

Pro-poor Growth: The Distributional Effects of Economic Growth in Bangladesh

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Abstract

The paper analyses the relationship among poverty, inequality and economic growth and treats the growth as a remedy measure of poverty reduction in Bangladesh. This discusses distributional pattern of growth, definition of pro-poor growth and growth incidence curve (GIC) as a measure of pro-poor growth. By using the survey data (HIES, 1995, 2000 and 2010) this study explains the nature of incidence of growth for Bangladesh, based on anonymity axiom. This paper reveals that over last two decades the growth incidence curve was regressive and weak absolute pro-poor in nature for Bangladesh. Policy recommendation suggests that there is scope for further study to explain the non-anonymous GIC for Bangladesh.

Keywords: Growth incidence curve (GIC), inequality, Bangladesh.

JEL Classification: D63, E24, I32, O15, O40.

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INTRODUCTION

The debate on the distributional pattern of growth is pro-poor or not, has become an important issue in the recent past. With a view to assess this, it is needed to shed light on the definition and the measurement of pro-poor growth. A rule of thumb explains that economic growth fosters access to share of resources. However, the extent is not established and some countries show a reversal pattern. The focus of this paper is to see, whether the growth in Bangladesh is pro-poor or not, what policies should be taken for reducing poverty through economic growth. For the alleviation of poverty, we need to know about poverty and also about who are the poor.

The measurement of poverty is difficult and far from uncontroversial (Stiglitz, 2013). Most of the countries use their own methods which sometimes referred as the "national methods" and these are very country specific. The definition of poverty based on daily necessities are subjective and depends on how the country defines this. The individuals who fail to meet their expectations are said to be in poverty. Even though a first world developed country (the United States), the numbers are substantial. Moreover, the fraction of poor people showing an increasing trend (13.5% in 2015 and 14.5% in 2016) in the United States. Although, there is a consensus, internationally, of 1.25 per day for a people to identify as a poor but that is not followed when countries measure poor people.

Absolute and relative methods tell us about the people who are in below the poverty line.² In the absolute measurement of poverty, people are considered to be poor who fail to meet a fixed income or a basket of good. In other words, the growth of a country is pro-poor, in absolute measurement, whenever the income of the poor people is increasing. Contrary to the absolute measurement, in the relative measurement, growth is said to be pro-poor if the income of the poor increases relative to the rich people. Considering both measurement aspects, development economists rely more on the relative measurement as this addresses the inequality issue. Ensuring equality in the society is one of the prime important policies for most of the economies. Many countries, like Bangladesh, use two types of measurement e.g., upper poverty line and lower poverty line. Lower poverty line addresses the poor people who are in extreme poverty. Government sometime takes social safety net programs to make an upliftment of those poor people who are in extreme poverty.

Alleviation of poverty as well as to reduce inequality is one of the most important goals in developing countries. In many instances, horizontal and vertical aspects of inequality become important for policy formulation perspective. Horizontal inequality refers to those people who have the same initial background. May be inequality has taken place for many other reasons to them, e.g., lack of motivation to work. On the other hand, vertical inequality refers to the inequality where people have diverse background and may possess

2. To sum up, we can conclude on two definitions of pro-poor growth: (i) Absolute definition: The "pro-poor growth" is growth, which reduces poverty (Ravallion and Chen, 2003). (ii) Relative definition: The growth is pro-poor if its rate is higher for the poor than the non-poor; roughly speaking, if inequality falls (Kakwani, 2004). That means economic growth not only reduces poverty but also reduces income inequality. According to the International Poverty Centre, the pro-poor growth is relative, which reduces inequality.

various levels of endowments. In most of the developing countries, poor people have the characteristics of vertical inequality. Addressing policies from government to reduce poverty focus on the vertical inequality in many instances. Many of the policies are short term and long term in nature. In short term policies, government try to support poor people temporarily may be offering some safety net programs. On the other hand, long term programs are effective where government offers long term job opportunities and make a structural change in the economy and within sectors. Long term programs are financially more expensive than short term programs.

The sustained rate of GDP growth can play a vital role to eradicate poverty. The growth, that reduces poverty, can be termed as pro-poor growth, which is the remedy measure of those problems. However, after the post Millennium Development Goals (MDGs) era, now new goals have set to put forward the issue of reduced poverty. In the Sustainable Development Goals (SDGs),³ the goal of poverty reduction is to reduce poverty in any form. This includes poverty measured internationally (\$1.25) and country's national measurement definition of poverty as well.

Pro-poor growth refers to that economic growth which benefits the poor people in the economy, meaning that, the growth that reduces poverty and income inequality. United Nations (2000) defines pro-poor growth as the growth structure that leads to "significant reductions in poverty." Ravillion and Chen (2003) define pro-poor growth as "the growth that reduces poverty." According to the World Bank, the growth is said to be pro-poor when the increase in gross domestic product reduces poverty (whatever small the reduction is). On the basis of real world, this definition was criticized. In reality, some degree of poverty reduction is associated with the economic growth, with an exception, when inequality is stronger enough to offset the growth effect. Ravillion's way of defining growth as pro-poor is somewhat a narrow definition in the sense of addressing only the poor people and leaving the issue of inequality beyond the board. For many developing countries, like Bangladesh reduction in poverty is not only the concern of the country. To reduce the income gap between the rich and the poor is also a concern for policymakers and government. Some people may argue this aspect as socialist concern but that idea supports the ideology of the constitution of many developing countries. In summary, these developing countries try to address poverty and inequality at the same time.

However, the United Nations Development Program (UNDP) only regards growth as pro-poor if the poor are benefited proportionately more than the non-poor (Pasha and Palanivel, 2004). Kakwani et al. (2004) also defines pro-poor growth as, "the benefits of growth goes to the poor more than the non-poor," which means the income of the poor people increases more than that of the rich. Despite an absence of "poor biased" growth, countries may have reduced poverty substantially (Osmani, 2005). According to his

3. Sustainable Development Goals (SDGs) are the new proposed goals after the post MDG's and set with a target period by 2030 with UN.

argument, empirically many countries have followed a faster growth path, with reduced poverty, in absence of pro-poor growth. Now, the concern is how economists and policymakers are defining growth as pro-poor. The key feature of the definition of pro-poor growth is to concern about growth and the distribution of growth, which is ex-post distribution.

The proposed research explores distributional impact of growth in Bangladesh. In a view to observe the share of the growth that goes to the low income poor people, the current research tries to discuss the poverty and inequality issues and more specifically the growth incidence curve (GIC) as the measure of propoor growth. Concurrently, the current research tries to focus on some new ideas in this field of research and hence the anonymous versus non-anonymous GIC and opportunity growth incidence curve (OGIC) in Bangladesh. Concerning the growth inequality nexus, the question arise whether growth raises inequality or inequality causes growth? It tries to know, is the growth in Bangladesh urban or rural based?

The rest of the paper is organized as follows: the following section looks at the theoretical mechanisms by which economic growth increases inequality, to some extent and provides a survey of the literature. Next section describes the empirical illustration for Bangladesh, while later section explains data and methodology. The subsequent section analyses the results in case of Bangladesh and last section details the conclusion and policy implications.

Literature Review

Academic literature posits bi-directional causality between growth and inequality. In early twentieth century, economists believed that the causal relationship between these two variables is from growth to inequality. However, after the development of endogenous growth theories in 1990s, economists argued that there is a reverse causality from inequality to growth. It is well mentioned that the direction of causation among growth, income distribution and poverty is still very unclear (Bigsten, 2003).

Kuznets (1955) "inverted-U" hypothesis depicts a causal relationship from growth to inequality and summarizes that at early stage of development, inequality tends to be increasing due to maintain persistent growth and will make a reverse relation from achieving more growth. Several cross-sectional studies at early days found strong alignment with the Kuznet's hypothesis of worsening inequality before it's getting better (Adelman and Morris, 1973; Paukert, 1973; Ahluwalia, 1976; Robinson, 1976). These results were challenged by Anand and Kanbur (1993a and 1993b), where they used the same data for their regression analysis. Fields (2001) come up with a conclusion, using more consistent data, that there was no evidence for the Kuznet's curve from cross-sectional analysis. More recent study by Palma (2011) noted that inverted-U curve has disappeared as income has been increasing at both ends of the income scale across countries. Several other researchers, working with panel data, come up with a consensus

that inequality does not show an increasing trend at the early stage of development (Deninger and Squire, 1998; Savvides and Stengos, 2000; Barro, 2000, 2008). Ravallion (2001) made a general conclusion that there seems to have no systematic relation between growth and inequality.

According to social scientist, inequality may affect growth through a number of channels — both positively and negatively. Savings channel has a positive relationship between inequality and growth. Rich people have higher marginal propensity to save than poor people, in general. Bangladesh, like other developing countries, has a higher savings rate over the years. In fact, the savings rate is increasing compared to investment — after FY2005⁴ the savings rate is increasing, as a result of that growth gets a faster pace through investment. During the last fiscal year FY2017, national savings rate was 29.6 percent of GDP and total investment, including public and private was 30.5 percent. These increasing national savings leads to another round increment of inequality and eventually leads to higher growth. Among other channels - the imperfect credit market channel, the fiscal policy channel and the socioeconomic instability channel are notable (Voitchovsky, 2009). Fiscal policy channel, by the direct intervention of government, raise a negative relationship between inequality and growth (Alesina and Rodrik, 1994; Persson and Tabellini, 1994).

The relationship between inequality and growth is determined by the specification and characteristics of the country or region rather than universal pattern (Neves & Silva, 2014). Among the developing countries there are various specifications in terms of peoples' consumption and savings nature. They also conclude that in the developing countries, the negative effect of inequality on growth perhaps more dominant. Page (1994) asserts that technological transfers, worker mobility, trade links and political peer pressure may be important factors in regional development and this happened in Asia in the 1980s. Kraay (2004) mentions that there are three potential sources of pro-poor growth: "(0 a high rate of growth of average incomes, (b) a high sensitivity of poverty (poverty elasticity) to growth in average incomes, and (c) a poverty reducing pattern of growth in relative incomes."

Some Asian economies developed through their productivity of labor. Bangladesh's sustainable growth rate is no exception. The economy has the opportunity to achieve close to double digit growth through productivity growth. Growth in 1980s came almost entirely from employment growth, with a negligible amount coming from productivity growth. In contrast to the employment growth, growth in 1990s came more than half of the GDP growth from productivity growth (Osmani, 2015). Another factor that leads to a positive relation between growth and inequality in Bangladesh is the overseas remittances. Currently, Bangladesh is in the top ten remittance recipient countries. A recent study by Osmani and Sen (2011) also argue the influence of remittances to enhance inequality due to an increment of non-farm income. Considering the socioeconomic context of Bangladesh, the country should encourage remittance flow and also encourage the remitted

4. FY refers to the fiscal year for Bangladesh and it starts on 1st July.

money to use in productive sectors. Begum and Sutradhar (2012) found that there is an inflationary impact for higher remittance income.

To reduce inequality, distributional mechanisms are particularly important. However, there are resource constraints in most of the developing countries. In addition to that, the extent of reduction in inequality is not well defined. The study by Osmani (2015b), figured out that with social protection, the extreme poverty in 2010 was 19.9 percent and in absence of these programs the number would have been 21.4 percent.⁵ Klasen et. al. (2007) suggested the better off strategy to achieve the pro-poor growth through ex-post pro-poor redistribution of the benefits from growth through tax and transfer system. However, these strategies of tax and transfer system are applicable in developed countries and hard to follow for developing countries. Social protection directly reduces poverty and helps to make growth more pro-poor (OECD, 2010).

Education attainment plays an important role for future earnings of an individual. After controlling other factors, Indonesian economy shows that around 40% of inequality in total expenditure in Indonesia was due to educational characteristics (Silva and Sumarto, 2014). During 2002 and 2012, the benefit of growth was extracted by the people who are at the top of the expenditure distribution and conversely, poor people get little benefit of economic growth. Dhongde and Silber (2015) analyze the distributional change and pro-poor growth in terms of income, education and health. On the basis of non-anonymous and anonymous analysis, using the state-wide Indian data on literacy and infant survival levels in 2001 and 2011 they found difference in results for various states. The experience of Pakistan is not an exception of the disparity. Pro-poor analysis based on 2001 to 2012 shows that growth at urban level is found pro-poor for all poverty measures in relative term (Ali et al., 2017). Other than income, education and health, Klasen and Reimers (2017) explained the importance of agricultural productivity as a measure of poverty reduction for developing countries. Using household survey data for Rwanda, they find that poor peoples in Rwanda were benefited disproportionately from land and labor productivity growth.

Ferreira (2010) investigates various growth patterns on poverty reduction and also distributional changes for the panel or single cross-section cross country analysis. He found that growth is good for reducing poverty (which is pro-poor) when it improves the area where poor people live and work. However, his study possess a lack of dynamic analysis as he did a cross section analysis based on only two time periods. Dynamics of households and individual income mobility, in many cases, provides a good idea of the distributional impact of growth. This is because, the literature is based on anonymity axiom for cross section data. The distributional changes and GIC can also be valid for panel data analysis.

Growth Incidence Curve (GIC), measures the quantile-specific rate of economic growth in a given period of time (Ravallion and Chen, 2003; Son, 2004), and the cumulative

5. The Government of Bangladesh run about 93 programs as Social Safety Net Programs (SSNPs), which accounts 12.3 percent in national budget of FY2014 and 2.3% of GDP in FY2014.

representation of GIC gives one of the tools of measuring pro-poor growth. Using the concept of GIC, there are several proposals for the measurement of pro-poor growth (Kraay, 2006 and Pernia, 2003). The pro-poor growth can be achieved by the interactions among growth, inequality, and poverty reduction (Bourguignon, 2004).

Literatures which did not take into account the benefits gained from the growth are based on anonymity axiom, were subject to be criticised for last few years. They made comparison between the income group for first decile in first time period and that group in the second time period. But, the individuals might not be the same for these two time periods in the same decile. They could not capture the mobility of individual from one income group to another group for two different time periods. To see if the economic condition of initially poorest individuals has been changed or not, a good number of research works have been done which consider the non-anonymity axiom for measuring the pro-poor growth (Grimm, 2007; Bourguignon, 2011; Jenkins and Van Kerm, 2011; Palmisano and Peragine, 2011; Palmisano and Van de gaer, 2012).

Paragine, Palmisano and Brunori (2013) measured the degree of opportunity of inequality. They analysed the relationship between inequality and economic growth on the basis of opportunities and derive the opportunity growth incidence curve (OGIC) by which income dynamics of specific groups can be evaluated. Their literature focused on the recent crisis of Italy and growth performance of Brazil on the basis of opportunity inequality.

Empirical Illustration For Bangladesh

Considering the poverty reduction target, Bangladesh is in line with the millennium development goals (MDG).⁶ The economy has been flourishing with a favorable production environment and getting consistently over 6 percent growth rate over last decade.⁷ This consistent performance put forward the economy to the group of emerging economies, by several international research think-tanks. However, the major concern of these growth achievements triggers the issue of uneven income distribution i.e., inequality. A consensus has established, both in developed and developing countries, to reduce inequality as a core target for the post-MDG agenda.

Table I: Poverty (Headcount Index)

Years (HIES)	Upper poverty line (UPL)			Lower poverty line (LPL)		
	National	Rural	Urban	National	Rural	Urban
2010	31.5	35.2	21.3	17.6	21.1	7.7
2005	40.0	43.8	28.4	25.1	28.6	14.6
2000	48.9	52.3	35.2	34.3	37.9	20
1995 -96	53.1	56.7	35.0	35.6	39.8	14.3

Source: Household Income and Expenditure Survey (HIES), 1995, 2000, 2005, 2010; Bangladesh Bureau of Statistics (BBS)

6. The MDG target for poverty was 29 percent by 2015 in Bangladesh. However, the latest official statistics in Bangladesh is 31.5 percent of 2010. Various statistics show that they country has able to met the goals.

7. During the last decade, Bangladesh achieved an average growth rate of 6.16 percent per annum (from FY2005 to FY2014).

Above table shows the poverty situation of Bangladesh. When the upper poverty line is considered, the rate of poverty reduced from 53.1 percent in 1995-96 to 31.5 percent in 2010 at national level. Urban and rural poverty also declined from 35.0 and 56.7 percent to 21.3 and 35.2 percent respectively for the same time period. On the basis of lower poverty line, it also decreased from 35.6 percent to 17.6 percent in the national level for the mentioned time period. Urban and rural poverty declined to 7.7 and 21.1 percent from 14.3 and 39.8 percent respectively for the respective time period.

The growth experience for the first two decades after independence of Bangladesh was lower as it was a period of natural disaster, political instability and recovery and reconstruction.⁸ Economic policy also struggled to play a stable progress and this is reflected by a slower average growth rate of 3.79 percent for 1970s. Compare to the chaotic situation in 1970s, the next decade 1980s was a period to rejuvenate the economy with several recovery and reconstructions strategies. However, the results of this rejuvenation could not fully materialize at the same period due to a lagging period of cause and effect and reflected by a slower average growth rate of 3.72 percent.

Population growth rate remained high — over 2 percent and as a result, per capita income growth was at 1.68 percent per annum (marginally high than 1970s). To boost its recovery and reconstruction strategy the country becomes an aid dependent economy in 1980s. According to Sobhan (2004), aid-GDP ratio was in a range of 10 percent whilst the development budget (annual development program, ADP) financed around 100 percent. He also referred that the country failed to formulate independent economic policies due to unlimited demands from development partners (DPs) to introduce policy and institutional reforms.

Table II: Annual Growth Rates of Bangladesh

	1981-90	1991-00	2001-10	2011-17
GDP growth	3.73	4.80	5.77	6.57
Population growth	2.12	1.69	1.41	1.41
Per Capita GDP growth	11.25	7.19	11.45	12.38

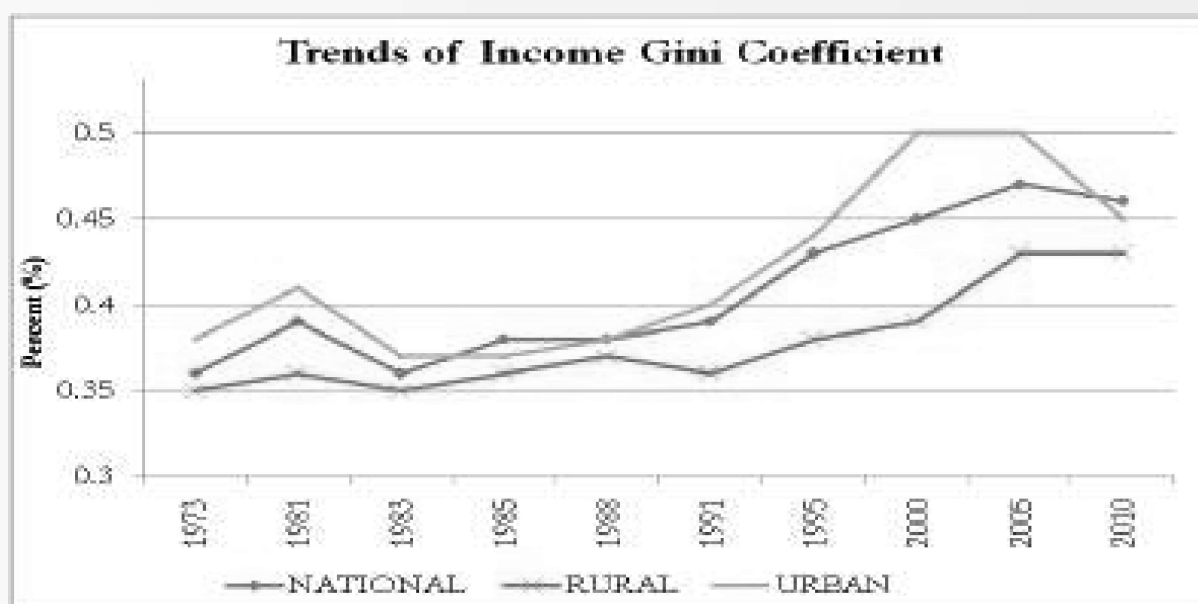
Source: Bangladesh Economic Review (various issues), Bangladesh Bureau of Statistics (BBS).

It was the period of 1990s when GDP growth rate started to accelerate. Several things took place at that decade including readymade garments (RMG) exports, openness of the economy, stable economic policies compared to last two decades, increased emphasis on manufacturing sector and service sector, political stability etc. GDP growth rate boosted up

8. Bangladesh was established as a free country from Pakistan on 16th December, 1971 after 9 months war.

at 4.8 percent for 1990s and further to 5.8 percent in 2000s and further increased to 6.6 percent in 2011-2017 time periods from only 3.7 percent in 1980's. Per-capita GDP growth jumped from 7.19 percent in 1990s to 11.45 percent in 2000s and then 12.38 percent in 2011-2017 time periods. Per capita income is increasing because of decreasing population growth rate in Bangladesh. Even though these numbers are high standard compare to previous experience of the economy but these are not comparable to Bangladesh's neighbors, East and Southeast Asian economies⁹. The remarkable achievements by these economies placed a very high standard within the success stories of the developing world.

Figure I: Gini Coefficient Trends



Source: Household Income and Expenditure Survey (HIES), Bangladesh Bureau of Statistics (BBS) (various years)

Along with the high GDP growth achievement over this period, inequality also aggravated in Bangladesh. Degree of inequality, measured by the Gini coefficient, has increased from an average of 0.38 in 1980s to 0.44 in 1990s and to 0.46 in 2000s. However, the official statistics of income Gini coefficient shows that the inequality has marginally decreased at 0.458 in 2010¹⁰ (HIES, 2010). In this period, the standard of living was rising faster and the gap between rich and poor was widening. Within the country, inequality in urban area has been increasing with a faster pace than the rural area. Figure I shows the trends of income Gini coefficient for 1973-2010 time periods.

One of the pertinent questions of the issue of pro-poor growth is the causes of income inequality. Why has the growth failed to target the uneven income inequality? Is that a failure of undertaking right policies or the implementation of undertaken policies or a

9. Four other Asian countries (Hong Kong, Singapore, South Korea and Taiwan) known as Asian Tiger Economies started their industrialization back in 60s and 90s and succeeded into advanced and high income countries by the 21st century.

10. The official statistics of income Gini coefficient publishes in every 5 years in HIES.

failure to take policies? Bangladesh economy started to grow with a rural farming economic activities and then it moved to a manufacturing and service sector based economy. The problem faced by the people in rural areas were in terms of job opportunities and demand side shortages from rural areas. The other problem is the uneven overseas migration from rural Bangladesh and inflow of remittances. Osmani and Sen (2011) argued that migration and microcredit from NGOs played an indispensable role to foster rural inequality in Bangladesh. Lack of ownership of land and other assets may contribute in inequalities in rural Bangladesh. Many countries like China was able to reduce poverty and inequality substantially through land reform. Market frictions and anomalies are frequently observed in Bangladesh and people expect government's intervention at that time but government fails to make an action in that case and inequality increased.

Compared to income inequality, consumption was not worsened during the period concerned due to the access of credit for the poor people. Currently, poor people can get credits from various microfinance institutions.¹¹ Overall, credit constraint is no longer a concern for the poor people in most of the areas. According to Demirguc-Kunt & Klapper (2012), lack of inclusive financial systems, poor people are unable to use their own small savings to invest in education and limitations in small entrepreneurs to participate at the promising growth opportunities. These problems may lead to persistent income inequality and slower economic growth (World Bank, 2008).

A recent study finds that the propensity to consume at the bottom end of the scale has risen over the decade of 2000s (Osmani and Sen, 2011). Bangladesh has gained a significant progress, due to microfinance institutions, central bank initiative and cooperatives, to its financial inclusion. The central bank, beside its main objectives, has taken various steps for the upliftment of poor through financial inclusion, the opportunity to farmers who can open a bank account by depositing only 10 (ten) taka (equivalent amount of about 10 cents) for the easy access to the agricultural credit, refinance scheme for sharecroppers and also by encouraging the mobile financial services. The financial inclusion rate is about 90 as percentage of adult people, which is by far the largest percentage in South Asian standard.¹²

Growth and inequality experience in other South Asian countries¹³ (India, Pakistan, Nepal & Sri Lanka) maintained a mixed experiences. The relationship between growth and poverty is highly country specific (Pernia, 2003). In this region, Sri Lanka maintains comparatively higher per capita income and lower inequality. However, Sri Lanka could have gained more progress if the issue of Tamils would have been solved earlier. On the other hand, India has a mixed experience if we consider the states individually, but economy as a whole is lagging behind of some other countries.

11. In 1974, BRAC started to provide microcredit in Bangladesh followed by Grameen Bank in 1976 and was authorized by national legislation as an independent bank in 1983. As of June 2013, there are 649 licensed NGO-MFIs are working in Bangladesh and 24.6 million clients are involved with micro credit.

12. Financial inclusion is measured as (no. of bank deposit A/Cs + No. of MET members + No. of members in cooperatives)/Adult population* 1 00. The current paper considers South Asian countries which include Bangladesh, India, Pakistan, Nepal and Sri Lanka.

13. ??

DATA AND METHODOLOGY

The current research made an attempt to investigate the dynamics of the relation among poverty, growth and inequality and the causes of inequality in Bangladesh. In the proposed decomposition, the bidirectional causality between growth and inequality will be investigated. However, in conducting this research, there are some limitations regarding the data to be used for Bangladesh. Many of the developing countries suffers data limitations for a comprehensive policy research and Bangladesh in no exception to that limitations. Poverty, Gini index and some other indices are surveyed and published in a discontinuous basis in Bangladesh. Considering this limitations the current research work is based on available data set which is available for every five years.

To attain the objectives of the present research, the required information is collected from the secondary sources. The source of data is Household Income and Expenditure Survey (HIES), Bangladesh Bureau of Statistics (BBS), which is the national statistics department in Bangladesh. The paper used data for three time periods, HIES, 1995, 2000 and 2010 (latest available). The main objectives of HIES are to collect household income, expenditure and consumption data; information about poverty; determination of the weight of Consumer Price Index (CPI); information about the MDGs; also to collect data on health, education, social safety nets; and microcredit. To formulate the HIES 2010, total 12,240 households samples are interviewed, in which 7,840 are from rural areas and 4,400 are from urban areas. HIES interviewed households in every five years. Cross-section data are the basis of our empirical illustration for three different time periods.

According to the HIES 2010, the households of the survey are characterized by the size of the household; land size (the acres of land that they own); structure of housing (by which material the house is made); occupation; age-sex composition; marital status; and different demographic ratios. It is also noticed from the survey that, the average household size is reducing. At national level, which was 5.18 in 2000 and decreased to 4.5 in 2010. At rural and urban level, the household sizes also decreased. Because of the reduced fertility and break up of big families into small ones, the average household size is reduced. There are some differences in concepts, definitions and households sizes among the surveys conducted each five years, so the comparison between two surveys would not be valid or satisfactory. Hence, the current research tries to avoid spurious findings and considers a legitimate degree of accuracy for data consideration.

In the decomposition analysis, there are some important dimensions in Bangladesh. Income inequality and poverty issues were addressed by regions (rural vs. urban), areas (various districts), gender (male vs. female) and so on. Osmani et al., (2003) argue that the growth acceleration in the 1990s was based mainly on demand stimulus, which came from four major sources, viz. a quantum jump in crop production that occurred in the late 1980s,

rapid growth in the flow of income generated by the readymade garments (RMG) industry, accelerated flow of workers' remittances from abroad and the expansion of rural non-farm activities.

This research discusses the relationship among poverty, growth, inequality and public expenditure on human capital sectors and other variables. Household income and expenditure survey (HIES) estimates the incidence of poverty on the basis of cost of basic need (CBN) starting from 1995-96. Other variables are per capita GDP, Gini coefficient, labor productivity, government expenditure or public expenditure on human capital formation (health and education), public expenditure on social protection (safety net programs), government revenue earnings and trade openness.

Pro-poor strategy could be achieved through the proper combination of growth and distribution policies e.g., inequality reduction (Bourguignon, 2004). The current research will include the interaction of the Gini coefficient with government expenditure on education and health and the interaction of the Gini coefficient with government expenditure on social safety net programs. The paper needs to investigate the link between the role of human capital formation and inequality. In addition to that, the interactions can investigate the relationship among the variables more comprehensively.

Measuring the pro-poor growth: The standard measure of pro-poor growth, developed by Ravallion and Chen (2003) is the "growth incidence curve (GIC)" which is a useful tool to take into account the progress of pro-poor growth. GIC can be derived by plotting the percentiles of the income distribution on the x-axis from poorest to richest and per capita income growth rate on the y-axis.

Growth incidence curve (GIC) measures the quantile-specific rate of economic growth in a given period of time (Ravallion and Chen, 2003; Son, 2004), and the cumulative representation of GIC is one of the tools of measuring pro-poor growth.

The growth incidence curve (GIC), measures the average growth rate of income between two time periods t and $t-1$, can be expressed as a function of each percentile p (p varies from zero to one) in discrete time:

$$\theta_t(p) = \frac{y_t(p)}{y_{t-1}(p)} - 1 \quad (1)$$

where, MO represents the GIC and if it is negatively sloped everywhere then the inequality declines but if this is positively sloped then the inequality increases in the economy. If the GIC lies above zero everywhere then there is first-order dominance of the distribution at date t over $t-1$. If the GIC switches sign then one cannot in general infer whether higher-order dominance holds by looking at the GIC alone (Ravallion and Chen, 2003).

If the GIC is upward sloping, it means that the rich peoples get more benefit from growth, which is not pro-poor, rather it's pro-rich growth, as was the case in Bangladesh from 1995 to 2000. If GIC is negatively sloped, then the poorest peoples receive more portion of the distribution of growth than the rich. GIC is an ideal and a standard tool for the measurement of pro-poor growth because one can have a picture that which percentile of population is benefited more from growth and by using it three types of pro-poor growth can be measured - relative, weak absolute and strong absolute. The positive GIC (all values are above 0) for all percentiles represents the weak absolute pro-poor growth. The negatively sloped GIC shows the relative pro-poor growth. For the strong absolute pro-poor growth, the average growth incidence curve (AGIC) can be used, which represents the absolute income change between two time periods for each percentiles of population. When the AGIC is negatively sloped, the pro-poor growth is then strong absolute.

Rate of pro-poor growth: Ravallion and Chen also suggested another measure which is "rate of pro-poor growth". From the idea of the definition of GIC, Ravallion and Chen (2003) define the rate of pro-poor growth (RPPG) as the area under the GIC up to the headcount index, H , which gives the proportion of all individuals having an income below or equal to the poverty line. The following equation can be used to define the rate of pro-poor growth (RPPG).

$$RPPG = \frac{1}{H_{t-1}} \int_0^{H_t} \theta_t(p) dp \quad (2)$$

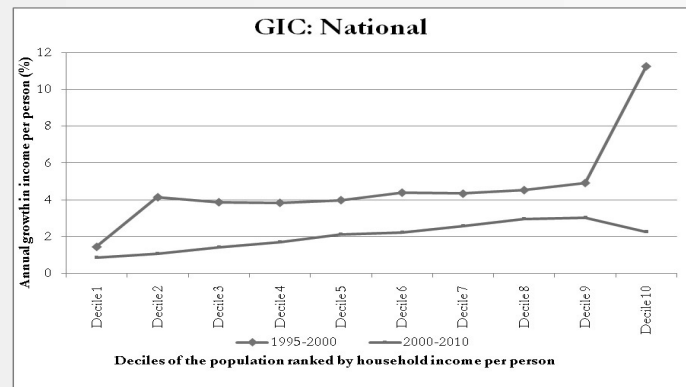
where, H_t is the headcount index of poverty.

Some other measures of pro-poor growth are: (i) the growth rate in mean (GRIM), (ii) pro-poor change (PPCH) and (iii) change in mean (CHIM).

RESULTS

In this section, this paper shows the measurement of pro-poor growth in Bangladesh. The data for 1995-2000 and 2000-2010 are used from household survey for this purpose. The analysis starts by dividing the distributions into 10 (ten) deciles and draw GIC as annual growth in income per person for each decile for Bangladesh. The GIC for national level is given in figure II.

Figure II: Growth Incidence Curve For Bangladesh (National)

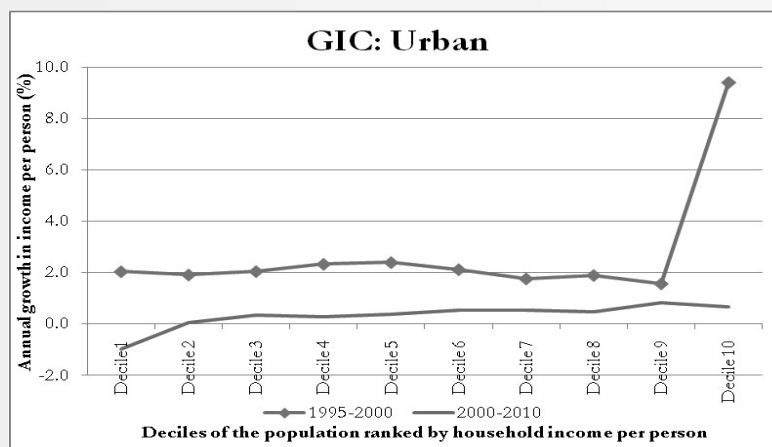


Source: Author's own calculation based on data from HIES (1995, 2000 and 2010), BBS.

From the figure, it can be shown that the GICs for both 1995-2000 and 2000-2010 time periods, are positive. There is first-order dominance of the distribution at 2000 and 2010 over 1995 and 2000 respectively as the GICs lie above zero everywhere. The GIC is regressive for 1995-2000 as it is upward sloping and the lowest income group receives less benefit of growth than the highest one. For 1995-2000, the GIC shows two major jumps for the poorest decile and the richest decile. The jump was bigger for the richest decile than that of the poorest which means that the richest peoples income increased more than the poorest. The other distributions remain close to 4, meaning that the middle income people did not gain more from growth. The GIC for 2000-2010 has increased steadily for all of the distributions except for the richest decile where it follows the downward trend, shows the richer people did not enjoy the gain from growth. From the two GIC's we can see the opposite pattern for the richest decile, where 1995-2000 GIC shows upward trend but the 2000-2010 GIC shows downward trend. Income inequality increases in 1995-2000 and decreases in 2000-2010 (as GIC is falling for the rich).

The following figure (III) shows the GIC for urban ares in Bangladesh.

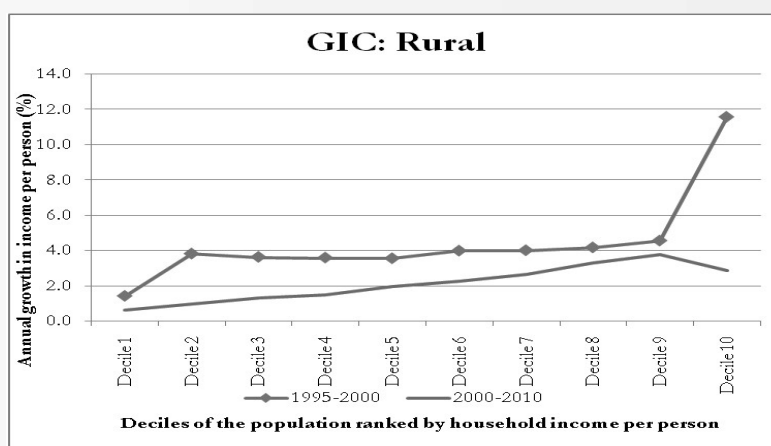
Figure III: Growth Incidence Curve For Bangladesh (Urban)



Source: Author's own calculation based on data from HIES (1995, 2000 and 2010), BBS.

The GIC for 1995-2000 lies around 2 for all of the deciles with an exception in the richest decile, where there is a big upward jump from the previous decile, explains that most of the gain captured by the richest peoples in the urban areas but the poor and middle class peoples gain almost nothing. The inequality increases in urban areas at that time. But GIC remains positive in all cases. On the otherhand, the GIC for 2000-2010 was negative for first decile (the poorest population) and then it follows positive trend and finally there is a very small reduction in the income for the richest peoples.

Figure IV: Growth Incidence Curve For Bangladesh (Rural)



Source: Author's own calculation based on data from HIES, BBS.

The GIC for the rural area in Bangladesh follows the similar pattern as the national. The GIC for 1995-2000 is regressive and it follows upward trend. For the poorest and richest deciles there were two big positive jumps but for all other deciles it was close to 4 and shows a bit upward trend. Gains from growth are captured by the poorest and the richest peoples in the rural areas but the welfare gain is more for the richest peoples. Inequality rises in this time. On the contrary, the GIC for 2000-2010 falls down for the richest deciles. Inequality falls in this time. For all other deciles, it was following positive trend.

If the middle class population is considered for all national, urban and rural, their income has not been increased noticeably for the mentioned time periods. It seems unchanged. According to some definition, if growth is positive for all income groups in the economy, it is said to be pro-poor. In Bangladesh, the contribution of poor people in economic growth is not too big.

On the basis of strong absolute definition, the growth is not pro-poor but according to the weak absolute definition the growth is pro-poor. Though Bangladesh experienced a reduction in poverty, there is an increase in income inequality. According to relative pro-poor growth, inequality should fall. The GIC shows in the figures that in most of the times, the growth in Bangladesh was 'pro-rich,' in nature rather than pro-poor, which induces the inequality. Ravallion states that high level of income inequality is detrimental

to poverty reduction. It should be controlled to achieve the goal of Bangladesh for being a middle income country.

The measures of pro-poor growth discussed above are based on anonymity axiom. By taking into account the income group of the lowest decile of population in 1995 and the income group of the lowest decile of population in 2000, it compares the two income groups of the population. But the people of the lowest decile in 1995, could be different from the people of the lowest decile in 2000. This is anonymous GIC, which doesn't care who are the people, just cares about the lowest income group of population. Measurement of pro-poor growth with anonymity axiom does not give the real picture of the economy, which misguided the results; policymakers and government cannot take the proper steps for which policy reforms should be beneficial for poor or which not? If the anonymity axiom is removed from the measure, which is non-anonymous growth incidence curve (MAGIC), gives the real picture of the economy.

If the same group of population are interviewed each 5 years, then the people who were in one distribution (the poorest distribution) of income in 1995, but they are in some other distribution of income in 2000, it can be said that there is some mobility of peoples which means those who were poor in 1995, are now better off in 2000 with a higher income level.

With a view to figure out this, the path of individuals income can be followed. Here, the diagram which plots income growth rates against the various deciles of the initial distribution, wouldn't be drawn for the income of the 1st decile of 1995 and the income of the 1st decile of 2000. Rather than that, the diagram is drawn by taking the income of the 1st decile in 1995 and the income of those people who were in the 1st decile (the poorest) in 1995, even if in 2000 they are somewhere else in the distribution. In comparison to anonymous and non-anonymous GIC, if there is a difference between the two, then it can be said that there has been some mobility within the population. From this mobility structure, the government and policymakers can observe the impacts of their policies which were taken by them for poverty alleviation and can take further steps for the poor peoples of the country.

Instead of defining or having the different deciles of population, it can be defined on the basis of different groups of population independently of what is their income. For each group, it can be studied what is the variation in the income between one period and the other period. Now, the question is, how to define the groups? Define these groups in term of exogeneous factors, like, geographical area, caste, occupation of the parents, gender, disadvantaged group (lower-caste, minority and tribal groups) and religion. These are the factors which are exogeneous to the individual choices. Because of those discriminations, there are some peoples left behind in the economy who can contribute to enhance economic growth. Those also increases inequality in the society. So, it is important to figure out if these groups of population have the same growth in that time periods or different growth.

For the developing countries, those factors are very important to consider to promote pro-poor growth. According to the Asian Development Bank, growth is pro-poor 'when it is labour absorbing and accompanied by policies and programs that mitigate inequalities and facilitate income and employment generation for the poor, particularly women and other traditionally excluded groups' (ADB, 1999). In South Asian countries, the gender inequalities in the education sector and job markets are harmful for females and also for the economic growth and to reduce poverty. In the 1990s, Bangladesh experienced some progress in lowering the gender discrimination through given facilities for the female education. This also helped to lower the fertility rate and population growth rate. Increasing female employment is also supportive for the growth. Increased investment in education and health of women, increases the awareness among women which is important for future generation as well. Bangladesh can be an example for some other South Asian countries regarding this gender issue.

The disadvantaged group should also be taken into account for enhancing pro-poor growth. In Latin America, South Asia and East Asia, this disadvantaged groups are found as lower caste, tribal, religious minorities and ethnic groups. These groups face discrimination in education, location and also in job markets. A pro-poor policy is required to reduce these discriminations for increasing economic growth, reduce poverty and inequality.

CONCLUSION & POLICY IMPLICATIONS

The findings from the current research reveal that growth in Bangladesh for the period 1995-2000, was regressive, the less increase in the poorest deciles and highest increase in the richest deciles. In 2000-2010, the growth is still a bit regressive, but in a less strong way, which is weak absolute pro-poor. So, there is a little mobility in the groups of population. If the NAGIC is considered, it can be shown that how much pro-poor was the growth in Bangladesh for the mentioned period. As the HIES in Bangladesh is not conducted for the same households in each five years, the data insufficiency is the drawback for this research to figure out the magnitude of pro-poorness. There is further scope for research in this field with the help of necessary survey data.

The growth structure in Bangladesh has variations among regions. Urban areas get more return from growth than rural areas. As a result poor people remains poor in the rural areas and their graduation rate are below standard even though government has initiated some social safety net programs for rural areas. Several studies show that due to some loopholes, those safety net programs fail to address the target group which includes poor peoples. This implies government and policy makers should redesign the safety net programs so that poor people can get benefited. Marginalized people should be prioritized in developmental policy formulation. A decent work may give them more room to overcome from below poverty than one time or temporary cash support. However, job creation may takes some financial burden than temporary support. Developmental strategy is to ensure the efficient use of labor, which is the asset of poor.

Increasing returns from health and education sectors are notable and comparable with some high growth developing countries like India & Brazil. It is through the channel of

investment in these sectors. The increase in the appropriate or proper investment on health and education sectors can help the poor directly. This also requires the poor people to access these facilities. Establishment of health clinics in the rural areas of the country facilitates the access to medical services for the poor. There are some role of donor countries and organizations to achieve this success. Along with that, NGO's can also play an important role to achieve the government's target.

Economic openness contributes to growth by enhancing exports and foreign direct investment (FDI); creating job opportunities; lowering the price of necessary goods; and taking advantages of modern technology. Even though, the openness of Bangladesh economy in the 1980s was highly criticised by the policy makers due to a failure to develop a competitive business environment. Service sector developments and clothing exports are considered as the right move after that time. Overseas employment opportunities was also increased remarkably due to the government and private sector initiatives.

Development in the private sector always plays an important role in the developing countries. Most of the cases, government fails to facilitate his or her service and policies due to financial bottlenecks. Public private partnership can achieve these goals which may facilitate poor people.

The reduction of institutional and policy-induced biases against the poor is a necessity. Government has facilitated the poor farmers to access the services provided by the financial institutions. Banking to the poor is a new concept in Bangladesh and here banks are helping the farmers by giving facilities of agricultural credit and other services. Establishment of agriculture based and farmers bank has a positive impact on reducing inequality and hence boost growth.

Discriminations, based on gender, race, religion, parent's occupation hurt the poor more than rich, which hinders poor from some job or trade or investments. Bangladesh has some success in reducing gender discrimination in recent past. This is due to female education and females participation in the job market which in turn reduces fertility rate that decreases the population of the country. Women empowerment brought a new momentum in the country.

Ownership of resources can help to reduce inequality and ensure pro-poor growth of the economy. For some countries, land redistribution and ownership to farmers helped to achieve growth and poor farmers get the return from growth. For example, China was able to establish land distribution according to the need to poor farmers and spurred the growth in the economy. In Bangladesh, land redistribution is required and that will help to redistribute resources from rich to poor.

Some micro policies such as monopoly, subsidized public utilities, state universities, housing policies are biased against the poor, that is those policies are less beneficial for the poor than those who are not poor. To promote the pro-poor growth, these biases should be removed. Investments, from both the public and private sectors, are needed to facilitate those sectors and to invest more, economic stability is the motivation.

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