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AN ANALYSIS OF EXTERNAL DEBT, URBANIZATION AND GOVERNMENT SIZE NEXUS: EVIDENCE FROM PAKISTAN

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ABSTRACT

This study aims to analyze the nexus of external debt, urbanization and government size for Pakistan from 1972 to 2018. The study estimates two different models and employs four proxies of external debts such as (1) debt services to revenue ratio, (2) debt to revenue ratio, (3) debt services to exports ratio and (4) debt to exports ratio in addition to trade openness, per capita GDP, urbanization and inflation as control variables. The bound testing technique of autoregressive distributive lag (ARDL) has been employed. Data is sourced from the World Development Indicators (WDIs) and the International Financial Statistics released by the World Bank and the International Monetary Fund respectively. The study finds that the Law of Wagner is valid for Pakistan's data which states that the increase in per capita income leads to more government expenditures. Results further show that all four proxies of external debt are statistically significant in reducing government expenditures; and the association between government size and urbanization is positive owing to the fact that urbanization leads to the high government expenditure for social and economic development of its people. The study has generated some policy implications. The government should efficiently utilize resources vis-à-vis reducing reliance on external debt to finance public expenditures. Likewise, the development of rural areas should be considered seriously to reduce the pressure of population in some specific cities of Pakistan.

Key words: Government Size, Urbanization, External debt, ARDL.

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1. INTRODUCTION

The role of government is to ensure the provision of socio-economic services in addition to managing the economy (Cameron, 1978). To function efficiently and perform its role, there is often the need for domestic fiscal adjustments and external borrowings. Fiscal spending is crucial because expenditures enhance economic growth and government prefers to make adjustments in fiscal policy for faster recovery from the "recessionary condition" and to reinstate the confidence of private sector (Kandil 2005). Adepoja et al. (2007) define "external debt as that portion of a country's debt that is acquired from foreign sources such as foreign corporations, government or financial institutions". Arnone, Banderia and Presbiterio (2005) view "external debt as that portion of a country's debt that is acquired from foreign sources such as foreign corporations, government or financial institutions". The effects of external shocks and internal imbalances can, however, have adverse consequence on the economy. The correlation between the level of economic development and government spending was first proposed by Adolph Wagner in 1883. He stated the "law of increasing expansion of public and particularly state activities". "Wagner's Law" is the first model of public expenditure. According to Wagner (1980), government spending is increased for three main reasons. First is modernization and industrialization, greater division of labour and urbanization. Second, income elastic "culture and welfare" expenditures expand. Third, in order to enhance economic efficiency, changes in technology and economic development require government to take control of natural monopolies. Government spending increases due to increase in urbanization and in order to finance these expenditures, government relies upon external debt as external debt is a vital component of public debt in Pakistan

The study on the relation between Pakistan's external debt and government spending is germane due to country's high public debt to which a large portion of national income is allocated to its servicing. External debt is raised primarily to finance development expenditures which also enhances the growth cycle of the economy. Pakistan's external debt was Rs. 16 billion in FY 1970 and it has increased to Rs. 5769 billion in FY 2016 (Economic Survey of Pakistan, 2015-16). The country's major sources of external debt are bilateral, multilateral, private creditors and loans from International Bank for Reconstruction and Development (IBRD). Pakistan became a member of the International Monetary Fund (IMF) on 11th July, 1950 which availed it some funding of which the country is still servicing those loans and yet to liquidate them.

In the same vein, government spending has increased over time from Rs. 2708922 million in 2014 to Rs. 3242656 million in 2015 (State Bank of Pakistan, 2016). Due to technological advancement, migration from rural to urban areas have been intensified. Urban population in Pakistan now a day is 38 percent of total population (World Urbanization Prospects, 2014). Urban living is usually associated with better health, higher levels of literacy and education, greater access to social services, and enhanced opportunities for political and cultural participation. This indicates that there is also increase in government spending when there is increase in urbanization. The productive use of financial support accelerates the velocity of economic development as it provides foreign capital, technology, mobilization of human resources and material required to access foreign markets. It also attracts technical expertise and managerial know-how requires for development of nations.

Therefore, using the association between government spending and the indicators of external debt, this study attempts to show why government expenditures are growing overtime in Pakistan. Can it be due to Wagner's law which states that, increase in government expenditure is comparatively more than increase in national income? Or as a result of increase in external debt and urbanization.

The remainder of study is structured as follows: Section 2 reviews the literature; Section 3 explains the model and data; Section 4 discusses the results and lastly Section 5 concludes with policy recommendations.

2. REVIEW OF LITERATURE

The relationship between per capita income and government spending can be better explained by Law of Wagner (1980) which takes public spending as an endogenous factor and is associated with growth of national income. During late 19th century, Wagner postulated the famously known "Wagner's Law" as the association between national income and government expenditures. The law states that "as per capita income increases, public sector's importance will grow" (Bird, 1971:2). This law which has been empirically tested by many research scholars find a positive relation between per capita income increases and government expenditures (Dogan and Tang, 2006; Sinha, 1998; Afxentiou, 1986; Mohsin, Naidu and Kamaiah, 1995; Nagarjun and Spears, 1990; Mann, 1980; Ashworth, 1994; Murthy, 1993, 1994; Lin, 1995; Hayo, 1994; Khan, 1990, Krzyzaniak, 1974; Pluta, 1979; Tanzi and Zee, 1995). However, external debt has adverse impact on government spending in general and has negative effect on the pace of development (Ayyoub, Chaudhry, and Yaqub, 2012; Shabbir and Yasin, 2015; Ouattara, 2006; Lora and Olivera, 2007; Fosu, 2007, 2008).

Wu, Tang, and Lin (2010) re-examined the nexus between overall government expenditure and development expenditure in (2010) and concluded that Wagner's Law has been followed by high-income countries as government spending helps in raising level of development and welfare of public. However, this hypothesis has not been true for low-income countries as these countries suffer from huge level of corruption and weak institutions which results in government spending has low impact on economic development. In addition, high debt servicing crowds out public sector investments and adversely affect government expenditures (Stephens, 2001 and Loko, Mlachila, Nallari, and Kalonji, 2003; Fosu, 2008, 2010). Fan and Rao (2003) examined public spending in 44 developing countries across Latin America Asia, and Africa during 1980–2002 by applying generalized method of moments (GMM) estimation technique and found that diverse types of government spending have a varied impact on economic growth and development.

Urbanization increases government spending (Alesina and Wacziarg, 1998; Jetter and Parmeter, 2013). Openness to trade reduces government expenditures when government size is taken into account (Rodrik, 1998; Shelton, 2007, Ram, 2009). But empirically, the result of openness to trade has positive impact on government spending when government type is included in the model (Jetter and Parmeter, 2013). Furthermore, Cameron (1978) and Rodrik (1996) argued that external shocks are more common in open countries and a larger public sector is needed to provide stabilizing role. Also, government uses fiscal policy to fight inflation (Neck and Schneider, 1988; Tayeh and Mustafa, 2011). There is reduction in government spending when there is an increase in inflation. There is negative relationship between external debt and debt to export ratio. Exports bring in return foreign exchange earnings in the country, hence, reducing the reliance on external debt (Karagol and Sezgin, 2004 and Sheikh et al., 2013).

3. MODEL AND DATA

To model the effect of external debt and urbanization on government spending, two models have been estimated. These equations incorporate different measures of the external debt. Model [1] includes debt services to revenue ratio (DSR) and debt to revenue ratio (DR) as a measure of external debt, while, the debt to exports ratio (DE) and the debt services to exports ratio (DSE) are incorporated in Model [2] to capture the crowding out phenomenon.

Table 1 Correlation Matrix

	LGS	LGDPP	LINF	LTO	**DR**	**DSR**	**DE**	**DSE**	**UR**
LGS	1								
LGDPP	-0.2478	1							
LINF	0.1503	-0.1130	1						
LTO	0.4590	0.1434	0.3192	1					
DR	0.1740	-0.2049	0.0518	-0.0555	1				
DSR	0.2781	-0.3382	-0.3996	-0.0161	0.4424	1			
DE	0.2100	-0.2926	0.0718	-0.3626	0.3029	0.3759	1		
DSE	0.3497	-0.5354	-0.2767	-0.1448	0.1973	0.2416	0.3272	1	
UR	-0.3101	0.3741	-0.1167	0.0806	-0.5700	-0.3194	-0.3580	-0.3088	1

$$LGS_t = \alpha_0 + \alpha_1 LGDPC_t + \alpha_2 DR_t + \alpha_3 DSR_t + \alpha_4 LUR_t + \alpha_5 LTO_t + \alpha_6 LINF_t + \mu_t \quad [1]$$

$$LGS_t = \beta_0 + \beta_1 LGDPC_t + \beta_2 DE_t + \beta_3 DSE_t + \beta_4 LUR_t + \beta_5 LTO_t + \beta_6 LINF_t + \nu_t \quad [2]$$

where, LGE is an indicator of government expenditures/spending and it is used to estimate government size, $LGDPC$ is Per Capita GDP, DR is external debt to revenue ratio, DSR is external debt services to revenue ratio, DE is external debt to exports ratio, DSE is external debt services to exports ratio, LUR is "the physical growth of urban areas from rural areas as a result of population immigration to a current urban area" and it is used as a proxy of urbanization and $LINF$ is inflation rate. (1)

Suggested models:

$$LGS_t = \alpha_0 + \alpha_1 DR_t + \alpha_2 DSR_t + \alpha_3 LUR_t + \alpha_4 LINF_t + \mu_t \quad [1]$$

$$LGS_t = \varphi_0 + \varphi_1 DE_t + \varphi_2 DSE_t + \varphi_3 LUR_t + \varphi_4 LINF_t + \mu_t \quad [2]$$

All these variables are selected on the basis of relevant theoretical and empirical literature available on the subject. The expected sign of the per capita income coefficient is positive because higher per capita income enhances the overall public sector activity. This argument can be supported by the Law of Wagner which avows that the importance of public sector increases with the increase in per capita income in a country (Wagner, 1980). In other words, the increasing demand for public services due to the increase in per capita income results in the larger share of government expenditures in the GDP. The expected signs of the debt to revenue ratio, the debt servicing to revenue ratio, debt to export ratio and debt services to export ratio coefficients are negative because higher debt liability and repayment of the external debt leads to the reduction in government spending and investment in general and vice versa (Hassan, 1999). However, the signs could be opposite if public revenue collection and exports earnings offset the debt burden of the country. Jetter and Parmeter (2013) demonstrate a strong positive association between urbanization and the government spending. Hence, the projected sign of coefficient of urbanization is positive. Similarly, the trade openness and government expenditures are also expected to positively relate with each other because trade openness motivates the government to increase its expenditures to mitigate the global/external risks (Alesina and Wacziarg, 1998) and Cameron (1978). The projected sign of the coefficient of

inflation is negative because inflation increases the cost of living and reduces the purchasing power (Abu Tayeh and Mustafa, 2011). The study covers the time period from 1972 to 2018 and data is sourced from the "World Development Indicators" (WDIs) by the "World Bank", and the "International Financial Statistics" (IFS) by "International Monetary Fund".

3.1 The Econometric Model

The bound testing technique of ARDL has been employed to inspect the external debt, urbanization and government size nexus. This technique is preferable over other cointegration methods due to number of reasons. *Firstly*, the ARDL technique provides robust results for a small sample size, ranges between 30-80 observations (Mah, 2000 and Pattichis, 1999). *Secondly*, the ARDL technique is pertinent even if the variables have mixed order of integration i.e. $I(0)$ or $I(1)$. However, we cannot apply it for variables that follows $I(2)$ order of integration (Pesaran and Pesaran, 1997). *Finally*, results obtained from the ARDL are unbiased and efficient as compared to any other cointegration technique.

The ARDL frameworks of equation (1) and (2) are as follow:

$$\Delta LGS_t = \alpha_0 + \alpha_1 T + \sum_{i=1}^{p} \beta_i \ln GS_{,t-i} + \sum_{i=0}^{q} \delta_i \ln GDPp_{t-i} + \sum_{i=0}^{r} \varepsilon_i DR_{t-i} + \sum_{i=0}^{s} \sigma_i DSR_{t-i} + \sum_{i=0}^{t} \omega_i \ln UR_{t-i} + \sum_{i=0}^{t} \rho_i \ln TO_{t-i}$$
$$+ \sum_{i=0}^{u} \gamma_i \ln INF_{t-i} + \lambda_{GS_{,t}} \ln GS_t + \lambda_{GDPp} \ln GDPP_t + \lambda_{DRI} DR_t + \lambda_{DSR} DSR_t + \lambda_{UR} \ln UR_t + \lambda_{TO} \ln TO_t + \lambda_{INF} INF_t$$
$$+ \mu_t \quad (3)$$

$$\Delta LGS_t = \alpha_0 + \alpha_1 T + \sum_{i=1}^{p} \beta_i \ln GS_{,t-i} + \sum_{i=0}^{q} \delta_i \ln GDPp_{t-i} + \sum_{i=0}^{r} \varepsilon_i DE_{t-i} + \sum_{i=0}^{s} \sigma_i DSE_{t-i} + \sum_{i=0}^{t} \omega_i \ln UR_{t-i} + \sum_{i=0}^{t} \rho_i \ln TO_{t-i}$$
$$+ \sum_{i=0}^{u} \gamma_i \ln INF_{t-i} + \lambda_{GS_{,t}} \ln GS_t + \lambda_{GDPp} \ln GDPP_t + \lambda_{DRI} DE_t + \lambda_{DSR} DSE_t + \lambda_{UR} \ln UR_t + \lambda_{TO} \ln TO_t + \lambda_{INF} INF_t$$
$$+ \upsilon_t \quad (4)$$

Equation (3) and (4) are providing both the long run and the short run estimates. The terms with signs of summation, represent the dynamics of error correction i.e. $\alpha, \beta, \delta, \varepsilon, \sigma, \omega, \rho$ and γ Whereas, the second part (λs) shows the long run association. The Null hypothesis of no cointegration i.e.

$$H_0 = \lambda_{GS} = \lambda_{GDPP} = \lambda_{DR} = \lambda_{DSR} = \lambda_{UR} = \lambda_{TO} = \lambda_{INF} = 0$$
$$H_0 = \lambda_{GS} = \lambda_{GDPP} = \lambda_{DE} = \lambda_{DSE} = \lambda_{UR} = \lambda_{TO} = \lambda_{INF} = 0$$

are tested against the alternatives i.e.

$$H_0 = \lambda_{GS} \neq \lambda_{GDPP} \neq \lambda_{DR} \neq \lambda_{DSR} \neq \lambda_{UR} \neq \lambda_{TO} \neq \lambda_{INF} \neq 0$$
$$H_0 = \lambda_{GS} \neq \lambda_{GDPP} \neq \lambda_{DR} \neq \lambda_{DSR} \neq \lambda_{UR} \neq \lambda_{TO} \neq \lambda_{INF} \neq 0$$

Two sets of appropriate critical values were formulated Pesaran et al. (1996) if use F-statistic as critical value. One is known as lower critical bound (LCB) and is based on the supposition that all series have zero order of integration. The other is known as upper critical bound (UCB) that is also based on the supposition that all variables have one into one order of integration. These values of critical bound are used to check whether cointegration exists among variables or not. If the F-statistic value is greater than the value of upper critical bound then it means cointegration exists among variables. Furthermore, if the F-statistic value is less than the value of lower critical bound then it means cointegration does not exist among variables. If the value falls inside these two critical bound values then the test becomes inconclusive. Right after

the selection of the ARDL model, the estimation of the long run association among variables, ECM can also be anticipated. The results of the ECM Model allow us to measure the speed of adjustment in response to any external shock.

4. RESULTS AND DISCUSSION

It is always preferable to ensure the stationarity property of the time series before directly estimating the econometric model of the study. As it is known fact that the ARDL estimation technique is not appropriate choice for the estimation in the presence of any variable following $I(2)$. Consequently, the time series stationarity has been checked by using the Dicky-Fuller-Generalized least square (DF-GLS) unit root test and table (2) reports the results. Results demonstrate that Inflation ($LINF$) and debt service to revenue ratio (DSR) are stationary at level whereas $LGS, LGDPP, LTO, DR, DE$ and DSE are non- stationary at level, but, at first difference, they become stationary which means that $LGS, LGDPP, LTO, DR, DE, UR$ and DSE all are integrated of order 1(1).

Table 2 Dicky-Fuller-GLS Unit Root Test: (1972-2018)

Variable	Level	First Difference	Decision	Order of Integration
LGS	-1.531	-5.785	Stationary at first difference	$I(1)$
LGDPP	-1.596	-4.357	Stationary at first difference	$I(1)$
LINF	-2.844	-	Stationary at level	$I(0)$
LTO	-1.17	-7.097	Stationary at first difference	$I(1)$
DR	-1.160	-2.734	Stationary at first difference	$I(1)$
DSR	-2.72	-	Stationary at level	$I(0)$
DE	-1.38	-3.512	Stationary at first difference	$I(1)$
DSE	-1.23	-6.758	Stationary at first difference	$I(1)$
UR	-2.506	-5.025	Stationary at first difference	
Note: Tabulated t-statistics at 1 % = -2.620, Tabulated t-statistics at 5 % = -1.949, Tabulated t-statistics at 10 % = -1.612				

Source: Authors' compilation

After stationarity check, cointegration among the variables has been empirically tested by employing ARDL bound testing technique and table (2) reports the results. The lag length selection is based on Akaike information criteria. (2) Table (2) shows the cointegration results for both models when we take one by one all variables as dependent variable. (3) Results reveal that there exists only one long run association among variables in each model that is when the government spending has been taken as dependent variable, the values F-statistic are greater than the values of upper bound for Model (1) and Model (2). Hence, the hypothesis of cointegration has been rejected among different variables included in both models (See table 3).

Table 3 Cointegration Test Results

Model (1)				Model (2)		
Specification No.	**Lag**	**F-statistic**	**Decision**	**Lag**	**F-statistic**	**Decision**
LGS	1	5.20	Cointegration	1	5.790	Cointegration
LGDPP	1	1.489	No Cointegration	1	2.761	No Cointegration
LTO	1	2.274	No Cointegration	1	1.819	No Cointegration
DR	1	1.482	No Cointegration		-	-
DSR	1	1.865	No Cointegration		-	-
DE		-		1	2.776	No Cointegration
DSE		-		1	1.209	No Cointegration
UR	1	2.2316	No Cointegration	1	1.7194	No Cointegration

Table (3) reports the long run estimates for Model (1) and Model (2). Results divulge that the per capita GDP is statistically significant and is positively associated with the government spending/size in case of both models. However, the per capita GDP has larger impact on government spending (0.415) in case of Model (2) as compared to the model (1) i.e. 0.311. This positive nexus between the per capita income and government spending can be well explained through the Law of Wagner which demonstrates that the per capita income increases the government spending because usually the income elasticities of public goods remain greater than one. Furthermore, there exists positive association between the government expenditures and per capita income (Dogan and Tang, 2006). According to Wagner, the industrialization progresses and substitutes the private sector activities by the public sector activities due to the increasing importance of the public sector functions and increasing administrative responsibilities during industrialization process (Murthy, 1981; and Tanzi and Zee, 1995).

However, results demonstrate that one percent increase (decrease) in external debt to revenue ratio (DR) results in 0.08 percent decrease (increase) in government expenditures/spendings. It shows that external borrowing may be helpful in the short-run to finance public expenditures but in the long run it can adversely affects the government spendings (Shabbir and Yasin, 2015). In other words, in the long run external debt to revenue ratio can lead to debt crisis and make the country more vulnerable to external shocks if tax collections are not according to the requirements and external debts are more than the capacity of a country to payback in future.

Table 4 Long-Run Estimates of the Models (1972-2018)

Model (1)			Model (2)		
Dependent Variable: LGS(Government Spending)					
Regressor	**Coefficient**	**T-Stats [Prob]**	**Regressor**	**Coefficient**	**T-Stats [Prob]**
LGDPP	0.311**	2.699[.011]	**LGDPP**	0.41890***	3.1487[.004]
DR	-0.080**	-2.217[.034]	**DE**	-0.56658***	-2.8361[.008]
DSR	-0.703***	-4.301[.000]	**DSE**	-.14321**	-2.2488[.032]
UR	0.354***	3.287[.003]	**UR**	.24188***	3.2809[.003]
LINF	-0.0793**	-2.217[.034]	**LINF**	-.67920***	-3.5198[.001]
LTO	0.171*	1.834[.077]	**LTO**	.040161***	2.8627[.008]

Diagnostic Test Statistic [p-values]		**Diagnostic Test Statistic [p-values]**	
χ^2 (serial correlation) (4)	.12976[.719]	χ^2 (serial correlation)	.90204[.342]
χ^2 (Functional form) (5)	1.6879[.194]	χ^2 (Functional form)	.12117[.728]
χ^2 (Normality) (6)	1.3620[.506]	χ^2 (Normality)	.32123[.852]
χ^2 (Heterosecdasticity) (7)	.85124[.356]	χ^2 (Heterosecdasticity)	.0010585[.974]

Note: *** indicate level of Significant =1%, ** indicate level of Significant = 5%, and * indicate level of Significant = 10%

Source: Authors' compilation

Similarly, debt service to revenue ratio (DSR) and debt services to export ratio (DSE) are also negatively and have statistically significantly effect on the government spending in the long run. In Pakistan, every year major proportion of the foreign exchange is used to finance debt servicing (principle plus interest payments) which also results in devaluation of currency along with increasing the import bills. In other words, debt servicing limits the ability of a government to spend for public welfare (Fosu, 2008).

The urbanization variable is positively and statistically significantly affects the government spending in case of both models. The result is also supported the findings of Jetter and Parmeter (2013) who suggests that the magnitude of the government spending will be within the range of 0.15 to 0.30 percent with one percent increase in Urbanization. The one percent increase (decrease) in urbanization will increase (decrease) the government spendings by 0.35 percent and 0.24 percent for model (1) and model (2) respectively. One possible rationale for the positive nexus between these two variables is that the increasing urbanization process requires more public infrastructure expenditures, public transportation facilities, and pollution control plans and funds (Henderson, 2005). Whereas, results indicate that inflation adversely affect the government spendings in both models. Though, the magnitude is quite higher (0.67) in model (2) as compared to 0.078 in model (1). This finding is consistent with the study of Neck and Schneider (1988) and Abu Tayeh and Mustafa (2011) which states that inflation increases the cost of living and reduces the purchasing power which leads to the reduction in government spendings. Whereas, both models show that the trade openness variable is positively and statistically significantly contributes in increasing government expenditures in Pakistan. The finding is consistent with the study of Cameron (1978), Alesina and Wacziarg (1998), Boone (1995) and Rivas (2007) that the trade openness increases the government expenditures due to its desire to combat global challenges and mitigating the external shocks. *Finally*, the findings of Model (2) reveal that debt to export ratio (DE) is negatively and statistically significantly linked with the government spending. On the one hand, the exports earnings reduce the reliance of a government on external borrowing through the generation of foreign exchange in the country (Sheikh et. al., 2013). On the other hand, continuously decreasing exports along with increasing external debts as it is in the case of Pakistan can adversely affect the government development expenditures. Finally, the empirical findings of all the diagnostic tests for both models including the test for serial correlation, the functional form test, the test for normality check and the heterosecdasticity test are reported in the lower part of table (4). Result indicates that for all diagnostic tests, the null hypotheses have been accepted. (8) It is clear from above discussion that the behavior of the government expenditures can be well explained through model (2) as compared to model (1).

The short run dynamics of the model (1) and Model (2) has been reported in table (5) reports. The coefficients of all the differenced variables are statistically significant at specified lags and the signs of the estimated coefficients of all the variables are followed by the predictions of the long run estimates obtained by applying ARDL bound testing technique

except the trade openness variable which carries theoretically correct sign but appears statistically insignificant in model (1). This finding is consistent with the study of Garen and Trask (2005) and Molana et. al (2004). The authors argue that less open countries generally experience higher government expenditures as compared to more open countries. Hence, the data does not support any significant association between government expenditures and trade openness in context of Pakistan. The error correction term appears statistically significant and negative in case of both models which shows long run stable equilibrium relationship among variables. The respective values of the error correction terms are 0.659 for model (1) and 0.592 for model (2). It implies that in both models any divergence from the equilibrium in long run is corrected by 0.65 percent and 0.59 percent respectively every year.

Table 5 Short -Run Estimates of the Models (1972-2018)

Model (1)			**Model (2)**		
Dependent Variable: LGS(Government Spending)					
Regressor	**Coefficient**	**T-Stats [Prob.]**	**Regressor**	**Coefficient**	**T-Stats [Prob.]**
ΔLGDPP	0.931***	28.882[.000]	**ΔLGDPP**	0.055*	2.026[.056]
ΔDR	-.0310**	-2.0787[.045]	**ΔDE**	-0.326***	-5.997[.000]
ΔDSR	-0.030*	-1.933 [.062]	**ΔDSE**	-0.137**	-2.277[.033]
ΔUR	0.059**	2.572[.019]	**ΔUR**	0.065**	2.348[.028]
ΔLINF	-0.069**	-2.139[.040]	**ΔLINF**	-0.104*	-1.921[.067]
ΔLTO	1.118	1.414[.166]	**ΔLTO**	0.0476*	1.801[.085]
ECM	-0.659***	-5.345[.000]	**ECM**	-0.592***	-4.534[.000]

Note: *** indicate level of Significance = 1%, ** indicate level of Significance = 5%, and * indicate level of Significance = 10%.

Source: Authors' compilation

According to the Pesaran (1997) after estimating the model for the assessment of parameters constancy "cumulative sum of recursive residuals" (CUSUM) and the "cumulative sum of squares of recursive residuals" (CUSUMSQ) test should be done over the sample period of the study (Babatunde and Shuaibu, 2008). The CUSUM and CUSUMSQ for Model (1) are plotted as follow:

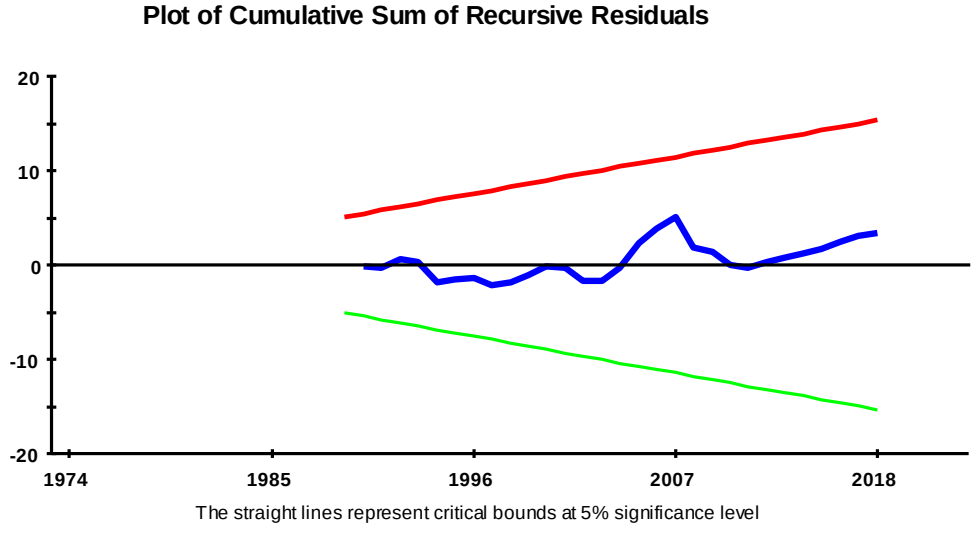

Figure 1 Cumulative Sum of Square of Recursive Residuals

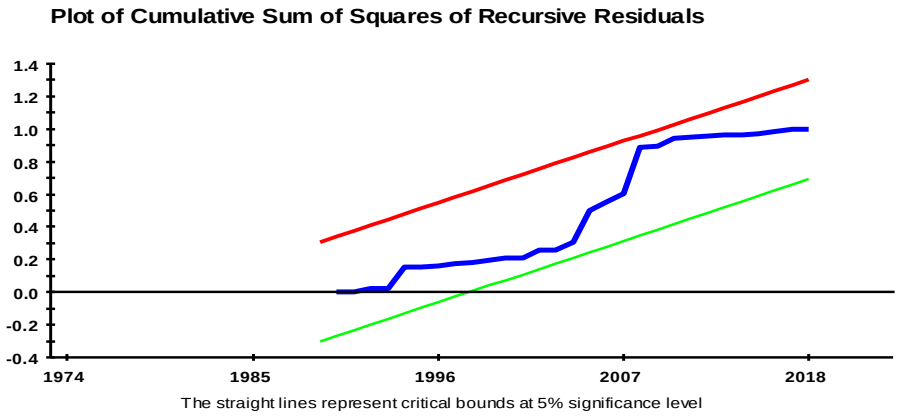

Figure 2 Plot of Cumulative Sum of Square of Recursive Residents

It is evident from the figure (1) and figure (2) that the CUSUM and CUSUM of squares lies within the dotted line which shows 5 percent critical bound lines which implies that there is no systematic change in regression coefficients over the sample period of the study and regression coefficients are stable. Similarly, The CUSUM and CUSUMSQ for Model (2) are plotted in Figure (1) and Figure (2) below.

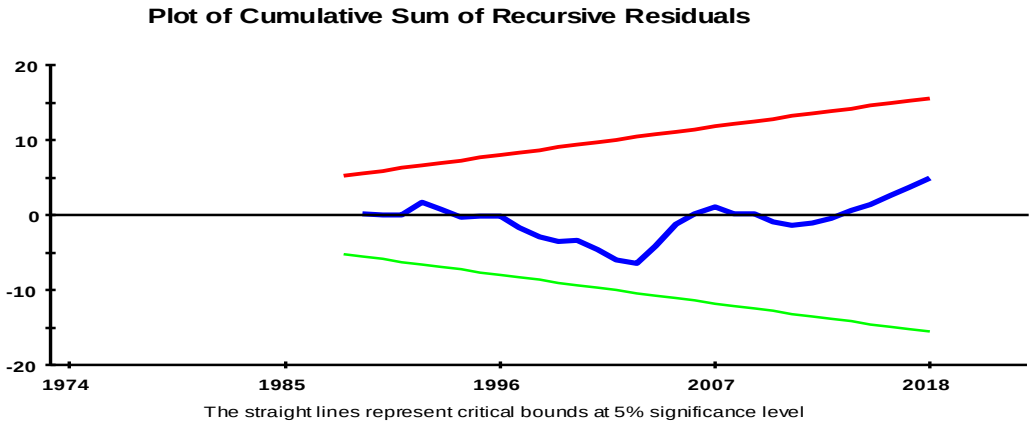

Figure 3 Plot of Cumulative Sum of Recursive Residuals

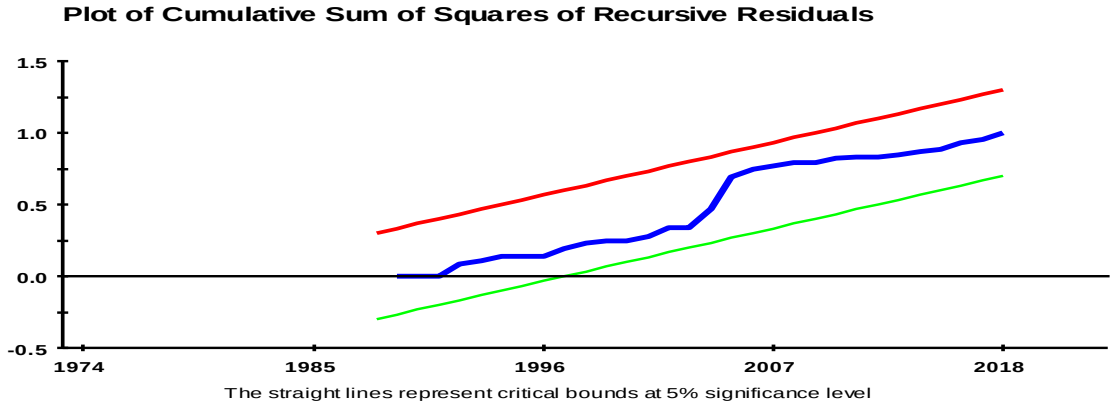

Figure 4 Plot of Cumulative Sum of Recursive Residuals

Again, results show that there is no systematic change in regression coefficients over the sample period of the study and regression coefficients are stable in case of model (2).

5. CONCLUSION

The rationale of the study is to analyze the Wagner's law of government spending and national income along with other macroeconomic indicators namely external debt and urbanization. Pakistan is a developing country and need bulk of resource in order to finance its expenditures. External debt is one way to fill gap between government income and expenditures. Mostly, external debt is used for development projects like investment in infrastructure and provision of health and education facilities. This study observes these three indicators with reference to Pakistan economy.

Government spending has increased in Pakistan as masses have started moving from rural to urban areas. The urban life demands more facilities of basic life like investment in infrastructure, electricity, gas, health, education, clean drinking water, transport, waste management and clean environment. For all these, government have started spend more on all these projects along with other problems of corruption etc. This makes a huge gap in government spending and income and to fill this gap, most of governments rely on external debt.

The study utilizes data of Pakistan economy from 1972 to 2018 and estimates two model by using different proxies of external debt. One model estimates the external debt while the other model captures the crowding out effect that emerges from external debt. The results of Dicky-Fuller-Generalized least square (DF-GLS) unit root test suggest that ARDL estimation technique has been suitable for the analysis. The results of cointegration test suggest that there exists long run association among variables while the variable government spending has been considered as depended variable.

The results of both models suggest that GDP is significant and positively associated with government spending. Hence, favoring the Law of Wagner's law of public spending. These results are also supported by Dogan and Tang (2006), Murthy (1981) and Tanzi and Zee (1995). The external debt to revenue has negative relationship with government spending which states that external debt is beneficial for short term. It has adverse impacts during long term. These findings are also supported by Shabbir and Yasin (2015). Similarly, debt service to revenue ratio (DSR) and debt services to export ratio (DSE) are also negatively and statistically significantly affects the government spending in the long run. These findings are supported by Fuso (2008). The urbanization variable is positively and statistically significant and affects the government spendings in case of both models and supported by findings of Jetter and Parmeter (2013). Inflation has adverse impact on government spending in both models and the findings are supported by Neck and Schneider (1988) and Abu Tayeh and Mustafa (2011). Trade openness variable is positively and statistically significant and contributes in increasing government expenditures in Pakistan and findings are consistent with the study of Cameron (1978), Boone (1995), Alesina and Wacziarg (1998) and Rivas (2007).

The policy implications of the study are as follows; *firstly*, government should develop the rural areas by improving the availability of basic needs and infrastructure such as roads, houses, electricity, clean drinking water which will reduce the burden of population in some specific areas of Pakistan. Secondly, policy makers should form policies to reduce the overall reliance on external debts to finance public expenditures because the external debt can be helpful in the short run but the government should not heavily rely on external sources for financing its expenditures as sustainability requires increasing the reliability on the internal resources as compared to external debts. On the other hand, government should also ensure the efficient utilization of external debt to improve the economic conditions of the economy. *Fourthly*, the

government should support such policies which aim to reduce trade barriers and increase the degree of integration with the rest of world. *Finally*, the policy makers should ensure price stability in the economy to prevent any reduction in the purchasing power of economic agents

KEYNOTES

(1) Debt to revenue ratio = Debt/total revenue, Debt services to revenue ratio = Debt service/total revenue, Debt to exports ratio = debt/total exports, Debt services to exports ratio = debt services/total exports

(2) The estimation is done by using the Microfit-5. In microfit-5 lag length selection criteria is automatic

(3) We have repeated this procedure for all variables given in equations (3) and (4) one by one except the variables Inflation (INF) and debt to exports ratio (DE) because both variables are and we know that when a dependent variable is we can't apply ARDL technique.

(4) The serial correlation test results are based on Lagrange multiplier test.

(5) Functional form test results are based on Ramsey's RESET test.

(6) Value is based on Kurtosis and Skewness of residuals

(7) Based on the regression of squared residuals on squared fitted values.

(8) Ho: No serial correlation, normality assumption for error term holds, No Hetroskedasticity,

REFERENCES

[1] Adepoju, A. A., Salau, A. S., & Obayelu, A. E. (2007). The effects of external debt management on sustainable economic growth and development: Lessons from Nigeria. Munich Personal RePEc Archive, Paper no 2147.

[2] Afxentiou, P.C. (1986). Wagner' s Law: The Experience of Cyprus. Economic Notes, 15(2), 158-72.

[3] Alesina, A. and R. Wacziarg (1998). Openness, country size and government. Journal of Public Economics, 69(3), 305–321.

[4] Anyanwu J.C, Oyefusi A, Oaikhenan and F.A. Dimowo (1997). The Structure of the Nigeria Economy. Joanee Educational Publishers Ltd, Onitsha, Anambra. Pg. 631.

[5] Arnone, M., Bandiera, L., & Presbitero, A. F. (2005). External debt sustainability: Theory and empirical evidence. Catholic University of Piacenza Economics Working Paper, 33.

[6] Ashworth, J. (1994). Spurious in Mexico: A Comment on Wagner' s Law. Public Finance, 49(2), 282-86.

[7] Ayyoub, M., Chaudhry, I. S., & Yaqub, S. (2012). Debt burden of Pakistan: Impact and remedies for future. Universal Journal of Management and Social Sciences, 2(7), 29–40.

[8] Babatunde, M. A., & Shuaibu, M. I. (2009, August). The demand for residential electricity in Nigeria: a bound testing approach. In proceedings of Second International Workshop on Empirical Methods in Energy Economics, University of Alberta, Edmonton, AB, Canada (Vol. 2829).

[9] Bird, R.M. (1971). Wagner's Law of Expanding State Activity, Public Finance, 26,1-26.

[10] Boone, Peter. (1996). Politics and the Effectiveness of Foreign Aid. European Economic Review,40: 289-329.

[11] Cameron, D. R. (1978). The expansion of the public economy: A comparative analysis. American political science review, 72(04), 1243-1261.

[12] Dogan, E., & Tang, T. C. (2006). Government expenditure and national income: Causality tests for five South East Asian countries. International Business & Economics Research Journal (IBER), 5(10).

[13] Fosu, A. K. (2008). Implications of the external debt-servicing constraint for public health expenditure in sub-Saharan Africa. Oxford Development Studies, 36(4), 363-377.

[14] Garen, J., & Trask, K. (2005). Do more open economies have bigger governments? Another look. Journal of development economics, 77(2), 533-551.

[15] Hayo, B. (1994). No Further Evidence of Wagner' s Law for Mexico. Public Finance, 49(2), 287-94.

[16] Henderson, J. (2005). Urbanization and growth. Handbook of Economic growth 1, 1543–1591.

[17] Jetter, M., & Parmeter, C. (2013). Does urbanization mean bigger governments? Documentos de trabajo Economía y Finanzas, (13-11).

[18] Khan, A.H. (1990). Wagner's "Law" and the Developing Economy: A Time Series Evidence from Pakistan. Indian Economic Journal, 38(1), July/September, 115-123.

[19] Kandil, M. (2005). On the effects of government spending shocks in developing countries. Oxford Development Studies, 33(2), 269-304.

[20] Krzyzaniak, M. (1974). The Case of Turkey: Government Expenditure, the Revenue Constraint, Growth and Change, 30(1), April, 13-19.

[21] Lin, Chi-Ang (1995). More Evidence on Wagner's Law for Mexico. Public Finance, 50(2), 267-77.

[22] Mann, A.J. (1980). Wagner' s Law: An Econometric Test for Mexico. National Tax Journal, 33(2), 189-201.

[23] Mohsin, M.C.R., C.R. Naidu, and B. Kamaiah (1995). Wagner' s Hypothesis: Evidence from Indian States. Indian Economic Journal, 43(1), 76-95.

[24] Molana, H., Montagna, C., & Violato, M. (2004). On the causal relationship between trade-openness and government size: evidence from 23 OECD countries. Available at SSRN 716164.

[25] Murthy, N.R.V. (1981). Wagner's Law of Public Expenditures: An Empirical Investigation Using the Appropriate Measure for a Valid Test. Indian Economic Journal, 28(3), 86-93.

[26] Murthy, N.R.V., (1993). Further Evidence of Wagner' s Law for Mexico. Public Finance, 48(1), 92-96.

[27] Murthy, N.R.V., (1994). Wagner's Law, Spurious in Mexico or Misspecification: A Reply. Public Finance, 49(2), 295-303.

[28] Nagarjan, P., and A. Spears (1990). An Econometric Test for Wagner's Law for Mexico. Public Finance, 45(1), 165-68.

[29] Neck, R. and Schneider, F. (1988). The Growth of the Public Sector in Austria. In: Explaining the Growth of Government, Elsevier Science Publishers, Amsterdam, 231-263.

[30] Ouattara, B. (2006). Foreign aid and government fiscal behavior in developing countries: Panel data evidence. Economic Modelling, 23(3), 506–514.

[31] Pluta, J.E. (1979). Wagner's Law, Public Sector Patterns, and the Growth of Pubic Enterprises in Taiwan. Public Finance Quarterly, 7(1), 25-46.

[32] Ram, R. (2009). Openness, country size, and government size: Additional evidence from a large cross-country panel. Journal of Public Economics, 93(1), 213–218.

[33] Rivas, M. G. (2007). The effects of trade openness on regional inequality in Mexico. The Annals of Regional Science, 41(3), 545-561.

[34] Rodrik, D. (1996). Why do more open economies have bigger governments? (No. w5537). National Bureau of Economic Research.

[35] Rodrik, D. (1998). Why do more open economies have bigger governments? Journal of Political Economy, 106(5), 997–1032.

[36] Shabbir, S., & Yasin, H. M. (2015). Implications of Public External Debt for Social Spending: A Case Study of Selected Asian Developing Countries. The Lahore Journal of Economics, 20(1), 71.

[37] Sheikh, M. R., Chaudhry, I. S., & Faridi, M. Z. (2013). Defense expenditures and external debt: evidence from Pakistan and India. Pakistan Economic and Social Review, 51(2), 159.

[38] Shelton, C. (2007). The size and composition of government expenditure. Journal of Public Economics, 91(11), 2230–2260.

[39] Sinha, D. (1998). Government expenditure and economic growth in Malaysia. Journal of Economic Development, 23(2), 71-80.

[40] Tanzi, V., & Zee, H. H. (1995). Human capital accumulation and public sector growth (No. 95/95). International Monetary Fund.

[41] Tayeh, S. N. A., & Mustafa, M. H. (2011). The determinants of public expenditures in Jordan. International Journal of Business and Social Science, 2(8).

[42] Wagner, Adolph (1883, 1890), 'Finanzwissenschaft' (2nd and 3rd editions). Leipzig. (Partly reprinted in Classics in the Theory of Public Finance (Eds) R.A. Musgrave and A.T. Peacock, MacMillan, London,1958.).