Economic Growth and Income Inequality in Bangladesh

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Abstract

This paper identifies the relationship between income inequality and economic growth in Bangladesh for 1984-2000 by analyzing the measures of income inequality, Lorenz curves and Gini coefficients. The standard view of the relationship between growth and inequality is that broad based economic growth is poverty reducing. But, growth may also be associated with rising inequality. This point was first made by Kuznets who suggested the hypothesis that the distribution of income initially worsens in the course of economic growth and then improves. Although economists have for a long time investigated the trade-off relations between growth and inequality, yet no consistent and systematic relationship can be referred between income distribution and economic growth. This paper reveals that Gini Co-efficient increased from 0.360 to 0.472 over the sixteen-year period, 1984 to 2000 in Bangladesh, whereas, GDP growth rate increased from 4.3 to 5.9 percent over the same period. It appears that in Bangladesh both GDP growth and income inequality are taking place and we are yet to reach the second half of the Kuznets curve when inequality declines with GDP growth.

1. Introduction

In both developing and developed countries the pursuit of economic growth along traditional GNP– maximizing lines as the major objective of economic activity was widely heard. This exclusive principal indicator of development and economic well-being has been rising significantly throughout the world. But the term inequality misleads or confuses the whole success story of achieving

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economic growth as about half of the world population is fighting against hunger and poverty.

The idea that relentless pursuit of growth is the principal economic objective of society is now in question. As a result, both in rich and poor countries, concerns for the problems of poverty and income inequality became the major theme of the 1970s. In the developed counties, the major emphasis seemed to shift toward the concern for the quality of life and in the poor countries the main concern focused on the question of growth verses income distribution. Obviously development requires a higher GNP and faster growth rate, but the basic issue is not only how to make GNP grow, but also who would make it grow – the few or the many. If it were the rich, they would likely appropriate it, and poverty and inequality would continue to grow worse. But if it were generated by the many, then the fruits of economic growth would be shared more evenly. Realizing this pertinent issue Bangladesh government is taking the policy of promoting pro-poor economic growth for increasing income and employment of the poor to continue the anti-poverty strategy under Poverty Reduction Strategy Paper (PRSP).

This paper seeks to find the relationship between growth and income inequality. It takes no explicit stance on causality between inequality and growth,but addresses a simpler question: Does the pursuit of economic growth tend to improve, worsen, or have no necessary effect on, the distribution of income in Bangladesh? Or when growth occurs, how do the poor fare?

The major objectives of the study are to examine the relationship between economic growth and income inequality and to reexamine the Kuznets hypothesis in the case of Bangladesh. Specifically the paper has three objectives. First: to observe whether income inequality at the beginning of the period significantly affected per capita growth over the years, 1984 to 2000. Secondly: to look at whether the growth affected the evolution of inequality over the same period. Thirdly: based on the findings of the first two objectives, to obtain a Kuznets relationship in the case of Bangladesh.

Methodologically, this paper uses simple arithmetic and graphics, instead of attempting an econometric analysis for studying the questions of inequality and growth. We use two convenient and well-known tools for graphing and measuring income inequality, Lorenz curves and Gini coefficients to analyze the relationship between growth and inequality. In this study secondary sources of data are used which have been collected mainly from the successive issues of Bangladesh Economic Review of the Government of Bangladesh and Household Income and

Expenditure Survery (HIES), Bangladesh Bureau of Statistics. Gini Index is calculated with the Brown Formula:

$$G = |1 - \sum_{k=1}^{n} (X_k - X_{k-1})(Y_k + Y_{k-1})|$$

where

G is the Gini coefficient

X_k is the cumulated proportion of the population variable, for k = 0,...,n, with $X_0 = 0$, $X_n = 1$

Y_k is the cumulated proportion of the income variable, for k = 0,...,n, with $Y_0 = 0$, $Y_n = 1$

The paper is organised as follows. It is divided into four sections including the introduction. Section II reviews some of the earlier studies regarding the relationship between growth and inequality. Estimation and Data issues are discussed in Section III. Section IV analyses the results and sketches a picture of what happened to growth and inequality in Bangladesh between 1984 and 2000. It also illustrates the possible reasons behind the relations between inequality and growth. Section V concludes the study.

2. Literature review

The subject of income inequality and its growth over time is widely discussed but has rarely been researched in Bangladesh. We hear a lot about the growing income inequality but there is little evidence to substantiate it. Professor Khan talked on: Accelerating Growth and Poverty Reduction in Bangladesh in a seminar organised by the World Bank in June 2003.The paper by Khan reports that the annual increase in per capita GDP doubled, from about 1.5 per cent to about 3 per cent, between the late 1970s and the late 1990s. In the decade since the mid 1980s the poverty-reduction effect of growth became much weaker. What follows from Khan's observations is that per capita income in rural areas increased with modest positive impact on poverty reduction. But the serious concerns emerge on the growing inequality of income.

Kuznets (1955) had asked if income inequality rose or fell in the course of economic growth. He documented that both occurred: looking across countries, from poorest to richest, within country in the early stages of economic growth the distribution of income will tend to worsen, while at later stages it will improve.

This hypothesis has come to be known as the "inverted U" Kuznets curve. The possible explanations about why inequality seemed first to worsen during the early stage of economic growth might be the nature of structural change. At the earlier stage, growth may be concentrated in the industrial sector and consequently the income gap between the modern and the traditional sector may widen quickly.

Osmani presented an estimate based on surveys conducted between 1963-64 and 1973-74. The contributions of khan (1986) and Rahman (1988) were based on surveys upto the early 1980s. Rahman and Huda (1992) considered inequality between occupational groups using the 1983-84 HES.

Alesina and Rodrik (1994), Perotti (1996), and Persson and Tabellini (1994) conclude that inequality and growth are negatively related, while Barro (2000), Forbes (2000), and Li and Zou (1998) report a positive or varying relation between the two. Barro (2000), Ravallion (2001), Sarel, (1997), Chang and Ram (2000) and Li et al. (1998) investigate how income equality evolves over time and the impact of growth on income inequality. They generally fail to find any systematic pattern of change in income distribution during recent decades or even any systematic link from fast growth to increasing inequality. Some recent empirical evidence has tended to confirm the negative impact of inequality on growth. Others have found that the level of initial income inequality is not a robust explanatory factor of growth.

Deininger and Squire (1998) used regression analysis and more elaborate data, in contrast to the minimalist, arithmetic approach of this paper. They concluded: The poor benefit more from increasing aggregate growth by a range of factors, than from reducing inequality through redistribution. Dollar and Kraay (2001) studied directly average incomes of the poorest fifth of the population, across many different economies, and noted that those incomes rose proportionally with overall average incomes, for a wide range of factors generating economic growth. They concluded that the poor benefit, whatever drives aggregate economic growth. Similarly, Ravallion and Chen (1997) found in survey data that changes in inequality were orthogonal to changes in average living standards.

3. Measuring Income Inequality in Bangladesh

The Lorenz Curve

One of the most elegant devices for understanding income inequality is the Lorenz curve. Conrad Lorenz, an American statistician, devised this convenient graphical

tool in 1912. The Lorenz curve is used in economics to describe inequality in wealth or income. Lorenz curves place the cumulative percentage of income received on the vertical axis, and the cumulative percentage of population on the horizontal axis. The Lorenz curve diagram, then, is a square, and if all individuals are the same size, the Lorenz curve is a straight diagonal line, called the line of equality since if the Lorenz curve were coincident with this line, income could be described as being equitably distributed. If there is any inequality in size, then the Lorenz curve falls below the line of equality. It is also convenient to scale the graph in decimal units, so that the sides of the square are exactly one unit. If the Lorenz curve diagram is scaled in decimal terms, area A + B is always equal to 0.5. Thus, it remains only to estimate area A. We find it easier to take advantage of the fact that, A = 0.5 – B, that is, we estimate area B first, and then calculate area A from that result. The total amount of inequality can be summarized by the Gini coefficient (also called the Gini ratio).

The Gini Coefficient

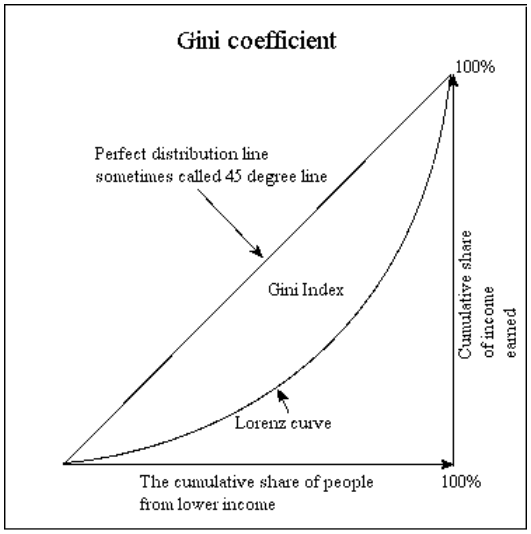
At this point, the Gini coefficient, which is simply a quantification of the Lorenz curve, can be introduced. Gini coefficient is simple and handy summary measure of Lorenz curves. It is the ratio of the area between the line of equality and the Lorenz curve and the area beneath the line of equality. It is often used to measure income inequality. It is a number between 0 and 1, where 0 corresponds to perfect equality (e.g. everyone has the same income) and 1 corresponds to perfect inequality (e.g. one person has all the income, and everyone else has zero income). It was developed by the Italian statistician Corrado Gini and published in his 1912 paper "Variabilità e mutabilità".

The Gini coefficient is defined as a ratio of the areas on the Lorenz curve diagram in Figure 1. If the area between the line of perfect equality and Lorenz curve is A, and the area under the Lorenz curve is B, then the Gini coefficient is given by the following:

$$\text{Gini coefficient} = A/(A + B).$$

By considering the above definition and a graph such as Figure 1 a more "bowed out" Lorenz curve results in a larger Gini coefficient since area A becomes relatively larger. That is, large Gini coefficients imply greater degrees of income inequality.

Figure 1 : Graphical representation of the Gini coefficient



4. Data Analysis

Table 1 contains the information on the percentages of households in various deciles income shares from 1983-84 to 2000 at the national level in Bangladesh. From the Table it can be found that the relative share of income of the percentage

Table 1 : Decile partitioning of shares of income accruing to percentage of households in national level.

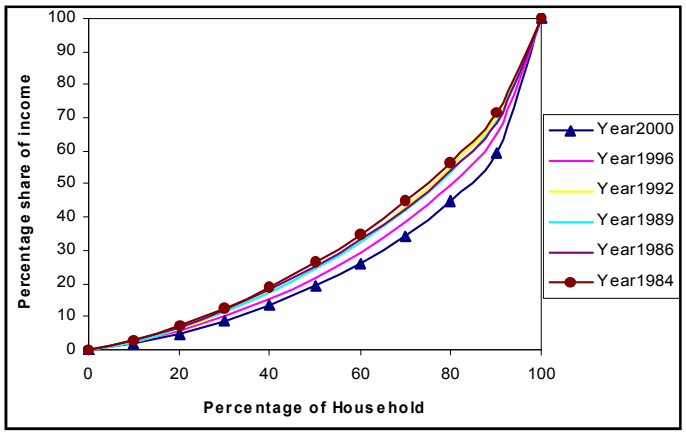
Deciles of households	2000	1995-96	1991-92	1988-89	1985-86	1983-84
Lowest 5%	0.67	0.88	1.03	1.06	1.18	1.17
Decile-1	1.84	2.24	2.58	2.64	2.81	2.89
Decile-2	3.13	3.47	3.94	4.00	4.18	4.31
Decile-3	3.96	4.46	4.95	4.96	5.13	5.39
Decile-4	4.77	5.37	5.94	5.93	6.05	6.36
Decile-5	5.68	6.35	7.08	6.95	6.98	7.38
Decile-6	6.84	7.53	8.45	8.10	8.09	8.56
Decile-7	8.32	9.15	10.09	9.61	9.48	9.99
Decile-8	10.40	11.35	12.10	11.62	11.25	11.74
Decile-9	14.30	15.4	15.64	15.2	14.58	15.08
Decile-10	40.72	34.68	29.23	31	31.46	28.30
Highest5%	30.66	23.62	18.85	20.51	21.35	18.30
Gini Index	0.472	0.432	0.388	0.379	0.370	0.360

Source: The Household Expenditure Survey 1991–92 and 2000, BBS

of households with lowest 5 percent declined over the years, from 1.17 percent in 1983-84 to 0.67 percent in 2000. On the other hand, the relative share of income of the percentage of households with highest 5 percent increased during the periods, from 18.30 percent in 1983-84 to 30.66 percent in 2000, which clearly indicates that inequality in income distribution has been rising over the periods. Analysis of data also reveals that between 1995-96 and 2000, income attributable to the poorest 10 percent of the population declined further from 2.24 percent to 1.84 percent. Conversely, the control on the income by the richest 10 percent of the population increased from 34.68 percent to 40.72 percent. Further, up to deciles 4 income bracket the households' share of income decreased from 18.95 percent in 1983-84 to 13.70 percent in 2000 whereas the last 2 deciles' i.e. 20 percent households' income share increased from 43.38 percent in 1983-84 to 55.02 in 2000.

It can also be calculated that the top 10 percent of family receives almost 32 percent of the total income received in an average over the period, and the richest 20 percent receive around 47 percent of income. We apply the Brown formula given above to calculate the value of Gini coefficient. Gini coefficients over the 1984 –2000 period are presented in Table 1. We note that it increased fairly slowly in 1984, 1986, 1989 and 1992, but it increase more rapidly in 1996 and 2000 than before. Discussing Gini coefficients and changes in the income distribution over the period it is interesting to note that the Gini coefficient from 1984 to 2000 only increased by 31 percent.

Figure 2 : Lorenz curves for the period 1984 to 2000.



The Lorenz curves for various family income groups over the period 1984 to 2000 are shown in Figure 2. Here we note that as time goes by Lorenz curves are going far away from the perfect equality line over the period. It is easy to see that the further the Lorenz curve bows from the line of equality, the more unequally income is distributed. It can also be seen that the 2000 curve is below the 1996 curve, and the 1996 curve is below all previous years' curves, reflecting an increase in income inequality. Because the distribution of Income changed gradually between 1984 and 2000, these curves provide a convenient way to look about the increasing trends of income inequality and also say about the distribution over the period of time in Bangladesh.

Now it is time to see what happens to growth. Table 2 exhibits the per capita GDP and GDP growth for some specific years during the period 1984 to 2000,

Table 2 : Per capita GDP and Gini coefficient and their growth rates

Year	Per Capita GDP at current market price	Gini co-efficient	Growth rate of GDP at constant price	Growth rate of Gini coefficient (%)
1984	5063.5	0.360	-	-
1986	5176.6	0.370	4.3	2.78
1989	5282	0.379	2.5	2.43
1992	10551	0.388	4.2	2.37
1996	13768	0.432	4.6	11.34
2000	18511	0.472	5.9	9.26

Sources: World Bank, World Development Indicators, 1998 & Government of Bangladesh, Bangladesh Economic Review, 2003 and 2004 editions.

particularly for the years when income distribution data are available. As we observe, there is, by and large, a consistency among the per capita GDP at different years and also a little bit upward trend of GDP growth during the period.

The Table above also shows the Gini coefficient and its growth for the same selected years during the period 1984 to 2000 as income distributions among different family groups are not available for every year. Similarly we observe the increasing values of Gini coefficient and a little bit of its fluctuating growth in the different years over the period.

Figure 3 : Comparison of GDP growth and Gini coefficients' growth

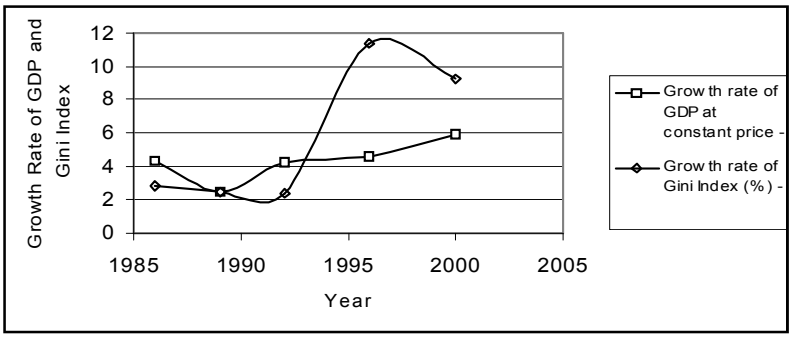
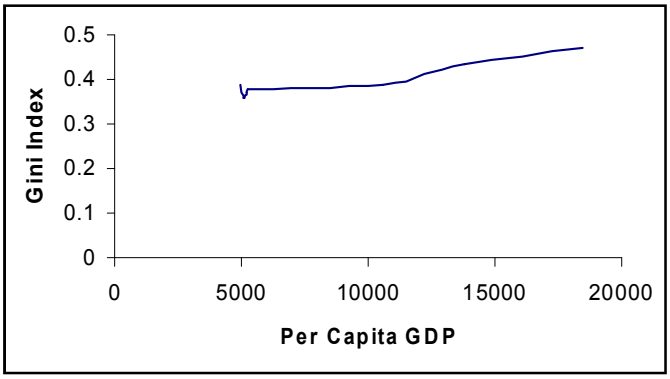


Figure 3 shows the comparative growth pattern of GDP and Gini coefficient. Growth rate is increasing steadily whereas, at the initial stage Gini coefficient rising at a decreasing rate until 1992 and then drastically rising in an increasing rate from 1992 to 1996 and finally it is declining. We can observe that income inequality increases more rapidly than that of income.

Figure 4 : Kuznets curve in case of Bangladesh



Diagrammatically, the Kuznets curve fitted by the growth and inequality data for 1984-2000 of Bangladesh shown in figure 4 can be illustrated as follows: In the diagram, the curve is not consistent with the 'Inverted U' Kuznets curve which reflects that at the earlier stage of development income inequality will tend to worsen, while at later stages of development inequality improves.

In the case of Bangladesh it is evident from the growth and inequality data that economic growth does not tend to improve the distribution of income over the

period but worsens it. The country is still in the left wing of the Kuznets curve where both growth and inequality are taking place together. However, it is obvious from the paper that at the initial stage of development in Bangladesh, inequality was taking care of economic growth but the growth is not doing the same for the distribution. As a result, inequality is getting worse in spite of the increase in income.

The upward trend of income inequality can roughly be described as the fact that the economy is growing but such growth is limited in specific sector particularly in modern sector. This sector is conducted by a more or less fixed number of rich people keeping wages constant in the traditional sector that causes the Lorenze curve to shift downward and further from the line of equality, as shown in Figure 2.

In the modern economy especially in developing countries, government has the extra responsibilities to ensure a reasonable distribution of income through different social welfare and development policies targeting the poor. As it is established, macroeconomic instability and lack of sufficient public investment in physical and social infrastructure are widely recognized as important reasons for inequality. In addition, because the rural poor's links to the economy vary considerably, public policy should focus on issues of their access to land and credit, education and health care, support services, and right to food through well-designed public works programs and other transfer mechanisms.

It is well recognized that the income tax rates, the minimum wage laws, and all the major government welfare and transfer programs can improve income distribution. But the problems we find in Bangladesh are: firstly, after adopting structural adjustment policies (SAP) the country has relaxed its trade barriers by reducing import duties which resulted in the loss of a huge amount of revenues from import duty. Secondly, the tax collection systems in the country is not transparent and corrupt. Rich people, as a result, frequently hide their income and evade taxes. Thirdly, foreign aid has recently declined and is subject to strong donor conditionalities.. So, the availability of funds allocated for social welfare has not been increasing sufficiently. Finally and more importantly, lack of accountability and transparency in public sector, political instability, corrupt politicians, vindictive politics and bureaucratic complexities are the main hurdles on the way of reducing inequality in Bangladesh. In addition, high concentration of land ownership and asymmetrical tenancy arrangements, large and rapidly growing families with high dependency ratios, rural-urban wage gap, and internal and external shocks stemming from natural factors and changes in the international politics and economy are some other noticeable obstacles in the way of improving inequality.

5. Conclusion

This paper has applied a simple arithmetic approach to analyze growth and inequality of incomes in Bangladesh over the period 1984-2000. A positive relation is observed between the income inequality and GDP growth i.e. in spite of growing GDP, income inequality is large and increasing in Bangladesh. Bangladesh has experienced relatively high rates of economic growth in the recent years but it brought little benefits to the poor.

The lesson drived is that exclusive reliance on economic growth to reduce the extent of absolute poverty in developing countries would probably be insufficient. The possibilities that inequality causes economic growth positively are empirically tenable for Bangladesh. But even as growth occurs, the poor might be disadvantaged anyway, because inequality has risen over the period. So, it can be concluded from the finding of the paper that only under inconceivably high increases in inequality, economic growth would not benefit the poor.

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