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The Impact of Trade Openness and Public Debt Level on Fiscal Spending in Pakistan

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ABSTRACT

The study assesses the effectiveness of fiscal spending in Pakistan. Along with that, trade openness and public debt have been considered the main determinants of budgetary expenditure. The primary purpose of this study is to understand the influences of trade openness and public debt on the fiscal policy measures of Pakistan. Presently, Pakistan's debt is also aggrandizing due to the state budgetary deficits. In such circumstances, it is essential to understand whether trade enhancement can resolve the issues of public debt and regulate government spending in Pakistan or not? This research used annual data from 1990 to 2019 for statistical analysis to investigate this phenomenon. For empirical analysis, the ARDL model is used based on the unit root test to assess fiscal policy spending in Pakistan. The study's findings asserted that trade openness is primarily driven by inflation, interest rate, and Pakistan's unemployment. At the same time, public debt is directly associated with lagged difference indicators. Contrarily, fiscal expenditure tends to be related to public debt. However, the study did not find any evidence of a link between budgetary expenditure and trade openness. Thus, the study recommends diversification of revenue, reduction in population growth and justified use of debt instruments by the government of Pakistan.

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INTRODUCTION

The macroeconomic policies must be designed to ensure macroeconomic credibility in the country. Financial planning is considered a vital element to evaluate the nation's economy. The study by Deskar-Škrbić and Šimović (2017) also argued that it is imperative to determine its financial planning. The development of fiscal policy must be inconsiderate to promote prosperity by increasing the earnings and investment plans while attracting national and international investors to make investments in the country. Concerning Pakistan, these goals are challenging for economists due to the country's high rate of inflation, unemployment, and trade deficit (Khan, Zubair and Rathore, 2020). Overall, it has increased the public debts in the country, which impose adverse effects on the economy Pakistan.

On the other hand, the trade deficit has also increased in Pakistan over the past few years. In this manner, it has a significant effect on the country's economy as the inflow of cash has decreased while the outflow of money has increased. The study of Shah, Hasnat and Sarath (2020) also stated that the increased trade deficit in Pakistan has adversely affected the country's economy as the outflow of cash has been increased. Therefore, it is imperative to reconsider the fiscal spending by the government to make maximum benefits in areas that need consideration. Economists and policymakers must consider the negative influence of trade openness and increased public debt to develop fiscal spending decisions.

Fiscal policy plays a vital role in the macroeconomic management of developing countries in Pakistan. This study investigates the dynamics of budgetary spending in Pakistan. The analysis of fiscal spending is critical because, in developing countries like Pakistan, the fiscal spending is not optimized due to corruption, miss specification of targets, a significant portion on defence expenditure, debt payments and interest payments on public debts. This study, therefore, tries to investigate the fiscal reaction function and its impact on trade openness and public debts. The following research has contributed to understanding the tools that can be used to manage the country's economy and solve the current issues related to the increasing level of debt in the country. Abbas and Ameen (2018) have argued that the government has been facing several issues regarding debt and has been trying to solve these issues and get into the list of developed countries. Therefore, the policies and practices are designed to deal with the problems and opportunities that can be there in Pakistan that can contribute to increasing the country's growth rate. Therefore, this research has contributed to managing the effectiveness of fiscal policy and fiscal spending in the country that can enhance the country's overall productivity and make effective strategies for solving the problems in this regard. The researcher has also aimed to manage the level of public debt and fiscal spending in the country, which has also contributed

to getting better opportunities for trade and driving the regulations that can be used for solving these issues and implementing the solutions.

LITERATURE REVIEW

This section examines the latest research on fiscal policy from several angles. According to Evans et al. (2018), budgetary expenditure plays a significant role in controlling the country's economy by reducing the budget deficit and, as a result, the country's inflationary pressure. According to Chugunov and Pasichnyi (2018), governments that do not implement fiscal policy practices would be unable to enhance their budget design and contribute to improving the country's status. According to Cavallari and Romano (2017), each country must settle its budget and devise measures to address difficulties and enhance its existing performance and profitability. The government must develop more robust and better generations in the future and create suitable solutions for countries that may be utilized to address existing difficulties (Alcidi, 2017). There are a variety of strategies and frameworks that may be used to deal with the country's fiscal spending. According to Hanusch, Chakraborty, and Khurana, these tools are government expenditure, taxation, transfers, and payments for influencing aggregate demand (2017). All instruments are required to deal with the comprehension of fiscal policies that nations might employ to manage greater returns and contribute to the improvement of their existing performance (Hanusch, Chakraborty and Khurana, 2017). On the other side, a lack of understanding of fiscal policy might make it difficult for a country to make specific judgments about itself and solve difficulties. As a result, governments must understand fiscal expenditure to analyze and execute it. According to Deskar-krbi et al. (2017), public sector efficiency is critical for a country's economic, social, and institutional development and for creating policies in line with the population's actual requirements. Several factors can be used to conduct an efficiency analysis in the public sector, including the size of its economic activity in the overall economy, the lack of competition in a large portion of the services provided, the need to justify results in a budget-constrained environment, and the impact of public services on population growth and welfare, to name a few. This type of analysis applied to subnational administrations has been determined to be very important in the current process of assigning competencies and functions of provincial governments in emerging countries like Pakistan, which solid decentralization functions have characterized since the 1990s (Montes et al., 2019). However, decentralization of spending does not ensure an appropriate supply of public goods and services in and of itself. Thus, it is necessary to develop meaningful efficiency criteria for studying and assessing financial resource administration in local programmes. In theoretical terms, decentralization entails a transfer of faculties and powers around a function or a collection of related parts. The distribution of roles is usually reflected in the allocation of public funding. Each competency is executed with complete power by the level it relates within a stratified or perfect scheme separation between the several governmental levels. This means that such competence includes the exercise of legislative, supervisory, and enforcement authorities and all of the sub-functions that make up the function at a single government level. However, subnational levels may be the implementers or executors of higher-level

rules or regulations. The same is valid for local administrations inside a federal state's intermediate levels (states or provinces) (Yoshino and Miyamoto, 2017).

Various growing economies, such as Pakistan, China, India, and others, are characterized by a considerable decentralization in terms of expenditures. In recent decades, transferring spending obligations from the nation to the provinces has occurred. The significant manifestation is the transfer of educational, health, and social programmes to a group of areas from various countries. These items, along with Social Security (for those jurisdictions that still have it, since half have reverted to the federal realm), account for most Public Social Expenditure, accounting for more than half of the total. The effectiveness of government expenditure directly impacts economic situations, countries, and people's everyday lives, primarily due to the resources spent (Guceri and Liu, 2019). Regardless of the method used, assessing the effectiveness of government spending necessitates correlating the quantity of expenditure (total resources) with the results gained. This would allow you to set if the government should spend more to get better outcomes or whether you should spend less to have better results, given the outputs or results. The performance of management units has traditionally been assessed using the imovie (2018) notion of economic efficiency, which empirically creates a reference standard - the frontier - against which the teams can be compared and determine whether they are efficient. The efficiency metrics determined in this manner define relative efficiency; they assess efficiency by comparing their performance to that of the "best" units seen, which would make up the border efficiently. In general, the impacts of government expenditure can be measured indirectly through the goods (outputs) produced by the government or directly through the outcomes (Chian Koh, 2017).

However, David (2017) contains numerous parts of both coverages, such as the quality of public-sector products and services, while the second focuses on the consequences of government policies on employment and living circumstances of the people. Given the difficulties in demonstrating causal linkages between public policies and socio-economic situations, the relationship between assigned resources and achieved goods is more transparent and direct than between allocated resources and results. In his initial approach to efficiency, he focused on two concepts: first, technical efficiency, which refers to an economic unit's ability to produce the maximum amount of output given a set of inputs, and second, allocative efficiency, which refers to a monetary unit's ability to select the best collection of inputs given the corresponding prices. Global efficiency or economic efficiency, which results from technological and allocative efficiency, is based on these notions. As previously stated, technical efficiency refers to a monetary unit's ability to produce a given product with the fewest possible inputs or maximize output shown at a given level of information. In contrast, allocative efficiency refers to an economic unit's ability to use inputs in optimal proportions given their relative prices to reduce production costs. Technical efficiency is defined as the distance between the observed input mix and the efficient input mix, as specified by the isoquant associated with a production level, in analytical and graphical terms (Okorie et al., 2017).

If a unit's resources and production are on this isoquant, it is considered efficient. In contrast, a team that does not produce at the maximum possible level is deemed inefficient given a determined technological level. The magnitude of its inefficiency is determined by the distance between it and the isoquant. This concept of technical efficiency allows for creating a bounded indicator that analyses the link between the usage of inputs and the observable outputs, ranging from zero to one. A score around 0 denotes an inefficient economic unit (one that is separated from the isoquant associated with its amount of production), whereas a scoring team denotes optimum efficiency. Other writers, such as Enami et al. (2019), place a value on institutions based on distributive efficiency, which considers the outcomes and the efficiency with which they are dispersed in society. When resources are divided so that society's welfare is maximized, distributive efficiency is achieved. However, because the technique is focused on certain expenditure functions, it does not include potential spillover effects to other sectors. For example, a province with minimal public health spending but large social assistance programmes might have good outcomes in public health indices. This form of Conjectural consideration is empirically measured. About performance indicators, there is no agreement on which variables are ideal for measuring the efficiency of government expenditure, and the decision is heavily influenced by data availability and policy objectives. However, suppose assessments of policy results (outcome) are not attainable. In that case, efficiency resembles public management products (output), which measure the service or goods delivered and are used as a guide to achieve the principal goal that may be driving government action. The indicators utilized as inputs and outputs in each region will be investigated, as well as a brief description of their construction (Ilieva et al., 2019). In the case of health, it should be noted that this is one of the most critical issues for subnational governments, as a substantial portion of their administration is within the control of provincial governments. However, it is essential to consider the positive externalities this spending generates in residents' quality of life. The incorporation of efficiency in the provision of infrastructure was done using the Product role of public activity Socio-Economic Performance Indicators in Infrastructure, which consisted of the inverse index of lack of housing and the percentage of the population with access to drinking water, both indices being an own elaboration based on the INDEC Survey Permanent Household (imovi, 2018).

Consider the appropriate changes, as in the case of Health and Education, such that a higher score indicates tremendous success in these areas. To calculate the Public Expenditure Indices in Infrastructure, data from the functions Housing and Urban Planning and Drinking Water and Sewerage in per capita terms, as well as spending on these functions as a share of GDP and as a share of total government spending by subnational, were used, all of which were averaged over the years 2001-2003 and 2011-2013. In the same approach, the indices are created by rescaling the statistics such that the average of the 24 subnational jurisdictions equals one (one). Finally, a Socio-Economic Performance Indicator in Security, derived from the Crime Index, a common-law crime rate per 100,000 people, was used to assess the efficiency of public activity insecurity. The National System of Criminal Information Reports from the Ministry of Justice, and Human Rights' National Directorate of Criminal Police were used to create this index. Because a lower value implies more excellent performance in this variable,

the index was constructed using the same criteria as the other indices, with higher values indicating better performance. The initial indication was multiplied by its inverse (Montes et al., 2019). The Public Expenditure Indices in Security were used to calculate the public input in this area: expenditure in Defence and Security in per capita terms, expenditure as a percentage of GDP, and expenditure as a percentage of total subnational government spending, all taken as averages for the years 2001-2003 and 2006-2008. Similarly, the index was created by rescaling the statistics so that the unit value was determined by the average of the 23 subnational jurisdictions. Recent World Development Reports have highlighted the importance of reconsidering government intervention in the economy (Guceri et al., 2019).

This report expresses the feeling about what to do and what not to do in the public sector in the twenty-first century. On the first front, the State must respond to the new challenges and ensure the general context of the economy as previously discussed and the credibility of public policies (in their preparation and application - against corruption - and channelling formal guarantees regarding recognized property rights). These include promoting international collective action in areas such as R&D, public health, the environment, and commerce; (ii) data protection, person guarantees before genome advances, and optimal insurance and reinsurance compensation, among other things; (iii) establishing internal regulations and guardianship that avoid the negative social externalities of financial and banking crises and make existing information more transparent against asymmetries; and (iv) establishing internal limitations and control that prevent the negative social externalities of In exchange, he can't stop doing a lot of things that could have been justified in his day, but aren't anymore, for reasons like natural monopoly direct exploitation of transportation railways, telecommunications), ostensible strategic interest in extensive electricity services, or the protection of preferential goods that social evolution requires (Chian Koh, 2017). As a result, most public performance (about 60%) is dedicated to social activities such as education, health, culture, housing, or community well-being and economic activities such as infrastructure and communications, subsidies to productive sectors, and debt servicing. In other words, it has been observing a small hard-core in the action of the State characterized by I the absence of a market to supply said goods: under public management, there is little to emulate because private management does not exist property of non-rival consumption, the inapplicability of prices that exclude consumption for their financing, (ii) some activity results - intermediate outputs and outcomes mostly ambiguous to be able to minimally specify a product, (iii) some activity results (Enami et al., 2019).

RESEARCH METHODOLOGY

This study uses time-series analysis. The analysis starts by testing the time-series properties of the data. For empirical findings, this study uses annual time series data from 1990 to 2019. All the variables used in this study are described in table 2 below.

Table 2

Variables Description

Variables	***Measurement***	***Source***
GDP	GDP Million, Growth (%)	WDI
Fiscal Spending	Government spending Million (log)	WDI
Interest	Real Interest rate (per cent)	WDI
Inflation	Consumer Price Index (Log)	WDI
Unemployment	Unemployment rate (%) (Percent)	WDI

Econometric Model

To estimate time series models, it is necessary to analyze the short and long-run relationships among variables. The literature shows that different techniques are used to find the short run and long run connections between variables of interest. It is necessary to determine the order of integration among variables before the imposition of any technique. The following model has been specified to establish a relationship between variables in the fiscal reaction function.

ARDL Model Specification

For the empirical analysis, the ARDL model will be used. The ARDL cointegrating technique is used to determine long-term relationships between variables with different orders of integration (Pesaran and Shin 1999) and Pesaran et al. 2001). The estimated result gives the short-run dynamic and long-run relationship among the specified variables. Pesaran and Shin (1997) and Pesaran et al. (1996) proposed the cointegrating Autoregressive Distributed Lag (ARDL) approach for a long-run relationship. It estimates the relationship irrespective of whether the variables are I(0), I(1), or both. ARDL approach to cointegration will provide accurate results in such situations. ARDL approach to cointegration helps figure out the cointegrating vector(s), unlike the Johansen and Juselius (1990) cointegrating method. That is, each variable stands as a single long-run relationship equation. IF ONE OF THE COINTEGRATING VECTORS IS IDENTIFIED, the ARDL model of a cointegrating vector is reparametrized into ECM. This reparameterization of the model results in a short-run dynamic and long-run relationship of the variables of a single model. The reparameterization is possible because ARDL is an active single model equation and the same with the ECM. ARDL model implies the inclusion of free lag of the regressors in a regression function.

This procedure of cointegration specifically helps in the identification of cointegrating variables along with endogenous variables. The ARDL approach consists of two stages. In the first stage, the long-run relationship among variables is tested through the F-test, which determines the significance of lagged levels of variables in the unrestricted ECM. The second stage is an estimation, in which the coefficients of the long-run relationship and ECM are estimated. The available ECMs corresponding to the fiscal reaction function is given below.

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

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

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

Where p_j, q_j are the chosen lags, ε_t white noise error Δ shows the first difference operator, α is the intercept, long-run and the remaining coefficients describe the short-run relationship? The long-run coefficients correspond with $\gamma_j, j = 1,2,...8$ the first difference variables, i.e. capture the α_{Fj}, α_{Mi} short-run coefficients.

The importance of the independent variable to the corresponding dependent variable will be determined through the significance rather than from the coefficient's magnitude. This implies that if any variable has an explainable relationship with a dependent variable is considered necessary.

ARDL Bound Testing

ARDL-Bound testing is performed to check whether there exists a long-run relationship or not. The test involves the process of computing equations, i.e. (4.12) and (4.13) and analyzes the coefficients of the variables that are lagged for one time period, i.e. γ_k, k = 1,2,…, eight are jointly zero. Thus, the following hypothesis is tested to check the existence of a long-run relationship using F statistics. The null hypothesis shows a long-run relationship, and the coefficients of lagged variables are equal to zero. The alternative view is that at least one of these coefficients is not equal to zero.

$H_0 : \gamma_K = 0$ for all k

$H_1 : \gamma_K \neq 0$ for at least one k

The F-statistics have a non-standard distribution that depends on the variables in the ARDL model. The variables are integrated of order I(0) or I(1) or are a mixture of both. The computed values of F are then compared with the critical values proposed by Pesaran et al. (2001). If the calculated value of Flies is in the vital region, then the null hypothesis will be rejected. While if the computed value of Flies is in the acceptance region, then an alternative hypothesis will be rejected, which implies that there is no long-run relationship.

ANALYSIS

The results and discussions provide an extensive overview of the findings generated in the research. They also substantiate the claims of aims and objectives made during the research proposal. Initially, the first chapter of the thesis also contains aims and objectives. The descriptive statistics of this research analyzed variables such as government expenditure, public debt, and trade openness concerning the

GDP growth, inflation rate, interest rate and unemployment rate. The results of each variable varied in terms of mean and standard deviation.

Additionally, the unit root test determined the significance of variables with each other. Indeed, trade openness was highly associated with interest, inflation, and unemployment. At the same time, public debt has been greatly influenced by government expenditure in terms of lagged difference. On the other hand, the ARDL test was based on determinants of the variables and provided co-efficient along with standard errors. The test also reflected adjustments and the short-term and long-term effects of the delineated variables. In the end, the discussion of each objective because of the findings explained the results. Each object has been analyzed in totality. The findings assisted in fulfilling the dreams. Meanwhile, the first objective required fewer analytical procedures. At the same time, the last goal is aligned with loopholes determined during the tests and has been proposed accordingly.

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 1 shows the descriptive statistics of the variables, which summarise the data of the variables under the sample. Government expenditure has a mean value of 10.74 with a standard deviation of 1.91. This indicates that the average government expenditure of Pakistan for 30 years is around millions11, which can deviate by 2 million. The public debt has a mean value of 75.69 million with a standard deviation of 1.97, which shows that the average public debt of Pakistan over 30 years is millions of 76 million, which is deviated by a million 2 million. Trade openness has been identified to have a mean value of 32.23 with a standard deviation of 3.90. This evidence reflects that the average value of trade openness over 30 years is around 32%, deviated by 4%. GDP growth has a mean value of 4.16 with a standard deviation of 1.80. This result shows that the average GDP growth for the 30 periods is 4%, deviating by 2%. The inflation rate has a mean value of 8.41 with a standard deviation of 4.07. It implies that the average value of the inflation rate in Pakistan over 30 years is 8%, deviated by 4%. The interest rate has a mean of 2.73 and a standard deviation of 2.70. This result shows that the average value of the interest rate for Pakistan over 30 years is 3%, deviated by 3%. Unemployment has been found to have a mean value of 4.15 with a standard deviation of 2.36. This result indicates that the average unemployment over 30 years is 4%, with a standard deviation of 2%.

Table 3

Unit Root Test

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 unit root is the analysis of the time series data and indicates whether the time series variables have the unit root or are stationary. The null hypothesis of the unit root test is that there is a unit root, and the alternative view shows the presence of stationarity in the data (Das, 2019). Table 2 above shows the unit root test of the time series variables used in the study. It shows that government expenditure has a significant value of 0.124, which indicates that the null hypothesis of the presence of unit root is accepted. The first difference has shown the coefficient of -2.464 with a significant value of 0.012. Public debt has been identified to have a P-value of 0.00, which shows the presence of stationarity in the data. Trade openness has a significant value of 0.336, which indicates the presence of unit root. The first difference has a coefficient of -1.891 with a P-value of 0.034. GDP growth rate has a significant value of 0.008, which shows that the data is stationary and does not have a unit root. The inflation rate has been identified to have a substantial discount of 0.132, which shows the presence of unit root. The first difference has identified the coefficient of -2.433 with the P-value of 0.0109. The interest rate has a significance value of 0.00, which shows that the data has stationarity. The unemployment rate has been identified as having a significant 0.237; the unit root is present in the data. The first difference has identified the coefficient of -2.118 with a P-value of 0.021.

ARDL Bound Test

The unit root test recommends the ARDL analysis of cointegration as the variables in the study are mixed stationary. The bound tests for all three variables, namely trade openness, public debt and government expenditure, reveal the presence of cointegration as the F-statistic in all three tests is greater than the I(0) bound. Furthermore, the diagnostic tests in all the cointegrating vectors confirm that the cointegration and error correction results are statistically significant. The cointegration tests, analysis and diagnostic tests using all the three cointegrating vectors are reported in Tables 4, 5 and 6.

Table 4

Bound Test for Trade Openness

	F-Bounds Test		Null Hypothesis: No levels of relationship		
	Test Statistic	Value	Sign in.	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|
	ECT(-1)	-0.61	0.12	-4.90	0.00
LR	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 4 above shows the ARDL model for trade openness as the dependent variable. It reflects the adjustment, short-run and long-run influences. It has been observed from the table that adjustment is absolute 0.608 or 60.8%, which shows that the trade openness of Pakistan is converging towards the long-run equilibrium at the adjustment speed of around 60.8% by the lagged variable of trade openness. In Long-run equilibrium, it is shown that inflation rate, interest rate, and unemployment significantly influence trade openness. GDP growth rate has been found to have an insignificant influence on trade openness. In short-run equilibrium, inflation rate, interest rate and unemployment have a significant

impact, while GDP growth rate has an insignificant effect on trade openness. Inflation, interest rate and unemployment play an important in influencing trade openness in the short run and participating in the error correction process significantly.

Table 5 above shows ARDL for public debt as a dependent. The adjustment speed is absolute .502 or 50.2%, which shows that public debt is convergent towards the long-run equilibrium by an adjustment speed of 50.2% of the first leg of public debt. In the long and short run, public debt is identified to have an insignificant influence on GDP growth rate, Inflation rate, interest rate and unemployment rate. All the variables positively impact the public debt except interest rate, which is also statistically insignificant in the long run. Almost all the variables contribute to the error correction process except inflation and unemployment in the short run.

Table 6

Cointegration Analysis for Government Expenditure

F-Bounds Test		Null Hypothesis: No levels of relationship			
Test Statistic	Value	Sign in.	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|
	ECT(-1)	-0.418	0.085	-4.89	0
LR	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	

Table 6 shows ARDL for government expenditure as the dependent variable. It shows the adjustment rate of 0.418 or 41.8%, which shows that government expenditure is converging to the long-run

equilibrium at the adjustment speed of 41.8% of its first lag. In the long run, it is shown that inflation rate, interest rate, unemployment rate, and public debt significantly influence government expenditure. The unemployment rate, public debt, and interest rate impact government expenditure substantially in the short run. It has also identified the significant influence of LD on government expenditure and trade openness on government expenditure.

The role of budgetary spending is enhanced when it is directed to health, education, and poverty reduction programs. Since these sectors promote well-being and skill development, the efficient use of spending must develop the economy (Lopez. 2011). From another perspective, fiscal expenditures and fiscal events are also directly related. A fiscal event such as a development program or similar initiative directs the fiscal spending flows. It has been measured that these circumstances drive the growth event which accelerates economic development (Carrere and De Melo, 2012). Likewise, Fishback and Kachanovskaya (2010) contended that fiscal spending does not directly affect employment. They based their study on the findings of the Great Depression in America. However, it is countered by Wilson (2012)'s study that found the American Recovery and Reinvestment Act (ARRA) 2009 to be effective in terms of generating employment. It was found that ARRA saved around 2 million jobs quickly. At the same time, about 0.8 million jobs were attributed to ARRA spending. Therefore, this study aptly fulfils its first objective, which reiterates the importance of fiscal expenditure in economic development. Objective two aims to delineate the intricacies of trade openness and public debt about fiscal spending by a government. Since the data was secondary and quantitative tests were performed extensively, the findings are mainly associated with the interest rate, inflation rate and employment rate. The statistical tests found no relation between trade openness with government spending. However, public debt levels significantly influenced fiscal expenditure. In connection to this, an investigation into the government revenues of Ghana found that the public debt increased government spending. The research also contended that Ghana's government spending was directly proportional to government borrowing. In the case of Pakistan, it can be observed that external and internal borrowings finance yearly budgetary increases. Therefore, the relevance of objective two is also vital in this regard. However, certain studies indicated that the variables of trade openness could also be associated with government expenditure. For instance, Attari and Javed (2013) performed an analysis contended that the inflation rate has a long-term effect on government spending. Although, the inflation rate does not impact economic growth. The results further stressed that inflation and economic growth have unidirectional causality.

From another perspective, government spending and interest rates are also related. Earlier, trade openness and interest rates were found to be negatively correlated. Conversely, the interest rate acts as a multiplier. If the government's monetary policy keeps the real interest rate at less than 1 per cent, likely, that government purchases will also increase to fulfil the output gap. However, government spending must be financed by taxes instead of borrowings in the long run. Debt financing reduces government spending at such junctures and generates financial constraints (Woodford, 2011). While considering the encouraging motives behind government spending, it is perceived that educational, skill and infrastructure development can reduce unemployment by generating job opportunities (Onuoha and

Moses, 2019). Comparatively, the findings of objective three can be corroborated by the study of Nursini (2017), who found that fiscal spending adversely influences growth supported by taxes and borrowings. Whereas trade openness substantially promotes economic growth.

CONCLUSION

Unit root test confirms that the variables in the analysis are mixed stationery; that is, some are integrated of order one, and some are integrated of order zero. This confirms the feasibility of the ARDL approach for empirical analysis. The bound test reveals that the critical value is more significant than I(0) bound to the existence of the cointegration relationship is confirmed. The estimation of the cointegration and error correction in all the three cointegrating vectors is valid as the error correction term is less than, keeps a negative sign and is statistically significant. The error correction term holds a high value, meaning the speed of adjustment is very speedy in each period. The diagnostic tests further strengthen the empirical results as, in most cases, the absence of the econometric problems is observed. Trade openness is positively influenced by the inflation rate, interest rate and unemployment rate in the long run and the error correction process is also significantly contributed by these variables. So, it means these variables are important determinants of trade openness in the short and long run. Public debt is positively influenced by GDP growth and inflation in the long run; however, public debt, growth, inflation, and unemployment significantly contribute to the adjustment process. Government expenditure is positively influenced by the public debt, inflation, and interest rate in the long run. However, the government is negatively affected by unemployment in the long run at a 10 per cent level of significance. However, government expenditure, public debt, interest rate, and unemployment significantly contribute to the adjustment process in the short run.

Since trade openness is calculated by the difference between total exports and total imports of Pakistan for the given time and as we know that inflation, interest rate, and unemployment are positively influencing trade openness in Pakistan so it is recommended that the authority should consider inflation rate, interest rate, and employment while conducting trade policy for the economy of Pakistan. In the second cointegrating vector, it is observed that GDP growth and inflation rate significantly influence public debt in Pakistan, so to manage the public debt, it is mandatory to consider the GDP growth and inflation to achieve macro credibility and Pakistan. Since both the variables positively influence public debt, it is recommended that while conducting debt policy, GDP growth rate and inflation must be considered. From the cointegrated vector of government expenditure, it is evident that public debt, inflation rate and interest rate positively influence government expenditure. Moreover, unemployment hurts government expenditure at a 10% level of significance. So, it is observed that government expenditure is financed by public debt, which is followed by an inflation rate and interest rate hikes, so the government must be conscious of the government expenditure because all the three factors that are public debt, inflation, and interest rate have a positive impact on government expenditure.

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