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Article Information:

To cite this document:

Hasan, A. (2021). The Diverse Impact of Internal and External Debt on Economic Growth: An Empirical Evidence from Pakistan. Journal of Socio-Economic and Religious Studies, 1(3). Retrieved from https://jsers.org/index.php/jsers/article/view/31

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The Diverse Impact of Domestic and Foreign Debt on Economic Growth: An Empirical Evidence from Pakistan

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Abstract: Rate at which the Pakistani government has borrowed over the past many years is posing a serious threat to the national security. If the stride of borrowing remained unimpeded, the size of the debt, external debt, in particular, would become huge enough for making it impossible for Pakistan to deal its foreign debt obligations in an orderly manner. Therefore, this research has been initiated with the objective to examine the impact of both internal (domestic) debt and external debt on the economic growth of Pakistan. Time series data over period of 1970 to 2018, has been analyzed using ARDL (Auto Regressive Distributed Lag) technique of co-integration, Augmented Dicker Fuller test has been used to test the stationarity of series. Breusch-Pagan-Godfrey Test is used for checking heteroskedasticity and CUSUM test for checking stability. GDP (Gross Domestic Product) is used as dependent variable as a proxy for economic growth whereas, the explanatory variables include Domestic debt, External debt, Debt servicing along with FDI (Foreign Direct Investment) and Net National Income. The association between both debt and economic growth was found to be converse. The research also found that increasing foreign direct investment and national savings can boost the economy and reduce the negative burden of debt. The study suggest that Pakistan requires proper structured institutions and strong fiscal and monetary policies to overcome its debt burden. Pakistan needs reforms in its various sector. Pakistan should encourage exports and reduce its imports by developing local industries. The country should increase the ease of doing business by reducing the cost of it through providing energy at low rates, and reducing taxes. Attractive environment for foreign investments should be created in order to achieve success against the fight with debt.

Keywords: Internal debt, External debt, Debt servicing, Auto-regressive distributed lag.

Introduction: External debt refers to that portion of a country's over-all debt that is borrowed from foreign lenders including foreign commercial banks, government or international financial institutions (Focus Economics, 2019). (Cambridge dictionary, 2019) defined external debt as the money that the government and organizations in the country have borrowed from the government and organizations in the other country. Whereas, internal debt or domestic debt is the component of the total government debt in a country that is owed to lenders within the country (Wikipedia).

Pakistan external and internal (domestic) debt are rapidly increasing. As of September 2020, the external debt reached to 11,986.6 billion and internal debt reached 23,701.8 billion. The pace at which government is borrowing particularly in last 5 years is not only a serious threat to national security but also alarming to macroeconomic stability and economic growth.

Debt burden has two components. One is domestic debt while the other is external debt. The cause and consequences of each debt is different from other. Increase in external debt effects the balance of payment situation in country and is a threat to national security. While domestic debt is related to budgetary development. Pakistan mostly borrows from external sources, mainly to finance the deficit of its current account, financing development projects and for the remuneration of debt services. The rising debt led to serious macroeconomic consequences such as unemployment, stagnant foreign investment, and decreasing exports which could further led to increase poverty, corruption, and civil unrest. Therefore, Pakistan requires proper fiscal consolidation along with the institutional reforms to overcome the threatening situation.

Many researchers have investigated the impact of external debt on economic growth. Some are of the view that external debt has a positive impact on economic growth as external debt give a chance to boost the economy by increase in capital inflow. While others indicated a negative debt and growth relationship, mainly due to the mishandling of resources. This research has been done with the objective to find the effect of both internal(domestic) and external debt on economic growth of Pakistan. The increasing debt burden of Pakistan is a significant issue to address because each year a huge amount of budget is allocated to pay the debt services. A large ratio of national revenue is spent on debt servicing payments.

The research paper structure is as follows. In the next section we review the existing literature that relates to our paper topic to analyze the work done so far in this area of study and to identify the gap in it. Following the literature review, the objective of the research is presented in section 3. While, data and methodology are explained in section 4. Empirical framework is given in section 5, which is followed by estimation result in section 6. The final section 7 concludes the study with suggestions for policy implication.

Literature Review: Rising debt has been an issue of interest of various researchers, especially in Pakistan, numerous research work has been done to identify the actual factors that is responsible for increasing debt burden. Several studies also presented the consequences of rising debt and suggested measures to reduce its intensity. Following, are some of the reviews in this regard.

Essl (2019) found that the interest payments in low-income countries are absorbing government revenues, moreover the low-income countries effect intensely by global financial conditions, external debt, and limited exports. This intensity can be reduced by improving debt transparency, mobilizing domestic resource, framing debt management policies and directing public investment and expenditure.

Omodero (2019) using foreign debt stock and foreign debt servicing as major explanatory variables along with inflation and exchange rate as control variables examines the impact on nominal gross domestic product of Nigeria. The result of the analysis concluded that foreign debt has a negative influence on economic growth unlike foreign debt servicing which has a strong positive impact.

Shkolnyk (2018) highlighting the issue of implementation of debt management strategy in Ukraine proposed a new structure of debt management model. The author concluded that external debt has a non-linear impact on economic growth and the marginal impact of external debt is negative on economic growth of emerging economies such as Ukraine.

Ashfaque (2016) indicating debt burden as a threat to economic stability, examined both public and external debt. The researcher is of the view that each debt has different causes and consequences. Public debt effects the budgetary development, external debt, on the other hand effect the balance of payments. Adequate monetary and fiscal policy, resource mobilization, export promotion and increasing domestic and foreign investment are successful tools to reduce debt burden.

Eberhardt (2015) contributed to the existing literature in three ways. Firstly, by evaluating long-run relationship between public debt and economic growth by employing a dynamic empirical model. Secondly, by adopting empirical specification for analyzing heterogeneity across countries. Thirdly, by testing the potential non-linearity in debt-growth relationship using empirical estimators. ¬ The research supported the existence of negative relationship between public debt and long-run growth across countries, although found no evidence of debt threshold within countries.

Shahzad (2014) Using five variables i.e., Growth, External debt servicing, saving, net export, and FDI, investigated the effect of foreign debt on growth of Pakistan. The result confirms that external debt has a significant adverse impact on GDP. Whereas, adjusted Savings has significant positive relation with GDP. Study also suggests to boost FDI and exports in order to maintain the level of economic growth. Lof (2013) analyzing the data of 20 developed countries by employing panel vector autoregressions (PVAR), found no robust effect on debt to growth. However, discover a significant negative reverse effect of growth to debt, that confirms the presence of negative correlation.

Ali (2012) declaring external debt as a phenomenon of developing countries, compared the long run and short run impact of external debt on economic growth of Pakistan. The long-run regression analysis confirms a negative relation between external debt and economic growth, while short-run empirical evidence reveals the importance of human capital and capital formation in generating national income. The research recommends to increase domestic savings, export, domestic and foreign investments to alleviate the debt burden, also the inflow of debts should be minimized.

Atique (2012) comparing the impact of domestic and foreign debt on economic growth of Pakistan, discovered that the intensity of the impact of external debt on economic growth is much higher than that of domestic debt. Findings also confirms their inverse relationship.

Akram (2011) analyzed the two different channels of negative effects of public debt i.e., "Debt Overhang" and "Debt Crowding Out" effects on economic growth and investment in Pakistan. The result showed a negative relationship between GDP per capita and external debt that confirms the presence of "Debt Overhang effect". Although, in the incidence of inconsequential association of debt servicing with investment and GDP per capita, the "Crowding Out" hypothesis could not be confirmed. However, domestic debt negatively affects investment and GDP per capita, that seems to crowd out private investment.

Malik (2010) in order to examine the relationship between economic growth and external debt, viewed the past economic performance and external debt of Pakistan for the period of 1972-2005. It has been discovered that Pakistan depends heavily on foreign debt to finance its balance of payment deficit and investment saving gap. The empirical result concluded that external debt and debt servicing has a significant negative impact on economic growth. The study therefore suggests, to design policy in a way that motivate both foreign and local investments.

Gohar (2009) in attempt to investigate the static relationship between external debt servicing and growth of low-income countries employed external debt servicing, interest rates, savings, net exports, and FDI as explanatory variables. The least square multiple regression estimates explain a negative impact of debt servicing on GDP growth. It has also been concluded that FDI after a certain level is treacherous for economic growth.

Ayadi (2008) using the Neoclassical growth model, investigated the linear and non-linear effects of debt and debt servicing on economic growth and investment. Findings of both ordinary least square (OLS) and generalized least squares (GLS) analysis confirmed a negative but non-linear relationship between the dependent and independent variables of the study.

Karagol (2002) in order to investigate the causal relationship between debt service and GNP in both long-run and short-run developed a Vector Error Correction Model. Result confirms a uni-directional negative causal relationship between the variables. The study focusing on debt overhang effect presented that debt act as a tax on future output and reduces the private sectors. Hence, concluded a negative effect of external debt on investment.

Siddiqui (2001) considering the world bank prescribed critical value of debt-to-GDP ratio i.e.,80% and critical value of debt to export earning i.e.,220% test the presence of nonlinearities in debt-growth relationship of south Asian countries. The result of the study reported the existence of nonlinear relationship between economic growth and debt burden and also concluded that ignoring these nonlinearities can lead to biased coefficient estimates.

Reviewing the existing literature, it has been found that almost all the studies advocate the negative impact of debt on economy like Omodero 2019; Shkolnyk 2018; Ashfaque 2016; Eberhardt 2015; Shahzad 2014; Ali 2012; Atique 2012; Akram 2011; Malik 2010. However, various studies suggested that the negative can be reduced by increasing domestic savings, enhancing investments, and accelerating exports. The gap identified in the existing

literature is that majority of the research focused on external debt and over looked the impact exerted by the internal debt. Therefore, this research has been initiated with the objective to find the impact of both internal and external debt on economy of Pakistan.

Research Objective: Impact of debt could be either positive or negative depending upon country's internal features. If the debt is used for the purpose of development, its effect could be positive. While, it could be negative otherwise. This research tends to evaluate the impact of both external and internal (domestic) debt on economic growth of Pakistan. The research would also highlight the features that could help in getting benefited from debt.

Data and Methodology: Data of dependent variable (GDP gross domestic product) and all the independent variable including Foreign Direct Investment, External debt, Domestic debt, Debt servicing and Net National Saving from 1970 to 2018, has been taken from World Development Indicator (WDI) official website.

Augmented Dicker Fuller test has been used to test the stationarity of series. Result of unit root test shows diverse level of stationarity amid variables. Therefore, in the presence of diverse stationarity, ARDL (Auto Regressive Distributed Lag) technique of cointegration is the most appropriate, as this technique does not require same level of integration of all variables. CUSUM and CUSUMSQ test has been applied to check the stability of model. Breusch-Godfrey Test has been employed to check the presence of Heteroscedasticity.

Empirical Frame work: A contemporary model is designed to inspect the impact of both external and internal (domestic) debt on economic growth of Pakistan. The functional form of the model is as follows:

$$GDP = f(ED, DD, FDI, DS, NNS)$$

Where, GDP is gross domestic product (annual %), ED is the External Debt as a percentage of GNI, DD is the domestic (internal) debt FDI is the Foreign Direct Investment net inflows (% GDP), DS is the debt servicing, NNS is Net National Saving. All the variables are taken in log form except foreign direct investment. This is because FDI series contain some negative values, therefore, its log is not possible.

$$LGDP_t = \beta_0 + \beta_1 LED_t + \beta_2 LDD_t + \beta_3 LDS_t + \beta_4 FDI_t + \beta_5 LNNS_t + \mu_{it}$$

β_0 is a constant term, $\beta_1 - \beta_5$ are parameters which need to be estimated and μ_t is the error term. External debt, domestic debt and debt servicing are likely to have contrary impression on GDP. Therefore, the coefficients of β_1, β_2, and β_3, are expected to be negative. Whereas, foreign direct investment and net national saving is expected to have a consistent relation with GDP. Hence, the expected signs of β_4 and β_5 is positive.

Estimation Result: Augmented Dicker Fuller test has been used to check the order of integration. The result of integration order of all the variables are presented in Table 1. Stationarity result shows that variables like debt servicing and foreign direct investment are stationary at level. While, all the remaining variables like external debt, domestic debt, gross domestic product and net national savings are stationary at first difference. In the

presence of diverse level of stationarity ARDL approach is the most suitable to analyze the long run and short run relation between variables.

	I (0) CONSTANT	I (0) C/T	I (1) CONSTANT	I (1) C/T
LED	-1.044 (0.729)	-2.044 (0.563)	-10.258 (0.000)	-10.198 (0.000)
LDD	-1.591 (0.479)	-1.319 (0.871)	-4.492 (0.001)	-4.769 (0.002)
LDS	-3,733 (0.007)	-1.669 (0.749)	-9.829 (0.000)	-5.035 (0.001)
LNNS	-2.212 (0.205)	-2.028 (0.571)	-5.592 (0.000)	-5.765 (0.000)
FDI	-2.904 (0.052)	-3.289 (0.081)	-4.785 (0.000)	-4.751 (0.002)
LGDP	-0.162 (0.936)	-2.401 (0.374)	-5.855 (0.000)	-5.790 (0.000)

Table 1: Unit Root Test

Result of ARDL bond test is presented in table 2. Bond test result confirms the presence of cointegration between variables. The calculated value of F-statistic = 6.744042 is more than the upper bond critical value at both 5% and 10% significance level. Therefore, null hypothesis of no long run relation is rejected.

Significance	I (0)	I (1)
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68
Test Statistics	**Value**	**k**
F- statistic	6.744042	5

Table 2: ARDL Bounds Test

The results of long-run coefficients under ARDL technique are presented in Table 5. The long-run coefficients of foreign direct investment, and net national saving, going along the theory shows positive sign of relation. While the long-run coefficients of debt servicing confirm inverse association as anticipated. Result also shows that the impact of external debt is not statistically significant.

The error correction result of ARDL model shows that internal (domestic) debt, debt servicing, as well as external debt, has negative impact on GDP. Although both external and internal (domestic) debt is not statistically significant. While, net national saving and foreign direct investment both effect GDP positively and significantly.

Variable	Coefficient	Standard Error	T- Statistic	Probability
LDD	0.351	0.089	3.941	0.0009
LDS	-0.825	0.103	-7.978	0.0000
LED	0.486	0.275	1.768	0.0931
LNNS	0.233	0.037	6.272	0.0000
FDI	0.309	0.058	5.363	0.0000
C	15.796	1.111	14.223	0.0000

Table 3: Long Run Coefficient of the ARDL Model

Variable	Coefficient	Standard Error	T- Statistic	Probability
LDD (-1)	-0.387	0.207	-1.866	0.077
LDS	-0.108	0.074	-1.459	0.012
LED (-2)	-0.201	0.107	-1.891	0.074
LNNS	0.058	0.035	1.679	0.109
FDI	0.067	0.030	2.235	0.037
Co-int Eq (-1)	-0.560	0.159	-3.527	0.002
R-squared	Adj R-squared	DW statistics	F-statistics	Probability F-stat
0.998	0.997	1.841	587.739	0.000

Table 4: ECM Result of the ARDL Model

Despite the short-run coefficient shows an inverse impact of external and internal debt on GDP, the relation become positive in long-run. This means that external and internal (domestic) debt is not reducing GDP in long-run. The result is logical as debt has certain advantages, if used properly for development purposes. The result of ECM shows that the disequilibrium arising in the short-run will be fixed in long-run. The value of ECM (–1) is negative and it is statistically significant. The coefficient of ECM term shows that the speed of adjustment is 56%. The value of R^2 is 0.998 that demonstrates that 99% variation in the dependent variable is due to the explanatory variables. The result of F statistic is also substantial, which displays that the model is good fit as a whole.

Figure 1 is showing the cumulative sum of recursive residuals. While, figure 2 is presenting the cumulative sum of squares of recursive residuals. Both CUSUM and CUSUMSQ are within critical bounds of 5%, so it reveals that the model is structurally stable. The result of Breusch-Pagan-Godfrey Test is presented in table 5. The result shows that there is no problem of heteroskedasticity exist in the model.

Figure 1

Figure 2
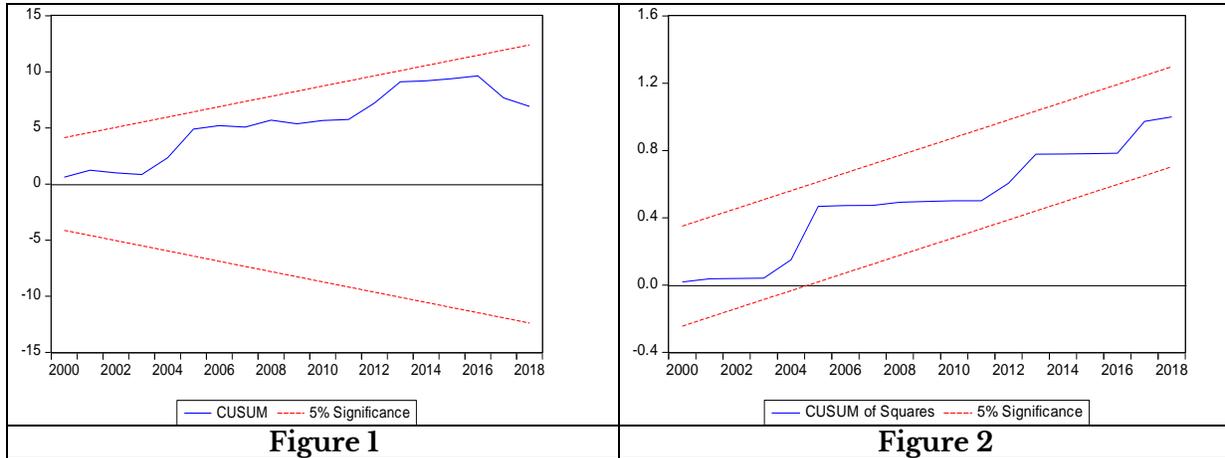
F-statistics	Probability F	Obs R²	Probability Chi-Square
0.3507	0.9924	14.2101	0.9579

Table 5: Breusch-Pagan-Godfrey Test for Heteroskedasticity:

Conclusion and Policy Implication: Concluding the whole analysis, it can be said that in case of Pakistan, both internal (domestic) and foreign debt has negative influence on country's economy. However, the debt can be beneficial, if it is utilized properly for the development of country, but in Pakistan the burrowed money is not utilized for development due to high incidence of corruption. The country with lower saving rates needs to burrow more, (Ali 2012). The research also found that increasing foreign direct investment and national savings can boost the economy and reduce the negative burden of debt.

Pakistan requires proper structured institutions and strong fiscal and monetary policies to overcome its debt burden. It also necessitates to strengthen the abilities and power of institutions like Ministry of Finance, Planning Commission, SBP, the Federal Board of Revenue, the Pakistan Bureau of Statistics, the Security and Exchange Commission of Pakistan, the regulatory bodies like NEPRA, OGRA etc. to develop strong economic policies to deal with the international financial institutions like the IMF, World Bank and the ADB.

Pakistan needs reforms in its tax system, tax administration, finance sector, power sector, agriculture sector, industrial sector as well as trade sector. Pakistan should encourage exports and reduce its imports by developing local industries. The country should reduce the cost of doing business by providing energy at low rates, and reducing taxes. Attractive environment for foreign investments should be created in order to achieve success against the fight with debt.

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