Income Inequality in Bangladesh

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Abstract *The level and trend of economic inequality in Bangladesh is analyzed for the period 1973-2010 using various Household Income and Expenditure Survey data. The data set provides an opportunity to display the proliferations of distribution of both household income and expenditure, the nature of income transfer at different quintiles, deciles of households at rural, urban and national level. The findings suggests that that there have been perennial transfer of income from the lower four quintiles of the households to the highest quintile. The annual average rate of income loss has been -0.71% for the 1st (bottom) quintile, -0.54% for the 2nd quintile, -0.32% for the 3rd quintile, and -0.27% for the 4th quintile. The annual average gain in income share for the highest (top) quintile has been 0.46%. The Gini concentration ratio for both income and expenditure has shown increasing trend at rural, urban and national level over the period under consideration. The annual average rate of increase of Income Gini concentration ratio was 0.77%. The Gini concentration ratio for expenditure is somewhat lower while compared to itscorresponding value in the income distribution. In order or decelerate the concentration of income or expenditure efforts are required to be taken to bring more and more people of the poorer quintiles into gainful economic activities at home and abroad. Boosting up the manpower development by imparting TVET for overseas employment should deserve priority in national policy making given the bulge in working age population thus reaping the harvest of demographic dividend.*

Key Words: *Income inequality, Expenditure inequality, Gini concentration ratio, TVET, Demographic dividend.*

1. Introduction

Rising economic inequality through the distribution of income, consumption, wealth or assets is a major challenge in Bangladesh. Available household level information

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suggests that the distribution of income is much more unequal than the distribution of consumption. Income inequality as measured by the Gini coefficient for the distribution of income has risen substantially during the last four decades or so. The analysis is carried out by two interlinked method of measuring inequality: the Lorenz Curve and the Gini Coefficient. Both originate in the early years of the twentieth century. In 1905 Max Otto Lorenz published a paper in an American Statistical Journal outlining the technique which was to bear his name. Corrado Gini's index of income inequality was published shortly afterwards in 1912. The value of Gini coefficient varies between 0 meaning perfect equality (where every one in the society has exactly the same amount of income or assets) and 1 implying perfect inequality (where a single individual possesses all the income or assets and everyone else has nothing). Sometimes it is expressed as per cent where it varies between 0% and 100%. Clearly the two extremes are trivial; the key thing to bear in mind is that the lower the value that Gini coefficient takes place (between 0% and 100%), the greater the degree of prevailing equality. Apart from computing Gini Coefficient or Gini index analysis needs to be carried out according to income share accruing to different groups of population in deciles and quintiles or taking a ratio of income of top 10% of households to bottom 10% households. In Bangladesh such information is available in the published reports of the Household Income and Expenditure Surveys conducted by the Bangladesh Bureau of Statistics since 1973-74. In the present study, the level and trend of income inequality have been studied for the period 1973/74 to 2010 by rural urban background and also for per capita income. The extent of inequality in consumption expenditure has been studied for the period 1991-92 to 2010 by rural urban and per capita expenditure. The inequality is found to be higher for income while compared to the inequality of expenditure. In the last four decades or so, the inequality is on the rise in Bangladesh. A brief analysis has also been carried out on the Global inequality based data furnished by Global think tanks. Some recent concerns expressed by the UN Secretary-General, ESCAP, ADB, World Bank, OXFAM and OECD has been reiterated. There is a long list of suggestions for slowing down the increase in inequality in the 6th Five Year Plan and the research findings given by the international Organizations.

2.   Data

The current statistics of the Bangladesh Bureau of Statistics (BBS, 2013), Bangladesh Bank (2014) and Ministry of Finance (2014) are the main source of data. However on line data set available on the website of World Bank and OECD and other organizations have also been used.

3.   Findings

3.1   Income Share of Households in Quintiles

The share of income (per cent) accruing to different household quintiles is presented in Table 1 and

Figure 1**.** Over the period under consideration income share has declined in the 1st, 2nd, 3rd and 4th quintiles. Income share has increased in the top quintiles. There are clear indications that not only the poor, but the middle class also suffered losses in the share of their income. More specifically, the income share of the households in the bottom (1st) quintile decreased from 7.20 per cent in 1973-74 to 5.22 per cent in 2010. There being an over all loss of 1.78 percentage point over the period. The annual average rate of decline is -0.71 percent. The income share of households in the 2nd quintile was 11.30 per cent in 1973-74 which declined to 9.10 per cent in 2010. The over all decline for the period was 2.20 percentage points and the annual average rate of decline is -0.54. Then income share of the 3rd quintile decreased by 1.77 percentage points from 15.10 in 1973-74 to 13.33 in 2010 giving an annual average rate of decrease of -0.32 percent. The income share of households in the 4th quintile decreased at an annual average rate of -0.27 per cent. It is worthwhile to ponder here that annual rate of loss in income share varies inversely with the economic status of the households. The poorer the households the more they suffer in terms of share in income. On the basis of classification according to quintiles this phenomenon continues up to 4th quintiles. Now where have income share of these households gone?

The answer is available in the gain in income share of the households in the top quintile. There is hefty gain of income share of 7.38 percentage points from 44.40 in 1973-74 to 51.78 in 2010 displaying an annual rate of increase of 0.46 per cent. That's not all. We have provided information on income share of 9th and top(10th) deciles. It turns out that house holds in the 9th quintile did not make any gain in the share of income distribution. It appears that households in the 9th quintile have suffered loss in income share in some of the previous years, but in 2010 they could barely breakeven. Similar loss and gain in income share according to quintiles and deciles has also been observed in rural and urban areas. So income inequality is on the assent.

3.2   Ratio of Income Share in top 10% to Bottom 10%

This ratio is often used as a measure of saturation of income inequality. The values of this ratio according to rural urban background are given in table 2 and figure 2. At the national level this ratio has increased from 10.14 in 1973-74 to 17.94 in

Table 1: Income Share (Per cent) Accruing to Household
Quintile/Decile : National 1973-2010

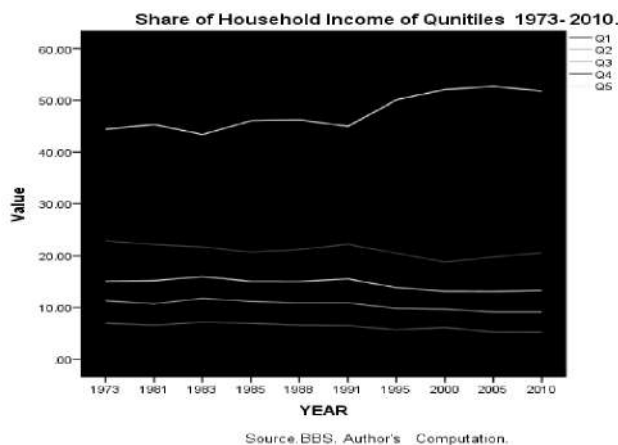| YEAR	1st Quintile (bottom)	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile (top)	9th Decile	10th Decile
1973-74	7.00	11.30	15.10	22.80	44.40	16.00	28.40
1981-82	6.64	10.72	15.20	22.12	45.32	15.79	29.53
1983-84	7.20	11.75	15.94	21.73	43.38	15.08	28.30
1985-86	6.99	11.18	15.07	20.70	46.04	14.58	31.46
1988-89	6.64	10.89	15.05	21.23	46.20	15.20	31.00
1991-92	6.52	10.89	15.53	22.19	44.96	15.64	29.32
1995-96	5.71	9.83	13.88	20.50	50.08	15.40	34.68
2000	6.15	9.68	13.17	18.79	52.01	14.00	38.01
2005	5.26	9.10	13.13	19.79	52.71	15.07	37.64
2010	5.22	9.10	13.33	20.56	51.79	15.94	35.85
Change During 1973-2010	-1.78	-2.20	-1.77	-2.24	7.38	- 0.06	7.45
Annual rate of change 1973-2010 (Per cent)	-0.71	-0.54	-0..32	-0.27	0.46	-0.01	0.72

Figure 1.

2010 giving an worsening situation for the bottom 10% households share in income. The overall increase in the ratio during the period has been 7.78 with an annual average rate of increase of the ratio as 2.13 per cent. For the rural area this ratio increased from 11.00 in 1973/74 to 15.20 in 2010 implying an over all

increase of 4.20 of the ratio and an annual average rate of increase of 1.06 per cent. The value of the ratio for urban area in 1973/74 was 9.12 which increased to 17.74 in 2010 indicating an over all increase of 8.42 for the whole period. The annual average rate of increase has been 2.56 per cent. It appears that the income share of lower 10% households in urban areas worsened more while compared to the income share of the bottom 10% households in rural areas. The average annual rate of increase in inequality using the ratio seems to be higher in the urban area (2.56%) while compared to the rural area where it is found to be 1.06%. Very high level of inequality in the urban area was observed for the years 2000 and 2005.

Table 2 : Ratio of Income Share Accruing to Top 0% to Bottom 10% Households:Rural, Urban and National 1973-2010

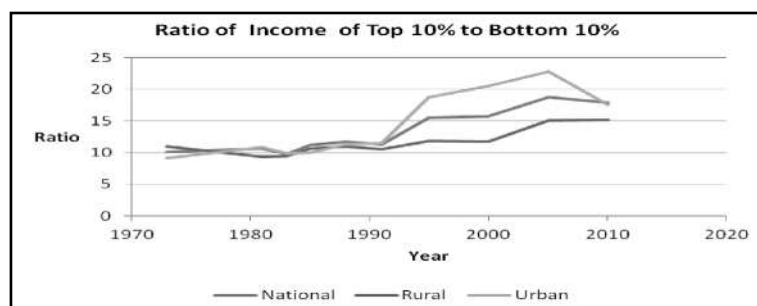| Year	Rato =Top 10%/Bottom 10%		
	National	Rural	Urban
1973-74	10.14	11.00	9.12
1981-82	10.70	9.40	10.85
1983-84	9.79	9.45	9.87
1985-85	11.19	10.62	10.00
1988-89	11.74	10.98	11.30
1991-92	11.33	10.50	11.53
1995-96	15.48	11.81	18.78
2000	15.77	11.72	20.45
2005	18.82	15.07	22.82
2010	17.92	15.20	17.54

Figure 2.

3.3 **Income Concentration Curve**

The income concentration curves for few selected years are given in Figure 3. Cumulative Income share (Percent) is shown on the vertical axis and cumulative households(per cent) is on the horizontal axis. As usual the concentration curves for income lies below the line of equal distribution(45 degree line) and the we

also observe that the more recent the curves the more they deviate from the line of even distribution. We see more concentration of income in recent years while compared to past years.
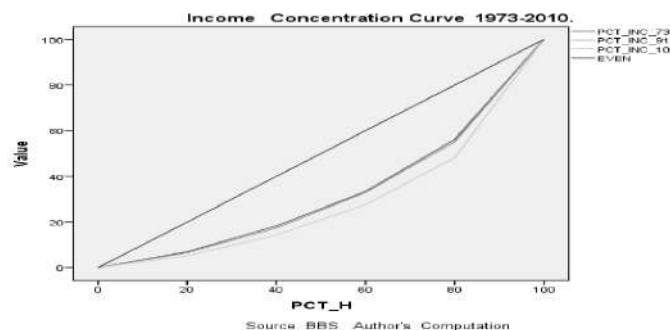

Figure 3.

3.4 Gini Concentration Ratio or Gini Index for Income

Income inequality as measured by the Gini coefficient or Gini index for the distribution of income has risen substantially during the last four decades or so. The measure of income inequality is given by Gini coefficient due to Italian Statistician Corrado Gini. The value of Gini coefficient varies between zero meaning perfect equality and 1 implying perfect inequality where a single individual possesses all the income or assets. Sometimes it is expressed as per cent where it varies between zero and 100. The value of the Gini coefficients are given in table 4 and Figure 5. The value of Gini concentration index increased from 0.36 in 1973-74 to 0. 46 in 2010 at the national level The over all increase during the period has been 0.10 and the annual average increase has been 0.77 per cent. In the rural area the value of Gini coefficient increased from 0.35 in 1973-74 to o.43 in 2010 and in the urban area the value of Gini coefficient increased from 0.38 in 1973-74 to 0.45 in 2010. The values of the Gini concentration ratio has been found to be higher in the urban area while compared to their corresponding values in the rural areas in all the years suggesting the prevalence of more income inequality in the urban areas while compared to the rural areas. This urban-rural difference in income inequality widened in the years 2000 and 2005. By and large we can see that the inequality in Bangladesh is on the rise. There has been a slight decrease in inequality in the urban area during 2005-2010.

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Table 3: Income Gini Index 1973 to 2010

Year	National	Rural	Urban
1973-74	0.36	0.35	0.38
1981-82	0.39	0.36	0.41
1983-84	0.36	0.35	0.37
1985-86	0.38	0.36	0.37
1988-89	0.38	0.37	0.38
1991-92	0.39	0.36	0.40
1995-96	0.43	0.38	0.44
2000	0.45	0.39	0.50
2005	0.47	0.43	0.50
2010	0.46	0.43	0.45
Change during 1973-2010	0.10	.08	0.07
AverageAnnual rate of change(Per cent)	0.77	0.63	0.51

Source and Note: BBS. Statistical Yearbook of Bangladesh. Several Years.
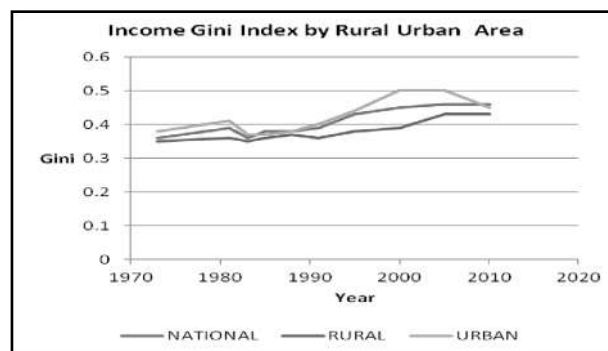*HIES 2010 Report. Also other years. Author's computation.*

Figure 4.

3.5 Gini Coefficient of Per capita income

We have also information available for Gini coefficient on per capita income for the period 2000-2010. The values of the Gini coefficient of per capita income are similar to those obtained for household income. The over all change during the period and the average annual rate of change are also shown in table 5. Rural income inequality as given by Gini coefficient has increased from .393 in 2000 to 0.431 in 2010, but there is some decline in the Gini coefficient in the urban area from 0.497 in 2000 to 0.452 in 2010.

Table 5: Gini Index Per Capita Income : 2000-2010.

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
Change during 2000-10	0..007	.038	0.045
AverageAnnual rate of change(Per cent)	0.15	0.97	—0.90

Source: BBS

3.6 **Income Share of Bottom 40 per cent of Households. 1973-2010.**

The income share (per cent) accruing to bottom 40% of the households is given in table 6 and Figure 6. It is the econcern of the development partners to improve the well being of the poorer segment of the population. We see from the table that the income share accrued to bottom 40% of the households decreased from 18.30 per cent in 1973/74 to 14.32 per cent in 2010. The over all decrease in income share for the period has been 3.98 percentage point and the annual average rate of decrease has been 0.60 per cent.

Table 6: Income Share (Per cent) Accruing to Bottom
40 per cent of Households: National 1973-2010

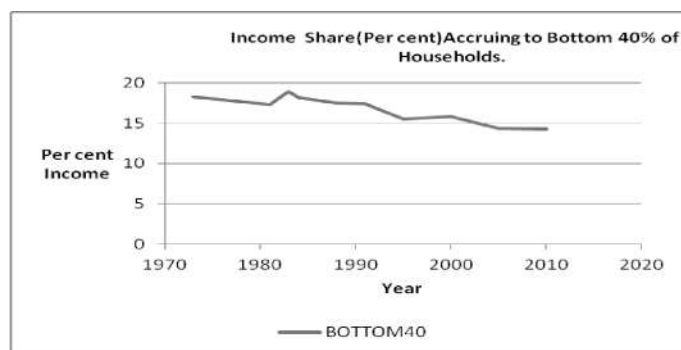| YEAR	Income Share (Per cent) Accruing to Bottom 40 per cent Households
1973-74	18.30
1981-82	17.36
1983-84	18.95
1984-85	18.17
1988-89	17.53
1991-92	17.41
1995-96	15.54
2000	15.83
2005	14.36
2010	14.32
Change during 1973-2010	- 3.98
Average Annual rate of change(Per cent)	-0.60

Figure 6.

4.   Expenditure Inequality

4.1   Expendture Share Accoding to Quintiles of Households

Information on expenditure of consumption is available for the period 1988-89 to
2010. Expenditure inequality has been found to be lower while compared to the
respective values of income inequality. Regarding consumption expenditure of the
different quintile groups we see that the household s in the bottom(1st) quintile has
suffered a shrinkage of 1.16 percentage points in consumption expenditure, the

Table 7: Expenditure Share (Per cent) of Household Quintile: National 1988-2010

YEAR	1st Quintile (bottom)t	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile (top)
1988-89	10.04	13.82	17.25	21.65	37.24
1991-92	9.96	13.99	17.58	22.25	36.22
1995-96	9.26	12.91	16.40	21.28	40.15
2000	8.66	12.00	15.70	21.07	42.57
2005	8.79	12.07	15.71	20.97	42.46
2010	8.88	12.37	16.07	21.27	41.41
Change During 1988-2010	-1.16	-1.45	-1.18	-0.38	4.17
Annual rate of change 1988-2010 (Per cent)	-0.52	-0.47	-0.31	-0.08	0.51

Source and Note: BBS. Statistical Yearbook of Bangladesh. Several Years.
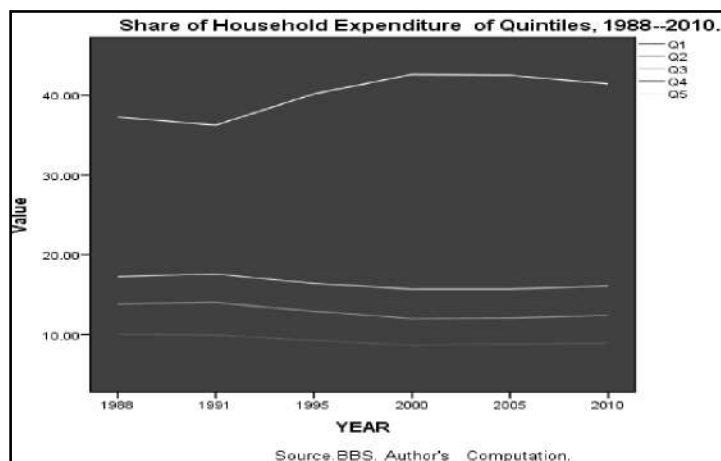*   HIES 2010 Report. Also other years. Author's computation.*

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Figure 7

2nd quintile suffered a shrinkage of 1.45 percentage points, the third quintile suffered a shrinkage of 1.18 percentage points and the fourth quintile suffered a loss of .38 percentage points. The poor, the lower middle class and the upper middle class all experienced a squeezed consumption basket. It is only the rich households in the top (5th) quintile who had the privilege of enjoying a expanded consumption basket of goods and services. The expenditure of top quintile increased by 4.17 percentage points. The poorer the households the more is the shrinkage in consumption expenditure share over time. Based on the information on quintiles as many as 80 percent households have their share in consumption expenditure squeezed over time. So inequality is on the increase.

4.2 Expenditure Concentration Curve

The consumption expenditure concentration curves for few selected years are given in Figure 8. Cumulative share in consumption expenditure (Percent) is shown on the vertical axis and cumulative households (per cent) is on the horizontal axis. The concentration curves for consumption expenditure lies below the line of equal distribution (45 degree line) and the we also observe that the curves belonging to more recent years deviate more from the line of even distribution. We see more concentration in consumption expenditure in recent years while compared to past years.
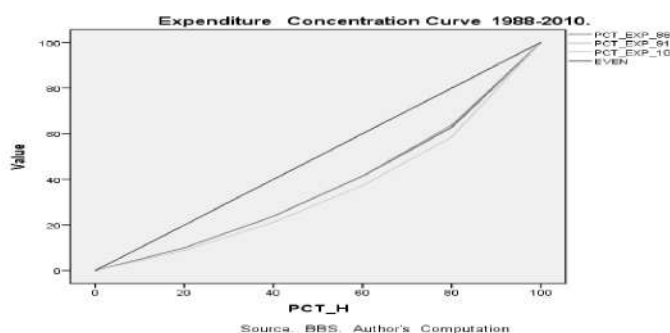
Figure 8.

4.3 Gini concentration ratio for Consumption Expenditure

The Gini concentration ratio for consumption expenditure according to rural urban areas is given in table 8 and Figure 9. Information on Gini consumption expenditure concentration ratio are available for the period 1991-2010. At the national level Gini concentration of expenditure increased from0.26 in 1991 to o,32 in 2010. The over all increase in the ratio during the period has been 0.06 and the annual average rate of increase has been 1.15 per cent. In the rural area the Gini concentration ratio for expenditure increased from 0.25 in 1991 to 0.27 in 2010 with an over all increase of 0.02 for the period and an average annual rate of increase of 0.40 per cent. The values of the Gini concentration ratio has been found to be higher in the urban areas while compared to the corresponding values in the rural areas. Further, the values of Gini concentration ratio for consumption expenditure have been found to be lower than the corresponding values of the Concentration ratio for income in all the years and in rural and urban areas. We can reasonably argue that the analysis provides convincing evidence that there is less inequality in consumption expenditure while compared to inequality in income.

Table 8: Consumption Expenditure Gini Index: 1991 to 2010

Year	National	Rural	Urban
1991-92	0.26	0.25	0.31
1995-96	0.31	0.27	0.37
2000	0.33	0.28	0.37
2005	0.33	0.28	0.36
2010	0.32	0.27	0.34
Change During 1991-2010	0.06	0.02	0.03
Annual rate of change			
1988-2010 (Per cent)	1.15	0.40	0.48

Source and Note: BBS. Statistical Yearbook of Bangladesh. Several Years.
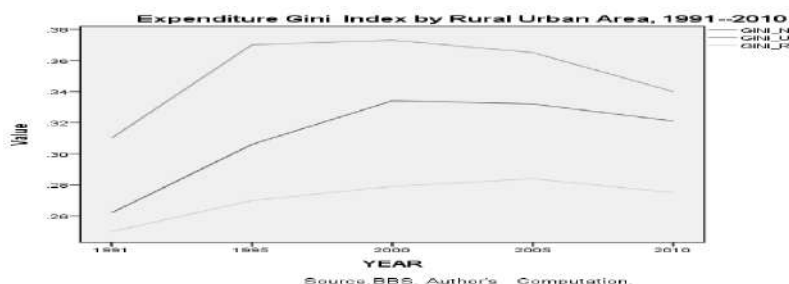   *HIES 2010 Report. Also other years.*

Figure 9.

4.4   Gini Concentration Ratio for Per capita Expendture

We have also information available for Gini coefficient on per capita expenditure for the period 1991-2010. The values of the Gini coefficient of per capita expenditure are similar to those obtained for household expenditure. The over all change during the period and the average annual rate of change are also shown in table 9. At the national level expenditure inequality as given by Gini coefficient has increased from .26 in 1991 to 0.32 in 2010. In the rural areas the Gini coefficient decreased from 0.25 in 1991 to 0.28 in 2010. In the urban area the value of the Gini coefficient of per capita expenditure increased from 0.31 n 1991 to 0.34 in 2010.

Table 9: Gini Index of Per Capita Expenditure

Year	National	Rural	Urban
1991-92	0.26	0.25	0.31
1995-96	0.31	0.27	0.37
2000	0.31	0.27	0.37
2005	0.33	0.28	0.36
2010	0.32	0.28	0..34
Change During 1991-2010	0.06	0.03	0.03
Annual rate of change			
1988-2010 (Per cent)	1.15	0.60	0.48

4.5   Expenditure Share of bottom 40 per cent of households. 1988-2010

The expenditure share (per cent) accruing to bottom 40% of the households is given in table 10 and Figure 10. It is the concern of the development partners to improve the well being of the poorer segment of the population. We see from the table that the expenditure share of the bottom 40% of the households decreased from 23.82 per cent in 1973/74 to 21.25 per cent in 2010. The over all decrease in expenditure share for the period has been 2.57 percentage point and the annual average rate of decrease has been - 0.4 per cent. The expenditure share of the

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Table 10: Income Share (Per cent) Accruing to Bottom 40 per cent of Households : National 1973-2010

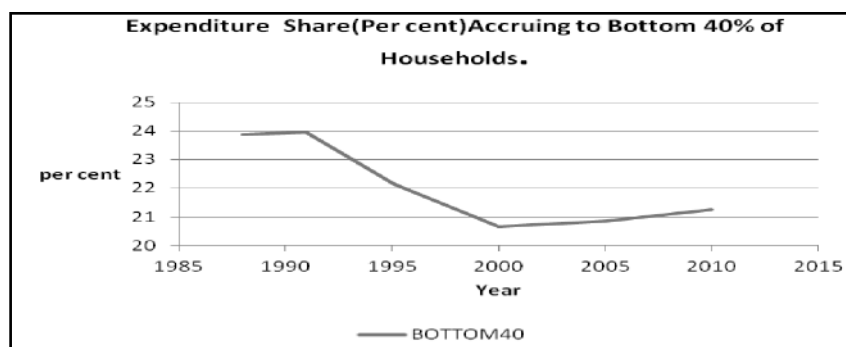| YEAR	Income Share (Per cent) Accruing to Bottom 40 per cent Households
1988-89	23.82
1991-92	23.95
1995-96	22.17
2000	20.66
2005	20.86
2010	21.25
Change during 1988-2010	-2.57
Average Annual rate of change(Per cent)	-0.49

Source: BBS. Author's computation.

Figure 10.

bottom 40 per cent of households has shown some decrease in the 1990s but has started to increase 2000 onwards. Good news at long last for the development partners and policy makers for their advice and program inputs. Something to cheer!

5.   Employment and Labour Market

Due to age structure transformation of population presently Bangladesh is experiencing bulge in working age population. Studies (Matin, 2010, 2012) have shown that the population of the working age started to grow faster in comparison to general population starting from 1980 and it will continue up to 2040. This phenomenon is also known as period of demographic dividend. This is a once in a life time phenomenon for any country and it is not revisited. In order to reap the benefit of demographic dividend Bangladesh has to invest more in employment generation. However, beyond the year 2040, the country will have more and more

dependent population while compared to working age population. But we have lot of unemployed or underemployed working age population. In spite of adoption of several investment friendly policies for both local and foreign capital, the investment rate as per cent of GDP is quite stagnant in recent years. Consequently it hampers employment generation in the domestic market and also the growth rate.

6.   Conclusion

Policies should be adopted in such a way that income of the lower 90 per cent of the households increases at faster rate than the rate of increase of income of the top 10% of the households. Some steps should be taken as redistribution of income and wealth in favour of the poor where possible such as safety net programs. It has to be supported by strong political commitment and leadership. The policy instruments include addressing weaker labour market institutions, inadequate social protection systems, poor-quality education, inadequate access to credit etc. There is need of focused attention on three key elements of economic policy to make economic growth inclusive and sustainable within and across generations: greater investment in building human capital of the poor, prudent use of safety nets, and policies to make growth greener.

References

Bangladesh Bank. Economic Trends. June 2014. Also previous Reports. Statistics Department. Bangladesh Bank. Dhaka.

BBS. Statistical Yearbook of Bangladesh 2012. Bangladesh Bureau of Statistics. Ministry of Planning. Dhaka.

BBS. 2012. Population and Housing Census 2011. Socioeconomic and Demographic Report. National Series. Volume 4. Bangladesh Bureau of Statistics. Ministry of Planning. Dhaka

BBS. 2011. Household Income and Expenditure Survey(HIES) 2010. Also previous Reports.

Credit Suisse. Global Wealth Report 2014.

Conservable Economist. September 27th, 2011. The Kuznets Curve and Inequality Over the last 100 Years.

Causa, Orsetta, Alain de Serres and Nicolas Ruiz 2014. Can growth-enhancing policies lift all boats? An analysis based on household disposable incomes, OECD Economics Department Working Papers, OECD Publishing, Paris, forthcoming.

Economist, London. October 13th, 2012. For Richer, for Poorer.

ESCAP. 2014. Economic Survey of Asia and the Pacific. 2014. United Nations. New York.

Gini, C. (1912). "Italian: Variabilità e mutabilità" 'Variability and Mutability', C. Cuppini, Bologna, 156 pages. Reprinted in Memorie di metodologica statistica (Ed. Pizetti E, Salvemini, T). Rome: Libreria Eredi Virgilio Veschi (1955).

Hussain, Z and J. Zutt. 2014. What has happened to Poverty and Inequality Lately ?. The Financial Express. 21st Anniversary Issue Supplement Part 2. November 27th, 2014. Dhaka

Islam, R.2013. Addressing the Challenge of Economic Inequality. The Daily Star. 22nd Anniversary Special Supplment March 19th, 2013. Dhaka.

www.inequality.org/income- inequality/charts

Matin, K. A. 2010. Demographic Dividend In Bangladesh: Opportunities And Challenges.. Paper presented at the First International Conference On Theory and Applications of Statistics organized by the DUSDAA held at Dhaka on December 26-28, 2010. Dept of Statstics

_____ 2012. Demographic Dividends in Bangladesh: The Time To Act is Now. Paper presented at 18th Biennial Conference of the Bangladesh Economic Association(BEA) held in Dhaka during September 14-16, 2012.

Osmani, S. R. 1996. Is Income Equality Good for Growth. Pp 30-60 in Abu Abdullah and A. R. Khan(eds), State Market and Development. Essays in Honour of Rehman Sobhan ., The University Press Limited. Dhaka.

Titumir, R. A and K. M. M. Rahman. 2011. Poverty and Inequality in Bangladesh. Working Paper. Unnayan Onneshan. Dhaka,

Krugman, P. 1992. The Rich, The Right and the Facts: Deconstructing Income Distribution Debate. The American Prospect. The Fall Issue.

————-2014. The Inequality Denial. The New York Times. June 1, 2014

Kuznets, S. 1955. Economic Growth and Income Ineqauality. American Economic Review. 45:1-28

Lorenz, M. O. (1905). Methods of measuring the concentration of wealth.Journal of Statistical Association (Publications of the American Statistical Association, Vol. 9, No. 70) 9 (70): 209–219.

MoF. 2014. Bangladesh Arthanaitik Samikkha (Bangladesh Economic Review) 2014. Finance Division. Ministry of Finance.Dhaka. Dhaka

Persson, T and G. Tabellini. 1994. Is Inequality Harmful for Growth. Review of Economic Studies 60:775-66.

OECD. 2014. Income Inequality Up date June 2014. OECD Publishing, Paris

Planning Commission. 2011. Sixth Five Year Plan FY2011-FY015. Accrelating Growth and Reducing Poverty. Part I: Strategic Directions and Policy Framework. Ministry of Planning. Dhaka.

Planning Commission. 2013. MDGs: Bangladesh Progress Report 2012. General Economic Division. Planning Commission. Ministry of Planning. Dhaka

Sen, A. K. 1992. Inequality Reexamined. Calendron Press. Oxford.

Yunus, M. 2014. Redesigning economics to redesign the World. Why are we missing a collective destination?. The Financial Express and the Daily Star. Dhaka 18-19 November, 2014.

Wade, R. H. 2005. Inequality and Globalization. Pp 23-34 in Q. K. Ahmad(ed), Emerging Global Economic Order and The Developing Countries. Bangladesh Economic Association/The University Press Limited. Dhaka.