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Impact of Budget Deficit on Inflation: Bangladesh Perspective

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Abstract

This study combines theoretical understanding with empirical analysis to investigate the relationship between inflation and budget deficits. Applying the Autoregressive Distributed Lag (ARDL) model on annual data spanning 1990- 2023, the findings reveal a significant long-run association between fiscal deficits and inflation, indicating that sustained government budget deficits contribute to rising price levels over time. In contrast, the short-run impact of fiscal deficits on inflation is relatively weak. The analysis also reveals that real GDP growth is associated with lower inflation in the long run, whereas higher government consumption tends to exacerbate inflationary pressures. The error correction term is negative and statistically significant, suggesting a stable model. These findings underscore the importance of sound fiscal discipline and coordinated monetary-fiscal policy to maintain price stability and support long-term macroeconomic sustainability.

Keywords: Deficit, Inflation, ARDL
JEL Classification: E62, H62, C32

1 Introduction

A budget deficit occurs when government spending exceeds revenue, requiring financing through borrowing (both domestic and external), increased taxation, or money creation. According to Sill (2005), a budget deficit arises when an entity's expenditures exceed its earnings or income. The budget deficit has been a major macroeconomic issue among economists, widely debated in both academic and political arenas since the 1970s (Barişik and Bariş, 2017). This debate is especially prominent in developing countries, where structural constraints and limited fiscal capacity amplify the consequences.

In financing the budget deficit, the government needs to source funding through domestic borrowing, external debt, or monetary instruments to mobilize resources within the economy (Lwanga and Mawejje, 2014). One key concern with budget deficits is their inflationary effects, especially when financed through central bank borrowing. Such financing increases the money supply, potentially driving up prices and eroding purchasing power, particularly for lower-income groups. Although targeted deficit spending can support growth and development, persistent and poorly managed deficits can destabilize the economy. Due to structural problems experienced, the budget deficit causes more extreme problems in developing nations than in developed nations (Navaratnam and Mayandy, 2016; Shastri et al., 2017).

Bangladesh has experienced persistent budget deficits in recent years, driven by spending on infrastructure, social welfare, and subsidies. Although these efforts aim to foster development, the growing fiscal gap raises concerns about rising inflation and long-term macroeco-

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nomic stability. Unlike developed economies, Bangladesh faces greater vulnerabilities from deficit financing due to lower reserves, high reliance on borrowing, and increased inflationary pressures. Economists and policymakers have long debated the effects of budget deficits, particularly in developing countries like Bangladesh, where the consequences of deficit financing can be more pronounced. While deficit spending may support infrastructure development, social programs, and economic growth, it also carries significant risks, including inflation and macroeconomic instability. Thus, maintaining a balance between short-term fiscal needs and long-term sustainability is essential for ensuring economic stability. According to the Bangladesh Economic Review, the country's budget deficit stood at 4.68% of GDP in FY24 (excluding foreign grants), raising concerns about its implications for inflation, economic stability, and future growth. In this context, understanding the relationship between budget deficits and inflation is critical for formulating sound fiscal policies that foster development without compromising price stability. This paper seeks to explore the impact of budget deficits on inflation with a specific focus on Bangladesh. The findings will provide policymakers with insights that could help strike a balance between fiscal deficit and economic stability in a way that promotes sustainable economic development while maintaining price stability in Bangladesh.

The rest of the paper is organized as follows: Section 2 provides Different theories of Budget Deficit. Section 3 reviews empirical studies related to the topic. Section 4 presents data analysis and model specifications. Section 5 discusses the empirical results, while Section 6 presents diagnostic tests. Finally, Section 7 concludes with key findings and policy recommendations.

2 Literature Review

2.1 Theoretical Overview

A budget deficit occurs when a government's expenditures exceed its revenues, forcing it to borrow to finance the shortfall. Such borrowing may involve issuing debt in domestic or international markets or, alternatively, printing additional currency. This topic has been debated extensively among various schools of economic thought, each offering unique perspectives on the consequences and management of deficits. In this context, the perspective of four major schools- Classical, Neoclassical, Keynesian, and Ricardian theories provide useful theoretical foundations for analyzing the consequences of budget deficits on inflation.

2.2 Classical Theory of Budget Deficits

This theory was collectively developed by the classical economists, suggesting that budget deficits may initially boost consumption but are largely offset by reduced private investment. Higher government borrowing increases demand for loanable funds, thereby raising interest rates- a phenomenon known as the "crowding-out effect." This discourages private capital formation and may hinder long-term economic growth. While classical economists did not establish a direct connection between deficits and inflation, any effect on prices is indirect and arises only from temporary changes in aggregate demand, as prices are assumed to be flexible.

2.3 Neo-classical Theory of Budget Deficits

The neo-classical school argues that budget deficits negatively affect key macroeconomic variables by raising interest rates, discouraging private investment, and potentially slowing economic growth through crowding out mechanism. The model assumes market-clearing conditions, overlapping generations, and borrowing/lending at market interest

rates. While permanent deficits reduce capital accumulation, temporary deficits have limited effects on savings, interest rates, and consumption. Budget deficits become inflationary only when financed through monetary expansion, whereas debt-financed deficits are less likely to raise prices, as higher interest rate and crowding-out effect offset aggregate demand pressures (Modigliani, 1961; Friedman, 1968).

2.4 Ricardian view of Budget Deficits

David Ricardo initially highlighted the relationship between public and private investment, which was later formalized later by Robert Barro through rational expectations. According to Ricardian Equivalence theory, increases in government deficits are offset by higher private savings, leaving overall national savings and investment unchanged. In this view, deficits simply defer taxation to the future, implying no crowding-out effect and no significant impact on macroeconomic variables or inflation.

2.5 Keynesian Theory of Budget Deficits

Keynes (1936) emphasized the role of fiscal policy in stabilizing the economic activity. During recessions, low output and employment result from insufficient aggregate demand, which can be boosted through expansionary fiscal measures such as increased government spending or tax reductions, even if it requires running deficits. Deficits should be offset by surpluses during boom periods to maintain stability.

However, Keynesian deficits can face limitations: higher borrowing may raise interest rates, crowding out private investment, and larger public debts may require higher taxes in the future. According to the absorptive theory, deficits can also influence imports, capital flows, and exchange rates. Importantly, if spending exceeds the economy's productive capacity, demand-pull inflation can occur, but during recessions, deficit financing serves as an effective stabilizing tool.

2.6 Empirical Literature

Several empirical studies have investigated the relationship between fiscal policy and macroeconomic variables, particularly focusing on inflation. Some research highlights the long-term effects of fiscal deficits on inflation, while others analyze the short-term impact, exploring how fiscal deficits contribute to inflationary pressures.

In many developing countries, the financing methods for fiscal deficits have often led to substantial monetary expansion, higher inflation, rising public debt, exchange rate depreciation, deteriorating balance of payments, slow economic growth, high interest rates, corruption, financial instability, and reduced private sector investment (Onwioduokit, 1999). These findings underscore the importance of prudent fiscal management to mitigate adverse economic outcomes.

Some other studies suggest that the fiscal deficit-inflation relationship is predominantly observed in developing countries, while findings in developed countries are mixed. For example, Grossman (1982) and Hamburger and Zwick (1981) identify a significant association between fiscal deficits and inflation in the United States. Conversely, McMillan and Beard (1982) argue that no direct link exists between fiscal deficits and money growth, and subsequently inflation, in the United States after reanalyzing the data with extended time periods. This highlights the complexity of the fiscal-inflation relationship across different economic contexts.

Catão and Terrones (2005) emphasize the critical role of fiscal discipline in managing inflation. By analyzing 23 emerging market economies from 1970 to 2000, they demonstrate that even a moderate reduction in the fiscal deficit-to-GDP ratio can significantly lower long-term inflation by 1.5 to 6 percent-

age points. This findings underscore the importance of sound fiscal management in sustaining economic stability.

Utilizing the Autoregressive Distributed Lag (ARDL) approach to co-integration analysis, Kripfganz and Schneider (2023) explored the relationship between fiscal deficit and inflation in India. They found that government deficits play a crucial role in driving reserve money creation, which leads to an expansion in the overall money supply, thus generating inflationary pressures. Consequently, this highlights the need for careful management of fiscal deficits to avoid adverse inflationary outcomes. Additionally, Oladipo and Akinbobola (2011) examined the causal relationship between budget deficits and inflation in Nigeria, demonstrating that fiscal deficits significantly contribute to higher inflation rates.

Afrin (2013) examines the relationship between fiscal deficits and Consumer Price Index (CPI) inflation in Bangladesh using the ARDL co-integration approach with data from 1974 to 2010. The study finds that fiscal deficits significantly influence inflation, with effects shaped by real GDP, inflation expectations, and the floating exchange rate. The results highlight the need for both demand and supply-side policy measures, as excessive deficit financing through bank borrowing generates new money, intensifying inflationary pressures and limiting the central bank's ability to maintain price stability.

Haider et al. (2016) and Rana and Wahid (2016) examined Bangladesh's fiscal deficits using different econometric approaches. Haider et al. (2016) employed a VECM and found that fiscal deficits reduce GDP growth, increase inflation and exchange rate volatility, and discourage investment by raising borrowing costs. In contrast, using OLS and Granger causality, Rana and Wahid showed that deficits averaging about 5% of GDP since the 2000s have intensified inflation, crowded out private investment, and constrained economic growth. Both studies underscore the urgency of addressing fiscal imbalances to support economic growth, encourage investment, and enhance employment opportunities.

Using the ARDL approach, Bulawayo et al. (2018) found a significant short-run effect of budget deficits on inflation, while no significant relationship in the long run in Zambia. The study highlights the importance for policymakers in developing countries to carefully assess the risks of financing public programs through persistent deficit spending, given its potential inflationary pressures in the short term.

Biplob (2019) examined the impacts of budget deficit on economic growth in Bangladesh over the period of 1981–2017 using the ARDL model along with the VECM approach. The study finds that budget deficit positively affects economic growth both in the long run and short run, while government total expenditures enhance GDP only in the long run. The study also reveals unidirectional causality from budget deficit to economic growth, and feedback causality between government expenditures and economic growth.

Alam et al. (2022) investigated the effect of deficit financing on economic growth in Bangladesh using secondary data and the VECM approach. The study finds that government domestic debt, government external debt, and money supply affect economic growth positively in the long run, while negatively affecting it in the short run. The study recommends maintaining moderate levels of domestic and external borrowing and channeling them into productive and efficient ways to accelerate economic growth in Bangladesh.

Using quarterly data, Akter (2023) also attempted to investigate the consequences of budget deficit on inflation in Bangladesh. The study applied the ARDL cointegration approach and found a significant and positive long-run impact of budget deficits on inflation. The estimated results of the study also

revealed that the exchange rate regime and economic growth significantly contribute to inflation.

While several studies have examined the relationship between fiscal deficits and inflation, the combined relationship between fiscal deficits, inflation, and economic growth remains inconclusive, with mixed findings across countries. In Bangladesh, studies are fragmented, focusing separately on inflation or growth and often using limited methodologies. Some research emphasizes long-term effects or employs traditional econometric methods, while few analyze both short-run and long-run dynamics accounting for real GDP growth and government consumption. Additionally, many studies overlook the implications of small sample sizes on inference reliability. This study aims to address these gaps by applying the ARDL approach and incorporating annual data up to 2023.

3 Methodology

3.1 Data and Sample Description

This study employed time series data to estimate the model, with the inflation rate as the dependent variable and fiscal deficit, real GDP growth, and government consumption expenditure as independent variables. All data were sourced from National Accounts Statistics (Base Year 2015–16), except for the fiscal deficit, which was calculated as the difference between total expenditure (in billion BDT) and total revenue excluding foreign grants (in billion BDT). The analysis covers the period 1990 to 2023. A detailed list and description of the variables are presented in Table 1.

The expected signs of the independent variables are guided by standard macroeconomic theory. Real GDP growth (RGDP) can have either a positive or negative impact on inflation: it may increase inflation through demand-pull effects in a booming economy, or reduce it by enhancing supply-side productivity. The expected sign of the fiscal deficit is ambiguous (+/–), as its effect on inflation may vary depending on the structure of the economy and the mode of deficit financing.

Table 1: Description of the Variables

Name	Definition	Exp. Sign	Source
	Dependent Variable		
Inf	Inflation Rate	n/a	NAS*
	Independent Variables		
RGDP	Real GDP Growth	±	NAS*
DEF	Fiscal Deficit (Expenditure – Revenue, excl. grants)	±	Calc.
CON	Government Consumption (Billion Tk)	±	NAS*

Note: NAS denotes National Accounts Statistics.

A fiscal deficit may lead to inflation when financed through borrowing from the central bank or if it stimulates excessive aggregate demand. Conversely, if the deficit finances productive investments or is offset by increased savings, it may not have an inflationary impact or could even help stabilize prices in the short term. Hence, this study does not impose a strict theoretical expectation on the sign of the deficit variable. Government consumption expenditure (CON) can also have a dual effect; it may raise inflation if it stimulates demand excessively, but it could also have a dampening effect if directed toward productive public services or infrastructure that enhances supply capacity.

3.2 Model Specification

The primary objective of this study is to examine the impact of the fiscal deficit (independent variable) on inflation (dependent variable), while controlling for government consumption expenditure and real GDP growth. The analysis explores both short-run and long-run dynamics between inflation and these key macroeconomic indicators, with the fiscal deficit as the main variable of interest. The

theoretical model is expressed as:

$$\text{INF}_t = f(\text{DEF}_t, \text{CON}_t, \text{RGDP}_t)$$

The empirical specification of the model is structured as follows:

$$\text{INF}_t = \beta_0 + \beta_1 \text{DEF}_t + \beta_2 \text{CON}_t + \beta_3 \text{RGDP}_t + \varepsilon_t \tag{1}$$

where INF_t denotes the inflation rate (dependent variable), DEF_t represents the fiscal deficit, CON_t refers to government consumption expenditure, and RGDP_t is the real GDP growth rate. β_0 is the intercept, β_1, β_2 and β_3 are the coefficients, and ε_t is the error term assumed to be white noise.

3.3 Stationarity Test

To ensure that the variables are not integrated of order two, I(2), the Phillips-Perron (PP) unit root test is employed due to its robustness and ease of application. This step is crucial as the ARDL bounds testing framework applied in this study requires the variables to be I(0) or I(1), but not I(2).

3.4 Cointegration and ARDL Framework

The Autoregressive Distributed Lag (ARDL) bounds testing approach, developed by Pesaran et al. (2001a), is adopted to examine the long-run relationship among the variables. This method is advantageous in small samples and allows for different orders of integration among regressors.

The ARDL error correction model (ECM) capturing both short-run adjustments and long-run equilibrium is specified as follows:

$$\Delta\text{INF}_t = \beta_0 + \sum_i \beta_{1i} \Delta\text{DEF}_{t-i} + \sum_i \beta_{2i} \Delta\text{CON}_{t-i} + \sum_i \beta_{3i} \Delta\text{RGDP}_{t-i} + \lambda_1 \text{DEF}_{t-1} + \lambda_2 \text{CON}_{t-1} + \lambda_3 \text{RGDP}_{t-1} + \varepsilon_t \tag{2}$$

Here, Δ denotes the first difference operator, and the summation terms capture the short-run dynamics, while the lagged level variables represent the long-run relationship. If cointegration is confirmed through bounds testing, the long-run coefficients are estimated using the selected ARDL model based on the Akaike Information Criterion (AIC).

The short-run error correction model is expressed as:

$$\Delta\text{INF}_t = \beta_0 + \sum_i \beta_{1i} \Delta\text{DEF}_{t-i} + \sum_i \beta_{2i} \Delta\text{CON}_{t-i} + \sum_i \beta_{3i} \Delta\text{RGDP}_{t-i} + \phi \text{ECM}_{t-1} + \varepsilon_t \tag{3}$$

The summations ($\sum$) represent lagged differences of the independent variables, capturing the short-run effects on inflation. All variables are in levels, so the coefficients measure absolute changes in inflation due to one-unit changes in the independent variables. In Equation (3), ECM_{t-1} is the lagged error correction term derived from the long-run model, and ϕ measures the speed of adjustment back to equilibrium. A negative and statistically significant ϕ confirms a stable long-run relationship, indicating how quickly deviations from long-run inflation are corrected.

This ARDL Bounds Testing Approach is chosen over the Johansen cointegration technique because of its flexibility with mixed integration orders and better suitability for small sample sizes. Prior to model estimation, all variables are tested for stationarity to validate the appropriateness of the ARDL framework.

4 Empirical Findings

4.1 Stationarity Test

Table 9 in the annexure reports the results of the Phillips-Perron stationarity test, demonstrating a mixed order of integration among variables. While Real GDP (RGDP) and Inflation (INF) are stationary at level with trend and intercept, i.e., I(0), deficit and consumption achieve stationarity only after first differ-

encing, indicating an I(1) process. Crucially, no variables are integrated at the second difference, I(2). Given this heterogeneity in integration orders, the study adopts the Autoregressive Distributed Lag (ARDL) model, a robust approach tailored for analyzing relationships between variables with a combination of I(0) and I(1) properties.

4.2 Lag Selection Criteria

The results of the unit root tests indicate that the variables are integrated of order I(0) or I(1), making the ARDL approach appropriate. Using EViews 13, the optimal lag structure was selected based on the Akaike Information Criterion (AIC). Accordingly, the preferred model was identified as ARDL$(4, 4, 3, 4)$, as illustrated in Figure 2 in the annexure. In the second step, this specification was used to conduct the bounds test for cointegration, which confirmed the existence of a long-run relationship. Finally, in the third step, the ARDL (4,4,3,4) model was estimated to obtain both the long-run and short-run dynamics among inflation, fiscal deficit, government consumption expenditure, and real GDP growth.

4.3 ARDL Estimation

4.3.1 Bounds Test Result

Following the lag selection procedure based on the Akaike Information Criterion (AIC), the optimal lag structure for the model was determined as ARDL (4,4,3,4). Using this specification, we conducted the bounds test of cointegration with a maximum lag length of 4. The computed F-statistic for the joint significance of the lagged level variables is reported in Table 2.

For comparison, Table 3 presents the asymptotic critical values from Pesaran et al. (2001a) for a sample size of 34 under the case of a restricted constant and no trend.

Table 2: F-bounds test showing cointegration relationship

Null Hypothesis: No levels of Relationship	
Test Statistics	Value
F-statistic	4.61

Table 3: Critical values of Bound test (for sample size 34)

Significance	**Lower Bound**	**Upper Bound**
10%	2.68	3.59
5%	2.72	4.30

F-statistic (4.61) exceeds the 5% upper bound value (4.30), providing strong evidence against the null hypothesis of no long-run relationship. Thus, we reject the null at the 5% level and conclude that a cointegrating relationship exists among inflation, fiscal deficit, government consumption, and real GDP growth.

It should be noted that the bounds test inference here relies on asymptotic critical values from Pesaran et al. (2001b). As Kripfganz and Schneider (2023) point out, for relatively small samples (T = 34), the analysis could be strengthened by using finite-sample p-values or simulated critical values. Therefore, while the test indicates long-run cointegration, the result should be interpreted with this limitation in mind. With this long-term relationship established between the fiscal deficit and other variables, the ARDL framework is employed to further examine and estimate the long-run association.

5 Long-run Cointegration Analysis

The results presented in Table 4 indicate that the def has a positive and statistically significant impact on inflation. Specifically, a one unit increase in deficit is associated with a 0.02 unit increase in inflation. This suggests that when the government increases its deficit, it may inject more money into the economy (through spending or borrowing), leading to

higher demand pressures and thus rising prices (inflation). This is consistent with theories like the Quantity Theory of Money and the Fiscal Theory of the Price Level. Similarly, real GDP growth exhibits a positive and statistically significant relationship with inflation in the long run. Specifically, a one-unit increase in real GDP growth is associated with a 3.95 unit increase in the inflation rate. Higher RGDP typically reflects a growing economy with increasing demand for goods and services. If the growth is rapid and supply cannot immediately match demand, demand-pull inflation can occur, where too much money chases too few goods, driving prices up. Another possibility is that economic expansion brings higher wages and production costs, feeding into inflation (cost-push inflation). In contrast, consumption exhibits a small negative but statistically insignificant impact on inflation. Since the effect is not statistically significant, no reliable causal relationship between consumption and inflation can be inferred from this model. It suggests that fluctuations in consumption alone may not meaningfully impact inflation in this particular context or dataset.

Overall, the analysis suggests that fiscal deficits significantly drive inflation by increasing aggregate demand, while higher real GDP growth amplifies inflationary pressure through demand-pull and potential cost-push effects. In contrast, consumption shows a small negative but statistically insignificant relationship with inflation, suggesting it does not meaningfully influence inflation in this context. These findings highlight that managing fiscal balances and moderating economic overheating are crucial for controlling inflation.

Table 4: ARDL Long-run relationship

Variables	Coefficients	Standard error
Def	0.02**	0.01
Rgdp	3.95***	3.76
Con	-0.01	5.05

Note: * $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$
Dependent Variable: Inf

6 Short-run Dynamics

The short-run estimates from the ARDL model provide insights into how inflation responds to changes in explanatory variables over time. The short-run estimation results in Table 5 provide important insights into the behavior of inflation (Inf) in response to its own past values, fiscal deficit changes (DEF), and consumption changes (CON).

The short-run coefficients for real GDP growth are not included in the ARDL short-run equation, indicating that its immediate impact on inflation is not estimated in this model. However, the long-run analysis captures its significant positive effect on inflation, highlighting that sustained economic growth contributes to upward price pressures over time.

Table 5: ARDL Short-run relationship

Regressors	Coefficients	Standard error
D(INF(-1))	0.47**	0.21
D(INF(-2))	-0.13	0.15
D(INF(-3))	0.18	0.15
D(DEF)	-0.01*	0.003
D(DEF(-1))	-0.02*	0.01
D(DEF(-2))	-0.02*	0.01
D(DEF(-3))	-0.04*	0.01
D(CON)	-0.02	0.01
D(CON(-1))	-0.04**	0.02
D(CON(-2))	0.03	0.02
D(CON(-3))	-0.06*	0.02
R-squared	0.80	
Adjusted R^2	0.62	
F-stat	4.35*	

Note: * p¡0.01, ** p¡0.05, *** p¡0.1
Dependent Variable: Inf

Lagged values of inflation show mixed effects. The first lag of inflation (D(INF(-1))) has a positive and statistically significant impact on current inflation, confirming the presence of inflationary inertia in the short run. However, the second and third lags are statistically insignificant, suggesting that the persistence of inflationary shocks diminishes beyond one period.

The coefficients for changes in the fiscal deficit (D(DEF) and its lags) are negative and statistically significant, though the magnitudes are small. This implies that a reduction in the fiscal deficit is associated with a slight decline in inflation in the short run. This finding contrasts with traditional expectations that fiscal expansions tend to fuel inflation, and may indicate that fiscal consolidation efforts contribute to short-run price stability in the given economic context.

The effects of consumption (D(CON) and its lags) on inflation are mixed. The immediate effect is negative but statistically insignificant, while the first lag is negative and statistically significant at the 5% level. This suggests that increases in consumption may contribute to reducing inflation after a short delay, possibly reflecting the influence of consumption smoothing or the presence of stabilizing policy measures. Other lags of consumption show less consistent and weaker effects.

The goodness of fit indicators suggests that the model performs reasonably well. The R-squared value of 0.80 indicates that 80% of the variation in inflation is explained by the included regressors, while the adjusted R-squared value of 0.62 remains strong even after accounting for the number of variables. Furthermore, the F-statistic (4.35) is statistically significant, supporting the overall validity of the model.

Table 6: Error Correction Term Result

EC Term	Coeff.	Std. D.	t-val.	Prob.
EC_{t-1}	-1.0	0.18	-5.60	0.00

In summary, the results indicate that inflation exhibits short-run persistence but adjusts swiftly to the long-run equilibrium. Fiscal deficit reductions appear to have a stabilizing effect on inflation, while changes in consumption play a secondary but potentially supportive role. These findings underline the importance of prudent fiscal management and suggest that inflationary pressures are largely self-correcting in the short run within this economic framework.

The coefficient of the error correction term (EC_{t-1}) is negative and highly significant, confirming the presence of a long-run cointegrating relationship among the variables. While some studies, e.g., Kripfganz and Schneider (2023) caution that ECM distributions are nonstandard in small samples, the ARDL bounds testing framework Pesaran et al. (2001a) used here relies on asymptotic critical values for inference. The negative sign indicates that the system corrects deviations from long-run equilibrium over time. The magnitude of -1.0 suggests that 100% of the previous period's disequilibrium is corrected within the current period, implying a very rapid adjustment to equilibrium.

6.1 Diagnostics Tests

6.1.1 Ramsey RESET Test

The results from the Ramsey RESET test suggest that the model is correctly specified. The F-statistic value of 0.16 with an associated probability of 0.86 ($p > 0.05$), along with the likelihood ratio statistic of 1.04 and its probability value of 0.59, indicate that there is no statistically significant evidence of model misspecification.

Table 7: Ramsey RESET Test

Test Stat.	Value	DF	Prob.
F-statistic	0.16	(2, 9)	0.86
Likelihood ratio	1.04	2	0.59

Table 8: Diagnostics Tests

Name	F-stat.	Obs* R-squared	P
Breusch-Godfrey Serial Correlation LM Test	0.89	10.1	0.52
Heteroscedasticity Test: Breusch-Pagan-Godfrey	0.48	13.26	0.92
Test of Normality	0.62	–	0.73

Finally, to check the competency of the model, we used several other diagnostic tests that are shown in Table 8. The P-value of the Breusch-Godfrey Serial Correlation LM Test, and Heteroscedasticity Test: Breusch-Pagan-Godfrey is greater than 5 percent, which is desirable. So, this model is free from autocorrelation and heteroscedasticity. Additionally, the residuals are normally distributed.

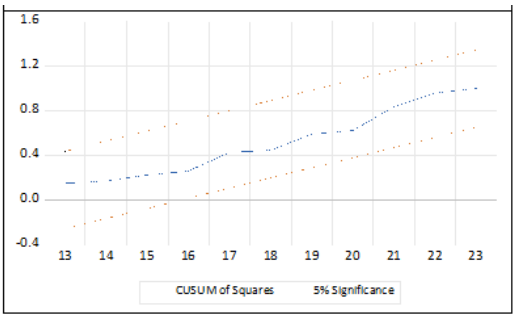

Figure 1: CUSUM of Squares

Lastly, the stability of the estimated parameters is confirmed using the lag selection results, as presented in Figure 1. As seen in the figure, all the blue lines fall within the red line's borders, showing that the study's models are stable at the 5% level of significance.

7 Conclusion

This study examines the impact of budget deficit on inflation in Bangladesh over the period 1990 to 2023, using the Autoregressive Distributed Lag (ARDL) approach. The findings reveal a significant long-run relationship between fiscal deficit and inflation, suggesting that persistent budgetary imbalances exert upward pressure on the general price level over time. In the short run, however, the influence of fiscal deficit on inflation is found to be limited. Among the other explanatory variables, real GDP growth shows a negative association with inflation in the long run, while government consumption expenditure emerges as an inflationary factor. The error correction model (ECM) coefficient indicates a moderate speed of adjustment toward long-run equilibrium, confirming the stability of the model.

To mitigate the inflationary consequences of fiscal deficits, the government should adopt a prudent and rules-based fiscal framework that restrains excessive deficit financing. Enhancing domestic revenue mobilization through tax reforms and broadening the tax base would reduce dependence on inflationary borrowing. Expenditure rationalization, particularly targeting subsidies and non-development spending, is also critical to improving fiscal discipline. In parallel, improved coordination between fiscal and monetary policies is necessary to ensure macroeconomic stability. The Bangladesh Bank's ongoing effective monetary policy stance must be complemented by fiscal restraint to effectively control inflation.

This study offers empirical evidence to guide policymakers in designing sound fiscal strategies that limit inflationary risks without hampering growth. Future research could explore the asymmetric or nonlinear effects of budget deficits on inflation or examine the transmission mechanisms through which fiscal imbalances affect different components of the Consumer Price Index (CPI) in Bangladesh.

Disclosure Statement

Views expressed in this paper are the authors' own and do not necessarily reflect the views of institutions they are affiliated with.

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Annexure

Table 9: Unit root test results

Variables	Phillips-Perron	
	Trend and Intercept	
	Level I(0)	First Difference I(1)
RGDP	-5.23***	–
DEF	0.11	-7.89***
INF	-3.85***	–
CON	-1.22	-5.78***

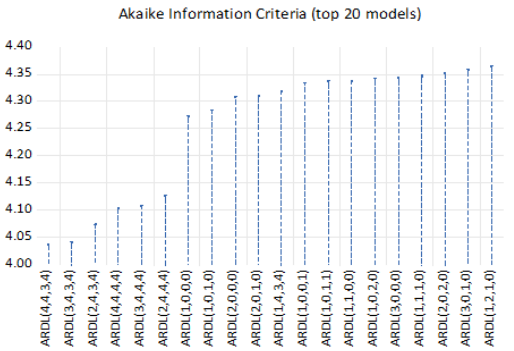

Figure 2: Lag Selection Criteria