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Public Debt, Income Inequality and Macroeconomic Policies: Evidence from South Asian Countries

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Abstract

Over the years most of the developing countries have failed to collect enough revenues to finance their budgets. As a result, they are facing the problem of twin deficits and are relying on public external and domestic debt to finance their developmental activities. NGO's and anti-globalization movements have propagated the view that instead of reducing the poverty, public debt has increased the miseries of the poor. The present study examines the consequences of public debt for income regarding selected South Asian countries i.e. Bangladesh, India, Pakistan and Sri Lanka, for the period 1975-2010. The model is estimated by using the standard panel data estimation methodologies. The results show that neither public external debt nor external debt servicing has any significant relationship with income inequality, suggesting that public external debt is as good/bad for poor as it is for rich. However, domestic debt has a positive relationship with economic growth and a negative relationship with the GINI coefficient.

Keywords: Public Debt, Economic growth, Poverty, Panel data
JEL Classification Codes: H63, O43, I32, C33

I. Introduction

Traditional growth theories have been emphasizing foreign aid and assistance in the form of external debt as important elements of growth for developing countries. However, in most of the developing countries, the dream of fulfilling saving gap and achieving growth targets through external debt did not materialize since sizeable amounts of their resources were siphoned off by the more developed countries. Most of the developing countries have been trapped in two major inter-related problems: heavy indebtedness and the incidence of poverty which have important implications for the growth possibilities. Most of the theoretical models are silent on the possible transmission mechanisms between high external debt and poverty. Similarly, the empirical impact of indebtedness on poverty reduction is not well explored. Theoretical and empirical literature covers debt problems mainly with respect to economic growth, but it does not always explicitly link to poverty and human development. The assumption is that overall growth paves the way to poverty alleviation. Public debt-poverty issue is closely linked with the sustainability problem of external debt. In general, debt sustainability conditions state a position in which country has the capability to service its

debt compulsions. The NGOs' definition regarding debt sustainability is more concerned with human development needs, requiring the incorporation of poverty issue in HIPC initiatives (Befekadu, 2001). Unsustainable external debt is supposed to have been mainly responsible for causing major setbacks in development activities and the perpetuation of poverty traps.

According to traditional neoclassical models, at initial stages of economic development, the countries have limited capital stocks and investment opportunities; therefore capital mobility increases the economic growth (Chowdhury, 2001). As long as these borrowed resources are used for productive investment, the countries do not face the macroeconomic instability. Burnside (2000) has shown that under certain conditions external borrowing contributes positively to economic growth. Similarly, domestic savings and investment are also positively affected by external debt. It implies that foreign savings are helpful in balancing the domestic savings (Eaton, 1993). However, high level of accumulated debt has adverse implications for investment and economic growth. A broad rationalization of these effects is referred as "debt overhang" theory. It asserts that if there is a probability that country's future debt will be more than its repayment ability then anticipated costs of debt-servicing can depress the investment (Krugman, 1988; Karagol, 2002). Similarly, if a greater share of foreign capital is used to service the external debt, very little will remain available to finance investment and growth, this channel is known as the "crowding out" effect.

The review of the literature suggests that effects of high indebtedness on income inequality seem not well explored empirically. Therefore, there is dire need for a comprehensive study, exploring the links between public debt and its impacts on poor. The present study is an attempt to fill this gap in the existing literature.

The layout of the paper is as follow: after the introduction, section two deals with the literature review. Empirical model has been presented in section three while section four discusses the data and methodology of the study. Estimated results emerged from the present study have been discussed in section five and the last section concludes the study by giving some policy implications and suggestions for the future research on the subject.

II. Literature Review

There are only a few studies which have emphasized on the relationship between debt accumulation and poverty. However, this relationship is implicitly present in analyses of debt and economic growth and many studies have been conducted on external debt and economic growth nexuses.

According to Kruger (1987) external debt has played a positive and important role in economic development of the developing economies. Most of the studies e.g. Sachs (1990), Levy and Chowdhury (1993), Cunningham (1993), Fosu (1996, 1999), Cohen (1996), Chowdhury (2001), Lin and Sosin (2001) and Akram (2011) finds a negative relationship between external debt and economic growth. On the other hand, the studies based on the overlapping generation models suggest that gains and losses of the external debt are unequally distributed and most of the benefits of growth go to the future generations, while the costs are borne by the existing generation (Dellas and Galor; 1992).

In recent time concept of "Debt Laffer Curve" got popularity among the economists and various studies has estimated the optimal level of external debt. Smyth and Hsing (1995) estimated that 38.4 percent is the optimal debt to GDP ratio for USA. Siddiqui and Malik (2001) have also supported the existence of the nonlinear relationship between external debt and GDP growth. Pattillo (2002) finds that up to approximately 160% of export-to-debt level external debt is growth enhancing. Thereafter, it is growth reducing (debt overhang range). It also reveals that debt overhang mechanism works through the productivity along with the volume of investment. Later on, Pattillo (2004) also found that negative impacts of external debt on growth are transmitted strongly through total factor productivity (TFP) and investment (physical capital accumulation). However, impact of external debt on human capital accumulation is insignificant.

Sawada (1994) finds that HICs debt is more than their expected present value of future returns; therefore, they have to face debt overhang problem. However, Afxentiou and Serletis (1996), fails to find out a causal relationship between debt and GDP in a sample of 55 developing countries and concluded that debt overhang is rather an exaggeration. Mahdavi (2004) has analyzed the impacts of debt servicing on public expenditure composition and finds that debt burden adversely affects ''capital expenditure" and it invariably change the spending composition in favor of payments of interest on debt and displaces the share of subsidy and transfers and non-wage goods & services. Fosu (2007) also argued that expenditure on debt servicing may shift the public expenditure away from social sectors like health, education as well as from public investment, which severely affects growth.

Various authors (Pattillo; 2002, 2004) and Cohen (1993) are unable to find out empirical significance of the crowding out effect. However, Chowdhury (2004), Clements (2003), Elbadawi (1997) finds that both debt service obligations and debt burden have adversely affected economic performance and investment. Warner (1992), Karagol (2002) and Hansen (2002), estimated that investment and growth are negatively affected by debt servicing.

The hypothesis that exports and debt increase individual income inequality as described by the dependency theorists has been tested by Prechel (1985). The study finds out that exports enhance income inequality while higher debt does not have any significant impact. Moreover, the covariant analysis shows that in developing countries inequality is affected more by exports in comparison with developed countries.[1]

It is argued that debt can be used as an instrument to protect the benefits of the developed countries and to extract economic surplus from the poor countries (Hoogvelt, 1990). In this context, historical evidence is cited--- namely, that most of the outstanding debt of developing countries was originally contracted at low and fixed interest rates during 1970s. This debt was rescheduled in early 1980s---the era of floating (and rising) interest rates. This has added to the debt burden of these countries. The officially stated

[1]It is worth mentioning here that this result is not in line with the neo-classical trade theory (Heckscher-Ohlin version), which says that exports tend to reduce inequality by transferring resources from the capital-intensive import substitution industries to labour intensive export industries. This increases both the relative and absolute share of wages in total income---by the Stolper-Samuelson (1941) Theorem. This was also confirmed by many other studies including those by Kruger (1987) and Bhagwati (1978). For details, See Naqvi(1996).

aims of these policies have been to stimulate economic growth, stabilize domestic economies, and to enhance the country's ability to accumulate foreign exchange reserves required for foreign debt servicing. However, even by IMF/WB's own macroeconomic standards (growth, stability and foreign exchange earnings) these policies have been an absolute failure.

Loko et al (2003) concluded that poverty is not only affected by external debt's negative impacts on income growth and public investment but also through crowding out effects of external debt on the social spending. Government budgetary allocations on social safety nets, education, health, water and sanitation are curtailed by the high debt servicing.

From the review of literature, it can be broadly summarized that only a few studies are available on the relationship between debt and poverty. Keeping in view the above mentioned background, the proposed study intends to fill the gap by analyzing the impacts of public debt on poverty.

III. Empirical Model

The relationship between public debt and poverty reduction is implicitly present in the models linking external debt to economic growth. The reduced form equations will take the following forms.

$$gini_{it} = \alpha + \sum_{j=1}^{k} \delta x_{itj} + \sum_{m=1}^{p} \pi Debt_{itm} + \varepsilon_{it} \quad \ldots\ldots 1$$

Where $gini_{it}$ is log of GINI coefficient of i[th] country at t time, x_{itj} is a vector of control variables, x_{itm} is the vector of various public debt indicators, and ε_{it} is the classical error term.

IV. Data and Estimation Methodology

An empirical analysis has been made to find out the relationship between public debt and pro-poor growth by using panel data for the South Asian countries i.e. Bangladesh, India, Pakistan and Sri Lanka for the period of 1975-2010. Fixed Effect Model (FEM) has been applied for empirical analysis. However, since there is likelihood of endogenity in the panel data so Two Stage Least Square (2SLS) and generalized method of moments (GMM) estimation methodologies have also been applied to get robust results. The selection of valid instruments/moments is most difficult and tricky issue in 2SLS and GMM methodologies. There exists no rule of thumb in selection of instruments. However, Murray (2006) discusses various tricks that are very handy for the purpose. The present study has used the lagged values of independent variables as instruments.

Data used in the study are extracted from four different sources: World Development Indicators, UNU-WIDER world income inequality database version 2.0 (WIID 2.0), Global Poverty Monitoring Database and Measuring Income Inequality Database of World Bank. Every possible effort is made in this study to obtain the data with similar characteristics. But, still for few years data were missing, so the panel data

for equation 2 is unbalanced panel. A brief description of other variables used in the study along with their data sources are discussed in table 1 below.

Table 1: Data Sources

Sr.No.	Name of Variable	Data Source	Comment
1.	Per Capita GDP (Y)	WDI	Current GDP in US$/ Population
2	GINI Coefficient (gini)	WDI+WIID 2.0	GINI coefficient in percent form
3.	Investment (K)	WDI	Gross capital formation as percentage of GDP
4	External debt (ED_Y)	GDF	Public and publicly guaranteed external debt as percentage of GDP
5.	Debt Servicing (DS_X)	GDF	Debt servicing of Public and Publicly guaranteed external debt as percentage of Exports. Data for exports is taken from WDI
6.	Openness (op)	WDI	(Exports + Imports)/GDP*100
7.	Urbanization (ur)	WDI	
8.	Inflation (inf)	WDI	Consumer Price Index
9.	Domestic Debt (dd_y)	IFS	Domestic debt as percentage of GDP

V. Estimation Results

Equation 1 has been estimated wherein the GINI coefficient has been used as dependent variable. The results are presented in table 2. From the estimated results it has been found out that external debt as a percentage of GDP and debt servicing as percentage of exports do not have any significant relationship with GINI coefficient, which suggests that debt remained neutral with respect to its distributional effects. These finding are in accordance with Prechele (1985). Similarly, Blejer (1990) concluded that channels through which macroeconomic policies affect income inequality are quite complicated and impacts of individual variables may differ with the composition of aggregate policy packages. Policies that have by themselves, clear distributional effects can result in quite different outcomes when combined with other policies.

Domestic debt has a negative and significant impact on GINI coefficient suggesting that domestic debt reduces income inequality. Therefore, it can also be inferred that domestic debt not only stimulates economic growth but it also reduces the income inequality. Moreover, as most of the selected countries have used fiscal deficits to finance the development expenditure and for subsidizing the consumption of wage goods, this is likely to be helpful in reducing income inequality in these countries.

The results also indicate that per capita GDP has a negative and significant impact on GINI coefficient; Dollar (2003) and Page (2006) also supports that an increase in per capita GDP reduces the income inequality and is helpful for the poor. However, it is worthwhile to point out that benefits of economic growth depend on the degree of inequality, types of growth and there are both direct and indirect effects of per capita GDP growth on income inequality. An increase in per capita GDP gets some of poor out of poverty that leads towards reduction in income inequality directly. Similarly, higher growth rate of the GDP stimulates revenue generation, which should tend to raise the

volume of public investments and to bring the poor into economic mainstream. Both of these effects tend to decrease the income inequality.

Table 2: Estimated Results (Dependent variable: GINI Coefficient)

Name of Independent variable	FEM (OLS)	FEM (2SLS)	FEM (GMM)
Constant	5.18207 (12.07922)	2.96820 (7.31172)	3.04182 (10.82813)
YT	-0.30443* (-9.14125)	-0.06932* (-2.02984)	-0.09019* (-2.14172)
OP	0.26622* (6.33050)	0.23847* (2.39986)	0.26150* (6.50734)
ED_Y	-0.05390 (-1.19765)	-0.10375 (-1.16241)	-0.12183 (-0.87212)
DS_X	-0.03974 (-1.37268)	-0.01769 (-0.40112)	-0.02607 (-1.09237)
DD_Y	-0.00431 (-2.16167)	-0.05381 (-4.40425)	-0.05510 (-4.49382)
INF	0.00160 (0.13645)	0.01422 (1.47671)	0.01724 (1.40490)
UR	0.10568* (1.91222)	0.14218* (3.21260)	0.15208* (3.39136)
KT	0.01860 (0.36196)	0.02827 (0.43112)	0.02105 (1.27823)
R^2	0.69352	0.68785	0.61784
Adjusted R^2	0.66337	0.66538	0.59358
Durban Watson Statistic	1.97550	1.78170	2.15643
F-Statistic	23.00546	21.59035	…
P-value of F-statistic	0.00000	0.00000	…

Note: * and ** denotes significance at 5% and 10 % level respectively and values in parenthesis are the t statistic

Urbanization has a positive and significant relationship with GINI coefficient. It suggests that urbanization worsen the living standards of poor. These findings support the Harris-Todaro (1970) hypothesis that due to urbanization unemployment rate increases and health of the workers worsens. It results in reducing the workers' productivity, which directly curtails the income of the poor. The results also suggest that supportive steps should be taken to ameliorate the adverse impact of urbanization on the poor.

Openness also has significant and positive relationship with GINI coefficient. It supports the findings of Lundberg (1999) that openness contributes to increasing income inequality.[2] This finding also supports the viewpoint of anti-globalization point of view---which openness has contributed in increasing the inequalities between nations and within nations. Because openness enhances trade, FDI and other foreign capital inflows that are in general beneficial for economic growth, but these sectors are pro-rich. Hence openness can be helpful for economic growth but not for income inequality.

[2]For a comprehensive discussion for the effects of trade liberalization on economic growth and poverty see Naqvi (1996), Nafziger (2006).

The estimation results also show that inflation and Investment have insignificant relationship with GINI coefficient. It reveals that inflation and Investment remain neutral as to the distribution of income between the poor and the rich and that investment and inflation can be equally beneficial /harmful for poor as well as rich segments of the society.

VI. Conclusions and Policy Implications

The main finding that emerged from the present study is that public external debt does not have a significant relationship with GINI coefficient indicating that public external debt remains neutral for the distributional effects. The public external debt is as good/bad for poor as it is for rich segments of the society. However, domestic debt has a negative and significant relationship with GINI coefficient revealing that domestic debt can reduce income inequality if it is used for supporting the projects that increases growth of GDP.

The study also fails to support the hypothesis that debt servicing significantly reduces development expenditure, economic growth and enhances the poverty/income inequality. The point is that, although debt servicing becomes a hindrance to growth when it becomes too large in relation to the nation's paying capacity. However, it should be seen in relation to such factors as effective utilization of debt, corruption in the public sector projects, and preference of current expenditure over development expenditure etc.
For a comprehensive analysis of the impact of public external debt on income inequality, it seems appropriate that a micro-level study may be conducted. In such study, various foreign aid/loan funded development projects may be analyzed in the context of their impacts on the local community and poverty reduction efforts. Particularly impacts of the mega projects on the poverty reduction may be analyzed.

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