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Evaluating the Efficacy of Fiscal Expenditure in Pakistan: The Influence of Trade Openness and Public Debt Levels

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Abstract

This study evaluates the effectiveness of fiscal spending in Pakistan, focusing on the roles of trade openness and public debt as key determinants of spending. The study aims to comprehend the impacts of trade openness and public debt on Pakistan's fiscal policy measures, considering the significant influence of macroeconomic policies on a country's economic and social development. Given the escalating state fiscal deficits contributing to Pakistan's mounting debt, it becomes crucial to explore whether enhancing trade can alleviate public debt issues and regulate government spending in the country. Utilizing annual data spanning from 1992 to 2021, this research employs the Autoregressive Distributed Lag (ARDL) model, incorporating unit root tests to assess fiscal policy spending in Pakistan. The findings reveal that trade openness is predominantly influenced by inflation, interest rates, and unemployment in Pakistan. Additionally, public debt is directly associated with lagged difference indicators. Conversely, fiscal expenditure tends to be correlated with public debt levels. However, no substantial evidence of a relationship between fiscal expenditure and trade openness is found. Consequently, the study suggests diversifying revenue sources, curbing population growth, and ensuring the judicious use of debt instruments by the government of Pakistan as potential measures to address these issues.

Keywords*: Fiscal Spending, ARDL, Trade Openness, Public Debt.*

1. Introduction

The development of fiscal policy plays a crucial role in shaping the economic landscape of nations, with a primary aim of fostering prosperity by stimulating earnings, encouraging investment, and attracting both domestic and international investors. However, the pursuit of these objectives faces formidable challenges in Pakistan, where high inflation rates, persistent unemployment, and substantial trade deficits pose significant hurdles to economic growth and stability. Khan, Zubair, and Rathore (2020) underscore the gravity of these challenges, highlighting their role in exacerbating public debts and their adverse ramifications on the Pakistani economy. Moreover, Pakistan has grappled with a notable surge in trade deficits in recent years, a trend that carries profound implications for the country's economic well-being. Shah, Hasnat, and Sarath (2020) emphasize the detrimental impact of this heightened trade deficit, manifesting in reduced cash inflows and escalating outflows, further exacerbating economic challenges. In response to these pressing economic realities, it becomes imperative for the government to reevaluate its fiscal spending strategies to maximize benefits in critical

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areas. Economists and policymakers must carefully consider the adverse effects of trade openness and mounting public debt when formulating fiscal policies. By integrating these factors into policy decisions, policymakers can develop effective strategies to mitigate negative impacts and pave the way for sustainable economic growth in Pakistan. Against this backdrop, fiscal policy emerges as a pivotal instrument in the macroeconomic management of developing countries like Pakistan. This study embarks on a comprehensive examination of fiscal spending in Pakistan, recognizing its significance in addressing multifaceted challenges such as corruption, misallocation of targets, substantial defense expenditure, and the servicing of public debt through interest and debt payments. By delving into the intricacies of the fiscal reaction function and its impact on trade openness and public debts, this research endeavors to provide critical insights into the tools necessary for effective economic management and addressing the escalating debt levels in the country. Building upon previous research, such as the work of Abbas and Ameen (2018), which sheds light on Pakistan's efforts to confront debt-related challenges and propel itself toward becoming a developed nation, this study aims to inform the crafting of policies and practices that can effectively tackle existing economic problems while capitalizing on growth opportunities. Through a meticulous examination of fiscal policy effectiveness and spending, this research seeks to enhance overall productivity and devise strategies for addressing pertinent issues that hinder economic progress. Furthermore, the study aspires to manage public debt levels and fiscal spending effectively, thereby facilitating favourable trade opportunities and implementing regulatory measures to resolve economic challenges comprehensively.

2. Literature Review

This section synthesizes key literature regarding fiscal policy from various perspectives, shedding light on its significance and implications for economic management. Evans et al. (2018) assert that fiscal spending plays a pivotal role in managing a country's economy by contributing to the reduction of budget deficits and alleviating inflationary pressures. In agreement, Chugunov and Pasichnyi (2018) argue that nations failing to adopt sound fiscal policy practices struggle to effectively design budgets and improve their overall economic state. Cavallari and Romano (2017) emphasize the importance of each country addressing its budgetary concerns and devising strategies to enhance its current performance and profitability. They underscore the necessity of building stronger future generations and implementing relevant solutions to address present challenges. Alcidi (2017) underscores the significance of employing different tools and frameworks for managing fiscal spending within a country. These tools include government spending, taxation, and transfer payments, which are crucial for influencing aggregate demand and ultimately contributing to the improvement of a country's performance. Hanusch, Chakraborty, and Khurana (2017) further elaborate on the essential nature of these tools in understanding fiscal policies, highlighting their role in achieving higher returns and fostering national development. Conversely, a lack of comprehension regarding fiscal policy can pose significant challenges for countries in making informed decisions and addressing pertinent issues. Deskar-Škrbić et al. (2017) highlight the crucial role of efficiency in the public sector for economic, social, and institutional development, emphasizing its necessity for formulating policies aligned with the genuine needs of the population. The analysis of public sector efficiency encompasses various aspects, including its economic activity within the overall economy, absence of competition in many service sectors, necessity to justify outcomes amid tight budget constraints, and the impact of public services on economic growth and societal welfare.

In emerging countries like Pakistan, this analysis gains particular significance in the context of decentralization efforts within provincial governments since the 1990s (Montes et al., 2019).

However, decentralization alone does not ensure optimal provision of public goods and services, underscoring the need for effective efficiency criteria to assess financial resource management in local policies. Theoretical decentralization involves the transfer of powers and responsibilities concerning specific functions, with public spending allocation reflecting this distribution. While each level of government ideally exercises full authority over its designated functions, practical implementation may involve sub-national levels executing regulations from higher authorities. This hierarchical structure also applies to local governments within federal states (Yoshino and Miyamoto, 2017). In numerous emerging economies like Pakistan, China, and India, there's a pronounced trend of strong decentralization of spending powers. Over recent decades, this decentralization has been evident in the transfer of spending responsibilities from national to provincial levels, particularly in areas such as education, healthcare, and social programs. These sectors, along with Social Security, constitute a significant portion of public social expenditure, collectively representing more than half of total expenditures. The efficiency of public spending directly impacts the economic conditions and daily lives of citizens, particularly concerning the utilization of resources (Guceri and Liu, 2019). Regardless of the analytical approach adopted, assessing public spending efficiency necessitates linking expenditure levels with outcomes achieved. This evaluation helps determine whether governments should strive for greater outcomes given their spending levels or adjust spending based on realized outputs. Traditionally, the efficiency of management units has been analyzed using the concept of economic efficiency, which compares their performance against a reference standard or "frontier" (Šimović, 2018). This method yields measures of relative efficiency by comparing unit performance with that of the most efficient observed units. Assessing the effects of public spending can be done indirectly through outputs generated by governments or directly through observed results (Chian Koh, 2017).

3. Methodology

The relationship between government expenditure and economic growth has sparked widespread debate, with contrasting views from Keynesians and Classical/Neoclassical theorists. Keynesians advocate for expansionary fiscal policies, emphasizing the role of government spending in boosting economic activity, particularly during recessions when market mechanisms fail to restore equilibrium due to labor market rigidities. In contrast, Classical and Neoclassical theorists argue that fiscal policies are futile due to the crowding-out effect, whereby increased public spending displaces private goods and leads to higher interest rates, stifling private investment and economic growth. Recent growth theories support the Keynesian argument, suggesting both short-term and long-term impacts of fiscal stimulation on economic growth. The magnitude and type of inflation, as well as the level of public debt, are significant factors influencing the effectiveness of fiscal policies. Higher debt levels typically lead to lower fiscal multipliers due to increased risk assessments and diminished consumer and corporate spending expectations.

The Variables included in our analysis are output, fiscal spending, policy rate, prices, Trade Openness, unemployment rate, and public debt, and their operational definitions are given in the following table.

Table 1 Variables and description

Variables	Measurement	Source
GDP	GDP Million, Growth (%)	WDI
Govt. Expenditure	Government spending Million (log)	WDI
Trade Openness	Exports-Imports Million (log)	WDI
Public Debt	Public Debt Million (log)	WDI
Interest Rate	Real Interest rate (percent)	WDI
Inflation	Consumer Price Index (Log)	WDI
Unemployment Rate	Unemployment rate (%) (Percent)	WDI

For empirical analysis, annual data is used for the period 1992-2021. The analysis starts by testing the time series properties of the variables given in Table 1.

Unit Root Test

The Dickey-Fuller (DF) and Augmented Dickey Fuller (ADF) tests are commonly used to detect the presence of unit root processes and assess data stationarity. The ADF test is employed when higher-order correlation is present, whereas the DF test is applicable only for AR (1) processes. Additionally, the DF test is suitable when residuals are not auto-correlated, whereas the ADF test is utilized when residuals exhibit auto-correlation. Dickey-Fuller estimation considers parameters for model estimation.

The equations are as follows:

1. Pure random walk (without intercept and trend):

$$\Delta Y_t = \delta y_{t-1} + \alpha_i \sum \Delta Y_{t-1} + \mu_t \quad (1)$$

2. Random walk + drift (with intercept and without trend):

$$\Delta Y_t = \beta_1 + \delta y_{t-1} + \alpha_i \sum \Delta Y_{t-1} + \mu_t \quad (2)$$

3. Linear trend + drift (with intercept and trend):

$$\Delta Y_t = \beta_1 + \beta_{2t} + \delta y_{t-1} + \alpha_i \sum \Delta Y_{t-1} + \mu_t$$

The null and alternative hypotheses for stationarity and non-stationarity are as follows:

H0: $\delta = 1$ (non-stationary)

H1: $\delta < 1$ (Stationary)

In estimating time series models, it is crucial to examine both short and long-run relationships among variables. Literature indicates various techniques employed to identify these connections between variables of interest. Determining the order of integration among variables is necessary before applying any technique. To discern the relationship type among variables in the fiscal reaction function, the specified model outlined below is utilized.

ARDL Model Specification

For empirical analysis, the ARDL model is utilized. This co-integrating technique, introduced by Pesaran and Shin (1999) and Pesaran et al. (2001), determines long-term relationships between variables with different orders of integration. It provides insights into both short-run dynamics and long-run relationships among specified variables. Unlike Johansen and Juselius' (1990) cointegrating method, the ARDL approach to cointegration yields individual long-run

relationship equations for each variable. This approach is flexible in accommodating variables of different integration orders (I(0), I(1), or a combination), ensuring realistic results. Additionally, the ARDL model can be reparametrized into Error Correction Model (ECM) when a cointegrating vector is identified, facilitating the examination of short-run dynamics and long-run relationships within a single model. The inclusion of unrestricted lag of regressors in the regression function characterizes the ARDL model.

If x is the dependent variable and y independent variables, then the ARDL model for empirical analysis is reported below.

$$\Delta x = \alpha_{10} + \sum_{i=1}^{p} \alpha_{1i} \Delta y_{t-i} + \sum_{i=0}^{q} \alpha_{2i} \Delta x_{t-i} + \gamma_1 x_{t-1} + \gamma_2 y_{t-1} + \varepsilon_{1t} \quad (4)$$

$$\Delta y = \alpha_{10} + \sum_{i=1}^{p} \alpha_{1i} \Delta x_{t-i} + \sum_{i=0}^{q} \alpha_{2i} \Delta y_{t-i} + \gamma_1 y_{t-1} + \gamma_2 x_{t-1} + \varepsilon_{2t} \quad (5)$$

Where p_j, q_j are the chosen lags, ε_t is white noise error and Δ shows the first difference operator, α is the intercept, long-run and short-run relationship is described by the remaining coefficients. The long-run coefficients are corresponded with γ_j, $j = 1,2,...8$ while the short-run coefficients are captured by the first difference variables i.e. α_{Fj}, α_{Mi}. ARDL-Bound testing is conducted to ascertain the presence of a long-run relationship. This involves computing equations and analyzing the coefficients of lagged variables (k = 1, 2, ..., 8) to determine if they are jointly zero. The hypothesis tested aims to verify the existence of a long-run relationship using F statistics. The null hypothesis suggests a long-run relationship exists, with coefficients of lagged variables being equal to zero, while the alternative hypothesis posits that at least one of these coefficients is non-zero.

4. Empirical Results

The results and discussions present a comprehensive overview of the research findings, supporting the aims and objectives outlined in the research proposal and initial thesis chapters. Descriptive statistics analyzed variables such as government expenditure, public debt, and trade openness in relation to GDP growth, inflation rate, interest rate, and unemployment rate, revealing variations in mean and standard deviation. Unit root tests determined the significance of variable relationships, with trade openness showing strong associations with interest, inflation, and unemployment, and public debt influenced by government expenditure lagged difference. The ARDL test provided coefficients and standard errors, indicating short-term and long-term effects of variables and adjustments. Each objective was thoroughly analyzed, with findings contributing to objective fulfillment. The first objective required fewer analytical procedures, while the final objective addressed identified test loopholes and proposed corresponding solutions.

Table 2 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Government Expenditure	30	10.74	1.91	7.347	15.137
Public Debt	30	75.69	1.97	66.753	79.085
Trade Openness	30	32.23	3.90	25.306	38.499
GDP Growth	30	4.16	1.80	0.989	7.706
Inflation Rate	30	8.41	4.07	2.529	20.286
interest rate	30	2.73	2.70	-5.079	8.321
Unemployment	30	4.15	2.36	0.4	7.83

Table 2 provides the descriptive statistics for the variables examined in the study's sample. Over a 30-year period, government expenditure averaged approximately millions11 for Pakistan, with a deviation of 2 million, as indicated by a mean of 10.74 and a standard deviation of 1.91. Similarly, public debt averaged millions76 million, deviating by millions2 million, with a mean of 75.69 million and a standard deviation of 1.97. Trade openness averaged around 32%, deviating by 4%, with a mean of 32.23 and a standard deviation of 3.90. GDP growth averaged 4%, deviating by 2%, with a mean of 4.16 and a standard deviation of 1.80. The inflation rate averaged 8%, deviating by 4%, with a mean of 8.41 and a standard deviation of 4.07. The interest rate averaged 3%, deviating by 3%, with a mean of 2.73 and a standard deviation of 2.70. Finally, unemployment averaged 4%, deviating by 2%, with a mean of 4.15 and a standard deviation of 2.36.

Table 3 Unit Root Test Results

Variable	Intercept	Significance	First Difference	Significance
Government Expenditure	-2.464	0.124	-2.464	0.0102
Public Debt	-5.584	0		
Trade Openness	-1.891	0.336	-1.891	0.034
GDP Growth	-3.508	0.008		
Inflation Rate	-2.433	0.132	-2.433	0.0109
interest rate	-4.376	0		
Unemployment	-2.118	0.237	-2.118	0.021

The results from Table 3 demonstrate the outcomes of the unit root test for the variables examined in the study. Government expenditure's significant value of 0.124 supports the acceptance of the null hypothesis of a unit root. Conversely, public debt's P-value of 0.00 suggests stationarity. Trade openness yields a significant value of 0.336, implying a unit root presence, with the first difference showing a coefficient of -1.891 and a P-value of 0.034. GDP growth rate indicates a significant value of 0.008, indicating stationarity. The inflation rate's significance value of 0.132 suggests a unit root, with the first difference revealing a coefficient of -2.433 and a P-value of 0.0109. The interest rate presents a significance value of 0.00, indicating stationarity. Lastly, the unemployment rate shows a significance value of 0.237, suggesting a unit root presence, with the first difference indicating a coefficient of -2.118 and a P-value of 0.021.

Cointegration Analysis

The unit root test suggests conducting ARDL cointegration analysis due to the mixed stationary nature of the variables under analysis. Bound tests for trade openness, public debt, and government expenditure indicate the presence of cointegration, as evidenced by F-statistics exceeding the I(0) bound in all three tests. Moreover, diagnostic tests for all cointegrating vectors confirm the statistical significance of cointegration and error correction results. The results of cointegration tests, analyses, and diagnostic tests for all three cointegrating vectors are reported in Tables 4, 5, and 6. Table 4 below illustrates the ARDL model for trade openness as the dependent variable, presenting adjustments, short-run, and long-run effects. The table indicates an absolute adjustment of 0.608 or 60.8%, suggesting that Pakistan's trade openness is moving towards long-run equilibrium at a speed of approximately 60.8% influenced by lagged trade openness. In the long-run equilibrium, inflation rate, interest rate, and unemployment exhibit significant effects on trade openness, while GDP growth rate shows an

insignificant influence. In the short-run equilibrium, inflation rate, interest rate, and unemployment significantly impact trade openness, whereas GDP growth rate shows an insignificant influence. Notably, inflation rate, interest rate, and unemployment are crucial factors influencing trade openness in the short run and contribute significantly to the error correction process.

Table 4 Bound Test for Trade Openness

	F-Bounds Test		Null Hypothesis: No levels relationship		
	Test Statistic	Value	Signif.	I(0)	I(1)
	F-statistic	6.4342	10%	2.45	3.52
	k	4	5%	2.86	4.01
		Coef.	Std. Err.	t	P>|t|
LR	ECT(-1)	-0.61	0.12	-4.90	0.00
	GDP Growth	-0.09	0.34	-0.25	0.81
	Inflation Rate	1.40	0.24	5.81	0.00
	Interest rate	0.69	0.25	2.73	0.01
	Unemployment	1.00	0.34	2.98	0.01
SR	D(GDP Growth(-1))	-0.05	0.21	-0.25	0.81
	D(Inflation Rate(-1))	0.51	0.12	4.15	0.00
	D(Interest Rate(-2))	0.42	0.15	2.74	0.01
	D(unemployment(-1))	-0.51	0.24	-2.14	0.05
	R-squared	0.86	Mean dependent var		0.05
	Adjusted R-squared	0.77	S.D. dependent var		2.96
	S.E. of regression	1.64	Akaike info criterion		4.13
	Sum squared resid	42.32	Schwarz criterion		4.80
	Log likelihood	-44.72	Hannan-Quinn criter.		4.60
	F-statistic	6.82	Durbin-Watson stat		2.10
	Prob(F-statistic)	0.00			
	Breusch-Godfrey Serial Correlation LM Test:				P-Value
	F-statistic	0.831	Prob. F(2,9)		0.54
	Obs*R-squared	3.897	Prob. Chi-Square(2)		0.77
	Heteroskedasticity Test: ARCH				
	F-statistic	0.467	Prob. F(1,24)		0.50
	Obs*R-squared	0.497	Prob. Chi-Square(1)		0.48
	Normality test	JB Stat	2.39		0.30

Table 5 below presents the ARDL analysis for public debt as the dependent variable. The table indicates an absolute adjustment speed of .502 or 50.2%, suggesting that public debt is moving towards long-run equilibrium with an adjustment speed of 50.2% influenced by the first lag of public debt. In both the long run and short run, public debt exhibits an insignificant influence on GDP growth rate, inflation rate, interest rate, and unemployment rate. While all variables

demonstrate a positive impact on public debt, the influence of interest rate is statistically insignificant in the long run. In the short run, nearly all variables contribute to the error correction process, with the exception of inflation and unemployment.

Table 5 Cointegration Analysis for Public Debt

F-Bounds Test		Null Hypothesis: No levels relationship			
Test Statistic	Value	Signif.	I(0)	I(1)	
F-statistic	5.331876	10%	2.45	3.52	
k	4	5%	2.86	4.01	
	Public Debt	Coef.	Std. Err.	t	P>|t|
	ECT(-1)	-0.50	0.32	-4.66	0.00
LR	C	119.20	19.78	6.03	0.00
	GDP Growth	1.32	0.58	2.28	0.04
	Inflation Rate	0.26	0.11	2.32	0.04
	Interest rate	-0.07	0.16	-0.42	0.68
	Unemployment	0.05	0.15	0.35	0.73
SR	D(PUBLIC_DEBT(-1))	0.50	0.20	2.46	0.03
	D(GDP_GROWTH(-1))	-1.43	0.29	-4.85	0.00
	D(GDP_GROWTH(-2))	-1.05	0.25	-4.16	0.00
	D(INFLATION_RATE(-1))	-0.46	0.14	-3.32	0.01
	D(INFLATION_RATE(-2))	-0.21	0.14	-1.55	0.15
	D(UNEMPLOYMENT(-1))	0.73	0.22	3.33	0.01
	D(UNEMPLOYMENT(-2))	0.31	0.27	1.16	0.27
	CointEq(-1)*	-0.76	0.29	-6.03	0.00
	R-squared	0.81	Mean dependent var		0.04
	Adjusted R-squared	0.67	S.D. dependent var		2.86
	S.E. of regression	1.64	Akaike info criterion		4.13
	Sum squared resid	40.32	Schwarz criterion		4.70
	Log likelihood	-43.72	Hannan-Quinn criter.		4.30
	F-statistic	5.82	Durbin-Watson stat		2.14
	Prob(F-statistic)	0.00			
Breusch-Godfrey	Serial Correlation LM Test:			P-Value	
F-statistic	0.731	Prob. F(2,9)		0.51	
Obs*R-squared	3.775	Prob. Chi-Square(2)		0.15	
Heteroskedasticity	Test: ARCH				
F-statistic	0.467	Prob. F(1,24)		0.50	
Obs*R-squared	0.497	Prob. Chi-Square(1)		0.48	
Normality test	JB Stat	2.39		0.30	

Table 6 presents the ARDL analysis for government expenditure as the dependent variable. The table indicates an adjustment rate of 0.418 or 41.8%, suggesting that government expenditure is converging towards long-run equilibrium with an adjustment speed of 41.8% influenced by its first lag. In the long run, inflation rate, interest rate, unemployment rate, and public debt exhibit significant influences on government expenditure. Conversely, in the short run, the

unemployment rate, public debt, and interest rate demonstrate significant impacts on government expenditure. Additionally, the analysis identifies the significant influence of lagged dependent variable (LD) on government expenditure, as well as trade openness on government expenditure.

Table 6 Cointegration Analysis for Government Expenditure

F-Bounds Test		Null Hypothesis: No levels relationship			
Test Statistic	Value	Signif.	I(0)	I(1)	
F-statistic	5.33	10%	2.45	3.52	
k	4	5%	2.86	4.01	
	Government Expenditure	Coef.	Std. Err.	t	P>|t|
LR	ECT(-1)	-0.418	0.085	-4.89	0
	Public Debt	0.47	0.199	2.37	0.033
	Trade Openness	-0.107	0.121	-0.88	0.391
	GDP Growth	-0.061	0.136	-0.45	0.662
	Inflation Rate	0.34	0.141	2.42	0.03
	Interest rate	0.81	0.15	5.4	0
	Unemployment	-0.284	0.153	-1.86	0.084
SR	D(Government Expenditure(-1))	-0.36	0.124	-2.9	0.012
	D(Public Debt(-2))	0.096	0.054	1.79	0.096
	D(Trade Openness(-1))	0.069	0.051	1.36	0.194
	D(GDP Growth(-2))	-0.025	0.057	-0.45	0.662
	D(Inflation Rate(-1))	-0.008	0.04	-0.19	0.853
	D(Interest rate(-1))	0.221	0.049	4.5	0
	D(Unemployment(-2))	-0.119	0.055	-2.18	0.047
	R-squared	0.90	Mean dependent var		10.46
	Adjusted R-squared	0.85	S.D. dependent var		1.63
	S.E. of regression	0.63	Akaike info criterion		2.18
	Sum squared resid	7.07	Schwarz criterion		2.65
	Log likelihood	-20.47	Hannan-Quinn criter.		2.32
	F-statistic	18.35	Durbin-Watson stat		1.96
	Prob(F-statistic)	0.00			
Breusch-Godfrey Serial Correlation LM Test:				P-Value	
F-statistic	1.228	Prob. F(2,9)		0.28	
Obs*R-squared	1.996	Prob. Chi-Square(2)		0.16	
Heteroskedasticity Test: ARCH					
F-statistic	0.031	Prob. F(1,24)		0.86	
Obs*R-squared	0.033	Prob. Chi-Square(1)		0.86	
Normality test	JB Stat	1.73		0.41	

Discussion

Fiscal spending, essential for government development and social welfare, plays a crucial role in regulating economic and social affairs. In Pakistan, its analysis reveals varying GDP contributions of 20-45% in different countries. Aligned with government priorities, fiscal stimulus packages, like the US's $415 million during Covid-19, aim to resolve economic issues. Directed towards health, education, and poverty reduction, efficient spending promotes economic growth. Fiscal events, such as development programs, drive spending flows, accelerating economic development. While Fishback and Kachanovskaya (2010) argue no direct effect on employment, Wilson (2012) found the ARRA 2009 effective in saving 2 million jobs. This underscores fiscal spending's pivotal role in economic development.

Objective two aims to examine the relationship between trade openness, public debt, and government fiscal spending. Through extensive quantitative analysis on secondary data, the study focuses on interest rates, inflation rates, and employment rates. Statistical tests reveal no significant correlation between trade openness and government spending, while public debt levels notably influence fiscal spending. Research on Ghana's government revenues shows that public debt increases government spending, with spending directly linked to government borrowing. In Pakistan, yearly budget increases are often financed by external and internal borrowings, emphasizing the importance of this objective. However, some studies suggest that variables of trade openness can affect government expenditure, as seen in Attari and Javed's (2013) study indicating the long-term impact of inflation rates on spending, though not on economic growth, with inflation and economic growth having unidirectional causality.

Government spending and interest rates exhibit a relationship where trade openness and interest rates are negatively correlated. Conversely, the interest rate functions as a multiplier, with government purchases likely increasing to address output gaps if the real interest rate remains below 1 percent due to government monetary policy. However, in the long term, government spending needs to be financed by taxes rather than borrowings, with debt financing potentially limiting spending and creating financial constraints (Woodford, 2011). Regarding the incentive behind government spending, investment in education, skills, and infrastructure development can reduce unemployment by creating job opportunities (Onuoha and Moses, 2019). Objective three's findings align with Nursini's (2017) study, indicating that fiscal spending, supported by taxes and borrowings, negatively affects growth, while trade openness significantly contributes to economic growth.

5. Conclusions

The research findings demonstrate that the variables analyzed exhibit mixed stationarity, indicating some are integrated of order one while others are integrated of order zero, thus validating the feasibility of employing the ARDL approach for empirical analysis. Cointegration is confirmed by the bound test, with the error correction term in all three cointegrating vectors being statistically significant and maintaining a negative sign, indicating a valid estimation of cointegration and error correction. The error correction term suggests a rapid speed of adjustment in each time period. Diagnostic tests support empirical results, revealing the absence of econometric issues in most cases. Trade openness is positively influenced by inflation rate, interest rate, and unemployment rate in both short and long runs, with these variables significantly contributing to the error correction process. Public debt is positively influenced by GDP growth and inflation in the long run, with all variables significantly contributing to the adjustment process. Government expenditure is positively influenced by public debt, inflation, and interest rate in the long run, while negatively impacted

by unemployment at a 10 percent level of significance. In the short run, government expenditure, public debt, interest rate, and unemployment.

The analysis indicates that trade openness in Pakistan is positively influenced by inflation, interest rate, and unemployment. Therefore, it is recommended that authorities consider these factors when formulating trade policies. Additionally, the second cointegrating vector highlights the significant impact of GDP growth and inflation on public debt, emphasizing the need to manage public debt by considering GDP growth and inflation for macroeconomic stability. Given the positive influence of these variables on public debt, it is advised that debt policies consider GDP growth and inflation. Furthermore, the cointegrated vector of government expenditure reveals that public debt, inflation rate, and interest rate positively influence government spending, while unemployment negatively impacts it at a 10% significance level. This suggests that government expenditure is financed by public debt, inflation, and interest rate increases, necessitating caution in managing government spending due to the positive impact of public debt, inflation, and interest rate on government expenditure. significantly contributes to the adjustment process.

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