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THE CONTRIBUTION OF EXTERNAL DEBT AND FISCAL DEFICIT TO INFLATION IN INDONESIA

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Abstract

This study aims to empirically examine the simultaneous effects of external debt and fiscal deficit on inflation in Indonesia using time series data from 1994 to 2023. The background of this research is the tendency of developing countries to face inflationary pressures not only from monetary factors but also from fiscal policies and reliance on external financing. The novelty of this study lies in its integrative approach that combines two strategic fiscal variables within a single empirical model an approach that is rarely examined simultaneously in the context of Indonesia. The method employed is Ordinary Least Squares (OLS) regression with robust standard errors and the Johansen cointegration test to identify long-term relationships among variables. The results indicate that external debt has a positive and significant effect on inflation, while the fiscal deficit is statistically insignificant. These findings suggest that inflationary pressures in Indonesia are more dominantly influenced by external factors rather than domestic fiscal deficits. Therefore, prudent management of external debt and a synergy between fiscal and monetary policies are crucial to maintaining price stability in the long run.

INTRODUCTION

In the economic dynamics of developing countries, high inflationary pressures are often not only driven by demand and supply factors but also by fiscal policies such as budget deficits and the accumulation of external debt. Inflation, generally defined as a sustained increase in the prices of goods and services, is a critical indicator in maintaining macroeconomic stability (Njonge, 2023). According (Lizondo, 1987), inflation is not solely caused by monetary factors, but is also closely related to fiscal policies and excessive government debt, particularly external debt, which is vulnerable to exchange rate volatility and global economic conditions. Two key factors that often significantly influence inflation are external debt and fiscal deficits. A high accumulation of external debt, if not supported by adequate economic productivity, may increase inflationary risks, especially through channels such as exchange rate depreciation and weakening foreign exchange reserves (Chien et al., 2022). In the case of Indonesia, inflation dynamics are influenced not only by monetary factors such as interest rates and money supply, but also closely linked to fiscal and external conditions, including external debt, budget deficits, and the exchange rate of the rupiah (Wahyuningsih & Ningsih, 2019) as cited in (Kasmianti; et al., 2022).

When external debt payments fall due, the demand for foreign currency rises, leading to the depreciation of the rupiah exchange rate, an increase in the prices of imported goods, and triggering inflation (Putera, 2024) as cited in (Feriyanto et al., 2021). This situation becomes more complex when the government is compelled to cover budget deficits by issuing new debt, thereby increasing fiscal risk and potentially encouraging monetary expansion (Dominikus Leonardo, n.d.). Previous studies have shown that reliance on external financing without proper management strategies can weaken the exchange rate and increase the debt burden in domestic currency (Yuniarti & Khoirudin, 2023) as cited in (Ummah, 2019). However, there remains a research gap in empirically explaining the extent to which external debt and fiscal deficits simultaneously contribute to inflation in Indonesia, particularly within the context of volatile exchange rate pressures and an increasingly open economic structure (Hanapi & Syahputra, 2020).

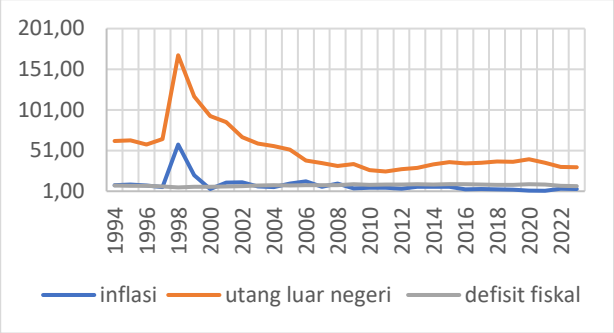
On the other hand, a continuously widening fiscal deficit can also lead to inflation, particularly when financed through money creation or non-productive expenditures (Njonge, 2023b). An empirical study by (Wleklińska, 2023) found a causal relationship between public debt and inflation rates in Europe, especially in countries with high debt burdens. However, previous studies have generally examined the effects of each variable separately and have not thoroughly investigated the simultaneous interaction between external debt and fiscal deficits on inflation, particularly in the context of developing countries with varying exchange rate regimes (Rafie & Lekhal, 2025).

Many developing countries face complex fiscal challenges, where fiscal deficits are often financed through external debt, which in the long run can exert pressure on price stability (Saheed et al., 2015). One notable example is Sri Lanka, which experienced a severe economic crisis in 2022 due to a high burden of external debt and chronic budget deficits. When the country's foreign exchange reserves were depleted and it failed to meet its debt obligations, the domestic currency depreciated sharply, triggering inflation. Nevertheless, previous studies have produced mixed findings; some suggest that external debt contributes to inflation through monetary expansion, while others emphasize that its impact largely depends on the effectiveness of fiscal and monetary policies (Wleklińska, 2023). (Masciandaro et al., 2023) It is asserted that in a fiscal dominance

scenario, where monetary policy tends to accommodate expansionary fiscal measures, the inflationary risk escalates as budget deficits are financed either through monetary expansion or increased external borrowing.

A number of studies have attempted to examine the relationship between external debt, fiscal deficits, and inflation. (Fadli et al., 2024) found that, in the long run, inflation has a negative impact on external debt in Indonesia; however, the study does not specifically assess the extent to which external debt and fiscal deficits jointly contribute to inflation. This research gap becomes particularly relevant given Indonesia's recent economic situation, which has been marked by fiscal pressure and rising external debt ratios amidst global uncertainty and exchange rate fluctuations. (Sharaf et al., 2015) noted that increasing external debt without strengthening domestic fiscal capacity can trigger inflationary pressures through two main channels: currency depreciation and the rising cost of debt servicing in foreign currency.

Theoretically, both fiscal deficits and external debt can exert inflationary pressures through several channels. Within the framework of the Non-Ricardian Fiscal Theory, deficits that are not offset by increased taxation or productive expenditures may prompt monetary authorities to resort to money creation, thereby fueling inflationary pressure (Njonge, 2023a). On the other hand, external debt especially when used to finance consumption-based deficits can increase the burden of debt service payments, disrupt the exchange rate, and trigger inflation through the import channel (Ali, 2023). A study in Kenya found that a 1% increase in external debt is associated with a 0.4043% rise in inflation (Njonge, 2023a). However, findings from Nigeria suggest that fiscal deficits do not always directly contribute to rising external debt. Instead, such debt is more influenced by external factors such as exchange rate fluctuations and import dependency (Shofade Oladapo Daniel, 2021).



Source: World Development Indicators (WDI)

Figure 1

Inflation, External Debt, and Fiscal Deficit,1994-2023

The figure above illustrates the diverse economic dynamics of Indonesia over nearly three decades. In the early part of the period, the economy remained relatively stable, with inflation, external public debt, fiscal deficit, and economic growth maintained within reasonable levels. However, the Asian financial crisis in the late 1990s delivered a major shock to the national economy. This crisis led to a surge in inflation, a sharp increase in external public debt, and a severe contraction in economic growth. Following the crisis, Indonesia gradually managed to restore economic stability. Inflation began to decline, external public debt steadily decreased, and economic growth returned to positive territory. Although the economy faced several challenges such as the global financial crisis in the late 2000s and inflationary spikes in certain years Indonesia demonstrated notable economic resilience. Entering the 2010s, economic stability became more apparent, with inflation trending downward and growth remaining relatively stable. However, the COVID-19 pandemic introduced new pressures, significantly slowing down economic growth, although inflation remained low. After the pandemic, Indonesia's economy showed promising

signs of recovery, with rising growth and controlled inflation. Overall, despite facing numerous challenges, Indonesia has successfully maintained macroeconomic stability and demonstrated considerable resilience in navigating multiple economic crises.

(Ventika & Setyowati, 2024) It has been noted that financing imports through external debt can widen the fiscal deficit and exert pressure on the exchange rate, ultimately contributing to inflation. On the other hand, research by (Adolph, 2016) indicates that exchange rate pressures and dwindling foreign reserves can also increase the risk of fiscal deficits. Theoretical frameworks such as Dependency Theory and the Mundell-Fleming model also support this relationship, suggesting that currency depreciation resulting from excessive external financing may trigger structural inflation (Malini et al., 2022). (Cahyadin & Ratwianingsih, 2020) emphasize that the accumulation of external debt has a significant relationship with exchange rate instability, which in turn places upward pressure on domestic prices. Meanwhile, (Bening Aura Savinca, 2016) finds that while an increase in external debt may contribute to economic growth, its impact on inflation largely depends on how effectively the debt is managed and the extent to which it is used productively.

The urgency of this research becomes increasingly evident when considering the spending patterns of governments in developing countries, which tend to be expansionary without adequate fiscal planning. Fiscal imbalances and reliance on external debt not only undermine fiscal credibility but also weaken price stability (Zayani & Taufiq, 2024) as cited in (Sarifudin, 2023). The rise in deficits and external debt in the aftermath of the COVID-19 pandemic has further deteriorated price stability in many countries, particularly those heavily dependent on external financing (Kumar et al., 2019). (Apeti et al., 2024) argue that the inability of developing countries to manage foreign currency-denominated debt known as the original sin problem renders their economies vulnerable to exchange rate risks and inflation volatility.

The core issue highlighted in this study is the condition wherein rising fiscal deficits financed by external debt tend to weaken the exchange rate and induce imported inflation domestically, without being accompanied by disciplined fiscal management. In Nigeria, the accumulation of external debt since the 1980s primarily driven by deficit financing has led to chronic inflationary pressures and undermined economic growth (Saheed et al., 2015). Similarly, in South Asian countries, the burden of external debt has contributed to fiscal instability and currency depreciation, which in turn exacerbates domestic inflation (Ali, 2023). Therefore, gaining a comprehensive understanding of the simultaneous contributions of fiscal deficits and external debt to inflation is both relevant and urgent (Ize & Ortiz, 1985).

The impact of external debt and fiscal deficits on inflation cannot be separated from the transmission mechanism of exchange rates and the effectiveness of fiscal policy itself. As development financing becomes increasingly dependent on foreign loans, Indonesia faces the risk of currency depreciation due to the rising demand for foreign exchange to service its debt obligations. Such depreciation drives up the cost of imported goods, intensifies inflationary pressures, and adds further strain to national fiscal management (Bakri & Utami, 2021) as cited in (Putera, 2024).

Meanwhile, monetary policy responses to exchange rate volatility have not been entirely effective in curbing inflation, especially when pressures stem simultaneously from both fiscal and external sectors. (Sarifudin, 2023) notes that reactive interest rate policies often lag in addressing inflationary pressures caused by exchange rate shocks. This

underlines the importance of synchronizing fiscal and monetary policies to achieve comprehensive inflation control.

(Lilis Yuliati, Badara Shofi Dana, 2016) also found that the relationship between fiscal policy and inflation is nonlinear at a certain level of deficit, its influence on inflation intensifies. When external debt and fiscal deficits surpass a threshold of fiscal credibility, their inflationary impact becomes significant and difficult to manage, particularly if not accompanied by productive public spending. Furthermore, (Yasa et al., 2024) explain that inflation in Indonesia is heavily influenced by exchange rate dynamics and global interest rates. When external debt is largely denominated in foreign currencies, a weakening rupiah directly increases the burden of interest and principal repayments, leading to fiscal stress and inflationary pressure on imported goods.

In a broader context, (Reed et al., 2019) demonstrate that persistent fiscal imbalances such as sustained budget deficits undermine macroeconomic resilience. When governments cover deficits with external borrowing, fiscal risk increases, policy credibility deteriorates, and inflation may arise as a consequence of economic uncertainty and currency depreciation. (Fadli et al., 2024) also emphasize that the structure and maturity profile of Indonesia's external debt have not yet been optimally managed. Although long-term debt is more stable, the dominance of short-term borrowing makes the country vulnerable to global interest rate shifts and exchange rate volatility. When market expectations regarding fiscal deficits worsen, capital outflows ensue, depressing the exchange rate and triggering imported inflation that is difficult to contain.

This study specifically focuses on inflation as the dependent variable by simultaneously analyzing the effects of two key fiscal variables: budget deficits and external debt. The novelty of this research lies in integrating these two variables into a single comprehensive empirical model an approach that remains relatively underexplored in the context of developing countries (Wleklińska, 2023) as cited in (Bunescu, 2014). (Wahyuningsih & Ningsih, 2019) menyoroti hubungan antara utang luar negeri dan nilai tukar, tetapi belum mengaitkannya highlight the relationship between external debt and exchange rates, but do not directly link it to inflation as the main dependent variable. Therefore, this study is expected to contribute to the existing literature on inflation determinants in developing economies by considering both strategic fiscal factors simultaneously.

Accordingly, the research questions of this study are: (1) To what extent does external debt affect inflation in developing countries? and (2) What is the contribution of fiscal deficits to inflation in both the short and long run? The primary objective of this research is to identify and analyze the causal relationship between external debt and fiscal deficits on inflation rates, and to provide empirically based recommendations for formulating more stable and sustainable fiscal policies.

LITERATUR RIVIEW

Inflation

Inflation is a continuous rise in prices that has long been a subject of interest among economists. Various theories have attempted to explain the causes of inflation from different perspectives. (Varela García, 2023) states that the main debate revolves around monetary versus social views in explaining the origins of inflation. (Suprapti et al., 2025) emphasize that these theories encompass monetary, demand-side, supply-side, and structural approaches. (Amhimmid et al., 2021) One of the most classical explanations is the Quantity Theory of Money, which posits that an increase in the money supply (M) leads to a rise in the general price level (P) (Agung

& Juhro, 2016), assuming the velocity of money (V) (Ikhsan & Virananda, 2021a) and the volume of transactions (T) remain constant. Milton Friedman reinforced this theory by asserting that inflation is “always and everywhere a monetary phenomenon.” On the other hand, the demand-pull theory of inflation argues that inflation arises when aggregate demand exceeds national productive capacity (Indrawati et al., 2024). The driving factors include government spending, household consumption, and inflation expectations (Bahadur, 2025a). Keynes developed the concept of the inflationary gap as an early explanation of inflation occurring before full employment is reached (Catal & Terrones, n.d.).

Furthermore, (Warjiyo, 2023) emphasizes that inflation control must be carried out through effective monetary policy instruments, particularly by managing liquidity and the policy interest rate. This view supports the monetary approach, which positions the central bank as the primary actor in maintaining price stability. The cost-push theory of inflation suggests that rising input prices—such as wages, raw materials, or taxes—can lead producers to increase prices in order to preserve profit marginsh (Barrionuevo, 1992). This type of inflation may arise from wage-price spirals, energy price shocks, or supply chain disruptions (BLEANEY, 1996). Structural inflation highlights typical constraints in developing countries, such as dependence on imports, inefficient markets, fiscal deficits, and economic dualism, as long-term drivers of inflation (Aimola & Odhiambo, 2021) (Ammama et al., 2011)). (Lubis et al., 2025) assert that the causes of inflation are often a combination of these various theoretical explanations. Therefore, inflation management policies must adopt a holistic approach.

The Phillips Curve theory adds a dimension to the relationship between inflation and unemployment. Initially, the curve illustrated a short-run trade-off between inflation and unemployment. However, this view was later challenged by Friedman and Phelps, who argued that in the long run, the trade-off does not hold because inflation expectations adjust accordingly (Nguyen, 2015). Meanwhile, credit expansion is also recognized as a cause of inflation, particularly when purchasing power surges due to aggressive loan growth (Latifah et al., 2024).

(Ryan Banerjee et al., 2022a) note that credit growth that is not aligned with output expansion can trigger significant inflationary pressures, particularly in developing countries. Lastly, imported inflation is a major concern for developing economies that are heavily dependent on imported goods, especially during episodes of domestic currency depreciation or surges in global commodity prices (Maharani & Widyastuti, 2024). A comprehensive understanding of these inflation theories is crucial for policymakers to formulate appropriate responses in maintaining price stability and sustainable economic growth.

More broadly, (Bianchi et al., 2023) developed the Fiscal Theory of Inflation, which argues that inflation can also be driven by fiscal imbalances not backed by future revenues (unfunded fiscal shocks). They suggest that persistent inflation is essentially a fiscal phenomenon, especially when central banks are compelled to accommodate surges in government spending without sufficient financing. This highlights the critical role of coordination between fiscal and monetary authorities in determining the long-term trajectory of inflation. This approach enriches our understanding of inflation in the post-pandemic era, which has been characterized by expansive fiscal stimulus.

From a cosmological standpoint—though not directly part of monetary economics—the concept of “inflation” in

cosmology also contributes valuable insights into structural and dynamic frameworks of inflation. (Oliveros & Rodríguez, 2022) demonstrate that in the scalar-vector-tensor field theory, inflationary dynamics are heavily influenced by the geometric structure of spacetime and the coupling functions of the fields. In this context, the number of e-foldings serves as a critical indicator for assessing the success of early universe inflation scenarios. (Gonzalez-Espinoza & Herrera, 2025) explore the interaction between scalar and vector fields in scalar-vector gravitational inflation models. They conclude that such models not only explain the early expansion of the universe but also provide a theoretical framework relevant for understanding fluctuations and pressure dynamics in complex systems.

External Debt

External debt is a common source of financing for developing countries like Indonesia to cover budget deficits and support development. When used productively, such debt can promote growth in key sectors such as infrastructure, education, and health (Adefabi, 2023). However, excessive debt poses risks such as debt overhang and the crowding-out effect, where large debt burdens hinder investment and reduce productive government spending. Countries must strengthen fiscal institutions and manage global risks to ensure that external debt serves as a development tool rather than a burden (Sciences, 2019). The crowding-out phenomenon occurs when development budgets are sacrificed to repay debt obligations (Pokhrel, 2024). Moreover, when debt exceeds 35–40% of GDP, the impact tends to turn negative (Pattillo et al., 2002). According to debt overhang theory, high debt levels discourage investors, who fear that returns on investment will merely be used to service debt (Abdullahi et al., 2016).

Several studies find that the impact of external debt depends on how it is managed. If managed efficiently and transparently, debt can yield both short- and long-term benefits. Conversely, increasing debt burdens may reduce productive spending and increase interest payment obligations (Ohiomu, 2020). Transparency and good governance in debt management are essential to ensure that borrowing contributes positively to development (Akinola & Ohonba, 2024) However, long-term dependence on debt can undermine budgetary efficiency (Odey et al., 2023) Global factors such as exchange rate fluctuations and interest rates also affect a country's repayment capacity (Elkhalfi et al., 2024). In Sub-Saharan Africa, much of the borrowed funds have been used for consumption rather than investment (Jatta & Njie, 2020).

According to (Sharif Chaudhry et al., 2009), the effect of external debt on national investment is uncertain and depends on how loans are used and whether they substitute domestic investment. Mismanagement of loans can lead to debt crises, as seen in several African countries, where borrowed funds were used for consumption or misappropriated by political elites (Aluko & Arowolo, 2010). regime-type theory (Oatley, 2010) suggests that autocratic regimes tend to borrow more but allocate less to the public sector than democratic regimes, making them more vulnerable to debt accumulation. External debt levels are thus heavily influenced by institutional incentives and political stability.

External debt remains a crucial financing instrument for developing countries in addressing fiscal gaps and stimulating economic growth. (Msc Vlatko Paceskoski et al., 2014) emphasize that institutional factors and socio-political conditions play a significant role in determining debt levels, and global debt crises often arise when poor countries fail

to meet their interest payments. Additionally, (Nart Ela Çolpan, 2015) explains that reliance on foreign currency loans increases vulnerability to exchange rate fluctuations and has been a key trigger in several financial crises. Mismatches between foreign currency-denominated assets and liabilities exacerbate repayment burdens and threaten fiscal stability. Along the same lines, (Tremblay, 2009) highlights that surges in external debt not matched by economic productivity can lead to global deflationary pressures, prompting government spending cuts and slowing economic activity.

Research on external debt is not only relevant to macroeconomic and fiscal dynamics at the national level but also directly affects household sectors and international legal stability. (Verner et al. 2020) show that foreign currency debt crises at the household level can reduce consumption, increase the risk of bankruptcy, and slow real economic growth—particularly during sharp domestic currency depreciation. This underscores the need for debt risk management that considers not only national liabilities but also the structure of individual loans and the resilience of the microfinancial system. On the legal front, (Al Shammari Dr. Ali Dheyaa Hussein, 2024) stresses that external debt contracts between countries and international institutions must adhere to a transparent and fair international legal framework. Such legal approaches not only protect both creditors and debtors but also ensure that debt management aligns with principles of fiscal sustainability and long-term development. In the case of Indonesia, external debt has historically served as a fiscal strategy to finance development and cover budget deficits (Handoyo et al., 2020). However, structural challenges remain, such as low tax revenues, high expenditures, and persistent reliance on foreign borrowing—a trend also observed in South Asia (Noor Alam & Fauzia Md. Taib, 2013).

Fiscal Deficit

Fiscal deficit is generally understood as an expansionary government policy aimed at stimulating economic growth, particularly when the private sector is sluggish. From a Keynesian perspective, budget deficits can serve as instruments to boost aggregate demand through government spending. This is supported by (Ahmad Bhari et al., 2020) who argue that fiscal deficits increase aggregate demand via public sector investment, thereby positively impacting economic growth. According to (Istiqomah & Mafruhah, 2022), fiscal deficits can act as short-term stimuli for economic recovery; however, their effectiveness depends heavily on sound fiscal governance, (Kholis et al., 2022) note that there is an optimal threshold of deficit that can stimulate growth without causing imbalances. Exceeding this threshold may lead to counterproductive effects, including inflationary pressures.(Mawejje & Odhiambo, 2020) through the lens of the Ricardian Equivalence Theory, argue that fiscal deficits do not always increase aggregate demand, as the public may anticipate future tax hikes and thus increase savings. Moreover, deficits may crowd out private investment, leading to negative growth effects. Determinants of these outcomes vary across countries, including factors such as debt levels, inflation, and institutional quality. In the long run, fiscal deficits must be managed carefully to maintain fiscal sustainability and investor confidence. (Impact et al., n.d.) uggest that sustainable deficit management hinges on the debt-to-GDP ratio and the primary balance, which reflect the government’s ability to meet obligations without incurring new debt. (Mian et al., 2022) describe this policy approach as a "free lunch," but caution that not all environments with interest rates lower than

economic growth can support permanent deficit financing without additional risks.

Furthermore, (Ikhsan & Virananda, 2021b) mphasize that an asymmetric fiscal response to debt financing is crucial for maintaining fiscal stability. Structural reforms in budgetary policy, as explored by (Mokoginta & Stephanie, 2015) may act as turning points that reshape future fiscal policy directions. (Cahyadin et al., 2022) underscore that fiscal sustainability in developing countries is heavily influenced by institutional quality; they found that at certain debt and deficit levels, institutions determine whether fiscal policy remains sustainable, (Beetsma, 2022) dds that fiscal rules requiring primary surpluses as a proportion of GDP are more effective in ensuring sustainability than fixed deficit rules. (Mokoginta & Stephanie, 2015) further highlight the importance of maintaining a positive primary surplus that is responsive to the debt-to-GDP ratio in order to ensure public debt sustainability, especially in developing countries. Therefore, sustainable deficit management demands a combination of responsive fiscal policies, robust institutions, and appropriate structural reforms. Deficit financing also plays a key role in macroeconomic stability, particularly inflation. Financing through money creation or excessive domestic borrowing may generate inflationary pressures. (Hamzah & Abd. Ghafar, 2005) eveal that in developing countries, unsound deficit financing tends to cause inflation when not accompanied by corresponding output increases. On the other hand, (Citaningati & Kamaluddin, 2022) propose Islamic-based financing alternatives, such as zakat and waqf, to reduce dependence on conventional foreign debt. According to (Insanu, 2020), if the public believes that deficits will eventually be offset by future tax increases, their impact on aggregate demand can be minimized—consistent with the Ricardian Fiscal Regime framework. The fiscal deficit in Indonesia is a complex issue, as it not only affects domestic conditions but also impacts the country's external position. A study by (Utama, 2024) eveals that an uncontrolled fiscal deficit contributes to the increase of Indonesia’s external debt, which, in the long run, may result in a heavier interest payment burden and reduce the fiscal space available for productive expenditures. Meanwhile, (Sriyana, 2022) argues that an expansionary deficit-financed budget does not directly trigger inflation, provided it is accompanied by disciplined monetary policy and adequate output growth. Furthermore, (Iba et al., 2022) emphasize that components of government spending—such as energy subsidies—are often major contributors to the widening deficit, thereby making spending efficiency a critical priority in budget planning.

A persistent fiscal deficit can become a source of economic instability if not accompanied by adequate fiscal reforms. According to(Prastyawati & Hasmarini, 2023) the rising fiscal deficit in Indonesia contributes to macroeconomic imbalances, particularly when it occurs alongside weak government revenue and a heavy burden of mandatory expenditures. Similarly (Lalu Takdir Jumaidi, 2019), inds a significant relationship between fiscal deficits and inflation, especially in the short term, where expansionary fiscal policies increase aggregate demand, leading to upward pressure on prices of goods and services. This finding is in line with the study by (Ryan Banerjee et al., 2022) which suggests that in developed countries, the inflationary effects of fiscal deficits can be substantial—especially when monetary policy lacks sufficient independence to counterbalance fiscal pressures. Furthermore (Bahadur, 2025) in an analysis of Mozambique’s economy, indicates that fiscal deficits have a significant long-term relationship with inflation, underscoring the importance of

effective deficit management in maintaining price stability. Thus, both in domestic and global contexts, the influence of fiscal deficits on economic instability and inflation requires careful and well-coordinated policy responses. In line with macroeconomic theory, (Bordo & Levy, 2020) argue that fiscal deficits can lead to inflation, particularly in developing countries or during periods of high inflation, while this relationship tends to be weaker in advanced economies with low inflation.

METHODOLOGY

This study employs a quantitative research method with a descriptive-correlational approach, aiming to analyze the influence of external debt and fiscal deficit on inflation in Indonesia. The research uses annual time series data spanning the period from 1994 to 2023.

The target population in this study includes macroeconomic variables that represent Indonesia's fiscal and monetary conditions, with a specific focus on the relationship between external debt, fiscal deficit, and the inflation rate. The unit of analysis is the Republic of Indonesia as a single national economy. The sample consists of annual data collected over 30 years, covering the period from 1994 to 2023. This period was selected based on data availability and its coverage of both pre- and post-economic crisis phases as well as long-term fiscal dynamics. The research context lies within the field of macroeconomics, particularly in the domain of fiscal policy and price stability.

The data used in this study are secondary data obtained from the official *World Development Indicators (WDI)* database published by the World Bank. The variables include:

1. Y = Inflation (Consumer Prices, Annual %) **FP.CPI.TOTL.ZG**
2. X1 = External debt stocks (% of GNI) **DT.DOD.DECT.GN.ZS**
3. X2 = Fiscal Deficit (General government final consumption expenditure (% of GDP)) **NE.CON.GOVT.ZS**

The selection of indicators was based on data availability, reliability of sources, and their relevance to the phenomenon being studied, in accordance with previous literature on fiscal and monetary policy.

The analysis is conducted using multiple linear regression (Ordinary Least Squares/OLS) to estimate the relationship between external debt and fiscal deficit on inflation. The regression model follows the framework outlined by (Gujarati, 2012) and (Wooldridge, 1990) as follows:

$$inf_t = \beta_0 + \beta_1 . ed_t + \beta_2 . fd_t + \varepsilon_t$$

Dimana :

inf_t= Inflation in year *t*

ed_t= External debt in year *t*

fd_t= Fiscal deficit in year *t*

ε_t= Error term

Data processing was carried out using Stata 16 software, which was employed to estimate the Ordinary Least Squares (OLS) regression model and to perform classical assumption tests. These tests include the normality test to ensure that the residuals are normally distributed—a key assumption in OLS; the multicollinearity test to examine whether the independent variables are highly correlated; the heteroskedasticity test to determine whether the variance of the residuals is constant; and the autocorrelation test to assess whether current residuals are correlated with past residuals. If violations of heteroskedasticity or autocorrelation assumptions are found, the model is corrected using robust standard errors to obtain more reliable parameter estimates, in accordance with the method proposed by (White, 1980).

RESULT AND DISCUSSION

Results

1. Stationarity Test (ADF Test)

To ensure the validity of the OLS regression model used in this study, a stationarity test was first conducted on all variables using the Augmented Dickey-Fuller (ADF) method. This test aims to determine whether each variable is stationary, meaning that it has a constant mean and variance over time.

Table 1. Results of Stationarity Test (ADF Test)

Variabel	Level / First Diff	ADF Stat	1% Crit Value	5% Crit Value	10% Crit Value	P-value
INF	Level	-4.111	-3.723	-2.989	-2.625	0.0009
EXDE	Level	-1.990	-3.723	-2.989	-2.625	0.2909
D.EXDE	First Difference	-6.177	-3.730	-2.992	-2.626	0.0000
DEFI	Level	-1.349	-3.723	-2.989	-2.625	0.6065
D.DEFI	First Difference	-4.998	-3.730	-2.992	-2.626	0.0000

Source : Stata 16 Processing Result

In this study, the Augmented Dickey-Fuller (ADF) test was employed to examine the stationarity of the variables: inflation (INF), the ratio of external debt to GDP (EXDE), and the ratio of budget deficit to GDP (DEFI). The test results indicate that the INF variable is stationary at level, with an ADF statistic of -4.111, which is lower than the 5% critical value of -2.989, and a p-value of 0.0009. This implies that INF does not contain a unit root and can be directly used in the regression model.

In contrast, the variables EXDE and DEFI are not stationary at level, with ADF values of -1.990 and -1.349, and p-values of 0.2909 and 0.6065, respectively. Since these results are not statistically significant, a first differencing process was performed. After differencing, both variables became stationary, with ADF values of -6.177 (EXDE) and -4.998 (DEFI), and p-values of 0.0000, well below the 5% significance threshold. This indicates that EXDE and DEFI are classified as I(1), meaning they are stationary at first difference.

Nonetheless, the regression model in this study uses data in level form, supported by theoretical justification and the objective of analyzing long-run relationships. To ensure the robustness of the results, the regression is complemented with classical assumption tests and the use of robust standard errors to address potential heteroskedasticity. Therefore, the model remains reliable despite differences in the stationarity levels among the variables.

2. Johansen Cointegration Test

The Johansen cointegration test is used to determine whether a long-term relationship exists among the variables analyzed in the model, even though these variables are not stationary at level but become stationary at first difference (I(1)). In this study, the cointegration test was conducted on three variables: inflation (INF), the ratio of external debt to GDP (EXDE), and the ratio of budget deficit to GDP (DEFI). The test was performed under the assumption of a constant trend and with two optimal lags.

The test results indicate the presence of one cointegrating relationship among the three variables, as evidenced by the trace statistic value of 43.1717, which exceeds the 5% critical value of 29.68 under the null hypothesis of rank = 0. Meanwhile, for rank = 1, the trace statistic is 13.0167, which is lower than the 5% critical value of 15.41, suggesting that there is no more than one cointegrating relationship.

The presence of a single cointegrating relationship implies that a long-run equilibrium exists among inflation, external debt, and the budget deficit. This finding indicates that although each variable is individually non-stationary, they move together in a stable long-term relationship. This has important implications for fiscal and monetary policy, as changes in debt and deficits can have long-term effects on inflation.

The table below presents the Johansen cointegration test results used in this study:

Tabel 2. Johansen Cointegration Test (Trace Test)

Rank	Eigenvalue	Trace Statistic	Nilai Kritis 5%
0	-	43.1717	29.68
1	0.65937	13.0167	15.41
2	0.31893	2.2620	3.76
3	0.07761	-	-

Source : Stata 16 Processing Result

Accordingly, the cointegration test provides empirical support for the model, affirming a theoretically and statistically valid long-term relationship among the three examined economic variables.

3. OLS Regression Results

Ordinary Least Squares (OLS) regression is employed to examine the effect of the external debt-to-GDP ratio (EXDE) and the budget deficit-to-GDP ratio (DEFI) on the inflation rate (INF) in Indonesia. Based on the regression results using robust standard errors, it is found that the EXDE variable has a significant effect on inflation, while the DEFI variable is not statistically significant at the 5% significance level.

Table 3. OLS Regression Results

Variabel	Koefisien	Std. Error (SE)	t-Statistik	Prob > t	95% Interval Kepercayaan	
EXDE (Utang terhadap PDB)	0.3342	0.059983	2.99	0.00	0.2111488	0.4573
DEFI (Defisit terhadap PDB)	21.258	1.705.373	1.23	0.233	-1.373.302	5.624.971
Konstanta	-2.653.428	1.684.237	-1.39	0.127	-6.109.197	8.023.419
					Number Of obs	30
					F(2, 27)	31.560
					Prob > F	0
					R-squared	0.7004
					Adj R-squared	0.6782
					Root MSE	58.053

Source : Stata 16 Processing Result

Based on the results of the Ordinary Least Squares (OLS) regression, the external debt-to-GDP ratio (EXDE) variable is found to have a statistically significant effect on inflation (INF) in Indonesia. The coefficient value of EXDE is 0.3342, with a 1% level of significance (p-value = 0.000), indicating that a one-unit increase in the external debt-to-GDP ratio is estimated to increase inflation by 0.3342 points, ceteris paribus. In contrast, the budget deficit-to-GDP ratio (DEFI) variable has a positive coefficient of 2.1258 but is not statistically significant (p-value = 0.223), implying that the influence of fiscal deficit on inflation is not strongly supported during the observed period.

The R-squared value of 0.7004 indicates that approximately 70.04% of the variation in the inflation rate can be explained by the debt and deficit ratios. The remaining 29.96% is attributed to other variables outside the model. With an adjusted R-squared of 0.6782, the model is still considered good in explaining the variation in the data.

These findings confirm that external debt has a significant impact on inflation in Indonesia, as indicated by the OLS regression with robust standard errors, which yields a coefficient of 0.3342 and a p-value of 0.006. This suggests that a 1% increase in the debt-to-GDP ratio is expected to raise inflation by 0.3342 points, ceteris paribus. Meanwhile, the fiscal deficit

variable has a p-value of 0.231, confirming its statistical insignificance. Thus, its effect on inflation requires further investigation through alternative approaches or more comprehensive data.

Variabel	Koeficien	robust Std. Error	t-Statistic	Prob > t	95% Confidence Interval
exde (Rasio Utang terhadap PDB)	0.3342	0.1117	2.99	0.006	0.1051 – 0.5633
defi (Rasio Defisit terhadap PDB)	21.258	17.332	1.23	0.231	-1.4303 – 5.6820
_cons	-265.343	190.917	-1.39	0.176	-65.7072 – 12.6387
				Number Of obs	30
				F(2, 27)	5.9
				Prob > F	0.0075
				R-squared	0.7004
				Root MSE	58.053

4. Classical Assumption Tests

a. Normality Test (Shapiro-Wilk Test)

The normality test was conducted to determine whether the residuals of the regression model are normally distributed. Based on the Shapiro-Wilk test, the W statistic is 0.9403 with a probability value of 0.0926. Since the probability is greater than the 5% significance level ($p > 0.05$), it can be concluded that the residuals in this model are normally distributed. This indicates that the normality assumption is satisfied.

Tabel 4. Normality Test (Shapiro-Wilk Test)

Statistik Uji	Nilai	Probabilitas
W	0.9403	0.0926

Source : Stata 16 Processing Result

b. Autocorrelation Test (Breusch-Godfrey LM Test)

The autocorrelation test was conducted to examine whether there is a correlation between current and past residuals. The Breusch-Godfrey test results show a chi-square value of 0.924 with a probability of 0.3363. Since the probability value is greater than 0.05, there is no evidence of autocorrelation in the model. Therefore, the regression model satisfies the assumption of no autocorrelation.

Table 5. Autocorrelation Test (Breusch-Godfrey LM Test)

Lags	Chi-Square	Probabilitas
1	0.924	0.3363

Source : Stata 16 Processing Result

c. Multicollinearity Test (Variance Inflation Factor / VIF)

The multicollinearity test aims to determine whether there is a strong correlation among the independent variables in the model. Based on the Variance Inflation Factor (VIF) results, the VIF values for the variables EXDE and DEFI are 2.96. Since this value is below the commonly accepted threshold of 10, it can be concluded that there is no indication of multicollinearity in the regression model. Therefore, the model is considered free from multicollinearity.

Tabel 6. Multicollinearity Test (Variance Inflation Factor / VIF)

Variabel	VIF	1/VIF
exde	2.96	0.337
defi	2.96	0.337
Mean VIF	**2.96**	

Source : Stata 16 Processing Result

d. Heteroskedasticity Test (Breusch-Pagan Test)

The heteroskedasticity test was conducted to examine whether the variance of the residuals is constant (homoskedasticity). The test results show a chi-square value of 31.72 with a probability of 0.0000. Since the probability value is less than 0.05, it can be concluded that heteroskedasticity is

present in the regression model. To address this issue, the regression was estimated using robust standard errors to ensure the validity of the coefficient estimates.

Tabel 7. Heteroskedasticity Test (Breusch-Pagan Test)

Chi-Square	Probabilitas
31.72	0.0000

Source : Stata 16 Processing Result

5. Model Improvement (Robust Regression)

Based on the results of the previous classical assumption tests, the regression model was found to exhibit heteroskedasticity, as indicated by the Breusch-Pagan test with a probability value of 0.0000 ($p < 0.05$). Heteroskedasticity can lead to non-constant variance of the residuals, rendering the variable estimates inefficient. To address this issue and obtain more reliable estimates, the model was corrected by applying Ordinary Least Squares (OLS) regression with robust standard errors.

The robust regression estimation results show that the external debt-to-GDP ratio (EXDE) variable remains statistically significant in influencing inflation, with a coefficient of 0.3342 and a p-value of 0.006 ($p < 0.05$). This indicates that a one-unit increase in the debt-to-GDP ratio would raise the inflation rate by 0.3342 percentage points, ceteris paribus. Meanwhile, the budget deficit-to-GDP ratio (DEFI) variable remains statistically insignificant, with a p-value of 0.231. The use of robust standard errors successfully addressed the heteroskedasticity problem and maintained the stability of the model's coefficient estimates.

Discussions

The findings of this study indicate that the external debt-to-GDP ratio (EXDE) has a significant effect on inflation in Indonesia, while the fiscal deficit-to-GDP ratio (DEFI) does not have a statistically significant impact. This result reinforces the notion that reliance on external financing may trigger domestic price pressures, in line with the fiscal theory of inflation proposed by (Bianchi et al., 2023) which argues that fiscal financing not backed by future revenues can lead to persistent inflation.

This finding is consistent with the studies of (Pattillo et al., 2002) dan (Odey et al., 2023), which state that debt accumulation beyond a certain threshold negatively affects macroeconomic stability, including inflation. This impact is further supported by the debt overhang theory, which posits that excessive debt burdens erode investor confidence and compel governments to resort to inflationary fiscal instruments. Therefore, the significant effect of EXDE highlights the importance of prudent external debt management.

Conversely, the insignificant effect of the fiscal deficit on inflation may be associated with the Ricardian Equivalence theory (Mawejje & Odhiambo, 2020), which suggests that a deficit does not necessarily lead to increased consumption if the public anticipates future tax increases. Moreover, according to (Istiqomah & Mafruhah, 2022), the effectiveness of deficit spending as a stimulus depends on the form of financing and institutional conditions. If the deficit is financed through long-term bonds, its impact on prices tends to be limited.

The difference in findings compared to other studies, such as (Bahadur, 2025b), which identified a strong relationship between deficits and inflation, may be attributed to variations in monetary policy contexts and budgetary structures across countries. In the case of Indonesia, the results suggest that relatively disciplined monetary policy and well-coordinated fiscal management have helped mitigate the inflationary impact of budget deficits during the observation period.

The results of this study indicate that external debt has a positive and significant effect on inflation in Indonesia, whereas the fiscal deficit does not have a statistically significant impact. This finding is consistent with the study by (Kia, 2010) which shows that in developing countries such as Turkey, public debt—including external debt—plays a significant role in driving inflationary pressures through both monetary and fiscal channels. In the Indonesian context, high levels of external debt tend to increase exchange rate pressure and raise interest payment costs, which ultimately contribute to rising prices.

The insignificance of the fiscal deficit's impact on inflation supports the Ricardian Equivalence approach ((Barro, 1979) and is further reinforced by the findings of (Munthe, 2024), which suggest that the public responds to deficit policies by adjusting their consumption and savings behavior, thereby neutralizing the inflationary effect. Moreover, financing deficits through non-monetary instruments such as long-term bonds can reduce price pressures. In addition, a study by (Alam & Taib, 2013) shows that in countries like Indonesia, the relationship between deficits and inflation is not always direct, and largely depends on the method of financing—whether through domestic or external borrowing. Therefore, although deficits may occur, their inflationary impact can be minimized through prudent financing strategies.

This study reinforces the findings of (Azam et al., 2013) which state that external debt in Indonesia has more often been a burden than a benefit, as it does not consistently promote productive growth. Therefore, the findings underscore the importance of more efficient external debt management, as well as the need for synergy between fiscal and monetary policies to keep inflationary pressures under control. In the long run, fiscal sustainability and the effective utilization of borrowed funds are key to maintaining national economic stability.

Methodologically, this study contributes new insights through the use of 30 years of time series data with robust standard error correction, as well as the application of cointegration testing to justify the use of level data. The results provide empirical evidence that external debt management has a more dominant influence on inflation compared to fiscal deficits. This finding is crucial for shaping Indonesia's future fiscal policy direction, emphasizing the need to enhance the efficiency of debt utilization and maintain fiscal sustainability without generating inflationary pressures.

CONCLUSION

This study empirically proves that external debt has a positive and significant longterm effect on inflation in Indonesia. This indicates that the accumulation of external debt, particularly that denominated in foreign currency, exerts pressure on the rupiah exchange rate. When debt matures and requires repayment in foreign currencies, the demand for foreign exchange rises, leading to currency depreciation, which in turn increases the prices of imported goods. This transmission mechanism triggers imported inflation and directly impacts domestic price levels.

These findings reinforce several established theories and previous studies, such as the fiscal theory of inflation and the concept of debt overhang, which argue that unproductive or poorly managed external debt can generate future inflation expectations. Investor confidence also tends to decline when the debt structure is unsustainable, resulting in capital outflows, a weakening rupiah, and increased price pressure.

Conversely, fiscal deficit which has often been considered a major trigger of inflation was found to be statistically insignificant in the context of Indonesia based on data from 1994 to 2023. This suggests that the impact of a deficit on inflation largely depends on how it is

financed. If the financing is conducted through non-monetary instruments such as long-term bonds, the direct impact on aggregate demand and price pressure is relatively minor. This finding is consistent with the Ricardian Equivalence Hypothesis, which posits that people tend not to increase consumption when they anticipate future tax adjustments to offset current deficits.

The regression results also show that approximately 70% of the variation in inflation can be explained by external debt and fiscal deficit variables, while the remaining variation is influenced by other factors such as interest rates, exchange rates, inflation expectations, and global dynamics. This highlights that external factors especially external debt play a more dominant role than domestic fiscal factors in influencing inflation in Indonesia during the study period.

Therefore, this research provides an important contribution to the macroeconomic literature in Indonesia, particularly in understanding the simultaneous contribution of external debt and fiscal deficit to inflation. The findings also emphasize that in the context of a developing country like Indonesia, macroeconomic stability greatly depends on prudent fiscal management, exchange rate risk control, and strong synergy between fiscal and monetary policies.

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