

THE STRUCTURE AND DISTRIBUTION OF PERSONAL INCOME AND POVERTY REDUCTION IN BANGLADESH DURING THE 1990S

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This paper surveys the changes in the composition and distribution of personal income and their consequence for poverty reduction in Bangladesh during the 1990s by analyzing the data from the Household Expenditure Surveys of 1991/92 and 1995/96 and the Household Income and Expenditure Survey of 2000. During the decade under review, rural personal income increased at a slow rate but there was a radical structural change in its composition, characterized by a rapid decline in the contribution of agriculture and a rise in the importance of non-farm activities, among other changes. In comparison, urban personal income increased at a much faster rate although it did not reveal a dramatic change in structure. Income distribution became steadily more unequal in both rural and urban areas. This was largely due to a change in composition of income in favor of disequalizing sources of income and an increase in the extent of the disequalizing contribution that income from a number of sources made to overall inequality. For Bangladesh as a whole, rising disparity between urban and rural incomes has been a further source of increased inequality in the overall income distribution. Increased inequality in the distribution of income has offset more than three-quarters of the potential poverty reduction that would have been realized from the actual growth in personal income in the absence of an increase in inequality. The paper discusses the priorities for and the limitations on a future strategy of containing the rise in inequality of income distribution.

I. INTRODUCTION

Despite its moderate growth performance, Bangladesh has experienced major changes in the structure of employment and income in the recent past, especially in rural areas where most of the people live. The inequality in the distribution of income has also steadily increased. A careful documentation and understanding of these changes is essential for the design of policies for development and poverty reduction. The availability of household level data from three surveys during the last decade of the twentieth century provides an opportunity to analyze and understand the nature of these changes.

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The purpose of this paper is to use the data from the three surveys to make comparable estimates of personal income for rural and urban Bangladesh, including their source, and to estimate the indices of inequality in the distribution of personal income, along with that of its sources. It also has the objective of demonstrating the effect that the changing level and distribution of personal income had on the incidence of poverty.

An earlier study by the present authors (Khan and Sen 2001) made an analysis of some of these issues on the basis of the data from Household Expenditure Surveys (HES) of 1991/92 and 1995/96. That study could only discern changes over a short period of four years, a period too short to allow a reliable identification of longer-term trends. The availability of the data from Household Income and Expenditure Survey (HIES) of 2000 makes it possible to analyze changes over a longer period, a period that was characterized by large-scale changes in domestic economic policies and international economic circumstances.¹ The present study also differs from the earlier study by Khan and Sen in so far as it numerically demonstrates the consequence of the change in income and its distribution for the change in the incidence of poverty.

II. STRUCTURE AND COMPOSITION OF INCOME

Income is classified into six major sources while certain residual elements, not belonging to any of the six sources, are lumped together in a residual category of “other income”. These sources of income are as follows:

1. Income from Farming
2. Wages and Salaries
3. Income from Non-Farm Enterprises
4. Property Income
5. Remittances and Transfer
6. Rental Value of Housing
7. Other Income

Income from farming represents return to farming enterprise, owned land, family labor and other owned assets invested in farming. It represents the value of output from farming, in which household consumption of self-produced output, valued at market

¹ All these surveys were carried out by the Bangladesh Bureau of Statistics (BBS) and are to be found in BBS 1995, 1998 and 2003.

price, is included with the value of sales, less the value of purchased inputs, hired labor and payments for the services of land and assets rented in. For rural areas and only for 2000, income from farming is further classified into four sub-sectors, namely crop production, livestock, fishery and forestry.

Wages and salaries are further classified into several categories. For the non-agricultural sector, a distinction is made between wages and salaries. This distinction is explicitly made only in HIES 2000 while the preceding surveys adopt a classification of wages into that from casual and regular employment. Not much is said in HIES 2000 about the distinction between wages and salaries except that wage-earning workers are paid daily or weekly while salaried workers are paid monthly. According to this principle it seemed reasonable to surmise that wage from regular employment shown in HES 1991/92 and 1995/96 is comparable with salaries shown in HIES 2000. Following the same logic, wage from casual employment in 1991/92 and 1995/96 is assumed comparable with wages in 2000. By and large “wage-earners” seem to represent blue-collar workers with relatively low or no skills while “salaried workers” include white-collar employees and/or workers with higher skills. The real significance of the distinction between the two, demonstrated later, is that wages largely accrue to low-income households while salaries are mostly appropriated by high-income households. For rural areas and for Bangladesh as a whole, agricultural wages are shown separately while for urban areas it is included in a residual category of wages.²

Income from non-farm enterprise represents returns to enterprise, family labor and owned assets. Sometimes this is loosely referred to as “entrepreneurial” income of “profit” for brevity. It includes all non-agricultural enterprises owned by households, and self-employment, in manufacturing and services.

Property income represents rent, interest and “dividends” on assets. Only for 2000 the division of property income into rent from leased-out land and return from other rented-out assets is available.

² Compared to Khan and Sen 2001, there is a minor difference in income classification in this paper: the small amount of “other wages and pensions” in rural areas for 1991/92 and 1995/96 is included in other income. Agricultural wages include a component of wages from regular employment/“salaries”, but their distribution is not radically different from the distribution of the rest of wages. There did not seem to be any advantage in separating them.

Remittances and transfers include all direct transfers received by households. While a classification into sources, between private and public transfers, is not available, it appears that most of it consists of private transfers. For 2002 a three-way classification is available into domestic (presumably private) cash remittances; (private) cash remittances received from abroad; and all remaining (private and public) gifts, subsidies and other forms of transfer.

Rental value of housing represents the imputed rental value of owner-occupied housing at “market” rent. It represents that proportion of the market rent of the house which is equal to the proportion of the value of the house that consists of the owner’s equity.

Income estimates of this study differ from the official estimates made by the BBS. The main source of the difference is the exclusion from the definition of this study a number of capital receipts – e.g., revenue from sale of assets; withdrawal of working capital, savings deposits and provident funds; receipts from repayment of loans made in the past; and possibly some borrowing – that are included in the official BBS definition of income.³

Change in Composition of Rural Income

Table 1 shows per capita rural personal income and its sources at current prices for each of the three years. The most important change that has taken place over the decade is the decline in the relative importance of agricultural production activities as a source of income for rural households. Rural household income derived from agriculture may be said to consist of three distinct types of factor payment: profits (broadly defined to include returns to entrepreneurship, owned land and assets and family labor, included in income from farming), wages and rent. Together these sources accounted for 53 per cent of personal income in 1991/92 whence it fell to 47 per cent in 1995/96 and to just below 35 per cent in 2000. Per capita income from all agricultural activities together

³ See Khan and Sen 2001 for further details on the difference between income definitions adopted in this study and in official BBS estimates.

remained virtually unchanged in nominal terms and absolutely declined in real terms by 25 per cent or more over the decade depending on the choice of the deflator.⁴

Among the three kinds of factor payments for agricultural activities, there was a steady rise in the share of wages in total agricultural income, from about 20 per cent at the beginning of the decade to about 30 per cent at the end. “Profits” (income from farming) fell steadily and sharply, from 78 per cent to 60 per cent. Rents rose quite sharply, from less than 2 per cent of total agricultural factor income in 1991/92 to about 10 per cent in 2000. Among the reasons behind the rise in the share of rent is a steady rise in the incidence of tenancy for which evidence is cited later.

As a proportion of per capita rural income from *all* sources, agricultural “profits” (farm income) fell even more sharply, its share being halved over the period under review. Agricultural wages as a proportion of rural income remained roughly unchanged while rents as a proportion of income rose.

Factor payments from non-agricultural production activities – “profits”, wages and salaries – together constitute a mirror image of the trend in factor payments for agricultural activities: together they rose from about a quarter of rural income in 1991/92 to 40 per cent in 2000. They represent handicrafts, other manufacturing and services both in private, non-government (NGO) and public sectors although information is not available on their composition by sector or type of ownership. As a proportion of total factor payments for non-agricultural activities, “profits” fell, wages changed very little and salaries rose, especially sharply during the late 1990s. As a proportion of *all* rural income, non-farm “profits” rose, as did wages. There was a dramatic rise in salaries as a proportion of total rural income, from about 5 per cent in 1991/92 to nearly 14 per cent in 2000. This almost certainly indicates a change in composition of non-agricultural enterprises in favor of service activities, including public and NGO organizations.

Factor payments from all agricultural and non-agricultural production activities together account for approximately 80 per cent of all rural personal income throughout the period. The largest of the remaining components is transfer including cash remittances. There was a small rise in this source of income, as a proportion of total, over the decade. By 2000, the only year for which such information is available, cash

⁴ The choice of deflators is discussed later.

remittances made by Bangladeshi migrant workers abroad came of be the largest component of these transfers, amounting to almost eight per cent of rural income. Domestic cash remittances amounted to just over three percent of income. Other transfers, including net transfers made by the public sector, remained small.

Table 1
Per Capita Annual Income of Rural Households (Current Taka)

	1991/92		1995/96		2000	
	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent
Income from Farming	2794.57	41.44	2656.59	35.04	2189.58	20.92
Crop Production	...	...	...	...	1674.96	16.01
Livestock	...	...	...	...	153.36	1.47
Fishery	...	...	...	...	169.61	1.62
Forestry	...	...	...	...	191.65	1.83
Wages and Salaries	1372.23	20.35	1870.16	24.66	3261.85	31.17
Agricultural Wage	732.41	10.86	838.39	11.06	1076.78	10.29
Non-Agricultural Wage	285.43	4.23	488.46	6.44	766.77	7.33
Non-Agricultural "Salary"	354.39	5.25	543.31	7.17	1418.31	13.55
Non-Farm Enterprise	1034.04	15.33	1448.32	10.10	2031.52	19.41
Property Income	59.79	0.89	103.73	1.37	429.02	4.10
Rent from Land	...	...	...	...	357.22	3.41
Return to Other Assets	...	...	...	...	71.81	0.69
Remittances and Transfer	735.00	10.90	724.71	9.56	1273.42	12.17
Domestic Remittance	...	...	...	...	348.13	3.33
Foreign Remittances	...	...	...	...	788.06	7.53
Other Transfers	...	...	...	...	137.24	1.31
Rental Value of Housing	522.10	7.74	425.37	5.61	481.91	4.61
Other Income	226.57	3.36	353.75	4.67	797.05	7.62
TOTAL INCOME	6744.30	100.00	7582.63	100.00	10464.35	100.00

Rental value of housing, as a proportion of income, was not only small to begin with but also fell over the period as did its absolute value. Considering that practically all rural housing is owner-occupied, this is an indication of the declining average housing condition in rural Bangladesh.⁵

Change in Composition of Urban Income

Table 2 shows per capita urban personal income and its sources. Compared to that in rural areas, the change in the composition of urban personal income is less dramatic and less clear. Factor income received from non-agricultural production activities – “profit”, wage and salary – has accounted for nearly two-thirds of all personal income in the second half of the decade under review, rising from 59 per cent in 1991/92. Unfortunately, this diverse category, encompassing all industries, services, public administration and non-governmental voluntary activities, can not be further disaggregated. As a proportion of total factor earnings from non-farm production, “profits” went up from 48 per cent in 1991/92 to 57 per cent in 1995/96, but fell sharply thereafter to less than 44 per cent of total. These erratic changes could be due to fluctuation in the profitability of non-farm activities or changing shares of production and non-production activities or both. As a proportion of total factor earnings in non-farm enterprises, wages fell and salaries, after falling between 1991/92 and 1995/96 rose sharply thereafter. As a proportion of total urban personal income, “profits” rose between 1991/92 and 1995/96, but fell thereafter to the same level in 2000 as in 1991/92; wages fell; and salaries rose, especially sharply during the late 1990s. These changes indicate that there was a rise in the proportion of salaried employment (public administration and “not-directly-productive” services) in the non-farm sector during the late 1990s.

About 12-13 per cent of urban personal income used to be derived from factor returns in farming in the early and mid 1990s. This fell drastically, to about three per cent, in 2000. This probably indicates a decline in the extent of agricultural production activities that takes place within the geographical boundary of urban areas.

⁵ It should however be noted that this component of income is an imputed value based on the estimated value of housing. It is hard to know how housing values are estimated by the HES/HIES given the near absence of a housing market in rural Bangladesh.

Table 2

Per Capita Annual Income of Urban Households (Current Taka)

	1991/92		1995/96		2000	
	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent
Income from Farming	643.25	6.09	860.57	5.80	499.20	2.41
Wages and Salaries	3862.29	36.55	5320.64	35.84	7877.52	38.02
Non-Agricultural Wage	1058.00	10.01	1204.16	8.11	1662.95	8.03
Non-Agricultural Salary	2155.74	20.40	3043.06	20.50	6029.67	29.11
Other Wage	648.54	6.14	1073.43	7.23	184.90	0.89
Non-Farm Enterprise	3003.30	28.42	5597.56	37.70	5962.47	28.78
Property Income	396.95	3.76	507.62	3.42	1647.21	7.95
Rent from Land	...	...	...	...	329.55	1.59
Return to Other Assets	...	...	...	...	1317.66	6.36
Remittances and Transfer	979.01	9.27	1068.52	7.20	2092.05	10.10
Domestic Remittance	...	...	...	...	399.30	1.93
Foreign Remittance	...	...	...	...	808.00	3.90
Other Transfers	...	...	...	...	884.75	4.27
Rental Value of Housing	970.73	9.19	1006.64	6.78	1328.50	6.41
Other Income	710.33	6.72	484.47	3.26	1309.96	6.32
TOTAL INCOME	10565.86	100.00	14846.01	100.00	20716.91	100.00

Transfers and remittances show no trend as a proportion of income and have been about 10 per cent of all personal income at the beginning and the end of the period under review. Cash remittances are less important in urban areas than in rural areas as a proportion of all transfers although their absolute per capita level is a little higher. Per capita foreign cash remittance received by an urban household is also a little higher than per capita foreign remittance received by a rural household. The same is true of domestic cash remittance. Quite unlike that in rural areas, non-remittance transfers constitute the largest component of income from transfers and remittances in urban areas.

Income from property increased sharply as a proportion of urban income, all of it taking place in the late 1990s, to reach 8 per cent of total in 2000. Rent from land, almost certainly representing the earnings of absentee landowners, is a small proportion of urban personal income, but per capita rent received by the urban population is almost as high as per capita rent received by the rural population. Return to non-land assets represents most of the personal income derived from property.⁶

Finally, rental value of housing, as a proportion of urban personal income, fell significantly over the period and there was little increase in its per capita absolute level in real terms. Information on market rents, on which imputed rents are based, should be much better in urban areas than in rural areas. If the estimates are accurate then one must conclude that, despite the comparative boom in upper-income urban housing construction in major cities, the average housing condition for the urban population showed little improvement, unless there was a major shift in favor of rented as compared to owned accommodation, for which little evidence is known.

Macroeconomic Issues of Measurement

The main purpose of this study is to analyze the change in the composition and distribution of personal income and their consequences for poverty reduction. The question whether different surveys measured personal income equally comprehensively or not, and whether the growth rates represented by the income estimates accurately reflect true change in income may not therefore appear to be of central concern to its purpose. And yet these questions are of relevance for a number of reasons. If the under/overestimation of income in a certain year is due to the disproportionate under/overestimation of one or a few sources of income then it distorts the estimation of the change in the composition of income between that year and any base or terminal year. Furthermore, different components of income have different effects on the distribution of income. If a certain component of income, which mainly accrues to poor (rich) households, is underestimated, it will create an upward (downward) bias in the estimation

⁶ It should be noted that return to physical assets employed in farming and non-farm production enterprises is not included in this component but is lumped together with “profits” (income from farming and non-farm enterprise).

of inequality in the distribution of income. Finally, changes in average income and in the distribution of income together completely determine the change in the incidence of poverty. Since the estimates of income and its distribution are used in estimating the incidence of poverty, it is important to make sure that estimates of change in income, as well its distribution, over time have been accurately made.

To look at evidence for possible underestimation or overestimation, one has to have some reliable alternative indicator with which the levels and variations in the estimates of personal income would be compared. No alternative estimate of personal income, apart from the official ones made by the BBS from the same surveys, is available. One must therefore look for some indirect tests. Three kinds of tests are tried in this section: (a) comparison of personal income estimates with relevant GDP accounts; (b) considering the plausibility of the estimated real growth rates in personal income, again using GDP accounts as the standard of reference; and (c) comparing independent components of personal income estimates with alternative estimates that exist.⁷

Table 3 summarizes some relevant macroeconomic indicators. Consider first the consistency between per capita personal income estimates of this study and official per capita GDP estimates, both at current prices. Personal income⁸ turns out to be following proportions of per capita GDP:

1991/92	70.62 per cent
1995/96	65.10 per cent
2000	66.90 per cent

Annual growth rates in per capita GDP and per capita personal income, and the elasticity of per capita personal income with respect to per capita GDP (all in nominal values) for different time periods are as follows:

⁷ It should however be noted that while a consistency between the GDP accounts and the estimates of personal income would increase confidence in both, an inconsistency between them would not be a basis to necessarily cast doubt on the validity of the personal income estimates for the simple reason that there is no stipulation that GDP accounts are more reliable than the household surveys.

⁸ Personal income for Bangladesh is the weighted average of rural and urban incomes, weights being proportional to rural and urban populations respectively.

	1991/92 to 1995/96	1995/96 to 2000	1991/92 to 2000
Growth rate in GDP (% p.a.)	6.81	7.44	7.14
Growth rate in personal income (% p.a.)	4.66	8.09	6.46
Elasticity of personal income with respect to GDP	0.68	1.09	0.90

Estimates for the initial and terminal years, relative to one another, clearly make sense. A fall in the ratio of personal income to GDP by a few percentage points over a period of nearly a decade is plausible. Indeed, the GDP elasticity of personal income is typically significantly below one so that the figure is 0.9 in the present case appears quite reasonable. What seems problematic is the data for 1995/96 in relation to the initial and terminal years. The fall in the ratio of personal income to GDP by more than five percentage points over a short period of four years seems unusual and the discontinuity between the elasticity of personal income with respect to GDP before and after 1995/96 – it is 0.68 before 1995/95 but 1.09 thereafter – seems even more unusual. Everything seems to indicate the possibility that, *relative to the initial and terminal years*, the level of personal income in 1995/96 is understated.

Further insights are gained by estimating real changes in macroeconomic indicators. In doing so a choice must be made concerning the deflator to be used. Table 3 shows the following alternative deflators: (a) the GDP deflator (along with the deflator for value added in agriculture in GDP accounts); (b) the official cost of living indices (CPIs); (c) the CPIs underlying the poverty lines of respectively the Interim Poverty Reduction Strategy Paper (IPRSP) and the World Bank.⁹ Of these deflators, the CPIs register the highest rate of price increase and are completely out of line with the rest of the deflators. Price increase according to the poverty-line CPIs is fairly close to that according to the GDP deflators for the period before 1995/96 and lower for the period thereafter. It is not possible to explain why the official CPIs should show such a higher

⁹ GDP figures at current and constant prices, which have been used to calculate the GDP deflator, and official CPIs are from: Government of Bangladesh (Economic Advisor to the Ministry of Finance) 2003. Poverty-line CPI in IPRSP is derived from poverty lines for different years shown in Government of Bangladesh (Economic Relations Division, Ministry of Finance) 2003. World Bank's poverty-line CPI is based on the averages for different rural and urban regions shown in World Bank 2003.

rate of price increase than the poverty-line CPIs. As discussed later in the paper, there may indeed be some reason to suspect that the rate of increase in the CPI was lower for the poor than for the higher income groups because the price of rice, the principal food staple which has a higher weight in the expenditure budget of the poor, increased at a slower rate than general prices. But the poverty line for rural areas in the base year was only about 10 per cent lower than average consumption, indicating that consumption weights for the general CPI and the CPI for the poor should not be too dissimilar. And yet there is a very large difference between the rate of increase in the official CPI and the rate of increase for the poverty-line CPIs for the period between 1991/92 and 1995/96. The closeness of the two poverty-line CPIs and their closeness to the GDP deflator makes one suspect that the official CPIs are overestimates of price increase, especially for the early 1990s, a proposition that needs careful scrutiny which is beyond the scope of this study.¹⁰ Using the GDP deflator and the poverty-line CPI of the IPRSP, one gets an annual rate of increase in per capita personal income for Bangladesh as a whole over the entire period under review of respectively 2.7 per cent and 2.74 per cent. Adding the annual rate of population growth, this translates to 4.4 to 4.45 per cent annual increase in *real* personal consumption. Given that real GDP between the two end periods increased at an annual average rate of about 5 per cent, this perhaps is a reasonable estimate of the real growth in personal income.

Problem however remains with the year 1995/96: between 1991/92 and 1995/96 the annual rate of increase in personal is as low as 2.4 per cent using the GDP deflator (2.2 per cent using the poverty-line CPI of the IPRSP), while real GDP increased at an annual rate of 4.6 per cent. The same procedure results in much too high a rate of increase in personal income between 1995/96 and 2000: 6.4 to 6.5 per cent when the rate of growth in GDP was only 5.4 per cent. Once again, the data suggest that estimated personal income for 1995/96 was too low.

¹⁰ This is not necessarily an endorsement of the poverty-line CPI which derives food prices from the HES/HIES themselves. Almost certainly the World Bank poverty-line CPI shown in Table 3 for the period after 1995/96 understates the increase in prices for the poor. The World Bank derives CPIs separately for different regions. The estimates shown in Table 3 represent average rates of increase in different rural and urban regions respectively.

Table 3

Per Capita Incomes, Price Deflators and Growth Rates

	1991/92	Annual Growth Rate: 1991/92 to 1995/96	1995/96	Annual Growth Rate: 1995/96 to 2000	2000	Annual Growth Rate: 1991/92 to 2000
Nominal Per Capita Income						
Rural	6744.30	2.97	7582.63	7.42	10464.38	5.30
Urban	10 565.86	8.87	14846.01	7.69	20716.91	8.24
National	7470.45	4.66	8962.67	8.09	12719.94	6.46
Official CPI (1991/92 value = 1.00)						
Rural	1.0000	5.52	1.2397	5.01	1.5446	5.25
Urban	1.0000	4.96	1.2135	5.03	1.5133	4.99
National	1.0000	5.35	1.2320	4.99	1.5340	5.16
Official GDP Deflator Index (1991/92 = 1.00)						
GDP	1.0000	3.88	1.1644	3.47	1.3578	3.66
Agriculture VA	1.0000	2.18	1.0903	3.04	1.2475	2.64
Agriculture's TOT	1.0000	-1.63	0.9364	-0.33	0.9224	-0.95
Implicit Poverty-Line CPI: IPRSP (1991/92 = 1.00)						
Rural	1.0000	3.66	1.1548	3.57	1.3525	3.62
Urban	1.0000	5.01	1.2158	2.43	1.3543	3.63
Implicit Poverty-Line CPI: World Bank						
Rural	1.0000	3.75	1.1588	2.22	1.2791	2.94
Urban	1.0000	4.11	1.1750	2.38	1.3062	3.19
Real Per Capita Income						
Using Official CPI:						
Rural	6744.36	-1.89	6248.56	1.81	6774.82	0.05
Urban	10565.86	3.73	12234.04	2.53	13689.89	3.09
National	7470.45	-0.29	7385.34	2.62	8296.14	1.24
Using Official GDP Deflator						
National	7470.45	0.75	7697.24	4.46	9368.05	2.70
Using Poverty-Line CPI: IPRSP						
Rural	6744.36	-0.67	6566.18	3.71	7737.06	1.63
Urban	10565.86	3.68	12210.90	5.13	15297.14	4.45
National	7470.45	0.56	7638.68	4.72	9400.28	2.74
Using Poverty-Line CPI: World Bank						
Rural	6744.36	-0.75	6543.52	5.09	8181.05	2.30
Urban	10565.86	4.57	12634.90	5.18	15860.44	4.89
National	7470.45	0.76	7700.88	5.67	9870.52	3.33

Data also show that the rate of growth in estimated urban income between 1991/92 and 1995/96 was consistent with all macroeconomic evidence. It is rural personal income which declined in per capita terms between 1991/92 and 1995/96 even when the CPI that shows the lowest rate of increase is used. Did real per capita rural income fall between 1991/92 and 1995/96? Or are the estimates for 1995/96 biased downwards? Before dealing with the question, it is useful to emphasize that a possible underestimation of income in 1995/96 is not due to any practice adopted in this study. As Khan and Sen 2001 explains, the estimate of this study is exactly the same as the official BBS estimate based on the HES once capital receipts are excluded from the latter.

There are reasons to believe that any actual growth in per capita rural personal income between 1991/92 and 1995 was low and personal income derived from agriculture actually fell between the two years. According to GDP accounts, real value added in agriculture increased between the two years by only 0.7 per cent, which was substantially lower than the growth in rural population over the same period (although an accurate estimate for the latter does not exist). Agriculture's terms of trade fell by 6.4 per cent between the two years.¹¹ When all these factors are added together, it does not seem altogether impossible that per capita rural income derived from farming was significantly lower in 1995/96 than in 1991/92. Personal income estimates in this study show a 13 per cent decline in per capita rural income from farming which is the source of decline in per capita real income in rural areas between 1991/92 and 1995/96.

A final note on independent evidence on the accuracy of HES/HIES measurements is in order. There are not many items of income for which independent estimates from an alternative source exists. One such item is remittance made by Bangladeshis working abroad for which annual data are available from the Ministry of Finance sources. When remittances from abroad are estimated for Bangladesh as a whole from the per capita amounts shown for 2000 in Tables 1 and 2, they almost exactly match

¹¹ Furthermore, while the GDP accounts followed the convention of including the boro crop of 1996 in the estimates for 1995/96 (although some of the factor income from that crop accrued to the households after the end of the 1995/96 fiscal year), the HES accounts, showing actual incomes derived by households during the fiscal year, probably failed to capture much of the factor income derived from the boro crop of 1996 which was 10 per cent larger than the previous year's crop.

the data from the Ministry of Finance.¹² Other evidence of consistency between HES/HIES estimates and known alternative estimates relates to such items as shares of major sectors. For example, around 2000, the share of value added in agriculture was about a quarter of GDP at current price. This compares rather well with the share of factor income derived from rural and urban agriculture amounting to 24 per cent of total personal income in Bangladesh in 2000.

A tentative summary of the discussion on the reliability of the macroeconomic magnitudes of income estimated from the HES/HIES may be in order: (a) It appears that the official CPIs overstate the extent of price increase that is appropriate for personal income deflator; (b) There is no obvious reason to suspect that the relative levels of personal income in 1991/92 and 2000 are inconsistent. There is a question mark about the relative level of rural personal income in 1995/96. Estimates of change in rural poverty between that year and other periods should be appropriately qualified to reflect the probable underestimation of rural income in that year.

Change in Urban-Rural Inequality

Per capita urban personal income, as a multiple of per capita rural personal income, increased from 1.57 in 1991/92 to 1.96 in 1995/96. There was a further modest rise in urban-rural inequality by the year 2000 when the ratio rose to 1.98. Urban-rural inequality in Bangladesh thus reached a level since the middle of the 1990s which is completely out of line with long-term historical levels. Between the mid-1960s and the mid-1980s this ratio ranged between 1.33 and 1.59.¹³ Containment of inequality and sustainability of development require a bringing down of this ratio which, besides affecting national inequality, has an important effect on migration and urbanization which have arguably reached undesirable proportions in Bangladesh.

¹² This of course is not a full-proof argument. One could argue that there is a substantial amount of remittance made through unofficial/illegal channels which are not captured by the Ministry of Finance data but are reflected in the HES/HIES data.

¹³ See Khan and Hossain 1989, p. 150.

III. THE DISTRIBUTION OF INCOME

Measuring Income Distribution: the Index of Inequality

This paper uses the Gini ratio and the “pseudo-Gini” or “concentration” ratios to measure the distribution of income and to “decompose” it into its sources. The method of measuring them may be summarized as follows. Households are ranked in ascending order of per capita income. They are then divided into ten decile groups of *population* and the shares of each decile group in total income and income from each of the different sources are calculated. Plotting cumulative shares of total income for the cumulative deciles of population, one gets the Lorenz distribution of income. For the *i-th* component of income, one can similarly derive a "pseudo-Lorenz distribution" in which cumulative shares of the *i-th* source of income are plotted against the cumulative deciles of population in which the latter is obtained from a ranking of individuals according to *per capita overall income* rather than per capita income from the *i-th* source. As the Gini ratio is estimated from the Lorenz distribution of income, so is the "pseudo-Gini ratio" or the "concentration ratio" for the *i-th* source of income estimated from the pseudo-Lorenz distribution of the *i-th* income component. The Gini ratio is the weighted average of the concentration ratios of the components of income where the weights are the shares of the respective components in total income.¹⁴

$$G = 3q_i C_i$$

where,

G = Gini ratio of total income;

q_i = the ratio of the *i-th* source of income to total income; and

C_i = the pseudo-Gini or concentration ratio (hereafter the concentration ratio) for the *i-th* source of income.

¹⁴ The Lorenz distribution in our case consists of ten discontinuous segments of linear approximations of the true Lorenz distribution which is continuous. This means that our estimates of Gini ratio would be slightly smaller than what they would be if calculated either from the entire set of unit record data or the Lorenz distribution actually fitted to the data. For the application of this method of decomposing the Gini ratio, see Fei, Ranis and Kuo 1978; Fields 1980 and Kakwani 1980 and 1986. Fields 1980 is a useful source for further explanation of the method and for references to other applications of this kind of decomposition of the Gini ratio. Also see Khan and Sen 2001 for an application of the method to the data from HES 1991/92 and 1995/96.

A component of income having a concentration ratio that is greater (smaller) than the Gini ratio is said to be "disequalizing" (equalizing); relatively high proportions of it accrue to the higher (lower) income groups. A change in the Gini ratio over time can be caused by two distinct kinds of changes: a change in the composition of income between equalizing and disequalizing categories; and a change in the concentration ratio, the degree of inequality in distribution, of an individual source of income. Over time the Gini ratio declines (increases) if:

- (a) An equalizing component of income becomes more (less) equalizing or a disequalizing component becomes less (more) disequalizing.
- (b) If equalizing components are income-elastic (income-inelastic), i.e., their share of total income rises (falls) as total income grows.

Rural Income Inequality and Its Sources

The Gini ratio of rural income distribution and the concentration ratios of the distribution of different components of rural income are shown in Table 4. Over the decade, the inequality in the distribution of rural income increased steadily. The Gini ratio rose from 0.276 in 1991/92 to 0.310 in 1995/96 and 0.356 in 2000. What have been the sources of this rise in inequality?

Growth and distribution of a handful of sources income - non-farm enterprise; salary from non-farm employment; remittances from abroad; and property income – accounted for much of the increase in the rural Gini ratio over the period under review. Both the shares of income and the concentration ratios of these sources have increased steadily over the decade (except that direct evidence for foreign remittance is not available due the absence of necessary information for years prior to 2000). Together these sources accounted for 45 per cent of income in 2000. Their share of total income had nearly doubled between 1991/92 and 2000.

The largest of them – non-farm entrepreneurial income – was actually an equalizing source of income at the beginning of the decade. By the middle of the decade it had become a mildly disequalizing source. By the end of the decade it came to be a

strongly disequalizing source of income. Non-agricultural salary – another type of factor income derived from the non-farm sector and the next most important of these sources – also became more disequalizing over the decade.

Foreign remittance features as a separate income category only in 2000 so that direct evidence on the change in its share of income and distributional impact is not available. But by 2000 it was the most disequalizing component of income and indirect evidence from macroeconomic data suggests that it has been growing as a proportion of income.¹⁵ Domestic remittance is mildly disequalizing and a much smaller proportion of income than foreign remittance.

Property income, as a proportion of total income, has increased sharply. Much of it consists of rent for land, the rapid growth in which should largely be attributed to the sharp rise in the ratio of land rented out by the larger land-owners, a phenomenon that may have helped make income from farming a *relatively* (i.e., relative to the distribution of overall income) equalizing component of income over time. Over time return from non-land assets has also emerged as a source of income and it is likely to grow as the market for irrigation water and other farm equipments continues to expand. Both components of property income are fairly strongly disequalizing.

In contrast, two sources of income, farm income and wages, came to exert an equalizing effect on the distribution of income by the end of the decade under review. Farm income was a moderately disequalizing source of income in 1991/92. By the mid 1990s its concentration ratio rose slightly but it came to have a much milder disequalizing effect on distribution because the concentration ratio of all other sources of income taken together increased much more. By the end of the decade, the concentration ratio of this source of income increased further; but, because of the sharp rise in the concentration ratios of the rest of income sources, it became an equalizing source of income, i.e., its numerical value fell below the numerical value of the Gini ratio. As a proportion of total income, farm income has however fallen rapidly.

¹⁵ Government of Bangladesh (Economic Advisor to the Ministry of Finance) 2003, p.205 shows that the annual rate of increase in nominal inflow of remittance per person in Bangladesh was close to 13 per cent between 1991/92 and 1999/2000. Between 1991/92 and 2000, the annual increase in per capita nominal personal income was 5.3 per cent for rural Bangladesh and about 8.2 per cent for urban Bangladesh

Table 4
Rural Income Shares and Inequality Indices

	Share of Total Income (%) (100q _i)			Gini/Concen- tration Ratio (C _i or G)		
	1991/92	1995/96	2000	1991/92	1995/96	2000
Farm Income	41.44	35.03	20.92	0.332	0.338	0.347
Crop Farming	...	...	16.01	...	...	0.349
Livestock	...	...	1.47	...	...	0.236
Fishing	...	...	1.62	...	...	0.397
Forestry	...	...	1.83	...	...	0.367
Wage	20.34	24.67	31.17	0.090	0.141	0.208
Agricultural Wage	10.86	11.06	10.29	-0.113	-0.078	-0.147
Non-Agricultural Wage	4.23	6.44	7.33	0.138	0.126	0.071
Non-Agricultural "Salary"	5.25	7.17	13.55	0.472	0.492	0.551
Non-Farm Enterprise	15.33	19.10	19.41	0.224	0.329	0.477
Property Income	0.89	1.37	4.10	0.552	0.572	0.558
Rent from Land	...	...	3.41	...	...	0.560
Rent from other assets	...	...	0.69	...	...	0.551
Remittances and Transfer	10.90	9.56	12.17	0.364	0.599	0.552
Domestic Remittances	...	...	3.33	...	...	0.394
Foreign Remittances	...	...	7.53	...	...	0.707
Other Transfers	...	...	1.31	...	...	0.064
Rental Value of Housing	7.74	5.61	4.61	0.351	0.276	0.300
Other Income	3.36	4.67	7.62	0.393	0.281	0.286
TOTAL INCOME	100.00	100.00	100.00	0.276	0.310	0.356

Note: q_i = the share of the i-th component of total income; C_i = the concentration ratio of the i-th source of income; and G = the Gini ratio of income distribution. Column totals, values shown in the Total Income row, do not always add exactly up to the amounts shown due to rounding error.

Wages have always been strongly equalizing, agricultural wages being more strongly equalizing than non-agricultural wages.¹⁶ The share of agricultural wages in total income has stagnated while the share of non-agricultural wages has increased modestly.

To summarize: the impetus for increasing rural inequality has been provided by four disequalizing components of income that are highly GDP-elastic. This effect has been exacerbated by the fact that most of these components have become increasingly disequalizing over the decade. The equalizing components of income have either been GDP-inelastic or, in the case of non-agricultural wages, relatively small as a proportion of total income.

In the absence of public intervention to arrest and/or reverse these forces, with the past trends continuing into the future, rural inequality is certain to continue to increase. What kind of public policy can arrest these forces and what are their limits?

First, consider the possibility of reducing the shares of the disequalizing sources and/or increasing the shares of equalizing sources in total income. High GDP elasticity of non-farm enterprise and non-agricultural salaries is a necessary and desirable attribute of economic growth. A high GDP elasticity of foreign remittances is similarly highly desirable.

The increasing share of rent in income must be seen in the overall context of the rather complex agricultural transformation experienced by Bangladesh during the period under review. Some of the features and consequences of this transformation are summarized in Table 5. Between 1991/92 and 2000, the distribution of landownership became more unequal but the distribution of operational landholding became more equal. The Gini ratio of landownership remained unchanged at 0.649 between 1991/92 and 1995/6 while the concentration ratio of landholding, with individuals ranked according to per capita *landownership*, fell from 0.529 to 0.466. Comparable estimates for 2000 are somewhat problematic because the HIES recorded no entry for land for about a third of the households. Since these households do neither show any income from farming, this may simply signify that a third of rural households quit farming altogether between

¹⁶ For 1991/92 and 1995/96 agricultural wages consist of wages in both casual and regular employment. As noted earlier, unlike regular wages in non-farm enterprise, that in agriculture is fairly strongly equalizing and hence has not been classified separately as “salary”.

1995/96 and 2000.¹⁷ If these households are included in calculations, as owners and operators of no land, then the Gini ratio of landownership turns out to have risen to 0.765 while the concentration ratio of landholding still remains as low as 0.471. If the estimates exclude the households that show no landownership or landholding, the Gini ratio of landownership turns out to be 0.682 while the concentration ratio of landholding falls dramatically to 0.223. Thus, while the distribution of landownership almost certainly became more unequal over the period under review, the distribution of access to operational landholding became more equal. The latter change must have led to an improvement in the distribution of income from farming; the effect of increased tenancy was to increase the equality of access to land which has made the distribution of farm income more equalizing (less disequalizing) over time. A concomitant of the increased incidence of tenancy was of course the sharp rise in the share of rent, a disequalizing source, in total income. To this extent the process also has a disequalizing component.

Table 5
Access to Land in Rural Bangladesh

	1991/92	1995/96	2000
Gini ratio of landownership	0.649	0.649	0.765 (0.682)
Concentration ratio of operational landholding (Individuals ranked by per capita landownership)	0.529	0.466	0.471 (0.223)
Concentration ratio of landownership (Individuals ranked by per capita income)	0.360	0.368	0.372
Concentration ratio of operational landholding (Individuals ranked by per capita income)	0.320	0.270	0.192

Note: Figures in parentheses for 2000 refer to estimates based on the exclusion from the sample of those households for which there is no entry for land. See the text for further explanation.

¹⁷ There are other possibilities as well, e.g., the possibility that the surveys prior to 2000 included homestead land in the definition of landownership/landholding while the HIES 2000 did not. Perhaps some combination of these factors explains the change in 2000 compared to earlier years.

The last two items of Table 5 provide a glimpse into the overall effect of the process of increased access to land through a rise in the incidence of tenancy. Distribution of landownership among different *income* groups has remained roughly unchanged in a period of rising inequality in the distribution of income, possibly indicating that the inequality of landownership has not been a major impetus to increasing inequality. Distribution of access to landholding among different *income* groups has become dramatically more equal indicating that access to land has become decreasingly associated with income inequality.

The effect of a fall in the incidence of tenancy, and the consequent fall in the income share of rent, on overall distribution will depend on the process through which the fall occurs. If an egalitarian land reform redistributes land among the farming households, the income share of rent will fall along with a widening of households' access to land. This will undoubtedly improve the distribution of income. If the larger landowners are induced to resume self cultivation, prompted say by an attempt at tenancy reform, income share of rent will fall along with a reduction in access to land. The overall effect on the distribution of income may quite easily be adverse. In the absence of the political feasibility of land reform, it makes sense to strengthen the forces behind the change in the agrarian structure that has widened the access of the farming households to land as a method of improving the distribution of income, even though it results in a rise in the income share of rent, which worsens the distribution of income.

It thus seems that the option of putting a brake on inequality by reducing the growth of the disequalizing sources of income is not particularly attractive. The income from some of these sources – e.g., non-farm enterprise - will grow rapidly as an integral part of the process of growth. A decline in the growth of income from some other of these sources will either harm economic welfare (as is likely to be the case with foreign remittances) or unleash forces of inequality elsewhere (as is likely to be the case with the reduction in the growth of rent, induced by an ill-conceived tenancy reform).

What about the possibility of increasing the growth rate of income from the equalizing components? It might appear that a low GDP elasticity of farm income, following from a low GDP elasticity of agriculture itself, is inevitable. It is nevertheless questionable if the kind of rapid fall in the share of farm income that occurred during the

1990s is entirely inevitable or desirable. During much of the decade, especially until about 1996, crop agriculture had a very low rate of growth. Evidence on the factors behind this trend is mixed. On the one hand there seems to be a good deal of unsatisfied domestic demand for food which is not translated into effective demand due to the lack of purchasing power on the part of the hungry poor, thereby resulting in a low relative price and a lack of incentive for production of the overwhelmingly dominant staple, rice. This would seem to suggest that overcoming structural impediments to the emergence of the poor as producers of food – lack of access to land and other resources on their part – would be the way to have a faster, poverty-alleviating growth of crop production. On the other hand, substantial imports of rice and other agricultural products have taken place in recent years under the auspices of private traders which may be interpreted as an indication that at the margin Bangladesh agriculture has lost the comparative advantage in staple food production. Careful research is needed to establish the desirable path of a faster expansion of farming.¹⁸

In the above, we have only considered the possibility of changing the incremental composition of personal income, so as to preserve or increase the share of equalizing components, as a way of containing a rise in inequality. And yet for rural Bangladesh it was not the change in the composition of income, but the increased inequality in the distribution of given components, that explains a larger proportion of the total rise in inequality. This is found by comparing what the Gini ratio would have been in 2000 if income shares had remained unchanged at what they were in 1991/92 while the concentration ratios had changed to what they actually were in 2000:

$$\sum q_{i91/92} C_{i2000} = 0.331$$

¹⁸ Imports of rice in recent years may have received impetus from a number of temporary circumstances, notably the appreciation of Bangladesh Taka vis-à-vis the currencies of major exporters (e.g., Thailand whose currency depreciated sharply in the aftermath of the Asian crisis) and the alleged dumping by India which faced the problem of large public stocks of rice, the consequence of an unrealistically high support price policy pursued by the government.

with what the Gini ratio would have been in 2000 if income shares had changed to what they were in 2000 while concentration ratios had remained the same as they were in 1991/92:¹⁹

$$\sum q_{i2000} C_{i91/92} = 0.288$$

Thus the containment of inequality must focus on containing the rising inequality of distribution of specific components of income. Needless to say, the impact of this is greater if the rise in inequality is contained for the more income-elastic components of income.

Can anything be done to make the income-elastic components of income less (more) disequalizing (equalizing)? Rapid growth of the non-farm rural sector is rightly looked upon as a major element of development policy in Bangladesh. In 2000 non-farm entrepreneurial income, salary and wage together contributed two-fifths of household income. On the available evidence, the notion that it also is a source of egalitarian growth must be rejected. Even after counting the effect of the distribution of wages and salaries generated by non-farm enterprises, the overall concentration ratio for all factor income generated by the sector is 0.428, indicating a highly disequalizing overall effect on income distribution. The principal focus of income distribution policy in Bangladesh must be on this sector to find ways of increasing the share of the poorer households in factor income from this sector by augmenting their access to capital, technology, skills and market.

As noted earlier, income remittances, especially those from abroad, made an increasing contribution to inequality because of their rising share of income and high concentration ratio. There is, however, little that public policy can do to reduce the disequalizing impact of this source of income without causing harm to national welfare. Attention instead should be focused on providing inducement to channel these resources into productive and labor-intensive investment that would have a positive impact on income distribution.

¹⁹ The comparison is based on the most detailed classification of sources of income which is available for the two periods. Sub-categories of farm, property and transfer income are excluded.

Urban Income Inequality and Its Sources

Table 6 shows the indices of urban inequality and its sources. Urban inequality increased steadily during the decade; the Gini ratio increased from 0.327 in 1991/92 to 0.389 in 1995/96 and 0.437 in 2000. Urban inequality has been consistently higher than rural inequality.

Non-farm wages and salaries represent the largest source of urban income, their share exceeding 37 per cent of total income by the end of the decade.²⁰ As in the case of rural Bangladesh, wages have a strongly equalizing effect on urban income distribution while salaries have a strongly disequalizing effect.²¹

Wage income and (the small) farm income are the only sources that have an equalizing effect on distribution (except that, in the initial year, income from non-farm enterprise also had an equalizing effect). Wages have become increasingly equalizing over the decade, the weighted average concentration ratio of farm and non-farm wages becoming -0.198 by the end of the decade. Its equalizing influence on overall distribution was however blunted by its declining share of total income. Clearly, an expansion in wage employment, leading to a rise in the share of wages in total income, would have the strongest possible equalizing effect on urban income distribution.

Salary income, encompassing the earnings of all those in regular employment in public and private enterprises and organizations including NGOs, reached a much higher proportion of total income in 2000 than in the earlier years. Its concentration ratio has also increased over time although, as multiple of the Gini ratio, it has fallen over time, indicating a *relative* weakening of its disequalizing effect.

Non-farm enterprise accounted for the largest single share of income (if wages and salaries are treated as separate categories) except in 2000 when it was the close second to salary as an income source. By 2000, its share of total income reverted back to what it was at the beginning of the decade. Its concentration ratio rose sharply over the

²⁰ Farm wages accounted for less than one per cent of income in 2000. In the earlier years farm wages were larger, together all wages and salaries accounting for approximately 36 per cent of income.

²¹ As in the case of rural Bangladesh, for urban areas too there is a possible problem of comparability over time for salary income: for 2000 this is an explicit category in the HIES while for the earlier years we treated the earnings from regular employment, as opposed to casual employment, as salary.

decade. Its proportionate contribution to overall inequality – the product of its income share and the concentration ratio expressed as a per cent of the Gini ratio – increased between 1991/92 and 1995/96, but fell thereafter.

Table 6
Urban Income Shares and Inequality Indices

	Share of Total Income (%) (100q _i)			Gini/Concen- tration Ratio (C _i or G)		
	1991/92	1995/96	2000	1991/92	1995/96	2000
Farm Income	6.09	5.80	2.41	0.115	0.226	0.220
Wage/Salary	36.55	35.84	38.02	0.276	0.266	0.304
Non-Agric. Wage	10.01	8.11	8.03	0.087	0.030	-0.182
Non-Agric. "Salary"	20.40	20.50	29.11	0.406	0.421	0.458
Other Wage	6.14	7.23	0.89	0.157	0.092	-0.345
Non-Farm Enterprise	28.42	37.70	28.78	0.306	0.464	0.503
Property Income	3.76	3.42	7.95	0.643	0.644	0.643
Rent from Land	...	...	1.59	...	...	0.509
Other Rental Income	...	...	6.36	...	...	0.676
Remittance and Transfer	9.27	7.20	10.10	0.427	0.581	0.616
Domestic Remittance	...	...	1.93	...	...	0.305
Foreign Remittance	...	...	3.90	...	...	0.593
Other Transfer	...	...	4.27	...	...	0.777
Rental Value of Housing	9.19	6.78	6.41	0.434	0.410	0.488
Other Income	6.72	3.26	6.32	0.424	0.442	0.417
TOTAL INCOME	100.00	100.00	100.00	0.327	0.389	0.437

Note: See note to Table 4 for an explanation of the notation. Due to error in rounding, the sums of the components do not always exactly match the totals.

Income from the rent of land and other assets – property income – had a high concentration ratio throughout the period and its share of total income rose sharply, though still remaining below 8 per cent by the end of the decade. Its contribution to overall inequality thus increased very substantially.

Two items of transfer income – gifts (other transfer) and foreign remittance – were strongly disequalizing, the former far more so than the latter. Domestic remittances were the smallest of the transfer components and strongly equalizing. It is possible that this includes the transfer that the migrants from rural areas receive from their families back home, explaining why much of it goes to people with low-income. Overall, remittances and transfers were highly and increasingly disequalizing and their share of total income at the end of the decade was a little higher than what it was at the beginning of the decade.

Just as in the case of rural Bangladesh, public policy can make few meaningful interventions to alter the disequalizing effect of income from transfer and remittances (except by resorting to redistributive public transfer whose prospects are limited) and assets. Thus public policy for the containment of urban inequality must focus on the remaining two disequalizing components (salary and “entrepreneurial” income or “profit” from non-farm enterprise) and one equalizing component (wages). The relationship among these components is close because they all represent factor payments from non-farm enterprises. And yet their variations are not closely related. Between 1991/92 and 1995/96 the income share of non-farm enterprises rose sharply while the income share of wages and salaries changed little. This indicates that returns to different factors changed at vastly different rates, perhaps due to large changes in the composition of enterprises of different factor proportions. Between 1995/96 and 2000 there was a sharp rise in the share of salaries in total income while the share of non-farm entrepreneurial income fell and the share of wages remained unchanged. This again might have been due to a change in the composition of enterprises, indicating a rise in the proportion of those with a high incidence of salaried employment, possibly even a rise in the proportion of not-directly productive enterprises relative to directly productive enterprises.

Rapid growth of non-farm enterprises is a necessary attribute of rapid economic growth. If these enterprises are in industries and services that are appropriately labor

intensive, i.e., intensive in wage labor, then the equalizing effect of the growth in wage income will offset the disequalizing effect of the growth in entrepreneurial income from non-farm enterprises. If however the growth of non-farm enterprises is concentrated in skilled-labor intensive and/or white-collar-labor intensive activities - e.g., information technology, financial institutions and consultancy firms – then there will be a rapid growth in salary income which will exacerbate the disequalizing effect of the growth of entrepreneurial income.

Decisions about which of the above types of enterprises should grow faster *should* be guided by considerations of *social* profitability or otherwise they *will* be guided by considerations of *market* profitability, without taking into account their distributional consequences. To pursue the objective of improved distributional outcome the attention of public policy would need to focus on the reduction of the concentration ratios of salary income and income from non-farm enterprises. This would require a widening of access of members of the labor force to education and skills and the access of small and micro entrepreneurs to credit, technology and markets.

Just as in the case rural areas, it is the change in the distribution of specific components of income that explains a larger part of the change in the urban Gini ratio than does the change in the composition of income, although the difference in the contribution of the two is smaller in urban areas than in rural areas. Had the composition of urban income in 2000 been the same as in 1991/92 while the concentration ratios were what they actually were in 2000, the Gini ratio would have been 0.365. In comparison, it would have been 0.357 if the composition of income were what it actually was in 2000 while the concentration ratios had remained unchanged at their 1991/92 levels.

Overall National Inequality and Its Sources

The first step in estimating inequality for Bangladesh as a whole is to combine the samples for the rural and urban HES/HIES in such a way that the overall sample for Bangladesh properly represents the shares of rural and urban population. In the actual surveys, the proportion of rural population is much smaller than their proportion in total population. To make the national sample for Bangladesh reflect the shares of actual rural

and urban population, sub-samples of appropriate size were drawn from the rural samples of the BBS and added to the original rural and urban samples.²²

Table 7 shows the estimates of Gini and concentration ratios for Bangladesh based on these augmented national samples.²³ Inequality in Bangladesh as a whole increased steadily throughout the decade; the overall Gini ratio increased from 0.303 in 1991/92 to 0.359 in 1995/96 and 0.405 in 2000. In explaining the sources of this increase, the first important point that deserves to be noted relates to the two memo items shown in the table. Throughout the period, rural income has been strongly equalizing and urban income has been strongly disqualizing in the context of the overall distribution of income for Bangladesh. This simply reflects the fact that the recipients of rural income (urban income) rank relatively low (high) in the overall income distribution scale for Bangladesh. A rise in the ratio of average urban income to average rural income therefore increases the Gini ratio for Bangladesh as a whole even when the distributions within rural and urban areas remain unchanged. The proportionately higher increase in the Gini ratio for Bangladesh between 1991/92 and 1995/96 than between 1995/96 and 2000 was largely due to a much sharper rise in urban-rural inequality over the former period than over the latter period.

Only four of all the specific sources of income have an equalizing effect on the distribution of income. These are: farm income, agricultural wages, non-agricultural wages and domestic remittances. For the first three of them, estimates of concentration ratios are available for each period and they indicate that their equalizing effect (for which the ratio of their value to the Gini ratio is a good indicator) became stronger over

²² Of the total number of persons included in the surveys, the rural sample represents 67 per cent in 1991/92 and 68 per cent in 1995/96 and 2000. The actual proportion of population living in rural areas was about 80 per cent according to the 1991 population census and is estimated to have fallen to about 78 per cent by 2000. We augmented the rural sample so that, in the final sample for Bangladesh as a whole, the proportion of rural population is 81 per cent in 1991/92 and 1995/96 and 78 per cent in 2000. The use of the same 81 per cent share of rural population for 1991/92 and 1995/96 is at the cost of ignoring the fall in the proportion of rural population between the two years in order to benefit from the advantage that this simplified the procedure of augmenting the rural sample by just counting each household in the original BBS rural sample twice. By 2000 this procedure would have resulted in a more serious distortion. For that year 3318 rural households were randomly drawn from and added to the BBS rural sample of 5040 households which, adding the 2400 urban households from the BBS sample, formed the national sample of 10758 households. This resulted in a 78 per cent share of the rural *people* (not households) in the total number of people in the augmented national sample.

²³ To estimate pseudo-Lorenz distributions for total rural and total urban income, urban (rural) income was put at zero for all rural (urban) households.

time, dramatically so for wages, especially agricultural wages. Their share of total income has however fallen over time, from nearly a half of all personal income to less than a third. Thus, in the overall Bangladesh context too, the equalizing components of income have been highly income-inelastic.

Table 7
Income Shares and Inequality Indices for Bangladesh as a Whole

	Share of Total Income (%) (100q _i)			Gini/Concen- tration Ratio (C _i or G)		
	1991/92	1995/96	2000	1991/92	1995/96	2000
<i>Memo Items:</i>						
Total Rural Income	71.89	68.22	64.00	0.196	0.213	0.250
Total Urban Income	28.11	31.78	36.00	0.578	0.672	0.680
Farm Income	31.50	25.74	14.11	0.261	0.261	0.262
Wage/Salary	24.09	27.13	33.90	0.222	0.261	0.300
Agricultural Wage	8.72	8.76	6.98	-0.140	-0.081	-0.233
Non-Agric. Wage	5.86	6.97	7.65	0.230	0.179	0.064
Non-Agric. "Salary"	9.51	11.40	19.27	0.549	0.575	0.587
Non-Farm Enterprise	19.01	25.01	23.00	0.319	0.462	0.519
Property Income	1.69	2.02	5.37	0.674	0.663	0.654
Rent from Land	...	...	2.65	...	...	0.530
Other Rental Income	...	...	2.72	...	...	0.773
Remittance and Transfer	10.44	8.81	11.69	0.371	0.590	0.570
Domestic Remittance	...	...	2.85	...	...	0.370
Foreign Remittance	...	...	6.46	...	...	0.675
Other Transfer	...	...	2.38	...	...	0.522
Rental Value of Housing	8.15	5.98	5.28	0.390	0.362	0.424
Other Income	5.09	5.30	6.65	0.483	0.319	0.337
TOTAL INCOME	100.00	100.00	100.00	0.303	0.359	0.405

Note: See note to Table 4 for an explanation of the notation. Due to error in rounding, the sums of the components do not always exactly match the totals.

Broadly speaking, the income sources that are disequalizing in the rural and urban economies are also disequalizing in the overall national context. They are: property income (income from return to non-land assets being much more disequalizing than any other component of income); foreign remittances and other transfers; non-farm enterprises; and non-agricultural salary. There was a large increase in their income share over the period, from around 38 per cent in 1991/92 to more than 55 per cent in 2000. Thus for Bangladesh as a whole too, the disequalizing sources of income are highly income-elastic.

The additional dimension that is worth noting is that the income-inelastic and equalizing sources of income are rural intensive (i.e., a very high proportion of income from those sources accrues to rural households) whereas the income-elastic and disequalizing sources of income are urban intensive (i.e., a very high proportion of income from those sources accrues to urban households). This again highlights the point noted above, that an increase in the ratio of urban income to rural income leads to a rise in overall inequality of income distribution for Bangladesh even if the distribution within rural and urban areas each remains unchanged.

The importance of the change in the composition of income sources for Bangladesh as a whole is highlighted by the fact that, unlike rural and urban areas, for the nation as a whole the change in the composition of income has been a more important determinant of change in inequality than the change in the distribution of specific components. For the year 2000 the Gini ratio would have been 0.343 if the composition of income were the same as in 1991/92 while concentration ratios were as they actually were in 2000. The Gini ratio for 2000 would have been 0.356 if concentration ratios were the same as in 1991/92 while the composition of income was what it actually was in 2000.

Changes in Nominal and Real Income Distributions

Comparison of income distribution over time is usually based on the distribution of income at current prices as this paper has done. It is however possible for the change in the distribution of real income to differ from the change in the distribution of nominal

income. This happens if the price indices are different for the bundles of goods on which different income groups spend their income. A change in nominal income distribution does not represent the change in the distribution of welfare accurately if price indices for different income groups change at different rates. While the argument is valid, actual estimates continue to be based on nominal income distribution for the simple reason that the estimation of price indices for different income groups is usually beyond the capacity of statistical authorities and researchers.

While recognizing the practical obstacles to the estimation of the change in the distribution of real income, it is still useful to consider if there are reasons to believe that the change in real income distribution has been significantly different from the change in nominal income distribution. Indeed there seem to be some reason to suggest the possibility, namely that, over the decade under review, the price of the most important grain staple, rice, fell relative to general prices. Expenditure on rice accounts for a higher proportion of income for the poorer income groups than for the richer income groups. Other things being equal, this would mean a slower increase in the income/expenditure deflator for the poorer households than for the richer households.

It is of impossible to judge the magnitude of the effect of the above phenomenon on the change in real income distribution. Furthermore, it is possible that there have been offsetting price changes, a faster rise in the prices of certain things (e.g., fuel for the poor) that feature more prominently in the budget of the poor. It is nevertheless important to note that *by itself* the less-than-average rate of rise in the price of rice has had a moderating effect on the adverse change in the distribution of income. It is furthermore important to note that this phenomenon makes the Bangladesh experience quite different from the experience in much of developing Asia and developing world where the greater integration with the world economy generally resulted in a rise in the relative price of basic food grains and a faster-than-average rise in the CPI for the poor.

IV. IMPLICATIONS FOR POVERTY REDUCTION

The adverse effect that rising inequality had on the goal of poverty reduction is illustrated by Table 8. It uses the poverty lines of IPRSP and calculates income poverty

(i.e., the headcounts and other characteristics of individuals who have incomes below the poverty lines).²⁴

The first three rows of the table show three different dimensions of the actual performance in poverty reduction. The headcount index simply shows the proportion of population in poverty. The proportionate poverty gap (PPG) is the product of the headcount index and the average income gap of the poor relative to the poverty line. If this index rises at a faster rate (or falls at a slower rate) than the headcount index, then it must be concluded that the poor have become poorer on the average. The weighted poverty gap (WPG) shows the distribution of income among the poor. A faster rise in this index than in the headcount shows that the distribution of income among the poor has been getting worse.²⁵

In rural areas, despite a 15 per cent increase in real per capita personal income, the headcount rate of poverty declined only a little and the absolute number of population in poverty actually rose from 43 million in 1991/92 to 48.5 million in 2000. Worse still, the average poverty gap increased and the distribution of income among the poor became worse as indicated by the fact that the improvement in PPG was less than that in headcount and the improvement in WPG was lower still.²⁶

²⁴ In Bangladesh poverty estimates are usually based on consumption, rather than income, indicators. This is the case for the estimates made by both the IPRSP and the World Bank to which reference has been made earlier. The argument that is made in defense of consumption is that it is a better indicator of “permanent” income – the present value of income expected over the longer term future – than current income, which is apt to be disproportionately affected by short-term fluctuations. For a poor country like Bangladesh, one can think of sensible arguments in defense of income as the desirable indicator of poverty. For the poor households current consumption is often achieved by resorting to survival mechanisms – e.g., sale of assets and incurring of debt – which can not be sustained in the long run. The present paper does not intend to get involved in this controversy, or in many others that concern the determination of an appropriate poverty line and related issues of measuring change in the incidence of poverty. It merely tries to demonstrate the effect of a change in income distribution on the rate of poverty reduction. Although this is being illustrated by using income as the indicator to measure poverty, the argument applies to poverty measured with reference to consumption as well when similar changes in the distribution of consumption occur. The poverty lines in this paper are the same as that in the IPRSP. They consist of the cost of a food bundle that provides 2122 kcalories per person per day and adds to that the actually observed non-food expenditure of a typical individual located at the food-poverty line.

²⁵ It is worth noting that, even if there indeed was a difference between the real and nominal income distributions, it would not bias the estimate of headcount poverty over time because the poverty line is adjusted by a CPI for the household at the poverty threshold. It would however bias the estimates of PPG and WPG if the CPIs for different levels of poverty differ.

²⁶ We are ignoring the highly unfavorable change in all the three indices for 1995/96 because of the possible problem with the income measure for that year that is discussed earlier in the paper.

Table 8
Poverty in Bangladesh: Facts and a Counterfactual

	1991/92	Rural 1995/96	2000	1991/92	Urban 1995/96	2000
			<i>Actual</i>			
Headcount	46.95	52.77	45.19	30.22	31.05	25.27
Proportionate Poverty Gap	13.10	16.45	14.32	7.77	8.51	7.09
Weighted Poverty Gap	5.06	6.96	6.39	2.88	3.09	2.76
			<i>Assuming 1991/92 Lorenz Distribution for All the Years</i>			
Headcount	46.95	49.14	35.95	30.22	21.55	10.88
Proportionate Poverty Gap	13.10	14.03	8.92	7.77	4.95	2.14
Weighted Poverty Gap	5.06	5.50	3.17	2.88	1.71	0.69

Note: Headcount is the ratio of the number of persons with income below the poverty line to total population. Proportionate poverty gap is the product of the average income gap of the poor times the headcount ratio. Weighted poverty gap is the average of the squares of all proportionate poverty gap, the latter being defined as the ratio of income shortfall from poverty line to poverty line, and the average calculated over the entire population with the proportionate poverty gap for the non-poor is assumed to be zero. For fuller description of these three widely-used indices of poverty, see Fields, 2001. These estimates were made by combining the decile distribution data for income with the poverty lines used in the IPRSP. Computations were made by using a program developed at the World Bank which fits a parametric Lorenz distribution to the decile distribution data and finds the values of the three measures of poverty by juxtaposing the poverty line and average income against that distribution. The program also gives the Gini ratios from the fitted parametric Lorenz Distribution. These, as expected, are slightly higher than our estimates (see footnote 14 above for an explanation) and are not reported.

Urban population had a 45 per cent increase in real per capita personal income. The performance in poverty reduction was better in urban areas than in rural areas. There was nearly a 5 percentage point (16 per cent) reduction in the headcount rate of poverty even though the absolute number of population in poverty increased from 6.5 million in 1991/92 to 7.1 million in 2000. Another interesting point to note is that all three indices of urban poverty worsened between 1991/92 and 1995/96 despite a decent 16 per cent (3.7 per cent per year) increase in per capita real income.²⁷

²⁷ Poverty estimates reported in the IPRSP, based on per capita consumption, are quite different from the above. Poverty reduction was found by the IPRSP to be very significant between 1991/92 and 1995/96 for both rural and urban areas and very little between 1995/96 and 2000. Indeed urban poverty is found to have increased between 1995/96 and 2000. For the entire period, the decline in consumption poverty as estimated in the IPRSP is faster than the decline in our estimates of income poverty. This paper does not have the space to resolve these differences which are due to different rates of growth between per capita consumption in IPRSP and per capita income in this paper and different rates of change in inequality in consumption in IPRSP and inequality in income in this paper.

The last three rows of the table show the counterfactual: the poverty outcome in the hypothetical case of the growth in per capita income being exactly what it was but the *inequality in the distribution in income remaining the same as in 1991/92*. All three indices of poverty would have been dramatically more favorable. By 2000 the proportion of population in poverty would have declined to 36 per cent in rural areas (as compared to the actual of 45 per cent) and a mere 11 per cent in urban areas (as compared to the actual of more than 25 per cent). Furthermore, average income gap of both the rural and urban poor would have declined. While actual indices of urban poverty went up between 1991/92 and 1995/96, they would have fallen significantly in the counterfactual case. Rural poverty over that period would have increased – an outcome of the estimated fall in rural per capita income, the skepticism about which has been discussed earlier – but this increase would be far smaller (2 percentage points) than what the estimate of actual increase (of 6 percentage points) in the headcount index shows.

For Bangladesh as a whole 49.5 million people - 43.8 per cent - were income poor in 1991/92. Estimates of *actual* poverty show that in 2000 there were 52.6 million poor – a 6.4 per cent *increase* in absolute number – or 40.8 per cent of the population – a 3 percentage point decline in the headcount rate. Had the distribution of income remained unchanged over the period, the outcome would have been dramatically different: the absolute number of people in poverty would have fallen to 39.3 million – a 20.6 per cent *decline* in the absolute number – or 30.5 per cent of the population – a 13.3 percentage point decline. At this rate of annual average decline in the headcount rate (1.56 percentage point per year), the total decline in the headcount rate over a 15 year period would have been more than 23 percentage points, which would have better than the equivalent of the millennium goal of halving the rate of poverty over a 15-year period!

The conclusion that clearly stands out is that the rapid increase in inequality has robbed Bangladesh of more than three-quarters of the potential decline in the headcount index of poverty over the period under review (an actual decline of 3 percentage points as compared to a potential decline of 13.3 percentage points). The pursuit of the millennium goal of poverty reduction must put as much emphasis on containing the rise in inequality as on promoting growth.

V. CONCLUDING COMMENTS

The last decade of the twentieth century was marked by a steady and rapid increase in inequality of income distribution in Bangladesh. One of the consequences of this was that the reduction in the headcount rate of income poverty was less than a quarter of what would have been achieved if the distribution of income remained unchanged at its level in 1991/92. The remaining three-quarters of the potential poverty reduction were lost because of rising inequality.

Distribution of income will not stop getting worse on its own. A continuation of the past trend will however make it impossible to attain anything like the millennium goal of reducing the incidence of poverty by a half by the year 2015. Trusting that growth alone can accomplish the task of poverty reduction, while permitting “leakage” by way of continued increase in inequality, is a costly strategy to pursue. Public policy must therefore address the task of containing inequality.

As often said above, inequality can be contained by: (i) a change in the composition of income in favor of the equalizing components (reducing the share of the disequalizing components); and (ii) by making individual components of income more equalizing (less disequalizing). Options in pursuit of a change in the composition of income should be limited to seeking to increase the share of wages in factor income and the share of the rural population in total income. Any attempt to shift the share of incremental income from the other disequalizing sources to the other equalizing sources would have to confront natural laws of economic growth and efficiency. The remaining focus of income distribution policy must be on reducing the disequalizing effect of individual components of income. It is the non-farm production sectors, which incorporate some of the most disequalizing components of factor income as well as provide the best hope for increasing the shares of the most equalizing components, where these changes need to be sought. Public policy could seek to influence the growth of these sectors in the following four ways to help contain inequality:

- (a) Make adjustments in incentives, within the limits dictated by considerations of efficiency, to promote low-skilled-labor-intensive activities which would result in an increase in the share of wages in total factor income.

- (b) Improve the access to salaried employment by widening the access to skill acquisition.
- (c) Strengthen the existing programs of making “entrepreneurial income” in non-farm activities more accessible to the small and micro entrepreneurs by improving their access to capital, skill, technology and market.
- (d) Improve the share of the rural society in total public resources to promote both worthwhile farming and non-farm activities while taking special care to make rural non-farm activities less disequalizing (i.e., by adhering to policies (a), (b) and (c) above).

Direct fiscal redistribution has so far had an insignificant role in Bangladesh. The HIES 2000 however provides evidence that the existing programs have been highly successful: redistributive programs like Vulnerable Group Feeding, Food for Education and Vulnerable Group Development have by and large succeeded in reaching the poor. While these components accounted for a miniscule 0.25 per cent of rural income, they had a strongly equalizing distribution. Less than 16 per cent of these resources leaked out to the top three deciles. The concentration ratio for this source of income was highly negative. Apparently not even the much-maligned corrupt administration has prevented these resources from reaching the poor. There is a strong case for considering an expansion in these programs by increasing the pitifully low tax burden on the rich.

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