In Search of a Self-Reliant Poverty Reduction Policy for Bangladesh

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Abstract

This paper examines the question whether with a heavy burden of debt on its shoulder it is possible to embark on an effective and self-reliant programme of poverty alleviation for Bangladesh. This is done by looking into the dynamic debt burden of Bangladesh, comparing the debt service payments with poverty reduction funding and then confronting the question of ownership of the poverty reduction strategy, that is, whether it is internally or externally funded.

1. Introduction

Bangladesh had a total external debt outstanding of over 16 billion U.S. dollars in 2002 and paid nearly a billion dollar in debt service payments for this debt. Between 1978 and 2002, Bangladesh paid over 13.5 billion dollars, or nearly 95,000 crore taka, as debt service. With such heavy burden of debt on its shoulder is it possible to embark on an effective and self-reliant programme of poverty alleviation in our country? This paper examines this question by looking into the dynamic debt burden of Bangladesh, comparing the debt service payments with poverty reduction funding and then confronting the question of ownership of the poverty reduction strategy, that is, whether it is internally or externally funded. Since this paper is related to the Poverty Reduction Strategy, we also make some comments on the implementation of the programme.

The paper is organized as follows. Section 2 deals with external debt and debt-service payments of Bangladesh. The dynamic burden of debt is analysed and an estimate of burden is obtained in Section 3. Section 4 looks into the implementation of poverty reduction strategy. Section 5 examines poverty reduction strategy funding and debt burden. Section 6 deals with ownership of the PRS, while Section 7 contains the conclusion.

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2. External Debt and Debt Service of Bangladesh

Bangladesh is a heavily debt-ridden country. Data on various aspects of external debt of Bangladesh are given in Table 1. Total external debt of Bangladesh which stood at 3,083 million U.S. dollars in 1978, rose to 5,651 million after five years in 1983. This trend continued and external debt outstanding amounted to 10,692 million in 1988. After another five years in 1993, the amount stood at 14,650 million. Then it fell to 14,033 million in 1998. By the year 2002, the figure rose to 16,276 million dollars.

*Table 1 : External Debt and Debt Service of Bangladesh (1978-2002),
million U.S. dollars*

Year	Total debt	Debt service
1978	3,083	145.9
1979	3,282	237.2
1980	4,230	277.8
1981	4,663	226.5
1982	5,233	253.7
1983	5,651	217.4
1984	5,857	286.7
1985	6,870	355.2
1986	8,282	479.0
1987	10,149	546.8
1988	10,692	504.2
1989	11,118	522.5
1990	12,768	790.6
1991	13,482	629.8
1992	13,928	574.3
1993	14,650	567.8
1994	15,373	603.4
1995	16,767	811.7
1996	15,166	698.0
1997	15,025	704.6
1998	14,033	644.6
1999	14,843	781.4
2000	16,211	915.9
2001	15,074	838.8
2002	16,276	910.9

Source: World Bank, *World Development Indicators, 1999.*
         Government of Bangladesh*, Bangladesh Economic Review 2003.*

Debt service payment stood at 145.9 million U.S. dollars in 1978 and it rose to 910.1 million in 2002. This means that Bangladesh paid about Tk 52,267 million taka in 2002 as debt service. This is a huge amounts.

3. Dynamic Burden of Debt

Dynamic debt burden can be viewed as a burden, which is likely to prevail in the foreseeable future. For estimating dynamic burden, Domar's famous debt burden model is used here. We first describe the model and then use real data to estimate the dynamic burden for Bangladesh.

3.1 Domar's Burden of Debt Model

Government pays interest charges on its debt. If it is assumed that this amount is paid from tax revenue then that can constitute a burden on the public. According to Domar (1944), the burden of public debt should be measured by the ratio of the additional tax and national income. Domar argued that if income grew then an absolute increase in tax might not inflict any hardship on the public. What matters is an increase in the tax-income ratio. Domar's debt model is succinctly described below. [1] This part is

If total public debt outstanding is denoted by $D(t)$, debt lag by *D(t), GDP by Y(t),* *then*

$$D'(t) = \alpha Y(t) \qquad (0 < \alpha < 1) \qquad (1)$$

If the interest is assumed to be constant at rate *i,* then the interest induced tax $T(t)$ is proportional to the debt outstanding:

$$T(t) = iD(t) \qquad (2)$$

Domar analysed the burden of public debt under alternative scenarios of income growth. Of these, the case of income growing at constant relative rate is considered in this paper. This is because this leads to a bounded estimate of debt burden.

If income grows at a constant relative rate β, then the following equation holds:

$$Y'(t) = \beta Y(t) \qquad (0 < \beta < 1) \qquad (3)$$

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[1]   This part is based on an earlier work of one of the authors of this paper by Islam (2005). A more elaborate description of Domar's model is available in Chiang (1999).

The debt burden can now be written as follows:

$$B(t) = \frac{T(t)}{Y(t)} = i\frac{D(t)}{Y(t)}$$

To derive the debt burden, the time paths of *D(t)* and *Y(t)* should be found before.

One possible approach is to integrate (3) in order to get *Y(t)* and then to substitute this into (2) and solve the resulting first-order differential equation for *D(t)*. The problem can be treated as one of solving a second-order differential equation. By differentiating (2) with respect to *t* and utilizing (3) and (2) successively, the following equation can be obtained

$$D''(t) = \alpha Y'(t) = \alpha\beta Y(t) = \beta D'(t)$$

That is,

$$D''(t) - \beta D'(t) = 0 \tag{4}$$

The general solution for the above equation is:

$$D(t) = A_1 e^{\beta t} + A_2$$

To definitize this, the initial values of *D* and *Y* are denoted as $D(0) = D_0$ and $Y(0) = Y_0$. Setting t = 0 in the general solution, it is found that

$$D(0) = A_1 + A_2 = D_0 \tag{5}$$

By setting t = 0 in the derivative of the general solution, it is found that, $D(0) = A_1$. *Since equation (1) implies D (0) = αY(0) = αY_0, it follows that*

$$\beta A_1 = \alpha Y_0 \tag{6}$$

Now if equations (5) and (6) are simultaneously solved, then

$$A_1 = \frac{\alpha}{\beta}Y_0 \quad \text{and} \quad A_2 = D_0 - \frac{\alpha}{\beta}Y_0$$

So the definite solution of (4) is in the form below:

$$D(t) = \frac{\alpha}{\beta} \; Y_{0e}^{\beta t} \; + \; D_0 - \frac{\alpha}{\beta}Y_0$$

This depicts the time path of the public debt.

The other time path is easier to find. If the initial condition is taken into consideration, it can be derived from equation (3) that

$$Y(t) = Ae^t$$

or, $Y(t) = Y_0 e^t$

Now it is possible to write the debt burden function as follows:

$$B(t) = iD(t)/Y(t) = \{i(\alpha/\beta)Y0e^{\beta t} + iD0 + i(\alpha/\beta)Y0\}/Y0e^{\beta t}$$

What will happen to B(t) if government borrowings is to continue indefinitely at the indicated rate or what is the limit of B(t) as t becomes infinite can be evaluated with the help of the above equation. For this, each term on the right is multiplied by $e^{-\beta t}$, thereby transforming the burden function into the following:

$$B(t) = \{i(\alpha/\beta)Y0 + [iD0 - i(\alpha/\beta)Y0]e^{-\beta t}\}/Y0$$

Since $e^{-\beta t}$ 0 as t , the second term in the numerator will tend to zero. Therefore, it can be concluded that,

$$\lim_{t\to\infty} B(t) = \frac{i(\alpha/\beta)Y_0}{Y_0} = \frac{i\alpha}{\beta} \tag{7}$$

From the above equation, it is seen that, if income grows at a constant rate, the debt burden will not increase without bounds but will approach a finite limit, depending on the values of the parameters ,α, β and i.

3.2 An Estimate of Dynamic Debt Burden of Bangladesh[1]

In Domar's Dynamic Burden of Debt Model, equation (1) states that

$$D'(t) = \alpha Y(t) \qquad\qquad (0 < \alpha < 1)$$

Using the OLS method, the estimate of for Bangladesh is,

= 0.0139

Equation (2) states that if interest rate is a constant i so that the interest induced tax T(t) is proportional to the debt outstanding:

$$T(t) = iD(t)$$

Using OLS, the estimate of i for Bangladesh is,

$i = 0.1737$

Equation (3) states that if income grows at a constant relative rate, then the following equation holds:

$$Y'(t) = \beta Y(t) \qquad\qquad (0 < \beta < 1)$$

Using OLS, the estimate of for Bangladesh is,

= 0.0446

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[1] The estimates were obtained by Islam (2005).

The dynamic debt burden is given by the following relationship

$$\lim_{t \to \infty} B(t) = \frac{i(\alpha/\beta)Y_0}{Y_0} = \frac{i\alpha}{\beta}$$

Putting the estimated values of $,\alpha,\ \beta$ *and i*

$$\text{Dynamic debt burden} \quad = 0.0024 \,/\, 0.0446$$
$$= 5.4\%$$

This means that Bangladesh has to raise tax for repaying external debt to the tune of 5.4% of GDP. This estimate being dynamic and based on past values also implies that Bangladesh will have to live with this, or a rate close to it, in the foreseeable future.

4.   Assessing the Performance of PRSP in fiscal Year 2006

In Table 2, PRSP macroeconomic targets and actual attainments are presented. Overall balance remained lower that the PRSP target, while government failed to implement the ADP target by 0.73 per cent of GDP. Average inflation was also higher for the period as it reached 7.04 per cent in contrast to PRSP target of 6.5 per cent. Gross domestic investment (24.97%), total revenue (10.78%) and tax revenue (8.69%) all fell short of PRSP targets by 0.03 per cent, 0.22 per cent and 0.31 per cent of GDP respectively. Borrowing from the banking sector was 0.28

Table 2 : Measuring Budget Performance with PRSP Targets

Macroeconomic Indicators	PRSP	Actual	Deviation
Real GDP Growth (per cent)	6.50	6.70	0.20
CPI Inflation (average)	6.50	7.04	0.54
Gross domestic Investment (% of GDP)	25.00	24.97	-0.03
Total revenue	11.00	10.78	-0.22
Tax	9.00	8.69	-0.31
Non-tax	2.00	2.09	0.09
Total expenditure (% of GDP)	15.50	14.67	-0.83
Current expenditure (% of GDP)	8.60	8.90	0.30
ADP (% of GDP)	5.90	5.17	-0.73
Other expenditure	1.00	0.60	-0.40
Overall balance	-4.50	-3.89	0.61
Domestic financing	2.00	1.96	-0.04
Foreign financing	2.50	1.93	-0.75

Source: Centre for Policy Dialogue (2006).

per cent higher than the PRSP targets. Higher current expenditure and interest payment with respect to PRSP target (0.30 and 0.11 per cent, respectively) put pressure on the balance of payments.

Target was achieved in terms of GDP growth rate. Targets were achieved in various degrees in non-tax revenue, financing (net) of budget deficit and domestic financing. Targets were not achieved in case of such important indicators as gross domestic investment, CPI inflation, total revenue collection including tax revenue, total public expenditure including ADP. Overall assessment shows that while GDP growth surpassed the PRSP targets, most of the other indicators failed to achieve them (CPD, 2006).

5.   Poverty Reduction Strategy Funding and Debt Burden

We could not exactly determine the size of annual allocation the PRS. Bhuyan (2005) mentioned that in the FY06 budget, an allocation of 767 million dollars was made for targeted poverty reduction, social safety net, and employment generation programmes. This can be viewed as annual expenditure on the PRS. If we compare this amount with annual debt payment of nearly 950 million dollars, question definitely arises as to the justifiability of such a huge foreign aided programme. Will it not further raise our debt burden and make our poverty reduction effort self-defeating?

6.   Ownership of the PRS

It is necessary to know who funds this programme and whether this makes us even more indebted. If in the process of reducing our poverty we end up being more debt ridden, will not then the programme be self-defeating? That PRS was not only completely funded by the donors, but also used as means to attract foreign loan was eloquently stated by Sobhan (2004: 157):

"The PRSP was, however, identified as the basis around which both the WB and IMF, through its PRGF, would channel aid to Third World governments. The GoB therefore embarked on the process of preparing its PRSP on the clear understanding that this was a *sine qua non* for securing program loan from both the WB and the IMF. It was far from clear that the GoB or any other government would have autonomously prepared a PRSP if this was not connected to the promise of sizeable aid flows not just from the WB and IMF but other DPs. Thus, as the Five Year Plans, in vogue in the 1960s and 1970s, were seen as indispensable for laying claim to aid funds, the PRSPs have become the document of choice of the DPs around which their aid will be disbursed in the days ahead."

So far from conclusively reducing poverty, it appears to us that PRSP could make the country more debt ridden and eventually more dependent on the donors.

7.   Conclusion

So, we have failed in our search for a self-reliant poverty reduction policy and ended up with another grand programme based completely on foreign aid. With yearly debt service payment of around a billion dollar and total debt outstanding of around 17 billion, how justified is it to undertake a programme of poverty alleviation completely on foreign aid? Will it not accentuate debt service payment problem further, raise the already high level of total debt, and make us increasingly dependent on donors for our economic decision making?

Lest we be misunderstood and thought to be unsupportive of poverty alleviation programmes, we make it emphatically clear that not only do we support such policies but think that those should be an integral part of our economic agenda. Where we differ is that in order to be effective, a poverty alleviation programme ought to be self-reliant. Bangladesh's success in growth of the real sectors has been mostly the result of indigenous effort. If ever an indigenous poverty reduction policy is devised, not as grandiose as the present one fed by foreign aid but much smaller and based on our meager resources, that day we shall see real poverty alleviation, that day we shall have reasons to feel proud of.

References

Bhuyan, A. R. (2005), "Bangladesh Budget 2005-06: A Critical Appraisal", *Thoughts on Economics*,Vol. 15, No. 1 & 2, 29-50.

Centre for Policy Dialogue (2006), *An Analysis of the National Budget for FY2006-07*, Dhaka, Bangladesh.

Chiang, A.C. (1984), *Fundamental Methods of Mathematical Economics*, Tokyo: McGraw-Hill., Third Edition.

Domar, E.D. (1944), "The 'Burden of the Debt' and the National Income", *American Economic Review*, December, 798-827.

Government of Bangladesh (2003), *Bangladesh Economic Review 2003,* Ministry of Finance, Dhaka.

Government of Bangladesh (2005), *Unlocking the Potential: National Strategy for Accelerated Poverty Reduction,* Planning Commission, Dhaka.

Islam, Q.B.T. (2005), "An Empirical Study on External Debt Burden of Bangladesh", *Thoughts on Economics,* Vol. 15, No. 1 & 2, January-June, 21-28.

Sobhan, R. (2004), "The Political Economy of Aid", in *Revisiting Foreign Aid,* University Press Limited, Dhaka.

World Bank (1999), *World Development Indicators 1999*, Washington., D.C.