

PUBLIC DEBT AND ECONOMIC GROWTH IN PAKISTAN: A TIME SERIES ANALYSIS FROM 1972 TO 2010

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ABSTRACT

This research is about public debt and economic growth of Pakistan, it uses simple OLS technique and dataset is from 1972 to 2010. Pakistan is surrounded by serious socio-economic problems. Due to low tax base and twin deficits, Pakistan has to rely on both external and internal capital flows. The foreign capital flows are not easily accessible but domestic capital flows are approachable at all times. Public debt is an important means of bridging government financing gaps, but should be used in a moderate level because it will increase liabilities in future. In Pakistan outstanding public debt has exceeded our GDP and thus income per capita is lower than per citizen indebtedness. This all is due to mismanagement and poor planning sector in the nation. It appears that external financing of domestic budget deficit is cheaper than the domestic financing. However, under certain circumstances external financing is significantly more expensive than the domestic financing. Both types of debt have negative role in the real per capita income growth rate, so they should be avoided or their quantity should be reduced in future. Debts should be used only for needed purposes and should keep away from corrupt people while debt for IMF should be avoided because their conditions worsen the economy of debtor nation.

Keywords: domestic, External, economic growth, economic development

INTRODUCTION

1.1 Economic Growth

Economic growth and economic development are two terms used interchangeably, but they are fundamentally different. Economic growth is increase in average income of an economy, while economic development is the increase in welfare of people of that economy.

A basic question about Economic growth is that "Is Economic Growth desirable?" The answer is obvious, yes. But there are other perspectives. Some condemn the spread of materialism due to increase in income (economic growth), destruction of traditional societies, environmental degradation. Some feel that if we enter into high income countries by following their path of progress then, we will suffer from high level of stress, loss of social life, brotherhood, sincerity, and loss of traditional family systems and all other ills associated with modern life. Therefore some people support economic growth and others not (Perkins et al, 2006).

1.2 Public Debt

Almost all governments face budget deficit due to high expenditure and fewer revenues. Governments can get revenue by increasing taxes, printing money, domestic or external borrowing and using previous budget surplus. When the government decides to borrow instead of introducing additional tax measures, to finance the budget deficit, it creates a liability on itself known as public debt.

Therefore all external obligations and liabilities of some known maturity and outstanding at a particular point in time and payable in form of any commodity is known as public external debt or simply external debt.

A government has various alternatives to borrow for the purpose of financing fiscal deficit. One way is to borrow directly from the central bank which is equivalent to printing of money. The other alternatives are; borrowing from domestic commercial banks, borrowing from domestic non-bank sector and borrowing from external sources. Each method has its own implications for various aspects of the economy. Government usually adopts a mix strategy and utilizes a number of options at the same time that have more benefit for the present situation of the country.

1.3 Public Debt in Pakistan

Growing public debt is a worldwide phenomenon. It has become a common feature of the fiscal sectors of most of the Economies. Almost all developing countries are under minor or high public debt situation. Economists do not consider public debt a major problem per se; rather problem is the mismanagement and un-sustainability of the public debt. Empirical findings support that aid is only effective if appropriate policies are in place can be used to support conditional lending, where aid is tied to policy reform (World Bank, 1998).

Since independence Pakistan is facing serious problems in balance of payments deficit. To finance this deficit in balance of payments, the country adopted to rely on external debt. In 11 July 1950 Pakistan joins the International Monetary Fund (IMF) and World Bank. Now, World Bank classified Pakistan as severely indebted country of South Asia in 2001. The outstanding public debt of Pakistan has exceeded its GDP and thus income per capita is lower than per citizen indebtedness.

1.4 Public Debt and Economic Growth in Pakistan

Nowadays, Pakistan is in a real debt-trap, Pakistan has borrowed a large amount of debt from external sources and large amounts of borrowing are still continued from IMF, World Bank and from developed nations. One the other hand, a big amount from received borrowings is used for debt return and its interest. Debt servicing has increased the budget deficit which in turn creates the need of more borrowing. Pakistan's external debt is seen to be the cause of all ills afflicting the economy. Every single IMF and World Bank document on Pakistan also says that the external debt burden has been the primary cause of all the ills of economy.

OBJECTIVE OF STUDY

The basic objective of this research is to find out the effect of public debt on Pakistan's economy. It is associated with the relationship between domestic debt, external debt and the economic growth in Pakistan.

Furthermore we want to find out the effects of consumption expenditures, quantity of exports and investment expenditures on domestic and external debt. If we change government consumption expenditures or private consumption expenditure then what will be the effect on public debt level?

To find out it there is any change in investment level rather in public or private, then did it make any difference in external loans? If it make any changes in debt level then how much? Or through which channels?

LITERATURE REVIEW

2.1 External Debt and Economic Growth

Past researches mainly focus on external debt for two basic reasons. First, external borrowings increase a country's access to resources while domestic borrowing only transfers resources within the country. In other words domestic borrowing only change hands of money holders while money remains same. So, only external debt generates a "transfer" problem (Keynes, 1929). Second, since central banks in developing countries cannot print the hard currency necessary to repay external debt, external borrowing is usually associated with vulnerabilities that may lead to debt crises.

External debt plays both a positive and negative role in shaping economic growth, particularly of the developing countries. External debt have positive effect when it is utilized by the Government for investment oriented projects like power generation and supply, infrastructure, education, health, production and agriculture sectors. On the other hand, it would affect negatively when it is used for private and public consumption purposes, which do not bring any return. Additionally, a low level of external debt effects economic growth positively, but this relationship becomes negative at a higher level.

Further, when distinguishing between public external debt and private external debt, results support a negative relationship between public external debt and growth, but no significant relationship when only considering private external debt. So the negative relationship between total external debt and economic growth is driven by the incidence of public external debt levels, and not by private external debt levels. For industrial countries, results did not support and significant relationship between gross public debt and economic growth (Schclarek, 2004).

Islam (1992) examines this issue for the case of Bangladesh using time series data covering the period 1972–1988. His findings suggest a weak positive link of debt on growth, while in general the domestic resources appear to exert stronger impact than the foreign resources. In a similar context Mbaku (1993) tries to investigate the relationship between foreign debt and growth in Cameroon and the results obtained agree with the Islam (1992) findings.

2.2. Domestic Debt and Economic Growth

The traditional view considers that in the long run, domestic debt has a negative impact on economic growth while the Ricardian equivalence hypothesis implies the neutrality of domestic debt to growth. Generally domestic debt has been incurred mainly on the consideration that it shall be used for investment purposes. The issue is empirically examined using the Cointegration test and the Granger causality test for India over the period 1959-95. Cointegration and the Granger causality tests support the Ricardian equivalence hypothesis between domestic debt and growth (Singh, 1999).

Abbas and Christensen (2007) explored the role of domestic debt markets in economic growth. Their study covered 93 countries over the 1975 to 2004 period and revealed that domestic debt markets play an increasingly important role in supporting economic development in developing countries.

The most prominent concern about domestic debt is the crowding out effect on private investment. When governments borrow domestically, they use up domestic private savings that would otherwise have been available for private sector lending. In turn, the smaller residual pool of loanable funds in the market raises the cost of capital for private borrowers, reducing private investment demand, and hence capital accumulation, growth and welfare (Diamond, 1965).

DATA AND DESCRIPTIVE ANALYSIS

In descriptive analysis we try to find out whether public debt is sustainable in Pakistan or not? First we will check sustainability and manageability of Public debt and then will estimate models to know the type of relationship between explanatory and explained variables.

4.1. Debt Sustainability in Pakistan

In the study we use GDP in market prices as income variable. To check the sustainability of debt we calculated debt to GDP ratio, i.e., debt-to-income ratio. In both figures horizontal axis measures years while vertical axis measures debt and national income (GDP) ratio.

4.1.1 Domestic Debt Sustainability

The figure below shows that in Pakistan from 1972 to 2010 our domestic debt is going to increase and increase, which leads us toward vicious circle of debt servicing.

Figure 4.1 Domestic debts-to- GDP

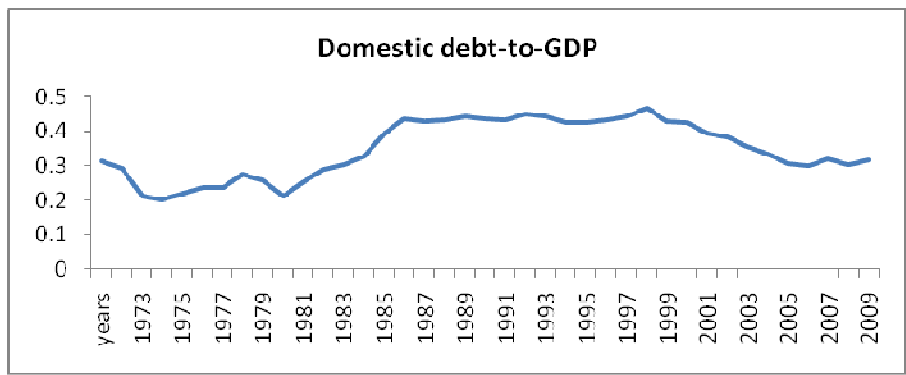
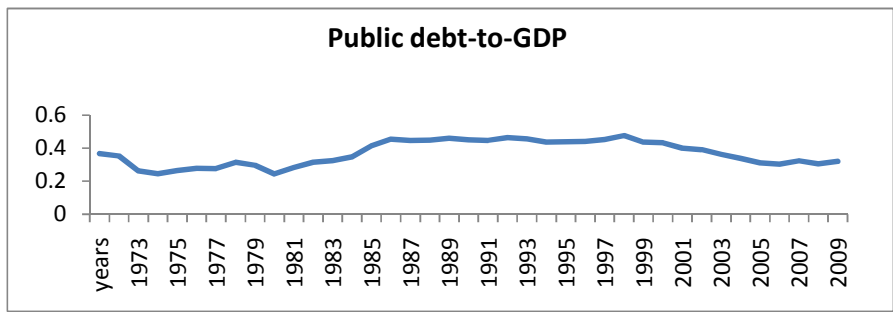


Figure 4.1 shows that in 1970 to 1972, domestic debt (domestic debt to GDP ratio) was increasing and after second half of 1972 it started to decrease. From the figure 4.1 we can see that domestic debt is not sustainable in Pakistan. Rather it is fluctuating, increasing and decreasing time to time.

4.1.2 Total Public debt sustainability

Since public debt involves both domestic as well as external debt. So to find sustainability of debt we have incorporated another figure that explores public debt to income relationship. Figure 4.3 shows a fluctuating relation between overall debt vs. income of the nation. It explains that

Figure 4.3 public debt to GDP



MODEL AND METHODOLOGY

5.1 Introduction

This section presents multiple growth models, which attempt to capture the impact of domestic debt and external debt on output growth in Pakistan. Simple ordinary least square (OLS) methodology is used for regression, while some Explanatory variables are normalised by GDP. One of the main advantages of normalization of the relevant variables by GDP is to eliminate certain econometric problems, particularly multi-collinearity among the explanatory variables.

5.2 Econometric Models

There are basically three models that will be used for regression. These models include domestic debt model, external debt model and growth model.

5.2.1 Domestic Debt Model

This model is explained as follows.

$$(\text{Debt})_{\text{domestic}} = f(\text{private consumption expenditures, investment expenditures, Domestic savings,}) \dots\dots\dots 1$$

The above function/equation shows that domestic debt is the function of private consumption expenditures, investment expenditures and domestic savings (private savings) of the nation. Where, consumption expenditures include all private consumption expenditures on luxuries and basic necessities. Investment is gross domestic fixed capital formation in private sector. Domestic savings represents all private savings.

We can transform equation 1 into econometric equation as follows:

$$Y_1 = \alpha_0 + \alpha_1 Pcon + \alpha_2 inv + \alpha_3 DS + \mu \dots \dots \dots 2$$

Equation 2 implies that y1 (domestic debt) dependent upon consumption expenditures, investment and exports of the nation.

Where,

Y1 is dependent variable i.e., domestic debt

Con is consumption expenditures

Inv is investment

DS is all savings in private sector.

5.2.2 External Debt Model

External debt model is explained as follows.

$$(Debt)_{external} = f(\text{Government consumption expenditures, investment expenditures, exports of the nation, Imports of the nation, Taxes, Subsidies, change in stock, National savings}) \dots \dots \dots 3$$

The above function/equation shows that external debt is the function of government consumption expenditures, investment expenditures and total exports of the nation, total imports of the nation, Taxes, Subsidies, change is stock, and national savings. Where, government consumption expenditures include general government consumption expenditures, development expenditures and other expenditures of the government. Investment is gross domestic fixed capital formation. Total exports include exports of Goods and non-factor services. Total imports include imports of Goods and non-factor services. Taxes shows all direct and indirect taxes applied by government. Subsidies are the subsidies in all sectors given by government. National savings are all the savings of government and change in stock is changing in government reserves in domestic and external resources.

Econometrically equation 3 can be written as

$$Y_2 = \beta_0 + \beta_1 Gcon + \beta_2 inv + \beta_3 exp + \beta_4 imp + \beta_5 tax + \beta_6 sub + \beta_7 Cstock + \beta_8 NS + \mu \dots \dots \dots 4$$

Equation 4 implies that Y2 (external debt) dependent upon consumption expenditures, investment and exports of the nation.

Where,

Y2 is dependent variable i.e., external debt

Con is consumption expenditures

Inv is investment

Exp is total exports.

Imp is total imports.

Tax is the taxes revenue by government.

Sub is the subsidies provided by government to support the poor and backward sectors of the economy.

CStock is the change in stock of the nation.

5.2.3 Growth Model

In Growth model two explanatory variables are used namely domestic debt as a ratio of GDP and external debt as a ratio of GDP. While in above models variables were in absolute form here we will take them in the ratio of national income to avoid multicollinearity.

$$\text{Growth} = f(\text{domestic debt/GDP, external debt/GDP}) \dots \dots \dots 5$$

Equation 5 shows that growth is the function of domestic and external debt as a ratio of GDP.

Econometrically we can write as,

$$\text{GRO} = \epsilon_0 + \epsilon_1 \text{DD} + \epsilon_2 \text{ED} + \mu \dots \dots \dots 6$$

Where;

GRO is dependent variable showing annual growth in per capita real income. i.e., total GDP divided by total population at a particular period of time.

DD is domestic debt as a ratio of GDP and measured in million rupees.

ED is external debt as a ratio of GDP and measured in million rupees.

ESTIMATION AND EXPLANATION

It is explained in the previous chapter that OLS will be used for estimation of models. Ordinary least squares (OLS) technique is used to estimate the slope coefficients of the autoregressive model. Use of OLS relies on the stochastic process being stationary. When the stochastic process is non-stationary, the use of OLS can produce invalid estimates. These estimates are called 'spurious regression' results: high R² values and high t-ratios yielding results with no economic meaning. Estimation is done by using E Views (Econometric Views) and results are significant. Total 39 observations are included from 1972 to 2010 and three models are estimated to find out the impact of debt on Pakistan economy.

6.2.1 Estimation of Domestic Debt Model:

Domestic Debt model is shown below

$$Y_1 = \alpha_0 + \alpha_1 \text{con} + \alpha_2 \text{inv} + \alpha_3 \text{exp} + \mu \dots \dots \dots 2$$

We have estimated this domestic debt (Y1) model and results are shown in table 6.2

Table 6.2 OLS Estimation of Y1 (domestic debt function) from 1970 to 2010

Variables	Coefficients	t-Statistic	Prob.
Constant	115536.1	3.271933	0.0023
Con	0.418956	7.840340	0.0000
Inv	-0.299821	-1.129083	0.2659
	R ² 0.98	adj. R ² 0.97	
	F-statistic 1090.0	DW 1.66	

By Visual analysis following results can be noticed.

- All signs of coefficients are according to theory.
- All t- ratios are more than 2, showing that variables are significant.
- All probabilities are less than 0.05 confirms significance of explanatory variables.
- R² and adj R² are more than 0.90 showing a good model and capturing maximum variations of the model.

•F statistic showing significant result plus probability of F statistic is 0.000 which is the proof that overall model is significant.

6.2.2 Estimation of External Debt Model

$$Y_2 = \beta_0 + \beta_1 con + \beta_2 inv + \beta_3 exp + \mu \dots \dots \dots 4$$

Above equation 4 shows our external debt model. This is estimated via E views and results are given in table 6.3

Table 6.3 OLS Estimation of Y2 (external debt function) from 1970 to 2010

Variables	Coefficients	t-Statistic	Prob.
Constant	8847.218	11.05951	0.0000
Con	-0.004067	-2.512079	0.0165
Exp	0.049886	5.371878	0.0000
inv	-0.002504	-0.430130	0.6696
R ² 0.88		adj. R ² 0.87	
F-statistic 93.64		DW 1.86	

Following results can be seen by visualizing table 6.3

- All signs of coefficients are according to theory.
- t- ratios are significant except for the case of inv (investment variable).
- All probabilities are less than 0.05 except for the case of inv variables; this confirms significance of explanatory variables.
- R² and adj R² are more than 0.80 showing a good model and capturing maximum variations of the model.
- F statistic showing significant result plus probability of F statistic is 0.000 which is the proof that overall model is significant.

6.2.3 Estimation of Growth Model

In growth model only two explanatory variables are employed that are domestic debt and external debt, plus both are normalized by GDP to avoid econometric problems.

$$GRO = \epsilon_0 + \epsilon_1 DD + \epsilon_2 ED + \mu \dots \dots \dots 6$$

Equation 6 is our Growth model. Estimation results are shown below in table 6.4

Table 6.4 OLS Estimation of GRO (growth function) from 1970 to 2010

Variables	Coefficients	t-Statistic	Prob.
Constant	79826.72	5.106921	0.0000
DD	-111213.0	-3.020091	0.0045
ED	-1098886.	-6.387423	0.0000
R ² 0.53		adj. R ² 0.50	
F-statistic 21.50433		DW 1.9	

DD (domestic debt as a ratio of GDP) and ED (external debt as a ratio of GDP) both have negative relation with growth (per capita real growth rate). All t-statics are more than 2 showing that variables are significant and probability of F-static shows that overall model is also significant.

Since both types of debt are not well managed and efficiently used hence they have negative impact on growth of the nation. Beneficial results could be achieved if debt is well managed and used in productive sectors only, and keep away from corrupt people.

RESULTS AND DISCUSSION

No doubt, governments borrow to fill the vacuum created by the fiscal gaps between expenditures and revenues. If government taxation capability is low and she does not want to increase inflation by printing more money, then debt option becomes the only available avenue that the government can use to provide social overhead capital for the country. If we see Pakistan, then it is the nation which mainly relies upon external sources for its needs, and hardly tried to increase investment and try to open other avenues for the needs. Now it increased so much that country is unable to get rid of it, and it is the main hurdle in growth of nation, because round about 40 percent of government revenue is needed to pay debt servicing and interest rate on it.

If we see results of regression, it can be noticed that both domestic and external debt negatively affect the economic growth. Domestic debt effects positively to consumption expenditures (both public and private) and exports and negatively effects investment. The reason is that, in Pakistan majority domestic debts are issued for non-production purposes and are mainly used for consumption. The high level of luxurious consumption reduces investment which reduces national income. As it is said that, "saving increase income and consumption decrease it", is well applied in this situation.

Domestic debt and investment are negatively related, because most of people prefer to deposit savings in banks which further are used for non-production purposes. Hence if deposits in banks increase it will further increase non-production borrowing of loans, which will be used for consumption mainly. If investment in production and industrial sector increases then capital in banks will reduce which will reduce borrowing power of banks and this will decrease domestic debt level. In nut shell, investment (gross fixed domestic capital formation) has negative relation with domestic debt. Another reason for negative relation of domestic debt and investment is that when governments borrow domestically they use domestic savings hence funds available for private lending are reduced. When there will be fewer funds in markets it will raises the cost of capital for private borrowers, which will again reduce private investment demand (Diamond, 1965).

External debt effects negatively to consumption and investment while positively to exports. Because if a nation has high debt level then she will try to pay back as much as she can in order to be free from the debt prison. For this purpose she will increase her exports so that it can get foreign currency and reserves which can further be used for the purpose of paying debt. So according to author this may be the reason for positive relation between external debt and exports.

External debt negatively effects investment, because if a nation has high debt level then investors will lose confidence about high revenue. If external debt level is high investors will have view that a huge part of their revenue will be paid as taxes to pay external obligations. So there is inverse relation of external debt and investment (Safdari and Mehrizi, 2011).

External debt has negative relation with domestic investment and consumption. There may be the reason that if a nation is suffering from high level of external debt then in that nation mostly interest rate is at high level. According to macroeconomics, interest rate and investment have negative relation. So by increasing external debt domestic investment will be decreased. Regression result shows that, investment variable is not significant.

External debt has negative relation with consumption, because by external debt interest rate will increase. Since high interest rate means high opportunity cost of consumption, so to avoid this opportunity cost people prefer to save more and then deposit it in banks etc. this is the reason for negative relation of consumption and external debt.

CONCLUSION

Pakistan is surrounded in serious socio-economic problems. Due to low tax base and twin deficits, Pakistan has to rely on both external and internal capital flows. The foreign capital flows are not easily accessible but domestic capital flows are approachable at all times. Although domestic funds are easily available but there is evidence by this paper that it positively effects consumption level and exports level in both private and public sector. On the other hand it reduced investment in production

sector which will reduce national income in upcoming years. By domestic borrowing luxurious consumption will increase which is generally considered as only wastage of national income. Domestic borrowing increase exports but only of agriculture and intermediate goods in the case of developing countries. While it decreases investment in industrial sector and reduce funds for heavy industries, which becomes a hurdle in the path of highly development of industrial sector³. Therefore domestic borrowing decreases growth of developing nations.

External borrowing reduced consumption but has results for investment and exports. Investments are reduced while exports are increased. Pakistan has accumulated a large amount of public debt in order to fulfill its deficits. Now, service on these debt are become the main hurdle in the way of development and growth. Historic experience suggests that it is difficult to bring public debt ratios down without robust economic growth.

Public debt is an important means of bridging government financing gaps. Effective and efficient utilization of public debt can increase economic growth. However, excessive reliance on public debt creates macroeconomic problems.

In Pakistan outstanding public debt has exceeded our GDP and thus income per capita is lower than per citizen indebtedness. This accumulated public debt is the result of structural weaknesses in the domestic economy and external account. In domestic market there are a number of instruments available to the government through which it mobilizes funds for financing budget deficit. Different instruments of debt have different terms and conditions in the form of availability, costs and maturity periods.

It is suggested that public debt (domestic and external) is needed in some occasions (like in natural disasters) but government should use it efficiently and try to avoid this aid policy in future. Aid or debt is some tax on future generations and source of benefit for present generation because in future it will be paid back by increasing tax etc. Both types of debt have negative role in the real per capita income growth rate, so they should be avoided in future.

Aid which we are getting today should be used in production sector. It should not be used for the luxuries of political persons and ministers etc, it should be kept away from corrupt people and should be handled honestly and used in education, health, industrial production etc sectors.

Domestic debt have positive effects in developed economies because they are used for investment, while in Pakistan it is mainly used for the purpose of consumption hence it play negative role in economic growth of Pakistan . In the case of external debt consumption reduces but it caught the nation in sever debt prison.

One more issue is that, Pakistan mostly borrows from IMF. While recent research shows that if a country want to grow and be economically better off than it should committed it not to involve with IMF loan programs (Barro and Lee, 2003). IMF programs do not improve expectations about the health of economy. In the light of these we have to make decision not to involve in IMF programs and try to look any other ways of borrowing that contain easy terms and conditions.

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