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An Empirical Assessment of the Dynamics of Public Debt and Economic Growth in Pakistan

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Abstract

Public debt is affecting economic growth positively or negatively? A long debate about this particular issue exists. The present study examines the dynamics of foreign debt during 1972-2018 in case of Pakistan to provide a sound working understanding of debt-growth nexus for effective debt management especially for developing country like Pakistan. Data was taken from various issues of economic survey of Pakistan and World Development Indicators database. The study uses the ARDL model to gauge the long-run relationship between public debt, net exports, supply of money (M2), Investment and GDP growth. Results show that foreign debt, the supply of money (M2) is affecting economic growth negatively but statistically significant. While net exports and investment are affecting GDP growth positively. For effective debt management, the foreign debt shall be used with proper care and this is the responsibility of the government to highlight the risk of foreign debt and the same may be used as a lender of the last resort, otherwise, it will put serious pressure on the scarce resources of an underdeveloped country like Pakistan.

Keywords: Foreign Debt, Economic Growth, Supply of Money, Investment.

JEL Codes: F10, O47, O38

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1. Introduction

Being a developing economy in nature, Pakistan needs to borrow from various sources to streamline its development process. Judicious use of debt helps the government to achieve its developmental and social goals and led them towards higher economic growth. Contrary, the absence of prudent debt management may lower the development expenditure subject to debt service needs. Keeping in view this scenario, a comprehensive debt management strategy may be formed which mitigates the risks of refinancing, debt accumulation and exchange rate fluctuations. The government of Pakistan is serious in taking steps towards the reduction in public debt of the economy. The Fiscal Responsibility and Debt Limitation (FRDL) Act has been amended by the government to decrease the debt to GDP ratio and bolster macroeconomic stability. For the same purpose, the ceiling of the budget deficit of 4 percent of GDP excluding foreign aid was determined during 2017-2018 and it was targeted to 3.5 percent in 2019-2020. The public debt shall be reduced to debt to GDP ratio of 50 percent in 15 years transition started from 2016-2017. (Economic Survey of Pakistan, 2018-19).

Public debt is the portion of the total debt which is obtained from the IMF (International Monetary Fund) as well the debt which has a direct charge on government taxes. Domestic debt (used to financing deficit budget) and foreign debt (used to support the balance of payment and to finance development spending) are the two major components of public debt. An alarming situation for the economy is evident from the fact that up till 2017-18, total net public debt was Rs 18,893 billion, out of which Rs, 1200 billion was recorded during the last year. The reason for such a hike is attributed to a rise in government credit balances with the banking system. The pressure of devaluation of Pakistani rupee against foreign currencies since 1971 is another vital factor in rising external public debt portfolio and net external inflows in the economy. The smooth execution of the MTDS reduced the public debt by 40 basis points during 2017-18 and the same was decreased by 50 basis points in case of domestic debt during the same period. The average cost of foreign debt obtained during the last five years came to around 3 percent, which is significantly lower than domestic financing cost even after taking

in to account the capital loss resulted by depreciation cost of Pakistan's currency. The government was capable enough to mobilize external inflows from bilateral and multilateral partners and participated through SUKUK in international capital markets during 2017-18. The public debt risk indicators outlined in Pakistan's first MTDS (2013) showed better results during the last three years and the same become possible due to refinancing risk of the domestic debt portfolio. Interest rate risk was decreased from 52.4 percent of debt re-fixing in 2013 to 45.5 percent in 2016. Moreover, the share of foreign debt maturity was also decreased to 31.9 percent of official liquid reserves during 2016 compared to 68.5 percent during 2013 showing improvement in repayment capacity and exchange stability. It is worth mentioning that contingent liabilities were not added to the country overall debt which is an essential instrument of fiscal transparency and an important section of public debt. In Pakistan guarantees issued to public sector enterprises are considered as contingent liabilities. The total guarantees of Rs. 368 billion (1.2 percent of GDP) was issued during 2017, while the outstanding government guarantees recorded as Rs. 838 billion during 2016 (Economic Survey of Pakistan, 2017-18).

Following the economic reforms agenda since the 1990's still the debt sustainability is a core critical issue for the economy. Other factors like exchange rate depreciation, interest cost and GDP growth are less significant factors in determining debt sustainability. As per the World Bank and IMF standard, Pakistan is hardly meeting the debt sustainability criteria. The global recession, recent oil prices hike, and uncertain foreign inflows caused external account difficulties which hampered the benefits of debt rescheduling of the 2000's. The primary fiscal imbalance shows that domestic resource base is also limited in the country. The recent arrangement and negotiations with the IMF is also not an amicable solution to the balance of payments and fiscal difficulty of the country (Economic Survey of Pakistan, 2017-18).

Public debt is affecting economic growth directly through total factor productivity and capital accumulation transmission channels. Similarly, other growth channels are affecting growth rate indirectly, for instance, change of labor force. The decision to hire more human capital is an important part of investment

decision which amplifies that by decreasing the speed of human capital accumulation through a high level of debt would decrease economic growth. In this scenario, the capital accumulation channel also explaining the channel of labor force. The transmission channel of economic growth, in this case, is the capital accumulation channel which involves the investment of both financial assets and physical assets with the prime aim to raise the initial asset value (Isaksson, 2007). Human capital as well as social capital are involved up to an extent in the capital accumulation.

Physical capital accumulation is increased directly by the government through a rise in government expenditure on capital goods. The case where public revenue becomes short of government expenditure is called a deficit budget. In this case, the government will issue public debt to bridge the gap between revenue and expenditure. Based on theoretical economic theory, the physical capital accumulation may be decreased by crowding out investment as a result of increase public debt. The investment in physical capital from private investors are discouraged because the government has taken over to invest and private investors have to incentive to invest their money. Besides, the government demands a huge amount of public debt which affects the rate of interest to increase in the financial market and make it difficult for the private sector to borrow. In the case of full employment, the available capital in the market will be absorbed by public debt that can be utilized by the private sector to consume and invest. This situation demonstrates that public debt can decrease economic growth. Moreover, in some situations where public debt is used for unproductive expenditure, it would also lead to affect economic growth negatively. On the other hand, part of the capital remains in the market for the private sector when the economy is not in a situation of full employment. In this case, public debt can have a better impact on economic growth because it would utilize the idle resources in the economy (Pattillo, et al., 2004).

Based on theoretical long-run relation between public debt and economic growth, most of the empirical studies have employed regression techniques. Though, very few studies have used the Co-integration techniques of time series. This is a

relevant point because the empirical evidence recommends that public debt and economic growth are jointly determined and any fiscal constraint to reduce public debt will affect economic growth in either positive or negative side and can show endogeneity problem in the model. In cross country studies, the results are mix with no clear consensus. Therefore, empirical studies that do not undertake the possible instabilities and variations of debt-growth nexus is unable to explain the true evolution of public debt and economic growth relation Cohen (1993).

The connection between public debt and economic growth has reviewed recently by researchers and led to a hot debate whether fiscal stimulus may be run by the government for restoration of growth rates or run austerity programs to reduce the fiscal deficit. Reinhart and Rogoff (2009b) pointed out the negative contingent effect of public debt on economic growth existed in developing countries as well followed by many studies like Stock (1994), Watson (1996), Pragidis (2005), Reinhart and Rogoff (2010), Tomova (2013), Panizza (2014), Woo (2015) and Taylor (2016) on the same line to make the relation validated. The present study is an attempt to examine the relationship between the dynamics of public debt and economic growth has evolved and how the relationship is significantly negative.

2. Methodology and Estimation Technique

2.1 Model Specification

To examine the effect of foreign debt on economic growth in the presence of control variables, this study utilizes the following econometric model with lag order of 1,0,0,0,2 selected based on AIC.

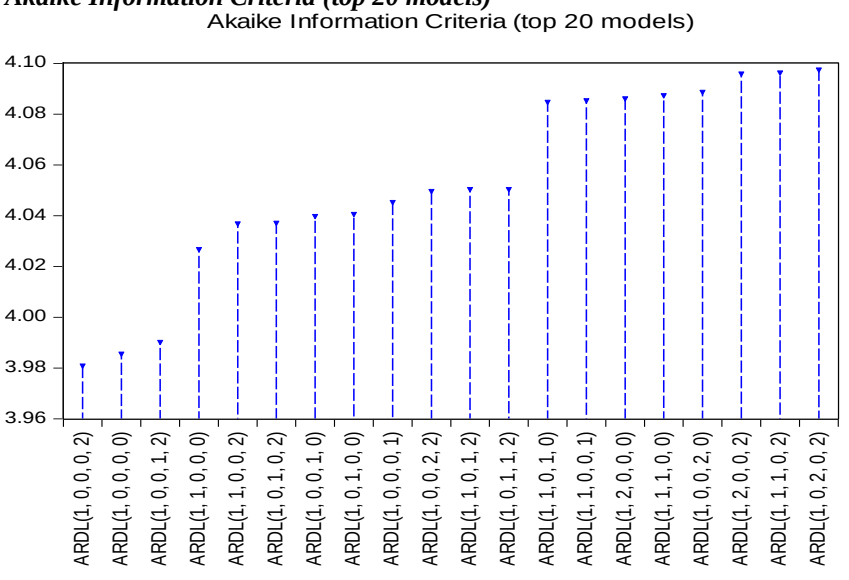
$$Y_t = \beta_0 + \beta_1 FDt + \beta_2 Xt + \eta \quad (1)$$

Where Y represents real GDP growth, FD shows foreign debt, X represents a set of control variables such as net exports, Money Supply (MS) and Investment (INV). The drift component is β while η is white noise.

2.1.1 Model Selections Criteria:

The lowest Akaike Information Criteria value (3.98) indicates that the optimum lag order for model 1 is 1,0,0,0,2, which is clear from the following graph.

Figure 1
Akaike Information Criteria (top 20 models)



2.1.2 Analytical Technique

The present study will use the Autoregressive Distributed Lag Model (ARDL) to examine the long-run relationship between the following variables used by Pesaran (2004). ARDL technique has several advantages over other cointegration techniques like it distinct between regressand and regressors. Another important advantage of ARDL is that it can be applied to fractionally cointegrated variables or I (0), I (1).

The error correction version of the ARDL model is framed as below:

$$Yit = \alpha 0 + \alpha 1\ FDt + \alpha 2\ NX\ t + \alpha 3M2\ t + \alpha 4Invt + \varepsilon t \qquad (2)$$

Where Y represents real GDP growth, FD shows foreign debt, NX represents net exports, M shows the supply of money in the economy while Investment is shown with INV.

The second part of the study is to examine that how foreign debt, net exports, the supply of money (M2) and investment respond to GDP growth during the period 1972-2018 using impulse response function which shows the effects on adjustment path. The computation of such a technique is to assess how shocks in various period affect GDP growth during the sample period.

2.2 Data

The present study is using time series data from 1972 to 2018 in case of Pakistan. The data for mention variables are taken from World Development Indicators and various issues of Economic Surveys of Pakistan.

3. Empirical Results

This section explains the estimation of the model to examine the connection between public debt and economic growth. Since we are using time series data so one can expect that they might not be stationary at level form. The long-run relationship will be checked through Cointegration test and Error Correction Method.

3.1 Unit Root Test

Before proceeding to the next step, first, we will check the stationary of the data. For each variable, the order of integration is observed. Result of ADF suggests that all variables are integrated at first order. The results are shown in the following table.

Table 1
ADF Test Results

Variable	ADF at Level	ADF at First Difference	Conclusion
GDP Growth	0.4326010 (0.0854)	0.385088 (0.0355)	I(1)
Foreign Debt	-0.008721 (0.09231)	-0.00244 (0.0491)	I(1)
Net Exports	0.0023871 (0.0821)	0.000323 (0.0450)	I(1)
Supply of money (M2)	-3.98E-98 (0.7392)	-3.41E-13 (0.0438)	I(1)
Investment	2.23E-06 (0.1123)	1.09E-06 (0.0314)	I(1)

(p values are shown in parentheses)

3.2 Error Correction Model (ECM):

The results in table 1 show that the variables are not stationary at level, so justification is required for the long-run relationship to apply of OLS on our model. The coefficient of lag error is the feedback effect which inculcates the adjustment

independent variables arise by previous period disequilibrium effect. Since the sign is negative in the model, it predicts the existence of a long-run relationship. The ECM results are shown in the following table 2.

Table 2
Estimated Error Correction Model (Economic Growth)

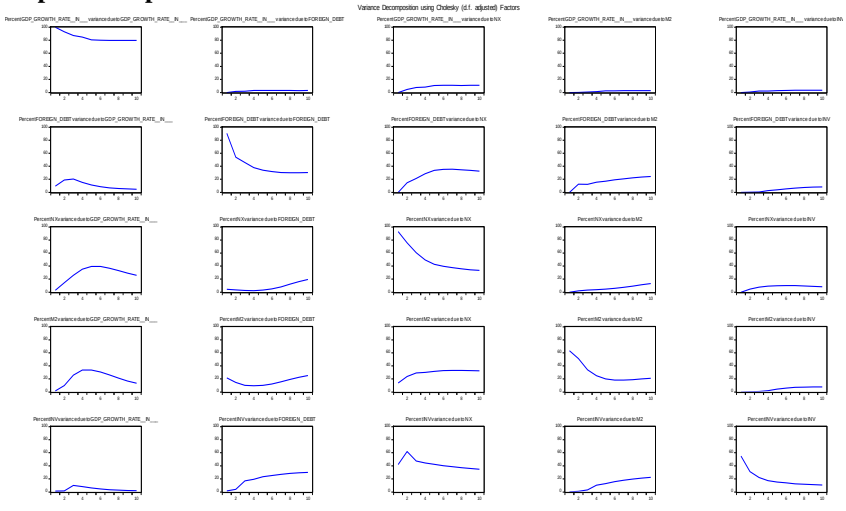
Dependent Variable: GDP Growth		
Variables	Coefficient	t-statistic
Intercept	3.505257	2.681328
Foreign Debt	-0.002440	-2.047494
Net Exports	0.000323	2.110820
Supply of money (M2)	-3.41E-13	(0.0438)
Investment	1.09E-06	(0.0314)
R2 = 0.476869		
D-W stat = 2.3245		

Foreign debt is negatively affecting economic growth and having a significant effect. Since international trade is one of the vital factors in the growth process and in the case of Pakistan, which is obvious from the significant t-statistic. Since foreign debt is adding the existing supply of money (M2) and in the case of Pakistan, it is contributing negatively to economic growth and significant in case of economic growth.

3.4 Impulse Response Function

The present uses Impulse response function of different variables to gauge the impact of a shock in public debt on economic growth. It is utilized to examine and analyze the paths of different variables affecting economic growth in Pakistan. Figure 1 shows that foreign debt in Pakistan is raised over the period and it has negatively affected economic growth. Similarly, net exports are positively sloped and contributed positively to economic growth. Furthermore, the supply of money increased over the period and negativity contributed towards economic growth. Since investment is a key variable in case of economic growth and the same is visible in the following figure.

Figure 2
Impulse Response Function



4. CONCLUSION

The present study is aimed to answer the question that how foreign debt contributes to economic growth. The study used foreign debt, net exports, the supply of money and investment as explanatory variables, while the GDP growth rate as a dependent variable. Results showed that foreign aid is affecting economic growth negatively. Furthermore, net exports and investment have a positive significant impact on economic growth. On the other hand, supply of money (M2) has a negative significant impact on economic growth. The study concluded that since 1970 there is a continuous rise in public debt but the impact on economic growth is not up to the mark. The government needs a strong mechanism to oversee and revisit the monetary policy and fiscal policy to utilize in its full extent the foreign debt. If the government is unable to utilize the debt efficiently it will hamper the growth targets which will further deteriorate the growth target in Pakistan.

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