_1: \gamma < 0$

If the t-statistic value is smaller than the critical value, then the data is stationary; otherwise, if the t-statistic value is greater than the critical value, the data is non-stationary. However, if the data is non-stationary at the level, an integration degree test will be conducted to determine at which degree the data will become stationary. If the data is said to be integrated at degree j or written as I(j), the data must be differenced j times before conducting the stationarity test again.

Cointegration Test

Two variables that are cointegrated will have a long-term relationship. Granger stated that if there is a long-term relationship between the dependent and independent variables in the Ordinary Least Squares (OLS) equation, the disequilibrium error or the error in that regression is stationary with E(ut)=0 (Gujarati, 2003). The basic purpose of the cointegration test is to examine whether the residuals generated are stationary. Similar to the stationarity test, in this study, the cointegration test will be conducted by testing the stationarity of the residuals using the ADF method.

IS Curve Model Equation

The IS curve, which represents the equilibrium in the goods market, can be written as follows:

$$Y_t = C_t + I_t + G_t + X_t - M_t$$
$$Y_t = C_0 + cY_t + I_0 - bINT_t + G^0 + X_0 - (M_0 + mY_t)$$
$$Y_t = C_0 + I_0 + G^0 + X_0 - M_0 + cY_t - bINT_t - mY_t$$
$$Y_t - cY_t + mY_t = C_0 + I_0 + G^0 + X_0 - M_0 - bINT_t$$
$$Y_t(1 - c + m) = C_0 + I_0 + G^0 + X_0 - M_0 - bINT_t$$
$$Y_t = \frac{1}{1-c+m}(C_0 + I_0 + G^0 + X_0 - M_0) - \frac{b}{1-c+m} INT_t \text{ .... (9)}$$

Based on the obtained equation,
Multiplier for C, I, G, and X

$\frac{1}{1-c+m}$ ..... (10)

Multiplier M

$\frac{-1}{1-c+m}$ ..... (11)

Thus, the equation becomes:

$Y_t = \alpha(A - bINT)$ ..... (12)

With the assumption $\alpha = \frac{1}{1-c+m}$ and $A = C_0 + I_0 + G^0 + X_0 - M_0$

Where:
c: Coefficient of the Y variable in the consumption equation
b: Coefficient of the INT variable in the investment equation
m: Coefficient of the Y variable in the import equation
t: Time

LM Curve Equation Model
The LM curve, which represents equilibrium in the money market, can be written as follows:

$$Ms^0 = Md_0$$
$$Ms^0 = Md_0 + kY_t - hINT_t$$
$$-kY_t = Md_0 - hINT_t - Ms^0$$
$$kY_t = -Md_0 + hINT_t + Ms^0$$
$$kY_t = Ms^0 - Md_0 + hINT_t$$

Thus, the following equations are obtained:

$Y_t = \frac{1}{k}(D + hINT_t)$ ..... (13)
$INT_t = \frac{1}{h}(kY_t - B)$ ..... (14)

With the assumption $D = Ms^0 - Md_0$

Where:
k: Coefficient of the Y variable in the money demand equation
h: Coefficient of the INT variable in the money demand equation

Equilibrium of IS and LM Curves

The equilibrium between the IS and LM curves occurs at the intersection of these two curves. The equilibrium values of the IS and LM curves can be found as follows:

$$Y_t = \alpha(A - bINT)$$
$$Y_t = \alpha\left[A - \frac{b}{h}(kY_t - B)\right]$$

$$Y_t = \frac{h\alpha}{h+kb\alpha}A + \frac{b\alpha}{h+kb\alpha}B \quad \ldots\ldots (15)$$

Fiscal Policy Multiplier (MKF)

This figure indicates how much an increase in government spending can influence the equilibrium income level, assuming a constant monetary policy. According to Dornbusch and Fischer (1994), the MKF can be calculated as follows:

$$MKF = \frac{h\alpha}{h+kb\alpha} \quad \ldots\ldots (16)$$

Monetary Policy Multiplier (MKM)

This figure indicates how much an increase in the money supply can influence the equilibrium income level, assuming a constant fiscal policy. The MKM can be calculated as follows:

$$MKF = \frac{b\alpha}{h+kb\alpha} \quad \ldots\ldots (17)$$

Determining the Effectiveness of Fiscal and Monetary Policies

Froyen (2013) states that the IS-LM approach can be used to determine which policy is more effective between the two.

Tabel 2. Policy Determination Using the IS-LM Approach

IS Curve	LM Curve	More Effective Policy Choice
Steep	Flat	Fiscal
Flat	Steep	Monetary

Source: (Froyen, 2013)

RESULTS

This chapter presents the results of data analysis conducted using Eviews version 4.1. It includes the results of econometric tests, the estimation of equation models such as consumption, investment, government expenditure, exports, imports, money demand, money supply, the IS and LM curves in Indonesia, the equilibrium of the IS-LM curves, as well as a comparison of the effectiveness of fiscal versus monetary policy options.

A. Results of Stationarity Test

The stationarity test was conducted using the Augmented Dickey-Fuller (ADF) unit root test. If data are not stationary at the level, integration order testing is performed. According to the Dickey-Fuller test statistics, data are considered stationary if the t-statistic is smaller than the critical value. The unit root test results using the Dickey-Fuller method show that all tested data are not stationary at the level. Since the data are not stationary at the level, integration order testing was conducted, revealing that all data become stationary at the first difference. The stationarity test for the data in this equation uses the Augmented Dickey-Fuller test at α = 5%.

Table 3. Results of Stationarity Testing

Variable	ADF Value (Level)		ADF Value (1st Difference)	
	t-statistik	*Critical Value*	*t-statistik*	*Critical Value*
Consumption (Cons)	-1.62	-3.54	-5.12	-3.55
Investment (I)	-1.62	-3.55	-3.87	-3.54
Imports (M)	-2.35	-3.54	-5.31	-3.55
National Income (INC)	-1.42	-3.54	-4.59	-3.55
Gross Domestic Product (Y)	-1.47	-3.54	-4.73	-3.55
Exchange Rate (Kurs)	-2.81	-3.54	-6.89	-3.55
Interest Rate (INT)	-3.28	-3.55	-7.1	-3.55

Source: Processed Using EViews

B. Results of the Cointegration Test

Cointegration testing is used to evaluate the relationships among variables in the model being estimated. If the variables are cointegrated, it indicates the presence of a long-term equilibrium among them, allowing for regression between these variables. The cointegration analysis is conducted by examining the stationarity of the residuals. Based on the results of the cointegration test, it is concluded that the long-term models for consumption, investment, imports, and money demand equations show cointegration. This indicates the presence of long-term equilibrium in these four model equations.

Table 4. Results of the Cointegration Test

Variable	ADF Value (Level)		Decision
	t-statistik	*Critical Value*	
Consumption (Cons)	-2.93	-1.95	Cointegrated
Investment (I)	-2.02	-1.95	Cointegrated
Imports (M)	-3.45	-1.95	Cointegrated
National Income (INC)	-2.47	-1.95	Cointegrated

Source: Processed Using EViews

C. Results of Equation Regression

The results of equation regression using the OLS method for the equations of consumption, investment, imports, money demand, government spending, exports, and money supply are as follows:

Analysis of the Consumption Equation (Cons)

The results of the long-term regression for the consumption equation are as follows:

$$C_t = 13{,}700{,}000{,}000 + 0.56Y_t \quad \text{.....} (18)$$

A summary of the long-term consumption equation regression results is presented in the following table:

Table 5. Long-Term Consumption Equation

Variable	Coefficient	Std. Error	Prob	Conclusion
C	13,700,000,000	25,600,000,000	0.0000	Significant
Y	0.56	0.02	0.0000	Significant
R-Squared	0.9980	*F-Statistic*	16990.7	
Adjusted R-Squared	0.9979	*Prob(F-Statistic)*	0.000	Significant

Source: Processed Using EViews

The results of the short-term consumption equation regression using the Engle-Granger ECM model are as follows:

$$\Delta C_t = 1{,}230{,}000{,}000 + 0.51\Delta Y_t + 0.43e_{1t-1} \quad (19)$$

A summary of the short-term ECM consumption equation regression results is as follows:

Table 6. Short-Term Consumption Equation

Variable	Coefficient	Std. Error	Prob	Conclusion
C	1,230,000,000	145,000,000	0.040	Significant
D(Y)	0.51	0.02	0.000	Significant
RESKO(-1)	0.43	0.13	0.003	Significant
R-Squared	0.941	*F-Statistic*	257.48	
Adjusted R-Squared	0.938	*Prob(F-Statistic)*	0.000	Significant

Source: Processed Using EViews

Statistically, the t-test indicates that individually, the independent variable (Y) has a significant effect on the dependent variable at the α = 5% significance level in both the long-term and short-term periods. The F-test shows that the independent variables collectively have a significant effect on the dependent variable at the α = 5% significance level in both time frames.

The coefficient of determination (R^2) is 0.998 for the long term and 0.941 for the short term. This means that in the long term, 99.8% of the variation in the dependent variable can be explained by the independent variables in the model, while the remaining 0.2% is explained by other variables outside the model. In the short term, 94.1% of the variation in the dependent variable is explained by the independent variables, with 5.9% explained by other variables outside the model.

The coefficient α1 of 0.56 indicates that in the long term, an increase in real GDP (Y) of Rp 1 will increase real consumption (Cons) by Rp 0.56. This means the Marginal Propensity to Consume (MPC) in the long term is 56%, which is relevant for developing countries and similar to Boediono's findings cited by Sritua Arif (1979) of 66%. This suggests that in the long term, most of the additional national GDP is used for consumption. The coefficient δ1 of 0.51 indicates that in the short term, an increase in real GDP (Y) of Rp 1 will increase real consumption (Cons) by Rp 0.51. This means the Marginal Propensity to Consume (MPC) in the short term is 51%, similar to Abdullah Suparman (1990) at 47% and Desiderius Sriyono (1995) at 36%.

The adjustment error coefficient (ECT) δ2 is statistically significant, indicating that the ECM specification model used in this study is valid. The ECT coefficient value of 0.43 means that the difference between the actual consumption value and its equilibrium value of 0.43 will be adjusted within approximately 15.9 months [(1-0.43)/0.43 * 12 months], in line with the research by Agus Widaryono (2005), Triyono, and Yuni Prihadi (2004).

Analysis of the Investment Equation (I)

The results of the long-term regression for the investment equation are as follows:

$$I_t = 142{,}000{,}000{,}000 - 466{,}000{,}00INT_t \text{ .... (20)}$$

A summary of the long-term investment equation regression results is presented in the following table:

Table 7. Long-Term Investment Equation

Variable	Coefficient	Std. Error	Prob	Conclusion
C	142,000,000,000	28,500,000,000	0.000	Significant
INT	-466,000,000	2,980,000,000	0.008	Significant
R-Squared	0.472	*F-Statistic*	3129.28	
Adjusted R-Squared	0.287	*Prob(F-Statistic)*	0.008	Significant

Source: Processed Using EViews

The results of the short-term Investment equation regression using the Engle-Granger ECM model are as follows:

$$\Delta I_t = 9{,}840{,}000{,}000 + 280{,}000{,}000\Delta INT_t + 0.04e_{2t-1} \text{ .... (21)}$$

A summary of the short-term ECM investment equation regression results is as follows:

Table 6. Short-Term Investment Equation

Variable	Coefficient	Std. Error	Prob	Conclusion
C	9,840,000,000	3,030,000,000	0.0027	Significant
D(INT)	280,000,000	298,000,000	0.035	Significant
RESKO(-1)	0.04	0.02	0,028	Significant
R-Squared	0.45	*F-Statistic*	220.55	
Adjusted R-Squared	0.22	*Prob(F-Statistic)*	0.0001	Significant

Source: Processed Using EViews

In the long term, the interest rate (Int) has a negative relationship with investment (I). This result is consistent with existing economic theory. Statistically, both in the long term and short term, the t-test shows that the independent variable (Int) significantly affects the dependent variable, investment (I), at the α = 5% significance level. The F-test indicates that in both the long term and short term, the independent variables significantly influence the dependent variable at the α = 5% significance level.

The coefficient of determination (R^2) is 0.45 for the short term, indicating that only 45% of the variation in the dependent variable can be explained by the independent variables in

the model, while 55% is explained by other factors outside the model. This low R^2 value suggests that investment is influenced not only by the interest rate but also by many other factors. Therefore, if this model were used to predict investment values, other potentially influential independent variables would need to be included. However, since the primary aim of this research is not to predict investment values, the equation is retained as per Keynesian theory. For the long term, the coefficient of determination of 0.472 means that 47.2% of the variation in the dependent variable can be explained by the independent variables.

The exchange rate coefficient of -466,000,000 indicates that in the long term, a 1% increase in the interest rate will decrease real investment by 466,000,000. Conversely, the coefficient δ3 of 280,000,000 shows that in the short term, a 1% increase in the interest rate (Int) will increase real investment (I) by 280,000,000. The statistically significant error correction term (ECT) coefficient (δ4) indicates that the ECM specification model used in this study is valid. The ECT coefficient value of 0.04 means that the difference between the actual investment value and its equilibrium value of 0.04 will be adjusted within approximately 288 months [(1-0.04)/0.04 * 12 months].

Analysis of the Imports Equation (M)

The results of the long-term regression for the imports equation are as follows:

$$M_t = 13{,}700{,}000{,}000 + 0.19Y_t + 245{,}704.6Kurs_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (22)$$

A summary of the long-term imports equation regression results is presented in the following table:

Table 7. Long-Term Imports Equation

Variable	Coefficient	Std. Error	Prob	Conclusion
C	13,700,000,000	6,310,000,000	0.037	Significant
Y	0.19	0.014	0.000	Significant
Kurs	245,704.6	1,152,990	0.025	Significant
R-Squared	0.944	*F-Statistic*	278.75	
Adjusted R-Squared	0.941	*Prob(F-Statistic)*	0.0000	Significant

Source: Processed Using EViews

The results of the short-term imports equation regression using the Engle-Granger ECM model are as follows:

$$\Delta M_t = -5{,}090{,}000{,}000 + 0.31\Delta Y_t + 25{,}440{,}835\Delta Kurs_t + 0.34e_{3t-1} \quad \ldots\ldots (23)$$

A summary of the short-term ECM imports equation regression results is as follows:

Table 6. Short-Term Imports Equation

Variable	Coefficient	Std. Error	Prob	Conclusion
C	-5,090,000,000	3,450,000,000	0.001	Significant
D(Y)	0.31	0.06	0.000	Significant
D(Kurs)	25,440,835	2,411,449	0.003	Significant
RESKO(-1)	0.34	0.14	0,002	Significant
R-Squared	0.644	*F-Statistic*	18.69	
Adjusted R-Squared	0.609	*Prob(F-Statistic)*	0.000	Significant

Source: Processed Using EViews

In the long term, the exchange rate (kurs) has a positive relationship with imports, while in the short term, the exchange rate also has a positive relationship with imports (M). In the long term, this result does not align with existing economic theory, and similarly, in the short term, the result is inconsistent with economic theory. This may occur in the Indonesian economy because a significant portion of imports consists of raw materials; thus, even if the Rupiah weakens (exchange rate rises), imports do not decrease due to the ongoing need for imported goods to maintain production.

Statistically, the t-test shows that individually, the independent variables (Y) and exchange rate (kurs) significantly affect the dependent variable, imports (M), at the $\alpha = 5\%$ significance level in both the long and short term. This indicates that import values are determined by the level of national GDP and the exchange rate of the Rupiah against the US Dollar. The F-test shows that the independent variables significantly affect the dependent variable collectively at the $\alpha = 5\%$ significance level in both time frames.

The coefficient of determination (R^2) is 0.94 for the long term and 0.64 for the short term, indicating that in the long term, 94% of the variation in the dependent variable can be explained by the independent variables in the model, while the remaining 6% is explained by other factors outside the model. In the short term, 64% of the variation in the dependent variable is explained by the independent variables in the model, with the remaining 36% explained by other factors outside the model.

The coefficient $\alpha 3$ of 0.19 indicates that in the long term, a 1-unit increase in real national GDP (Y) will increase imports (M) by 0.19 units. The coefficient $\alpha 4$ of 245,704.6 shows that in the long term, a 1-unit increase in the Rupiah exchange rate (a depreciation of the Rupiah) against the US Dollar will increase imports (M) by 245,704.6 units.

The coefficient $\delta 5$ of 0.31 shows that in the short term, a 1-unit increase in real national GDP (Y) will increase imports (M) by 0.31 units. The coefficient $\delta 6$ of 25,440,835 indicates that in the short term, a 1-unit increase in the Rupiah exchange rate against the US Dollar will increase imports (M) by 25,440,835 units. Although the effect of the exchange rate on imports in the short term does not align with theory, the equation is retained according to the simple Keynesian model, as the primary aim of this research is not to estimate import values (M).

The statistically significant error correction term (ECT) coefficient ($\delta 7$) suggests that the ECM specification model used in this study is valid. The ECT coefficient value of 0.34 means that the difference between the actual value of imports and its equilibrium value of 0.34 will be adjusted within approximately 23.29 months [(1-0.34)/0.34 * 12 months].

Analysis of the National Income Equation (INC)

The results of the long-term regression for the national income equation are as follows:

$$INC_t = 4{,}010{,}000{,}000 + 0.75Y_t + 506{,}000{,}000INT_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (24)$$

A summary of the long-term national income equation regression results is presented in the following table:

Table 7. Long-Term National Income Equation

Variable	Coefficient	Std. Error	Prob	Conclusion
C	4,010,000,000	4,120,000,000	0.003	Significant
Y	0.75	0.006	0.000	Significant
INT	506,000,000	311,000,000	0.011	Significant
R-Squared	0.9979	*F-Statistic*	7876.16	
Adjusted R-Squared	0.9978	*Prob(F-Statistic)*	0.0000	Significant

Source: Processed Using EViews

The results of the short-term national income equation regression using the Engle-Granger ECM model are as follows:

$$\Delta INC_t = -719{,}867.9 + 0.74\Delta Y_t + 349{,}000{,}000\Delta INT_t + 0.199e_{4t-1} \quad \ldots\ldots\ldots (25)$$

A summary of the short-term ECM national income equation regression results is as follows:

Table 6. Short-Term National Income Equation

Variable	Coefficient	Std. Error	Prob	Conclusion
C	-719,867.9	1,680,000,000	0.009	Significant
D(Y)	0.74	0.03	0.000	Significant
D(INT)	349,000,000	145,000,000	0.022	Significant
RESKO(-1)	0.199	0.12	0,009	Significant
R-Squared	0.965	*F-Statistic*	287.04	
Adjusted R-Squared	0.962	*Prob(F-Statistic)*	0.0000	Significant

Source: Processed Using EViews

In both the long term and short term, National Income (Y) positively correlates with national income (Md), and the interest rate (Int) also positively correlates with national income. These results align with existing economic theory. Statistically, the t-test shows that individually, the independent variables National Income (Y) and Interest Rate (Int) significantly affect the dependent variable, National Income (INC), at a 5% significance level in the short term. The F-test indicates that the independent variables significantly affect the dependent variable together at a 5% significance level in the short term.

The coefficient of determination (R^2) is 0.965 for the short term, indicating that 96.5% of the variation in the dependent variable can be explained by the independent variables in the model, while the remaining 3.5% is explained by other factors outside the model. The coefficient δ8 of 0.74 shows that in the short term, a 1-unit increase in real national GDP (Y) will increase national income by 0.74 units. The coefficient δ9 of 349,000,000 indicates that

in the short term, a 1% increase in the interest rate (Int) will increase national income by 349,000,000 units.

The statistically significant error correction term (ECT) coefficient (δ10) suggests that the ECM specification model used in this study is valid. The ECT coefficient value of 0.199 means that the difference between the actual value of national income and its equilibrium value of 0.199 will be adjusted within approximately 48.3 months [(1-0.199)/0.199 * 12 months].

D. Analysis of Government Spending Equation (G)

The value of G is assumed to be exogenous, with G=G0 according to the Simple Keynesian Model. The determination of the value of G is assumed to be equivalent to the average amount of government spending in real terms over the study period from 1986 to 2023.

E. Analysis Export Equation (X)

The value of exports (X) is assumed to be exogenous, with X = X0 according to the Simple Keynesian Model. The determination of the value of X is assumed to be equivalent to the average amount of exports in real terms over the study period from 1986 to 2023.

F. Analysis Money Supply Equation (Ms)

The value of Ms is assumed to be exogenous, with Ms = Ms0 according to the Simple Keynesian Model. The determination of the value of Ms is assumed to be equivalent to the average amount of money supply (M1) in real terms over the study period from 1986 to 2023.

G. The IS and LM Curve Equations

IS curve represents the relationship between real national income and the nominal interest rate. Based on the estimated equation, the steps to obtain the IS curve equation are as follows:

Equation Transformation

In estimating the equation model using the Engle-Granger Error Correction Model (ECM-EG) method, the data used is the difference data or delta (Δ). To achieve the desired equation results, this difference data must be converted into the desired data format. To obtain the value of each equation, it is assumed that the value in the previous year (t-1) is the average value calculated from 1986 to 2023. The value of Yt is the equilibrium value to be determined, while the average error value is assumed to be zero (0). Based on these assumptions, the results of the data transformation are as follows:

Consumption (C)

$$\Delta C_t = 1{,}230{,}000{,}000 + 0.51\Delta Y_t + 0.43e_{1t-1}$$
$$C_t = C_{t-1} + 1{,}230{,}000{,}000 + 0.51(Y_t - Y_{t-1}) + 0.43e_{1t-1}$$
$$C_t = 51{,}143{,}647{,}847 + 1{,}230{,}000{,}000 + 0.51(Y_t - 79{,}954{,}072{,}545) + 0.43(0)$$
$$C_t = 52{,}373{,}647{,}847 + 0.51Y_t - 0.51(79{,}954{,}072{,}545)$$
$$C_t = 52{,}373{,}647{,}847 + 0.51Y_t - 40{,}776{,}577{,}000$$
$$C_t = 11{,}597{,}070{,}847 + 0.51Y_t \quad \text{..... (26)}$$

Investment (I)

$$\Delta I_t = 9{,}840{,}000{,}000 + 280{,}000{,}000\Delta INT_t + 0.04e_{2t-1}$$
$$I_t = 20{,}429{,}062{,}808 + 9{,}840{,}000{,}000 + 280{,}000{,}000(INT_t - 18.71) + 0.04(0)$$
$$I_t = 30{,}269{,}062{,}808 + 280{,}000{,}000(INT_t - 18.71)$$
$$I_t = 30{,}269{,}062{,}808 + 280{,}000{,}000INT_t - 5{,}238{,}800{,}000$$
$$I_t = 25{,}030{,}262{,}808 + 280{,}000{,}000INT_t \quad \text{..... (27)}$$

Government Expenditure (G)

The value of government expenditure is taken from the average real government expenditure from 1986 to 2023, amounting to Rp. 30,676,772,656.88.

$$G^0 = 30{,}676{,}772{,}656.88 \quad \text{..... (28)}$$

Exports (X)

The export value is taken from the average real exports from 1986 to 2023, amounting to Rp. 111,520,683,810.18.

$$X^0 = 111{,}520{,}683{,}810.18 \quad \text{..... (29)}$$

Imports (M)

$$\Delta M_t = -5{,}090{,}000{,}000 + 0.31\Delta Y_t + 25{,}440{,}835\Delta Kurs_t + 0.34e_{3t-1}$$
$$M_t = 16{,}401{,}727{,}040 - 5{,}090{,}000{,}000 + 0.31(Y_t - 79{,}954{,}072{,}545) + 25{,}440{,}835(361.3) + 0.34(0)$$
$$M_t = 11{,}311{,}727{,}040 + 0.31(Y_t - 79{,}954{,}072{,}545) + 9{,}191{,}773{,}686$$
$$M_t = 20{,}503{,}500{,}730 + 0.31Y_t - 24{,}785{,}762{,}490$$
$$M_t = -4{,}282{,}261{,}759 + 0.31Y_t \quad \text{..... (30)}$$

National Income (INC)

$$\Delta INC_t = -719{,}867.9 + 0.74\Delta Y_t + 349{,}000{,}000\Delta INT_t + 0.199e_{4t-1}$$
$$INC_t = 68{,}773{,}539{,}878 - 719{,}867.9 + 0.74(Y_t - 79{,}954{,}072{,}545) + 349{,}000{,}000(INT_t - 18.71) + 0.199(0)$$
$$INC_t = 68{,}772{,}820{,}010.1 + 0.74(Y_t - 79{,}954{,}072{,}545) + 349{,}000{,}000(INT_t - 18.71)$$
$$INC_t = 68{,}772{,}820{,}010.1 + 0.74Y_t - 59{,}166{,}013{,}683 + 349{,}000{,}000INT_t - 6{,}529{,}790{,}000$$
$$INC_t = 3{,}077{,}016{,}327 + 0.74Y_t + 349{,}000{,}000INT_t \quad \text{..... (31)}$$

Money Supply (Ms)

The supply value is assumed to be equal to the average value of national income. To determine Ms, the average national income from 1986 to 2023 is used, which is Rp. 352,729,971,503.12.

$$Ms^0 = 352{,}729{,}971{,}503.12 \quad \text{..... (32)}$$

Results of IS Curve Equation Calculation

$$Y = C + I + G + X - M$$
$$Y_t = 11{,}597{,}070{,}847 + 0.51Y_t + 25{,}030{,}262{,}808 + 280{,}000{,}000INT_t + 30{,}676{,}772{,}656.88 + 111{,}520{,}683{,}810.18 - (-4{,}282{,}261{,}759 + 0.31Y_t)$$
$$Y_t = 70{,}902{,}054{,}359 + 0.51Y_t + 280{,}000{,}000INT_t - 0.31Y_t$$
$$Y_t = 183{,}107{,}051{,}900 + 0.2Y_t + 280{,}000{,}000INT_t$$
$$Y_t - 0.2Y_t = 183{,}107{,}051{,}900 + 280{,}000{,}000INT_t$$
$$0.8Y_t = 183{,}107{,}051{,}900 + 280{,}000{,}000INT_t$$
$$Y_t = 228{,}883{,}814{,}900 + 350{,}000{,}000INT_t$$
$$INT_t = -817.44 + 0.00000000286Y_t \quad \text{..... (33)}$$

From the equation, it can be concluded that if the interest rate i = 0, then the real national income Y = 228,883,814,900. On the other hand, if the real national income Y = 0, then the interest rate would be -817.44%.

Results of LM Curve Equation Calculation

The LM curve is derived from the intersection of the money supply (Ms) with the money demand (Md), which is proxied by national income (INC). Based on the calculations:

$$Ms = Md$$
$$352{,}729{,}971{,}503.12 = 3{,}077{,}016{,}327 + 0.74Y_t + 349{,}000{,}000INT_t$$
$$-0.74Y_t = -349{,}652{,}955{,}176 + 349{,}000{,}000INT_t$$
$$Y_t = 472{,}503{,}993{,}481 - 471{,}621{,}621.6INT_t$$
$$471{,}621{,}621.6INT_t = 472{,}503{,}993{,}481 - Y_t$$
$$INT_t = 1{,}001.87 - 0.0000000021Y_t \quad \text{..... (34)}$$

From the equation, it can be concluded that if the interest rate = 0, then Y = 472,503,993,481, and if Y = 0, then the interest rate = 1001.87%.

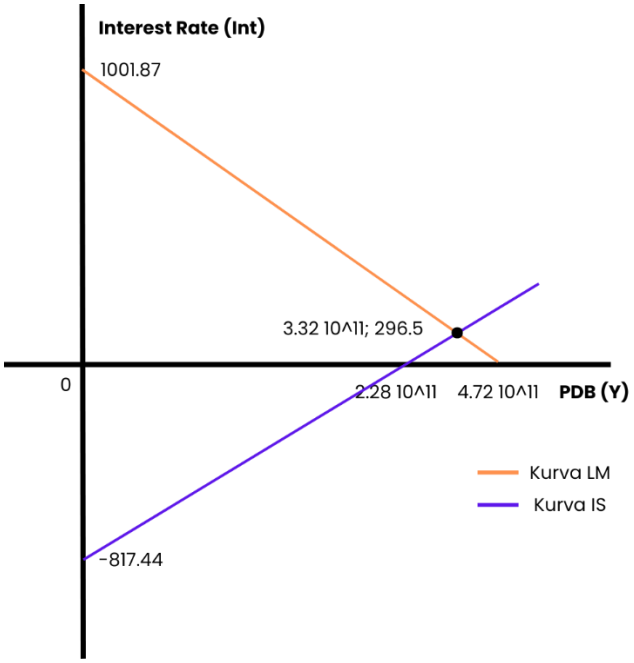
Equilibrium Calculation of IS and LM Curves

Based on the IS curve equation and the LM curve equation, the equilibrium national GDP and interest rate that connect the money market with the goods market can be calculated as follows:

$$IS = LM$$
$$228{,}883{,}814{,}900 + 350{,}000{,}000INT_t = 472{,}503{,}993{,}481 - 471{,}621{,}621.6INT_t$$
$$350{,}000{,}000INT_t + 471{,}621{,}621.6INT_t = 472{,}503{,}993{,}481 - 228{,}883{,}814{,}900$$
$$821{,}621{,}621.6INT_t = 243{,}620{,}178{,}581$$
$$INT_t = 296.5$$

$$Y_t = 228{,}883{,}814{,}900 + 350{,}000{,}000(296.5)$$
$$Y_t = 332{,}662{,}805{,}450$$

Graphically, the equilibrium of the IS-LM curves at an interest rate of 296.5% and a national GDP of Rp. 332,662,805,450 is illustrated as follows:



Source: Processed using EViews
Figure 13. IS-LM Curve for the Indonesian Economy 1986-2023

From a theoretical perspective, the equilibrium value of the IS-LM curve occurs at a positive interest rate and positive National Income. The research findings that show an average IS-LM equilibrium in Indonesia at an interest rate of 296.5% and a National GDP of Rp. 332,662,805,450 align with the theory. However, when compared with Imamudin's (2002) findings, which indicate an equilibrium interest rate of 12.3% and a National Income of Rp. 6,251.92, there is a significant difference in both aspects.

H. Results of Fiscal Policy Multiplier Calculation

$$MKF = \frac{h\alpha}{h + kb\alpha}$$
$$MKF = \frac{349{,}000{,}000(0.9)}{349{,}000{,}000 + 0.125(280{,}000{,}000)(0.9)}$$
$$MKF = \frac{314{,}100{,}000}{380{,}500{,}000}$$
$$MKF = 0.83$$

The results show that if government expenditure is increased by one unit, GDP will rise by 0.83 times the increase in government expenditure, assuming no changes in monetary

policy. This fiscal multiplier result differs from findings in studies of various countries, which indicate that fiscal multipliers tend to be positive, ranging between 0.6 and 1.4. For developing countries, the fiscal multiplier generally approaches one (Hemming, 2002).

The low fiscal multiplier is believed to be due to Indonesia's high economic openness and the free exchange rate system. In this system, the marginal propensity to import becomes quite high, which ultimately affects the fiscal multiplier value, making it small.

I. Results of Monetary Policy Multiplier Calculation

$$MKM = \frac{b\alpha}{h + kb\alpha}$$

$$MKM = \frac{280{,}000{,}000(0.9)}{349{,}000{,}000 + 0.125(280{,}000{,}000)(0.9)}$$

$$MKM = \frac{252{,}000{,}000}{380{,}500{,}000}$$

$$MKM = 0.66$$

This result shows that if the money supply is increased by one unit, GDP will rise by 0.66 times the increase in the money supply, assuming no changes in fiscal policy.

DISCUSSION

The fiscal policy multiplier is larger than the monetary policy multiplier, indicating that fiscal policy is considered more effective in influencing economic growth or increasing GDP. With the same increase in expenditure, fiscal policy will raise GDP by 0.83 times the change in expenditure, while monetary policy will only increase GDP by 0.66 times the change, assuming other variables remain constant. Given that the main focus of policy is GDP growth, the conclusion is that fiscal policy is more effective in affecting economic growth in Indonesia compared to monetary policy.

This view is consistent with research conducted by Snyder (1985), which indicates that the total government budget expenditure is a major factor in achieving economic growth. Additionally, research by Aliman (2000) using the St. Louis model concludes that fiscal policy is more effective than monetary policy in Indonesia.

However, research in other countries has shown that monetary policy can be more effective. Barro (1991), using various models and regression analysis with cross-sectional data from 98 countries during the period 1960-1985, found that fiscal policy has a negative impact on economic growth and investment. Other studies in the United States also indicate that monetary policy is more dominant compared to fiscal policy. Similarly, research on the economies of Canada, West Germany, France, Italy, Japan, and the United Kingdom shows that monetary policy plays a more significant role in economic growth compared to fiscal policy.

Research conducted in Indonesia from 1985 to 2023 shows that monetary policy is more effective than fiscal policy in influencing national GDP growth. However, it is important to apply these research results cautiously, as policies cannot operate independently. If the fiscal policy multiplier is greater than the monetary policy multiplier, each increase in government expenditure will have a larger impact on increasing national GDP compared to an equivalent

increase in the money supply through monetary policy. In this context, fiscal policy can be more effective in stimulating economic growth because each unit increase in government expenditure will generate a greater impact than a unit increase in the money supply through monetary policy.

CONCLUSION

Based on data analysis from the period 1986 to 2023, the research results show that the average equilibrium of National Income and interest rates in Indonesia occurs at an interest rate of approximately 296.5% and a National GDP of around Rp. 332,662,805,450. The fiscal policy multiplier in Indonesia is recorded at 0.83, while the monetary policy multiplier is at 0.66. The IS-LM model approach indicates that fiscal policy is more effective than monetary policy in influencing national GDP growth, with each unit of government spending having a greater impact than a unit increase in the money supply through monetary policy.

As a recommendation, the government is advised to conduct a comprehensive evaluation of the effectiveness of fiscal and monetary policies. If the fiscal policy multiplier is higher, the government should emphasize fiscal instruments, such as increasing public spending in key sectors. However, monetary policy remains important for price stability and exchange rate stability, making coordination between fiscal and monetary policies crucial. Additionally, external factors that may affect policy effectiveness should be considered, and inter-agency cooperation in economic policy planning and implementation should be enhanced. Strengthening innovation and investment in potential sectors can also amplify the multiplier effect of fiscal policy.

This study has limitations due to the use of a simple IS-LM model and the focus on comparing the effectiveness of fiscal and monetary policies in influencing economic growth. Further research is needed to gain a more in-depth and accurate understanding of policy impacts, as well as to identify changes in policy effectiveness over time using dummy variables. More complex models are also recommended for estimating Indonesia's macroeconomic variables and the factors influencing them in greater detail.

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