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THE EFFECT OF TRADE LIBERALIZATION ON EXPENDITURE STRUCTURE OF PAKISTAN

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ABSTRACT

Demand-side public policy paly a risk-reducing role for imperfect sectors of the developing economies through public investment during liberalization. Public sector investment, composition, and structure play an important role to determine the comparative advantage for the productive sector. This study explores the effect of trade liberalization and trade tax revenue on the expenditure structure of Pakistan from 1975 to 2019. The Autoregressive Distributed Lag approach has been used for examining the long-run co-integration among the expenditure structure and trade liberalization and the Error-Correction model is used for short-run dynamics of the concerned variables. The empirical result shows that trade tax revenue has a positive impact on expenditure structure in long run but not in the short run. Trade liberalization, budget deficit, and defence expenditure have a negative association with expenditure structure. The underground economy has also a negative impact on expenditure structure but the most surprising result of political stability shows negative relation with expenditure structure. With more political stability in Pakistan, the share of non-development expenditure is higher as compared to development expenditure during trade liberalization.

Keywords: Average Tariff rate, Trade Tax Revenue, Expenditure Structure
JEL Codes: F10, F13, H71

I. INTRODUCTION

Trade liberalization may create fiscal instability for developing countries because of the high share of trade tax revenue in total tax collection. Domestic tax revenue as a share of GDP is usually low in developing economies because of unsophisticated tax administration, large informal sector, negligible agricultural income tax, high exemptions or tax holidays, and widespread tax evasion (Gupta, 2007). To search alternative resources of tax revenue against trade revenue loss are not easy because they cannot bring further change in the domestic tax structure. This may create problems for public investment in physical infrastructure, while some expenditure components may be difficult to reduce such as politically-sensitive expenditure on military and social security spending (Khattry and Rao, 2002). During liberalization, developing countries need to formulate proper policy for the generation of trade revenue or substitution of trade revenue so that public investment in physical plus social infrastructure may not be hurt.

In the modern era of globalization, public sector performance gained more importance due to foreign competition among trading countries. According to Rodrik (1998), trade liberalization improved the government's role especially in developing economies for comparative advantages with help of public spending structure. Government spending for infrastructure development played a risk-reducing role in those economies which bear heavy external risk in the form of foreign competition. In the initial stages of trade liberalization, the public sector protects the form of different types of duties and subsidies to imperfect sectors. At a later stage, imperfect sectors attain comparative advantage due to public sector intervention. In this regard, Khattry (2003) investigated the fiscal effects of trade liberalization particularly for developing countries. On the fiscal side, the trade liberalization process is more likely to lead towards an extensive decrease in free trade barriers which reduce trade tax revenue. Reduction in trade tax revenue may reduce the total tax over GDP ratio in those economies which are highly dependent on trade taxes.

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Normally, these economies use foreign debt, aid, and deficit financing to meet fiscal needs. In this case, the debt servicing and geopolitical government expenditure may lead to a further reduction in public investment for social and economic infrastructure development. According to Karras (2012), fiscal policy is less effective in open economies as compared to closed economies because open economies have less value of the fiscal multiplier. Theoretical and empirical outcomes represent a possible trade-off between trade liberalization and fiscal performance. If the degree of trade liberalization, as well as fiscal performance, is high then there will be a high positive effect on economic growth. On the other hand, with a low degree of trade liberalization and fiscal performance, the impact on economic growth will be highly negative. Pakistan is a good case study because of some reasons. First, Pakistan has considerably liberalized its border for free trade without taking into account its fiscal consequences. Second, the tax to GDP ratio is reducing due to trade revenue loss, tax evasion, and political instability. Third, non-development expenditure on debt servicing is increasing due to the devaluation of the local currency as well as other expenditure on geopolitical issues like defence and some internal and external conflicts. Fourth, the GDP growth rate has also been showing fluctuating trends during the last forty years.

The overall performance of foreign trade of Pakistan during the last fifty years has been shown in table-1. It is obvious from the figure that despite the policies of exports promotion and imports substitution, the trade deficit, on average, has remained unchanged. Trade policy and trade patterns have rapidly been moved towards lower trade barriers without appropriate cost-benefit analysis of trade liberalization Ahmad and Ali (2018) and Ahmad et al., (2019). Moreover, an export-led growth policy was used to improve the economic development along with several time readjustments in local currency. Pakistan's trade policymakers have always adopted the supply-side incentives to improve the performance of the export such as tax holidays and support prices etc. But they have less focused on the removal of structural weaknesses, such as the provision of basic infrastructure and quality control in exports. The overall imports share in higher as compared to exports over the last four decades.

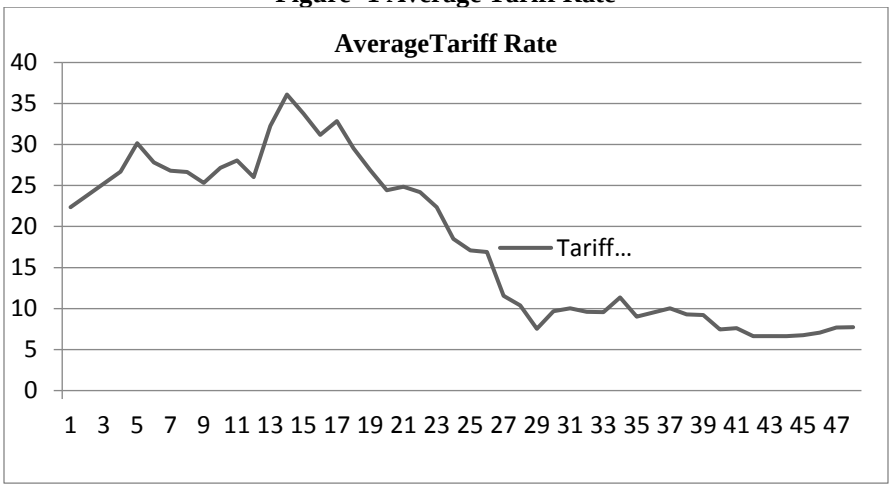
Table-1: Trade Liberalization Indicators (1971 – 2020)

Period	Exports	Imports	Total Trade	Tariff rate
1971-1980	09.0	14.9	24.0	26.1
1981-1990	10.7	19.2	30.0	29.6
1991-2000	14.5	18.8	33.3	21.6
2001-2010	14.3	15.6	29.9	10.0
2011-2020	12.2	17.2	29.3	07.6

Source: Federal Bureau of Statistics

Note: Exports, imports, and total trade (openness) are expressed as a percentage of GDP. All values have been taken in decade-wise average.

Figure- 1 Average Tariff Rate



The average tariff rate behavior is showing a considerably downward trend in figure-1 below after the emergence of WTO. During the 1990s, several important steps were taken to improve the trade position of the country. First, the tariff rate was reduced by 225 percent on trade. Second, the import licenses were removed on imports except for those items that were vital for life and health safety. Third, foreign currency deposits were opened for the first time in domestic financial institutions. The opening of foreign currency deposits was a beginning towards the

liberalization of finance and banking sectors. Fourth, in the light of SAP, Pakistan's economy focused on export promotion by replacing previous income allowances (tax holidays) on exports. Under the process of removing income rebates on exports, the private exporter took interest in rice and textile items. However, these steps did not prove effective to overcome the trade deficit (Ahmad et al, 2017).

Fiscal policy plays an important role to influence aggregate economic stability through spending and taxation. Pakistan's fiscal performance is characterized by several macroeconomic variables such as revenue, expenditure, and budget deficit. Table-2 reveals the historical patterns of revenue and expenditure. On the revenue side, the tax-to-GDP ratio (decade-wise average) shows a declining trend over the last forty years. On the expenditure side, the total expenditure-to-GDP ratio (decade-wise average) also exhibits a declining trend. The overall fiscal effort of the economy has not been satisfactory. The Tax-to-GDP ratio remained more or less stagnant at 15 to 16 percent during the last five decades.

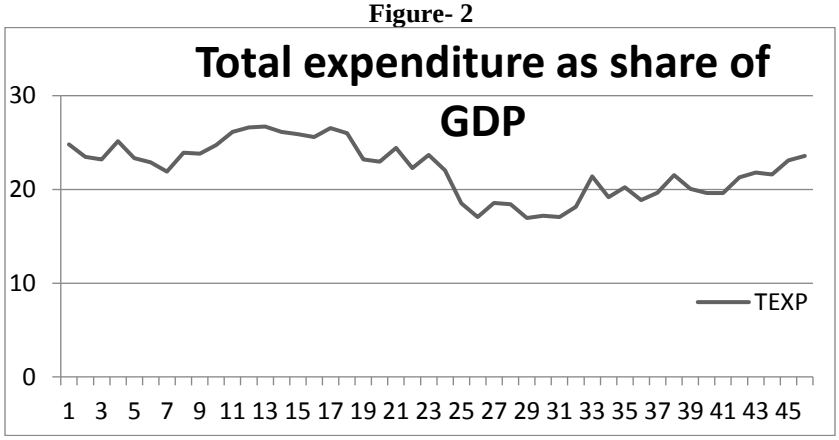
Table-2: Fiscal Performance of the Pakistan's Economy (1971-2020)

Period	Taxes	Expenditures	Budget Deficit
1971-1980	17.8	24.7	6.1
1981-1990	17.5	24.3	6.8
1991-2000	16.5	21.2	4.7
2001-2010	13.7	21.1	7.4
2011-2020	10.3	22.8	6.5

Source: Federal Bureau of Statistics:
Note. All values of taxes, expenditures, and budget deficit are stated as a percentage of GDP. All values have been taken in decade-wise average.

During the 1990s, the economic growth rate decreased due to a fall in total factor productivity as depicted in table-2. Hussain (2006) observed different factors of low growth such as political instability, structural shift, extraordinary corruption, and the worsening conditions of law and order situation. Pasha et al. (1995) analyzed the viability of the social action program for Pakistan's financial and fiscal sectors. They concluded that during SAP, the government improved the fiscal condition with a regressive form of taxation and also reduced the productive expenditure. Furthermore, this program improved the condition of the health and education sector to some extent but the overall success of this program was not observed in Pakistan. There was overdependence on indirect taxes, which was more than 60 percent of tax revenue. On the expenditure side, federal government expenditure is greater than revenue in all four decades. The total expenditure as a share of GDP was 22 to 23 percent. The budget deficit was also very high during the liberalization period. On average, the budget deficit remained 6.5 percent as a share of GDP during the last forty years.

Figure- 2



Trade liberalization has so many economic, social and political effects on developed and developing nations. The fiscal effect is one of them which has a significant role during liberalization. The objective of this study is to explore the effect of trade liberalization on the ratio of development and non-development expenditure ratio termed as expenditure structure of Pakistan. There are two main categories of expenditure i-e development and non-development which are utilized to provide compensation domestic infant industry during liberalization. The higher share of development expenditure means more provision of public goods. According to development theories, the provision of social overhead capital or infrastructure development is moving helpful in productive activities, especially in developing nations. Further, these countries cannot change the expenditure structure due to

unsophisticated administration, low political well, and geopolitical issues. The rest of the paper will discourse the following sections as literature, theoretical and empirical results of trade liberalization and its effect on expenditure structure.

II. LITERATURE REVIEW

Trade liberalization of trade openness has so many socio-economic impacts on trade countries. A large number of studies are conducted to investigate the impact of liberalization on government expenditure for different regions, blocks, and countries with different types of data set. In literature, the relationship of liberalization and government expenditure has different outcomes with different measures of trade liberalization and different components of government expenditures. In this regard, the most promising work for OEDC countries was done by Cusack (1997), Rodrik (1997), Garret and Mitchell (2001), Kittel and Winner (2005), Dreher (2006). They concluded that different measures of liberalization and different components of government expenditures were negatively correlated. While, on the positive relationship between liberalization and government spending for OECD countries done by Hicks and Swank (1992), Huber et al. (1993), Garret (1995), Bernauer and Achini (2000), Swank (2001), Ahmad and Chaudhary (2016) and Bretschger and Hettich (2002). They empirically investigated the liberalization and government expenditure with different data set they found that liberalization has positively related with expenditure. The relationship of liberalization and government spending a large number of studies investigated developed and developing countries with different data set. As Quinn (1997), Alesina and Wacziarg (1998) Rodrik (1998), (2001), and Adsera and Boix (2002) found that liberalization has a positive impact on different components of government expenditure. Figlio and Blonigen (2000) for South Carolina Kaufman and Segura-Ubiergo (2001) for Latin America investigated that liberalization hurts expenditure. For the US, a country-specific study investigated by Balle and Vaidya (2002) found a positive association between liberalization and government expenditure. Khattry and Rao (2002) analyzed the impact of liberalization on tax level and structure of government expenditures for large countries data set, with the main emphasis on low-income countries. They concluded that the rapid trade liberalization process caused a fiscal squeeze in developing countries. As a result of the fiscal squeeze, it created a series of problems for low-income countries to meet the rising fiscal needs and they severely depended on internal and external debt. Moreover, results indicated that the above factors also contributed to a decline in infrastructure spending or development expenditure.

For co-integration analysis, Morley and Nicholas (2000) investigated the effect of government expenditure on economic growth for Egypt. The empirical outcomes show that expenditure has a positive impact on growth while trade has no significant impact. Abizadeh (2006) analyzed the role of the government against trade liberalization policy. He found that size of the government squeezed as the economy moves to liberalization, especially in small economies. Islam (2004) investigated the relationship between trade liberalization and government size for 6 developed nations with contrary specific and cross-section data analysis. The empirical results vary from country to country, while cross-section results show no significant impact on government size. Balle and Ashish (2002) empirically investigated the effect of trade liberalization on government spending for the USA and later on the state level. They found that trade liberalization has a positive impact on welfare and health expenditure. Khattry (2003) empirically investigated the impact of trade liberalization on government expenditure for a large number of countries, with more empathizes on developing countries. He developed the idea for developing countries to face trade revenue loss during liberalization. This fiscal squeeze caused a reduction in social and physical capital spending. External debt is utilized to overcome revenue loss for politically sensitive geopolitical expenditure. The empirical results of fixed-effects regression show that trade liberalization hurts trade revenue at the first stage and that these factors have contributed to the decline in the provision of public goods.

Dreher et al. (2008) empirically investigated the impact of trade liberalization on the composition of government expenditures (Compensation hypothesis) for a sample of 60 countries. For this hypothesis, they utilized two different data set with multiple government expenditures, first cover the capital, debt servicing, and subsidies expenditure, second data set covers a large number of expenditures such as housing recreation, defence, border environment, economic affairs, health & education, and social expenditure. The empirical results showed that different measure of trade liberalization has no significant impact on the composition of government spending in both data sets. Ram (2009) investigated the association between country size and government size and between country size and size of trade openness for 150 countries' data sets. The empirical OLS fixed effect estimates supported that relatively less evidence observed negative association between country size with government size or openness. Moore and Maurizio (2011) analyzed the relationship between trade revenue and government spending pattern for 51 countries. The empirical exercise found no clear direction of the relationship between imports or exports revenue and

government spending in all countries sample. But in the case of developing countries trade revenue was negatively related to education, health, social security, and housing spending. Most of the developing countries heavily depend on trade revenue for financial needs because trade revenue has less collection and administration cost as compared to any other changes in the collection of domestic taxes.

Benarroch and Pandey (2011) examined the causal relationship between trade openness and government expenditure at both aggregate and disaggregate levels in different countries. They employed 119 countries' data over the period 1972-2000 to investigate the impact of trade openness on aggregate and eight different components of government dis-aggregate spending (public, defence, education, health, social security, housing, recreation, and economic services). The empirical result found no significant causal relationship between trade openness and aggregate government expenditures both for high and low-income countries because revenue loss due to trade liberalization caused to reduce the spending ability of government. While, at the disaggregated level, they found a positive and statistically significant causal relationship between openness and education spending in low-income countries. The reason is that low-income countries diverted more expenditure on education or human capital to meet the future competitive market changes.

Sáenz et al. (2013) explored the link between trade openness and public expenditure for Spain from 1960 to 2000. They used the error correction method for short-run and long-run cointegration and also used the Granger test for causality. They found a strong positive casual correlation between several measures of trade openness and public expenditure in the case of Spain. Recently, Turan and Mesut (2016), investigated the impact of trade liberalization and economic growth on government size for Korea and Turkey. The results found that GDP per capita positive impact on government size in the long run for both nations. However, trade liberalization hurts government size for Turkey but not in the case of Korea. For Pakistan, Ali (2011), Ali and Chani (2013), Ali and Rehman (2015), Ali (2015), Ali et al., (2016), Arshad and Ali (2016), Ali and Naeem (2017), Ali and Bibi (2017), Ahmad (2017), Ahmad and Ali (2018), Ali (2018), Ali and Zulfiqar (2018), and Ahmad et al., (2018) for Pakistan investigate the trade liberalization for Pakistan. When we review the literature on trade liberalization and expenditure structure, we find hardly any study in detail for the case of Pakistan. Some studies reflect macroeconomic determinants, components, and composition of public expenditure and others reflect economic consequences independently. Most of the empirical investigating developed nations concluded that trade liberalization has no significant effect on government expenditure or government size while in the case of developing nations trade liberalization has serious implications for expenditure structure. Pakistan is a good case study because it has had more concentration towards liberalization during the last twenty yare.

III. THEORETICAL FRAMEWORK, METHOD, AND DATA

In the expenditure model, Alesina and Wacziarg (1998), Shelton (2007), Dreher et al. (2008) analyzed the relationship between trade liberalization and different components of government expenditure. Specifically, development and non-development expenditure may be used to respond to the volatility which may be the result of trade liberalization. Dreher et al. (2008) using two different data sets analyzed the impact of liberalization on composition government expenditure. Rodrik (1998) found a strong positive association between trade openness and the size of the government, as in more liberalized economies, people demand an expanded role of government for the provision of social insurance subject to external risk. To examine the hypotheses that trade liberalization and trade revenue have no impact on expenditure structure. We follow Benarroch and Pandey (2011), Sáenz et al. (2013) and Ahmad (2017) model with some modification. They used cross-country data sets to analyze this relationship while this study uses government development and non-development expenditure ratio for Pakistan. The empirical model is given below:

$$\frac{DEX}{NDEX} = g(ATR, TR, Y, BD, DS, UG, X)$$

DEX/NDEX = ratio development expenditure and non-development expenditure measure as expenditure structure over time, ATR = Tariff rate weighted mean, all products (%) as a measure of trade liberalization, TR=Trade tax revenue as a share of total tax revenue, Y= GDP per capita growth (annual %), BD = Fiscal balance as a share of GDP, DS = Interest payments on external debt (% of GNI), UGE= Underground economy as a share of GDP, X= other control variables.

This study uses time-series cointegration analysis. Cointegration is a more appropriate method to investigate the existence of long-run relationships among different time series. Initially, the idea of co-integration was developed by Engle and Granger (1987). After that, it was augmented by Stock and Watson (1988), Johansen and Juselius (1990), Johansen (1991, 1992, and 1995), Pesaran et al. (2001), and Paresh (2005). This study uses the bounds testing approach to co-integration developed by Pesaran et al. (2001) and Paresh (2005). The autoregressive distributed lag approach has the following advantages over previous approaches. First, it produces more reliable results for small data sets. Second, it is appropriate for the different order of integration of variables. Third, it is an easy approach to transform long-run coefficients to short-run through re-parameterization. This approach follows two steps for empirical estimation. First, it computes F-statistics of bound testing which is based on Pesaran et al. (2001) and Paresh (2005). Second, by using an error correction mechanism the short-run results are obtained. For empirical analysis study uses the period from 1975 to 2014.

The major data sources are Handbook of Statistic on Pakistan Economy published by State Bank of Pakistan (2010), Pakistan Economic Survey 2014-15 published by Ministry of Finance, Government of Pakistan, and World Development Indicator (WDI) by World Bank (2014). For the size of the underground economy, data was estimated by Kemal (2003), Kemal (2007), and Gulzar et al. (2010). For remaining values used the same methods for time series data. The data on average tariff rate Ahmad and Mehmood (2013) also used for trade liberalization is taken from Pakistan Customs Tariff annual report various issues (Custom Wing) Federal Board of Revenue, Government of Pakistan.

IV. EMPIRICAL RESULTS

For the expenditure structure model, results show that trade liberalization, trade tax revenue, per capita growth, and government subsidies have a positive correlation with expenditure structure. However, budget deficit, debt servicing, size of the underground economy; political stability, and defence expenditure have a negative correlation with expenditure structure. The results of the descriptive statistic and correlations matrix are presented in Tables A.1 and A.2 in appendix A. The empirical estimation of economic theory is meaningless without testing the unit root problem of the variables. This study uses DF-GLS unit root tests for examining the stationarity level of the variables because this test is more appropriate when data is based on different indices and quality variables for analysis. The results of DF-GLS are presented in Table 3 The estimated results show that real GDP per capita, per capita, and political stability are stationary at the level. While, all others variables are stationary at the first difference such as tariff rate, expenditure structure, external debt servicing, and the underground economy. Under the mixed level of stationary, we employ the ARDL co-integration approach for short-run and long-run relationships of variables.

Table-3: Unit Root Estimation

Variables	DF-GLS test at Level		DF-GLS test at 1st Difference	
	Calculated values	Lags	Calculated values	Lags
Develop/non-develop expenditure ratio	-1.84376	0	-4.53297***	1
Average tariff rate	-0.4988	1	-3.6011*	1
Trade revenue as a share of tax revenue	-0.3115	1	- 2.0656**	1
Real per capita growth	-2.1837**	1	-6.0624*	1
Budget deficit as a share of GDP	-1.098	0	-3.2461**	1
External debt servicing as a share of GDP	-1.1531	0	-4.9076*	1
Political stability	-2.9616**	1	-3.4331**	1
Underground economy as share of GDP	-0.52710	0	-3.9244***	1
Subsidies as share of total expenditure	-1.52238	1	-5.62894**	2
Defence expenditure as share of total expenditure	-1.88623	0	-2.97854**	1

*, **, ***, shows level of significance at 1%, 5%, and 10%

After confirmation of stationarity of the variables, now we move towards the lag selection procedure. Schwarz information criterion is used to choose to lag order of the ARDL model. The empirical results of different criteria suggest one optimum lag length for the above model. For investigating the cointegration among expenditure structure, trade liberalization, trade tax revenue as a share of total tax revenue with other control variables ARDL bound testing F-Statistic is used. The empirical results are presented in Table 4. The F-statistic of the first model

calculated is 5.9012 which is greater than the bound value proposed by Pesaran et al, (2001). However, the calculated value F-statistic of the second model is 4.2911 which is more than the critical bound value and statistically significant at 90%. So, the null hypothesis is rejected of all four models and the alternative hypothesis is accepted. This confirms that some long-run linear combinations exist among our concerned variables.

Table-4: ARDL Bounds Testing Cointegration Test

Variables (when taken as a dependent)	F-Statistic	At 95%		At 90%	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Expenditure structure (1)	5.9012** (1,0,0,1,0,0,0)	2.9341	4.4230	2.4223	3.2942
Expenditure structure (2)	4.2911*** (1,0,0,0,1,0)	3.4562	4.6213	2.8421	3.5763

, * level of significance at 5% and 10%

The next step is to examine the long-run relationship between trade tax revenue with expenditure structure which is presented in table 5. The results show that trade liberalization has a negative and significant relationship with expenditure structure. The coefficient estimates suggest that a 10 percentage point increase in trade liberalization will cut 5 to 9 percentage points in expenditure structure at a 5 percent level of significance. In a developing country like Pakistan, trade liberalization reduces the expenditure ability of the government because of the revenue loss. However, in the case of developed countries where the direct tax is greater than the indirect tax, the trade liberalization has a positive impact on expenditure as proposed by Benarroch and Pandey (2011) Sáenz et al. (2013).

Real GDP per capita annual growth is used in most studies as a determinant of fiscal performance. Per capita growth has a different result for different countries but the most common result shows positive relation for both components of fiscal policy (Tax and Expenditure). The empirical coefficient shows a positive and significant impact on expenditure structure in Pakistan. The level of economic development may improve the domestic tax collection as well as expenditure explained in Wagner's law. This law explains that the demand for public services is usually income elastic; an increase in public goods and services causes economic development which may be possible through increased tax revenue (Tanzi, 1987; Audi et al., 2021).

Trade tax revenue as a share of total tax revenue has a positive impact on expenditure structure. The estimated coefficients show that a 10 percentage point increase in trade tax revenue will by 5 percentage points on average, improve expenditure structure at 5 percent of the significance level. These results are consistent with Moore and Maurizio (2011). Per capita growth has also significant and positive impact on expenditure structure. Moreover, the political stability and defence expenditure has a significant and negative impact on expenditure structure. It means that the share of non-development expenditure is higher when the economy experiences more political stability as well as high defence expenditure. The estimated coefficients show that a 10 percentage point increase in political stability will reduce by 7 percentage points, on average, in expenditure structure. Thus, foreign and domestic loans were used to meet the non-development expenditure. Another important reason for the low tax base was extensive tax evasion and the size of the informal sector in the economy (Kemel, 2003; Ali and Senturk, 2019).

Now, in the second model, we include the budget deficit, external debt servicing, and size of the underground economy. The budget deficit has a negative and significant impact on expenditure structure. The empirical result shows that a 10 percentage point increase in the budget deficit will reduce by 3 percentage points, on average, in expenditure structure. While external debt servicing has also a negative impact on the expenditure structure in Pakistan. The result shows that external factors have more pressure on the government to allocate more resources on non-development expenditures as a share of development. The estimated results show that the underground economy as a share of GDP has a negative and significant relationship with expenditure structure in Pakistan. The coefficient of underground economy as a share of GDP shows a 10 percentage point increase in the size of underground economy as a share of GDP brings 4 percentage point, on average, increase in expenditure structure in Pakistan.

After finding the long-run relationship, now we can find the short-run relationship among the variables of the above models. Expenditure structure is used as a dependent variable in models 1 and 2 while trade liberalization, trade tax

revenue, political stability, and the underground economy as a share of GDP are employed as independent variables. The short-run results of the above models are presented in table 6. Trade liberalization and trade revenue has a negative impact in the short run. Improvement in the average tariff rate leads to enhance the trade revenue. Trade revenue increases development expenditure due to the total collection of domestic tax collection. When expenditure structure is used as the dependent variable, we add two new independent variables like subsidies and defence expenditure. The results show that defence expenditures hurt expenditure structure and are statistically significant at a 10 percent level of significance. The negative sign of the coefficient of lag error correction term is -6610 and -5806 in models three and four respectively, it is statistically significant at 1 and 5 percent level of significance.

Table-5: Long Run Coefficient of ARDL Regression

Variables	Expenditure structure		Expenditure structure	
Constant	.5699*	2.2024[0.002]	.1576***	1.220[0.2656]
Average tariff rate	.05731**	1.9084[0.042]	.099**	1.9609[0.033]
Trade revenue as a share of total tax revenue	.01573**	2.1803[0.023]	.3325	1.257[0.201]
Real per capita growth	.06170*	2.9610[0.002]	-----	-----
Budget deficit as a share of GDP	-----	------	-.0482***	-1.5010[0.705]
External debt servicing as a share of GDP	-----	------	-.0356*	-3.2156[0.002]
Political stability	-.07347**	-2.2189[0.024]	-----	-----
Underground economy as a share of GDP	-----	------	-.08172**	-2.035[0.030]
Subsidies as a share of total expenditure	.05372	1.4251[0.136]	-----	-----
Defence expenditure as a share of total expenditure	-.03420***	-1.6901[0.075]	-----	-----

Note: *, **, *** level of significance at 1% 5% 10%. [] represent Prob. Value.

Table-6: Short Run Coefficient of ARDL Regression

Variables	Expenditures Ratio (1,0,0,1,0,0,0)		Expenditures Ratio (1,0,0,0,1,0)	
Constant	0.1852*	2.4247[0.009]	.08576***	1.214[0.670]
ΔAverage tariff rate	-.05011*	-2.2010[0.003]	-.06997**	-2.159[0.030]
ΔTrade revenue as a share of tax revenue	.04952**	-2.004[0.033]	.01688	-1.230[0.221]
ΔReal per capita growth	.01096*	2.7012[0.008]	-----	-----
ΔBudget deficit as a share of GDP	-----	-----	-.0124**	-2.012[0.011]
ΔExternal debt servicing as a share of GDP	-----	-----	-.02025**	-2.749[0.022]
ΔPolitical stability	-.02339**	-2.361[0.013]	-----	-----
ΔUnderground economy as share of GDP	-----	-----	-.0331***	-1.446[0.078]
ΔSubsidies as share of total expenditure	.00407	1.322[0.267]	-----	-----
ΔDefence expenditure as share of total expenditure	-.01967***	-1.538[0.068]	-----	-----
Lag error correction term	-.3184*	-2.701[0.000]	-.2132**	-1.988[0.019]
R^2 and D.W	.6610/ 2.1143		.5806/ 1.440	

Note: *, **, *** level of significant at 1% 5% 10%. [] represent Prob. Value.

Table-7: Diagnostic test

Test Statistics	Model 1		Model 2	
Serial Correlation	2.8199	[.377]	2.4639	[.297]
Functional Form	0.1633	[.686]	0.0360	[.849]
Normality	0.8914	[.640]	0.9254	[.630]
Heteroscedasty	0.6731	[.296]	2.2298	[.335]

[] Shows prob. value of the test statistics

The diagnostic tests are used for checking the serial correlation, functional form, normality, and Heteroscedasticity among the variables of the model. The results of diagnostic tests are reported in table 7. The results show that there is no serial correlation and heteroscedasticity problem in data. Moreover, the variables of the model have correct functional form, and data is normally distributed.

V. CONCLUSIONS AND POLICY IMPLICATIONS

According to free trade theories, trade liberalization policy improves society's welfare through its various channels under perfectly competitive market conditions but on the other hand, one channel may cause to reduce the welfare due to trade revenue loss. The trade revenue loss automatically creates fiscal changes at the domestic level. The empirical results show that trade tax revenue has a positive impact on expenditure structure in long run but not in the short run. Due to trade liberalization, a revenue loss of income has a considerably adverse influence on fiscal structure in the case of Pakistan. The income effect of trade revenue has been negative due to trade liberalization. Trade revenue has a major share in total tax collection in Pakistan. While trade liberalization itself put an adverse effect on expenditure in long run. The substitution effect of trade revenue loss also put an adverse impact on development expenditure in Pakistan. So, the net effect of trade liberalization policy faces trade revenue loss at the first stage. Trade revenue loss due to trade liberation policy creates regressive fiscal performance for developing economies like Pakistan at the second stage. Trade liberalization, budget deficit, and defence expenditure have negative associations with expenditure structure. Non-development expenditure on debt servicing is increasing due to the devaluation of the local currency as well as other expenditure on geopolitical issues like defence and some internal and external conflicts. Underground economy use as a proxy for administration capacity and corruption hurts expenditure structure but the most surprising result of political stability shows negative relation with expenditure structure. It means that the share of non-development expenditure is higher as compared to development expenditure as the more politically stable condition in Pakistan. For the policy implication, the government should improve the tariff rate, on one hand, While, on the other hand, the government should improve domestic fiscal structure in the trade liberalization process. Pakistan should reduce tax evasion opportunities and inefficiency in domestic tax administration structure to avoid corruption opportunities of tax administration and should also change the incentive for tax officials. Then, we may be able to improve the direct tax collection in the presence of trade liberalization. We should also improve the development expenditure as compared to non-development expenditure to make the economy risk-neutral against trade revenue loss. Furthermore, the economy of Pakistan has heavily depended on external debt for fiscal needs. In the context of the results of the study, debt servicing hurts the fiscal structure of Pakistan. Even though, Pakistan has so many problems in the form of a large proportion of poor segment of society, political instability, and a large share of the undocumented economy. For the policy suggestion, the government should enhance the internal sources for fiscal requirements rather than external sources of public finance.

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APPENDIX A

Table- A.1: Descriptive Statistics

	ES	ATR	TR	PCG	PS	SUB	DEX
Mean	0.1078	23.476	23.464	2.1898	4.7941	9.0851	0.8817
Median	0.0974	25.484	20.600	1.9717	4.5000	7.2061	0.8790
Maximum	0.2308	35.528	39.200	6.6024	6.0000	32.128	1.2409
Minimum	0.0199	7.6652	11.300	-1.6424	3.0000	0.7340	0.5560
Std. Dev.	0.0574	9.3076	9.8155	1.9552	0.8714	7.0777	0.1930
Skewness	0.2807	-0.2544	0.2973	0.3066	-0.3591	1.4722	0.0068
Kurtosis	1.9052	1.5270	1.4752	2.5926	2.4678	4.9221	1.6831
Jarque-Bera	2.1445	3.3987	3.7984	0.7680	1.1322	17.520	2.4553
Probability	0.3424	0.1827	0.1599	0.6811	0.5679	0.0007	0.2928
Sum	3.6637	798.20	797.80	74.455	163.00	308.89	29.980
Sum Sq. Dev.	0.1088	2859.8	3179.5	126.16	25.058	1653.1	1.2298
Observations	37	37	37	37	37	37	37

Table A-2: **Descriptive Statistics and Correlation Matrix of Variables Model 2**

	ES	ATR	TR	PCG	PS	SUB	DEX
ES	1						
ATR	0.044194	1					
TR	0.224855	0.9234126	1				
PCG	0.265132	0.3199537	0.302824	1			
PS	-0.026085	-0.2460847	-0.084306	0.26209	1		
SUB	0.499596	0.2488237	0.090489	-0.314866	-0.230372	1	
DEX	-0.034319	0.9128222	0.911176	0.1705851	-0.1410564	0.23214	1

	ES	ATR	TR	BD	DS	UGE
Mean	0.10786	23.4767	23.4647	6.0120	3.84066	29.0429
Median	0.09747	25.4895	20.6000	6.1000	4.08571	29.3450
Maximum	0.23084	35.5284	39.2000	8.7000	6.62840	39.4100
Minimum	0.01996	7.66547	11.3000	2.3000	1.77330	19.7300
Std. Dev.	0.05742	9.30917	9.81581	1.6772	1.27763	6.19174
Skewness	0.28073	-0.23954	0.29701	-0.3321	0.12128	0.06359
Kurtosis	1.90522	1.52705	1.47568	2.2980	2.53246	1.56098
Jarque-Bera	2.14452	3.39875	3.79158	1.2834	0.39303	2.95649
Probability	0.34223	0.18274	0.15019	0.5261	0.82158	0.22803
Sum	3.66733	798.209	797.800	198.40	130.582	987.460
Sum Sq. Dev.	0.10881	2859.85	3179.55	90.091	53.8676	1265.14
Observations	37	37	37	37	37	37

	ES	ATR	TR	BD	DS	UGE
ES	1					
ATR	0.0441949	1				
TR	0.2248553	0.923412	1			
BD	-0.1834684	0.8524843	0.7722665	1		
DS	-0.5979717	0.4848439	0.2772927	0.5126913	1	
UGE	-0.1806334	-0.8948964	-0.8917236	-0.7638462	-0.2527515	1