Trends of Income Distribution in Bangladesh and Relationship with Growth – Theories and Evidences

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Abstract: *Income distribution is very substantial for economic and social advancement. It affects the structure of the society, limits the level of poverty for any specified average per capita income and poverty puts pressure on growth. Different Household Expenditure Survey data of 2000, 2005 and 2010 are used to review the trends of income distribution in Bangladesh. The Decile techniques and Gini coefficient measures are used to explain the recent trends. In addition, the shares of income of the uppermost and lowermost deciles are also used to show the income dispersal in Bangladesh. It is revealed that Bangladesh has exposed visible economic growth but income disparity has increased rapidly over time. The study is also measured the affiliation between economic growth and income disparities, using a new practical form that fits the data well. Most of the upshots suggest that inequality has a substantial positive influence on economic growth. It reapproves the Kuznets' hypothesis that at an initial stage of progress, disparity of income rises and it decreases again. Although, it provides empirical evidence that the distribution could have a positive effect on economic growth in low-income countries rather than the growth effects on distribution. The positive relationship is a contrary result to the recent empirical findings but indicates that more research is indispensable to fully understand the composite affiliation between income distribution and economic growth.*

1.0   INTRODUCTION

Literally, growth is the percentage change in mean welfare level (e.g. income or consumption) in the household survey and distribution means how equally or unequally income or assets etc. are distributed among the population. In economics, growth is what level of GDP enlarges over time and income distribution is how a nation's total GDP is distributed amongst its population. Income distribution is tremendously important for economic, social and other development. Haque (2007) states, "income variation influences the cohesion of society, determines the extent of poverty for any given average per capita income and the poverty reducing the effects of growth". Hence the sharing of income amongst its citizens of a nation is very significant to maintain peace and harmony. In fact, it is a critical job for any country to preserve fairness rather than competence and that's why the current finding is to measure income inequality. It demonstrates the income distribution is deteriorating in Bangladesh since its independence and society as a whole obviously fail to provide an egalitarian society.

Bangladesh sensibly sustained a slow-moving income distribution in between 1970-80s and possibly because maximum individuals were very poor at that period. But in the course of time, pecuniary advancement happened as we have realized earlier and during the early

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phases of economic growth, the wealthier take chances to develop big business and other development actions to avoid more capital at a higher rate rivaled to the respite of the populace. Furthermore, industrialization and the growth of urban areas create an affluent middle class, comprising of wholesalers, business professionals, academics and civilians apposite to the economy concerning money. But, the mass of the country-dwellers has almost remained outside market economy. Consequently, the society became more uneven in income distribution. The current study gives a contemporary analysis of the income distribution and the magnitude of income trends in Bangladesh.

The purpose of this paper is to reviews and explains recent trend of income distribution and to assess the relationship between inequality and economic growth in Bangladesh. It also provides additional empirical evidence of the relationship between income inequalities in developing countries. After its independence, Bangladesh has perceived growth in per capita real GDP, in volume and value of trade and also an increase in income inequality (Ahmed and Zaidi 2004). A substantial literature has reviewed to evaluate the relationship between income inequality and economic growth. Besides, several approaches are commenced to enlighten the relationship.

The paper comprises three sections. The first section is concerned with the data source and methods, section two reviews the recent trends of income distribution in Bangladesh and section three explores the relationship of growth and income distribution of developing countries based on theoretical and empirical evidences.

2.0 DATA SOURCE AND METHODS

Nearly all of the discussions in this document based on secondary data on *Household Income and Expenditure Survey* (HIES) carried out by Bangladesh Bureau of Statistics (BBS) on the distribution of income and consumption expenditure in Bangladesh. Data on income shares of different decile groups, Gini coefficients and GNP have been collected and edited from different publications of Statistical Yearbook, recognized journals, UNDP reports and its websites for writing this article. The analyses are based on data presented in tabular forms and graphical presentations to find the nature of growing income inequality in Bangladesh.

The Lorenz Curve is meticulously connected with measures of income inequality. To review and explain recent trends in income distribution in Bangladesh Decile groups and Gini Coefficient measures are used. The most common measure of income distribution is decile (Handcock and Morris 1999), the ratio of the segment of households in the baseline year to the part of households in the assessment year in every decile of the income distribution. Alternative indicator of the degree of inequality is the Gini Coefficient. It is the distinct number that can vary from zero (a perfectly equal distribution) and one (a perfectly unequal distribution).

The analysis of the relationship between growth and income distribution is one of the contemporary methods that have been obeyed to analysis the evolution of distribution. To evaluate the long-standing correlation between inequality and growth in Bangladesh with a methodology of Kuznets pattern inverted U hypothesis (Kuznet 1955). This analysis has not only revived old issues such as the Kuznets' hypothesis, but has also contributed to recent discussions like the pattern of income distribution or inequality. The article also analyzed additional empirical evidence of the connection between income inequalities in developing countries.

3.0 RECENT TRENDS OF INCOME DISTRIBUTION

Decile techniques, Gini Coefficient measures are used to explain recent trends in income distribution in Bangladesh. The commitment of this section of the report is to postulate an overview of how the distribution of income in Bangladesh changed between 2000 and 2010. Income distribution has assessed with the change of time by households, residential areas, occupational groups and religious groups using the most recent and appropriate data from Household Income and Expenditure Survey Report-2005, 2010 (BBS 2008 and 2012).

3.1 Income Distribution by Households

Deciles Distribution: Figure-1 below offers the graphical exposition of the decile distribution of household income for the years 2000, 2005 and 2010 at national level. It is apparent from Table-1 that the gap between the poorest (bottom 5%) and the richest (top 5%) is exceptionally extreme. For example, according to the HIES 2010 Report, the income was 24.61% of the top 5% households, while, the income for the bottom 5% household was only 0.78%. In 2005, income ensuing 26.93% for the top 5 percent of the households, it was 0.77% for the bottom 5%. It then marginally swelled from 0.77% to 0.78% in 2010. On the contrary, the portion of income of the top 5% declined from 26.93% to 24.61% over the constant period, demonstrating redistribution of income in support of the mid-level.
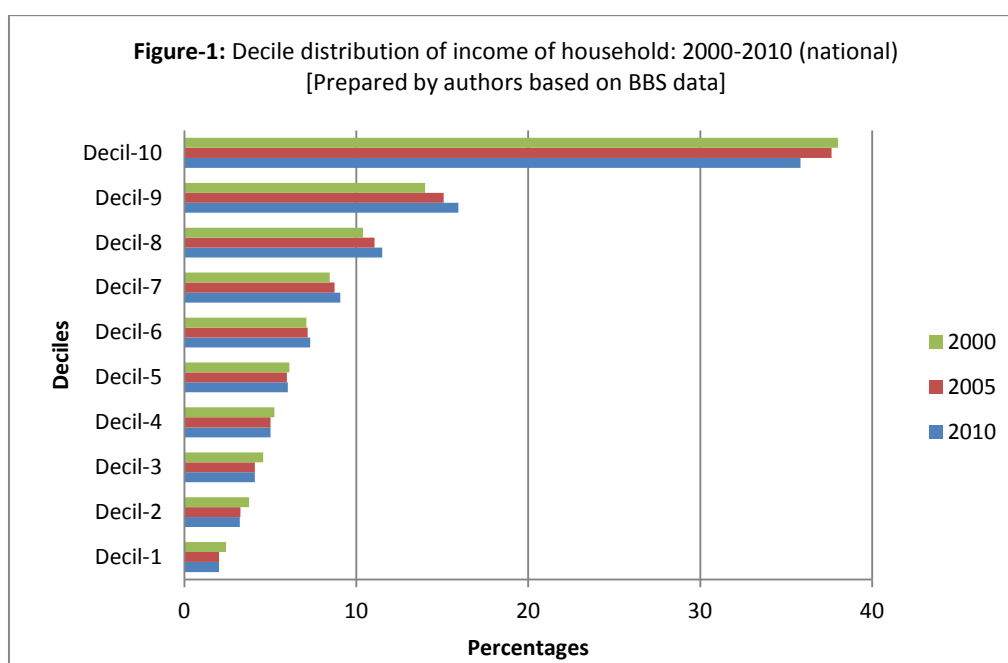

Figure-1: Decile distribution of income of household: 2000-2010 (national) [Prepared by authors based on BBS data]

Table-1: Income distribution of households in Bangladesh (BBS, 2012)

Year	Income share of lower 10%	Income share of higher 10%	Income share ratio	Income share gap
2000	2.41	38.01	15.77	35.60
2005	2.00	37.64	18.82	35.64
2010	2.00	35.84	17.92	33.84

Table-1 clearly shows that income shared by the lower 10% population is only 2.41%, while the top 10% shared about 38.01% in 2000. It is actually a huge gap (35.60) between rich and poor. It was indeed a rapidly worsening situation in 2005, but the situation has improved in

2010. This is definitely a big uneven distribution of income in a society within only 10 years. In Figure-2 below, with the contrast of line of equality Lorenz Curves drawn for 2005 and 2010 of household income distribution. Here, the shown household income distribution was higher up to the decil-7 from decil-1 and lower from decil-8 to decil-10 in 2010 compared to 2005. The income distribution changed its pattern and moved for increase income of poorer.

Figure-2: Income Lorenz curve for 2005 and 2010 [Prepared by authors based on BBS data]
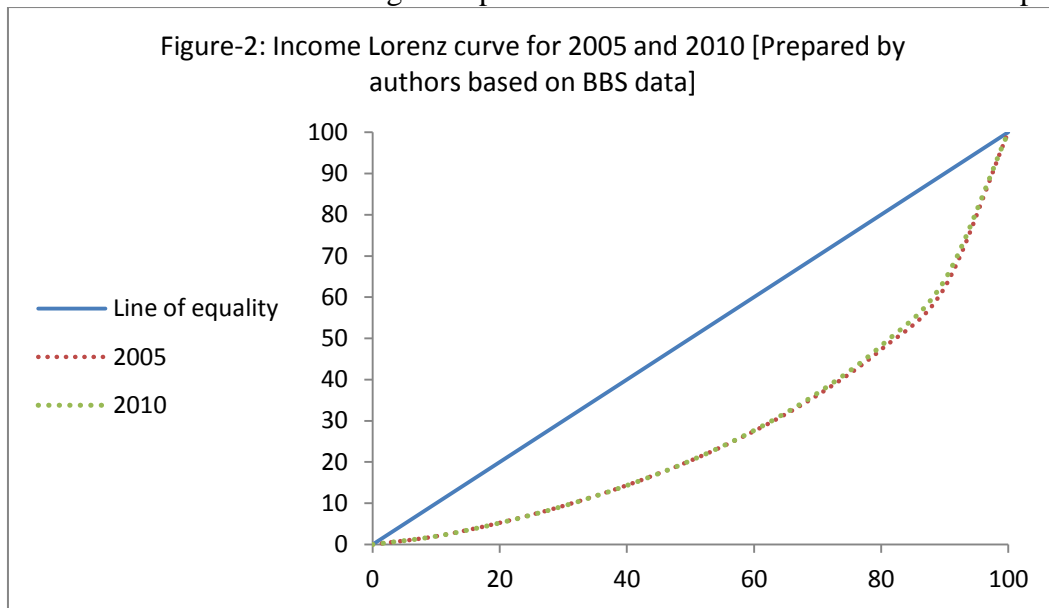
Gini Coefficient: Figure-3 itemized the Gini indices for Bangladesh from 1974 to 2010 on trends of income distribution, but only considered figures from 2000 to 2010 for analysis. The Gini Coefficient of income decreased to 0.458 in 2010 from 0.467 in 2005 and slightly increased from 0.451 in 2000 (Table-2). But, the national figure was always upward direction starts from 0.36 in 1972. This decline of the Gini Coefficient endures the substantiation that, income portion of upper class declined in 2010 in relation to 2005. In rural areas, the Gini Coefficient has increased while decreasing in urban areas. The income inequality was wider in rural areas and slighter in urban area that indicated income differentials between the rich and poor classes widen more in rural areas than urban ones. Haque (2007) figured out the upward trend just after independence that starts from 0.35 and 0.37 in rural and urban areas in 1974.
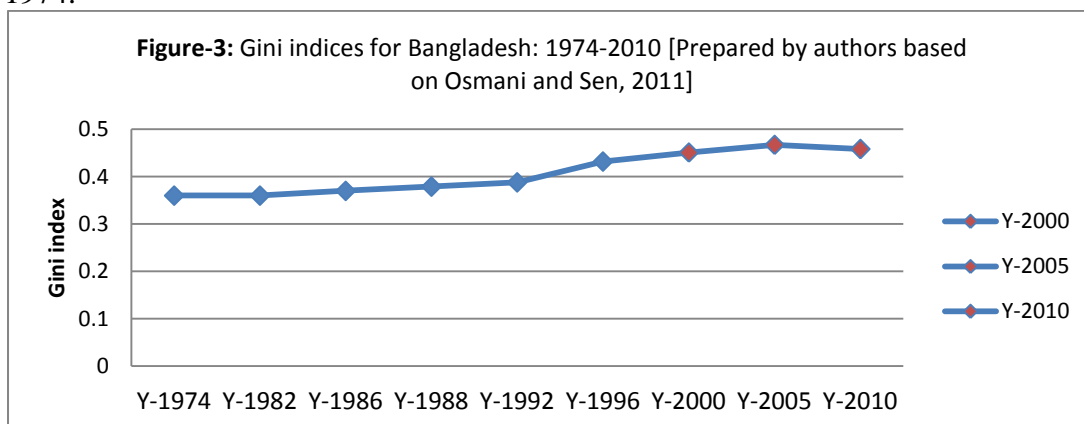

Figure-3: Gini indices for Bangladesh: 1974-2010 [Prepared by authors based on Osmani and Sen, 2011]

Table-2: Income distribution of households by Gini-coefficient (BBS, 2012)

Year	National	Rural	Urban
2000	0.451	0.393	0.497
2005	0.467	0.428	0.497
2010	0.458	0.431	0.452
Changes in Gini index	Mixed	Increased	Decreased

3.2 Income Distribution by Resident Areas

Table-3 below shows the national level of income was higher in rural but lower in urban areas. This figure was Tk.11479 for national while Tk.9648 and Tk.16477 for rural and urban, respectively in 2010. Year-wise monthly household income was mounted in all cases like national, rural and urban residence. This was Tk.7203 and Tk.5842 in 2005 and 2000 respectively. At the national level, the monthly household income increased by 9.65% per year. In case of rural areas, it was 10.03% (faintly higher than national) and in urban residence it was 6.68% (fairly slighter than national) in the year of 2010 compared to 2000. Table-4 illustrates the trends of rural and urban household income. It is shown the analogous changing pattern of decile distribution of income for decil-1 but it was shown dissimilar trends in case of rural and urban residence. In addition, there were similar pattern of income distribution of lower 5% and higher 5% households for both the rural and urban residents.

Table-3: Monthly household nominal income by residence(BBS, 2008 2012)

Residence	Year-wise monthly household income			% Changes per year
	2000	*2005*	*2010*	
National	5842	7203	11479	*+ 9.65%*
Rural	4816	6096	9648	+ 10.03%
Urban	9878	10463	16477	+ 6.68%

Table-4: Trends in income of rural/urban households by deciles (BBS, 2008 2012)

Deciles	Rural			Urban		
	2000	*2010*	*Trends*	*2000*	*2010*	*Trends*
Decil-1	2.80	2.00	Decreasing	2.02	0.98	Decreasing
Decil-2	4.31	3.53	Decreasing	3.07	3.09	Increasing
Decil-3	5.25	4.49	Decreasing	3.84	3.95	Increasing
Decil-4	5.95	5.43	Decreasing	4.68	5.01	Increasing
Decil-5	6.84	6.43	Decreasing	5.60	6.31	Increasing

Decil-6	7.88	7.65	Decreasing	6.74	7.64	Increasing
Decil-7	9.09	9.31	Increasing	8.24	9.30	Increasing
Decil-8	10.97	11.50	Increasing	10.46	11.87	Increasing
Decil-9	14.09	15.54	Increasing	14.04	16.08	Increasing
Decil-10	32.81	33.89	Increasing	41.32	34.77	Decreasing

3.3 Income Distribution by Occupational Groups

Table-5 exhibits the proportion of income of households by key ranges of income with rural and urban breakdown. The portion of agriculture as a basis of income of the households at the national level augmented to 20.44% in 2010 from 20.00% in 2005.

Table-5: Income distribution by occupational groups from 2000 to 2010
[BBS, 2008 2012]

Area	Year	Agri.	Bus &Com.	Wages & Salary	Hous. Serv	Gifts & Rem.	Others
National	2010	20.44	19.16	35.55	7.27	13.62	3.93
	2005	20.00	23.10	31.30	6.70	9.80	8.70
	2000	18.00	25.90	29.40	7.80	10.90	8.00
Rural	2010	29.73	15.05	29.57	5.18	17.28	3.16
	2005	28.70	17.30	28.10	5.10	12.00	8.70
	2000	25.50	22.40	27.70	5.00	11.00	8.40
Urban	2010	5.56	25.75	45.14	10.63	7.75	5.15
	2005	5.80	33.10	36.90	9.50	5.90	8.70
	2000	3.70	32.40	32.60	13.10	10.60	7.50

As source of income, the share of agriculture was 29.73% and 5.56% in the rural and urban areas respectively in 2010. The segment of business and commerce remained 19.16% at national level; its portion was 15.05% for rural and 25.75% for urban areas. The maximum portion of household income resulted from specialized wages and salary was noted 35.55% at national level, 29.57% in rural areas and 45.14% in urban areas. The household income by gift and remittance groups is valued 10.62% at national level whereas 17.28% and 7.75% in rural and urban areas respectively in 2010. At the same time, the agriculture sector was a prominent sector of income in rural areas while professional wages and salaries were major portion of urban income.

In finale, poverty is the definite most critical socioeconomic policy challenge for Bangladesh. It has been stressed for a long time to diminish the prevalence of poverty and to progress the

living standards of its millions of disadvantaged people. Bangladesh has made significant improvement in reducing poverty despite the vast progress made over the past two decades; the fact is a large number of households still live below the poverty line. On the whole, income inequality is a grave drawback in Bangladesh and retrogressive the trend in a justifiable manner will be a major encounter for the Seventh Five Year Plan. It appears subsistence of a situation of growth-inequality-poverty trade-off. The sources of the uprising inequality are linked with the irregular spread of economic and social opportunities, growing disparity between rural and urban areas besides between developed and underdeveloped expanses. Henceforth, these apprehensions need to be focused for adopting inclusive and participatory growth.

4.0 RELATIONSHIP OF GROWTH AND INCOME DISTRIBUTION

The connection amongst economic growth and income distribution of a nation has long been premeditated since Kuznets' (1955) groundbreaking work, which reveals that income difference rises in initial stage of development. Subsequently, mostly n the last span of years a vast number of revisions have been inscribed on the matter. Various works on the affiliation amid to income variation and economic growth has its root and the "Inverted-U" hypothesis. However, much evidence has been accrued against this hypothesis. Deininger and Squire (1996) found no validation of the inverted-U Kuznets curve, but rather a substantial affiliation within primary income disparity and ensuing economic growth

4.1 Theoretical Approaches

Economists recognize two-way connection between growth and income distribution: growth affects distribution and distribution affects growth. Both the lines of causation are discussed here. The empirical evidence starts by probing the conservative perception vis-à-vis the result of income variation on economic growth. Up until, predictable thought appealed that disparity is growth attractive. To depict the relationship between income difference and economic growth many economists took innumerable approaches. **Classical Approach** imitates the conventional view that triumphed till now. A higher assumed peripheral tendency to save among the richer than the meager infers that an advanced level of primary income difference will produce higher cumulative savings, capital accruals and lead to economic growth (Kaldor 1956). **Modern Approaches** reviews the mechanisms that have been anticipated in the current studies relating to advanced initial income disparity with minor growth and contrary wise. Some routes in modern approach are - the influence of income variation on inspiring rent-seeking actions that diminish the security of property privileges (Benhabib and Russtichini 1991); social pressures and political volatility that upsurge uncertainty and dampen investment (Alesina and Perotti 1996); high disparity is expected to imitated in a comparatively meagre median, typical constituent who will pursue restructuring overtax policy that, in turn, will carry about additional falsifications in economy (Bertola 1993); and a more identical primary income dispersal suggests a better income share ensuing to the intermediate part that is expected to decrease productiveness and growth of population (Perotti, 1996). **Unified Model** gives the essence of classical approach that embraces at low income stages but not at advanced phases of development (Galor 2000).

4.2 Empirical Evidences

Although industrial strategies attempt to direct resource allocations in ways that exploit growth, income distribution actions seek to endorse greater equality. Factually, the development procedure has been considered by noticeable growths in inequality. The economic growth adjusts the grid of the economy and therefore may hypothetically distress

the dispersion of income and wellbeing. But is there any regular form in that evolution? Does the early stage of inequality disturb the rate of economic growth in an efficient way? If so, would progressive restructuring strategies expected to rush or delay growth? The lessons from literature on these queries, and in this context, what scenario exists in Bangladesh and other developing countries are briefly abridged in next sub-sections.

The conventional knowledge advocates that inequality is growth attractive till now. The key cause of the presumption is the rich have a high tendency to exclude than the poor. The higher disparity would therefore consequence in more collective savings and investment and here after would prime to fast capital accrual and growth. Various numbers of previous experiential literature grounded on household micro-data support this conservative understanding on constructive association between inequality and individual savings (Houthakker 1961; Kelly and Williamson 1968). On the contrary, based on cross-country cumulative data, findings on the outcome of disparity on collective saving is more diverse. Cook (1995) found inequality has a positive effect by means of 49 less developed countries data. According to the empirical study by Schmidt-Hebbel and Serven (2000) suggests that there is no decisive evidence that income inequality care for high aggregate savings by means of both cross-sectional data as well as panel data. In fact, most of the current experimental indication regarding the result of inequality on growth denies the conventional insight. Benabou (1996) studied for the effects of inequality, he concluded that primary disparity is undesirably linked up with long-run progress and the extent of the outcome is that a one standard deviation lessening in inequality increases the yearly progress rate of per capita by 0.5-0.8%. In contrast, Barro (1999) used a three-stage least squares estimator that indulgences the country-specific relations as random, and found that the inequality consequence on development is adverse in underprivileged countries.

4.3 Empirical Analysis: Bangladesh Perspective

In Bangladesh, what scenario has existed in the case of economic growth and inequality? Here, we discuss to answer the question to find out the relationship. The per capita regular income was measured as Tk. 2553 in 2010 which was Tk. 1485 and Tk 1128 in 2005, 2000 respectively. The monthly income enlarged by Tk 1068 (71.92%) in 2010 related to 2005 and enlarged by Tk 1723 (207.59%) compared to 1995-96. It is noteworthy that in 2010, rural income increased at a greater rate than that of urban income (BBS, 2012). In 2010, rural income enlarged by 58.29%, while urban income has increased by 57.45%. This upsurge of income in both rural and urban is enhanced in the course of poverty reduction.

Figure-4: Relation per capita income and income inequality in Bangladesh [BBS, 2012]
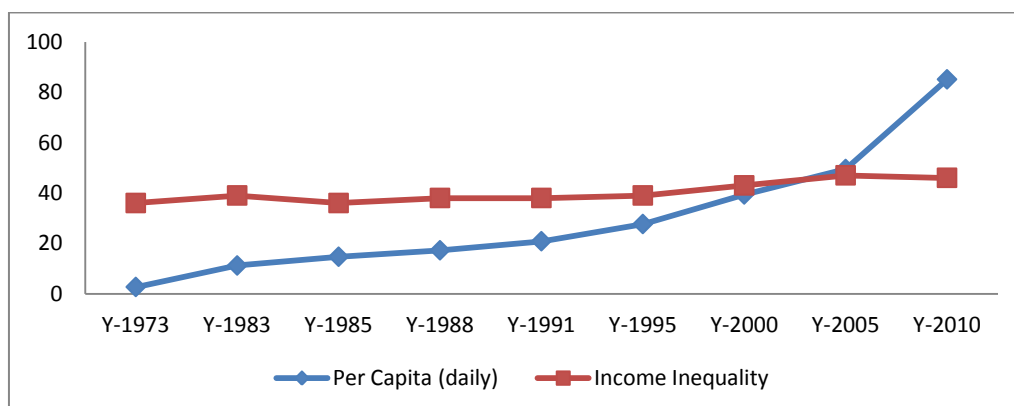
The Figure-4 above has been plotted with the per capita (daily) income and income difference (Gini indices at 100). Here it shows both the trends were in upward direction that indicates a positive relation, but after a certain period in the year of 2010 the inequality appears to descend again. The results propose that income inequality has a substantial encouraging consequence on economic growth. It strengthens the Kuznets' theory that at initial stage of growth the discrimination of income rises and inequality declines again as compared with per capita growth. But, due to data constraints of post 2010, it is quite impractical to conclude about the relationship of growth and inequality and ultimately it necessitates further study in future.

4.4 Empirical Analysis: Developing Countries

Understanding the relationship between growth and income inequality is crucial since more income inequality is habitually instituted in less developed nations. If there is a vibrant knowledge about the connection between income disparity and the degree of economic growth, specific economic plans could be working in the less developed states in the suitable method to deal with inequality and boost economic growth.

Figure-5: Per capita income against inequality in developing countries [Source: UNDP, 1994]
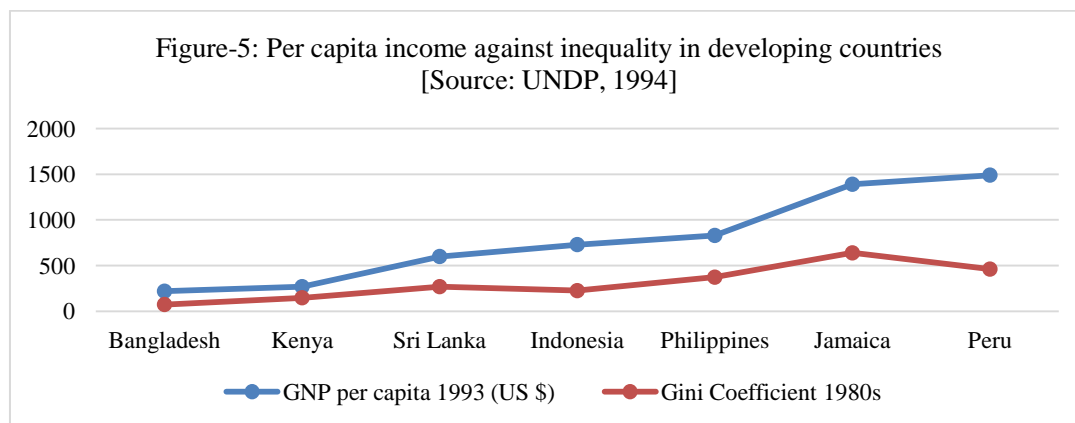
Figure-5 shows the mixed type of relationship between per capita GNP growth and inequality in some selected countries. While the Kenya was shown the high per capita with high inequality, Sri Lanka shows high per capita with less inequality. Again, in the case of Costa Rica and Brazil is shown with positive figure both the per capita income as well as inequality. From above two cases: first case proved that varied relations between per capita income and inequality, while the second case proved as positive relationship.

Table-6: GDP and income inequality of developing countries: 2004-2011

Country	Gross Domestic Products Growth by Year									Income Inequality
	2004	2005	2006	2007	2008	2009	2010	2011	Avr.	
Bangladesh	6.1	6.3	6.5	6.3	6.0	6.0	5.9	6.4	**6.19**	**31.8**
Haiti	-3.5	1.8	2.2	3.3	0.8	2.9	-5.4	5.6	**0.96**	**59.2**
Nepal	4.7	3.5	3.4	3.4	6.1	4.4	4.6	3.5	**4.20**	**47.2**
Paraguay	4.1	2.9	4.3	6.8	5.8	-3.8	15	3.8	**4.86**	**57.8**
Bolivia	2.7	6.8	2.8	5.3	6.1	3.4	4.1	5.1	**4.54**	**60.1**
India	7.6	9.0	9.5	10	6.2	6.6	10.6	7.2	**8.34**	**32.5**
Indonesia	5.0	5.7	5.5	6.3	6.0	4.6	6.2	6.5	**5.73**	**34.3**
Pakistan	7.5	9	5.8	6.8	3.7	1.7	3.8	2.4	**5.09**	**30.6**

Sri Lanka	5.4	6.2	7.7	6.8	6.0	3.5	8.0	8.2	**6.48**	**33.2**
Egypt	4.1	4.5	6.8	7.1	7.2	4.7	5.1	1.8	**5.16**	**34.4**

In Table-6 above and Figure-6 (below) shows the GDP growth and income inequality of developing countries. The average GDP growth was higher (8.34%) in India, but it gave a poorer figure in income inequality, proving a mixed relationship. Similarly, in Haiti carried lowest average in GDP growth and second highest in income inequality that indicates negative relationship. In case of Bangladesh and Sri Lanka it shows the positive relationship with sensible income growth and modest income inequality. In cross-country studies, the underlying hypotheses are that as income grows, equal distribution may affect the growth. Therefore, the proper tests should be made on time-series data. From the data from 2000 to 2010 for Bangladesh, it supports the Kuznets curve that at an initial stage of growth the inequality of income rises and inequality decreases again at 2010. But, further study is necessary to fully comprehend the composite connection between income disparity and economic growth.

Figure-6: Pattern of GDP growth and income inequality of developing countries
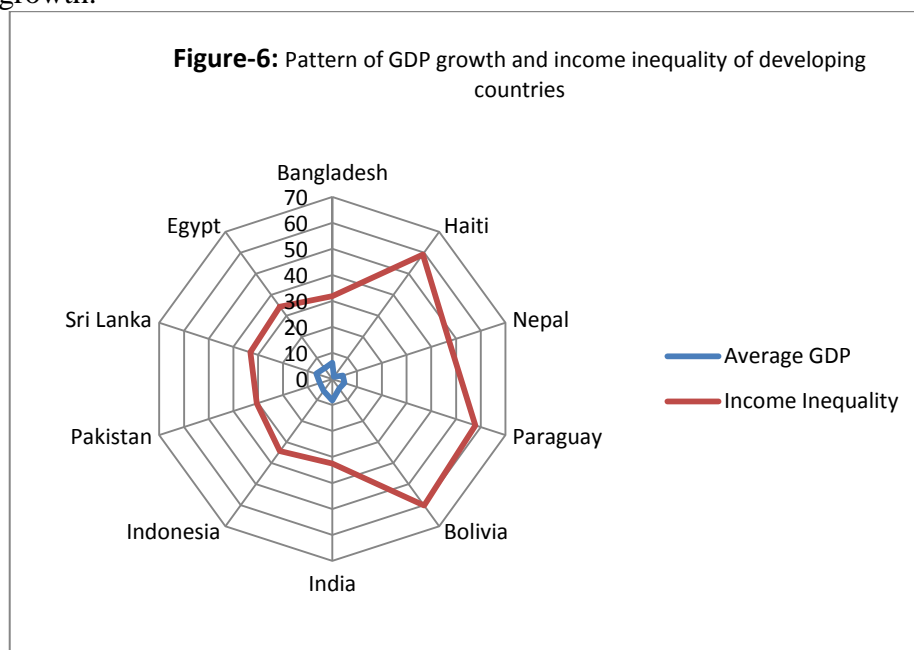
5.0 CONCLUSION

The paper considers the patterns of income distribution that have appeared in Bangladesh from 2000 to 2010. It also analyzed the relationship between growth and income distribution with special reference to developing countries. With the Gini indices, shares of income of the uppermost and lowermost deciles are also used to measure income inequalities and to show the patterns of income distribution in Bangladesh. It is revealed that Bangladesh has made noticeable economic growth, but income discrimination has augmented at a quick pace over time. It also examines the connection amongst economic growth and income disparities, using a new functional form that fits the data well. Most of the upshots recommend that

inequality has a noteworthy positive impact on economic growth rather than the growth effect on distribution. According to Kuznets' hypothesis, in primary stage of economic development - the variation of income rises and it decreases again after certain stage of development. Although, it provides empirical indication that income inequality could have a positive effect on economic growth in less developed nations. The positive relationship is a contrary result to the current empirical results, but directs that more investigation is required to fully comprehend the composite relationship between income distribution and economic growth.

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