

Role of Macroeconomic Dynamics in Determining Government Debt: Evidence From Developing Economy

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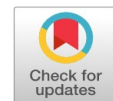
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Abstract: Pakistan is one of the growing countries that relies a lot on debt because of less tax revenue and more spending. Government debt is a significant economic issue in Pakistan. To solve this situation, we must look at the reasons behind Pakistan's huge government debt. Studies in the past have mostly looked at the connections between government debt and economic growth, the debt-to-GDP ratio and economic growth, and a few other general debt-related problems. Time series data techniques are used in this paper to look at how macroeconomic factors affect government debt from 1980 to 2021. The ARDL approach results show that fiscal deficit, balance of trade, government spending, debt service, and currency exchange rate all have a strong positive link with government debt. However, the relationship between fiscal deficit, debt service, and currency exchange rate to government debt is positive and significant in both long and short terms, whenever government spending has only a short-term effect and balance of trade has a long-term on the government debt.

Keywords: Government debt, Fiscal Deficit, Balance of trade, Government spending and Currency exchange rate

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INTRODUCTION

The seamless continuation of economic activities relies on the availability of sufficient financial resources. The scarcity of financial resources has a significant impact on individuals' propensity to incur debt. The debt borrowed by an individual is only debt whenever, at the government level, it is government debt. The liquidity of financial reserves is an indicator of a robust economic condition. It is recommended to implement suitable measures in order to effectively address the problem of increased government debt and mitigate its scale. Scholarly literature emphasizes the substantial and beneficial outcomes that arise from the discussion on the use of debt as a means to finance infrastructure development (Krumer-Nevo et al., 2017).

Several prominent economists from the classical school of thought, such as Smith (1937), Ricardo (1951), and Mill (1976), argue that utilizing debt financing to address budgetary deficits has detrimental effects on the economy's ability to service its debt (Tsoulfidis, 2007). According to Holtfrerich (2013), economists from the 19th century argued that the utilization of government debt during times of emergencies, such as war and natural disasters, as well as for promoting economic growth, holds greater importance compared to solely supporting the fiscal deficit and allocating it towards non-development initiatives. Consequently, the scholars analyzed the impact of government debt on the European countries with the highest levels of indebtedness. According to Gargouri and Ksantini (2016), it was found that the expansion of government debt can be attributed to the inappropriate allocation of financial resources.

According to Eduardo (2007), deliberately allocating government debt toward development initiatives in Latin American countries promotes economic growth. The preceding discussions have supported the researcher's assertion that government debt adversely affects the economy through three distinct mechanisms. Firstly, it has a psychological impact by diminishing the government's credibility regarding repayment. Secondly, it generates a financial imbalance between income and expenditure. Lastly, it reduces national wealth, resulting in inflation and a

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decline in living standards for citizens. Additionally, it contributes to an increase in the debt-to-GDP ratio (Sun, 1954).

Pakistan has been grappling with the issue of government debt and volatile economic and political conditions since attaining independence 74 years ago. In the fiscal year 2021-22, there was an increase of Rs. 4,500 billion. The depreciation of the Pakistani rupee was also contributing to the escalation of government debt. In March 2022, it was found that the national debt of Pakistan amounted to Rs. 44,366 billion due to the depreciation of the Pakistani rupee relative to the US dollar. The external government debt amounted to Rs. 16,290 billion, while the domestic debt reached Rs. 28,076 billion. According to the Pakistan Economic Survey of 2022, the expected debt service interest for the initial nine months of fiscal year 2021-2022 amounted to Rs. 2,118 billion. This increase in debt service interest can be attributed to the continuous rise in government debt. The current situation has become increasingly concerning, necessitating comprehensive research to ascertain the underlying circumstances supporting the accumulation of government debt in Pakistan.

This study aims to investigate the underlying components supporting the accumulation of government debt in Pakistan. Scholars have previously focused their attention on examining the correlation between government debt and economic growth (Iqbal et al., 2017), the impact of government debt on GDP growth (Haqa et al., 2020), the association between Government debt and current account deficit (Jawaid & Raza, 2013), the influence of government debt on the currency exchange rate (Shaheen, 2013), and various other dimensions. The following sections of the paper are managed in the following order:

- Literature review
- Research methodology and data analysis
- Results and discussion
- Conclusion and recommendations

LITERATURE REVIEW

According to Brkic (2021), government debt has been recognized as having adverse effects in three distinct manners. Firstly it depreciates the national currency which has a substantial impact on the debt-to-GDP ratio. Second, the significant costs associated with interest payments have a negative effect on the overall fiscal balance. Thirdly, it exerts an impact on the cognitive framework of global investors, prompting them to abstain from making investments in a country that is encumbered by a significant amount of debt. Furthermore, the country burdened with debt would experience increased currency strain as a result of foreign investors withdrawing their assets in reaction to the debt, which would result in a depletion of foreign exchange reserves.

Onyele and Nwadike (2020) suggested that the magnitude of a country's debt has an influence on the perception of its economy by international investors. A favorable association has been seen between economic stability and GDP growth. The potential for achieving a balance between revenue and expenditures is evident in cases of substantial economic growth. The word "constant currency" pertains to the existing economic circumstances that have been established. The growing economy can overcome the fiscal deficit, assisting in the mitigation of foreign and domestic debt obligations of nations, while also offering back for fiscal policy and other governmental expenditures. A reduction in dependence on Government debt is linked to a decrease in situations where the economy encounters instability, which is marked by a considerable burden of debt repayment, fluctuating currency rates, or a significant fiscal deficit combined with a lack of foreign investor participation.

According to a recent study conducted by Hussain, Hussain, Ali, and Ahmad (2021), the identification of a budget imbalance has been shown to possess noteworthy macroeconomic ramifications for the broader national economy. The adoption of a proactive approach by the Government is vital in efficiently reducing the budgetary deficit, while simultaneously enhancing revenue through the continual implementation of economic growth strategies. In their study, Kotsios (2021) investigated the relationship between national income and sovereign debt, emphasizing the importance of implementing suitable fiscal policies to attain economic stability, encourage private investment, and employ strategic methods to bolster revenue generation and alleviate fiscal imbalances.

In their study, Chien et al. (2021) analyzed the foreign debt indicators in the South Asian subregion. The research findings unveiled a notable increase in both the fiscal deficit and the government debt. The subnational areas in South Asia employ strategic measures to effectively handle their domestic and foreign government debt, with the aim of addressing the fiscal deficit resulting from the discrepancy between government revenues and

expenditures. Blavasciunaite, Garsviene, and Matuzeviciute (2020) claim that an upward trajectory in economic growth is associated with a positive trade balance, while a negative trade balance is linked to a deceleration in economic growth. The impact of the trade deficit on the nation's financial situation and its subsequent negative consequences on economic growth were evident. It is incumbent upon the Government to oversee the management of foreign currency reserves.

The study undertaken by Haq, Khan, and Akram (2020) provided insights into the classification of Pakistan as a developing country. It has been noted that numerous developing nations, including Pakistan, possess the capacity to mitigate their budgetary shortfalls by employing government debt as a mechanism to fund their expenditures. The presence of Government debt has been recognized as a contributing factor to a slowdown in economic growth. The fall in private investment volume can be linked to the influence of uncertain economic conditions resulting from government debt. Moreover, the influx of funds into the economy experiences negative consequences due to government debt.

According to Augustine and Kumar (2020), research posited that the relationship between government debt and economic growth affects the depreciation of the national currency versus the dollar, therefore increasing the nation's foreign debt. The present study analyzed and presented empirical evidence supporting the assertion above. In a study conducted by Ezzat and Hosni (2019), it was shown that there exists a positive and statistically significant correlation between the Fiscal deficit and economic growth. The augmentation of the Fiscal deficit has also influenced macroeconomic variables and the process of economic advancement.

The study of Augustine and Kumar (2020) argued that government debt impacts economic growth, which in turn causes the national currency to depreciate against the dollar, ultimately leading to a rise in the country's foreign debt. This study analyzed and provided evidence for this claim. According to Ezzat and Hosni (2019), the fiscal deficit has a positive and significant relationship with economic growth. The increase in the fiscal deficit also impacted macroeconomic factors and economic development.

In a study conducted by Sheikh et al. (2018), it was found that the economy can be influenced by government debt through two distinct mechanisms. The fiscal deficit and current account deficit experienced growth, hence exerting an influence on the government debt. As stated by Pegkas (2018), a consistent debt-to-GDP ratio is indicative of a robust economy, whereas a decreased debt-to-GDP ratio suggests a weakened economic condition. Belguith (2017) conducted a study to examine the factors leading to the increasing government debt in Tunisia. The findings revealed that trade openness, fiscal deficit, and genuine interest rate played significant roles in this phenomenon, particularly when inflation and investment were causing a decline in Government funds.

According to Gargouri (2016), alterations in the debt-to-GDP ratio exerted an influence on Government debt. Furthermore, Savai and Kiss (2018) observed that the increase in government debt might be attributed to deficits in both the budget and current account. According to Oladokun (2015), the substantial government debt in Nigeria can be attributed to the considerable budget imbalance experienced by the country. Iqbal et al. (2017) argue that an increased fiscal deficit has been found to impede economic growth and exacerbate Government debt.

Jawaid and Raza (2013) assert that a bidirectional association exists between the current account deficit and the currency exchange rate, foreign debt, and current account deficit. Furthermore, they posit a unidirectional causal relationship between private savings and the current account deficit, as well as the trade deficit. The study by Musisinyani et al. (2017) examines the correlation between economic growth, current account deficit, and state debt. Sinicakova et al. (2017) reported that most European Union (EU) member states were confronted with a budgetary shortfall and an imbalance in their payments. The debt-to-GDP ratio fell short of the intended threshold of 30.668%, indicating a concerning trend in the rise of the debt-to-GDP ratio from 30.688% to 98.126%. Countries with debt-to-GDP ratios exceeding 98.126% have encountered significant and persistent twin imbalances, specifically in the form of Fiscal deficits and Balance of Trade deficits.

Bove and Brauner (2016) highlight the detrimental impact of expenditures on non-productive endeavors on the overall economic condition and the subsequent escalation of governmental debt. According to the study conducted by Idenyi et al. (2016), it was found that the government's borrowing mostly drove the deficit budget. Sasmal and Sasmal (2017) believe that a notable disparity between revenue and expenses has resulted in a fiscal imbalance, which has hindered economic growth and contributed to increased government debt. Muli and Ocharo (2018) suggest that using external debt services led to a decline in foreign reserves, engendering a deficit in the balance of trade.

According to Lammam et al. (2016), the Government needed help due to the necessity of allocating funds for debt service, which constituted a financial burden resulting from borrowing activities. The deceleration of economic growth was observed alongside an escalation in the current account deficit. According to Shaheen (2013), Currency Exchange Rate volatility and the depreciation of the Pakistani rupee had a significant influence on both the Balance of Trade deficit and import expenses. Previous research, such as the study conducted by Hsing (2016), has elucidated that the currency exchange rate is among the macroeconomic determinants that exert an influence on government debt, devaluation of the domestic currency exchange rate, and impact the overall economic growth. Saheed et al. (2015) assert that Nigeria’s notable Government debt necessitated substantial foreign currency debt service, resulting in a significant reduction in the outflow of foreign exchange reserves.

RESEARCH METHODOLOGY

The dataset consists of a time series for numerous variables spanning the time range from 1980 to 2021. The data pertaining to the variables was obtained by the researcher from the official website of the State Bank of Pakistan (SBP) and the Ministry of Finance (MoF) Pakistan. Table 1 provides a comprehensive overview of the variables, including the dependent variable of government debt, as well as the independent variables of Fiscal Deficit, Balance of Trade, Government Spending, Debt service, and Currency Exchange Rate.

Table 1: Variables description and measure

Variables	Description	Measured	Reference of measured
GD	Government debt	Percentage of GDP	(Spyrakis & Kotsios, 2021) (Brkić, 2021) (Hussain, Hussain, Ali, & Ahmad, 2021) (Augustine & Kumar, 2020) (Chien et al., 2021)
FD	Fiscal deficit	Percentage of GDP	
BOT	Balance of Trade	Percentage of GDP	
GS	Government Spending	Percentage of GDP	
DS	Debt service	Percentage of GDP	
CER	Currency Exchange Rate	Value of US\$ against Pak rupees in percentage	

Estimation Tools

The data utilized in this study is secondary and follows a time series format. Scholars have observed that the ADF Unit Root Test is widely employed for evaluating the stationarity and non-stationarity of variables. The present study’s limited sample size provides evidence supporting the usage of ARDL as a more suitable estimation method. Additionally, the ADF Unit Root test further supports the validity of employing ARDL.

ADF unit root test: ADF unit tests were utilized to identify non-stationary data and the condition. The following is the ADF Unit Root Test Model: $\Delta y_t = \mu + \delta y_{t-1} + \sum_{i=1}^k \beta_i \Delta y_{t-i} + e_t \dots \dots \dots (1)$

Where, $\delta = \alpha - 1$

α = Coefficient of y_{t-1}

Δy_{t-1} = first difference of y_t , i.e. $y_t - y_{t-1}$

The Augmented Dickey-Fuller (ADF) test has a null hypothesis and an alternative hypothesis. The null hypothesis says that the parameter is equal to zero, while the alternative hypothesis suggests that is smaller than zero. If the null hypothesis is not shown to be false, then it can be concluded that the series does not follow a stationary pattern. On the other hand, if the null hypothesis is not accepted, this would imply that the series is not moving forward.

ARDL cointegration bound approach: The cointegration approach known as the "Autoregressive Distributed Lag (ARDL)" bound test was proposed by Pesaran et al. (2001) in order to assess the long-term and short-term relationship between a dependent variable and independent variables. According to Ghatak and Siddiki (2001), the ARDL bound test approach demonstrates greater statistical significance compared to the Johansen cointegration

approach when used for both small and large data samples. The following equation represents the ARDL model: Increment $\Delta X_t = \delta_{0i} + \sum_{i=1}^{\kappa} \alpha_i \Delta X_{t-1} + \sum_{i=1}^{\kappa} \alpha_2 \Delta Y_{t-1} + \delta_1 X_{t-1} + \delta_2 Y_{t-1} + v_{1t} \dots \dots \dots (2)$

Econometric Model

$$\Delta PD_t = \delta_{0i} + \sum_{i=1}^{\kappa} \alpha_1 \Delta GD_{t-1} + \sum_{i=1}^{\kappa} \alpha_2 \Delta FD_{t-1} + \sum_{i=1}^{\kappa} \alpha_3 \Delta BoT_{t-1} + \sum_{i=1}^{\kappa} \alpha_4 \Delta GS_{t-1} + \sum_{i=1}^{\kappa} \alpha_5 \Delta DS_{t-1} + \sum_{i=1}^{\kappa} \alpha_6 \Delta CER_{t-1} + \delta_1 GD_{t-1} + \delta_2 FD_{t-1} + \delta_3 BoT_{t-1} + \delta_4 GS_{t-1} + \delta_5 DS_{t-1} + \delta_6 CER_{t-1} + v_{1t} \dots \dots \dots (3)$$

In the ARDL model, the maximum lag order that can be selected by the user is indicated by the letter K. When testing the joint null hypothesis for the coefficients of the lagged variables, the F-statistic is generated in order to test the hypothesis. $(\delta_1 X_{t-1} \delta_1 Y_{t-1} \text{ or } \delta_1 X_{t-1} \delta_1 X_{t-1})$ are zero. $(\delta_1-\delta_6)$ In accordance with the long-term association, while $(\alpha_1- \alpha_6)$ Illustrate the short-term dynamics of the model.

The coefficients of the lag level variables in the hypothesis are assumed to be zero. The null hypothesis on the absence of a long-term relationship was established by:

H₀: $\delta_1=\delta_2=0$ (null, i.e., the long-run relationship does not exist)

H₁: $\delta_1 \neq \delta_2 \neq 0$ (Alternative, i.e., the long-run relationship exists)

The determination of whether to accept or reject the null hypothesis is contingent upon the comparison of the F-statistic with critical values, namely the lower bound I(0) and upper bound I(1). When the null hypothesis is rejected and the alternative hypothesis is accepted, the F-statistic value must exceed both the lower and upper bound values.

The ARDL Long run equation :

$$PD_t = \delta_{0i} + \sum_{i=1}^K \alpha_1 GD_{1t} + \sum_{i=1}^K \alpha_2 BoT_{2t} + \sum_{i=1}^K \alpha_3 GS_{3t} + \sum_{i=1}^K \alpha_4 DS_{4t} + \sum_{i=1}^K \alpha_5 CER_{5t} + v_{1t} \dots \dots \dots (4)$$

e variables $(BD_{1t}, BOP_{2t}, GE_{3t}, DS_{4t}$ and $ER_{5t})$ are the explanatory or the long-run forcing variables, and k is the number of optimum lag orders.

Error correction model (ECM) :

$$\text{sequent alphasequent alphatheonethe } \Delta PD_t = \delta_{0i} + \sum_{i=1}^{\kappa} \alpha_1 \Delta GD_{t-1} + \sum_{i=1}^{\kappa} \alpha_2 \Delta FD_{t-1} + \sum_{i=1}^{\kappa} \alpha_3 \Delta BoT_{t-1} + \sum_{i=1}^{\kappa} \alpha_4 \Delta GS_{t-1} + \sum_{i=1}^{\kappa} \alpha_5 \Delta DS_{t-1} + \sum_{i=1}^{\kappa} \alpha_6 \Delta CER_{t-1} + \delta_1 GD_{t-1} + \delta_2 FD_{t-1} + \delta_3 BoT_{t-1} + \delta_4 GS_{t-1} + \delta_5 DS_{t-1} + \delta_6 CER_{t-1} + \lambda(ECM)_{t-1} + \varepsilon_{1t} \dots \dots \dots (5)$$

The ARDL model presented above demonstrates the short-run link indicated by the variable b, followed by the subsequent variables. $(\alpha_1-\alpha_6)$, the subsequent component $(\delta_1-\delta_6)$ pertains to the long-run relationship. Additionally, $(ECM)_{t-1}$ represents the lagged error correction term of the model, while signifies the coefficient value of ECM, which signifies the speed of adjustment in the model.

RESULTS AND DISCUSSION

This section provides a concise overview of the data analysis conducted throughout the course of the study project. The findings obtained from conducting the ADF unit root test are presented in Tables 2 and 3.

Table 2: ADF unit root test

Sr. No.	Variable	Test Critical Values	T-Statistic	Prob.
1.	CER (Currency Exchange Rate)	-2.9411	-5.7271	0.000*

* Stationarity in level I(0) at 5% significant level

The ADF unit root test was successfully conducted using the EViews software program. Based on the results shown in Table 2, it can be observed that among the variables examined, only the Currency Exchange Rate variable demonstrated stationarity at level I(0). Conversely, it was determined that the remaining variables at level I(0) exhibited non-stationarity. In light of this, it is necessary to do another iteration of the Augmented Dickey-Fuller (ADF) unit root test at the I(1) level to ascertain the stationarity of new variables.

Table 3: ADF unit root test

Sr. No.	Variable	Test Critical Values	T-Statistic	Prob.
1.	GD (Government debt)	-2.9434	-4.537	0.000*
2.	FD (Fiscal Deficit)	-2.9434	-7.6054	0.000*
3.	BOT (Balance of Trade)	-2.9434	-6.1683	0.000*
4.	GS (Government Spending)	-2.9434	-8.2566	0.000*
5.	DS (Debt service)	-2.9434	-8.7224	0.000*

* Stationarity in 1st Difference I(1) at 5% significant level

The variables were subjected to the Augmented Dickey-Fuller (ADF) unit root test once more using the EViews data analysis tool. Based on the test results, it can be observed that the remaining variables exhibit a condition of stationarity at the I(1) level. The findings of the research are displayed in Table 3. The ARDL Model, which was proposed by Matlasedi (2018), has been suggested as the optimal approach for estimating in this particular context.

Table 4: ARDL bound test

Test Equation	F-Statistic Value	Regressor (K)	Lower bound I(0)	Upper bound I(1)	Outcome
Government Debt (GD)	11.7606	5	2.62*	3.79*	Cointegrated

* Lower and upper bounds values are significant at a 5% level

The ARDL bound test was conducted using the EViews data analysis software, and the outcomes based on the Akaike information criterion are presented in Table 4. The value of K=5 indicates that the model has a total of five regressors. At a statistically significant level of 5%, the F-Statistic value of 11.7606 exceeds the critical values of the upper bound (3.79) and the lower bound (2.62). Based on the provided lower and upper bound values, the calculated F-statistics value of 11.7606 suggests that the null hypothesis, which posits the absence of a long-run association, should be rejected. This implies that the alternative hypothesis, which posits a sustained link between the variables, is supported. Therefore, to analyze the enduring and immediate patterns of the ARDL error correction model, it is recommended to proceed with the ARDL cointegration estimate.

Table 5: ARDL long-run test

Variable	Coefficient	Std. Error	T-Statistic	Prob.
FD (Fiscal deficit)	0.5748	0.2462	2.3347	0.027
BOT (Balance of Trade)	0.0658	0.0287	2.2871	0.03
GS (Government Spending)	0.1052	0.0318	3.3011	0.005
DS (Debt service)	0.3497	0.1169	2.991	0.006
CER (Currency Exchange Rate)	2.3582	1.1794	1.9995	0.056
C	2.0384	3.208	0.6354	0.53

Table 6: ARDL Short run dynamics of error correction term (ECM)

Variable	Coefficient	Std. Error	T-Statistic	Prob.
D(GD(-1))	-0.2051	0.1401	-1.4644	0.155
D(FD)	0.1097	0.0354	3.1005	0.004
D(BOT)	0.002	0.0041	0.4873	0.63
D(GS)	0.2111	0.0923	2.2868	0.03
D(DS)	0.0667	0.0254	2.621	0.014
D(CER)	0.2768	0.1351	2.048	0.05
ECM (-1)	-0.1909	0.0546	-3.4968	0.001

$$\text{Coint. Equ. (-1)} = \text{GD} - (0.5749*\text{FD} - 0.0658*\text{BOT} + 0.1053*\text{GS} + 0.3497*\text{DS} + 2.3583*\text{CER} + 2.0384)$$

The existence of cointegration between the independent and dependent variables is apparent, indicating a statistically significant positive association between the variables, as seen in Tables 5 and 6. The rise in long-term Government debt is notably impacted by the independent variables at a statistically significant level of 5%. On the contrary, components that exhibit a substantial influence at the 10% significance level demonstrate a comparatively less conspicuous impact. The findings depicted in Table 4 illustrate a statistically significant and persistent correlation between the variables under investigation. The aforementioned results provide further support for the cointegration outcomes derived from the ARDL bound test, which are elaborated upon in Table 3. The findings outlined in Table 5 are relevant to the analysis of short-term imbalances and the process of correction, as demonstrated by the transformation of the Autoregressive Distributed Lag (ARDL) model into the Error Correction Model (ECM). However, the temporal dynamics of the Error Correction Model (ECM) were distinguished by the rate at which adjustments occurred throughout the given time frame. The alignment of conclusions and findings is observed throughout the research undertaken by Ezzat and Hosni (2019), Spyrikis and Kotsios (2021), Muli and Ocharo (2018), Chien et al. (2021), Onyele and Nwadike (2021), and Augustine and Kumar (2020).

The fiscal deficit (FD) plays a crucial role in determining government debt and has a notable and favorable impact on both short-term and long-term results. According to the findings of Belguith and Omrane (2017), their research provides empirical support for the proposition that the Fiscal deficit exerts a significant and favorable impact on Government debt. These findings provide additional support for the validity of the outcomes. According to the findings of Ishfaq and Chaudhary (1999) it has been ascertained that Pakistan's fiscal deficit has led to a yearly increase in external debt by 18% and internal debt by 15%.

The study's conclusions show that Pakistan must borrow money from both domestic and foreign sources to make up for its budgetary shortfall, which has increased the country's national debt. This result is in line with Anwar and Ahmad's (2013) findings. The results also show that, although having no discernible effect in the short term, the Balance of Trade (BOP) has a positive relationship with government debt over the long run. According to the findings of Savai and Kiss (2018), there has been a consistent increase in the current account deficit. This can be attributed to the significant constraints imposed on the import of petroleum products and the prohibitions on the export of low-value commodities. As a result, there has been an increase in public debt. The allocation of government funds contributes to the escalation of government debt in both the short-term and long-term. The government acquires funds from both local and international sources in order to support expenditures, resulting in the growth of the national debt. The findings of this research are corroborated by the works of Oladokun (2015) and Alawneh (2017).

The phenomenon of debt service (DS) has a dual effect on the Government debt, playing a substantial role in its expansion over both the immediate and extended periods within the context of Pakistan. The lack of the government's capacity to develop other funding channels mandates the use of debt rescheduling schemes as a means to repay current debts. This course of action, therefore, results in a rise in levels of external debt and a corresponding augmentation in liabilities for debt servicing. As a result, the government is obligated to make payments in foreign currency, leading to a deficit in the Balance of Trade (Shabbir & Yasin, 2015; Muli & Ocharo, 2018). The study's results also demonstrated a statistically significant positive correlation between the Currency Exchange Rate (CER) and Government debt, both in the short term and the long term. The appreciation of the United States dollar against the Pakistani rupee has had a substantial role in the growth of the government's external debt and the scale of its debt-servicing responsibilities. The present study provides empirical evidence that aligns

with the conclusions drawn by Shaheen (2013).

Fitness of Model

The adequacy of the model provides proof that the chosen model for estimating was indeed the appropriate tool for conducting the investigation. The selected model demonstrated a high level of suitability and acceptability, and the obtained findings exhibited a commendable degree of reliability. Residual diagnostics, such as the Serial Correlation LM Test, Heteroscedasticity ARCH effect, Histogram Normality, and Stability diagnostic tests like the Ramsey Reset test, are employed to assess the adequacy of the model.

Table 7: Breusch-Godfrey serial correlation LM test

Probability	Chi-Square (Probability)
0.929	0.913

Table 8: Heteroscedasticity ARCH test

Probability	Chi-Square (Probability)
0.833	0.82

The Chi-Square values presented in Table 7 are not statistically significant, suggesting the absence of Serial Correlation LM impacts on the model. This implies that the model is deemed satisfactory and dependable, and the obtained findings can be trusted. The heteroscedasticity test yields identical outcomes as well. The Chi-Square values presented in Table 8 do not reach statistical significance, suggesting the absence of Heteroscedasticity ARCH effects in the model. These findings indicate that the model is deemed to be satisfactory and valid, and the obtained results can be considered reliable.

Table 9: Histogram normality test

Probability	Jarque-Bera
0.4866	1.4402

The Jarque-Bera statistics and probability values, which indicate the absence of residual effects on the model, are presented in Table 9. This implies that the model has a high level of accuracy and validity, and the outcomes generated are deemed trustworthy.

Table 10: Ramsey reset test

Hypothesis	T-statistics	P-values	Conclusion
The model is correctly specified	0.4866	1.4402	Do not reject the hypothesis because the P-value is more significant than the level of significance of 5%

The Ramsey reset test is employed to assess the stability, proper specification, and reliability of the model. Table 10 supports the acceptance of the null hypothesis, as the *p*-values exceed the predetermined 5% significance level. This indicates that the model has been accurately described.

CONCLUSION

Sufficient financial and economic resources are necessary for the maintenance of the economy. The presence of sufficient financial resources is a fundamental requirement for the effective operation of any economy. Nations utilize a blend of domestic and foreign resources in order to proficiently handle their debt, thereby alleviating the limitations given by restricted financial means Krumer-Nevo, Gorodzeisky and Saar-Heiman (2016). Given the existing issues faced by Pakistan in relation to its government debt, experts have undertaken an endeavor to investigate the fundamental elements that contribute to this issue. The study focused on examining the relationship between government debt and several independent factors, namely the fiscal deficit, balance of trade, government

spending, debt service, and currency exchange rate. The dependent variable of interest was government debt. The primary aim of this study was to determine the underlying factors contributing to the accumulation of national debt in Pakistan. The study utilized the Autoregressive Distributed Lag (ARDL) model to examine the association between the independent and dependent variables.

The present study's findings indicate that several elements, such as the fiscal deficit, balance of trade, government spending, debt service, and currency exchange rates, have a key role in the escalation of government debt. The study's findings indicate that the independent variables, such as the fiscal deficit, governmental spending, debt service, currency exchange Rate, and Balance of Trades, demonstrate enduring volatility and rising patterns in their association with government debt over a prolonged duration.

Practical Implications

The findings obtained from the current study indicate that policymakers may consider developing strategic plans in order to effectively tackle the matter of government debt. The optimal utilization of external debt, specifically for development endeavors, can exert a significant impact on economic growth. The impact of this phenomenon is two-pronged since it not only creates more revenue but also helps alleviate the pressure of debt repayment. Moreover, it aids in the management of the deficit in the balance of trade, resulting in a subsequent rise in the currency exchange rate. The aforementioned results are of utmost importance as they serve to mitigate the detrimental impacts that excessive external debt can impose on a nation's economic stability.

Future Recommendations

Future research endeavors may delve into the intricate connections between government expenditure, economic growth, infrastructure investment returns, poverty reduction, and the improvement of living standards.

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