

## MONETARY AND FISCAL POLICY ON INFLATION IN INDONESIA: THRESHOLD VECTOR AUTOREGRESSION APPROACH

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### Abstract

The combination of monetary and fiscal policies is used to stabilize prices in Indonesia. The purpose of this study is to analyse the role of monetary and fiscal policies in stabilizing prices in Indonesia through the threshold concept. The data used is time series (2013Q1-2023Q2) with the Threshold Vector Autoregression method. The results show that the interest rate and budget thresholds can affect inflation stability. Other variables, such as the exchange rate, output gap, and FFR, have varying effects depending on the threshold. Thus, combining adjustments in monetary and fiscal policies and understanding the impact of inflation at various policymakers can better manage economic growth and maintain price stability in the long term.

**Keywords:** inflation; fiscal policy; monetary policy; threshold

**JEL Classification:** E31, E62, E52, C24

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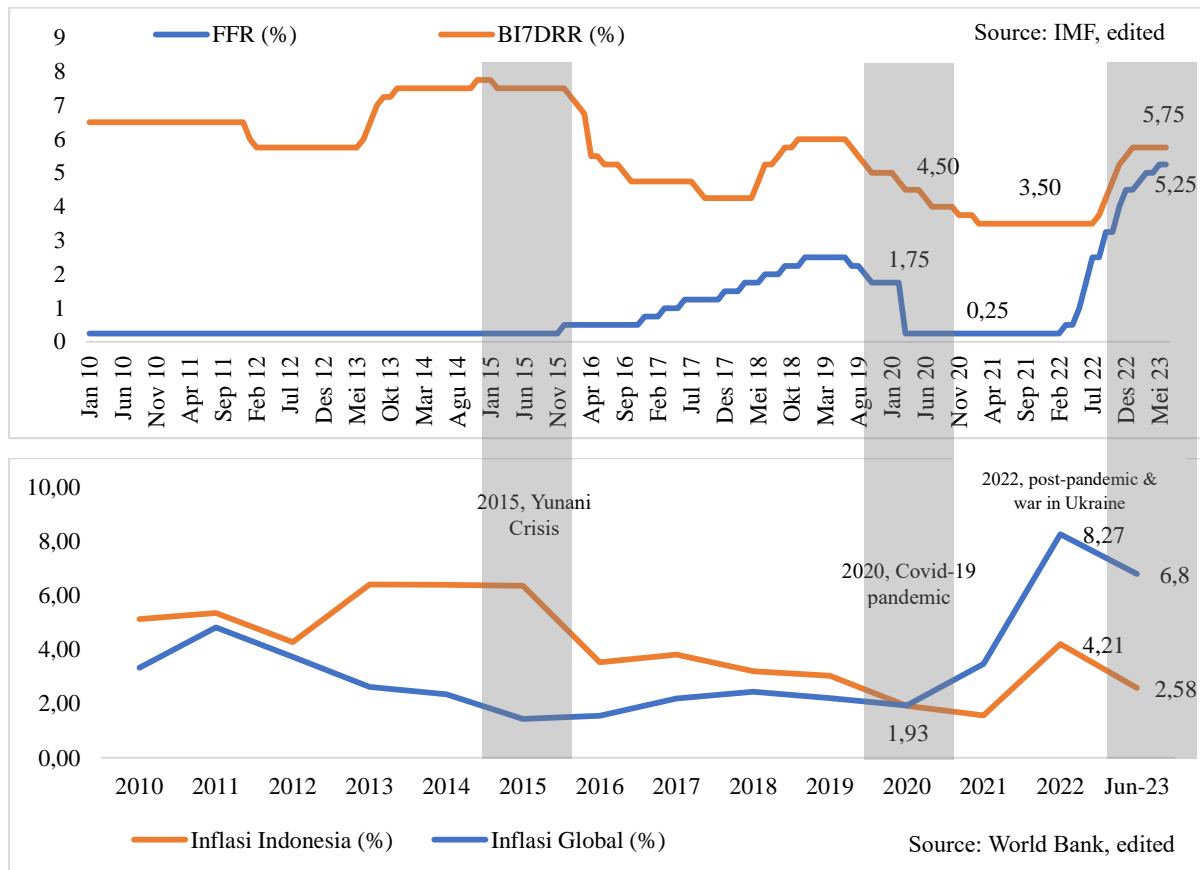
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### INTRODUCTION

Indonesia implements a policy mix aimed at maintaining the stability of economic growth amidst various shocks, such as COVID-19, the economic crisis, FFR instability, political conflicts, and global uncertainties. Global inflation will reach 8.27% in 2022, which has increased from the previous year, namely 3.5% in 2021 (Figure 1). nonetheless, Indonesian inflation increased from 1.56% in 2021 to 4.21% in 2022. This increase in inflation

was responded to by setting the FFR, which in July 2021 was 0.25% to 4.5%. in December 2022 and in June 2023 it will reach 5.75%, which is the highest increase in interest rates in the last 14 years (Figure 1). The Fed aggressively raised FFR in an effort to control inflation and maintain the country's economic stability (Bank Indonesia, 2020; International Monetary Fund, 2023). However, the US response by FFR provided a shock to economic activity in various countries, both economic decline and even economic strengthening.



**Figure 1.** Development of Fed Funds Rate dan Indonesia (BI7DRR) as Well as Global and Indonesian Inflation Rates

A small open-economy New Keynesian model, using Indonesia as a case study, illustrates that the negative macroeconomic and financial effects of external shocks can be reduced through a combination of monetary and macro-prudential policies (Agung & Juhro 2016). The impact of monetary and macro-prudential policies in the Asia-Pacific region demonstrates that these two policies can complement one another in achieving goals of price stability and financial stability (Kim & Mehrotra 2018).

The resulting inflation should go beyond conventional Keynesian thinking. In general, this well-entrenched approach usually considers inflationary pressures present when there is excess aggregate demand and at the natural level of production (or potential output). The resulting spike in inflation occurs through a mechanism such as the Phillips curve. Furthermore, the development of the New

Keynesian Phillips curve (NKPC) theory studied the importance of future inflation expectations because prices are sticky.

Several studies state that with the NKPC approach, the direction of monetary policy can influence economic stability. using the New Keynesian Curve framework, it is found that interest rates (positive), exchange rates (negative), output gap (negative) affect inflation. Furthermore, Narayan et al. 2023 explains that forward and backward-looking influence inflation, political uncertainty, exchange rates influence inflation. Flack et al, (2021) explain that monetary policy transmission changes significantly with the level of inflation expectations. Nonetheless, Hove at al. 2017 examined monetary and fiscal policy which found the results of the analysis that central bank independence, fiscal discipline and financial sector development could

increase the possibility of inflation meeting the target.

New Keynesian economists classified monetary and fiscal policy as active or passive (Leeper, 1991). Monetary policy is said to be active when the central bank increases interest rates more than one per one in response to inflation and if the central bank increases interest rates less than one per one in response to inflation, monetary policy is said to be passive (Leeper, 1991; Woodford, 1994). On the other hand, fiscal policy is said to be active when the fiscal authority borrows to finance arbitrary spending and tax paths and fiscal policy is said to be passive if the fiscal authority adjusts its spending and fiscal solvency tax rates to all possible paths of the real interest rate (Farmer & Zabczyk, 2019; Woodford, 1994).

Each country faces its own fiscal limit, defined as the threshold beyond which taxes and/or spending cannot be easily raised to bring order to fiscal space. This concept depends on many different variables, ranging from political-economic factors, such as the size of government desired or tolerated by each society, to purely economic factors, such as economic growth and unemployment. Fiscal Theory of Price Levels (FTPL), an idea where the Fiscal Authority determines price levels in the short term. The mechanism by which debt impacts the price level is best understood by relying on a notion known as the fiscal limit (Bai & Leeper, 2017). In addition, according to FTPL, price level determination occurs when the present value of the government (primary) surplus does not react to the price level in a way that guarantees a balanced government budget (Bassetto & Cui, 2018).

Sokolova (2015) studies the monetary policy trade-off between low inflation and low sovereign risk in conditions where the fiscal authority fails to guarantee the sustainability of government debt Kliem et al. (2016) used DSGE model estimation to interpret low-frequency measures structurally and to

describe the mechanisms through which fiscal actions influence inflation in the long run Grui & Eugène-Rigot (2020) uncovered interest parity modification of the New Keynesian semi-structural model, which takes into account foreign exchange interventions and is relevant for inflation targeting regimes with varying levels of exchange rate management. Furthermore, this research analyses the threshold values of monetary policy and fiscal policy in controlling Indonesia.

The discovery of research results regarding the interaction of policies in dealing with economic imbalances and the Triple Challenges phenomenon made us interested in researching the threshold value of monetary and fiscal policy in Indonesia. The aim of this research is to identify the threshold values for monetary policy and fiscal policy and their effects on inflation in Indonesia.

## LITERATURE REVIEW

### Theory

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Mackiewicz-Łyziak et al. (2019) found that fiscal policy influences inflation expectations and the effect is different in various countries. The relatively small impact of fiscal policy performance on inflation expectations reflects the high level of central bank credibility in the analysed countries as well as the fact that fiscal policy in most of these countries is constrained by the Stability and Growth Pact. Klein & Linnemann (2020) used time-varying effects to examine fiscal policy on inflation, found that government spending had no effect before World War II and was significantly positive after World War II. Łyziak & Mackiewicz-Łyziak (2020) explained that the Fiscal Sustainability Indicator (FSI) influences inflation expectations. Urquhart (2022) considers the Fiscal Theory of the Price Level (FTPL) and fiscal policy actions are evaluated in autoregressive monetary structural vectors combined with fiscal variables. The results highlight the importance of differentiating monetary regimes when conducting analysis. In a monetary aggregate regime with active fiscal policy, higher public debt shocks generate inflationary pressures and conversely, with inflation targeting sample estimates, inflation follows the targeted path.

Sokolova (2015) studies the monetary policy trade-off between low inflation and low sovereign risk in conditions where the fiscal authority fails to guarantee the sustainability of government debt. Kliem et al. (2016) used DSGE model estimation to interpret low-frequency measures structurally and to describe the mechanisms through which fiscal actions influence inflation in the long run. Grui & Eugène-Rigot (2020) uncovered interest parity modification of the New Keynesian semi-structural model, which takes into account foreign exchange interventions and is relevant for inflation targeting regimes with varying levels of exchange rate management. Furthermore, this research analyses the threshold values of

monetary policy and fiscal policy in controlling Indonesia.

## RESEARCH METHOD

### Data

The type of data used is time series data from 2013Q to 2023Q4. The variables used in this study are FFR (Federal Fund Rate), BI rate, exchange rate, budget deficit, output gap, and inflation. These variables are used to explain the New Keynesian Phillips Curve (NKPC) and The Fiscal Theory of the Price Level (FTPL) in economic activity. The data sources are obtained from Bank Indonesia, the Ministry of Finance of the Republic of Indonesia, and the International Monetary Fund (IMF).

### Methodology

The model used in this study is divided into two models. Model 1 with modifying the research of Falck, Hoffmann, and Hürtgen (2021), Łyziak and Mackiewicz-Łyziak (2020), Narayan, Cirikisuva, and Naivutu (2023), dan Nghiem and Narayan 2021) for explains the impact of monetary policy on inflation. Model 2 with modifying the research Pekarski (2011) explains the impact of fiscal policy on inflation.

### Model (1)

$$\pi_t = \beta_0 + \beta_1\pi_{t+i} + \beta_2(y - y^*)_{t-i} + \beta_3s_{t-i} + \beta_4FFR_{t-i} + \beta_5Bi\_rate_{t-i} + \varepsilon_t \quad (1)$$

The first model explains the determinants of inflation ( $\pi_t$ ). The Output gap ( $y - y^*$ ) affects inflation in Indonesia. The calculation of the output gap uses the Hodrick-Prescott (HP) Filter method to filter the cyclical and trend components in economic growth, providing a clearer picture of the business cycle in the economy (Blanchard and Gali 2016).

Fluctuation of in Indonesia's exchange rate ( $s_{t-i}$ ) also have an impact on inflation. Interest rates, both domestic ( $Bi\_rate_{t-i}$ ) and the US Federal Funds Rate (US  $FFR_{t-i}$ ) influence inflation

### Model (2)

$$\pi_t = \beta_0 + \beta_1\pi_{t+i} + \beta_2(y - y^*)_{t-i} + \beta_3p_{t-i} + \varepsilon_t \quad (2)$$

Fiscal policy through the budget deficit ( $p$ ) has an impact on inflation.

The method used in this study is Threshold Vector Autoregression (TVAR). This method is employed to understand the response of inflation determinants when thresholds occur in monetary and fiscal policies.

$$Y_t = \begin{cases} A_1 + \Phi_1(L)Y_{t-1} + \varepsilon_t & \text{Jika } Z_{t-d} \leq \tau \\ A_2 + \Phi_2(L)Y_{t-1} + \varepsilon_t & \text{Jika } Z_{t-d} > \tau \end{cases} \quad (3)$$

Where  $Y_t$  is the vector of endogenous variables at time  $t$ ,  $A_1$  and  $A_2$  are the intercept vectors for each regime.  $\Phi_1(L)$  and  $\Phi_2(L)$  are the lag polynomial coefficient matrices for each regime.  $Z_{t-d}$  is the threshold variable (Bi rate and The Budget Deficit).  $\tau$  is the threshold value.

## RESULTS AND DISCUSSION

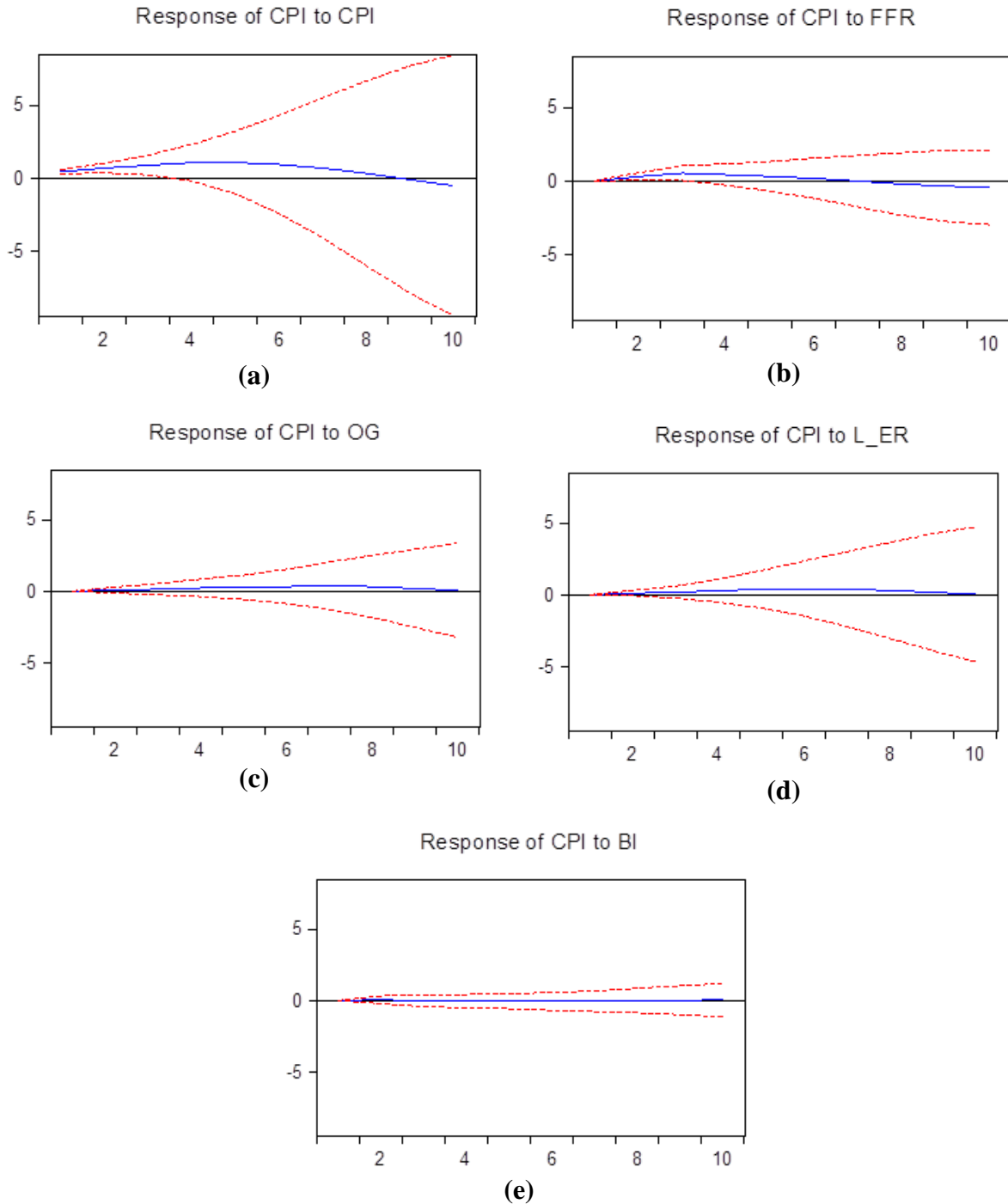
The realization of inflation stability can be achieved through fiscal and monetary policies. The use of thresholds in monetary policy and inflation helps in formulating sound policy decisions. The threshold value of the interest rate will provide a warning in its determination, which will impact inflation. This also applies to the budget deficit, where the threshold value of the budget deficit can serve as a warning to the government when increasing the budget deficit.

The setting of a threshold on interest rates above 5% shows a fluctuating response to inflation. Figure 2 explains the threshold setting of interest rates above 5%. The response of CPI due to the shock of  $CPI_{t-1}$  occurs immediately at lag 1, as shown in Figure 2(a). This condition indicates that setting an interest rate above 5% will alter the historical inflation pattern. The response of inflation to the FFR interest rate in Figure 2(b) occurs at the beginning of the period with a stable

response, but by period 7, a negative response is observed. The relatively narrow confidence intervals suggest that uncertainty is relatively low in the short term but increases slightly in later periods.

In Figure 2(c), the response of inflation to changes in the output gap due to the interest rate threshold is visible. Mostly, the impact of the output gap shock on inflation is relatively small in the short

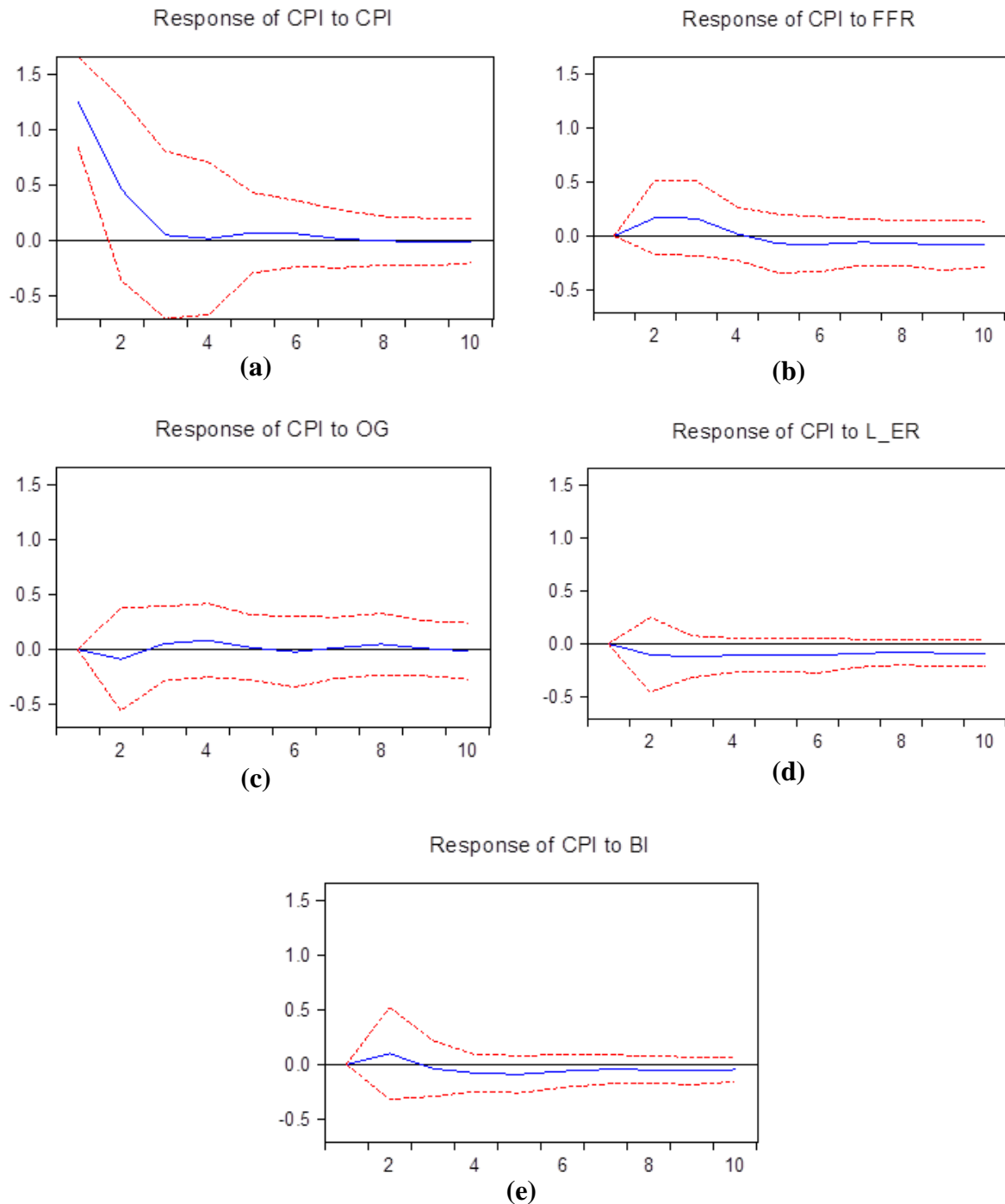
term, with the initial response close to zero. Finished time, the blue line remains near zero, indicating that the impact remains small and stable. The red confidence interval lines widen slightly after several periods, indicating increasing uncertainty related to the effect of the output gap shock on inflation over the longer term.



**Figure 2.** Inflation’s Impulse Response under an Interest Rate Threshold Above 5%

The response of inflation to the exchange rate in Figure 2(d) is initially neutral, with a small response around zero. Over time, the confidence intervals widen, indicating increasing uncertainty in the long term. Nevertheless, the overall impact remains relatively small and stable. The same result also occurs in the response of inflation to interest rates in Figure 2(e).

The CPI response to inflation shocks appears small and stable around zero throughout the period. The confidence interval lines show that uncertainty remains low in the short term, and although the intervals widen slightly over time, the overall impact remains relatively stable and small.

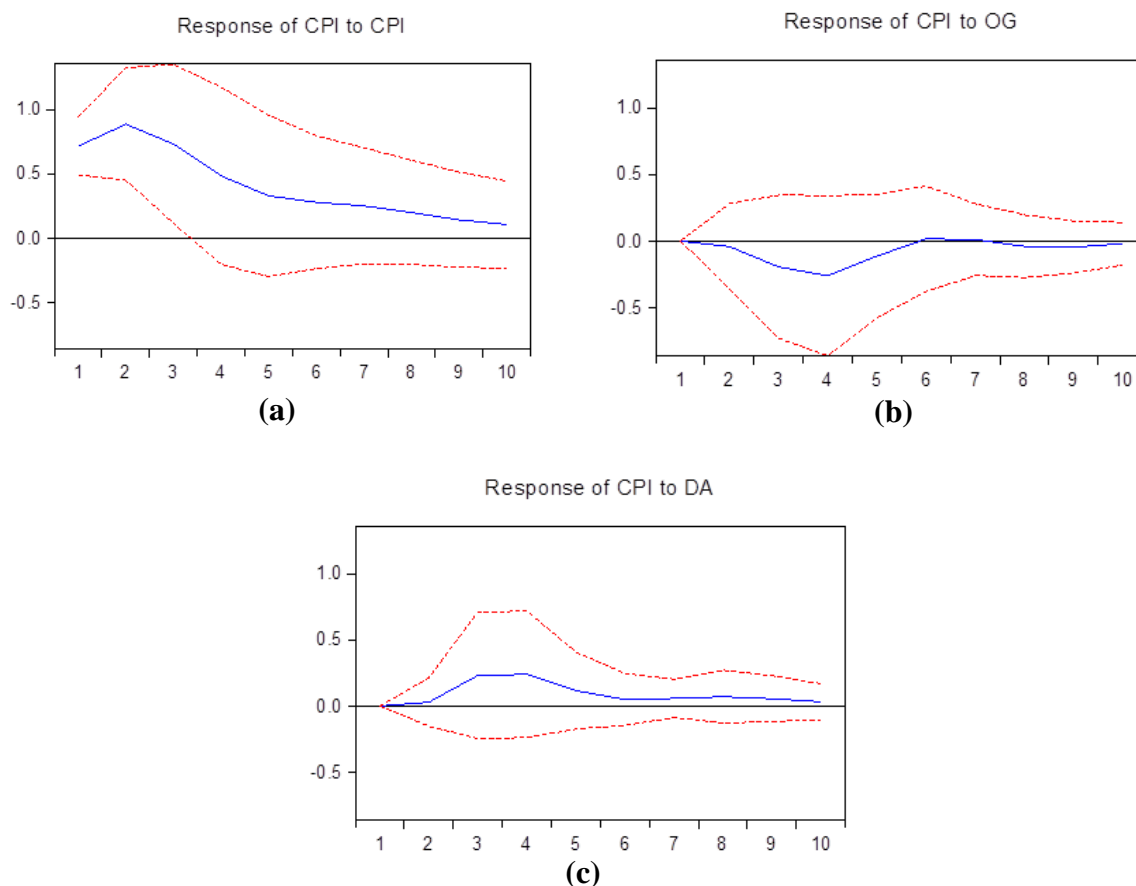


**Figure 3.** Inflation's Impulse Response under an Interest Rate Threshold Below 5%

Figure 3 explains the results of the impulse response of inflation with an interest rate threshold below 5%. The response of CPI to  $CPI_{t-1}$  realized in Figure 3(a) explains a sharp decline in the early period. At lag 4, the CPI response stabilizes, indicating that the impact of the CPI shock quickly subsides and does not persist in the long term. The response of inflation to the US interest rate in Figure 3(b) explains an initial increase at the beginning of the period. Subsequently, the response declines and stabilizes close to zero. This indicates that the influence of the FFR on the CPI is relatively small and does not continue significantly in the long term. At lag 4, the inflation response becomes negative and remains so in the subsequent periods. Figure 3(c) explains the response of inflation to the output gap. The initial response of the CPI to the output gap shock shows a slight negative decrease in the early period but quickly returns to zero and stabilizes in the following periods. The confidence interval

lines show that uncertainty remains relatively low in the short term, although they widen slightly over time. This differs from the inflation response to the exchange rate in Figure 3(d). In the early period, inflation experiences a slight decline in response to the exchange rate shock but quickly returns to around zero and stabilizes in the following periods. The confidence interval is relatively narrow at first, indicating low uncertainty in the short term, but it widens slightly in later periods, showing a slight increase in uncertainty.

The response of inflation to the shock from the setting of the Bank Indonesia interest rate shows a slight increase in the first few periods but begins to decline and returns to stability around zero after the third period. The confidence interval lines show that uncertainty is relatively low in the short term and does not widen significantly over time, indicating that the level of uncertainty remains moderate.

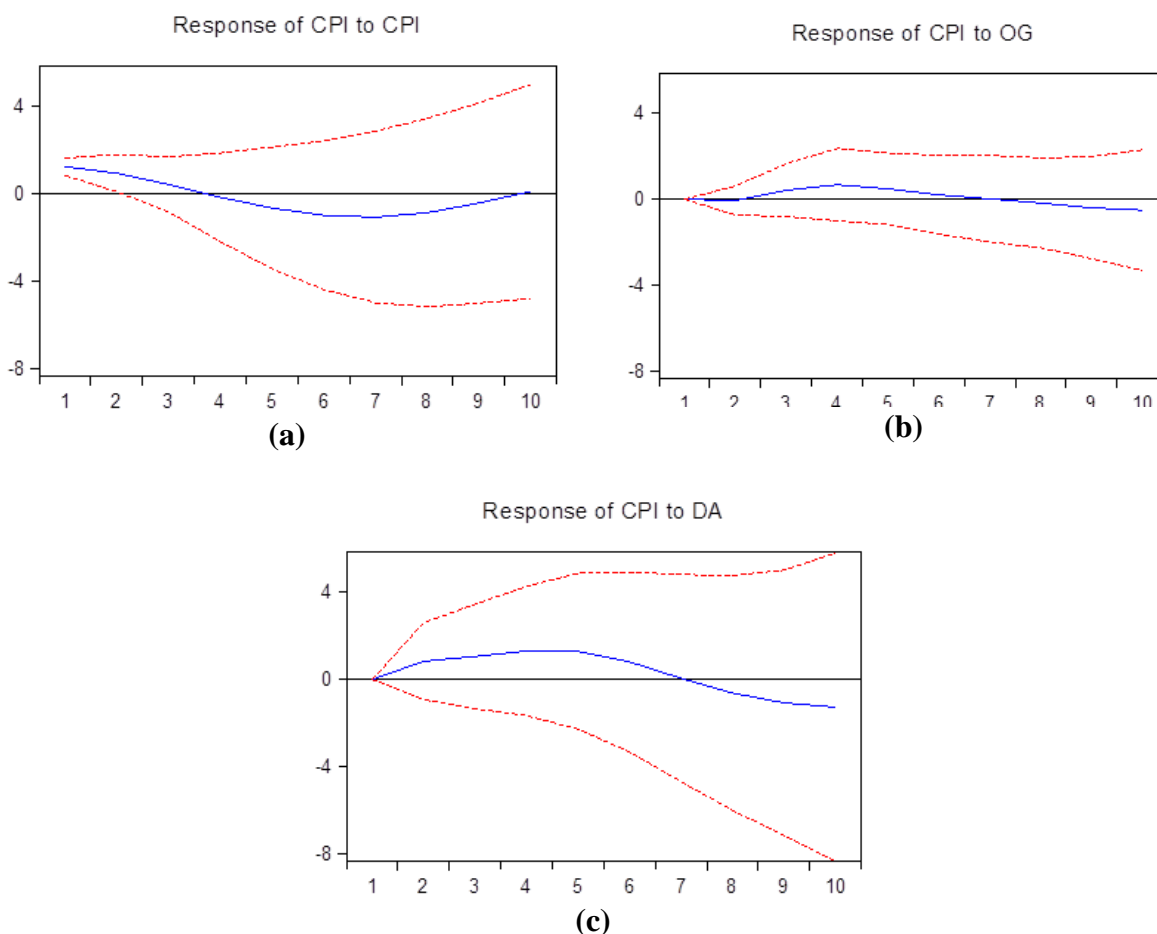


**Figure 4.** Inflation's Impulse Response with Threshold Deficit Budgeting



Figure 4 explains the impulse response of inflation with a budget deficit threshold. The response of CPI to  $CPI_{t-1}$  in Figure 4(a) shows that in the early period, the CPI response to a shock in CPI increases, peaking around lag 2 or 3. This result contrasts with the response of inflation to the output gap in Figure 4(b). The initial response of inflation to an output gap shock decreases in the early period, reaching its lowest point around lag 3 or 4. Subsequently, the response gradually rises again and stabilizes around zero in the following periods. The response of inflation to deficit budgeting policies can be explained in Figure 4(c). In the early period, inflation shows an increase in response to a fiscal policy shock, peaking around the third period. After this peak, the response gradually decreases and approaches zero in the following periods.

Figure 5 explains the results of the impulse response with a threshold for surplus budgeting. The implementation of this policy causes the CPI response to  $CPI_{t-1}$  to show a decline in the early period, as illustrated in Figure 5(a). The response continues to decrease until the 5th period before starting to reverse toward zero. In the following periods, the response begins to approach zero again, but remains below the zero line, indicating that the impact of the inflation shock is still negative. A positive response is seen in the early period in the inflation response to fiscal policy in Figure 5(c). This positive response peaks around the 2nd or 3rd period. After reaching the peak, the response gradually decreases and falls below zero in subsequent periods, indicating that the impact of the BI rate shock becomes negative.



**Figure 5.** Inflation's Impulse Response with Threshold Surplus Budgeting

Based on the impulse response results discussed, the following policy recommendations can be made. Monetary Policy Adjustments: The threshold analysis suggests that setting interest rates above or below 5% has a varying impact on inflation. Policymakers should carefully monitor the interest rate thresholds and consider gradual changes to avoid sharp fluctuations in inflation, especially when rates approach critical levels (around 5%). When inflation is stable, a slight adjustment to interest rates might suffice, but more aggressive measures might be needed when inflationary pressures increase.

Fiscal Policy with Deficit Budgeting: The analysis indicates that deficit budgeting initially increases inflation but eventually stabilizes. The government should adopt deficit budgeting with caution and limit deficits to manageable levels. It would be wise to pair fiscal expansion with inflation control measures, ensuring that any short-term inflationary pressure does not lead to long-term instability. Surplus budgeting policies have been shown to reduce inflation over time. Policymakers should consider surplus budgeting during periods of economic expansion to reduce inflationary pressures and build buffers for future economic downturns. This could provide long-term price stability while maintaining fiscal discipline.

Deficit and surplus budgeting affect inflation, the timing and scale of fiscal stimulus should be carefully calibrated. Small, targeted fiscal interventions could help manage inflation while supporting economic growth. Large, untargeted fiscal expansions could risk creating sustained inflationary pressures. Thus, by combining adjustments in monetary and fiscal policies and understanding the impact of inflation at various thresholds, policymakers can better manage economic growth and maintain price stability in the long term.

## CONCLUSION AND RECOMMENDATION

The analysis shows that monetary and fiscal policies play an important role in controlling inflation and economic growth. Setting thresholds for interest rates and fiscal policies, such as budget deficits and surpluses, can have different impacts on inflation in both the short and long term. Interest rates that are too high or too low can cause inflationary fluctuations, while budget deficits tend to increase inflation initially before stabilizing, and budget surpluses can gradually reduce inflation. With proper monitoring and appropriate policy adjustments based on specific thresholds, the government and central bank can achieve price stability and sustainable economic growth. It is crucial to wisely balance fiscal and monetary policies so that their impact on inflation can be managed well without creating long-term instability.

This study can provide further understanding of the application of the New Keynesian Phillips Curve (NKPC) and the Fiscal Theory of Price Levels (FTPL). The limitation of the study is the use of variables such as the FFR, BI rate, exchange rate, output gap, and budget deficit. Future research is expected to use more complex variables with threshold structures suited to the economic conditions.

## REFERENCES

- Agung, J., & Juhro, S. M. (2016). Managing monetary and financial stability in a dynamic global environment: Bank Indonesia's policy perspectives. *BIS Papers No 88*.
- Bai, Y., & Leeper, E. M. (2017). Fiscal stabilization vs. passivity. *Economics Letters*, 154, 105–108. <https://doi.org/10.1016/j.econlet.2017.03.003>
- Bassetto, M., & Cui, W. (2018). The fiscal theory of the price level in a world of low interest rates. *Journal of Economic Dynamics and Control*, 89, 5–22. <https://doi.org/10.1016/j.jedc.2018.01.006>

- Blanchard, O., & Gali, J. (2016). Real Wage Rigidities and the New Keynesian Model. *Journal of Money, Credit and Banking*, 39, 35–65. <https://doi.org/https://www.jstor.org/stable/4123055>
- Falck, E., Hoffmann, M., & Hürtgen, P. (2021). Disagreement about inflation expectations and monetary policy transmission R. *Journal of Monetary Economics*, 118, 15–31. <https://doi.org/10.1016/j.jmoneco.2019.08.018>
- Farmer, R. E. A., & Zabczyk, P. (2019). A Requiem for the Fiscal Theory of the Price Level. *IMF Working Papers WP/19/219*.
- Gruji, A., & Eugène-Rigot, C. (2020). Uncovered interest parity with foreign exchange interventions under exchange rate peg and inflation targeting: The case of Ukraine. *Graduate Institute of International and Development Studies International Economics Department Working Paper Series Working Paper No. HEIDWP14-2020*.
- Kim, S., & Mehrotra, A. (2018). Effects of Monetary and Macprudential Policies—Evidence from Four Inflation Targeting Economies. *Journal of Money, Credit and Banking*, 50(5), 967–992. <https://doi.org/10.1111/jmcb.12495>
- Klein, M., & Linnemann, L. (2020). The time-varying effect of fiscal policy on inflation: Evidence from historical US data. *Economics Letters*, 186. <https://doi.org/10.1016/j.econlet.2019.108823>
- Kliem, M., Kriwoluzky, A., & Sarferaz, S. (2016). Monetary–fiscal policy interaction and fiscal inflation: A tale of three countries. *European Economic Review*, 88, 158–184. <https://doi.org/10.1016/j.eurocorev.2016.02.023>
- Leeper, E. M. (1991). Equilibria under “active” and “passive” monetary and fiscal policies. *Journal of Monetary Economics*, 27, 129–147.
- Łyziak, T., & Mackiewicz-Łyziak, J. (2020). Does fiscal stance affect inflation expectations? Evidence for European economies. *Economic Analysis and Policy*, 68, 296–310. <https://doi.org/10.1016/j.eap.2020.09.010>
- Łyziak, T., & Mackiewicz-Łyziak, J. (2020). Does fiscal stance affect inflation expectations? Evidence for European economies. *Economic Analysis and Policy*, 68, 296–310. <https://doi.org/10.1016/j.eap.2020.09.010>
- Mackiewicz-Łyziak, J., Warsaw, T. Ł., & Łyziak, T. (2019). Fiscal sustainability and inflation expectations. *INE PAN Working Paper Series, Paper Number 47*.
- Narayan, S., Cirikisuva, S., & Naivutu, R. (2023). A hybrid NKPC inflation model for the small Island state of Fiji. *Economic Analysis and Policy*, 78, 873–886. <https://doi.org/10.1016/j.eap.2023.04.023>
- Nghiem, X., & Narayan, S. (2021). What Drives Persistently High Inflationary Pressures In Vietnam? Some Evidence From The New Keynesian Curve Framework. *Bulletin of Monetary Economics and Banking*, 24(4), 517–540.
- Pekarski, S. (2011). Budget deficits and inflation feedback. *Structural Change and Economic Dynamics*, 22(1), 1–11. <https://doi.org/10.1016/j.strueco.2010.09.002>
- Sokolova, A. (2015). Fiscal limits and monetary policy: Default vs. inflation. *Economic Modelling*, 48, 189–198. <https://doi.org/10.1016/j.econmod.2014.10.041>
- Urquhart, M. D. (2022). Public debt, inflation, and the Fiscal Theory of Price Level in emerging markets: the case of Paraguay. *Macroeconomics and Finance in Emerging Market Economies*, 15(3), 246–272. <https://doi.org/10.1080/17520843.2021.1927128>
- Woodford, M. (1994). Monetary Policy and Price Level Determinacy in a Cash-in-Advance Economy. *Economic Theory*, 4(3), 345–380. <http://www.jstor.org/stable/25054770>