Aspects of the Poverty Scenario in Bangladesh During 2010-2016

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This paper investigates a number of inter-related issues pertaining to the recent poverty scenario of Bangladesh – viz., (a) making sense of a marked slowdown in the pace of poverty reduction after 2010, (b) identifying the structural determinants of poverty reduction, and (c) examining regional divergence in the rate of poverty reduction. The analysis identifies falling real wages as the main proximate reason for both slowdown in poverty reduction and rise in income inequality in recent years. The underlying reason, however, is a massive upsurge in rural-to-urban migration which has exerted a downward pressure on real wages in the urban labour market, with repercussion on the rural labour market as well. The main determinants of poverty reduction in the recent years are found to lie in a couple of structural changes – (a) occupational shift, from relatively low-remuneration activities to relatively high-remuneration activities, induced by economic growth and (b) the spread of education, which enables workers to move into relatively high-occupation activities and to earn higher income within the same occupation. Divergent performance in terms of the same two structural factors – namely, occupational shift and the spread of education – are also found to explain a large part of the regional divide in the success in poverty reduction, although additional factors – related to geography and demography – may also be at work.

Keywords: Poverty, Migration, Real Wages, Occupational Shift, Education and Poverty, East-West Divide

JEL Classification: I32, O15, I2, R11

I. INTRODUCTION

This paper examines the pace and pattern of poverty reduction in Bangladesh in recent years, with a special focus on the period since 2010. Ever since the preliminary report of the *Household Income and Expenditure Survey* of 2016 was published (BBS 2017a), a lot of attention been drawn to the fact that while poverty has continued to fall in Bangladesh, the pace of poverty reduction has slowed down noticeably since 2010. There has been much speculation on the reason for this slowdown, and this paper undertakes a thorough examination of this issue. The connection between poverty and inequality is also examined in this context. In spite of the slowdown, the fact remains that poverty has continued to fall and the present paper also investigates the forces that have contributed to the reduction of poverty that has taken place in Bangladesh since 2010. One further issue that has drawn a good deal of attention is the regional divide in the relative success in poverty reduction. While the western region had traditionally been lagging behind the eastern region, there were signs in the first decade of this century that the east-west divide had started to narrow. But it now appears that the gap is widening again after 2010, which raises serious questions about what factors actually lie behind the east-west divide and how those factors are changing over time. The paper takes a close look also at this issue.

The discussion is organised as follows. The broad contours of the pace and pattern of poverty reduction in Bangladesh are set out in Section II. The reasons for the recent slowdown in poverty reduction are explored in Section III. Section IV then investigates the forces that have contributed to the reduction of poverty since 2010. The issue of regional dimension of poverty is examined in section V. In section VI, we undertake a multi-variate analysis of poverty reduction with a view to checking whether the structural determinants of poverty identified in the preceding sections remain significant when the effects of other factors are controlled for. Finally, section VII offers a brief summary of the main findings.

II. THE PACE AND PATTERN OF POVERTY REDUCTION

Bangladesh has made great strides in reducing the level of poverty over the last three decades, especially since the turn of the present century. During the 1990s, poverty ratio had declined relatively slowly – from 56.7 per cent in 1991/92 to 48.9 per cent in 2000. The following decade witnessed a sharp acceleration in the pace of poverty reduction, when national poverty declined more than twice as fast as in the 1990s – falling to 31.5 per cent by 2010. It has continued to fall since

then – reaching 24.2 per cent by 2016, but the pace of reduction has slowed somewhat (Table I). Whereas the decade of 2000s witnessed a reduction of 1.7 percentage points per year, in the subsequent six years the rate of decline was down to 1.2 percentage points per year.

TABLE I
TREND OF POVERTY: 1991-92 TO 2016
(Head-count ratio; percentage)

	1991-92	1995-96	2000	2005	2010	2016
Overall Poverty						
National	56.7	50.1	48.9	40.0	31.5	24.2
Urban	42.8	27.8	35.2	28.4	21.3	18.6
Rural	58.8	54.5	52.3	43.8	35.2	26.4
Extreme Poverty						
National	41.1	35.2	34.3	25.1	17.6	12.8
Urban	24.0	13.7	19.9	14.6	7.7	7.4
Rural	43.8	39.5	37.9	28.6	21.1	14.8

Notes and Sources: The figures from 1991-92 to 2010 are from BBS, *Household Income and Expenditure Survey* (HIES), 2010, Table 6.1. The figures for 2016 were calculated by the author from raw data of HIES, 2016.

The pattern is quite similar for extreme poverty. After falling at a relatively slow rate in the 1990s, it fell sharply in the decade of the 2000s, when it was almost halved – from 34.3 per cent in 2000 to 17.6 per cent in 2010. Since then, however, the pace of reduction has slowed, and by 2016 extreme poverty stood at 12.8 per cent (Table I).

The slowdown in the pace of poverty reduction appears to have affected urban areas much more than rural areas. Urban poverty declined by only 2.7 percentage points during the period 2010-2016, compared to 8.8 percentage points decline in rural poverty. The case of extreme poverty is even more startling, which was almost at a standstill in urban Bangladesh during 2010-2016 at around 7.5 per cent, while rural Bangladesh saw it decline from 21.1 per cent to 14.8 per cent during the same period (Table I).

Two sets of issues need to be addressed in this context: (a) what are the main reasons for the recent slowdown in the rate of poverty reduction, and (b) what factors have mainly contributed to continued progress in poverty reduction in recent years, albeit at a slower rate than before? These questions are taken up below, followed by a discussion of the regional profile of poverty in Bangladesh.

III. EXPLAINING THE SLOWDOWN IN POVERTY REDUCTION

To some extent, the slowdown in the pace of poverty reduction could merely be a consequence of the fact that when poverty comes down to relatively low levels, it becomes increasingly more difficult to reduce it further. This is the familiar "low hanging fruit" argument. As poverty declines over time, the easier options (the so-called 'low hanging fruits') available for poverty reduction get exhausted first, and only the relatively more difficult options remain, which makes further reduction in poverty much more difficult. That there is some merit in this argument can be seen by looking at the trend of extreme poverty, whose level in 2000 (34.3 per cent) was comparable to that of overall poverty in 2010 (31.5 per cent). Between 2000 and 2005, extreme poverty declined by 1.8 percentage points per year; but in the next five years, it fell more slowly – by 1.5 percentage points per year; and in the next six years, it fell even more slowly – by 0.8 percentage point per year. It should not be altogether surprising, therefore, that the pace of reduction in overall poverty has begun to slow down since 2010; evidently, what was already happening to extreme poverty since 2000 has begun to happen to overall poverty as well since 2010 as the latter has come down to relatively low levels.

It is, however, important to note a special feature of the slowdown in poverty reduction after 2010 – namely, that this slowdown has occurred despite acceleration in the growth of GDP, which has gone up from 5.6 per cent per annum during 2000-2010 to 6.4 per cent during 2011-2016. Setting aside the possibility of irreconcilable imperfections in data, this disjunction between the pace of poverty reduction on the one hand and the pace of GDP growth on the other suggests that there might be other forces – of possibly structural nature –also at work, contributing to the recent slowdown in poverty reduction.

For a starter, one particular structural change one might consider is an increase in the rate of savings, which has reflection on the growth of consumption and hence on the pace of poverty reduction. Since poverty is measured with reference to consumption rather than income, what matters for the pace of poverty reduction is the growth of consumption and not the growth of income *per se*. Although the growth paths of income and consumption are closely related, a divergence between the two can occur due to change in the savings behaviour of the population. If the propensity to save goes up sharply, then it is possible that even when GDP growth accelerates the growth of consumption may not, and may even decelerate, in which case the pace of poverty reduction may well decline. As it happens, the savings rate has indeed risen to some extent – from around 27 per cent of GDP during the

decade of the 2000s to about 30 per cent during 2010-2016. But this rise was evidently not sharp enough to prevent a slight acceleration in the growth of consumption following the acceleration in GDP growth.[1] Therefore, rising propensity to save cannot by itself explain the slowing rate of poverty reduction.

A second possible line of enquiry is the link between inequality and poverty. Even when growth accelerates, poverty reduction can slow down if distribution becomes more unequal. As we shall see later in the paper, income inequality has indeed increased over time. However, since poverty is measured in terms of consumption rather than income, the relevant inequality for the purpose of the present argument is consumption inequality; and as can be seen from Table II, consumption inequality has remained remarkably constant over time, at least as measured by the standard index of Gini coefficient. A simple inequality-based explanation does not, therefore, work either.

TABLE II

TREND OF CONSUMPTION INEQUALITY

(Gini coefficient)

Year	National	Rural	Urban
1991-92	0.259	0.243	0.307
1995-96	0.302	0.265	0.363
2000	0.307	0.271	0.368
2005	0.310	0.278	0.353
2010	0.320	0.275	0.338
2016	0.324	0.300	0.330

Notes and Sources: Reports of *Household Income and Expenditure Surveys*, various years. The figures for 2016 are from BBS (2017a).

This does not mean that distributional changes have no explanatory power at all; it's just that we must look beyond simple aggregative measures of inequality, and investigate the structure of inequality more closely. What matters for poverty reduction is what happens to the bottom end of the distribution; if an inequality-increasing change at the bottom end is combined with an inequality-reducing change elsewhere in the distribution, the aggregate index of inequality may well remain unchanged even though the poor might be adversely affected. It is, therefore, necessary to examine structural changes in the economy that might have consequences for distribution at the bottom end of the scale.

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[1]According to BBS statistics, the average annual growth rate of consumption was 4.9 per cent during the 2000s and 5.3 per cent during 2010-2016 (BBS, 2014, 2016a).

Pursuing this line of enquiry, we argue below that an adverse distributional change at the bottom end of the scale has indeed occurred after 2010, and this is the most important proximate reason for the recent slowdown in poverty reduction. The evidence for adverse change at the lower end of the distribution is found in the movement of real wages of unskilled workers, which has suffered a decline after 2010, reversing a rising trend in the preceding decade. We examine this evidence below, along with its implication for change in income distribution, and then proceed to offer an explanation of falling real wages as a consequence of a massive upsurge in the pace of rural-to-urban migration.

Real Wage Growth Reversal after 2010 and Adverse Change in Income Distribution

The behaviour of real wages of unskilled workers is a reliable marker of both absolute and relative well-being of the poor people, who earn their livelihoods mostly by selling their labour power. From this perspective, the trend of real wages in the last decade and a half is quite revealing. Real wages of unskilled workers appear to have undergone a startling reversal since around 2010. Throughout the decade of the 2000s, the trend of real wages was mostly upward; but after about 2010 it began to fall; by 2015-16, it had gone back to the levels of the mid-2000s (Figure 1).[2]

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[2]For the time series on nominal wages, CPI and real wages, see Appendix Table A.1. A couple of remarks are in order on the data on wages used in this paper. First, BBS has been issuing a new series of nominal wages since 2010-11 after a complete overhaul of its database, which was designed to improve the coverage of wages in various occupations (BBS 2015). Figure 1 uses the new series for the period since 2010-11 and combines it with the old series for the preceding years, while recognising that the two series are not fully compatible. Some publications of BBS continue to update the old series beyond 2010-11, and it should be noted that if one were to use this updated series one would not find any fall in real wages. However, since the new series is based on a much superior database and is recognised by BBS as its official series on money wages, we have chosen the new series rather than the updated old series for the period since 2010-11; for the earlier years there is no choice but to use the old series. Second, real wages have been derived by deflating money wages with the national CPI. This is not ideal; a more relevant deflator would be the cost of living index for workers, but no such index exists for recent years. As an alternative, one could use the food portion of the CPI, which might be a closer approximation of the workers' cost of living index than the overall CPI, but we have checked that the use of food CPI does not alter the major conclusions, including that of the decline of real wages since 2010-11.

FIGURE 1: **Real Wages of Unskilled Workers (2010/11 = 100)**
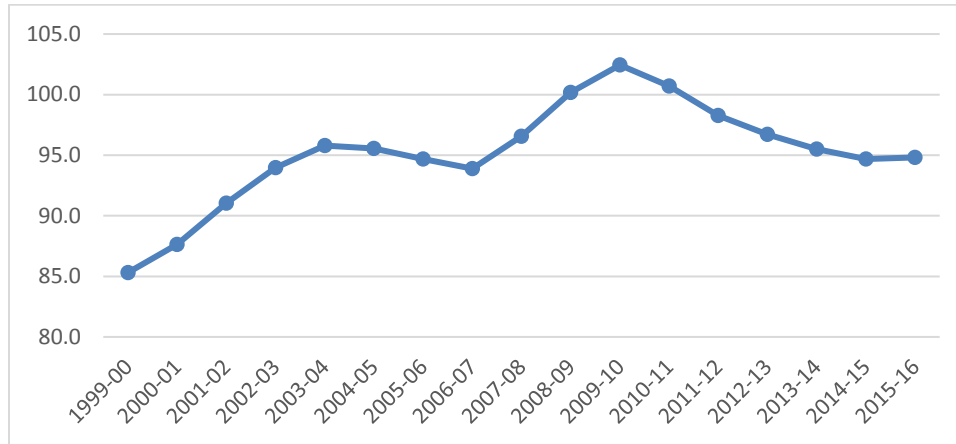
Source: Appendix Table A.1.

Since wages are the major source of income for many among the poorer segment of the population, this reversal in wage growth inevitably had an adverse effect on income distribution. According to official statistics, income inequality, as measured by the Gini coefficient, displays an upward long-term trend since the early 1990s (Table III). Inequality increased from the 1990s to 2000s, and after remaining virtually unchanged throughout the 2000s, it has gone up again since then. At the national level, the Gini coefficient has increased from 0.46 in 2010 to 0.48 in 2016. Both rural and urban areas have witnessed rising inequality since 2010, but the increase has been particularly sharp in urban areas, where the Gini coefficient has gone up from 0.45 in 2010 to 0.50 in 2016.

TABLE III
TREND OF INCOME INEQUALITY
(Gini coefficient)

Year	National	Rural	Urban
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
2016	0.48	0.45	0.50

Notes and Sources: Reports of *Household Income and Expenditure Surveys*, various years. The figures for 2016 are from BBS (2017a).

In order to investigate the forces behind rising inequality, it would be useful to look at it from a slightly different perspective from the one offered by the widely used Gini coefficient. It has been well-known for a long time that one of the limitations of the Gini coefficient is that by construction it attaches more weight to the middle of the distribution than to the tails. This would not be a problem for the purpose of comparison between distributions if the middle of the distribution behaved in the same way as the tails – e.g., if any widening of the gap between the upper and lower tails was also accompanied by similar widening of the gap in the middle of the distribution. This is indeed the implicit assumption behind the widespread use of the Gini coefficient.

But path-breaking recent work by Gabriel Palma has seriously questioned the empirical basis of this assumption. In an influential study on income distribution for a large number of countries around the globe, he has demonstrated that the middle of the distribution does not generally behave in the same way as the tails (Palma 2003, 2011). In fact, one of the stylized facts that emerges from his studies is that the middle class – representing 50 per cent of the population belonging to the five deciles from the fifth to the ninth – manages to capture a fairly constant share of roughly 50 per cent of national income in most countries most of the time. It is the changing division of the remaining 50 per cent of income between the bottom 40 per cent of the population and the top 10 per cent that drives the change in overall income distribution. Thus, when income distribution worsens it is usually because the share of the top 10 per cent goes up at the expense of the bottom 40 per cent, while the middle 50 per cent of the population more or less hold on to their share. The changing pattern of income distribution thus essentially represents a struggle between the two tails of the distribution for sharing the half of national income that is not captured by the middle class.

This finding has a clear implication for how best to measure the degree of income inequality. What one should look for is not a measure of overall distribution, such as the Gini coefficient, because the middle of the distribution does not change much anyway, but simply a measure of the gap between the two tails of the distribution because that's where changes mainly occur. The simplest such measure is the ratio between the income shares of the bottom 40 per cent and the top 10 per cent of the population. Some researchers have christened this ratio as the Palma ratio and advocated its use in preference to the Gini coefficient (e.g., Cobham and Sumner 2013a, 2013b).

TABLE IV
AN ALTERNATIVE MEASURE OF INCOME INEQUALITY:
THE PALMA RATIO

	1985-86	1995-96	2005	2016
Income Share of Bottom 40%	18.17	15.54	14.36	13.01
Income Share of Middle 50%	50.37	49.78	48.00	48.83
Income Share of Top 10%	31.46	34.68	37.64	38.16
Total	100.00	100.00	100.00	100.00
Palma ratio	1.73	2.23	2.62	2.93

Notes and Sources:

(1) Palma ratio is defined as the ratio of income shares of the top 10% and bottom 40% of the population in the income distribution.

(2) Calculated by the author from the data on income distribution by income deciles given in the reports of *Household Income and Expenditure Surveys*, various years. The figures for 2016 are from BBS (2017a).

In Table IV, we have reported a time series of Palma ratio for Bangladesh, starting from 1985-86 and ending in 2016, with an interval of roughly a decade. It may be noted that exactly in line with the Palma hypothesis, the share of the middle 50 per cent of the population has remained virtually unchanged – at close to 50 per cent of national income. But the gap between the top and the bottom has widened. Palma ratio has gone up continuously – from 1.73 in 1985-86 to 2.23 in 1995-96 to 2.62 in 2005 and further to 2.93 in 2016. There is clearly a long-term trend of an increasingly unequal society. While the middle class has held its own, the bottom 40 per cent of the population is continuously losing out to the top 10 per cent in the perennial struggle over income distribution.

Since the struggle between the top and the bottom over the distribution of income is fundamentally a reflection of the tussle between labour and capital (defined broadly to include land and other assets), this way of looking at income inequality naturally focuses our attention on functional distribution of income i.e., the distribution of income among the owners of factors of production. Empirical estimation of functional distribution and linking it with personal income distribution is fraught with serious practical problems, however, as it hard to obtain data on the ownership of factors of production. An alternative approach is to use rough indicators of functional distribution.

One such indicator that can be especially helpful in this regard is the share of labour in the growth of national income. Since labour is the most important factor of production owned by the poor, evolution in the share of labour can reveal a great deal about the evolving share of the poor vis-à-vis the share of the rich in national income. The evolution in labour share can in turn be inferred by comparing the growth of real wage with the growth of labour productivity (as measured by GDP per worker). If real wage and productivity grow at the same rate, the relative shares of labour and non-labour inputs (such as land and capital, including human capital) in national income will remain constant, and since labour input comes mostly from the poor and non-labour inputs mostly from the rich, the personal distribution of income will also remain relatively stable. If, however, real wage grows more slowly than productivity, this would lead to rising share of non-labour inputs, with the implication that the share of the rich is also perhaps rising i.e., personal income distribution is getting more unequal. The converse would be true if real wage grows faster than productivity.[3]

The relevant data in this regard are presented in Table V. Here we compare the growth of labour productivity and real wages over three decadal periods – 1985/86-1995/96, 1995/96-2005/06 and 2005/06-2015/16, chosen in such a way that their terminal years coincide roughly with the years for which we reported Palma ratio in Table IV. The first two columns of this table report the annual rates of growth of GDP and employment respectively during each of the three periods. The difference between these two columns gives us the growth of labour productivity, which is shown in column 3, which is then compared with the growth of real wages reported in column 4.

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[3] It should be noted that even though real wage data relate directly only to those who are employed for wages, the comparison between real wage growth and productivity growth is relevant for a wider set of workers, including the self-employed among the poor. Since the poor self-employed people would rely more on labour than on non-labour inputs in whatever enterprise they are engaged in, their fate will be inextricably linked to the fate of labour as a factor of production. Real wage can thus be seen as a proxy for the earnings for all those who rely mainly on the supply of labour for their livelihood, regardless of whether they are wage-employed or self-employed.

TABLE V

**GROWTH OF GDP, EMPLOYMENT, LABOUR
PRODUCTIVITY AND REAL WAGE**

(Annual average growth rate; percent)

Period	GDP	Employment	Labour productivity	Real Wage
1985/86 - 1995/96	4.21	1.33	2.88	1.26
1995/96 - 2005/06	5.56	3.14	2.42	1.16
2005/06 - 2015/16	5.89	2.30	3.59	0.03

Notes and Sources:

(1) GDP growth rates are based on constant price GDP series obtained from BBS publications on national accounts. Employment data are from *Labour Force Surveys* of BBS.

(2) Growth of labour productivity is derived by subtracting employment growth from GDP growth.

(3) Real wage was calculated by deflating nominal wages by national CPI. The data on both nominal wages and CPI were taken from BBS (2017b). For nominal wages, the new series with the base year 2010/11 was used for the period from 2010/11 to 2015/16. See footnote 2.

A couple of features of these figures are worth noting. First, throughout the period under consideration, growth of real wages has lagged behind the growth of labour productivity, indicating that the share of labour in national income has been falling consistently over the last three decades. This is at least partly, if not primarily, responsible for worsening income distribution as indicated by the rising Palma ratio. Second, the chasm between labour productivity and real wages has worsened in the recent years. From the mid-1980s to the mid-2000s, real wages grew at slightly less than half the growth rate labour productivity, but the gap between the two has widened sharply in the last decade. On the one hand, the growth of labour productivity has surged – from an average of around 2.6 per cent per year prior to 2005/06 to 3.6 per cent since then. On the other hand, the growth of real wages has slowed down from around 1.2 per cent prior to 2005/06 to virtually zero (0.03%) in the decade ending 2015/16. As we saw earlier, the main setback in real wages has occurred since 2010, when wages actually declined in real terms, as we noted earlier (Figure 1). As a result, the distribution of income has worsened so much since 2010 that it has been captured not only by the Palma ratio, which is designed to capture such changes, but also by the less sensitive Gini coefficient for the first time since the early 1990s. Thus, falling real wages evidently lie behind both the slowdown in poverty reduction and the widening of

income inequality since 2010. The underlying forces causing the reversal of wage growth are explored below.

Rural-to-Urban Migration: The Harris-Todaro Trap

It is a central thesis of this paper that the reason for the reversal of real wage growth lies primarily in the sharp upturn in the rate of rural-to-urban migration in recent years. As the urban labour force was swelled at an unprecedented pace by a massive upsurge migration that has been occurring since around 2010, the supply of unskilled urban workers has increased at a much faster rate than ever before, outstripping any increase in the demand for labour. The resulting imbalance in the urban labour market has led inevitably to a depression of real wages. And as urban wages have fallen, it might have had a depressing effect on rural wages as well through the migration linkage, thus leading to the decline in real wages of unskilled workers at the national level. In consequence, a slowdown in the pace of poverty reduction was inevitable.

In order to examine the relationship between migration on the one hand and the slowdown in the rate of poverty reduction on the other, we may start by noting a couple of apparently paradoxical sets of statistics. First, recent years have witnessed a rather disconcerting slowdown in agricultural growth. During the decade of the 2000s, agriculture grew at an annual average rate of about 4 per cent; in the second half of the decade growth was even faster – nearly 5 per cent. But during the period 2010-2016, the growth rate slowed down to just 2.6 per cent per year, which was almost half of what was achieved in the preceding five years (Appendix Table A.2). Second, the recent slowdown in the pace of poverty reduction, as we have seen, is much more of an urban phenomenon than a rural one. In the case of rural poverty, the slowdown was marginal; during 2010-2016, rural poverty declined by 1.5 percentage points per year, which was only slightly less than the 1.7 percentage points reduction per year achieved in the preceding decade. By contrast, urban poverty declined by a paltry 0.45 percentage point per year during 2010-2016, which was way below the 1.4 percentage points reduction per year experienced in the preceding decade (Table I).

We thus have the apparently paradoxical phenomenon that while agricultural growth has suffered a serious setback in the period since 2010 compared to the preceding decade, it is urban rather than rural poverty that has borne the brunt of slowdown in the pace of poverty reduction. Since agricultural performance affects the rural people most directly, one should have expected the opposite to have happened. We shall argue that rural-to-migration is the key to resolving this

paradox. To put it simply, massive outmigration of rural poor to the urban centres is responsible for the fact that slowdown in the pace of poverty reduction is evident much more in urban areas than in rural areas.

Although reliable figures on the rate of migration is hard to come by, the employment data given by the *Labour Force Surveys* clearly indicate that a massive upturn in the rate of migration must have occurred around 2010. Table VI provides a breakdown of total employment into rural and urban employment for a number of years since 1999-00. It may be seen that after rising relatively rapidly up to 2010, rural employment growth has slowed down drastically since then. In the five-year period from 2010 to 2015, rural employment grew by only 1.3 million, in comparison with 5.5 million in the preceding five-year period (2005-2010) and 5.9 million in the five-year period before that (1999/00-2005). By contrast, the trend of urban employment is entirely the opposite. After growing relatively slowly up to 2010, urban employment has suddenly exploded since then. During 2010-2015, urban employment grew by 4.2 million, as against only 1.2 million during 2005-2010 and 2.5 million during 1999/00-2005. Another way of looking at this contrast is to note that whereas 75 per cent of the increase in employment during 1999/00-2010 occurred in rural areas, the picture was completely reversed in the post-2010 period, when 76 per cent of the incremental employment occurred in urban areas. These figures clearly suggest the occurrence a significant structural break at the beginning of the present decade, which opened the floodgate of rural-to-urban migration on a massive scale.

TABLE VI
TREND OF EMPLOYMENT: 1999-00 TO 2015
(million)

	1999-00	2005	2010	2015
National	39.0	47.4	54.1	59.5
Rural	30.3	36.2	41.7	43.0
Urban	8.7	11.2	12.4	16.6

Source: BBS, *Labour Force Survey* (LFS), various years.

The *Labour Force Surveys* do not tell us which segment of the rural population mostly took part in this mass exodus, but data from successive *Household Income and Household Surveys* (HIES) confirm what common sense suggests – that the migrants belonged mostly to the bottom rung of the population. Using HIES data, Table VII presents the distribution of rural population in various size-groups of land ownership – from 2000 to 2016. The most remarkable statistics in this table

is the trend in the share of landless people in rural population: after hovering between 46 and 51 per cent from 2000 to 2010, their share in total population suddenly plummeted to 32.3 per cent in 2016. Obviously, a huge chunk of the landless people has simply disappeared from the rural scene since 2010. And, as can be seen from Appendix Table A.3, it is this segment of population that has historically experienced the highest incidence of poverty in rural Bangladesh. Clearly, it is the poorest among the rural people who have mostly joined the mass exodus that has been going on from rural to urban areas since around 2010.

This exodus of rural poor into urban centres has implications for the pace of poverty reduction, which can be best understood in terms of the well-known Harris-Todaro effect (Harris and Todaro 1970). The essence of the argument is that because of various push and pull factors rural poor may be tempted to migrate to urban areas attracted by better prospects of earning a livelihood there, but when too many of them do so, a large number of them will fail to improve their condition, resulting in an outcome where the average condition may not improve and may even deteriorate. Another way of making the point is that, if migration occurs on a massive scale, a better *ex ante* probability of earning a livelihood in urban areas may result in a worse *ex post* prospect of doing so. This is a classic case of the fallacy of composition – what is good for an individual may not be good for a collection of individuals, especially if the collection happens to be very large.

TABLE VII

DISTRIBUTION OF POPULATION BY LAND OWNERSHIP: 2000-2016

(percent)

Land ownership category	2000	2005	2010	2016
Landless (<0.05 acre)	48.0	45.8	50.9	32.3
Functionally landless (0.05-0.5 acres)	13.0	15.9	15.9	42.1
Marginal (0.5-1.5 acres)	17.5	18.8	18.0	16.4
Small (1.5-2.5 acres)	9.2	8.8	6.8	4.9
Large/medium (> 2.5 acres)	12.4	10.7	8.4	4.2
All	100.0	100.0	100.0	100.0

Notes and Sources: The figures from 2000 to 2010 are from World Bank (2013), Table 2.2. The figures for 2016 were calculated by the author from raw data of HIES, 2016.

In the present context, both push and pull factors would seem to have been at work. The precipitous slowdown in the rate of agricultural growth would have exerted a strong push effect, forcing the rural poor to seek their livelihood

elsewhere. At the same time, the perceived probability of doing better in urban areas may also have acted as a pull factor. The perception would have been based on historical experience –the fact that not only was urban poverty considerably lower than rural poverty over the years, it also declined slightly faster than rural poverty until 2010.[4] However, once migration started on a massive scale, the perception based on historical trend did not translate into reality for many a migrant – they unwittingly fell victim to the fallacy of composition.

As a result, when the rural poor migrated to urban areas, many of them simply swelled the ranks of the urban poor, thereby pushing down real wages. The problem was aggravated by the fact that urban poverty lines are considerably higher than rural poverty lines due to higher cost of living. HIES 2016 shows that on the average urban poverty lines are about 21 per cent higher than rural poverty lines in Bangladesh. Therefore, unless money income increased by at least 21 per cent, a poor migrant would remain poor, and even someone who was marginally non-poor in rural areas could become an urban poor upon migration. This explains why urban poverty has fallen so slowly after 2010. In fact, as noted earlier, extreme poverty has not fallen at all in urban areas – it has remained stuck at around 7.5 per cent.

IV. FACTORS CONTRIBUTING TO POVERTY REDUCTION SINCE 2010

It has been argued above that a large number of rural poor are simply shifting their residence to urban areas without ceasing to be poor, and that as a result the real wage of poor unskilled workers has been falling at the national level since around 2010. This begs the question of exactly how is it that poverty has gone down at all since 2010, albeit more slowly than before. The short answer to this question is structural change. Significant structural changes have been occurring in production and occupation, and people have been moving from less remunerative occupations to more remunerative ones. This structural shift has been the chief driver of poverty reduction since 2010, but, as we shall see, education is also playing an important role in this regard.

Let us begin by noting the incidence of poverty by occupational pattern of workers. Table VIII shows the incidence of poverty in 2016 among four broad occupational groups – day labourers, self-employed workers, salaried workers and

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[4]In the two decades from 1991/92 to 2010, urban poverty was nearly halved whereas rural poverty fell by about 40 per cent (Table I).

employers; and each of these categories is further divided into two broad sectors of activity – agriculture and non-agriculture. As expected, day labourers have the highest level of poverty (34.1 per cent); in fact, they are the only ones whose poverty rate is above average (23.4 per cent), and that too by a considerable margin. Self-employed and salaried workers have much lower poverty rates of 18.8 per cent and 15.2 per cent respectively.

TABLE VIII
POVERTY OF WORKERS BY OCCUPATION AND SECTOR: 2016
(percent)

Occupation	Poverty Rate		
	Overall	Agriculture	Non-Agriculture
Day labourer	34.1	38.7	30.2
Self-employed	18.8	20.4	17.1
Salaried worker	15.2	25.8	14.9
Employer	8.5	11.0	6.0
All	23.4	29.7	20.2

Source: Calculated by the author from raw data of BBS, *Household Income and Expenditure Survey* (HIES), 2016.

There is a clear divide between agriculture and non-agriculture as well. Taking all the occupation categories together, the rate of poverty was 29.7 per cent among agricultural workforce in 2016, and 20.2 per cent among non-agricultural workforce. Indeed, for each category of occupation, poverty was lower in non-agriculture than in agriculture. Thus, considering the combined occupation-cum-sector categories, the two categories of workers who enjoyed the lowest levels of poverty in 2016 (leaving aside the employers) were non-agricultural self-employed workers (17.1 per cent) and salaried workers (15.2 per cent).

As it happens, these are also the two categories of workers that have enjoyed the fastest rates of poverty reduction during 2010-2016 among all the groups. Indeed, as can be seen from Table IX, the slowdown in the rate of poverty reduction that we noted earlier does not apply to these two groups at all. The slowdown happened entirely on account of self-employed workers in agriculture and day labourers (in both sectors). By contrast, the salaried workers and self-employed workers in non-agriculture saw their poverty fall much faster during 2010-2016 compared to the preceding five years. Thus, between 2005 and 2010, poverty among both these groups had fallen by only 2 percentage points, but between 2010 and 2016 it declined by as much as 7 percentage points.

TABLE IX

TREND OF POVERTY OF WORKERS BY OCCUPATIONAL STATUS: 2000-2016

(percent)

Occupation	2000	2005	2010	2016
Self-employed in agriculture	45.0	36.0	23.0	20.4
Self-employed in non-agriculture	37.0	26.0	24.0	17.1
Day labourer	67.0	57.0	39.0	34.1
Salaried worker	27.0	24.0	22.0	15.2
All	48.9	40.0	31.5	23.4

Notes and Sources: The figures from 2000 to 2010 are from World Bank (2013), Figure 2.19. The figures for 2016 were calculated by the author from raw data of HIES, 2016.

These figures suggest that a structural shift in occupational pattern can have important consequences for poverty reduction. Specifically, a shift from day labour (and to lesser extent, from self-employment in agriculture) to either non-agricultural self-employment or salaried work should result in a reduction of overall poverty. Such a shift has indeed happened since 2010, as many self-employed workers in agriculture as well as day labourers in both sectors have moved increasingly into either self-employment or salaried work in the non-agricultural sector – i.e., into occupations that not only have the lowest levels of poverty but have also enjoyed the fastest rates of poverty reduction. This trend is especially evident in urban areas (Table X). This occupational shift has been the main driving force behind poverty reduction since 2010.

TABLE X

TREND OF OCCUPATIONAL SHIFT: 2010 TO 2015-16

(percentage of labour force)

	Bangladesh		Urban		Rural	
	2010	2015-16	2010	2015-16	2010	2015-16
Agriculture	47.6	42.8	24.1	12.9	54.7	54.0
Self-employed	35.2	34.2	19.1	10.5	40.0	43.2
Day labour	10.9	7.6	3.9	2.0	13.0	9.7
Salaried worker	1.5	1.0	1.0	0.4	1.7	1.2
Non-agriculture	52.4	57.2	75.9	87.1	45.3	46.0
Self-employed	27.7	26.9	26.4	35.3	28.0	23.7
Day labour	8.8	8.6	14.3	9.3	7.2	8.4
Salaried worker	15.9	21.7	35.3	42.4	10.1	13.9
All	100.0	100.0	100.0	100.0	100.0	100.0

Notes and Sources: Calculated by the author from the raw data files of *Labour Force Survey* of 2010 and the *Quarterly Labour Force Survey* of 2015-16.

The occupational shift has itself resulted from significant changes in the structure of production in the national economy. The acceleration in GDP growth that has occurred after 2010 has been driven by the non-agricultural sectors – industry, construction and services – nullifying the effect of deceleration in agricultural growth (Appendix Table A.2). The most striking has been the acceleration in industrial production; the average annual growth of industrial production has jumped from 6.9 per cent in the decade of the 2000s to 9.0 per cent during 2010-2016. Faster growth in the non-agricultural sector has opened up many new opportunities for both salaried work and self-employment, thereby enabling the shift in occupational pattern noted above and in the process helping to bring poverty down.

In conjunction with structural change, the spread of education has also played an important role. While structural change in production has helped by creating more remunerative employment opportunities, the spread of education in the last few decades has also helped by enabling the workforce to take advantage of those opportunities. Education has, in fact, contributed to poverty reduction in two complementary ways – first, by enabling workers to move from less remunerative occupations to more remunerative ones (the between-group effect), and second, by enabling them to earn more within each occupational group (the within group effect).

The evidence for the between-group effect can be seen from Table XI, which shows how workers with different levels of education are distributed among broad occupation groups. For relatively less remunerative occupations such as day labour and self-employment in agriculture, the proportion of workforce with different educational achievements is seen to fall systematically with the level of education. For example, among workers with no education 54 per cent work as day labour, but among those with primary education 42 per cent do so, and if they have secondary education the figure drops to as low as 25 per cent. By contrast, for the relatively more remunerative occupation of salaried work, the opposite pattern prevails – the proportion of workforce rises systematically with the level of education. Thus, among workers with no education only 15 per cent get salaried work, with primary education the proportion rises to 25 per cent, and with secondary education it rises further to 39 per cent. In the case of the other remunerative occupation – non-agricultural self-employment – the relationship is

an inverted U-shaped one, the proportion initially rises with higher level of education and then falls (presumably because those with the highest levels of education prefer to go for salaried work). These figures suggest that more education increases the probability that a worker would be able to join more remunerative occupations and thus to escape from poverty.

TABLE XI

OCCUPATIONAL DISTRIBUTION OF WORKERS AT DIFFERENT LEVELS OF EDUCATION: 2016

(percent)

Education	Occupation					
	Day labour	Self-employed agriculture	Self-employed non-agri	Salaried worker	Employer	All
No Education	53.9	17.7	12.2	15.0	1.0	100.0
Primary	42.1	16.3	14.9	25.4	1.0	100.0
Secondary	25.3	14.7	19.4	38.6	1.2	100.0
Higher Secondary	7.0	11.2	16.3	63.4	1.5	100.0
Graduate and above	1.7	5.1	12.3	78.4	2.1	100.0
All	*38.3*	*15.6*	*15.1*	*29.5*	*1.2*	*100.0*

Source: Calculated by the author from raw data of BBS, *Household Income and Expenditure Survey* (HIES), 2016.

The existence of within-group effect can be seen from Table XII. Within each occupational group, better education is found to be associated with lower poverty, and this is true even of the relatively low-remunerative occupations such as day labour and self-employment in agriculture. For example, among workers who work as day labour, those with no education have a poverty rate of 37 per cent, while those with higher secondary education have a poverty rate of only 22 per cent.

Thus, the spread of education has helped reduce poverty not only by facilitating the occupational shift from less remunerative occupations to more remunerative ones, but also by reducing the probability of being poor within each occupational group.

TABLE XII

**POVERTY RATES OF WORKERS BY OCCUPATION AT DIFFERENT
LEVELS OF EDUCATION: 2016**

(headcount index; percent)

Education	Occupation					
	Day labour	Self-employed agriculture	Self-employed non-agric	Salaried worker	Employer	All
No Education	37.4	25.6	26.1	25.4	13.2	31.0
Primary	33.5	19.4	19.9	20.5	12.9	26.3
Secondary	26.3	15.2	10.0	12.3	7.4	16.0
Higher Secondary	22.4	10.2	5.3	7.2	2.5	8.1
Graduate and above	8.5	8.9	7.7	4.1	1.5	5.2
All	*34.1*	*20.4*	*17.1*	*15.2*	*8.5*	*23.4*

Source: Calculated by the author from raw data of BBS, *Household Income and Expenditure Survey* (HIES), 2016.

V. THE REGIONAL DIMENSION OF POVERTY

Historically, the western region of Bangladesh has lagged behind the eastern region in terms of economic development, as reflected, for example, in consistently higher levels of poverty in the western divisions. The latest evidence shows that the divide still exists and indeed remains quite stark. The rate of poverty in the western region was as high as 34.6 per cent in 2016, as compared with 20.5 per cent in the east. The contrast in the incidence of extreme poverty is even more severe − the west had almost twice the proportion of extreme poor than the east (Table XIII).

TABLE XIII
REGIONAL DIMENSION OF POVERTY: 2016

(headcount index; percent)

Division	Poor	Extreme Poor
West	*34.6*	*19.1*
Barisal	26.4	14.4
Khulna	27.5	12.4
Rajshahi (old)	37.5	21.9
Rajshahi (new)	28.9	14.2
Rangpur	47.3	30.6
East	*20.5*	*10.4*
Chittagong	18.3	8.6
Dhaka	19.6	9.4
Sylhet	16.2	11.5
All	*24.2*	*12.8*

Source: Calculated by the author from raw data of BBS, *Household Income and Expenditure Survey* (HIES), 2016.

In the past, the west not only had higher levels of poverty but also experienced slower rates of poverty reduction, which led to widening of the east-west divide over the years. The historical pattern seemed to have begun to change, however, towards the second half of last decade, with poverty coming down faster in the west compared to the east during the period from 2005 to 2010. This had generated a degree of optimism all around that perhaps the age-old east-west divide was finally going to close. Many analysts attributed this shift at least in part to the longer-term impact of the Jamuna bridge that had revolutionised the west's communication with the major urban conurbations and industrial centres in Dhaka and Chittagong in the eastern region of the country (World Bank 2013).

More recent evidence suggests, however, that optimism on this score may have been premature. The trend seems to have reversed and reverted back to the older pattern. During the period from 2010 to 2016, the pace of poverty reduction was slower in the west compared to the east, thus accentuating rather than closing the east-west divide (Table XIV).

TABLE XIV
TREND OF REGIONAL POVERTY: 2000-2016
(headcount index; percent)

Division	2000	2005	2010	2016
West				
Barisal	53.1	52.0	39.4	26.4
Khulna	45.1	45.7	32.1	27.5
Rajshahi (old)	56.7	51.2	35.7	37.5
Rajshahi (new)	n.a.	n.a.	29.8	28.9
Rangpur	n.a.	n.a.	42.3	47.3
East				
Chittagong	45.7	34.0	26.2	18.3
Dhaka	46.7	32.0	30.5	19.6
Sylhet	42.4	33.8	28.1	16.2
All	*48.9*	*40.0*	*31.5*	*24.2*

Notes and Sources: The figures from 2000 to 2010 are from World Bank (2013), Figure 20.2. The figures for 2016 were calculated by the author from raw data of HIES, 2016.

The situation in Rangpur, the division with the highest rate of poverty in the country, has in fact become worse, with the rate of poverty going up from 42.3 per cent in 2010 to 47.3 per cent in 2016. Rangpur had historically been not only the poorest part of Bangladesh but had also suffered from much higher levels of

seasonal poverty (during lean agricultural season) than any other part of the country. There is some evidence from other sources that the extent of seasonal poverty has gone down significantly in Rangpur in recent years (e.g., Khandker and Mahmud 2012). However, the evidence presented in Table XIV shows that there has been no such improvement in the level of endemic poverty; on the contrary, Rangpur now holds the dubious distinction of being the only division in the country not to have shared in the recent trend of poverty reduction.

The situation in Rajshahi is not much better – the level of poverty has remained virtually unchanged there (at around 29-30 per cent). Khulna has been able to enjoy some reduction in poverty, but at a slower rate than any of the eastern divisions. The only bright spot in the west is Barisal, which has in fact outperformed all the divisions, including those in the east. The annual rate of poverty reduction during 2010-2016 was 2.2 percentage points in Barisal, the next best being 2.0 percentage points in Sylhet, followed by 1.8 percentage points in Dhaka.[5]

The exceptional nature of Barisal's performance notwithstanding, the fact remains that the relative deprivation of the west as a whole has become endemic. The problem, to a large extent, is structural – in the sense that the west suffers from relative dearth of opportunities for gainful employment stemming from the structure of production prevailing there and its workforce is also less capable of taking advantage of the opportunities that do exit. This is reflected in the contrast between the east and the west in the occupational structure of their respective workforce. As can be seen from Table XV, day labourers figure much more prominently in the workforce of the western divisions as compared to the east. Thus, in 2016, as many as 46 per cent of the workforce of the western divisions were day labourers as against 32 per cent in the east. By contrast, the proportion of salaried workers in the west (19 per cent) was almost half of that of the east (37 per cent).

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[5]Possible reasons for the exceptional performance of Barisal are discussed below.

TABLE XV

OCCUPATIONAL PATTERN ACROSS REGIONS: 2016

(percentage of workers)

Division	Day labour	Self-employed	Salaried worker	Employer	All
West	*45.9*	*34.2*	*19.3*	*0.6*	*100.0*
Barisal	34.3	33.5	30.7	1.6	100.0
Khulna	46.0	37.8	15.6	0.6	100.0
Rajshahi (old)	50.4	32.4	16.8	0.5	100.0
Rajshahi (new)	49.4	32.6	17.5	0.5	100.0
Rangpur	51.6	32.1	16.0	0.4	100.0
East	*32.0*	*30.0*	*37.0*	*1.0*	*100.0*
Chittagong	35.3	28.4	35.4	0.8	100.0
Dhaka	27.4	26.6	44.9	1.1	100.0
Sylhet	44.4	35.5	19.1	1.0	100.0
All	*38.3*	*30.6*	*30.2*	*0.9*	*100.0*

Source: Calculated by the author from raw data of BBS, *Household Income and Expenditure Survey* (HIES), 2016.

As we noted earlier, such differences in occupational pattern can have important implications for the level of poverty. Day labourers were seen to have not only the highest level of poverty but also the slowest rate of poverty reduction during the period 2010-2016 (owing largely to a fall in real wages), while salaried workers had the lowest rate of poverty as well as the fastest rate of poverty reduction during the same period (Tables VIII and IX). Not surprisingly, the western region, with its preponderance of day labour and relative scarcity of salaried workers, experienced much slower rate of poverty reduction than the east. It is noteworthy that the two western divisions, Rangpur and Rajshahi, which had the highest proportion of day labourers in the country (around 50 per cent) and the lowest proportion of salaried workers (around 16-17 per cent), were also the worst performing divisions in the country in terms of poverty reduction during 2010-2016. In fact, neither of them saw any reduction in poverty at all, and Rangpur actually saw an increase. By contrast, Barisal, which had the lowest proportion of day labourer and the highest proportion of salaried workers in the west – almost comparable to the average levels in the east – enjoyed the fastest rate of poverty reduction.

To some extent, the difference in occupational pattern owes itself to differential levels of educational achievement in the two regions. This should not be surprising in view of the close link between education and occupation we noted

earlier. Among all the divisions, Rangpur and Rajshahi had the highest proportion of workers with "no education" – about 43 per cent (Appendix Table A.4); it is no coincidence that these two divisions also had the highest proportion of day labourers, highest level of poverty, and the slowest rate of poverty reduction in the country in recent years. In contrast, in Barisal the proportion of workers with "no education" was even lower than in the eastern divisions; and its proportion of day labourers and performance in terms of poverty reduction were also comparable to that of the east.

It is thus clear that the divergent nature of poverty reduction across regions can be explained to a large extent by two inter-related factors: (a) disparate nature of the existing structures of production – which create opportunities of more remunerative occupations differentially between different regions, and (b) unequal levels of educational achievement which create differential ability of the workforce of different regions to take advantage of the opportunities for more gainful employment that are created.

Closer inspection reveals, however, that even after the allowing for the differences in employment opportunities and educational achievement, there remains something adverse about the environment in which the workforce of the western region works. This is evident from the fact that for each broad occupational group, all the eastern divisions (including Barisal) have higher level of poverty compared to the western divisions (Appendix Table A.5). Clearly, the problem with the west lies not just in the occupational pattern. Education could be partly responsible for this, because, as we have seen earlier, within each occupational group education has a close negative correlation with poverty (Table XII), and the west does have worse educational achievement (with the exception of Barisal). But even the combination of occupation and education does not constitute the whole story, because even within the same occupation-cum-educational group, the west fares worse than the east (Table XVI). There are clearly some other disadvantages – whether geographical, institutional, demographic, or policy-induced – which the western region suffers from in a disproportionate way, aggravating its poverty beyond what can be explained by the relative dearth of employment opportunities and low level of educational achievement. Further investigation is needed to identify those disadvantages.

TABLE XVI

**POVERTY RATES OF WORKERS BY OCCUPATION
AND EDUCATION ACROSS REGIONS: 2016**

(headcount index; per cent)

Division	No education	Primary	SSC	HSC plus
Day Labourer	*37.4*	*33.5*	*26.3*	*19.7*
West	44.4	40.4	34.8	16.2
East	30.4	26.3	15.9	24.2
Self-employed	*25.8*	*19.6*	*12.2*	*7.6*
West	29.7	24.6	16.4	8.2
East	22.6	15.5	8.4	6.9
Salaried worker	*25.4*	*20.5*	*12.3*	*5.5*
West	39.5	35.8	25.7	8.4
East	21.9	16.6	8.3	3.8

Source: Calculated by the author from raw data of BBS, *Household Income and Expenditure Survey* (HIES), 2016.

VI. DETERMINANTS OF POVERTY: A MULTI-VARIATE ANALYSIS

The preceding analysis suggests that the dynamics of poverty in the recent past has been influenced by a number of socio-economic and structural factors – such as occupation, education, residence (urban or rural) and region (east or west). Since, however, many of these variables are inter-related, and may in turn depend on various household characteristics such as assets, demographics, etc., it is necessary to carry out a multi-variate analysis of poverty in order to identify the significant causal factors.

For this purpose, a poverty regression was undertaken at the individual worker level – for all workers in the sample, by using the raw data file of the *Household Income and Expenditure Survey* of 2016, and by applying a probit equation. The explanatory variables included a number of individual-level, household-level, and locational variables. The individual-level variables were occupation and education of workers and the broad sector in which they work. The occupation variable was defined as an ordinal variable with four values – 1 for day labour, 2 for self-employed, 3 for salaried worker and 4 for employer. The ordering was based on the results reported earlier on the poverty raking of various occupations – going up from poorer occupations to better off ones. We would thus expect a negative coefficient of the occupation variable, signifying that poverty should fall as one moves up the ladder from day labour to self-employed to salaried work and to employer. The education variable is also an ordinal variable, with five values – 1

for no education, 2 for primary level, 3 for secondary level, 4 for secondary level and 5 for above secondary. Again, we should expect a negative coefficient of this variable, with higher levels of education entailing lower levels of poverty. The third individual-level variable was the broad sector of work, represented by a dummy variable with value 0 for agriculture and 1 for non-agriculture. From our preceding discussion, we should expect a negative coefficient for this variable as well, signifying lower poverty status of workers engaged in the non-agricultural sector.

The household-level variables are (1) age of the household head (as well as age-squared, which is meant to capture possible non-linearity due to life-cycle effect), (2) per capita land owned (taken as a proxy for asset ownership), (3) dependency ratio (number of dependants as a ratio of labour force available in the household), and (4) gender of the household head (with value 1 for households headed by single females, 0 otherwise). A couple of locational variables were also included – a residence dummy (0 for rural and 1 for urban) and a regional dummy (0 for east and 1 for west).

TABLE XVII

DETERMINANTS OF POVERTY AT THE LEVEL OF WORKERS: 2016

Explanatory variables	Coefficient	z-value
Education (code)	-0.23671	-17.61
Occupation (code)	-0.14430	-8.78
Age of household head (yrs)	-0.02527	-5.11
Age of household head squared (yrs)	0.00023	4.41
Per capita land ownership (acre)	-0.00293	-3.34
Household dependency ratio	0.14152	13.61
Gender of household head dummy	0.30771	4.57
Regional dummy	0.43636	11.29
Sector dummy	-0.04869	-1.78
Residence dummy	-0.02128	-0.43

Notes and Sources:

(1) Estimated by the author from raw data of the *Household Income and Expenditure Survey* 2016.

(2) Probit regression was used to estimate the coefficients. Standard errors were corrected for clustered sampling.

(3) Education is an ordinal variable with the following values: 1 for no education, 2 for primary, 3 for secondary, 4 for higher secondary and 5 for above higher secondary.

(4) Occupation is an ordinal variable with the following values: 1 for day labour, 2 for self-employed, 3 for salaried worker, and 4 for employer.

(5) The dummy for the gender of the household head has value 0 for male or married female and 1 for widow or divorced or separated female.

(6) Regional dummy has value 0 for East and 1 for West.

(7) Sector dummy has value 0 for agriculture and 1 for non-agriculture.

(8) Residence dummy has value 0 for rural and 1 for urban.

The results of the regression exercise are reported in Table XVII. All the explanatory variables, except the residence dummy, are found to be statistically significant and have the expected signs. Thus, even though many of these variables are inter-related to each other, each of them has an independent effect on poverty, after controlling for the effects of other variables. Focusing on the policy-relevant variables, it might be noted that (a) occupation and educational level of workers have a highly significant effect on their poverty, (b) households with more assets have lower levels of poverty, (c) households living in the western region of Bangladesh are significantly poorer than those of the east, even after controlling for all individual-level and household-level differences, and (d) working in the non-agriculture sector entails less poverty as compared to working in agriculture (although the coefficient of this variable is more weakly significant than the rest.)

In order to give a quantitative feel of how much difference the explanatory variables make to the probability of being poor, we have reported in Table XVIII the marginal effects of some of the important variables; they show the probability of being poor at different values of a particular explanatory variable after adjusting for the effects of all other variables.[6]

TABLE XVIII
MARGINAL PROBABILITIES OF BEING POOR: 2016

Explanatory variables	Probability (%)	z-value
Education		
No education	29.8	33.3
Primary	22.4	37.7
Secondary	16.1	30.4
Higher secondary	11.1	19.6
Above higher secondary	7.3	12.9
Occupation		
Day labour	25.4	34.4
Self-employed	21.1	37.0
Salaried work	17.3	24.5
Employer	13.9	15.5
Region		
West	28.8	32.7
East	16.0	22.0
Sector		
Agriculture	22.3	27.9
Non-agriculture	20.9	34.2
Gender of household head		
Widow/divorced/separated female	30.6	13.0
Male or married female	21.0	37.1

Notes and Sources: (1) The reported probabilities represent marginal effects of the respective variables after controlling for the effects of all other variables.

(2) Estimated from the probit regression, whose results are reported in Table XVII.

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[6]As the adjoining z-values show, all the reported probabilities are highly statistically significant.

At the level of household characteristics, the gender of the household head makes enormous difference to the probability of being poor. Living in a household headed by a single female (either widowed, or divorced or separated) increases the probability of being poor by almost 50 per cent compared to living in a household headed by either a male or a married female, even after controlling for the effects of assets, education, occupation, location, etc.

Among the individual-level characteristics, schooling is found to have a very strong effect on poverty. The probability of being poor is only 16 per cent for a person with secondary education as compared with almost 30 per cent for someone with no education; thus, completion of a full cycle of school education is capable of cutting the probability of being poor by almost half. Occupation has a very strong effect too. An average day labourer has 25 per cent probability of being poor, after controlling for the effects of all other variables, but someone with self-employment has a probability of 21 per cent and someone with a salaried job has a probability of just 17 per cent.

Similarly, the probability of being poor is also affected very strongly by the region in which one lives; after adjusting for all other effects, the mere fact of living in the western region of the country nearly doubles the probability of being poor (29 per cent) compared to living in the east (16 per cent). However, the sector of work does not seem to make a huge difference, once the effects of occupation, education, etc. have been allowed for, as the probability of being poor is only 1.4 percentage points higher in agriculture compared to non-agricultural activities. This fact does not, however, detract from the importance of developing the non-agricultural sector from the point of view of poverty reduction, because non-agriculture is capable of creating opportunities for more remunerative self-employment as well as salaried work, which, as we have seen, have very strong potential to reduce poverty.

In summary, the multivariate analysis confirms the relevance of the structural factors noted in the earlier discussion – notably, the importance of occupational shift, education and geography in shaping the dynamics of poverty in recent years.

VII. SUMMARY AND CONCLUSIONS

This paper has tried to investigate three inter-related issues: (a) reasons for the recent slowdown in the pace of poverty reduction, (b) forces underlying the continued fall in poverty after 2010, and (c) regional differences in the success in poverty reduction. The main findings may be summarised as follows.

(1) The main reason for the recent slowdown in the pace of poverty reduction can be traced to the reversal in the growth of real wages of unskilled workers since about 2010. Real wages were rising steadily in the decade of the 2000s, but then fell – or at best stopped rising – in the next decade. Since the poorer segment of the population relies predominantly on the sale of labour power for their livelihood, declining real wages inevitably exerted a downward pressure on the pace of poverty reduction.

(2) Declining real wages in the face of rising labour productivity also explains in large part the observed widening of income inequality in Bangladesh. There could be other reasons too – for example, the unequalising effect of foreign remittances, as suggested by some studies (e.g., Osmani and Sen 2011). But the widening of functional income distribution, as demonstrated by the divergent trends of the growth of real wages and labour productivity, must also have played a role in causing rising inequality in personal income distribution.

(3) The analysis presented in the paper shows that the decline in real wages can in turn be traced to a massive upsurge in rural-to-urban migration that has taken place since around 2010, caused by both push and pull factors. The sharp upsurge in migration has led to the familiar Harris-Todaro trap, whereby poor rural workers flock *en masse* to the urban areas in search of better livelihoods, but the excessive increase in the supply of poor workers in the urban labour market dashes their hope by pulling real wages down. Falling urban wages are then reflected in the stagnation of rural wages as well.

(4) Thus, while decline in real wages can be seen as a proximate reason for both the slowdown in poverty reduction and the worsening of income inequality in recent years, at a further remove both these phenomena can be traced, at least in part, to the recent upsurge in rural-to-urban migration.

(5) To the extent that poverty has fallen after 2010 (despite the slowdown in the rate of decline), the main causal factors can be linked to the structural changes in the economy that are being brought about by economic growth. As part of the process of economic growth, the occupational structure of the country is also changing – workers are moving from relatively low remuneration activities such as day labour and self-employment in agriculture to higher remuneration activities such as salaried employment and self-employment in non-agriculture. This occupational shift, made possible by structural shifts caused by economic growth, has played a large part in enabling some poor people to escape poverty.

(6) Growing spread of education has also played an important role in this regard. The analysis presented in this paper shows that education has a dual effect in this context – it enables workers to move from low-remuneration occupations to relatively high remuneration occupations, and also within the same occupation better education enables workers to earn higher wages.

(7) Thus, while economic growth has created the opportunities for moving to more remunerative activities, the spread of education has enabled workers to seize those opportunities. It is, therefore, the combination of economic growth and the spread of education that can be seen as the primary drivers of poverty reduction in recent years.[7]

(8) The recent widening of the east-west divide in terms of success in poverty reduction can be traced in part to the same two structural factors noted above – namely, occupation and education. The western region of Bangladesh has performed worse than the eastern region in reducing poverty mainly because (a) the west has a much higher prevalence of relatively low-remuneration occupations such as day labour and self-employment in agriculture, while the east has a higher prevalence of relatively high-remuneration occupations such as salaried employment and self-employment in non-agriculture, and (b) most parts of the western region have lower levels of education compared to the east. The analysis presented in the paper suggests, however, that in addition to these two factors, the west also suffers from some other disadvantages – perhaps related to geography, demography, etc. – that need further investigation.

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[7] There is some evidence, not discussed in this paper, that in addition to the spread of education, the spread of microcredit has also played a key role in enabling poor people, especially in rural areas, to shift from relatively low-remuneration activities to relatively high-remuneration ones. See, for example, Osmani (2015).

REFERENCES

BBS. 2014. *Bangladesh National Accounts Statistics: Sources and Methods*. Dhaka: Bangladesh Bureau of Statistics.

_____2015. *Revision and Rebasing of Wage Rate Index (WRI) from 1969-70 to 2010-2011*. Dhaka: Bangladesh Bureau of Statistics.

_____2016a. *National Accounts Statistics*. May. Dhaka: Bangladesh Bureau of Statistics.

_____2016b. *Consumer Price Index (CPI), Inflation Rate and Wage Rate Index (WRI) in Bangladesh*. August. Dhaka: Bangladesh Bureau of Statistics.

_____2017a. *Preliminary Report on Household Income and Expenditure Survey 2016*. Dhaka: Bangladesh Bureau of Statistics.

_____2017b. *Consumer Price Index (CPI), Inflation Rate and Wage Rate Index (WRI) in Bangladesh*. February. Dhaka: Bangladesh Bureau of Statistics.

Cobham, A. and A. Sumner. 2013a. "Putting the Gini Back in the Bottle: 'The Palma' as a Policy- Relevant Measure of Inequality." (Mimeo.) Centre for Global Development: Washington D. C.

_____2013b. "Is It All About the Tails? The Palma Measure of Income Inequality." Working Paper 343. Washington, D. C.: Centre for Global Development.

Harris, J. R. and M. P. Todaro. 1970. "Migration, Unemployment and Development: A Two-Sector Analysis." *American Economic Review*, 60 (1): 126-142.

Khandker, S. R. and W. Mahmud. 2012. *Seasonal Hunger and Public Policies: Evidence from Northwest Bangladesh*. Washington, D.C.: World Bank.

Osmani, S. R. 2015. "The Impact of Microcredit on the Rural Labour Market in Bangladesh." Working Paper no. 37. Dhaka: Institute of Microfinance.

_____2018. "Eradicating Poverty and Minimizing Inequality for Ensuring Shared Prosperity in Bangladesh." Background paper for preparing the Perspective Plan 2021-2041, Planning Commission, Government of Bangladesh, Dhaka.

Osmani, S. R. and B. Sen. 2011. "Inequality in Rural Bangladesh in the 2000s: Trends and Causes." *The Bangladesh Development Studies*, XXXIV (4): 1-36.

Palma, J. G. 2003. "National Inequality in the Era of Globalisation: What Do Recent Data Tell Us?." In Michie J. (ed.) *Handbook of Globalisation*. Elgar: Cheltenham.

_____2011. "Homogeneous Middles vs. Heterogeneous Tails, and the End of the 'Inverted-U': It's All About the Share of the Rich." *Development and Change*, 42 (1): 87-153.

World Bank. 2013. *Bangladesh Poverty Assessment: Assessing a Decade of Progress in Reducing Poverty, 2000-2010*. Dhaka: World Bank.

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APPENDIX TABLE A.1

TREND OF REAL WAGES OF UNSKILLED WORKERS

(2010-11=100)

Year	Nominal wage	CPI	Real wage
1999-00	41.2	48.2	85.3
2000-01	43.3	49.4	87.6
2001-02	46.4	50.9	91.0
2002-03	50.0	53.2	94.0
2003-04	53.8	56.1	95.8
2004-05	57.1	59.8	95.5
2005-06	61.0	64.4	94.7
2006-07	66.4	70.7	93.9
2007-08	75.1	77.6	96.6
2008-09	84.7	84.3	100.2
2009-10	93.7	91.5	102.4
2010-11	100.1	99.6	100.7
2011-12	106.3	108.2	98.3
2012-13	112.6	116.4	96.7
2013-14	118.7	124.4	95.5
2014-15	125.4	132.5	94.7
2015-16	133.2	140.4	94.8

Notes and Sources:

(1) The original time series data for CPI and nominal wages were obtained from BBS (2016b).

(2) The original time series for CPI and nominal were composed of different segments corresponding to different base years. We transformed them into consolidated time series, by slicing them at the common base year 2010-11.

(3) Next, we constructed a consolidated time series of real wages by deflating nominal wages with the corresponding years' CPI.

(3) Finally, we took 3-yearly moving averages for all three time series – viz., CPI, nominal wage and real wage – so as to iron out random components of year-to-year fluctuations. It is these moving averages that are reported in this table.

APPENDIX TABLE A.2

SECTORAL GDP GROWTH RATES: 2000/01 – 2015/16

(percent per annum)

	Agriculture	Industry	Construction	Services	All
2000/01 – 2004/05	3.08	6.12	7.66	5.05	5.09
2005/06 – 2009/10	4.99	7.63	6.57	5.56	6.07
2010/11 – 2015/16	3.29	9.04	7.50	5.66	6.45

Source: BBS (2014, 2016a).

APPENDIX TABLE A.3
RURAL POVERTY BY LAND OWNERSHIP: 2000-2016
(headcount index; percent)

Land ownership category	2000	2005	2010	2016
Landless (<0.05 acre)	63.5	56.8	45.6	33.7
Functionally landless (0.05-0.5 acres)	59.7	48.8	45.6	26.8
Marginal (0.5-1.5 acres)	47.2	35.1	25.0	18.5
Small (1.5-2.5 acres)	35.4	23.7	16.8	13.9
Large/medium (> 2.5 acres)	20.7	12.8	9.7	12.4
All	52.3	43.8	35.2	26.4

Notes and Sources: The figures from 2000 to 2010 are from World Bank (2013), Table 2.2. The figures for 2016 were calculated by the author from raw data of HIES, 2016.

APPENDIX TABLE A.4
REGIONAL PATTERN OF EDUCATIONAL ACHIEVEMENT: 2016
(percentage of workers)

Division	No education	Primary	Secondary	Higher Secondary	Graduate
West	*32.9*	*31.0*	*28.7*	*4.9*	*2.6*
Barisal	26.1	32.1	28.3	6.9	6.6
Khulna	32.6	29.1	29.9	4.4	4.0
Rajshahi (new)	42.7	26.1	21.8	5.1	4.3
Rangpur	42.7	25.0	23.6	4.6	4.1
East	*31.9*	*31.6*	*29.1*	*4.9*	*2.6*
Dhaka	35.4	25.7	27.9	5.4	5.6
Chittagong	32.9	28.6	28.9	5.0	4.7
Sylhet	39.4	35.1	19.5	3.2	2.8
Total	*36.2*	*27.6*	*26.4*	*5.0*	*4.8*

Source: Calculated by the author from raw data of HIES, 2016.

APPENDIX TABLE A.5

POVERTY WITHIN OCCUPATIONS ACROSS REGIONS: 2016

(headcount index; percent)

Division	Day labour	Self-employed	Salaried worker	Employer	All
West	*41.0*	*22.6*	*23.9*	*14.2*	*34.6*
Barisal	35.4	23.0	18.4	19.8	26.4
Khulna	31.6	19.2	20.0	2.2	27.5
Rajshahi (old)	45.8	24.3	27.7	17.7	37.5
Rajshahi (new)	37.0	17.9	19.7	14.0	28.9
Rangpur	55.6	32.0	37.8	23.5	47.3
East	*26.8*	*15.5*	*12.3*	*5.9*	*20.5*
Chittagong	26.3	16.0	14.3	6.1	18.3
Dhaka	29.6	16.6	11.1	7.0	19.6
Sylhet	19.9	10.6	15.2	0.0	16.2
Total	*34.1*	*18.8*	*15.2*	*8.5*	*24.2*

Source: Calculated by the author from raw data of BBS, *Household Income and Expenditure Survey* (HIES), 2016.