

Impact of Debt Servicing on Fiscal Deficit in Pakistan

1. Aqsa Arshad, 2. Raheela Maula-Bakhsh

1. Lecturer in Economics at Shadab Girls College Sialkot, Pakistan

aqsaarshad306@gmail.com

2. Assistant Professor, Department of Management Sciences, FMS, Balochistan University
of Information Technology, Engineering and Management Sciences (BUITEMS)

QUETTA

raheela.mqta@gmail.com

Abstract

This study examines how debt servicing affects Pakistan's fiscal deficit and compares the effects of internal versus external debt servicing. Using annual time-series data from 1980 to 2019, two models are estimated, with internal and external debt servicing as the key explanatory variables, respectively, alongside GDP growth, current expenditures, and development expenditures. The Augmented Dickey-Fuller (ADF) test assesses variable stationarity, while the Autoregressive Distributed Lag (ARDL) approach tests for cointegration and estimates short- and long-run relationships. The results confirm strong cointegration in both models. In the first model, internal debt servicing, current expenditures, and development expenditures positively affect the fiscal deficit, whereas GDP growth has a negative effect. In the second model, external debt servicing and GDP growth have negative long-run effects on the fiscal deficit, while current expenditures have a positive effect; development expenditures have no significant effect. The findings suggest that controlling unnecessary government expenditures, improving revenue mobilization through taxation, and directing borrowed funds toward productive development projects can strengthen revenue-generating capacity and reduce the fiscal burden of debt servicing.

Keywords: GDP, External debt service, Internal debt service, Current expenditures, Development expenditures

1. Introduction

Fiscal sustainability has emerged as one of the most persistent macroeconomic challenges facing developing economies, particularly those with narrow revenue bases, recurrent expenditure pressures, limited fiscal space, and substantial public debt obligations (Celestin, 2016; Ahmad et al., 2026). A fiscal deficit arises when government expenditures exceed revenues, requiring the state to finance the resulting gap through borrowing or other financing mechanisms (Alamheedy, 2026). Although deficit financing can support economic activity and public investment when used productively, persistent fiscal deficits can generate a self-reinforcing cycle of borrowing, debt accumulation, and rising debt-servicing obligations (Salah, 2025). Pakistan provides a particularly important case in this context because fiscal imbalances and public debt have remained closely interconnected for several decades (Akhter et al., 2026). Earlier evidence describes Pakistan's fiscal deficit and debt as mutually reinforcing processes, in which persistent deficits increased borrowing requirements, and accumulated debt subsequently generated substantial debt-servicing pressures (Hussai et al., 2022).

Government expenditure on debt servicing is a significant portion of government spending and usually involves repayments of debt and interest on government debt. There is more than one facet of public debt and its fiscal consequences; the size of public debt, its composition, its maturity, its interest cost, its currency denomination and refinancing structure (Iliyasu & Gambo, 2022). The debt obligations in Pakistan can be classified into two types, domestic (internal) debt servicing and external debt servicing. Domestic debt servicing is mainly composed of interest and repayment due on domestic financial institutions, commercial banks, non-bank investors, and other domestic sources. External debt servicing, by comparison, refers to payments to foreign governments, multilateral institutions, bilateral creditors and international commercial lenders and is very sensitive to exchange-rate movements and international financial conditions. Therefore, it is important to analyse the servicing of the debt as a group of homogeneous debts to avoid missing key differences in the impact of internal and external debt on fiscal results (Ahmad, 2011).

Theoretically, there are two-way linkages between debt servicing and fiscal deficit. One way, ongoing budget deficits produce financing needs that lead to further borrowing, which in turn raises the quantity of public debt in the future and the burden of debt service. Conversely, increased spending on debt servicing will directly increase government spending and can diminish the amount of resources that can be saved for other fiscal priorities, which may lead to a greater fiscal imbalance (Watts, 2024). This forms a feedback loop in which a fiscal imbalance today can lead to a fiscal obligation to service the debt tomorrow, and an obligation to adjust the fiscal policy tomorrow can make it more difficult to adjust tomorrow. (Sikdar, 2025) This mutual dependency has always been highlighted in the case of Pakistan. According to Asghar et al. (2022), fiscal deficits can add to debt obligations to both domestic and foreign lenders and the debt service requirements can become more burdensome. Debt servicing is also found to be an important factor contributing to the budget deficit of Pakistan as well as the expenditure and macro-economic instability (Mahmood et al., 2025).

The domestic debt channel is especially significant as domestic interest rates could drastically impact the government's interest burden (Dawood et al., 2024). If the government is heavily borrowing from domestic markets, its interest rates will become higher, which will increase the cost of refinancing and servicing the existing debt. This can crowd out expenditures for development and limit fiscal space for productive public spending. The external debt channel works in slightly different ways. External debt servicing imposes liabilities in foreign currency, which means that the fiscal cost of these liabilities is sensitive to exchange-rate depreciation, global interest rates and international financing conditions (Saheed, & Victor, 2025). A weaker domestic currency makes rupee cost of foreign currency denominated debt-service payments higher, adding further strain to the government finances. Likewise, higher external benchmark rates can lead to higher costs for variable-rate external liabilities and refinancing. The past external debt situation of Pakistan is an example of the above vulnerabilities. External interest payments rose sharply during FY2024, mainly due to the increase in the rate of interest on foreign debt and the withdrawal of the suspension policy on external interest payments, the Pakistan Economic Survey revealed. The State Bank of Pakistan has also emphasized the pressure on external debt-servicing due to the depreciation of the exchange rate, the higher interest rates in the international markets, and the repayment schedule.

These pressures have more to do with the fiscal implications than the deficit itself. A growing debt-servicing cost may squeeze fiscal room for development spending, infrastructure, education, health, and other development-enhancing measures. It can also further reduce the government's ability to sustain itself in terms of borrowing, which may lead to a vicious cycle of borrowing and financial strain. From the recent evidences of policies, it is clear that debt servicing is still one of the biggest expenditure items in Pakistan's Federal budget which is significant enough to stress the need of liability management and fiscal consolidation. Hence, knowledge of the factors and impact of debt servicing is crucial in designing a viable fiscal framework (Khan, 2024).

Although a large body of literature exists on fiscal deficit and public debt in Pakistan, a significant gap is observed in research on difference in impact of internal and external debt servicing on the fiscal deficit. Previous research has often focused on fiscal deficits, public debt, or aggregate debt service, and a lesser number have focused on decomposing the impact of domestic and external debt service in a common empirical model. Previous studies have found a link between debt servicing and fiscal results, but the separate streams of domestic and foreign debt need to be studied. Pakistan, for instance, has been able to establish a significant link between fiscal deficit and debt servicing and has provided evidence that debt servicing causes fiscal deficit. Yet the relative weight and impact of internal debt servicing vis-à-vis external debt servicing are still important empirical issues.

Accordingly, this study examines the impact of debt servicing on Pakistan's fiscal deficit, with particular emphasis on distinguishing between internal and external debt servicing. The study incorporates GDP, current expenditures, and development expenditures as control variables to account for broader macroeconomic and fiscal conditions that may simultaneously influence the fiscal deficit. This framework allows the analysis to isolate the contribution of debt-servicing

obligations while recognizing that economic activity and government expenditure composition also shape fiscal deficits. The study therefore contributes to the existing literature by providing a more disaggregated assessment of Pakistan's debt-deficit relationship and by identifying whether internal or external debt servicing represents the more significant source of fiscal pressure. Such evidence can guide debt-management strategies, fiscal consolidation, expenditure prioritization, and the design of policies aimed at restoring long-term fiscal sustainability in Pakistan.

2. Literature Review

The literature review focuses on prior research. This study primarily examines the theoretical framework for the causal relationship between debt servicing, government expenditures, and the fiscal deficit, with an empirical focus. This chapter briefly summarizes past research. First, it outlines the background of the variables in this study, namely the fiscal deficit, external debt servicing, internal debt servicing, GDP per capita, monetary assets, real exchange rate, net trade, growth expenditures, and development expenditures.

Previous literature has examined the relationship between fiscal deficit and economic growth from different theoretical and empirical perspectives. The Keynesian approach suggests a positive relationship between fiscal deficit and economic growth because increased government expenditure can raise aggregate demand (Chowdhury, 2008). In contrast, the Neoclassical perspective suggests a negative relationship because government borrowing may increase interest rates, reduce private investment, and adversely affect economic activity (Awan & Qasim, 2020). The Ricardian Equivalence theory suggests that the fiscal deficit may have no significant effect on economic growth because consumers anticipate future taxation associated with government borrowing.

Onwioduokit and Ekong (2016) examined the effect of the budget deficit on GDP growth in Sierra Leone using data from 1980–2009 and the Engle-Granger technique. Their findings showed a positive relationship between the budget deficit and economic growth. Similarly, Abdullah et al. (2018) found a long-run positive relationship between the fiscal deficit and economic growth in Bangladesh and identified a deficit threshold of 4.55–5.0 percent of GDP.

In contrast, Mohanty (2018), using Indian data from 1970–2012 and the Johansen cointegration technique, found an adverse relationship between the fiscal deficit and economic growth. However, Aero and Ogundipe (2018), using the TAR model for Nigeria, found a negative relationship and identified a threshold of 5 percent. Hussain and Haque (2017) also found different results for Bangladesh depending on the data source used. Furthermore, Lee and Ng (2015), using the ARDL model for Malaysia over 1991–2013, found no long-run relationship between the fiscal deficit and economic growth.

This research aims to bring better policies for external and internal debt servicing and to identify the level of fiscal deficit (Hameed et al., 2008). According to the economic survey, the debt level increases alongside the government's budget deficit. In March 2019, Pakistan's external obligation stood at 10437 (Rs. in billion). In 2000, it was estimated at a low of 1527 (Rs. in billion). Pakistan's

inward obligation was 18171 (Rs. in billion) in March 2019 and was recorded at a low of 1645 (Rs. in billion) in 2000. On the other hand, the fiscal deficit was 6 percent of GDP in 1991. By the end of the year, the fiscal deficit expanded to 8.9 percent of GDP (Ministry of Finance, Government of Pakistan, 2019). The government further borrows to cover the existing deficit.

Many researchers have found an adverse association between fiscal budget shortage and Pakistan's GDP (Ali et al., 2010; Fatima et al., 2012; Iqbal & Zahid, 1998; Shabbir et al., 1992). In contrast, some studies indicate a strong positive impact of fiscal budget shortage on Pakistan's economic growth (Gupta et al., 2005). Furthermore, Kemal et al. (2017), using data from 1976–2015 and the 2SLS method, found a positive relationship and identified an optimal fiscal deficit level of 0.74 percent of GDP. Some studies concluded that the link between the two is inconsequential in Pakistan (Ahmad, 2013; Nayab, 2015). Similarly, Iqbal et al. (2017) reported an insignificant relationship between fiscal deficit and economic growth.

Overall, the existing literature suggests that the link between fiscal deficits and economic growth is not uniform. The direction and magnitude of this relationship can vary depending on a country's economic circumstances, the specific context examined, and the methodological approach adopted. Previous studies have mainly focused on fiscal deficit and economic growth or public borrowing, while giving limited attention to the direct impact of internal and external debt servicing on the fiscal deficit. Therefore, this study examines the impact of debt servicing on Pakistan's fiscal deficit', particularly the separate effects of internal and external debt servicing.

3. Data Collection and Methodology

This study uses annual time-series data for Pakistan from 1980 to 2019. Data are collected from the Global Economy and the Pakistan Economic Survey. The sample size is 40 years for Pakistan. To achieve this objective, the study used the Autoregressive Distributed Lag (ARDL) methodology for more robust results. It also applied a causality test to examine the cause-and-effect relationship between the variables in this study. Table 1 briefly describes the variables, and Figure 1 presents the study's conceptual framework.

Table 1: Description of variables

'Variables	Description	Measurement	Sources
FD	Fiscal deficit	Constant (2010) US dollars	Economic Survey of Pakistan
IDS	Internal debt service	Constant US dollars	Economic Survey of Pakistan
EDS	External debt service	Current US\$	Economic Survey of Pakistan
GDP	Gross domestic product	Constant (2010) US dollars	World development indicator

CE	Current expenditures	Constant (2010) US dollars	Economic Survey of Pakistan
DE	Development expenditures	Constant (2010) US dollars	Economic Survey of Pakistan

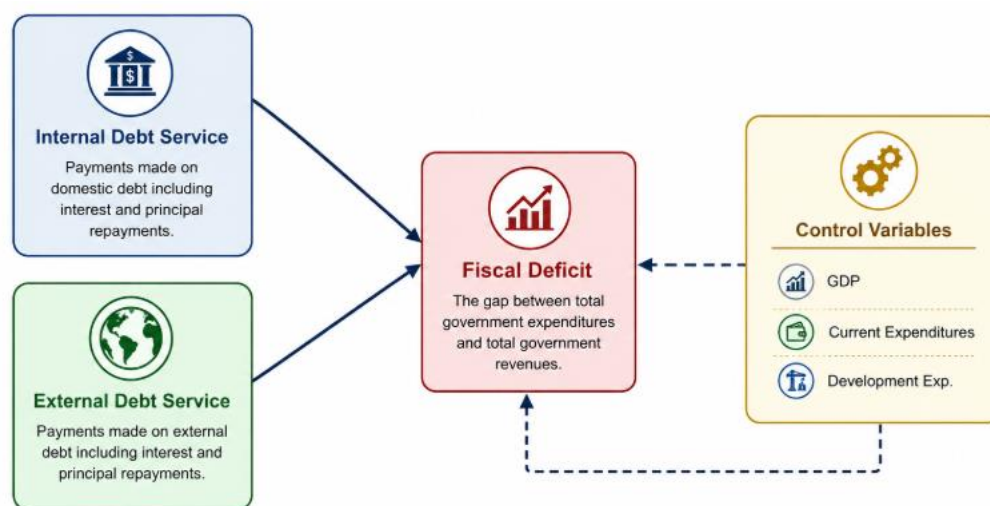


Fig1. Theoretically proposed framework

Methodology Estimation

In Pakistan's economy, the fiscal deficit is mostly due to low investment in development projects (George, 2023). 'In the current era, it is important to investigate the factors that affect the fiscal deficit. Here, we utilized six variables. This study used two models. One model identifies the impact of external debt service on the fiscal deficit, controlling for all other variables, and the other examines the impact of internal debt service on the fiscal deficit, controlling for all other variables. Both models present the functional form below.

First model	$FD = f(GDP, IDS, CE, DE)$	(1)
--------------------	----------------------------	------------

Second model	$FD = f(GDP, EDS, CE, DE)$	(2)
---------------------	----------------------------	------------

The above functional forms include debt servicing (internal and external, economic growth, and government expenditures (development and current) to investigate their role in the government's budget deficit. To address this issue, all variables are used in log form. To achieve this objective, this study will adopt a quantitative research method. The empirical models applied in the analysis are as follows.

First model:

$$LFD_t = \beta_t + \beta_1 LIDS_t + \beta_2 \ln GDP_t + \beta_3 LCE_t + \beta_4 LDE_t + \varepsilon_t$$

(3)

Second model:

$$LFD_t = \beta_t + \beta_1 LEDSt + \beta_2 \ln GDP_t + \beta_3 LCE_t + \beta_4 LDE_t + \varepsilon_t$$

(4) In the above equation, LFD denotes the natural logarithm of the fiscal deficit in 2010, in constant US dollars, and is shown as the dependent variable. B_0 is known as the constant. LIDS stands for the natural logarithm of internal debt servicing in US dollars and is used as an independent variable in the model. LEDSt symbolizes the natural logarithm of external debt servicing in current US dollars. LGDP represents the natural logarithm of gross domestic product growth. LCE and LDE represent the natural logarithms of current and development expenditure in constant US dollars, also treated as independent variables. ε_t is the error term in the model. Here, we used the Autoregressive Distributed Lag (ARDL) model. Before applying this model, we must follow its assumptions. The data must have no heteroscedasticity and no autocorrelation. Distribution of data normally should be compulsory. Lastly, none of the variables used in this study is non-stationary at the 2nd-order difference. If the data meet all these assumptions. Then we apply the ARDL methodology for better results. However, if the data do not meet all these assumptions, ARDL cannot be applied to this dataset.

The ARDL (Auto-Regressive Distributed Lag) methodology was developed by Pesaran, Shin, & Smith (1999, 2001). The advantages of using ARDL are briefly discussed below.

- For checking the short-run as well as the long-run connection among all variables in the regression model in one equation.
- Different lag values of variables are used in the method. Through this Auto-Regressive Distributed Lag method, the distributed-lag problem is solved effectively.
- The Co-integration technique of Johansen prefers the only large size of the sample for getting the best outcomes. But the ARDL method provides more reliable results with both small and large sample sizes.
- By applying the ARDL approach, the problem of Endogeneity (relationship between the error term and independent variables) is solved.
- We may apply this technique if some of the variables of our regression model are stationary at level I (0) and some of the others are stationary at the first difference of 1st I(1).

Not only does it examine the short-run and long-term relationships between regression model variables estimated using the ARDL methodology, but it also investigates variable flexibility and uniqueness, stationarity order, and estimates, and finally checks for structural breaks. Moreover, this study uses the Auto-Regressive Distributed Lag (ARDL) methodology.

According to this study, the framework of ARDL long- and short-term for both models is represented as below.

First model

$$LFD_t = \beta_0 + \beta_1 \Delta LFD_{t-r} + \sum_{t=0}^p \beta_2 \Delta LGDP_{t-r} + \sum_{t=0}^p \beta_3 \Delta LIDS_{t-r} + \sum_{t=0}^p \beta_4 \Delta LCE_{t-r} +$$

p

$t=0$

(5)

$$\beta_5 \Delta LDE_{t-r} + \beta_6 LFD_{t-1} + \beta_7 LGDP_{t-1} + \beta_8 LIDS_{t-1} + \beta_9 LCE_{t-1} + \beta_{10} LDE_{t-1} + \varepsilon_t$$

Second model

$$LFD_t = \beta_0 + \beta_1 \Delta LFD_{t-r} + \sum_{t=0}^p$$

$$\beta_2 \Delta LGDP_{t-r} + \sum_{t=0}^p$$

$$\beta_3 \Delta LIDS_{t-r} + \sum_{t=0}^p$$

$$\beta_4 \Delta LCE_{t-r} +$$

p

$t=0$

(6)

$$\beta_5 \Delta LDE_{t-r} + \beta_6 LFD_{t-1} + \beta_7 LGDP_{t-1} + \beta_8 LIDS_{t-1} + \beta_9 LCE_{t-1} + \beta_{10} LDE_{t-1} + \varepsilon_t$$

The hypothesis explains the above equation. Represents null hypothesis if $H_0: \beta_6 = \beta_7 = \beta_8 = \beta_9 = \beta_{10} = 0$. And represents the alternative hypothesis if $H_1: \beta_6 \neq$

$$\beta_7 \neq \beta_8 \neq \beta_9 \neq \beta_{10} \neq 0$$

Pesaran, Shin, and Smith (2001) derived two sets of values, described below.

- Values of lower bound
- Values of upper bound

The method described above is ready to apply a constraint on the long-run coefficient. Apply the Wald restriction test on the coefficient. By imposing the constraint, the Wald F-statistics and ARDL (Auto-Regressive Distributed Lag) yield values. Then these values are compared with the critical values generated by Pesaran, Shin, & Smith (2001) and Narayan (2005). If the F- statistics of ARDL are lower than the critical values of the lower bound, this shows that among the variables there is no co-integration. And if the F-statistics of Auto-Regressive Distributed Lag values existed among the upper values of bound and the lower values of bound. Then the results are questionable

or unclear. And if the F-statistics of ARDL is greater than the upper bound values. It shows that in every variable's co-integration existed. We based the results on the level of stationarity at different differences. If our variables are stationary at the first difference of 1st, then we concluded the co-integration equation outcomes at I(1) and interpreted each variable at the upper bound. In contrast, we represent the lower bound when our regression outcomes are based on level I(0). The connection between the short term and the long term is represented by the following equation.

Equation of Long Term of the first model

$$LFD_t = \beta_1 + \sum_{t=0}^p \beta_1 LFD_{t-i} + \sum_{t=0}^p \beta_2 LGDP_{t-i} + \sum_{t=0}^p \beta_3 LIDS_{t-i} + \sum_{t=0}^p \beta_4 LCE_{t-i} + \beta_5 LDE_{t-i} + \varepsilon_t \quad (7)$$

Equation of Long Term of the second model

$$LFD_t = \beta_1 + \sum_{t=0}^p \beta_1 LFD_{t-i} + \sum_{t=0}^p \beta_2 LGDP_{t-i} + \sum_{t=0}^p \beta_3 LEDS_{t-i} + \sum_{t=0}^p \beta_4 LCE_{t-i} + \beta_5 LDE_{t-i} + \varepsilon_t \quad (8)$$

Equation of Short Term first model

$$\Delta LFD_t = \beta_2 + \sum_{t=0}^p \beta_1 \Delta LFD_{t-i} + \sum_{t=0}^p \beta_2 \Delta LGDP_{t-i} + \sum_{t=0}^p \beta_3 \Delta LIDS_{t-i} + \sum_{t=0}^p \beta_4 \Delta LCE_{t-i} + \beta_5 \Delta LDE_{t-i} + \varphi ECT_{t-1} + \varepsilon_t \quad (9)$$

$$ECT_{t-1} = LFD_{t-1} - \beta_0 - \beta_1 LGDP_{t-1} - \beta_2 LIDS_{t-1} - \beta_3 LCE_{t-1} - \beta_4 LDE_{t-1} \quad (10)$$

Equation of Short Term second model

$$\Delta LFD_t = \beta_2 + \sum_{t=0}^p \beta_1 \Delta LFD_{t-i} + \sum_{t=0}^p \beta_2 \Delta LGDP_{t-i} + \sum_{t=0}^p \beta_3 \Delta LEDS_{t-i} + \sum_{t=0}^p \beta_4 \Delta LCE_{t-i} + \beta_5 \Delta LDE_{t-i} + \varphi ECT_{t-1} + \varepsilon_t \quad (11)$$

$$ECT_{t-1} = LFD_{t-1} - \beta_0 - \beta_1 LGDP_{t-1} - \beta_2 LEDS_{t-1} - \beta_3 LCE_{t-1} - \beta_4 LDE_{t-1}$$

(12)

In the above equation, ECT is the error correction term. This term shows how quickly the variables in the regression model converge to equilibrium. The negative signs in the equation also indicate that the coefficients are statistically significant.

4. Results of analysis and Discussion

This study used the Augmented Dickey-Fuller (ADF) test to test for unit roots. All the above variables are stationary in first differences, but GDP is stationary at level. Table 2 below shows the unit root test results.

Table 2: Unit Root Test

Variables	Level	1 st Difference
ln FD	-1.140876	-7.245059***
ln GDP	-3.014804***	-3.716350***
ln IDS	-1.589584	-6.172038***
ln EDS	-1.617857	-7.609068***
ln CE	-1.776631	-7.854078***
ln DE	-1.694988	-6.709576***

*Note (***) shows a significance level at 1 percent.*

To find out the outcomes of co-integration among variables, the most advanced technology used is the Auto Regressive Distributed Lag. Therefore, the ARDL bound-testing technique is generally used to test co-integration. In this research, the Autoregressive Distributed Lag model is used to determine whether the variables are co-integrated. The ARDL results are interpreted using the critical values of the F-statistics. The critical values of the F-statistics obtained by applying the ARDL bound test are compared with the critical values of the upper and lower bounds. The null hypothesis is rejected if the F-statistic critical value is higher than the critical value of the upper bound. In that case, we accept the alternative hypothesis. In this research study, two models were utilized to interpret the results.

In the first co-integration model, the variables are fiscal deficit, government expenditures on current and development, internal debt service, and Pakistan's gross domestic product. In this model, we reject the null hypothesis, indicating co-integration among fiscal deficit, internal debt service, current government expenditures, development expenditures, and gross domestic product. However, the results strongly support co-integration. The table below presents the Durbin-Watson, R^2 , and adjusted R^2 results. Because the independent variables affect the dependent variable as a

percentage, the R² and adjusted R² values reflect this. The table given below shows the outcomes of the Co-integration technique of this model.

Table 3: Co-integration Bound Test Analysis

ARDL F-Statistics 6.414174*a				
	Critical bound values			
Level of significance	1%	2.5%	5%	10%
Lower bound	4.4	3.89	3.47	3.03
Upper bound	5.72	5.07	4.57	4.06
R ²	0.909283			
Adjusted R ²	0.719601			
Durbin-Watson	2.688565			

*Note (*a) shows the linear trend in the model.*

The table shows that, at the 1% significance level, the calculated F-statistic exceeds the upper bound. Therefore, we reject the null hypothesis and conclude that co-integration exists between the variables (Fiscal deficit, internal debt service, Gross domestic product, current expenditures, and Development expenditures of government). We investigate the effect of government current expenditures, government development expenditures, internal debt service, and gross domestic product growth on the fiscal deficit to analyze the short- and long-run dynamics using the ARDL (Auto-Regressive Distributed Lag) technique. The tables below show the long-run and short-run impact of the variables on Pakistan's fiscal deficit.

In the short-term analysis, the impact of GDP has shown a negative and significant impact on the fiscal deficit of Pakistan without any lag, and with two lags it also shows a positive and significant impact at the 5% level of significance, while with three lags the results show a negative and significant impact at the 1% level of significance. The results show that if GDP increases by 1 percent, the fiscal deficit decreases by 9% in a year. To cover the government's budget deficit, the government borrows money from inside and outside the economy; this debt burden negatively affects gross domestic growth. These two variables are inversely related. Internal debt service also has a positive impact on the fiscal deficit at the 10% significance level with three lags. The results show that a 1% increase in government internal debt service increases the fiscal deficit by 0.037819%. With four lags, internal debt service shows a negative and significant impact at the 1% significance level. Because when expenditures increase, it further increases the budget deficit,

and to cover the fiscal deficit, the government borrows money internally. These two variables are positively linked. Government development expenditures also show a positive and significant relationship with the fiscal deficit in the short term, with no lag, at the 1% level of significance; with one lag, it shows a positive and significant impact at the 5% level of significance. Current government expenditures also show a positive and significant impact on Pakistan's fiscal deficit in the short run, with 1 lag, at the 1% level of significance. In developing countries like Pakistan, when expenditures increase, they further increase the government's fiscal deficit. It also shows a negative and significant impact on the fiscal deficit with 3 lags at the 5% level of significance. The significance value of ECT_{t-1} shows the speed of adjustment to equilibrium from the short run to the long term. In the table below for short-term analysis, the value of the coefficient ECT_{t-1} in Pakistan is -2.750810. This shows that, in the short term, Pakistan's fiscal deficit moves toward the long-term equilibrium point by 27.50810% each fiscal year. The ARDL analysis of this model's short-run co-integration is shown below in Table 4.

Table 4: Analysis of Short Term

Variables	Co-Efficient	T-Statistics
$\Delta \ln \text{ GDP}$	-9.905167***	(-3.207770)
$\Delta \ln \text{ GDP} (-1)$	2.772251	(0.842040)
$\Delta \ln \text{ GDP} (-2)$	7.880024**	(2.134998)
$\Delta \ln \text{ GDP} (-3)$	-9.640324***	(-3.655230)
$\Delta \ln \text{ IDS} (-1)$	0.002703	(0.184884)
$\Delta \ln \text{ IDS} (-2)$	-0.011858	(-0.715875)
$\Delta \ln \text{ IDS} (-3)$	0.037819***	(2.060696)
$\Delta \ln \text{ IDS} (-4)$	-0.050847**	(-2.923562)
$\Delta \ln \text{ CE}$	2.298140***	(5.216199)
$\Delta \ln \text{ CE} (-1)$	0.069942	(0.124514)
$\Delta \ln \text{ CE} (-2)$	-0.438801	(-0.811564)
$\Delta \ln \text{ CE} (-3)$	-1.360542**	(-2.349482)

(**) (***) level of	$\Delta \ln DE$	0.718383***	(3.232737)	Note (*) shows
	$\Delta \ln DE (-1)$	-0.449909**	(-2.315941)	
	ECT	-2.750810***	(-4.873831)	
significance at 10%, 5%, 1% respectively.				

In the long-term analysis, the impact of the gross domestic product of Pakistan on the deficit of fiscal has shown negative and significant. Many investigators show results same as this study (Mohanty, 2018) (Akosah, 2013) (Awe & Funlayo, 2014) (Hussain & Haque, 2017). In the long run period in the economy, the deficit budget of the government was funded by borrowing the debt from domestically that furthers increasing the non-public ventures. By borrowing loans and debts for the growth of the economy leads to an increase in debt payments by adding the principal and interest amount on that debt over time. The payable amount of debt increased more than the actual amount borrowed. This further increases inflation and the crowding-out effect in the economy. It also increases taxes for the next generation to raise government revenues. Therefore, the government's budget deficit adversely influenced gross domestic product growth. The relationship between internal debt service and the fiscal deficit shows a positive and significant impact of 0.017473% with one lag at the 1% level of significance. Some researchers show similar results. This is because when government expenses rise, the public deficit increases, and the government then takes on domestic debt to cover it. This shows the positive impact of domestic debt on the fiscal deficit (Ghassabian S, 1999). In the long run, current government expenditures show 1.627408, indicating a significant, positive relationship with the fiscal deficit at the 1% significance level. Government development expenditures also show a significant, positive impact on Pakistan's fiscal deficit. Some studies show similar results, showing that both expenditures have a positive impact on the government's deficit budget (Warega, 2012). Table 5 below presents the long-term results.

Table 5: Analysis of Long-Term

Variables	Co-Efficient	T-Statistics
Constant	40.411614***	(3.252173)
$\ln GDP$	-2.548648***	(-4.573382)
$\ln IDS (-1)$	0.017473***	(3.516363)
$\ln CE$	1.627408***	(11.177995)
$\ln DE$	0.332085***	(4.067543)

*Note (***) shows the level of significance at 1%.*

After reviewing the short-run and long-run results of this model, it was concluded that all variables had a significant and positive impact on Pakistan's fiscal deficit, government current and development expenditures, internal services of debt, and gross domestic product growth.

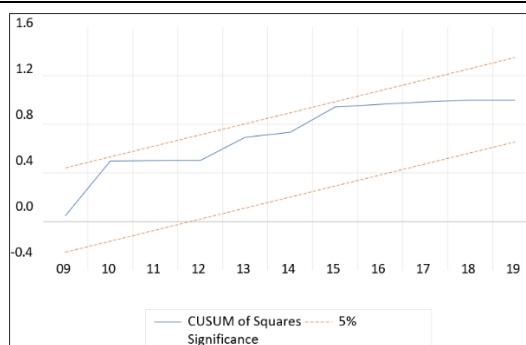
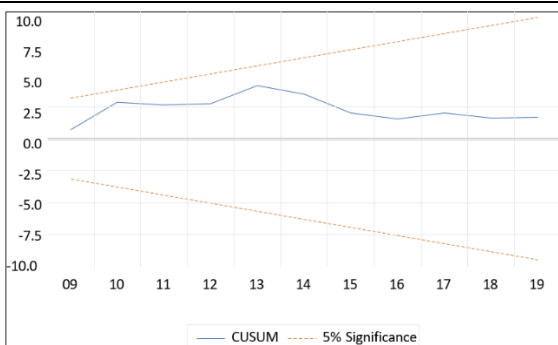
Diagnostic tests are further applied to check the data normality, serial correlation, and heteroscedasticity between variables. The results show that the data are normally distributed. The serial correlation LM test results are insignificant. Therefore, we reject the null hypothesis and conclude that no serial correlation exists between variables. Then, we apply the Breusch-Pagan-Godfrey heteroscedasticity test. The heteroscedasticity test results are also insignificant, so we reject the null hypothesis and conclude that the error term of this model is homoscedastic. The results of these tests are mentioned in Table 6 below.

Table 6: Diagnostic Tests

Probability Tests

Normality	0.418736
Serial Co-relation LM	0.4939 Heteroscedasticity
Breusch-Pagan-Godfrey	0.6992

The CUSUM test checks data stability. The graphs of both CUSUM and CUSUM square are presented below. This shows no stability issues in the model.



In the second co-integration model in this study, the variables are fiscal deficit, current government expenditures, development expenditures, external debt service, and Pakistan's gross domestic product. In that model, rejecting the null hypothesis indicates co-integration among fiscal deficit, government expenditures (development and current), external debt service, and gross domestic product growth. However, the valid and strong results also showed co-integration in this model. The table below presents the R^2 , Durbin-Watson, and Adjusted R^2 results. The adjusted R^2 and R^2 values show the percentage of change in the dependent variable explained by the explanatory variables. The table below shows the outcomes of the Co-integration technique of this model.

Table 7: Bound Test of Co-Integration Analysis

(*a) the trend model. The						Note: shows linear in the table
	ARDL F-Stat	5.728474*a				
	Critical bound values					
	Level of significance	1%	2.5%	5%	10%	
	Lower bound	4.4	3.89	3.47	3.03	
	Upper bound	5.72	5.07	4.57	4.06	
	R ²	0.700055				
	Adjusted R ²	0.592932				
	Durbin-Watson	1.949754				

shows that, at the 1% significance level, the calculated F-statistic exceeds the upper bound. Therefore, we reject the null hypothesis and conclude that co-integration exists between the variables (Fiscal deficit, external debt service, Gross domestic product, current expenditures, and Development expenditures of government).

We investigate the effect of government current expenditures, government development expenditures, external debt service, and gross domestic product growth on the fiscal deficit to analyze the short- and long-run dynamics using the ARDL (Auto-Regressive Distributed Lag) technique. The tables below present the long-run and short-run impact of these variables on Pakistan's fiscal deficit.

In the short run, gross domestic product has a negative and significant impact on Pakistan's fiscal deficit at the 5% significance level. Although external debt service is not significant, it shows that external debt service had no impact on Pakistan's fiscal deficit in the short term from 1980 to 2019. Because, in the short term, to cover the deficit, the fiscal government focuses on borrowing money from within the economy. While government expenditures on current and development both show a positive and significant relationship with the fiscal deficit in the short run at the 1% and 5% levels of significance. The significance value of ECTt-1 shows the speed of adjustment from the short run to the long term. In the table below for short-term analysis, the coefficient ECTt-1 in Pakistan is -0.769519. This shows that, in the short term, Pakistan's fiscal deficit moves toward the long-term equilibrium by 76% each fiscal year. Table 8 below shows the ARDL analysis of the model's short-run co-integration.

Table 8: Analysis of Short Term

Variables	Coefficients	T value
$\Delta \ln \text{GDP}$	-4.637690**	(-2.499060)

$\Delta \ln \text{ EDS}$	0.000513	(-2.499060)
$\Delta \ln \text{ CE}$	1.753329***	(5.047983)
$\Delta \ln \text{ DE}$	0.365268**	(2.450714)
ECT	-0.769519**	(-4.422526)

*Note: (***) and (**) show the level of significance at 1% and 5%, respectively.*

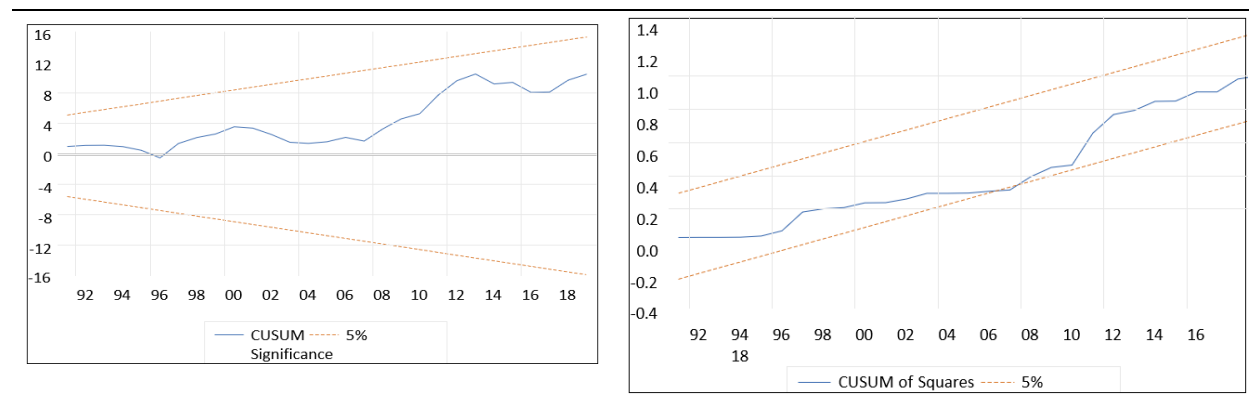
In the long term, gross domestic product growth has a negative and significant impact on the fiscal deficit at the 5% significance level. The reasons are explained above in the results of the first model. The results of External debt service also show a negative and significant relationship with the fiscal deficit. A few researchers show similar results (Ashraf, Akhtar, Hafeez-ul-Rehman, & Awan). It was concluded that a 1% increase in external debt service is associated with a 0.259271% reduction in the fiscal deficit. Because when expenditures were too high, the government took loans from external sources; these resources reduced the fiscal deficit. In this way, it is inversely related to the fiscal deficit in Pakistan. Current government expenditures have a positive and significant impact on the fiscal deficit. Development expenditures, however, show insignificant results. In the long run, development expenditures show insignificant results because Pakistan allocates no budget or debt money to development projects. Therefore, it shows insignificant results. It is concluded that no long-run relationship exists between development expenditures and fiscal deficit. Table 9 below presents the long-run ARDL results.

Table 9: Analysis of Long-Term

Variables	Co-efficient	T-Statistic value
Constant	40.012270**	(2.232801)
$\ln \text{ GDP}$	-2.116985**	(-2.313824)
$\ln \text{ EDS}$	-0.259271*	(-1.697087)
$\ln \text{ CE}$	1.441224***	(4.127804)
$\ln \text{ DE}$	0.131647	(0.907146)

Note () (**) (***) show the level of significance at 10%, 5%, and 1%, respectively.*

Diagnostic tests are further applied to check the data normality, serial correlation, and heteroscedasticity between variables. The results show that the data are normally distributed. The serial correlation LM test results are insignificant. Therefore, reject the null hypothesis, and the results show that no serial correlation exists between variables. Next, apply the Breusch-Pagan-Godfrey heteroscedasticity test. The heteroscedasticity test results are also insignificant, so we fail to reject the null hypothesis and conclude that the error term of this model is homoscedastic. The



results of these tests are mentioned in Table 10 below.

Table 10: Diagnostic Tests

Probability Tests

Normality	0.845185
Serial Correlation LM	0.9413 Heteroscedasticity
Breusch-Pagan-Godfrey	0.9258

CUSUM analysis also supported the model. The CUSUM test checks data stability. This analysis shows that the upper and lower bounds were reliable at the 0.05 level. The graphs of both CUSUM and CUSUM square are presented below.

5. Conclusion

This study examines the impact of external and internal debt servicing on Pakistan's fiscal deficit. For this purpose, it uses 40 years of annual secondary time-series data. To conduct the empirical analysis, we used the ARDL (Autoregressive Distributed Lag) model to assess the short- and long-run impact of debt servicing on Pakistan's fiscal deficit for the period 1980 to 2019. This study used two models to assess the impact of internal and external debt service on Pakistan's budget deficit. Both models use the same control variables, but the main variables are internal debt service and external debt service, respectively. Both models show strong co-integration, as indicated by the bound test results. Also, it shows that a long-run relationship exists between the variables in both models. In the first model, the analysis shows that only gross domestic product growth harms the fiscal deficit, and other variables, internal debt service, current expenditures, and development expenditures, have a positive impact on the fiscal deficit of Pakistan. The value of ECT_{-1} in Pakistan is -2.750810^* , meaning fiscal deficit fluctuations move toward the equilibrium point by 27.50810% from the short run to the long run. Other diagnostic tests show insignificant results, which supports the analysis. In the second model, the analysis shows that gross domestic product growth and external service of debt negatively affect Pakistan's budget deficit. In contrast, development expenditures and current expenditures positively affect the fiscal deficit. The value of ECT_{-1} in Pakistan is -0.769519^* , which means fiscal deficit fluctuations move toward the long-

run equilibrium point by 76.9519%. Other diagnostic tests show insignificant results, which are better for the analysis.

Government debt service (external and internal), current expenditures, and development expenditures directly affect the government budget. However, external and internal debt service has a greater impact than the other variables. Given the current situation, the government must control its budget deficit. The main reason for the high fiscal deficit is rising expenditures, and to meet the required expenses, the government borrows more money. To stabilize the fiscal deficit, we must control expenditures. Develop policies to control unnecessary expenditures, such as fuel consumption, by restricting the engine capacity of state officers' vehicles to 1800 cc. To cover other expenditures necessary for growth, we will use debt financing for development projects and earn profit through them. The government will then repay the debt to the owners from these earnings. It also increases government revenues by increasing tax revenue. References:

References

- [1] Abbas, S. A., & Christensen, J. E. (2010). The role of domestic debt markets in economic growth: An empirical investigation for low-income countries and emerging markets. *IMF Staff Papers*, 57(1), 209–255.
- [2] Abd Rahman, N. H. (2012). The relationship between budget deficit and economic growth from Malaysia's perspective: An ARDL approach. Paper presented at the 2012 International Conference on Economics, Business Innovation.
- [3] Abdullah, S., Azad, A. K., & Siddiqua, S. (2018). Budget deficit and growth: In search of the ceiling for Bangladesh. *Business and Economic Horizons (BEH)*, 14(1232-2019-868), 743–765.
- [4] Achieng, W. (2012). *The relationship between government budget deficit and domestic debt in Kenya* [Master's thesis]. University of Nairobi.
- [5] Adam, C. S., & Bevan, D. L. (2005). Fiscal deficits and growth in developing countries. *Journal of Public Economics*, 89(4), 571–597.
- [6] Adebayo, A. A., & George, O. E. *Exchange rate impact of bond-financed fiscal deficit in Nigeria*.
- [7] Adebayo, A. A., & George, O. E. *Exchange rate impact of bond-financed fiscal deficit in Nigeria*.
- [8] Adesola, W. (2009). Debt servicing and economic growth in Nigeria: An empirical investigation. *Global Journal of Social Sciences*, 8(2), 13–30.
- [9] Adofu, I., & Abula, M. (2010). Domestic debt and the Nigerian economy. *Current Research Journal of Economic Theory*, 2(1), 22–26.
- [10] Aero, O., & Ogundipe, A. A. (2018). Fiscal deficit and economic growth in Nigeria: Ascertaining a feasible threshold. *International Journal of Economics and Financial Issues*, 8(3), 296.
- [11] Afzal, M., Butt, A. R., Ur Rehman, H., Begum, I., & Iqbal, M. M. (2009). A dynamic analysis of the relationship among human development, exports and economic growth in Pakistan [with comments]. *The Pakistan Development Review*, 885–920.
- [12] Afzal, M., Butt, A. R., ur Rehman, H., Begum, I., & Iqbal, M. M. (2009). A dynamic analysis of the relationship among human development, exports and economic growth in Pakistan [with comments]. *The Pakistan Development Review*, 885–920.
- [13] Ahmad, E. (2011). A qualitative analysis of Pakistan's external and internal debt. *Lahore Journal of Economics*, 16(Special Edition), 123–157.
- [14] Ahmad, E., & Ali, S. S. (1996). Capital inflows and national debt [with comments]. *The Pakistan Development Review*, 943–960.
- [15] Ahmad, M., & Khah, A. M. (2026). Assessing the sustainability of fiscal imbalance and public debt in India: Evidence from novel asymmetric and Fourier approaches: M. Ahmed, AM Khah. *Quality & Quantity*, 60(2), 6011–6039.

- [16] Ahmad, N. (2013). The role of the budget deficit in the economic growth of Pakistan. *Global Journal of Management and Business Research*.
- [17] Ahmed, K., & Long, W. (2012). Environmental Kuznets curve and Pakistan: An empirical analysis. *Procedia Economics and Finance*, 1, 4–13.
- [18] Aisen, A., & Veiga, F. J. (2008). Published in Journal of Development Economics 87 (1), August 2008, 29-50. *Journal of Development Economics*, 87(1), 29–50.
- [19] Aisen, A., & Veiga, F. J. (2008). The political economy of seigniorage. *Journal of Development Economics*, 87(1), 29–50.
- [20] Akhter, T., Mubarak, S. H., & Shah, S. F. A. (2026). Macroeconomic instability in Pakistan: The interplay of inflation dynamics, debt sustainability, and energy sector inefficiencies under IMF programs. *ASSAJ*, 5(2), 67–80.
- [21] Akosah, N. K. (2013). Threshold effect of budget deficits on economic growth in Ghana: An empirical analysis. *Available at SSRN 2289523*.
- [22] Akram, N. (2015). Is public debt hindering the economic growth of the Philippines? *International Journal of Social Economics*.
- [23] Akram, N., Muhammad, K., & Husnain, M. (2007). Fiscal situation in Pakistan and its consequences for economic growth and poverty. *Economic Survey*, 8(3).
- [24] Alamheedy, M. M. S. (2026). Islamic fiscal policy and its impact on addressing public budget deficits: An applied analytical study. *International Journal on Economics, Finance and Sustainable Development*, 8(2).
- [25] Alesina, A., & Tabellini, G. (1990). A positive theory of fiscal deficits and government debt. *The Review of Economic Studies*, 57(3), 403–414.
- [26] Ali, S., Ahmad, N., & Khalid, M. (2010). The effects of fiscal policy on economic growth: Empirical pieces of evidence based on time series data from Pakistan [with comments]. *The Pakistan Development Review*, 497–512.
- [27] Aljarrah, M. A. (2009). The composition of government expenditure and investment in Saudi Arabia: Is it attractive or repulsive relationship? *Journal of Economic and Administrative Sciences*.
- [28] Amassoma, D. (2011). External debt, internal debt, and economic growth are bound in Nigeria using a causality approach. *Current Research Journal of Social Sciences*, 3(4), 320–325.
- [29] Amassoma, D. (2011). External debt, internal debt, and economic growth are bound in Nigeria using a causality approach. *Current Research Journal of Social Sciences*, 3(4), 320–325.
- [30] Aschauer, D. A. (1989). Public investment and productivity growth in the Group of Seven. *Economic Perspectives*, 13(5), 17–25.
- [31] Asghar, M. S. (2016). The effect of external debt on the economic growth of Pakistan. *ABC Journal of Advanced Research*, 5(2), 71–76.

- [32] Asghar, M., Chaudhry, I. S., & Ali, S. (2020). Analyzing the correlates of fiscal deficit in Pakistan. *Journal of Managerial Sciences*, 14.
- [33] Asghar, M., Chaudhry, I. S., & Ali, S. (2022). Choices of deficit financing, saving-investment gap and inflation nexus: Evidence from Pakistan. *Journal of Quantitative Methods*, 6(1), 96–118.
- [34] Ashraf, M. W., Akhtar, M. J., Hafeez-ul-Rehman, P., & Awan, A. G. *Impact of external debt on poverty in Pakistan*.
- [35] Atique, R., & Malik, K. (2012). Impact of domestic and external debt on the economic growth of Pakistan. *World Applied Sciences Journal*, 20(1), 120–129.
- [36] Awan, A. G., & Qasim, H. (2020). The impact of external debt on the economic growth of Pakistan. *Global Journal of Management, Social Sciences, and Humanities*, 6(1), 30–61.
- [37] Awan, A., Asghar, N., & Rehman, H. U. (2011). The impact of the exchange rate, fiscal deficit, and terms of trade on the external debt of Pakistan. *Australian Journal of Business and Management Research*, 1(3), 10.
- [38] Awan, D. A. G. (2019). The impact of external debt on the economic growth of Pakistan. *Global Journal of Management, Social Sciences, and Humanities*, 6(1), 30–61.
- [39] Awe, A., & Funlayo, A. (2014). The short and long-run implications of budget deficit on economic growth in Nigeria (1980-2011). *Canadian Social Science*, 10(5), 201–205.
- [40] Bajo-Rubio, O., Berke, B., & Esteve, V. (2020). Fiscal policy and the real exchange rate: Some evidence from Spain. *Empirical*, 47(2), 267–280.
- [41] BAL, D. P., & Rath, B. N. (2014). Public debt and economic growth in India: A reassessment. *Economic Analysis and Policy*, 44(3), 292–300.
- [42] Bank, W. (2000).
- [43] Barro, R. J. (1974). Are government bonds net wealth? *Journal of Political Economy*, 82(6), 1095–1117.
- [44] Barro, R., & Barro, R. (1989). The neoclassical approach to fiscal policy. In *Modern business cycle theory*.
- [45] Basu, S., & Datta, D. (2005). Does fiscal deficit influence trade deficit? An econometric inquiry. *Economic and Political Weekly*, 3311–3318.
- [46] Bernheim, B. D. (1988). Budget deficits and the balance of trade. *Tax Policy and the Economy*, 2, 1–31.
- [47] Bernheim, B. D. (1989). A neoclassical perspective on budget deficits. *Journal of Economic Perspectives*, 3(2), 55–72.
- [48] Bhowmik, D. *Fiscal deficit of Rajasthan: Trends, cycles, and seasonal variation*.
- [49] Bleaney, M., Gemmell, N., & Kneller, R. (2001). Testing the endogenous growth model: Public expenditure, taxation, and growth over the long run. *Canadian Journal of*

- Economics/Revue Canadienne d'économique*, 34(1), 36–57.
- [50] Breusch, T. S. (1978). Testing for autocorrelation in dynamic linear models. *Australian Economic Papers*, 17(31), 334–355.
 - [51] Breusch, T. S., & Pagan, A. R. (1979). A simple test for heteroscedasticity and random coefficient variation. *Econometrica: Journal of the Econometric Society*, 1287–1294.
 - [52] Bulus, G. C. (2020). Growth-maximizing public debt in Turkey: An empirical investigation. *Economics and Business Review*, 6(3), 68–87.
 - [53] Celestin, M. (2016). The impact of fiscal policy on public debt management: Analyzing the long-term sustainability of government borrowing. *Brainae Journal of Business, Sciences and Technology (BJBST)*, 1(7), 573–584.
 - [54] Chaudhary, M. I. a. M. A. (2017). *Fiscal deficit and debt dimensions in Pakistan*.
 - [55] Chaudhuri, S. (1999). *Economic and Political Weekly*, Vol-33.
 - [56] Checherita-Westphal, C., & Rother, P. (2012). The impact of high government debt on economic growth and its channels: An empirical investigation for the euro area. *European Economic Review*, 56(7), 1392–1405.
 - [57] Chowdhury, A. (2001). External debt and growth in developing countries: A sensitivity and causal analysis. *WIDER-Discussion Papers*.
 - [58] Chowdhury, K., & Saleh, A. S. (2007). *Testing the Keynesian proposition of twin deficits in the presence of trade liberalization: Evidence from Sri Lanka*.
 - [59] Clements, B., Gupta, S., & Inchauste, G. (2004). Fiscal policy, expenditure composition, and growth in low-income countries. In *Helping countries develop: The role of fiscal policy*. International Monetary Fund.
 - [60] Darrat, A. F. (1988). Have large budget deficits caused rising trade deficits? *Southern Economic Journal*, 879–887.
 - [61] Davis, E. P. (1995). *Debt, financial fragility, and systemic risk*. Oxford University Press.
 - [62] Dawood, M., Feng, Z. R., Ilyas, M., & Abbas, G. (2024). External debt, transmission channels, and economic growth: Evidence of debt overhang and crowding-out effect. *Sage Open*, 14(3), 21582440241263626.
 - [63] Dedeho, N. H. (2014). *Analysis of equilibrium relationship among government budget deficit, money supply, and inflation in Ethiopia: Co-integrated VAR analysis approach*.
 - [64] Degefe, B. (1992). *Growth and foreign debt: The Ethiopian experience 1964-86*. AERC, Nairobi, KE.
 - [65] Devarajan, S., Swaroop, V., & Zou, H.-f. (1996). The composition of public expenditure and economic growth. *Journal of Monetary Economics*, 37(2), 313–344.
 - [66] Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The Review of Economic Studies*, 51(3), 393–414.
 - [67] Dijk, D. v., Teräsvirta, T., & Franses, P. H. (2002). Smooth transition autoregressive

- models—A survey of recent developments. *Econometric Reviews*, 21(1), 1–47.
- [68] Dissanayake, D. (2016). Identifying the relationships between budget deficit and selected macroeconomic variables: A study of Sri Lanka during the post-liberalization era. Paper presented at the University of Sri Jayewardenepura, Sri Lanka, 13th International Conference on Business Management (ICBM).
- [69] Driessen, G. A., & Gravelle, J. G. (2019). *Deficit financing, the debt, and "modern monetary theory."* Congressional Research Service.
- [70] Dudzevičiūtė, G., Šimelytė, A., & Liučvaitienė, A. (2018). Government expenditure and economic growth in the European Union countries. *International Journal of Social Economics*.
- [71] Duokit, E., & Ekong, C. (2016). Budget deficit and economic growth in Sierra Leone: An empirical re-examination. *Journal of Business and Human Resource Management*, 2(1), 2–7.
- [72] Easterly, W., & Pfutze, T. (2008). Where does the money go? Best and worst practices in foreign aid. *Journal of Economic Perspectives*, 22(2), 29–52.
- [73] Easterly, W., & Pfutze, T. (2008). Where does the money go? Best and worst practices in foreign aid. *Journal of Economic Perspectives*, 22(2), 29–52.
- [74] Economy, H. o. S. o. I. (2019-20).
- [75] Elliott, G., Rothenberg, T. J., & Stock, J. H. (1992). *Efficient tests for an autoregressive unit root* (No. 0898-2937).
- [76] Elmendorf, D. W., & Mankiw, N. G. (1999). Government debt. *Handbook of Macroeconomics*, 1, 1615–1669.
- [77] Engle, R. F., & Granger, C. W. (1987). Co-integration and error correction: Representation, estimation, and testing. *Econometrica: Journal of the Econometric Society*, 251–276.
- [78] Fatima, G., Ahmed, A., & Rehman, W. (2011). Fiscal deficit and economic growth: An analysis of Pakistan's economy. *International Journal of Trade, Economics, and Finance*, 2(6).
- [79] Fatima, G., Ahmed, M., & Rehman, W. (2012). Consequential effects of budget deficit on the economic growth of Pakistan. *International Journal of Business and Social Science*, 3(7).
- [80] Fay, W., & Porter, R. (2006). Optimal budget deficits. *Harvard Law School Briefing Paper*, 28, 1–37.
- [81] Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of Monetary Economics*, 32(3), 485–512.
- [82] Fischer, S., & Easterly, W. (1990). The economics of the government budget constraint. *The World Bank Research Observer*, 5(2), 127–142.
- [83] Fosu, A. K. (1996). The impact of external debt on economic growth in Sub-Saharan

- Africa. *Journal of Economic Development*, 21(1), 93–118.
- [84] Fry, M. J. (1997). *Emancipating the banking system and developing markets for government debt* (Vol. 96). Psychology Press.
- [85] George, A. S. (2023). Causes and consequences of Pakistan's economic crisis. *Partners Universal International Innovation Journal*, 1(5), 1–20.
- [86] Ghassabian S, M. S., Valero YG, Shekar K, Fraser JF, Smith MT. (1999). *Effective debt management in developing countries; debt management series 1, Economic and legal advisory services division of the commonwealth secretariat*. Commonwealth Secretariat.
- [87] Granger, C. (2001). Testing for causality: A personal viewpoint. In *Essays in econometrics: Collected papers of Clive WJ Granger* (pp. 48–70).
- [88] *Growth in Ghana* [Doctoral dissertation, Memorial University of Newfoundland].
- [89] Gülcan, Y., & Bilman, M. E. (2005). The effects of budget deficit reduction on the exchange rate: Evidence from Turkey. *Dokuz Eylül University DP Series*, 5(07).
- [90] Gupta, S., Clements, B., Baldacci, E., & Mulas-Granados, C. (2005). Fiscal policy, expenditure composition, and growth in low-income countries. *Journal of International Money and Finance*, 24(3), 441–463.
- [91] Hakkio, C. S. (1996). The effects of budget deficit reduction on the exchange rate. *Economic Review-Federal Reserve Bank of Kansas City*, 81, 21–38.
- [92] Hameed, A., Ashraf, H., & Chaudhary, M. A. (2008). External debt and its impact on economic and business growth in Pakistan. *International Research Journal of Finance and Economics*, 20(1), 132–140.
- [93] Hansen, B. E., & Phillips, P. C. (1990). Estimation and inference in models of cointegration: A simulation study. *Advances in Econometrics*, 8(1989), 225–248.
- [94] Hicks, J. R. (1936). Keynes' theory of employment. *The Economic Journal*, 46(182), 238–253.
- [95] Hussain, I., Hussain, J., & Bilal, H. (2022). An analysis of the success of fiscal adjustment in reducing public debt: Evidence from Pakistan. *PLOS ONE*, 17(6), e0269536.
- [96] Hussain, M. E., & Haque, M. (2017). Fiscal deficit and its impact on economic growth: Evidence from Bangladesh. *Economies*, 5(4), 37.
- [97] Ibeabuchi, S., Omotor, G., Akinlo, A., Ajayi, M., Olekah, J., Akanji, O., & Odusola, A. (2007). Central Bank of Nigeria. *Economic and Financial Review*, 45.
- [98] Ikejiaku, B.-V. (2008). Africa debt crisis and the IMF with a case of Nigeria: Towards theoretical explanations. *J. Pol. & L.*, 1, 2.
- [99] Iliyasu, I., & Gambo, S. L. (2022). Does debt servicing crowd-out federal government expenditures in Nigeria? *African Journal of Economic Review*, 10(1), 170–190.
- [100] India, R. B. O. (2004). *Handbook of statistics on Indian economy*. Reserve Bank of India.

- [101] Iqbal, N., UD Din, M., & Ghani, E. (2017). The fiscal deficit and economic growth in Pakistan: New evidence. *The Lahore Journal of Economics*, 22, 53–72.
- [102] Iqbal, Z., & Zahid, G. M. (1998). Macroeconomic determinants of economic growth in Pakistan. *The Pakistan Development Review*, 125–148.
- [103] Ishfaq, M., Chaudhary, M., & us Saqib, N. (1999). Fiscal deficits and debt dimensions of Pakistan [with comments]. *The Pakistan Development Review*, 1067–1080.
- [104] Iya, I., Aminu, U., & Gabdo, Y. (2014). An empirical analysis of the effects of fiscal deficits on economic growth in Nigeria. *International Journal of Emerging Technology and Advanced Engineering*, 4(8), 1–9.
- [105] Jibran, K., Ali, A., Hayat, U., & Iqbal, A. (2016). Public debt and economic growth in Pakistan: A reassessment. *Pakistan Business Review*, 18(2), 307–324.
- [106] Johansen, S., & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration—With applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, 52(2), 169–210.
- [107] Kaur, G. (2018). The relationship between fiscal deficit and inflation in India: A cointegration analysis. *Journal of Business Thought*, 8, 42–70.
- [108] Kaur, G. (2019). Inflation and fiscal deficit in India: An ARDL approach. *Global Business Review*, 0972150919828169.
- [109] Kemal, A. R. (2001). Debt accumulation and its implications for growth and poverty. *The Pakistan Development Review*, 40(4), 263–281.
- [110] Kemal, M. A., Siddique, O., & Qasim, A. W. (2017). Fiscal consolidation and economic growth: Insights from the case of Pakistan. *The Pakistan Development Review*, 349–367.
- [111] Keynes, J. M. (1936). *The general theory of interest, employment, and money*. MacMillan.
- [112] Khan, K. (2024). *A review on fiscal and debt policies in Pakistan*.
- [113] Khan, R. E. A., Akhtar, A. A., & Rana, A. S. (2002). Relationship between exchange rate and budgetary deficit-empirical evidence from Pakistan. *Journal of Applied Sciences*, 2(8), 839–842.
- [114] Kim, S., & Roubini, N. (2008). Twin deficit or twin divergence? Fiscal policy, current account, and real exchange rate in the US. *Journal of International Economics*, 74(2), 362–383.
- [115] Kneller, R., Bleaney, M. F., & Gemmell, N. (1999). Fiscal policy and growth: Evidence from OECD countries. *Journal of Public Economics*, 74(2), 171–190.
- [116] Lee, S.-P., & Ng, Y.-L. (2015). Public debt and economic growth in Malaysia. *Asian Economic and Financial Review*, 5(1), 119–126.
- [117] Loizides, J., & Vamvoukas, G. (2005). Government expenditure and economic growth: Evidence from trivariate causality testing. *Journal of Applied Economics*, 8(1), 125–

152.

- [118] Lozano-Espitia, L. I., & Lozano-Espitia, I. (2008). Budget deficit, money growth and inflation: Evidence from the Colombian case. *Borradores de Economía*, No. 537.
- [119] Maana, I., Owino, R., & Mutai, N. (2008). Domestic debt and its impact on the economy-the case of Kenya. Paper presented at the 13th Annual African Econometric Society Conference in Pretoria, South Africa.
- [120] Mahmood, I., Ehsanullah, M., & Habib, A. (2011). Exchange rate volatility & macroeconomic variables in Pakistan. *Business Management Dynamics*, 1(2), 11.
- [121] Mahmood, Y., Ali, M., & Muhammad, T. (2025). Fiscal policy and public debt: Evidence from Pakistan. *Inverge Journal of Social Sciences*, 4(4), 45–55.
- [122] Marinheiro, C. F. (2008). Ricardian equivalence, twin deficits, and the Feldstein–Horioka puzzle in Egypt. *Journal of Policy Modeling*, 30(6), 1041–1056.
- [123] Miah, I. K. (2017). *The impact of government expenditure on economic growth*.
- [124] Milo, P. (2012). The impact of the budget deficit on the currency and inflation in the transition economies. *Journal of Central Banking Theory and Practice*, 1(1), 25–57.
- [125] Mitchell, D. J. (2005). The impact of government spending on economic growth. *The Heritage Foundation*, 1813, 1–18.
- [126] Mitchell, J. (2005). The impact of government spending on economic growth. *Background*, 1831.
- [127] Mohanty, R. K. (2018). Fiscal deficit and economic growth linkage in India: Impact of FRBM Act. In *Challenges and issues in Indian fiscal federalism* (pp. 89–105). Springer.
- [128] Momanyi, G., Odhiambo, S., & Aila, F. O. (2013). *The relationship between fiscal deficits and economic growth in Kenya: An empirical investigation*.
- [129] Mukhtar, T. (2015). Foreign remittances, foreign direct investment, imports and economic growth in Pakistan: A time series analysis. *Arab Economic and Business Journal*, 10(2), 82–89.
- [130] Mukhtar, T., & Zakaria, M. (2010). Budget deficit, money supply, and inflation: The case of Pakistan. *Economic Trends & Economic Policy*, 20(122).
- [131] Mweni, F. (2014). *A critical review of external debt and economic growth in Kenya*. United States International University-Africa.
- [132] Narayan, P. K. (2005). The saving and investment nexus for China: Evidence from cointegration tests. *Applied Economics*, 37(17), 1979–1990.
- [133] Nawaz, S., Iqbal, N., & Anwar, S. (2014). Modeling electricity demand using the STAR (Smooth Transition Auto-Regressive) model in Pakistan. *Energy*, 78, 535–542.
- [134] Nayab, H. (2015). The relationship between budget deficit and economic growth of Pakistan. *Journal of Economics and Sustainable Development*, 6(11), 85–90.
- [135] Nelson, R. M., Belkin, P., & Mix, D. E. (2010). *Greece's debt crisis: Overview, policy responses, and implications*.

- [136] Nelson, R. R. (1993). *National innovation systems: A comparative analysis*. Oxford University Press.
- [137] Ntshakala, P. L. (2015). Effects of public debt on economic growth in Swaziland. *International Journal of Business and Commerce*, 5(1), 1–24.
- [138] Odeleye, A. T. (2013). Inflation, budget deficit and money supply in Nigeria: A new outlook. *Babcock Journal of Economics, Banking, and Finance*, 2, 14–28.
- [139] Ogunmuyiwa, M. S. (2011). Does fiscal deficit determine the size of external debt in Nigeria? *Journal of Economics and International Finance*, 3(10), 580–585.
- [140] Ojo, M. O. (1992). Why fiscal policy matters in African countries. *Economic and Financial Review*, 30.
- [141] Onwioduokit, E. (2012). Empirical estimation of the optimal level of fiscal deficit in the West African Monetary Zone. *Journal of Monetary and Economic Integration*, 12(1), 1–33.
- [142] Onwioduokit, E. A. (2013). Threshold analysis of budget deficit and economic growth in Sierra Leone. *West African Financial and Economic Review*, 10(1), 93–121.
- [143] Page, E. S. (1954). Continuous inspection schemes. *Biometrika*, 41(1/2), 100–115.
- Pakistan, e. s. o. (2018-2019). *Public debt*. Ministry of Finance.
- [144] Pegkas, P. (2018). The effect of government debt and other determinants on economic growth: The Greek experience. *Economies*, 6(1), 10.
- [145] Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289–326.
- [146] Pesaran, M. H., Shin, Y., & Smith, R. P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association*, 94(446), 621–634.
- [147] Phillips, P. C., & Xiao, Z. (1998). A primer on unit root testing. *Journal of Economic Surveys*, 12(5), 423–470.
- [148] Ram, R. (1986). Government size and economic growth: A new framework and some evidence from cross-section and time-series data. *The American Economic Review*, 76(1), 191–203.
- [149] Rangarajan, C., & Srivastava, D. (2005). Fiscal deficits and government debt: Implications for growth and stabilization. *Economic and Political Weekly*, 2919–2934.
- [150] Reed, M., Najarzadeh, R., & Sadati, S. Z. (2019). Analyzing the relationship between budget deficit, current account deficit, and government debt sustainability. *Journal of WEI Business and Economics*, 8(1), 20–31.
- [151] Rias, S. I. (2012). Public debt and economic growth in Pakistan. *Academic Research International*, 2(1), 535–544.
- [152] Sachs, J. D. (2002). Resolving the debt crisis of low-income countries. *Brookings Papers on Economic Activity*, 2002(1), 257–286.

- [153] Saha, R., Dey, N. C., Rahman, M., Bhattacharya, P., & Rabbani, G. H. (2019). Geogenic arsenic and microbial contamination in drinking water sources: Exposure risks to the coastal population in Bangladesh. *Frontiers in Environmental Science*, 7, 57.
- [154] Saheed, T., & Victor, O. E. (2025). Impact of external debt on exchange rate in Nigeria. *FUDMA Journal of Accounting and Finance Research [FUJAFR]*, 3(4), 101–111.
- [155] Sakyi, D., & Adams, S. (2012). Democracy, government spending, and economic growth: The case of Ghana, 1960–2008. *Margin: The Journal of Applied Economic Research*, 6(3), 361–383.
- [156] Salah, A. R. M. (2025). *Public debt crisis: Sustainability, risks, and fiscal discipline*.
- [157] Saleh, A. S. (2003). The budget deficit and economic performance: A survey. Working paper presented at the University of Wollongong, Australia.
- [158] Sasmal, R., & Sasmal, J. (2016). Public expenditure, economic growth, and poverty alleviation. *International Journal of Social Economics*.
- [159] Saysombath, P., & Kyophilavong, P. (2013). Twin deficits in the Lao PDR: An empirical study. *International Business and Management*, 7(1), 62–68.
- [160] Shabbir, T., Mahmood, A., & Niazi, S. A. (1992). The effects of foreign private investment on economic growth in Pakistan [with comments]. *The Pakistan Development Review*, 31(4), 831–841.
- [161] Shahateet, M. I., Al-Habashneh, F., & Al-Majali, K. A. (2014). Budget deficit and external debt in Jordan: Causality and co-integration analysis. *International Journal of Economics and Finance*, 6(8), 268–277.
- [162] Sheikh, M. R., & Alam, T. (2013). Does external indebtedness enhance the incidence of poverty in Pakistan? Empirical evidence. *International Research Journal of Finance and Economics*, 106, 17–23.
- [163] Sheikh, M. R., Faridi, M. Z., & Tariq, K. (2010). Domestic debt and economic growth in Pakistan: An empirical analysis. *Pakistan Journal of Social Sciences (PJSS)*, 30(2).
- [164] Sikdar, S. (2025). *Fiscal policy in focus: Responsibilities and limitations of governments*. Taylor & Francis.
- [165] Titus, O. A., Chidi, O. T., Tochukwu, O. R., & Babatunde, O. O. (2016). Domestic debt and economic growth in Nigeria: Data-based evidence. *Greener Journal of Economics and Accountancy*, 5(1), 1–12.
- [166] Tufail, M., Anwar, S., Raza, S., & Abbas, K. (2014). Effect of budget deficit on trade deficit in Pakistan (a time series analysis). *Journal of Finance and Economics*, 2(5), 145–148.
- [167] Ujuju, L. E., & Oboro, J. (2017). Nigeria's debt structure and its effects on economic performance. *International Journal of Business and Management Review*, 5(10), 79–88.
- [168] Uzochkwus, A. (2003). *Nigeria public debt and economic growth: An empirical assessment of effects on poverty*. African Institute for Applied Economics Enugu

Nigeria.

- [169] Van, V. B., & Sudhipongpracha, T. (2015). Exploring government budget deficit and economic growth: Evidence from Vietnam's economic miracle. *Asian Affairs: An American Review*, 42(3), 127–148.
- [170] Wani, D. N. u. H. (2016). An evaluation of the relationship between public debt and economic growth: A study of Afghanistan. *Munich Personal RePEc Archive*, 75538, 1–19.
- [171] Warega, J. A. (2012). *The relationship between government budget deficit and domestic debt in Kenya*. Full text.
- [172] Watts, M. (2024). Unpacking the dynamics of fiscal deficits and debt. In *The Elgar companion to modern money theory* (pp. 174–185). Edward Elgar Publishing.
- [173] Wuyah, Y. T., & Amwe, A. D. (2015). Impact of fiscal deficits on macroeconomic variables in Nigeria. *European Journal of Business and Management*, 7, 34.
- [174] Yildirim, E. U. (2020). The relationship among fiscal deficit, stock market, and money supply: Empirical evidence for Turkey. *Third Sector Social Economic Review*, 55(2), 828–841.