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THE EFFECT OF TWIN DEFICIT ON ECONOMIC GROWTH IN INDONESIA

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Abstract

This study aims to determine the Effect of Twin Deficit on Economic Growth in Indonesia. This study uses a data analysis model with stationarity test, determination of Lag Length, granger causality test and VAR estimation consisting of Impulse Response Function (IRF) and Forecast Error Variance Decomposition (FEVD). The results of this study indicate that EG has a causal effect on BD, while no significant causal relationship was found from BD to EG. Meanwhile, based on the results of VAR estimation, the budget deficit variable has a positive and significant coefficient on economic growth in the short term, indicating that an increase in the budget deficit can provide a temporary boost to economic growth. IRF analysis shows that shocks to the budget deficit cause a positive response to economic growth.

Keywords: ***Budget Deficit, Current Account Deficit, Economic Growth, Twin Deficit***

A. INTRODUCTION

The rupiah depreciation occurred after Indonesia recorded a current account deficit of up to US$1.3 billion in Q4-2022 while overall in 2022 the deficit reached US$1.6 billion or 0.1% of GDP. On the other hand, the 2022 State Budget (APBN) had a deficit of Rp347.6 trillion or 1.65% of gross domestic product (GDP). If this condition befalls a country, it will have an impact on several national macroeconomic variables. A deficit is a financial condition or state situation characterized by greater expenditure compared to income. Not only experienced by individuals, this condition also often occurs in a larger scope, such as companies or even state finances.A simple example is when there is a deficit due to lack of tax revenue. When that happens, the government needs additional capital to be able to meet the needs of the community, which means that the demand for money will increase.

Furthermore, as an additional impact, when the demand for money increases, the interest rate which is the price of capital will also increase. In financial terms, a deficit is also a condition where the amount of expenditure exceeds income, the amount of imports exceeds exports, or the amount of liabilities exceeds the assets owned. According to this understanding, a deficit is identical to a shortage, as opposed to the term surplus. (Tardi, 2020). A deficit can occur when the government, company, or individual spends more than they receive in a certain period. The problem of deficits is faced by many developing and developed countries. Deficit is considered a ticklish word or even taboo when associated with organizational finances in any form. When a deficit occurs, all efforts will be made to meet the lack of funds, either through debt, diversification of income items, intensification of activities to increase income and reduce expenditure costs. In the context of state finances, a state budget deficit occurs when expenditure or spending exceeds income.

B. RESEARCH METHODS

The scope of this study is to examine the development of twin deficits in Indonesia descriptively. Then the relationship between the APBN deficit and the current account deficit will be further analyzed using the VAR (Vector Autoregressive) analysis method. The type of data used is secondary data in the form of "time series" obtained from various agencies including the World Bank, Bank Indonesia, Financial Notes and the Draft APBN. Quantitative data is annual time series data from 1970 to 2022. This period was chosen based on data availability. The author uses the EViews 10 program and Microsoft Office Excel 2010 to process data in writing this thesis. The first step that must be taken in estimating an economic model with time series data is to test the stationarity of the data (stationary stochastic process). This stationarity test can be carried out using Augmented Dickey-Fuller (ADF) at the same degree (level or difference) until stationary data is obtained, namely data whose variance is not too large and has a tendency to approach its average value (Enders in Ajijah et al., 2011).In this equation, it is known that H_0 indicates the presence of a unit.*root*and H_1 indicates the absence of units*root*. If the stationarity test shows a greater ADF statistic value than*Mackinnon critical value,*then it can be seen that the data is stationary at the level degree. Thus*differentiating*data to obtain stationary data at the same degree in*first difference*must be done by reducing the data with the previous period data.

If the data is stationary at the level degree then the VAR model is*unrestricted VAR*(ordinary model) and there is no need to conduct a cointegration test. This level-based VAR is also known as*VAR in level.*On the other hand, if the data is not stationarity at the level degree but stationary at the degree *difference,*then it must be tested whether the data has a long-term relationship using the cointegration test. If there is cointegration, then the model used is*Vector Error Correction Model*(VECM). VECM is a restricted model (*restricted VAR*). If there is no cointegration, then the model used is*VAR in difference*(VAR form of difference). One of the problems that occurs in the stationarity test is determining the optimal lag. Haris (in Ajijah et al., 2011) explains that if the lag used in the stationarity test is too small, then the residual from the regression will not display the white noise process so that the model cannot estimate the actual error accurately. As a result, the error term is not estimated properly. However, if you include too many lags, it can reduce the degrees of freedom. The granger's causality method is used to determine the influence between variables, namely the budget deficit variable, the current account deficit and economic growth. Do the three variables influence each other, or one influences the other or does not influence each other. The selection of the granger's causality method to predict twin deficits in Indonesia comes from the premise that 'the future cannot cause the past'; if event A occurs after event B, then A cannot cause B (granger, 1969). In addition, granger's causality is chosen based on the results of the stationary budget deficit and current account deficit tests that are stationary at the level.

Impulse Response Function (IRF) test is an important method in dynamic analysis to evaluate how macroeconomic variables respond to disturbances or shocks from other variables in the Vector Autoregression (VAR) model. IRF provides insight into the short-term and long-term impacts of changes in one variable on another. In the context of this study, IRF is used to deepen the understanding of the causal relationship found in the Granger Causality Test. The Granger Causality test results show a two-way causal relationship between the current account deficit (CAD) and Gross Domestic Product (GDP), where both influence each other. However, no significant causal relationship was found between the budget deficit (BD) and GDP, although GDP affects BD. In addition, there is a two-way causal relationship between the budget deficit (BD) and the current account deficit (CAD), indicating that both influence each other. To dig deeper, an Impulse Response Function (IRF) was conducted which describes the impact of shocks between variables over time. To further assess the impact and dynamics of interactions between variables, an IRF test was conducted using a VAR model covering data from 1970 to 2022.

- GDP Response to GDP, CAD, and BD

In the first period, GDP is directly affected by the change in GDP by 31406.82, while there is no response to CAD and BD (both response values are 0). This shows that in the first period, GDP is not affected by shocks to CAD and BD, but the response to GDP itself is quite large.

In the second period, GDP began to be affected by CAD and BD, with responses of 16562.21 and 14846.94, respectively. This shows that changes in CAD and BD began to have a positive impact on GDP, although the effect was smaller compared to the direct effect of GDP. Entering the third period, GDP showed a decrease to 8186.428, while the response to CAD and BD increased significantly, to 40967.14 and 26873.48, respectively. In this period, CAD and BD had a greater influence on GDP. In the fourth and fifth periods, GDP showed a further decline to -3254.614 and -2941.158. The influence of CAD and BD also experienced greater fluctuations, with CAD showing a larger response (such as 114213.9 in the fifth period), while BD showed a larger decrease in response in the same period (-51262.59 in the fifth period).

- CAD Response to GDP, CAD, and BD

In the first period, the CAD response to GDP is very large and negative, at -1.44E+09, while the response to CAD is positive and very large, at 5.24E+09. This shows that in the first period, CAD is heavily influenced by shocks to CAD itself, but changes in GDP have a large negative impact.

In the second period, the CAD response to GDP becomes more negative, with a value of -2.16E+09, but the response to CAD decreases slightly to 5.09E+09, and the response to BD becomes positive by 6.86E+08, indicating that shocks to BD begin to affect CAD.

Entering the third period, CAD showed a decrease in response to GDP to -4.46E+09, while the response to CAD itself decreased to 4.05E+09, indicating that CAD began to show a greater impact than GDP and BD.

In the seventh period, CAD experienced a significant decline in response to GDP and CAD, with values of -2.07E+09 and -6.43E+08, while BD had a negative effect of -1.97E+09.

- BD's response to GDP, CAD and BD

In the first period, BD showed a very large response to GDP, with a value of 5.37E+12, and the response to CAD was very large and negative (-3.40E+13), while BD itself showed a very high number, namely 4.89E+13. This shows that in the first period, the budget deficit was greatly affected by large changes in GDP and CAD.

In the second period, the BD response to GDP becomes negative (-2.16E+13), but the CAD response is much smaller (4.51E+11), with BD also having a larger negative impact. This suggests that changes in GDP have a greater impact on BD than CAD in this period. In the third period, BD again exhibits very large fluctuations, with a response to GDP of -1.08E+13 and a response to CAD of 7.21E+13. The budget deficit is heavily affected by large shocks in CAD, although the GDP effect remains significant. Entering the fourth period, the BD response exhibits more stable fluctuations, with a response to GDP of 2.46E+13, indicating a recovery in the budget deficit due to economic changes influenced by GDP. However, CAD and BD continue to have large impacts in driving BD. In the tenth period, BD shows a large and positive number on GDP and CAD, with a GDP response of -3.68E+14 and a CAD response of -4.03E+14, while BD itself shows a very large positive number (5.69E+14). This shows that despite the large fluctuations in GDP and CAD, the budget deficit shows a significant trend in the late period.

Variance Decomposition (VD)

Variance Decomposition(VD) is an analysis technique in the Vector Autoregression (VAR) model used to measure the contribution of each shock variable to the variability of the target variable in the model. In this study, VD is conducted for three main variables: Gross Domestic Product (GDP), current account deficit (CAD), and budget deficit (BD). The order of variables in this model is EG, CAD, and BD, which are arranged based on the results of the Granger Causality test. In the first period, GDP is almost completely explained by GDP itself, with a contribution of 100%. This shows that initially, fluctuations in GDP are entirely influenced by shocks in GDP, with no contribution from CAD and BD (both variables have a contribution of 0%). Over time, the influence of GDP on itself began to decline. In the second period, the contribution of GDP to GDP variation decreased to 78.83%, while CAD began to contribute 11.73% and BD 9.43%. In the third period, the influence of CAD increased significantly to 40.64%, while the influence of GDP decreased further to 39.75%. This shows that CAD began to have a greater impact on GDP fluctuations. In the final period (periods 7 to 10), the contribution of CAD to GDP continued to increase, with CAD reaching a contribution of 77.45% in the seventh period, while the contribution of GDP decreased to about 6.58%. This shows that in the long run, CAD fluctuations are increasingly dominant in influencing GDP. BD also has a greater contribution in the final periods, reaching 39.29% in the 10th period. In the first period, CAD was almost completely explained by itself, with a contribution of 92.98%. The influence of GDP on CAD in the first period was very small, only 7.02%, and there was no influence from BD (0% contribution).

In the second period, the contribution of GDP to CAD variation increased to 11.15%, while the contribution of CAD decreased to 88.07%. The influence of BD also began to appear, although small, with a contribution of 0.78% in the second period. In the third and fourth periods, the contribution of GDP to CAD increased more significantly to about 27.08% and 28.40% respectively. This shows that GDP began to have a greater impact on CAD. In the last periods, the contribution of CAD to itself began to decline, while the contribution of GDP remained stable at around 25%. However, the influence of BD on CAD continued to increase, reaching 41.26% in the ninth period, and 35.69% in the tenth period. This shows that in the long run, BD has a significant influence on CAD. In the first period, BD was almost completely explained by itself, with a contribution of 66.88%, while the contribution of GDP was very small (0.81%) and CAD contributed 32.31%.

This shows that at the beginning, the budget deficit was affected by BD itself and the fluctuation of CAD. In the second period, the contribution of GDP to BD increased significantly to 10.73%, but the influence of BD remained dominant, at around 64.19%. In the third period, the contribution of GDP to BD increased to 4.33%, while the contribution of CAD jumped to 45.03%, indicating that CAD began to have a greater influence on BD. In the seventh period and beyond, the contribution of GDP to BD decreases, only about 2.16% in the seventh period and 1.69% in the fifth period. In contrast, the contribution of CAD to BD remains significant, reaching about 44.50% in the ninth period, with BD itself continuing to dominate at 52% to 54%. This shows that BD remains the dominant factor in explaining the variation of BD, but the influence of CAD and GDP is getting stronger in the long run. In the third lag for BD(-3), the coefficient of 0.854827 with a t-statistic of 1.47940 indicates an insignificant positive effect. This indicates that although there is a positive effect of BD in the third lag, the effect is not strong enough to significantly affect BD.

At the fourth lag for BD(-4), the coefficient of 1.373886 with a t-statistic of 2.87400 shows a significant positive effect on current BD, indicating that the budget deficit at the fourth lag makes a significant contribution to the movement of the budget deficit in the current period. Based on the results of the Granger causality test, it was found that the budget deficit has a significant causal effect on the current account deficit, with a probability value of 0.0076. In addition, the current account deficit also shows a significant causal relationship to the budget deficit, with a probability value of 0.0042. This shows that there is a two-way causal

relationship between the two deficits. In the context of Indonesia during the period 1970-2022, this finding indicates that changes in the budget deficit can affect the current account deficit, and vice versa, fluctuations in the current account deficit can also affect the budget deficit. Various studies conducted in various countries show very diverse results related to the relationship between budget deficit and current account deficit. For example, Kiran (2011) in his research focusing on Turkey found a significant relationship between budget deficit and current account deficit. The study showed that fluctuations in the government budget have a direct effect on the current account balance in the country. Meanwhile, in Pakistan, a study conducted by Mudassar, Fakher, Ali, and Sarwar (2013) found a positive bidirectional relationship between the government budget deficit (BD) and the current account deficit (CA). This study highlights that both deficits influence each other in both the short and long run, which illustrates a more complex dynamic between fiscal policy and the country's external balance.

A similar study was conducted in Ghana, using data from 1980 to 2014, by Senadza and Aloryito (2016). Their study results showed that there is a positive relationship between budget deficit and current account deficit in the country, although the characteristics of Ghana's developing economy affect the intensity of the relationship. Similarly, in Tanzania, a study by Epaphra (2017) examining data from 1966 to 2015, revealed similar findings, where budget deficit and current account deficit are interrelated with significant impacts on the country's economy.

Lau et al. (2010) reported interesting findings related to the relationship between fiscal deficits and current account deficits in Southeast Asia. Their study revealed a two-way causality between the two deficits in the Philippines, as well as a twin deficit phenomenon in Malaysia and Thailand. Meanwhile, in Indonesia, they found a one-way causality from the current account deficit to the fiscal deficit, indicating a significant influence of external balance on the country's fiscal policy. On the other hand, Magazzino (2020) in his study found the dominance of Ricardian equivalence in the Southeast Asian region, indicating that countries in this region tend to adhere to certain fiscal rules that focus on long-term budget balance, although the conditions vary from country to country.

The results of the VAR model estimation show that the budget deficit has a significant influence.significant impact on Indonesia's Gross Domestic Product (GDP) during the period 1970-2022. In general, the effect of the budget deficit on GDP is dynamic, with different impacts in each time period analyzed. In period t-1 (budget deficit lag 1), the budget deficit has a positive effect on GDP, with a coefficient of 0.487030 and a statistically significant value (2.40618). This shows that the budget deficit in the previous period was able to drive GDP growth in the following period. This positive effect could be caused by increased government spending that drives economic sectors, such as public investment and domestic consumption.

However, in period t-2 (budget deficit lag 2), the effect is actually negative, with a coefficient of -1.417930 and a highly significant statistical value (-6.39660). This indicates that the budget deficit in period t-2 suppresses GDP growth. This negative impact is likely to occur because a continued increase in the budget deficit can cause market concerns about fiscal stability, increase the debt burden, and reduce investor confidence, which ultimately hinders economic growth. In period t-3 (budget deficit lag 3), the effect of the budget deficit on GDP is again positive, with a coefficient of 0.854827 and a moderate statistical value (1.47940). This positive effect indicates that after a period of negative pressure, the budget deficit has given the economy a boost again, most likely because the fiscal stimulus provided by the government has begun to show a positive impact on productive sectors.

On the other hand, in period t-4 (budget deficit lag 4), the effect of budget deficit on GDP is also positive and significant, with a coefficient of 1.373886 and a very strong statistical value (2.87400). This shows that budget deficits in longer periods have a greater positive impact on GDP. This impact may be related to fiscal policy that has succeeded in reducing economic uncertainty and encouraging long-term growth through infrastructure projects and other policies that support economic stability. Overall, the estimation results show that budget deficits can have a positive impact on GDP in both the short and long term, although the impact can be volatile. The positive effects recorded at t-1, t-3, and t-4 indicate that expansionary fiscal policy, especially in terms of government spending, can boost economic growth. However, the negative impact seen at t-2 indicates that uncontrolled budget deficit policies can suppress economic growth in the medium term, especially if accompanied by persistent fiscal imbalances. This result is consistent with Keynesian theory which states that increased government spending (which can lead to budget deficits) can boost aggregate demand and, ultimately, economic growth. However, it is important to note that this effect may only be temporary and depends on how the deficit is financed and on the overall economic conditions. Many studies have found a positive and significant relationship between fiscal deficits and economic growth (Barro, 1979; Saleh, 2003; Sill, 2005; Efdiono, 2013; Swasono and Martawardaya, 2015). From these results, it is found that fiscal deficits have a positive relationship with economic growth, which means that if the fiscal deficit variable increases by 1 percent, economic growth will increase by 0.020782 percent.

Therefore, budget deficit management must be done carefully, taking into account fiscal balance and its long-term impact on the economy. Policies that pay attention to fiscal stability and debt control are essential to ensure that the budget deficit can serve as a stimulus for growth without causing bigger problems in the future. The IRF analysis shows that a positive shock in the budget deficit produces a positive response in gross domestic product in the short run. In the first period, there is a significant increase in gross domestic product in response to this shock. This effect tends to fade over time, suggesting that the long-run impact of an increase in the budget deficit on gross domestic product may be more limited. This is evident from the IRF graph where the GDP response to a shock in BD declines gradually after the initial period. The budget (fiscal) deficit has a significant effect on economic activity. In the short run, a larger deficit leads to higher demand and higher output. In the long run, higher government debt will reduce capital accumulation and therefore output (Blanchard, 2017).

However, in period t-2, the impact of the current account deficit on GDP actually shows a negative effect, although not significant, with a coefficient value of -0.449586 and a statistical value of -1.49564. This indicates that the effect of the current account deficit in that period began to decline, possibly because the accumulative impact of the ongoing deficit could increase the burden of foreign debt or reduce the competitiveness of the domestic economy. In period t-3, the current account deficit again has a positive impact on GDP, with a coefficient of 0.274927 and a statistical value of 1.00473. Although smaller than period t-1, this positive effect shows that the current account deficit still has a role in driving economic growth, although its impact is more limited over time.

On the other hand, in period t-4, the effect of the current account deficit on GDP began to decrease and even tended to be negative, with a coefficient of 0.290216 and a statistical value of 1.39482. This shows that in the long run, the impact of the current account deficit on the Indonesian economy is getting weaker, or even turning negative. This could be due to the increasing dependence on foreign debt or the negative impact of the ongoing trade imbalance. Kayikci (2012) conducted a study on the determinants of Turkey's current account balance for the period 1987-2009 using the VAR model by including the variables of the ratio of the current account balance to GDP, GDP growth rate, the ratio of PMTB to GDP, the ratio of savings to GDP, the ratio of exports and imports to GDP, Brent oil price growth, inflation, and the real effective exchange rate as endogenous variables. The results are that GDP growth, investment, oil prices and the real exchange rate have a negative impact on the current account balance.

This finding is also in line with Handoko's research (2016) that the impact of shocks from the MTP (Trading Partner Economic Growth), COMPI, REER and DOMD variables is negative on the current account balance in the second quarter. The negative impact of MTP and COMPI indicates a structural (long-term) problem of the current account balance, namely that Indonesia's exports have not been well diversified in terms of export destination countries and commodity-based export products.

Policy Implications

The findings of this analysis have several policy implications. First, expansionary fiscal policy, especially one that leads to an increase in the budget deficit, can be used as a tool to stimulate economic growth, especially in the short term. However, it is important to consider the long-term sustainability of this policy, as well as its potential impact on macroeconomic stability, including inflation and debt sustainability. Second, policies that encourage a reduction in the current account deficit through increased export competitiveness can also provide additional benefits to economic growth. Third, it is important for policymakers to consider both external and internal factors that affect the budget deficit and the current account deficit in designing effective economic policies.

Research Limitations

This study has several limitations, including data limitations and assumptions used in the VAR model. Future studies can expand the analysis by using more recent data or different methods to address these limitations. In addition, further studies can explore the effects of other variables, such as monetary policy or global conditions, on the budget deficit and current account deficit.

C. CONCLUSION

This study aims to analyze the relationship between budget deficit, current account deficit, and economic growth in Indonesia in the period 1970–2022.

1. The phenomenon of the development of twin deficits in Indonesia during the period 1970 – 2022 shows that there is a causal relationship between the budget deficit and the current account deficit.
2. Based on the results of the Granger causality test, it was identified that there is a two-way relationship between CAD (current account deficit) and BD (budget deficit).
3. Based on the VAR estimation results, the current account deficit has a positive and insignificant effect on gross domestic product. Meanwhile, the budget deficit has a positive and significant coefficient on gross domestic product.
4. Based on the IRF estimation results, it shows that the impact of changes in the current account deficit causes a decline in gross domestic product in the second year, which is -2.16%. Meanwhile, the impact of changes in the budget deficit causes gross domestic product to increase in the first year by 5.37%.
5. Based on the VD estimation results, the contribution of the current account deficit to gross domestic product increased from 7.02% in the first period to 21.09% in the tenth period. Similarly, the contribution of the budget deficit to gross domestic product increased from 0.80% in the first period to 6.74% in the tenth period.

Suggestion

Based on the results of this study, several suggestions that can be given are as follows:

- The government needs to manage the budget deficit carefully, especially in the context of productive and sustainable financing. Budget use should be focused on investments that can drive long-term economic growth, such as infrastructure, education, and health. Fiscal policy must be balanced to avoid excessive debt accumulation and maintain economic stability.
- Effective policies are needed to manage the current account deficit, including increasing export competitiveness and controlling imports. The government can encourage economic diversification and the development of domestic industries to reduce dependence on imports. In addition, maintaining exchange rate stability and strengthening foreign exchange reserves are also important to deal with external shocks.

Regular evaluation of fiscal and monetary policies is essential to assess their effectiveness and impact on the economy. The government must be ready to adjust policies according to changing economic conditions, to ensure stable and sustainable economic growth.

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