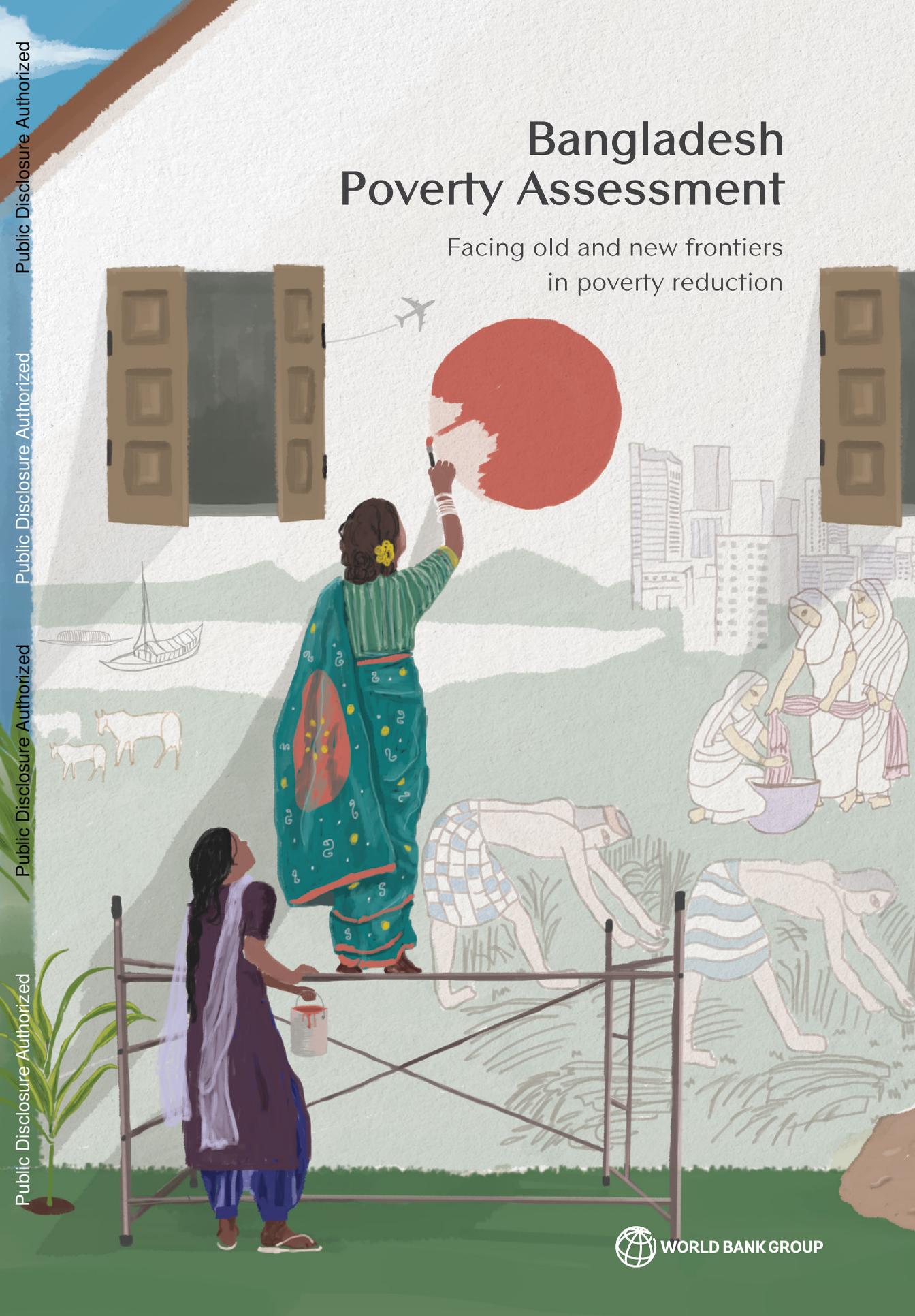


# Bangladesh Poverty Assessment

Facing old and new frontiers  
in poverty reduction



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# Foreword

Bangladesh has an inspiring story of reducing poverty and advancing development. Since 2000, the country has reduced poverty by half. In the last decade and a half, it lifted more than 25 million out of poverty.

The country's economy remained robust and resilient even in the face of many challenges. All sectors of the economy have contributed to poverty reduction. This has been accompanied by enhanced human capital, lower fertility rates and increased life expectancy, which have also significantly contributed to increase households' ability to earn more and exit poverty.

Yet, behind this progress, there are emerging contrasts. As the country is rapidly urbanizing, its rural and urban areas did not experience the same level of poverty reduction. The rural areas reduced poverty impressively, accounting for 90 percent of the poverty reduction since 2010. But, in urban areas, progress has been slower and extreme poverty has not decreased.

The country's higher economic growth in the last decade has not led to a faster poverty reduction. Specially, poverty has stagnated and even increased in the Western divisions while the Eastern divisions fared better.

This report highlights the need for both traditional and fresh solutions. To end extreme poverty by the next decade, Bangladesh will need to continue to build on its successes, such as family planning, educational attainments, and growth in agriculture and manufacturing. But at the same time, it will need solutions to overcome new and re-emerging frontiers of poverty reduction.

The world can learn from Bangladesh's development and poverty reduction experiences. But with about one out of four people still living in poverty, much needs to be done to create equal opportunities for all citizens. The country also faces new questions where more evidence is needed. Answers will come from its own experiences as well as from other countries that have followed similar transformative paths.

I hope this report provides policy makers and researchers with sound empirical evidence to decide on policy actions that will help Bangladesh become an upper middle-income country.

**Mercy Tembon**

World Bank Country Director for Bangladesh and Bhutan

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# List of abbreviations

<b>ADB</b>	Asian Development Bank	<b>HDDS</b>	Household Dietary Diversity Score
<b>BBS</b>	Bangladesh Bureau of Statistics	<b>HES</b>	Household Expenditure Survey
<b>BDT</b>	Bangladesh Taka (currency)	<b>HIES</b>	Household Income and Expenditure Survey
<b>BES</b>	Bangladesh Enterprise Survey	<b>ILO</b>	International Labor Organization
<b>BIDS</b>	Bangladesh Institute of Development Studies	<b>IMPS</b>	Integrated Multiple-Purpose Sample
<b>BMET</b>	Bangladesh Bureau of Manpower, Employment and Training	<b>IOM</b>	International Organization for Migration
<b>BRAC</b>	Bangladesh Rural Advancement Committee	<b>LFS</b>	Labor Force Survey
<b>BUISBS</b>	Bangladesh Urban Informal Settlements Baseline Survey	<b>NGO</b>	Non-Governmental Organization
<b>CAFE</b>	Computer-Assisted Field-Based Data Entry	<b>NIPORT</b>	National Institute of Population Research and Training
<b>CBN</b>	Cost of Basic Needs	<b>PECS</b>	Post-Enumeration Check Survey
<b>CC</b>	City Corporation	<b>PPP</b>	Purchasing power parity
<b>CPI</b>	Consumer Price Index	<b>PSU</b>	Primary Sampling Units
<b>DAM</b>	Department of Agricultural Marketing	<b>RMG</b>	Ready-Made Garment
<b>DDS</b>	Dietary Diversity Score	<b>SMAs</b>	Statistical Metropolitan Areas
<b>EA</b>	Enumeration Area	<b>Tk</b>	Taka, Bangladeshi Currency
<b>FAO</b>	Food and Agriculture Organization of the United Nations	<b>TVET</b>	Technical and Vocational Education and Training
<b>FGT</b>	Foster Greer Thorbecke	<b>UN</b>	United Nations
<b>FLFP</b>	Female Labor Force Participation	<b>WASH</b>	Water, Sanitation, and Hygiene
<b>GDP</b>	Gross Domestic Product	<b>WDI</b>	World Development Indicators



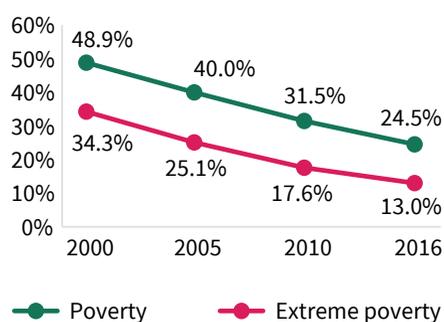
# Executive Summary

**Bangladesh has come a long way in a short time in its fight to end poverty.** In 2016, about 1 in 4 Bangladeshi were poor.<sup>1</sup> The country has halved poverty rates in a decade and a half, lifting more than 25 million people out of poverty (Figure E1). Between 2010 and 2016, about 8 million Bangladeshi were lifted out of poverty.

**Substantial improvements in other dimensions of wellbeing have also been recorded.** Reductions in poverty were accompanied by sustained drops in fertility and child mortality, improvements in nutrition and life expectancy, enhanced access to electricity, clean water and sanitation, broad based expansions in education, and other improvements in non-monetary dimensions of well-being. Bangladesh is not only one of the top performers in poverty reduction in the South Asia region, it is equally a top performer in improving these non-monetary dimensions of welfare.

**However, there is no room for complacency.** The job of ending extreme poverty is not complete. About 1 in 4 Bangladeshi still live in poverty, while almost half of those living in poverty live in extreme poverty and are unable to afford a basic food consumption basket. Using the international poverty line, a measure that allows comparison with poverty levels in other countries, the rate of poverty in

**Figure E1. Bangladesh achieved strong poverty reduction from 2000 to 2016**

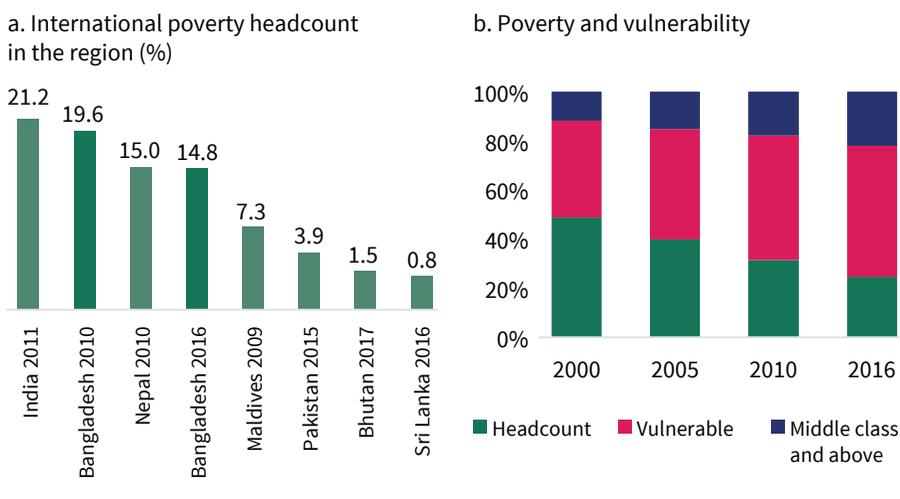


Source: Staff calculations using Household Income and Expenditure Survey (HIES) 2000, 2005, 2010, and 2016.

Notes: Poverty and extreme poverty rates based on the Cost of Basic Needs approach (Ahmed et al 2019).

<sup>1</sup> Poverty headcount rates based on the official upper poverty line using the Cost of Basic Needs (CBN).

**Figure E2. Despite improvements, poverty and vulnerability remain high**



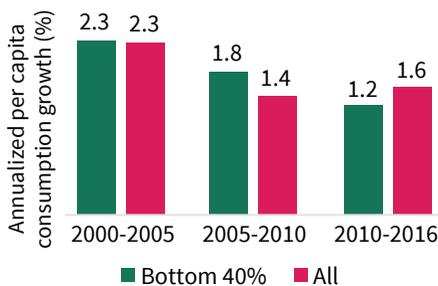
Source: Staff calculations using HIES 2000, 2005, 2010 and 2016 and World Development Indicators.  
 Notes: The international poverty line has a value of US\$1.90 purchasing power parity (PPP). Vulnerable denotes the population living between the national poverty line and twice the national poverty line. Middle class and above denotes the population living above twice the national poverty line.

Bangladesh is relatively high by regional standards (Figure E2a). In addition, more than half of the population can be considered vulnerable to poverty, as their levels of consumption are close to the poverty threshold (Figure E2b).

**To sustain progress, potential spoilers demand attention**

**First, robust economic growth continued driving poverty reduction but not as effectively as before.** Between 2010 and 2016, GDP growth accelerated while the pace of poverty reduction slowed. Higher economic growth has not led to faster poverty reduction, because average consumption growth was slower and less equal than before. From 2010 to 2016, consumption growth for the poorest 40 percent was slower than for the whole population, while the reverse was true in previous periods (Figure E3).

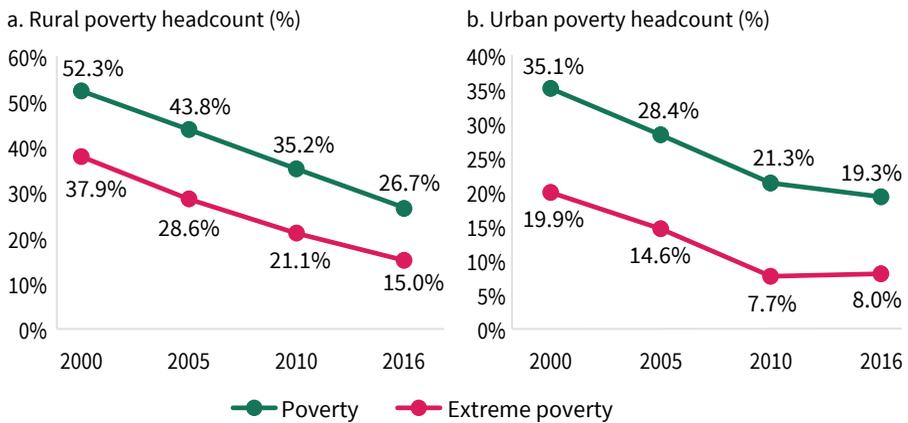
**Figure E3. Consumption growth across periods**



Source: Staff calculations using HIES 2000, 2005, 2010, and 2016.  
 Notes: Bottom 40% denotes the poorest 40 percent of the population based on households' per capita consumption.

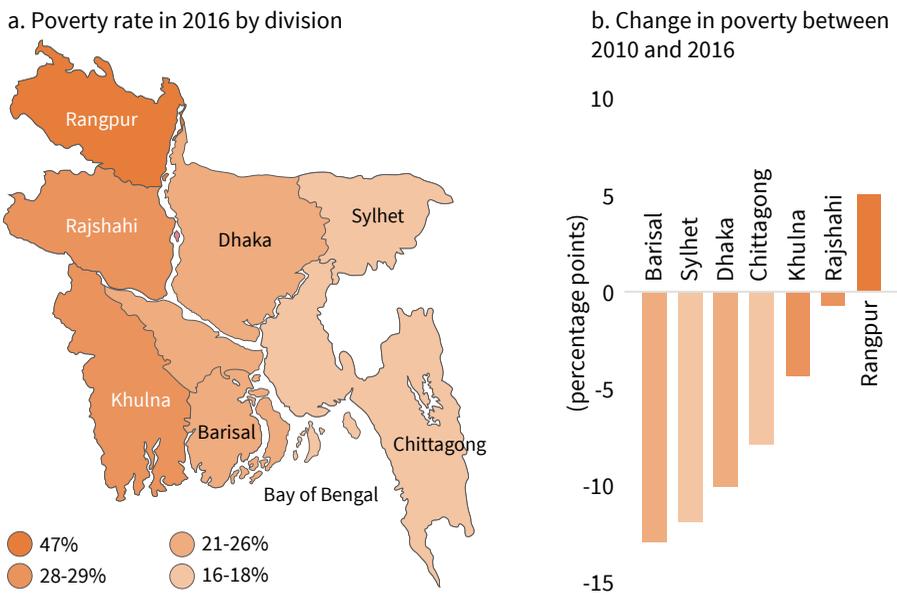
**Second, very little poverty reduction occurred in urban areas.** Rural Bangladesh spearheaded poverty reduction from 2010 to 2016, accounting for about 90 percent of the drop. Even though the poverty rate fell in urban Bangladesh, the rate of reduction was much slower than in previous periods (Figure E4). The national slowdown in poverty reduction has occurred largely due to an inability of urban Bangladesh to sustain progress.

**Figure E4. Urban and rural poverty reduction**



Source: Staff calculations using HIES 2000, 2005, 2010, and 2016.

**Figure E5. Poverty progress was slower in Western Divisions**



Source: Staff calculations using HIES 2010 and 2016.

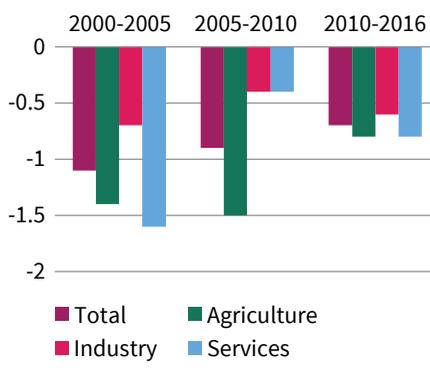
**Third, Western divisions did not see the same gains as the East.** Since 2010, poverty has risen in Rangpur division, the historically poorer Northwest of the country; it has stagnated in Rajshahi and Khulna in the West. The East and central Bangladesh have fared much better: poverty has fallen moderately in Chittagong, and declined rapidly in Barisal, Dhaka, and Sylhet (Figure E5). The stronger rate of poverty reduction in the Eastern regions widened a welfare gap between Eastern and Western Bangladesh that had previously been narrowed between 2005 and 2010 (Jolliffe et al. 2013). The re-emerging divergence between the East and West has occurred largely in rural, instead of urban areas.

### What lies behind these trends?

**Lower fertility and education gains fuel consumption growth and reductions in poverty.** From 2010 to 2016, changes in household demographics, education gains, and asset holdings contributed to about 50 percent of consumption growth. The amount of consumption growth explained by these gains was very similar across rural and urban areas, indicating that the different poverty progress between urban and rural areas was not explained by these factors. However, within rural areas the gains were not uniform: the rural West recorded slower progress on education and demographic change, contributing to the re-emergent East-West divide.

**The changing sectoral composition of economic growth also explains the different progress in poverty reduction.** Since 2000, there have been large shifts in the sectoral composition and geographical focus of economic activity in Bangladesh, accompanied by rapid structural transformation and urbanization. Between 2010 and 2016, growth in the agricultural and service sectors slowed down. Growth in industry was strong, but there was limited job creation in manufacturing. During 2010-2016, growth in the agricultural sector became less poverty reducing, while growth in industry and services became more poverty reducing (Figure E6). The different performance of the economic sectors compared to previous years affected the returns from working in different activities and shaped the changes in poverty.

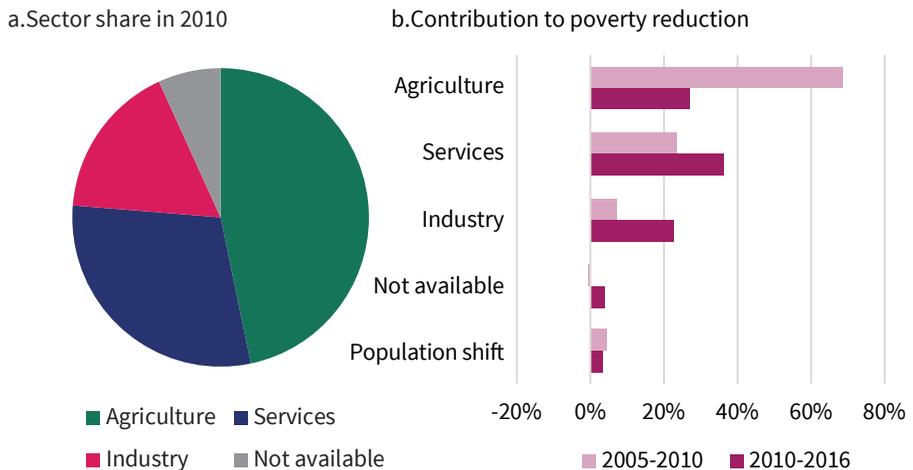
**Figure E6. Implied growth-poverty elasticities, 2000-2016**



Source: Staff calculation using HIES and WDI.  
 Notes: Elasticities are calculated from GDP growth data and sectoral poverty rates presented in Table 2.3. For more details see Hill and Endara (2019a).

**Poverty reduction was rural but not predominantly agricultural.** Although 47 percent of rural households were primarily engaged in agriculture in 2010, such households accounted for just 27 percent of rural poverty reduction between 2010 and 2016. This contrasts with the period 2005 to 2010, when 69 percent of rural poverty reduction was among households primarily engaged in agriculture (Figure E7). Most rural poverty reduction between 2010 and 2016, 59 percent, occurred among households whose primary sector of employment was industry or services (Figure E7). This reflects the slower growth in agriculture during this period but also the fact that agriculture growth was less poverty reducing, compared to the past and other sectors.

**Figure E7. Poverty reduction across sectors in rural areas, 2005-2016**



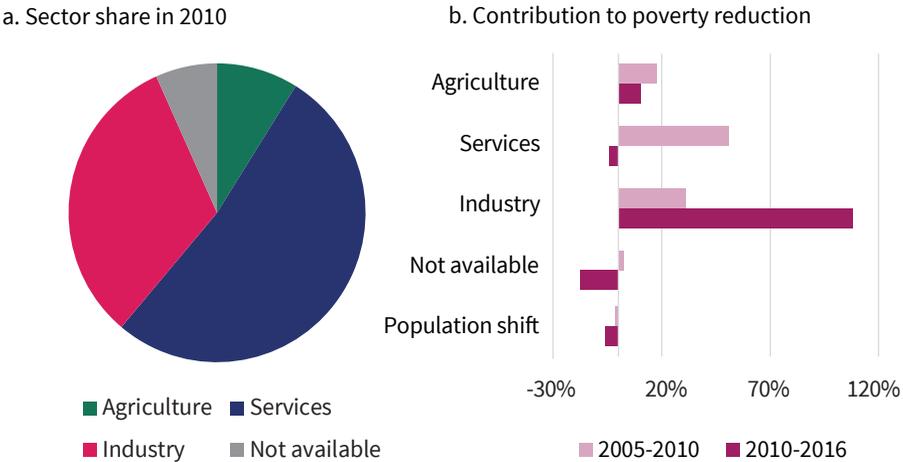
**Source:** Staff calculations using HIES 2005, 2010, and 2016.

**Notes:** Results obtained from Ravallion and Huppi (1991) decompose changes in poverty over time into intra-sectoral effects, a component due to population shifts across sectors, and an interaction (not displayed). Sector of employment defined based on reported hours of work in each sector.

**The smaller share of rural households in the West pursuing non-agricultural livelihoods contributed to the re-emergent East-West divide after 2010.** Both in 2010 and 2016, households in the West were more likely than households in the East to report their main sector of work as agriculture. Structural transformation also seems to have been faster in the East than in the West: the proportion of households reporting agriculture as their main form of employment fell by 22 percent in the East compared to 12 percent in the West. Thus, although some of the divergence in poverty-reduction performance between East and West from 2010 to 2016 can be explained by less favorable changes in education attainment and demographics, differences in sectors of work also seem to have played an important role.

**In urban areas, industry, led by the garments sector, has driven urban poverty reduction.** In 2010, poverty rates for households mainly engaged in industry were higher than for those engaged in services (26 percent compared to 17 percent). By 2016, poverty rates among households in industry were almost at the same level as for households working in the services sector. This convergence was driven by rapid poverty reduction among households in industry and no change in poverty for households engaged in the service sector (Figure E8b). This contrasts with the period 2005-2010, when both households in industry and services experienced reductions in poverty (Figure E8a). The stagnation in poverty reduction in services is concerning, given that around 44 percent of the poor in urban areas are part of households primarily engaged in this sector. Within industry, most gains were driven by the garment sector.

**Figure E8. Poverty reduction across sectors in urban areas, 2005-2016**



Source: Staff calculations using HIES 2005, 2010, and 2016.

Notes: Results obtained from Ravallion and Huppi (1991) decompose changes in poverty over time into intra-sectoral effects, a component due to population shifts across sectors, and an interaction (not displayed). Sector of employment defined based on reported hours of work in each sector.

**Poverty rates increased most among the self-employed in services, which set back overall progress in urban areas.** The strongest contributor to overall progress was poverty reduction among wage and daily workers in industry. Good progress was also seen for wage and daily workers in services. However, poverty rates increased among the self-employed in the service sector in urban areas.

**Slow manufacturing job creation curbed urban poverty reduction and reduced female labor force participation.** There has been little growth in the share of the

Bangladeshi labor force engaged in industry, and this has limited the amount of poverty reduction derived from the country's industrial growth. The slowdown in job creation in the garments and textiles sector is also likely responsible for the diminishing rates of female labor force participation (FLFP). Between 2005 and 2010, overall labor force participation in urban areas increased because of a substantial increase in FLFP. The expansion of the garment sector was an important force in raising FLFP, as 80 percent of employees in this sector are female. Between 2010 and 2016, however, female labor force participation declined about 4 percentage points.

### Distilling the evidence and looking ahead

**This poverty assessment tells a story of continued remarkable progress that started decades ago.** Critical actions taken decades ago allowed Bangladesh to perform economically and realize high levels of per capita GDP growth as well as improve human development outcomes. Investments in human capital supplied a rapidly transforming economy with the labor force capable of benefiting from expanded job opportunities outside agriculture. These elements have been important contributors for the current success in poverty reduction. Looking forward, several suggestions can be distilled:

**What has worked in the past may not in the future.** Educational attainment, lower fertility rates, agricultural growth, and international migration have helped reduce poverty in rural areas. Growth in rural services and manufacturing re-emerged as an important driver of progress. In urban areas, lower fertility rates and welfare gains among manufacturing employees have been important. However, if the country is to succeed in its ambitions to eradicate extreme poverty by the end of the next decade, it will need to go above and beyond traditional catalysts of poverty reduction. The overall smaller elasticity of poverty reduction to GDP growth is an indication that such adjustments are needed (Figure E6).

**Improving the targeting and quality of service delivery will become more important.** Gains in educational attainment were more limited in the rural West and in urban centers across the country, and returns to education fell substantially in urban areas. Closing education gaps remains important; however, increased targeting as well as higher quality spending will become crucial for education investments to continue supporting poverty reduction.

**Agriculture must become more poverty reducing.** In this regard, there is significant potential to increase productivity and incomes by supporting more

diversification in agriculture. Improved connectivity can also support more rapid transformation of the rural West and increased access to opportunities outside agriculture.

**Urban is the frontier in poverty reduction.** Even though 8 in 10 poor live in rural areas, at current trends more than half of Bangladesh's poor households will live in urban areas by 2030. While economic density is much higher in Dhaka and Chittagong, living standards and poverty rates do not reflect this difference. Many poor urban households live in slums, facing poor housing, insecurity, and overcrowding to be near work. Mobility is limited for the poorest households in Dhaka, limiting the degree to which they can gain from the benefits of agglomeration. There was no reduction in the poverty rate among urban dwellers engaged in informal service sector activities, suggesting the importance of finding ways to increase their productivity. Few jobs were created in the manufacturing sector, even as manufacturing delivered strong welfare gains for those it did employ. Female labor force participation rates fell, thus, lifting economic and social constraints for female participation in labor markets arises as an important venue for poverty reduction.

**As the country is facing new and re-emerging frontiers of poverty reduction, namely tackling urban poverty and poverty in the West, approaches that uncover effective traditional and new solutions must be embraced.** Building on the past successes without falling into the trap of complacency will be key to eradicate poverty. Policies to reduce poverty when poverty incidence is high are different from those when poverty is lower. In the past, relatively straightforward measures like the introduction of high-yielding rice varieties could kick-start a process of welfare improvement; however, more sophisticated policies are needed to reduce poverty over a sustained period and in a more complex economy. Such policies need to be synergistic and are both drivers as well as consequences of improved welfare outcomes. Evidence on the importance of that has been seen for education and fertility programmes. Continuing Bangladesh's practices of innovative policy experimentation, as well as learning from other country experiences of similar economic and development transformation, will be important to tackle some of the challenges presented in this poverty assessment.

# Introduction

This poverty assessment documents Bangladesh's progress in reducing poverty over the period 2010 to 2016/17. The country is at a juncture where it is important to examine what has allowed progress to continue, but also what more needs to be done to increase the inclusivity of growth and accelerate towards the goal of ending extreme poverty. This poverty assessment seeks to contribute to this debate. It looks at what has worked so far for Bangladesh in its drive to reduce poverty and where work remains to be done.

The core analysis of poverty trends and patterns relies on four cross-sectional rounds of the Household Income and Expenditure Survey (HIES) collected by the Bangladesh Bureau of Statistics for 2000, 2005, 2010, and 2016/17. In addition, the report uses Agricultural Statistics, the Economic Census, the Population and Housing Census, the Labor Force Survey (LFS), and other specialized surveys and administrative data. The analysis presented in the current volume draws from eleven background papers which are included in an accompanying volume 2.

**Part 1** of this volume presents the main poverty trends and the places and people who have benefitted from poverty reduction, as well as the people and places where progress has been less pronounced. **Part 2** analyzes the key drivers of poverty reduction and the factors that explain the different levels of progress across the country. First, it examines the role of households' assets in explaining consumption growth. Second, it shows how the different sectoral composition of growth has shaped poverty reduction in rural areas. Lastly, it focuses on urban areas and explores some of the key elements behind the observed slowdown in urban poverty reduction. **Part 3** draws lessons from the preceding analysis to inform public policies and contribute to ending poverty in Bangladesh.



## PART 1

# Assessing performance from 2010 to 2016/17

### Bangladesh continued progress in poverty reduction

**Bangladesh represents a remarkable story of sustained progress in welfare.** Poverty headcount rates based on both upper and lower (extreme) poverty lines using the Cost of Basic Needs (CBN) showed that Bangladesh continued reducing poverty. The poverty rate fell by 1.2 percentage points per year from the beginning of the decade until 2016. By 2016, about 1 in 4 Bangladeshi were poor and 13 percent were extreme poor.<sup>2,3,4</sup>

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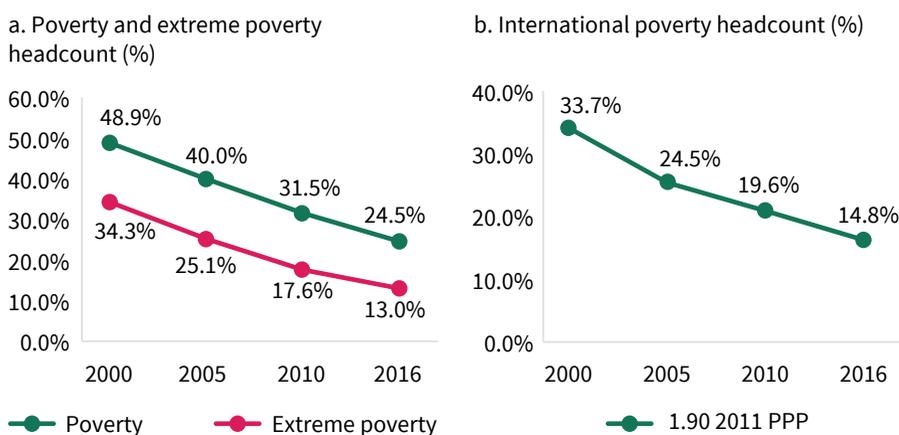
<sup>2</sup> The cross-sectional Household Income and Expenditure Survey (HIES) is the main official source of information about household consumption, poverty, and income in Bangladesh. The HIES 2016/17 data was collected from April 2016 through March 2017. Previous rounds of HIES data were collected in 2000, 2005, and 2010. In the remainder of this report, we refer to the yearly estimates as from 2000, 2005, 2010, and 2016, respectively. The 2016/17 HIES data can also provide quarterly poverty estimates. The poverty assessment does not discuss these quarterly estimates as poverty rates are not statistically different across quarters and more rounds of data would be needed to assess seasonality of poverty. See Data Annex for additional details concerning the HIES data.

<sup>3</sup> The official methodology used in Bangladesh to estimate poverty numbers is based on the Cost of Basic Needs (CBN). The CBN method calculates the cost of obtaining a consumption bundle considered to be adequate to satisfy basic consumption needs. If a person cannot afford the cost of this bundle, then the person is considered poor. The poverty rate is calculated using an upper poverty line which is the cost of a bundle that includes basic food and non-food items. The extreme poverty rate is measured using a lower poverty line which is the cost of a bundle that mostly includes food, along with a small share of non-food items. For a full discussion of how poverty is measured in Bangladesh and comparability across rounds of the HIES, see Joliffe et al. (2013) and Ahmed et al. (2017). The standard errors for the poverty estimates are included in Table 1.1 to indicate the precision with which poverty is measured in Bangladesh.

<sup>4</sup> Note that this poverty assessment presents slightly different poverty rates than the official figures. The difference reflects a correction in a misclassification of 13 enumeration areas from rural to urban found in the HIES 2016/17 microdata (See Data Annex for more details). The difference between the poverty

This shows a continuation of the progress recorded in the previous decade, when Bangladesh reduced its poverty rate from 48.9 percent in 2000 to 31.5 percent in 2010 (Figure 1.1a). The poverty headcount, using the international poverty line of USD 1.90 purchasing power parity a day, shows the same sustained decline (Figure 1b).

**Figure 1.1. Bangladesh achieved strong poverty reduction from 2000 to 2016**



Source: Staff calculations using HIES 2000, 2005, 2010, and 2016 and World Development Indicators.  
 Notes: The international poverty line has a value of US\$1.90 purchasing power parity (PPP).

**The reduction in poverty headcount rates also translated into a reduction in the size of the population living in poverty.** Between 2010 and 2016, about 8 million Bangladeshi were lifted out of poverty and 5.6 million out of extreme poverty. Depth (poverty gap) and severity (squared of poverty gap) of poverty also presented improvements of about 23 and 22 percent, respectively (Table 1.1).

**Substantial improvements in other dimensions of wellbeing, such as education and life expectancy, have also been recorded.** Since 2010, literacy rates for adults increased from 53 to 60 percent, life expectancy rose by 2.6 years and infant mortality rates dropped by 12 infants per 1000 live births. The percentage of households with electricity increased from 55 to 75 percent. Lower fertility rates, reaching almost replacement levels, have supported smaller household sizes and dependency ratios. A rapid transformation in the structure of economic activity has accompanied these changes.<sup>5</sup>

rates presented here and the official figures is very small and statistically not different from zero. In addition, none of the conclusions of the poverty assessment are altered if the official statistics are used.

<sup>5</sup> See Table 2.2. in section 2.

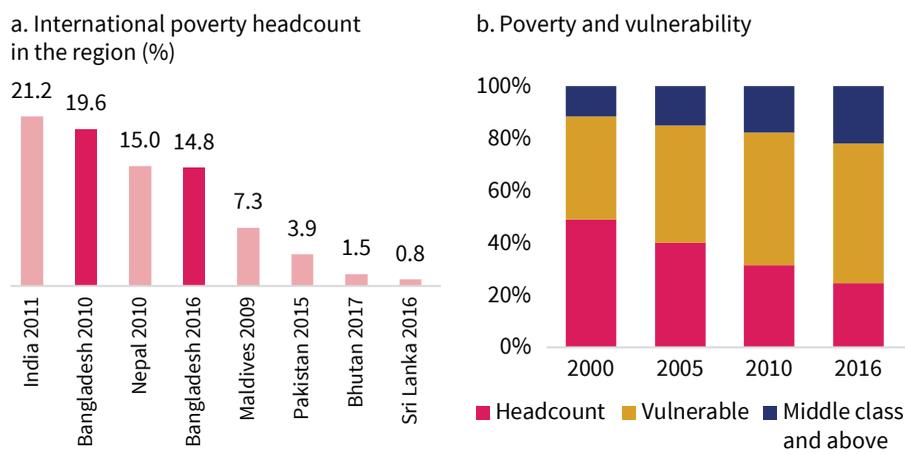
**Table 1.1: National poverty trends, 2000-2016**

	2000	2005	2010	2016
<b>Poverty</b>				
Headcount	48.9 (1.2)	40.0 (1.1)	31.5 (1)	24.5 (0.5)
Depth	12.8 (0.49)	9.0 (0.33)	6.5 (0.26)	5.0 (0.15)
Severity	4.6 (0.2)	2.9 (0.1)	2.0 (0.1)	1.6 (0.1)
<b>Extreme poverty</b>				
Headcount	34.3 (1.21)	25.1 (0.93)	17.6 (0.76)	13.0 (0.38)
Depth	7.5 (0.38)	4.7 (0.23)	3.1 (0.16)	2.3 (0.08)
Severity	2.4 (0.2)	1.3 (0.1)	0.8 (0.1)	0.6 (0.03)

Source: Staff estimates using HIES 2000, 2005, 2010, and 2016/17.

Note: Standard errors in parenthesis.

**However, the job of ending extreme poverty is not done yet, and the evidence cautions against complacency.** About 1 in 4 Bangladeshi still live in poverty, while almost half of those living in poverty live in extreme poverty and are unable to afford a basic food consumption basket. Using the international poverty line, a measure that allows comparisons of poverty with other countries, the rate of poverty in Bangladesh is relatively high by regional standards (Figure 1.2a). In addition, more than half of the population can be considered vulnerable to poverty, as

**Figure 1.2. Despite improvements, poverty and vulnerability remain high**

Source: Staff calculations using HIES 2000, 2005, 2010 and 2016 and World Development Indicators.

Notes: The international poverty line has a value of US\$1.90 purchasing power parity (PPP). Vulnerable denotes the population living between the national poverty line and twice the national poverty line. Middle class and above denotes the population living above twice the national poverty line.

their levels of consumption are close to the poverty threshold (Figure 1.2b). The following sections highlight that although much progress has been made there are some spoilers of progress that require attention in order for Bangladesh to end extreme poverty.

## Robust economic growth drives poverty reduction but not as effectively as before

### **Bangladesh's progress in reducing poverty reflects sustained economic growth.**

High and stable economic growth, in combination with lower population growth, has supported poverty reduction. Between 2000 and 2016, average GDP growth was 6 percent per year, and average GDP per capita growth was 4.4 percent per year. This growth was in line with growth rates in South Asia.

### **However, economic growth has delivered less poverty reduction than in the past.**

Between 2010 and 2016, GDP growth accelerated while the pace of poverty reduction slowed. As a result, the amount of poverty reduction each percentage point of growth per capita delivers (the elasticity of poverty reduction to growth) fell from 0.88 to 0.73.<sup>6</sup> At the extreme poverty line, the elasticity of poverty reduction to GDP growth per capita has fallen by a third, from 1.24 to 0.86. In general, the elasticity of poverty reduction to growth per capita is higher at lower levels of poverty (Ravallion 2012), so this elasticity decline cannot be explained by Bangladesh's progress in reducing poverty.<sup>7</sup>

### **Higher economic growth has not led to faster poverty reduction, partly because average consumption growth did not keep up with GDP growth.**

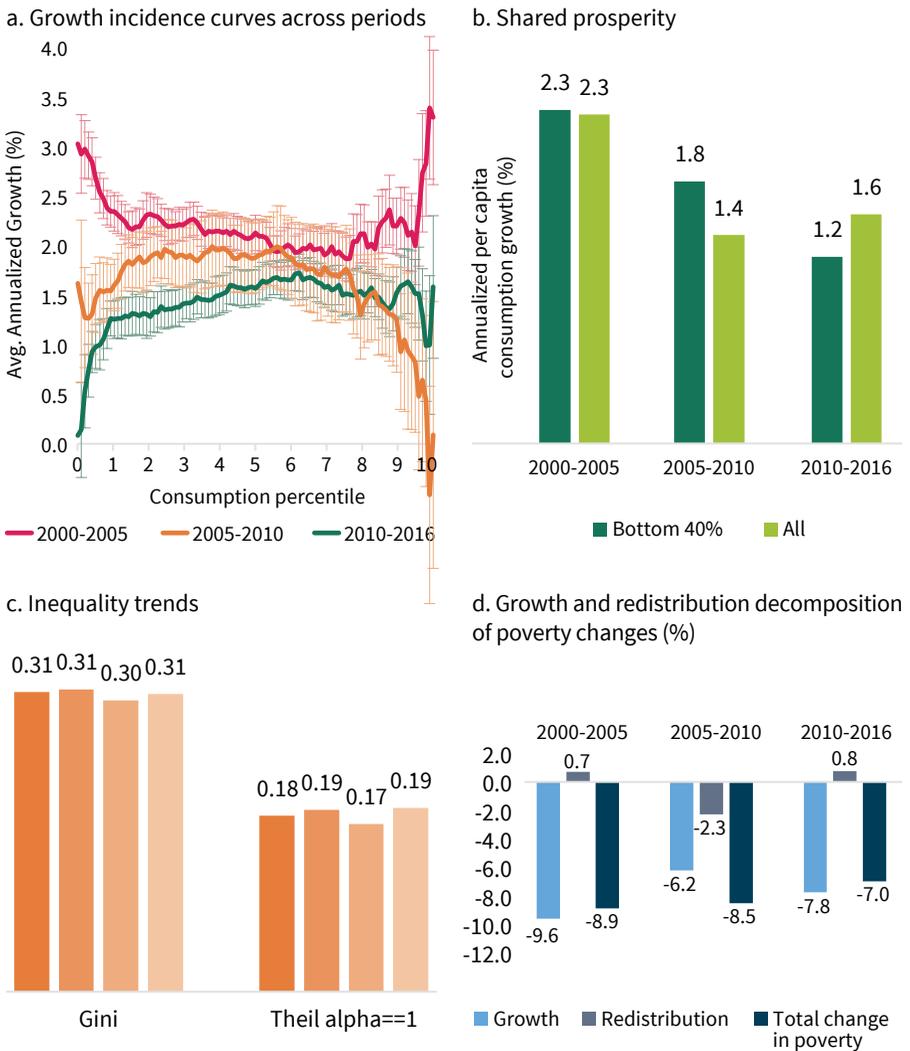
Although, GDP growth accelerated between 2010 and 2016, compared to years before 2010, household survey data shows consumption growth has been slower (Figure 1.3). The share of private consumption in total GDP declined from 74 percent in 2010 to 69 percent in 2016. For the poorest 40 percent of Bangladeshis, consumption growth fell from 1.8 percent in 2005-2010 to 1.2 percent in 2010-2016.

<sup>6</sup> The elasticity of poverty reduction to GDP growth per capita is given by the percent reduction in poverty divided by GDP growth per capita. The values using the growth rate instead of growth per capita are 0.70 and 0.58, respectively.

<sup>7</sup> The elasticity of poverty reduction to growth per capita is higher at lower levels of poverty in part for arithmetic reasons: it is easier to halve the poverty rate when going from, for example, 5 percent poverty (this requires a 2.5 percentage point reduction in poverty) than from 50 percent poverty (which would require a reduction of 25 percentage points) (Cuarema, Klasen and Wacker 2016). To take this into account, the semi-elasticity can also be considered, which is the percentage-point reduction in poverty for each percent of GDP growth per capita. This indicator has fallen even more substantially, from 0.35 in 2005-2010 to 0.23 in 2010-2016 (using the national poverty line).

**Consumption growth was not only slower but has also become more unequal.** From 2005 to 2010, consumption growth in Bangladesh was highest among poorer households (Figure 1.3a). In contrast, from 2010 to 2016, poorer households experienced slower consumption growth than richer households. More specifically, consumption growth was highest for people in the 40<sup>th</sup> to 75<sup>th</sup> consumption

**Figure 1.3. Consumption growth has slowed and become more unequal**



**Source:** Staff calculations using HIES 2000, 2005, 2010, and 2016.

**Notes:** Figure (a) presents growth incidence curves, which indicate the growth in consumption for people at each level of consumption (from the poorest on the left to the richest on the right). Figure (d) presents the results from Datt-Ravallion (1992) decompositions of changes in poverty into changes due to consumption growth (or mean consumption) in the absence of changes in inequality (or consumption distribution), and changes in inequality in the absence of consumption growth.

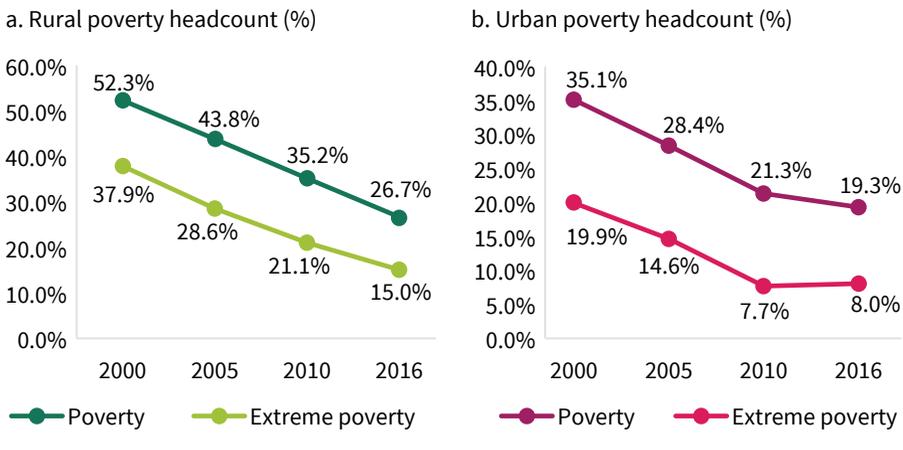
percentiles and was lower for the poorest and for the richest. As a result, although Bangladesh recorded healthy consumption growth among the bottom 40 percent during this period, it did not make progress on measures of equality and shared prosperity. Between 2010 and 2016, the national Gini coefficient increased by one percentage point and the Theil index by two percentage points (Figure 1.3c). Overall, progress in poverty reduction can be explained by consumption growth, and not by changes in the distribution of consumption. Datt-Ravallion decompositions indicate that indeed all the poverty reduction was due to growth in consumption (Figure 1.3d).

### Very little poverty reduction occurred in urban areas

**There are two divergent stories of progress for rural and urban Bangladesh.** The poverty rate fell in both rural and urban Bangladesh from 2010 to 2016, but the rate of reduction was much slower in urban areas (Figure 1.4), reflecting significantly lower consumption growth in those areas (Figure 1.5a and b). In fact, there was no progress in reducing extreme poverty in urban areas over this period. Given the country’s rapid urbanization (Box 1), there are now more people living in extreme poverty in urban Bangladesh than in 2010.

**Nearly all of Bangladesh's poverty reduction from 2010 to 2016, about 90 percent, took place in rural areas.** The national slowdown in poverty reduction has occurred largely due to an inability of urban Bangladesh to sustain progress. Progress in rural poverty reduction has been only marginally slower than in previous periods.

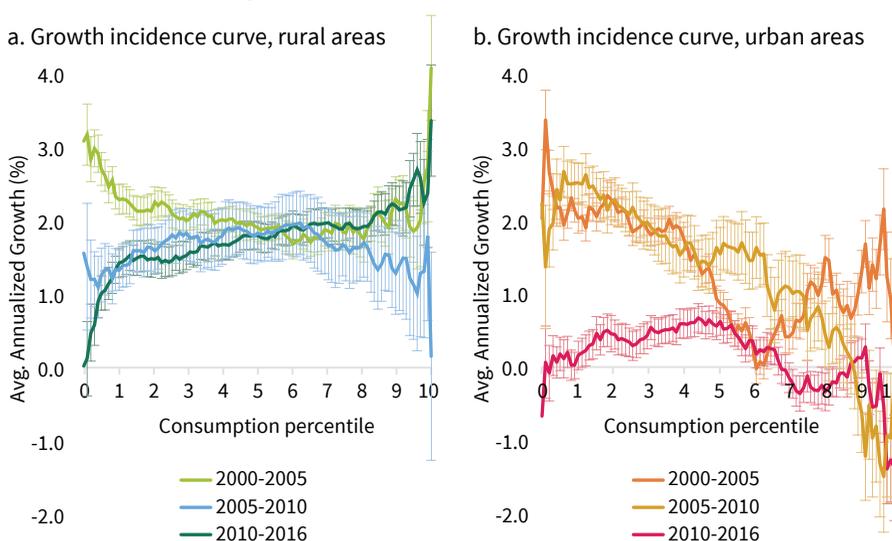
**Figure 1.4. Urban and rural poverty reduction**



Source: Staff calculations using HIES 2000, 2005, 2010, and 2016.

**While rural areas reduced poverty, rural consumption growth was less equal than in previous years.** Compared to the period 2005-2010, the poorest 10 per cent did not fare well, and rich rural households experienced higher consumption growth (Figure 1.5a). Due to the more unequal consumption growth, the Gini coefficient increased about 2 points in rural areas. In contrast, in urban areas the slowdown in consumption growth was observed across the entire distribution (Figure 1.5b). Consumption growth was thus equal, and that redistribution contributed to poverty reduction. In urban areas inequality continued a declining trend and the Gini coefficient declined 1 point (Hill and Genoni 2018).

**Figure 1.5. Consumption growth across urban and rural areas**



Source: Staff calculations using HIES 2000, 2005, 2010, and 2016.

Notes: Figures present growth incidence curves, which indicate the growth in consumption for people at each level of consumption (from the poorest on the left to the richest on the right).

**Rapid urbanization in Bangladesh plays a modest role in poverty reduction.** Bangladesh is urbanizing quickly. The country recorded a 3 percent increase in its urban population share between 2010 and 2016.<sup>8</sup> The growth in the urban population has been faster than most countries in the South Asia region, with an average 3.9 percent growth rate per year since 2000, compared to 2.7 for South Asia.<sup>9</sup>

<sup>8</sup> This increase in urban share is not reflected in the official HIES 2016 reports published by BBS. As work for this poverty assessment was undertaken, a mistake in the classification of urban areas was identified. Here, we report the increase in urban share after correcting for this mistake. This error has very little impact on the national poverty rate (See Data Annex).

<sup>9</sup> United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision. Also see Annex Table A4.

Sixty percent of internal migrants move to Dhaka and 16 percent to Chittagong (Farole and Cho 2017). Using this information and the poverty rates in Dhaka City Corporation (CC), Chittagong CC, and the rest of the country, we estimate that migration to Dhaka and Chittagong contributed about 0.5 percentage points of poverty reduction over the six-year period, as a result of direct impacts on household welfare.<sup>10</sup> This suggests that the contribution of internal migration to poverty reduction has been limited. District analysis suggests that in-migration has no immediate impact on poverty in receiving districts, but lack of data prevented an assessment of its impact on sending districts (Hill and Endara 2019a).

### **Box 1. Slower urban poverty reduction and design changes in HIES 2016**

Might the apparent slowdown in urban poverty reduction be an artefact of measurement? Two important changes took place in the household survey sampling frame between the last two rounds of the HIES (See Data Annex). First, Bangladesh's 2011 census provided for a new sampling frame for the 2016 HIES. Second, slums were included for the first time in the urban sampling frame of the 2016 HIES.

Can either of these changes explain the slowdown in urban poverty reduction? The change in sampling frame is unlikely to have caused such a shift, as the HIES definition of 'urban' has not been altered. The inclusion of slums in the sampling frame for the first time could at most only explain part of the slowdown. If one assumes that, in fact, no slum dwellers were included in the survey in previous years and that poverty rates in slums are three times the urban average throughout Bangladesh (based on the difference between slum and non-slum areas in Dhaka)<sup>11</sup>—both quite strong assumptions—urban poverty from 2010 to 2016 would still have fallen at half the speed of rural poverty during the same period and half the speed of urban poverty reduction from 2005 to 2010.

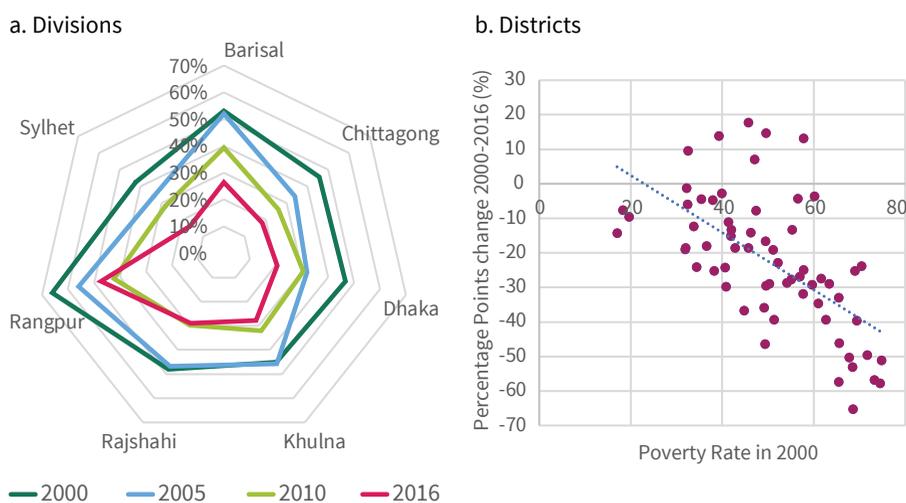
<sup>10</sup> This assumes that migrants have the average poverty rate of their sending district before migrating and the average poverty rate of their receiving district after migrating.

<sup>11</sup> Poverty rates in slums from the Bangladesh Urban Informal Settlements Baseline Survey (BUISBS) 2016. See Hill and Rahman (2019).

## Rural Bangladesh marked by East-West divide in poverty reduction

There is a marked divide in poverty reduction between Eastern and Western divisions of Bangladesh. Western divisions did not see the same gains as the East.<sup>12</sup> In general, over the period 2000-2016, poverty fell in all divisions, and disparities fell across districts. Poverty rates decreased in all divisions over the 16-year period, except for Rangpur division after 2010 (Figure 1.6a). In addition, higher poverty reduction was more likely to be observed in districts that were poorer at the beginning of the 2000s (Yunus 2019 and Figure 1.6b).

**Figure 1.6. Poverty changes across divisions and districts, 2000-2016**



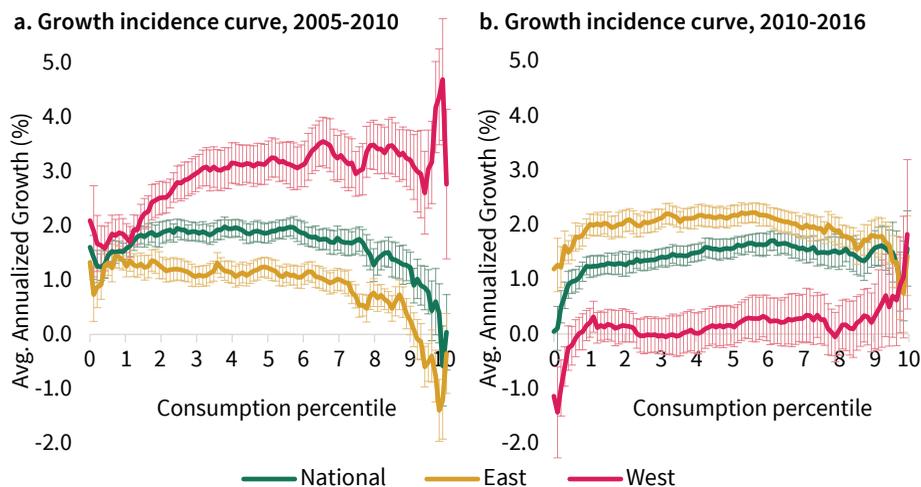
Source: Staff calculations using HIES 2000, 2005, 2010, and 2016.

Notes: Figures present the national upper poverty rate by division and district. The poverty rate for 2000 in panel (b) was calculated using Small Area Estimation (SAE).

Since 2010, poverty has risen in Rangpur division, the historically poorer Northwest of the country; it has stagnated in Rajshahi and Khulna in the West. The East and central Bangladesh have fared much better. Poverty has fallen moderately in Chittagong, and declined rapidly in Barisal, Dhaka, and Sylhet (Table 1.2). The stronger rates of poverty reduction in the Eastern regions widened a gap between Eastern and Western Bangladesh that had previously been narrowed between 2005 and 2010 (Jolliffe et al. 2013). Consumption growth was significantly lower in the West than in the East, compared to the previous decade (Figure 1.7).

<sup>12</sup> Western divisions are Khulna, Rajshahi, and Rangpur. In the 2013 Poverty Assessment, Barisal was also included in the divisions referred to as Western.

**Figure 1.7.** Comparing the incidence of consumption growth in the East and West, 2005-2016



Source: Staff calculations using HIES 2005, 2010, and 2016.

Notes: West includes the divisions of Rangpur, Rajshahi, and Khulna. East includes the divisions of Barisal, Chittagong, Dhaka, and Sylhet. Figures present growth incidence curves, which indicate the growth in consumption for people at each level of consumption (from the poorest on the left to the richest on the right).

**Table 1.2:** Poverty reduction has been uneven across divisions

	Poverty Rate		Extreme Poverty Rate	
	2010	2016	2010	2016
Barisal	39.4 (3.3)	26.4 (1.5)	26.7 (3.2)	14.4 (1.3)
Chittagong	26.2 (2)	18.3 (1.2)	13.1 (1.4)	9.0 (0.9)
Dhaka	30.5 (1.6)	20.5 (1.1)	15.6 (1.1)	9.9 (0.7)
Khulna	32.1 (2.3)	27.7 (1.3)	15.4 (1.6)	12.1 (0.8)
Rajshahi	29.7 (2.1)	29.0 (1.5)	16.0 (1.6)	14.3 (1)
Rangpur	42.3 (3.2)	47.3 (1.3)	27.7 (2.9)	30.6 (1.2)
Sylhet	28.1 (3)	16.2 (1.7)	20.7 (2.5)	11.5 (1.4)

Source: Staff calculations using HIES 2010 and 2016.

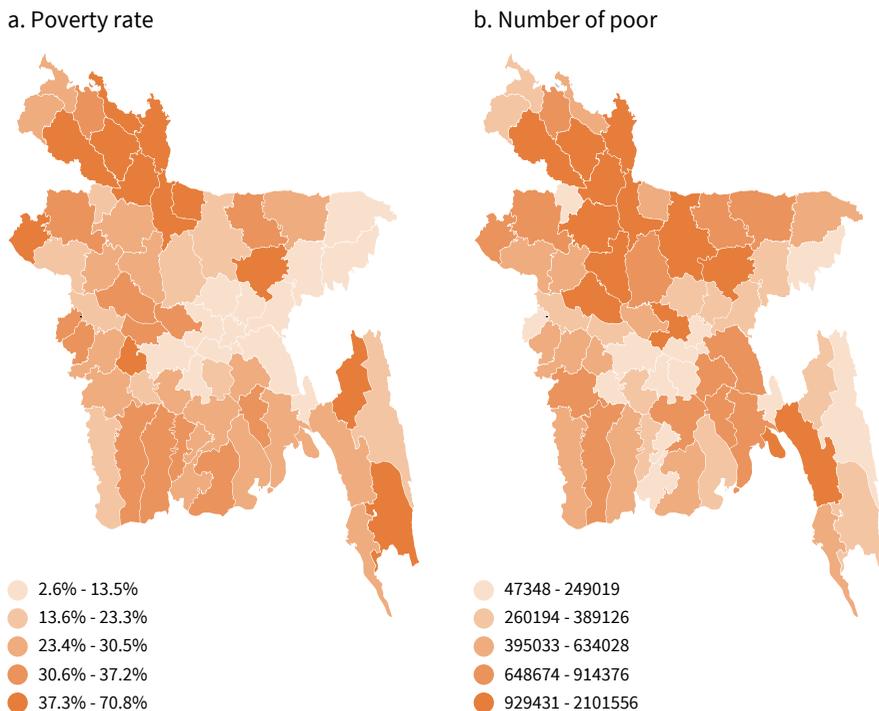
Note: Divisions are defined in a comparable way across time. Standard errors in parentheses.

In 2016, 25 percent of the Bangladeshi poor were concentrated in Dhaka, because it is the most populous division, and another 20 percent were in Rangpur, reflecting that division’s high poverty rates. Dhaka and Rangpur divisions also concentrate the largest share of the extreme poor (48 percent

combined). In addition, although there are poor districts in all provinces, poor districts are much more likely to be found in the periphery of the country and are more likely to be in the Northwest (Figure 1.8).

**The re-emerging divergence between the East and West has occurred largely in rural, not urban areas.** Figure 1.9 depicts the difference in consumption between households living in the East and West across the consumption distribution.<sup>13</sup> From 2010 to 2016, households living in rural areas in the East of the country were more likely to have higher levels of consumption (Figure 1.9b). In contrast, the consumption “premium” for living in the East increased much less in urban areas. Statistically, for urban areas, the Eastern premium remained the same in 2016 as in 2010 for most of the consumption distribution.

**Figure 1.8. Distribution of poverty across districts**

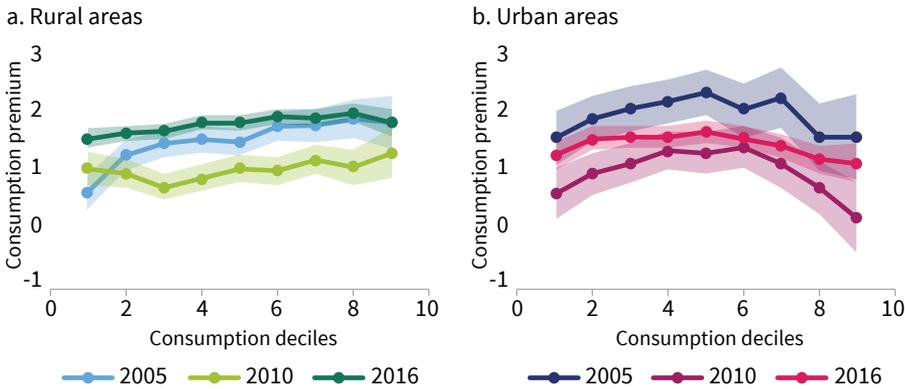


Source: Staff calculations using HIES 2016.

Notes: Upper poverty rates calculated using official methodology.

<sup>13</sup> This difference comes from a regression model that controls for other household characteristics.

**Figure 1.9. The consumption premium of living in the East**



**Source:** Staff calculation using HIES 2005, 2010 and 2016. For more details, see Hill and Endara (2019b).  
**Notes:** Figure depicts the difference in per capita consumption between households living in the East and West across consumption deciles, conditional on other household characteristics. Shaded color depicts the 95 percent confidence interval for the correlations.

### The Rohingya refugee crisis impact on poverty remains local

**Within the Chittagong division, the refugee influx in Cox’s Bazar had an immediate impact on poverty, but the impact was highly localized.** At the end of August 2017, the district of Cox’s Bazar in Chittagong division experienced a dramatic increase in the number of refugees arriving from Myanmar. Within a period of three months, approximately 650,000 Rohingya refugees arrived to the two small upazillas of Teknaf and Ukhia, more than doubling the population living in the area. This latest influx of Rohingya refugees poses a considerable welfare challenge for both the refugees and the host population. The concentration of refugees in a small geographic area is putting pressure on service delivery, local wages, and prices of commodities. Short-term negative economic impacts on hosts were more linked to the deterioration of wages than to price increases (Endara et al. 2018). It is estimated that hosts’ average daily wage decreased by about 24 percent between August 2017 and May 2018, increasing poverty rates among the host population by approximately 52 percent. However, the impacts have not been large enough to change national poverty rates. Food products’ inflation has not significantly affected local poverty rates.

**This section showed that behind the progress in poverty reduction in Bangladesh contrasting tales emerge.** Bangladesh continues to advance in its fight against poverty. However, progress has been patchy, presenting a picture far from uniform. In broad terms, progress has been more pronounced in the East than the West and in rural rather than urban areas. It is a deeply divided picture. The next part explores the factors behind these different patterns.

## PART 2

# Factors behind the trends

**Earned income remains a key driver of poverty reduction.** The 2013 World Bank poverty assessment (Jolliffe et al. 2013) showed that changes in earned income, rather than transfers, were at the core of poverty reduction in Bangladesh from 2005 to 2010.<sup>14</sup> The evidence for the period 2010-2016 suggests this was still the case. Available data indicate that a high share of income is earned through work—on average 73.4 percent, and for the poorest 40 percent this share is 82 percent.<sup>15</sup> Although the receipt of international remittances in Bangladesh is notable, few households directly benefit from them (Box 2). A larger proportion of households receives social protection transfers, particularly poorer households in rural areas. However, the size of the transfers is small, and the share of households receiving those transfers has been falling (Table 2.1 and Annex Table A1).

**Table 2.1:** Share of households receiving remittances and social protection transfers

	2010		2016	
	All	Bottom 40	All	Bottom 40
International remittances	9.59%	4.10%	5.01%	2.50%
Internal remittances	12.30%	10.54%	13.09%	11.74%
Social protection transfers	24.58%	33.20%	21.39%	29.06%

**Source:** Staff calculations using HIES 2010 and 2016.

**Note:** Bottom 40 denotes the poorest 40 percent of the per capita consumption distribution.

<sup>14</sup> This is consistent with the international norm of poverty reduction in low- and lower middle-income countries (Azevedo et al. 2013)

<sup>15</sup> There are quality concerns about the income data in the HIES, in previous survey rounds but particularly in 2016 (See Data Annex), thus the shares of earned income should be interpreted as indicative.

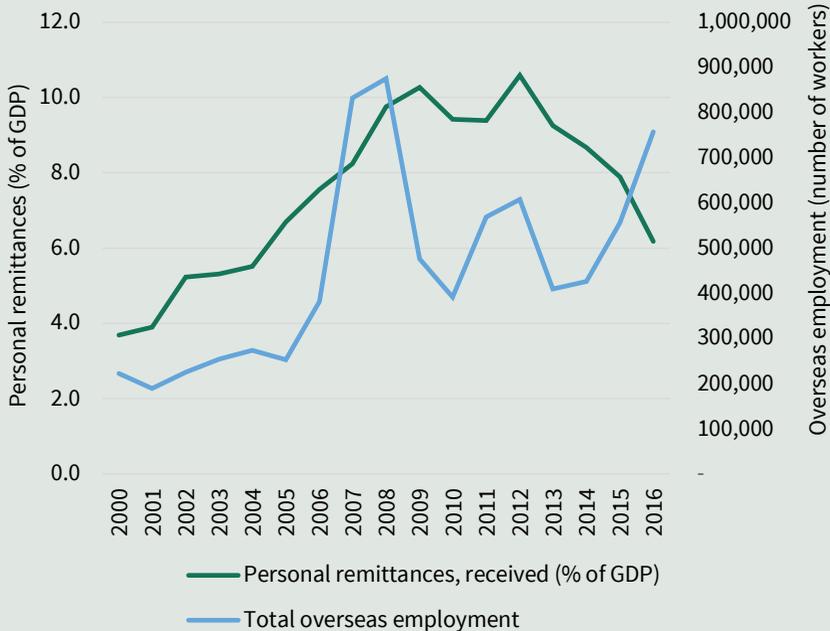
**What is behind the different performance in poverty reduction across Bangladesh?** This section aims to shed light on the reasons behind the different rates of progress in rural and urban areas and the reemergence of the East-West divide. The first subsection highlights the role of changes in household assets as a driver of consumption growth, stressing the important role of demographics and investments in education. The second subsection examines the returns to these assets, particularly in rural areas, and details how non-agricultural sectors have become a more important driver of poverty reduction in rural areas in the last six years. Together these two sections explain why Western divisions that remain highly agricultural with slower progress on household demographics and education were unable to match the gains in poverty reduction that Eastern divisions experienced from 2010 to 2016. The final subsection of Part 2 focuses on urban trends, to understand the factors behind the urban poverty reduction slowdown.

### **Box 2. International migration and poverty reduction in Bangladesh**

**International migration has become an important source of employment and income for Bangladesh.** In 2016, 757,000 Bangladeshis left the country to work, and remittances contributed to 6.2 percent of GDP (Figure B2.1). Migration and remittance flows fluctuated over the period 2000-2016, with the years 2007 and 2008 showing the sharpest rise in overseas employment, followed by high remittance flows (Figure B2.1). In 2016, about 8 percent of households reported having a member who had migrated abroad in the previous five years.<sup>16</sup> Around two-thirds of all migrants work in the Persian Gulf region, taking short-term employment contracts. Most surveys of Bangladeshi migrants find that migrants tend to be young, married males with moderate education levels (World Bank 2012).

**International migration can be welfare improving for those receiving remittances and can also support poverty reduction indirectly.** Spending on local goods and services with remittance income boosts local demand, and wages can increase as local labor supply is reduced. From 2000 to 2016, poverty reduction was faster in districts where international migration was higher: for each additional 0.1 percent of a district's population migrating internationally, poverty in that district fell by 1.7 percent (Hill and Endara

<sup>16</sup> According to the 2011 census, 6.1 percent of households had a member working abroad. The regional distribution of migrants in the HIES is aligned with the one observed in the census data.

**Figure B2.1. Overseas employment and remittances**

**Source:** Remittances data from World Development Indicators. Overseas employment numbers from the Bangladesh Bureau of Manpower, Employment and Training (BMET).

**Notes:** Overseas employment measures the number of workers leaving per year.

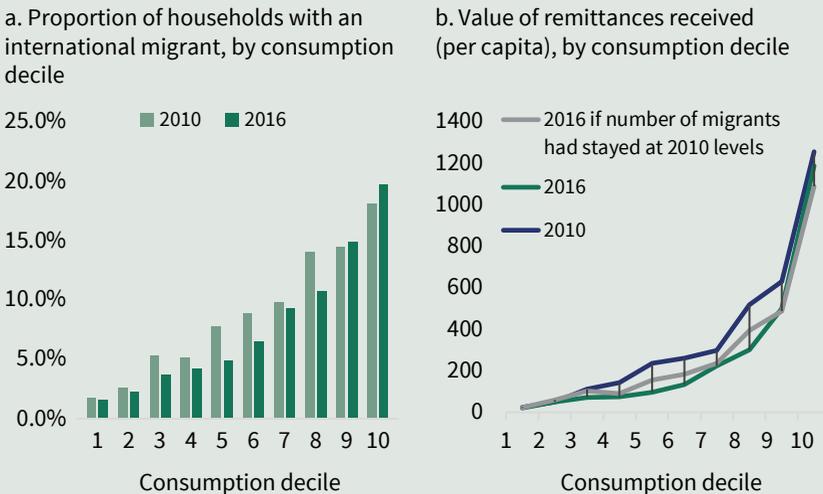
2019a). Sen et al (2014) find that differential rates of urbanization and international migration can help explain the spatial pattern of poverty reduction across districts in Bangladesh.

**The decline in remittances observed since 2012 is unlikely to have had a large effect on national poverty rates or explain the slowdown in poverty reduction.** HIES data indicates that the amount of international remittances that households report receiving has fallen significantly, confirming the trend in national accounts remittance data (Figure B2.2). However, as households at the bottom of the income distribution were less likely to have migrants and receive remittances in the first place, this reduction is unlikely to have affected overall poverty rates.<sup>17</sup> Assuming that the share of households with international migrants and the size of remittances had remained

<sup>17</sup> Existing evidence shows that migrants are less likely to be poor, partly because there are high out-of-pocket costs of migrating. According to a survey from the International Organization for Migration (IOM) in 2010, three-quarters of migrants spent anywhere from Tk 100,001- 300,000, with the average migration cost being Tk 219,394.

at 2010 levels, the annual rate of poverty reduction would have increased only slightly, to 1.4 percentage points between 2010 and 2016. The fall in remittances has particularly affected incomes of the top 60 percent, who are more likely to benefit from international remittances. However, the slowdown in remittances may have had some impacts at the local level, due to indirect benefits of migration. More information is needed to assess this hypothesis.

**Figure B2.2. Remittances have fallen, with larger impacts on better-off households**

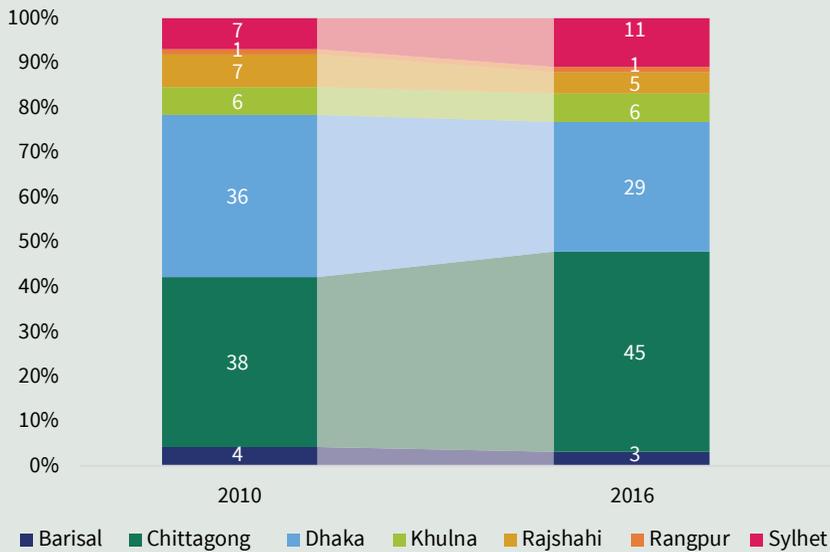


Source: Staff calculations using HIES 2010 and 2016.

Notes: In the graph on the right-hand side, the grey line represents the value of international remittances per consumption decile that would have been observed, if the number of migrants per household had stayed the same as in 2010. It assumes the 2016 value of remittances per international migrant.

**The geographic pattern in access to international migration constrains the potential of this process to reduce income disparities across the country.** The majority of international migrants come from Dhaka and Chittagong, and this has changed little over time (Figure B2.3). The temporal persistence of these geographic patterns is consistent with evidence that migration is more likely in places where the stock of migrants is already high, as prospective migrants can rely on the benefits of existing migrant networks (Hanson 2010; Litchfield et al. 2015).

**Figure B2.3. Spatial pattern of international migration, 2010 and 2016**



Source: Staff calculations from HIES 2010 and 2016.

Notes: International migration identified from household reports with a reference period of five years.

## I. Household demographics and education have contributed to consumption gains across urban and rural areas

Changes in households' assets (e.g., human capital, physical assets, access to economic services) and the income derived from those assets are a central element behind consumption growth. This subsection examines progress in demographics, education, and other non-monetary dimensions of well-being and how this progress has contributed to consumption growth. Since its independence, Bangladesh has made remarkable strides in improving human development outcomes, including life expectancy, fertility, infant and child mortality, education, access to housing services and sanitation. Both government and non-governmental organizations have been important for these achievements (World Bank 2006).

### Bangladesh continues to make progress in fertility, education, and other non-monetary dimensions of well-being

Fertility rates continued to decrease between 2010 and 2016, triggering a fall in household size and the number of dependents per household. Bangladesh has been an impressive example of demographic change, with fertility rates

declining from more than six children per woman in the early 1980s to 2.1 children per woman in 2017, almost reaching replacement levels. Between 2010 and 2016, household size and the average number of children per woman continued to fall (Table 2.2), resulting in lower dependency ratios. Between 2010 and 2016, household size fell similarly for both poor and non-poor households. Yet, poor households are still significantly larger than non-poor households, so each working-age adult in a poor household must support a larger number of non-working-age members, on average (Appendix Table A1).

**The fertility declines in Bangladesh have been accompanied by a rise in life expectancy and substantial reductions in infant and child mortality.** Since 2000, life expectancy at birth has increased 8.9 years for women and 6.2 years for men (Table 2.2). In addition, infant mortality decreased sharply, from 64 to 27 infants per 1,000 live births. Today, Bangladesh is performing better in these dimensions than other countries in the South Asia region, where average life expectancy is 69 years and infant mortality is about 36.4 infants per 1,000 live births (Annex Table A4).

**In addition, a continued increase in school attendance is creating a significantly more educated adult population.** Over the period 2000-2016, net school attendance rates rose by 20 percentage points for primary school, 22 points for secondary, and 16 points for tertiary. The investments in children's education over many years are now translating into a more educated working-age population (Figure 2.1).

**The expansion in schooling has been broad-based and has reduced inequalities in gender.** Even though adult females are overall less educated than males, younger generations are reversing this disadvantage (Figure 2.2a). Faster progress in female educational achievement has resulted in young men now being less likely to complete primary or secondary school than women, although they still outperform women in tertiary schooling. Large increases in the number of schools, targeted stipends programs for girls, and the growth of the ready-made garment industry contributed to closing gender gaps in school enrollment. Today net female primary school enrollment rates exceed the average in South Asia and lower-middle income countries (Annex Table A4). Women's educational gains have also supported better labor market options for women and increased female labor force participation, which in turn improved women's fertility choices and empowerment within the household (Heath and Mobarak 2014).

**School attendance has also grown more rapidly among the poor, shrinking differences in school achievement between socioeconomic groups.** Comparing across cohorts, there has been a reduction in the primary and secondary school

completion gaps between poor and non-poor, though the difference is still considerable (See Figure 2.2b for primary-level completion). Between 2010 and 2016, the difference in average years of education between poor and non-poor adults fell from 3 to 2.2 years. However, literacy rates remain significantly lower among heads of poor households (38 percent) than among heads of non-poor households (59 percent) (Annex Table A1).

**Table 2.2: Progress in non-monetary dimensions of wellbeing**

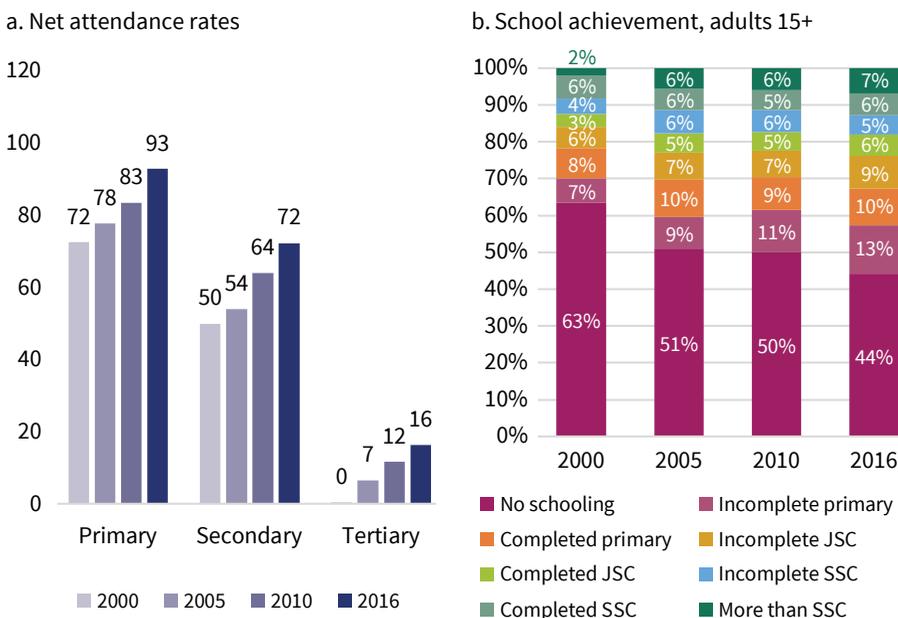
	2000	2005	2010	2016
<b>Household demographics</b>				
Average household size	5.2	4.8	4.5	4.1
Average number of children under 8	1.1	0.9	0.8	0.7
<b>Household access to housing services and land ownership</b>				
% of households with tubewell water	51.5	57.8	57.7	59.1
% of households with piped water	6.8	7.6	10.6	12.0
% of households with electricity	31.2	44.2	55.2	76
% of households that own cultivable land	41.4	45.4	41.0	32.3
<b>Education</b>				
Literacy (among adults older than 18 years)	43.0	49.6	53.9	60.1
Average years of education (adults older than 18 years)	3.3	4.1	4.4	4.7
School attendance (among 6-18 years-old)	63.9	66.6	73.9	80.4
<b>Health</b>				
Fertility rate, total (births per woman)	3.2	2.7	2.3	2.1+
Life expectancy at birth, female (years)	65.7	68.7	71.5	74.6+
Life expectancy at birth, male (years)	65.0	67.3	69.0	71.2+
Life expectancy at birth, total (years)	65.3	67.9	70.2	72.8+
Mortality rate, infant (per 1,000 live births)	64.0	50.4	38.9	26.9+
Prevalence of stunting, height for age (% of children under 5)	50.8	45.9	41.4*	36.1**
Prevalence of underweight, weight for age (% of children under 5)	42.3	37.3	36.8*	32.6**
Prevalence of undernourishment (% of population)	20.8	16.6	16.9	15.2

Source: Demographic, services and education indicators from HIES. Health indicators from WDI.

\*2011; \*\*2014; +2017

**There is room for improvement in nutrition areas despite the progress that has been achieved.** An analysis comparing 2010 and 2016 indicates that the average number of calories consumed by the population has fallen (by about 150 calories) both in urban and rural areas. Comparing across the consumption distribution, caloric intake remained at similar levels for the poorest 20 percent but fell for the

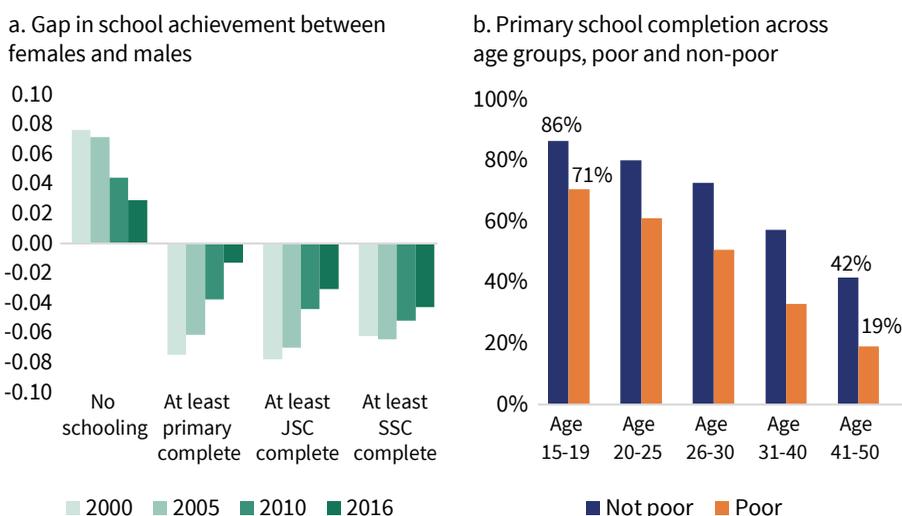
**Figure 2.1. Gains in education, 2000-2016**



Source: Source: Staff calculations using HIES.

Note: Junior Secondary School (JSC) refers to completion of Grade 8. Secondary school (SSC) refers to completion of Grade 10. The HIES only collects information on whether the person is currently attending school, therefore the attendance figures will be lower than official enrollment rates.

**Figure 2.2. Gains in educational achievement have been broad-based**

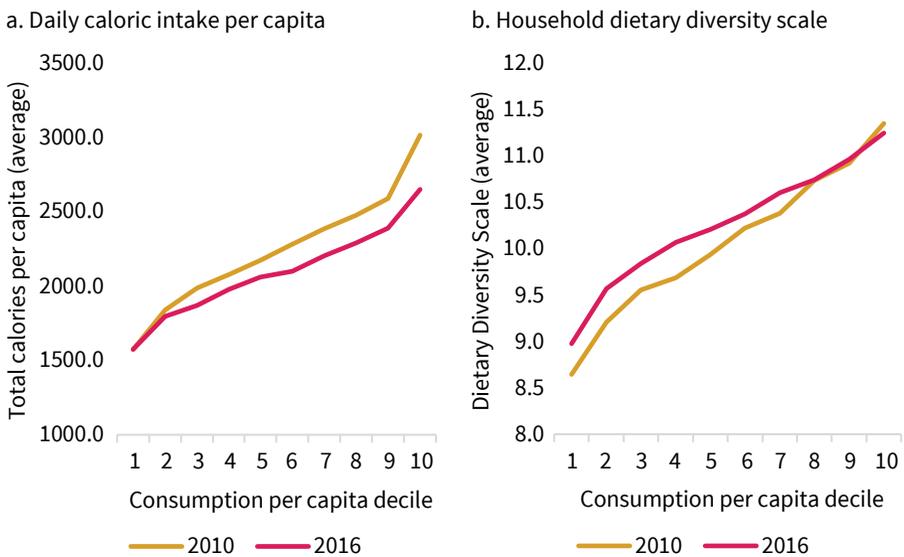


Source: Source: Staff calculations using HIES.

Note: Junior Secondary School (JSC) refers to completion of Grade 8. Secondary school (SSC) refers to completion of Grade 10. The HIES only collects information on whether the person is currently attending school, therefore the attendance figures will be lower than official enrollment rates.

rest of the distribution—particularly for better-off households (Figure 2.3a). The reduction in calories is partly explained by a change in diets, which are becoming more diverse. Part of the decline in calories can also be explained by an increase in the share of food consumed away from home.<sup>18</sup> Over the 2010-2016 period, the share of calories derived from cereals has decreased, while the share of calories derived from meat, eggs, and vegetables has increased. The average Household Dietary Diversity Score (HDDS), which measures access to a variety of food groups, rose 0.2 points between 2010 and 2016. The HDDS increased more rapidly for the poorest quintiles (Figure 2.3b). Despite these positive trends, about 78 percent of calories on average are derived from the consumption of cereals, exceeding the recommended guidelines for diet quality (Pinzon and Wang 2019). Moreover, the latest statistics still show very high levels of malnutrition in Bangladesh, with more than a third of children under 5 stunted and 15 percent of the population (25 million people) undernourished.

**Figure 2.3. Calories consumed and food diversity, 2010-2016**



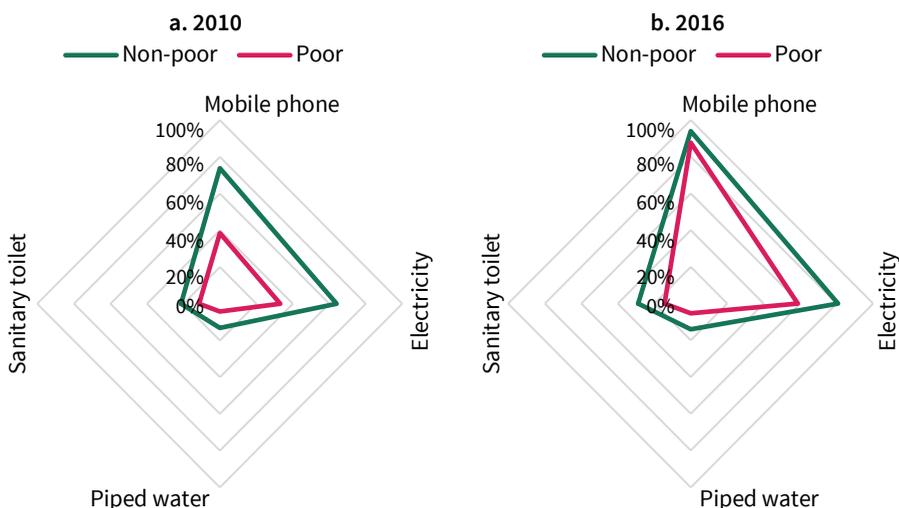
**Source:** Staff calculations using HIES.

**Note:** The household dietary diversity scale (HDDS), based on FAO definitions, is meant to reflect, in a snapshot form, the economic ability of a household to access a variety of foods. The index is based on 12 food groups (cereals; tubers and roots; vegetables; fruits; meat; eggs; fish and other seafood; legumes, seeds and nuts; dairy; oils and fat; sweets; and spices and condiments). The potential range for the score is 0-12. The score measures how many food groups were consumed in the past two weeks (reference period for the HIES) by the household.

<sup>18</sup> The HIES data collects a basic question about foods away from home, which suggests increasing importance of this component across time.

Progress was also made in access to basic services such as electricity, water, and sanitation. There were faster gains for the poor in terms of electricity, as well as access to mobile phones. However, progress was more modest on access to water and sanitation services (Figure 2.4).

Figure 2.4. Access to services for the poor and non-poor



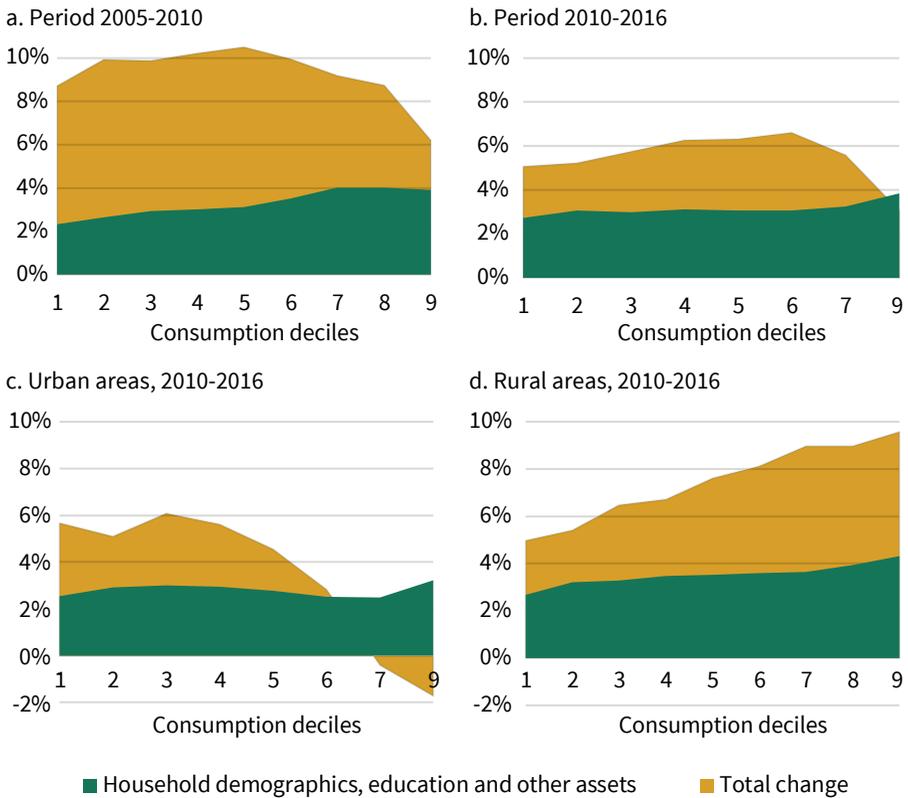
Source: Staff calculations using HIES 2010 and 2016.

Note: Sanitary toilet, electricity, mobile phone, and piped water are calculated as the percentage of households that report having access to the item. Literacy denotes the share of the adult population older than 18 years that can write a letter. Poor and non-poor defined based on the national upper poverty rate.

### Lower fertility and education gains fuel consumption growth

From 2010 to 2016, changes in household demographics, education, and other asset holdings contributed to consumption growth. A decomposition analysis shows that, if the correlation between household characteristics and consumption remained unchanged, demographic changes and the accumulation of education and other assets were sizeable enough to explain half of all consumption growth over this period (Figure 2.5). The consumption growth derived from these gains was similar before and after 2010. However, these factors explained a larger share of consumption growth after 2010, as overall consumption growth has been slower recently. In addition, the amount of consumption growth explained by changes in demographics, education, and other assets between 2010 and 2016 is very similar across rural and urban areas (Figure 2.5), indicating that the slow-down in urban poverty reduction cannot be explained by different progress on these areas.

**Figure 2.5. Contribution of household demographics, education, and other assets to total consumption growth**

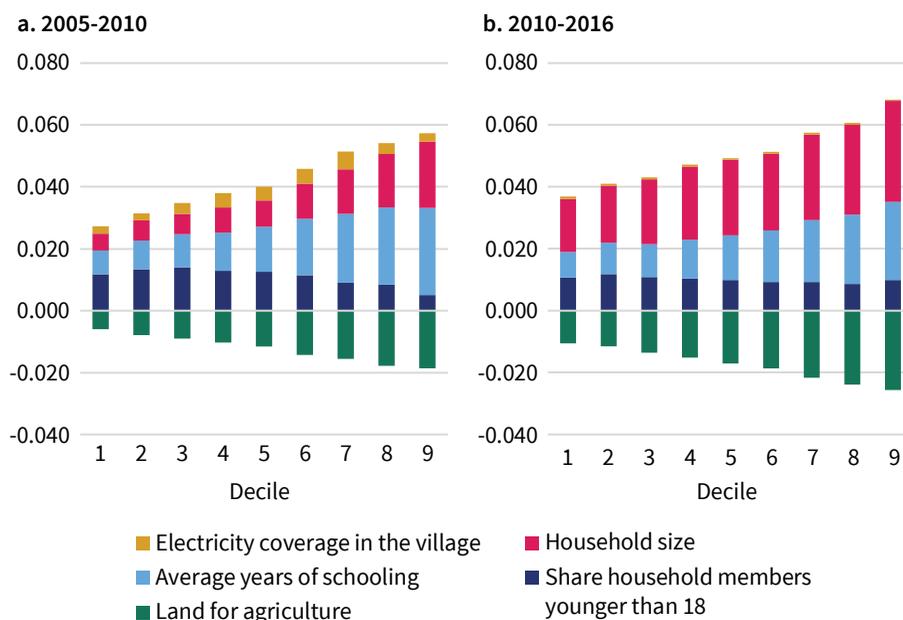


Source: Staff calculations using HIES 2005, 2010, and 2016.

Note: Y-axis presents the logarithm of per-capita consumption growth over the period. “Household demographic, education and other assets” refers to the estimated consumption per capita growth derived from changes in household demographics, education and other assets (i.e., land ownership and electricity). It is calculated as the sum of the changes in each characteristic between two years multiplied by the coefficient for that characteristic in the first year. For more details see Hill and Endara (2019b).

**Reductions in fertility and family size were the most important contributors to poverty reduction.** Figure 2.6 shows that smaller household sizes and reductions in the number of children significantly contributed to poverty reduction. This is in part a measurement effect, as the welfare measure used for estimating poverty in Bangladesh is total household consumption per capita. The per capita measure does not account for any scale economies or for the fact that children will consume less than adults. However, there are other reasons why fewer children result in lower poverty rates. For instance, the amount earned by working adults is shared among fewer household members. Also, if less time is devoted to childcare, more time could be allocated to income-earning activities. Results using consumption measures that allow for scale economies suggest that some

**Figure 2.6.** Estimated contribution of demographic and asset changes to consumption growth



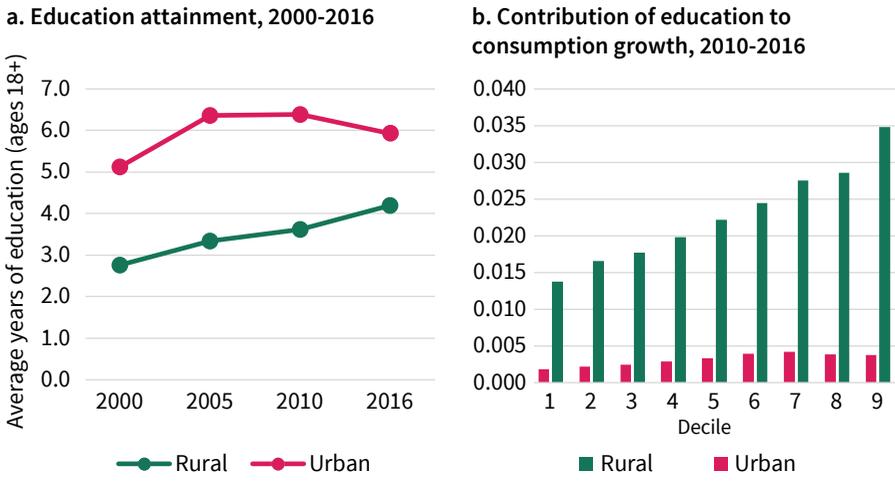
Source: Staff calculations using HIES 2010 and 2016.

Note: Y-axis measures the predicted consumption per capita growth over the reference period from changes in household demographics and assets (i.e., location, education of adult members, household demographics, access to services, and land ownership). X-axis measures the per capita consumption decile. For more details see Hill and Endara (2019b).

of these dynamics were at work in Bangladesh during this time. Reductions in fertility and family size also bring long-run benefits not captured here. For example, per-child investments in nutrition and education can be higher, enabling future generations to be more productive.

**After demographic changes, gains in educational attainment contributed most to poverty reduction.** Increases in years of schooling contributed less to consumption growth in 2010-2016 than in 2005-2010, but educational gains still made substantial contributions to driving down poverty. Comparing urban and rural areas, the estimated contribution of education to poverty reduction has been much higher in rural areas. Keeping other household characteristics fixed, the correlation between education and consumption is higher in urban areas than in rural areas, suggesting higher returns to education and therefore a larger gain to educational attainment in urban settings. However, educational attainment has increased more rapidly in rural Bangladesh than in cities, explaining the larger role of education in poverty reduction in rural areas (Figure 2.7). For most

**Figure 2.7.** The contribution of increased education to consumption growth was larger in rural areas



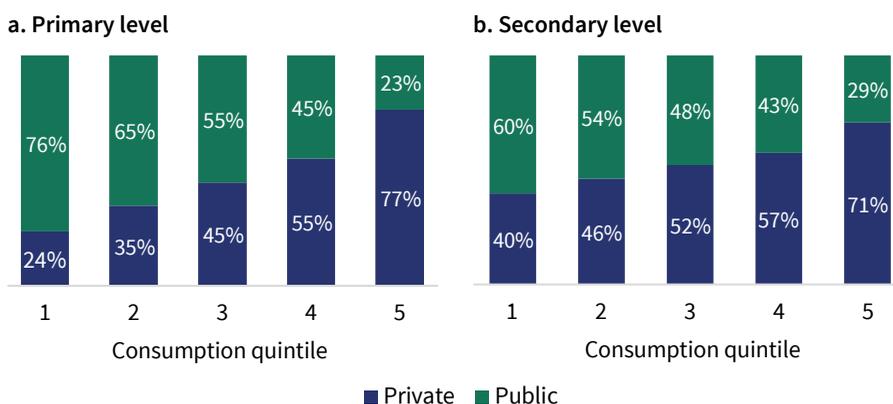
Source: Staff calculations using HIES 2000, 2005, 2010, and 2016.

Note: Average years of education calculated for adults older than 18 years. For more details see Hill and Endara (2019b).

of the consumption distribution in urban areas, the average years of education increased, but the gains were modest.

**The reduction in educational disparities between urban and rural areas partly reflects faster spending increases on education by poorer households and progressive public spending.** In the past two decades, Bangladeshi households have substantially increased the amount they spend on education. Increases in private spending on education occurred at a faster rate among poor households, thereby significantly reducing the gap in education spending across socioeconomic groups. While in 2000 the top quintile spent 22 times more on education per student than the poorest quintile, in 2016 the richest quintile spent only six times more than the poorest quintile (Genoni et al. 2019). In addition, public spending, particularly for primary schooling, has emphasized investments in the education of poorer children, helping reduce inequalities in education investments per child. Recent estimations indicate that, for the median child in primary school, about 57 percent of total spending comes from public resources. For the median child among the poorest 20 percent, however, three out of four takas spent on education come from public resources. For students in secondary school, 43 percent of spending is public, and for the poorest 20 percent of households, the share is 60 percent (Figure 2.8). Stipend programs and tuition waivers helped to improve the progressivity of public spending, though mainly for primary level of schooling.

**Figure 2.8.** Shares of public and private spending in total education spending



Source: Genoni et al (2019). Calculations using Household Income and Expenditure Survey 2016 and BOOST for fiscal year 2014.

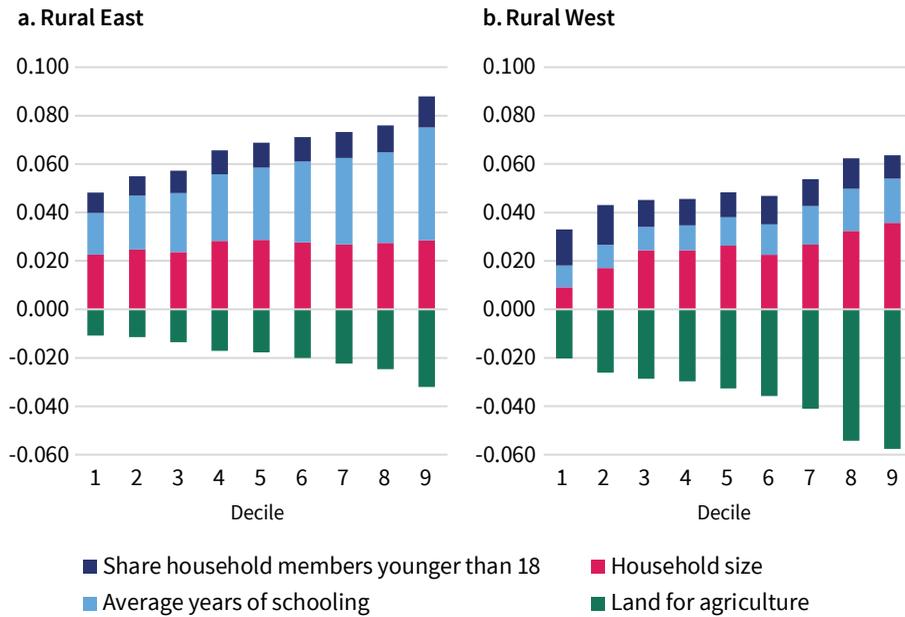
### Progress in the rural West was slower, contributing to the re-emergence of an East-West divide

**The gains in rural areas were not uniform: the rural West recorded slower progress on education and demographic change, contributing to the re-emergent East-West divide.** Household size fell more slowly in rural areas of the Western divisions than in the Eastern divisions. Gains in education in the rural West were half of those achieved in the rural East: the average years of schooling of adult household members increased by 0.88 years among rural households in Eastern divisions between 2010 and 2016, but by only 0.43 years in rural households in Western divisions. This suggests that the likely contribution of education to consumption growth in Western rural areas was also only half that observed in the rural East (Figure 2.9).

**In urban areas in Western Bangladesh, there was faster progress made on education and reducing family size.** Household size decreased more rapidly and educational attainment improved five times faster in Western cities, compared to urban areas in Eastern divisions. This faster progress in urban areas of the West compared to the East perhaps contributed in reducing the economic disadvantage of living in urban areas of the West.

**Rural households in Western divisions also saw a more rapid decline in the average size of land holdings.** Between 2010 and 2016 there has been a decrease in the size of land holdings, particularly in the West (Figure 2.10). Households with larger land holdings have higher consumption, which means the reduction

**Figure 2.9.** The contribution of changing demographics and assets to consumption growth in the rural East and West, 2010-16

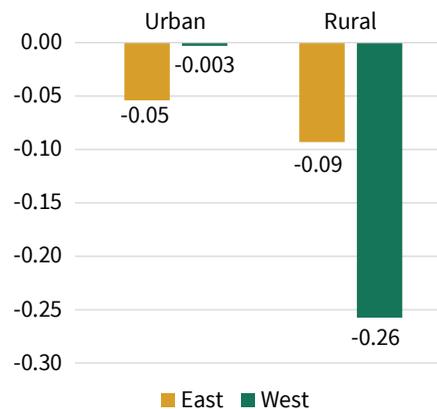


Source: Staff calculations using HIES 2010 and 2016.

Note: Y-axis measures the predicted consumption per capita growth over the reference period from changes in household demographics and assets (i.e., location, education of adult members, household demographics, access to services, and land ownership). X-axis measures the per capita consumption decile. For more details see Hill and Endara (2019b).

in average land holdings has most likely worked against consumption growth. This is shown at the national level in Figure 2.6, where the reduction in the size of land holdings contributed negatively to consumption growth. That land-holding size fell faster in Western divisions likely dampening consumption growth there, relative to the Eastern divisions. The greater prevalence of agriculture work in the West also played a role in faster consumption growth from 2005 to 2010 and slower consumption growth from 2010 to 2016. This dynamic is analyzed in the next subsection.

**Figure 2.10.** Change in average size of owned land from 2010-2016



Source: Staff calculations using HIES 2010 and 2016.

Note: Change in land size expressed in logs. For more details see Hill and Endara (2019b).

## II. Rural income growth: poverty reduction was rural but not predominantly agricultural

The changing sectoral composition of economic growth also explains the different rates of progress in poverty reduction across the country. While reduced fertility, increased education and other assets played a significant role in poverty reduction, they only explain half the consumption growth registered in Bangladesh from 2010 to 2016. Another element that determined consumption growth is the returns obtained from those household characteristics. Growth in returns can come from growth in the return a household earns while staying in the same employment sector or from moving to a sector with higher returns.

### All economic sectors have contributed to poverty reduction since 2000

Since 2000, there have been large shifts in the sectoral composition and geographical focus of economic activity in Bangladesh. Between 2000 and 2016, the share of agriculture in GDP fell from 24 to 15 percent. Six percentage points of this shift went to industry and three to services (Table 2.3). The structure of employment changed even more dramatically, with 24 percent of the workforce moving out of agriculture during this period—10 percentage points into industry and 14 percentage points into services. Bangladesh has moved at a faster pace than most other developing countries in this process of structural transformation, with the share of employment in agriculture falling about 24 percentage points compared to 14 points in the South Asia region (Annex Table A4).

Through the entire period 2000-2016, poverty reduction was faster in districts and periods with high growth in agriculture and manufacturing. District-level panel analysis shows that agriculture and manufacturing have been equally important contributors to Bangladesh's poverty reduction over the period 2000 to 2016. Poverty fell faster in areas and years when growth in the value of agricultural output and the number of manufacturing firms was highest. The impact of agricultural growth holds when instrumenting growth with local rainfall conditions, suggesting that the positive relationship between agricultural growth and poverty reduction is causal. Similarly, the impact of manufacturing growth is present when proxying manufacturing growth using a Bartik instrument, suggesting causality in the estimated relationship between manufacturing growth and poverty reduction. The Bartik instrument is the share of employment in industrial subsectors multiplied by the sub-sectoral growth rate (Hill and Endara 2019a). The period from 2005 to 2010 was particularly positive for agricultural households, as they benefited from high food prices. This was true both for own-account workers in agriculture

and those working as agricultural laborers, since agricultural wage rates increased (Jolliffe et al. 2013). Growth in the service sector may have been important too, but challenges in measuring growth in this sector accurately and the fact that growth in the informal service sector is often spurred by growth in other sectors (Shilpi and Emran 2016) make it difficult to quantify its poverty-reduction impact.

**Bangladesh has been resilient in maintaining strong progress in poverty reduction, despite change in the sectoral nature of growth.** Growth and employment shifts across sectors have not occurred uniformly over time. This has implications for how poverty reduction was achieved over time. Between 2000 and 2005, there was low average growth in agriculture, high but jobless growth in industry, and moderate, job-creating growth in services. The shift of employment from agriculture to services during this period was notable. Poverty reduction in this period was driven by service sector growth (World Bank 2008). From 2005 to 2010, there was high growth in agriculture (which slowed structural transformation), high job-creating growth in industry, and very high growth in services but limited in job-creation. This period is notable for its very high agricultural growth and the start of Bangladesh's boom in the creation of manufacturing jobs. Poverty reduction during this period was driven mostly by growth in agriculture (Jolliffe et al. 2013).

**Table 2.3:** Trends in key economic and demographic variables, 2000-2016

	2000	2005	2010	2016	2001-2005	2005-2010	2010-2016
<i><b>Growth</b></i> <sup>(1)</sup>					<i><b>Average per capita growth</b></i>		
Total GDP growth					5.1	6.1	6.5
Total GDP per capita growth					3.3	4.8	5.2
Agriculture growth	23.8	19.6	17.8	14.8	1.5	4.1	2.3
Industry growth	23.3	24.6	26.1	28.8	5.2	6.8	8.4
Services growth	52.9	55.8	56.0	56.5	2.3	8.4	4.9
Consumer Price inflation <sup>(1)</sup>					5.1	7.7	7.2
					<i><b>Annual percent points change</b></i>		
					<i><b>Share in employment (%)</b></i>		
<i><b>Sector of employment and place of residence</b></i>							
Agriculture <sup>(2)</sup>	64.8	48.1	47.3	41.1	-3.3	-0.2	-1.0
Industry <sup>(2)</sup>	10.7	14.5	17.6	20.8	0.8	0.6	0.5
Services <sup>(2)</sup>	24.5	37.4	35.0	38.0	2.6	-0.5	0.5
Urban population (%) <sup>(3)</sup>	23.6	30.4					

	2000	2005	2010	2016	2001-2005	2005-2010	2010-2016
<i>Poverty<sup>(4)</sup></i>							
	<i>Poverty rate (%)</i>				<i>Annual percent points change</i>		
National	48.9	40.0	31.5	24.5	-1.8	-1.7	-1.2
Agriculture	55.4	50.0	37.3	32.6	-1.1	-2.5	-0.8
Industry	49.0	40.3	34.3	24.8	-1.7	-1.2	-1.6
Services	41.1	33.1	26.6	20.2	-1.6	-1.3	-1.1

(1) WDI. Sectoral average per capita growth calculated using total population growth.

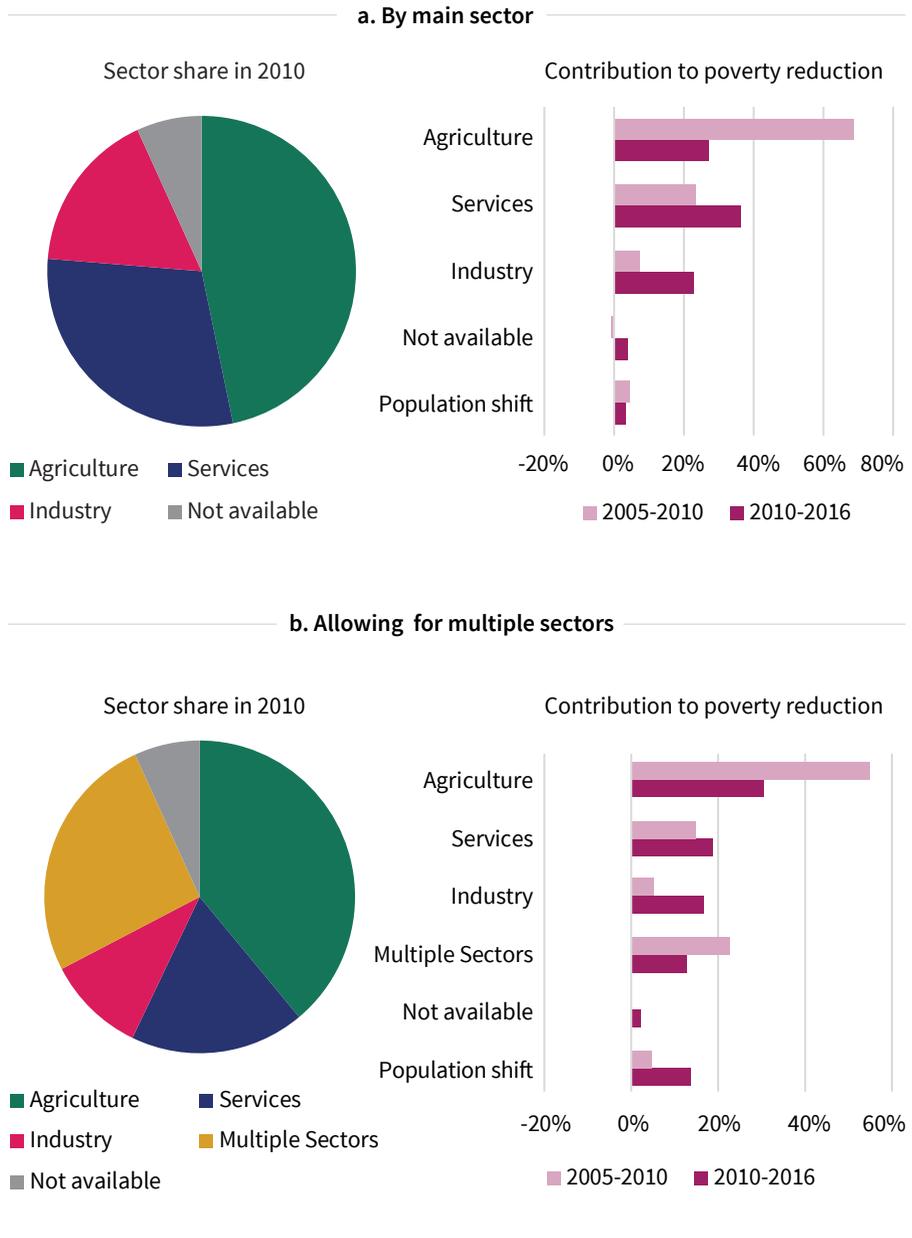
(2) International Labor Organization modelled estimates.

(3) Percentage of the total population living in urban areas. From National Population Censuses.

(4) Estimates from Household Income and Expenditure Survey (HIES). Households are assigned to the economic sector based on share of hours worked.

### From 2010 to 2016, households engaged in industry and services led rural poverty reduction

The period from 2010 to 2016 was characterized by lower agricultural growth, high growth in manufacturing, and moderate service sector growth. Although poverty reduction was primarily rural in this period, it occurred more among households in industry and services, rather than agriculture. Although 47 percent of rural households were primarily engaged in agriculture in 2010, such households accounted for just 27 percent of rural poverty reduction between 2010 and 2016. This contrasts with the period 2005 to 2010, when 69 percent of rural poverty reduction was among households primarily engaged in agriculture (Figure 2.11). Most rural poverty reduction between 2010 and 2016, 59 percent, occurred among households whose primary sector of employment was industry or services (23 percent in industry and 36 percent in services). Data that follows the same households over time during this period documents the same trend: households with higher shares of non-farm income were less likely to remain in or fall into poverty (Ahmed and Tauseef 2018). When taking into account the fact that people work in multiple sectors, the poorer performance of households engaged in any agricultural activities—even if also engaged in other sectors—becomes clearer, suggesting it was engagement in industry or services, instead of having multiple sources of income, that contributed to poverty reduction (Figure 2.11b). Despite strong growth in nonagricultural sectors, the share of the rural population primarily engaged in nonagricultural activities reported in the HIES increased by only 3 percentage points. This shift contributed just 4 percent to poverty reduction (Figure 2.11).

**Figure 2.11. Poverty reduction across sectors in rural areas, 2005-2016**

Source: Staff calculations using HIES 2005, 2010, and 2016.

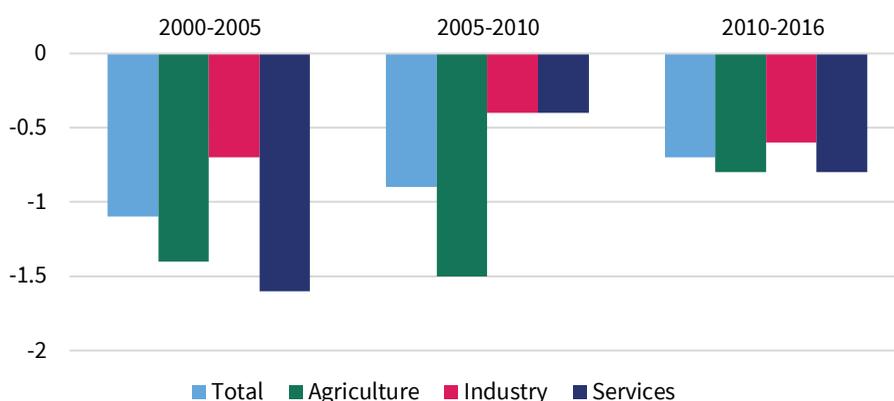
Notes: Results obtained from Ravallion and Huppi (1991) decompose changes in poverty over time into intra-sectoral effects, a component due to population shifts across sectors, and an interaction (not displayed). Sector of employment defined based on reported hours of work in each sector.

### Agricultural growth was slower and less poverty reducing than in the past

**The smaller role of agriculture in poverty reduction between 2010 and 2016 partly reflects lower agricultural growth.** Between 2010 and 2016, agriculture grew 2.3 percent per year, compared to 4.1 percent annually between 2005 and 2010. After 2010, slower agricultural growth fueled a renewed decline in agricultural employment. The sector’s growth in recent years was affected by negative weather shocks in 2012–13, which substantially reduced its overall growth rate. In addition, the moderation in real prices since 2010 has led to a slowing of growth in crops (Gautam and Faruquee 2016). The slowdown in agricultural growth also reflects a decreased growth rate in rice production, from 5.1 percent per year between 2005-2010 to 1.2 percent during 2010-2016.

**In addition, during 2010-2016, agricultural growth became less poverty reducing, while industrial and manufacturing growth became more poverty reducing.** Nonetheless, there was very little difference in the poverty-reducing impact of growth in any of the sectors. This contrasts with the general trend, in which agricultural growth had tended to be much more poverty reducing than growth in other sectors (Figure 2.12). Before 2010, poverty fell by 1.5 percent among agricultural households for each percent of agricultural GDP growth. This elasticity almost halved, to -0.8, from 2010 to 2016. In this time period, Bangladeshi households attached to the industry and services sectors secured 0.6 and 0.8 percent reduction in poverty for every percent of value added per capita in these sectors, respectively.

**Figure 2.12. Implied sectoral growth-poverty elasticities, 2000-2016**



Source: Staff calculation using HIES and WDI.

Notes: Elasticities are calculated from GDP growth data and sectoral poverty rates presented in Table 2.3. For more details see Hill and Endara (2019a).

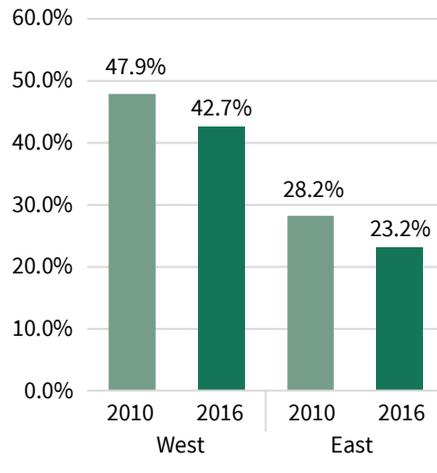
### In the West, the agricultural predominance of rural livelihoods slowed progress

**The smaller share of rural households in the West pursuing non-agricultural livelihoods contributed to the re-emergent East-West divide after 2010.**<sup>19</sup> Both in 2010 and 2016, households in the West were more likely than households in the East to report their main sector of work as agriculture (Figure 2.13). Structural transformation also seems to have been faster in the East than in the West: the proportion of households reporting their main sector as agriculture fell by 22 percent in the East compared to 12 percent in the West. The correlation between land ownership and consumption weakened across the consumption distribution in the East, likely indicating the presence

of more economic opportunities with higher returns outside of agriculture (Figure 2.14). This has driven a reduction in land ownership gaps between poor and non-poor households (Annex Table A1). In contrast, in the West, there was less expansion of opportunities outside of agriculture, and the relationship between owning land and consumption did not change, despite the slowdown in returns to agriculture.

In sum, although some of the divergence in poverty-reduction performance between East and West from 2010 to 2016 can be explained by less favorable changes in education attainment and demographics, differences in sectors of work also seem to have played an important role. There is not conclusive evidence to explain why the rural West has lagged in terms of structural transformation. One element highlighted by the literature is the West's gaps in connectivity and access to the major urban centers of Dhaka and Chittagong (Gautam and Faruque 2016). Evidence on previous connectivity investments (e.g., rural roads, Jamuna bridge) highlights positive effects on agricultural productivity and non-farm sector opportunities (Blankespoor et al. 2018; Khandker et al. 2006 and 2010). Increased connectivity can also support non-farm labor incomes by decreasing the cost of domestic and international migration, which in turn spurs remittance flows.

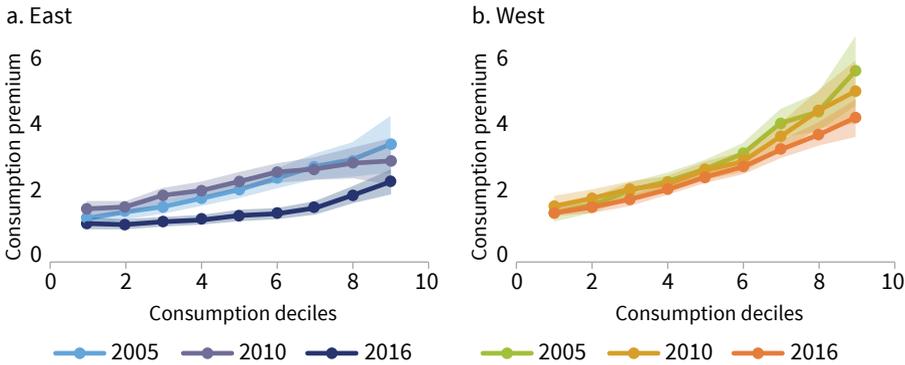
**Figure 2.13.** Share of households in agriculture, East and West



Source: Staff calculations using HIES 2010 and 2016.  
Notes: Sector assigned based on hours worked.

<sup>19</sup> Sen (2019).

**Figure 2.14. Relationship between land ownership and consumption growth**



Source: Staff calculation using HIES 2005, 2010, and 2016. For more details see Hill and Endara (2019b).

Notes: Graph depicts the correlation between land ownership and per capita consumption (at the household level) for each consumption decile, conditional on other household characteristics. Shaded color depicts the 95 percent confidence interval for the correlations.

### III. Urban income growth: gains in manufacturing, but stagnation in the service sector

Understanding Bangladesh’s urban poverty story is key to explaining the slow-down in the country’s poverty reduction. Clarifying the urban story is doubly important, because poverty is increasingly urban in Bangladesh. Even though 8 in 10 poor live in rural areas, at current trends of urbanization and poverty reduction, more than half of Bangladesh’s poor households will live in urban areas by 2030. Although data and evidence on urban poverty is weak, this section considers what is known about recent trends in urban poverty reduction.

The focus is on understanding what drove changes in households’ earned income. Labor income contributes about 76 percent of total household income in urban areas, and 85 percent of the income of the poorest 40 percent of urban households. Section 2.1 showed that the slowdown in urban poverty reduction cannot be explained by changes in demographic change, education and other assets, so the focus is on understanding the returns households earn on their labor.

#### Industry, particularly the garments sector, led urban poverty reduction

Poverty reduction has been patchy across economic sectors in urban areas, with poverty rates in industry falling substantially faster than in other sectors. In 2010, poverty rates for households mainly engaged in industry were higher than those in services (26 percent compared to 17 percent). By 2016, poverty rates among

households in industry were almost at the same level as among households working in the service sector. This convergence was driven by fast poverty reduction among households in industry and no change in poverty for those households attached to the service sector (Table 2.4). This contrasts to the period 2005-2010, when both households in industry and services experienced reductions in poverty (Figure 2.15). The stagnation in poverty reduction in services is concerning, since about 44 percent of the poor in urban areas are part of households primarily engaged in this sector.

**Table 2.4: Poverty reduction has been uneven across sectors in urban areas**

	2010	2016
<b>Percent of urban population living in poverty with main sector of household work in:</b>		
<b>Industry</b>	<b>26%</b>	<b>19%</b>
Garment Sector	25%	16%
Other Manufacturing	23%	20%
Construction	44%	33%
<b>Services</b>	<b>17%</b>	<b>17%</b>
<b>Agriculture</b>	<b>35%</b>	<b>33%</b>
<b>Not employed or sector data missing</b>	<b>10%</b>	<b>15%</b>

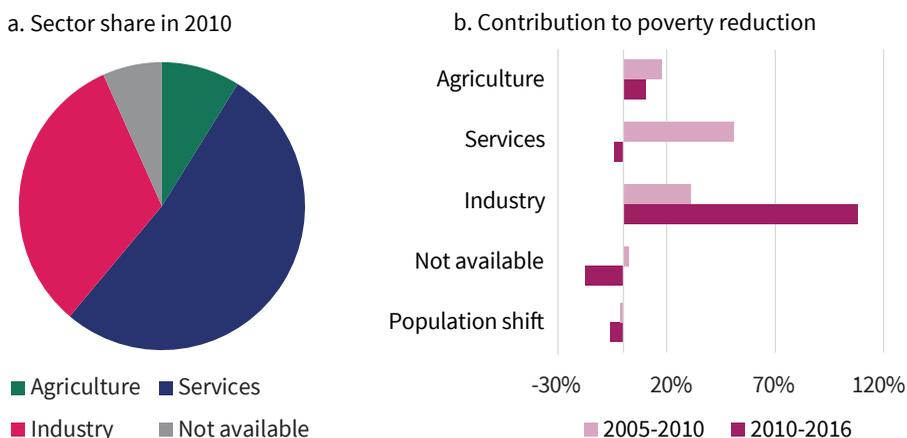
Source: Staff calculations using HIES 2010 and 2016.

Note: Sector is defined by main economic activity using hours worked.

**Within industry, most gains were driven by the garment sector, followed by construction.** Industry and services are broad categories capturing several different sub-sectors. Poverty reduction in industry has been concentrated in garments and (to a lesser extent) construction. The service sector is varied, including everything from rickshaw drivers and street vendors to physicians and those employed in the financial sector. Figure 2.16 shows that different sectors have fared quite differently. For example, poverty reduction in the transport sector was strong, but this comprises a small share of service sector workers. Progress was very slow in commerce, and even increasing poverty rates were observed in other services.

**Poverty rates increased the most among the self-employed in services, which set back overall progress.** Figure 2.17 decomposes poverty reduction from 2010 to 2016 based on main sector and type of work (wage and daily employment or self-employed). The strongest contributor to overall progress was poverty reduction among wage and daily workers in industry. This might in part reflect new minimum-wage legislation affecting the larger firms of the garment sector. Good progress was also seen for wage and daily workers in services. However, poverty rates increased among the self-employed in the service sector in urban areas.

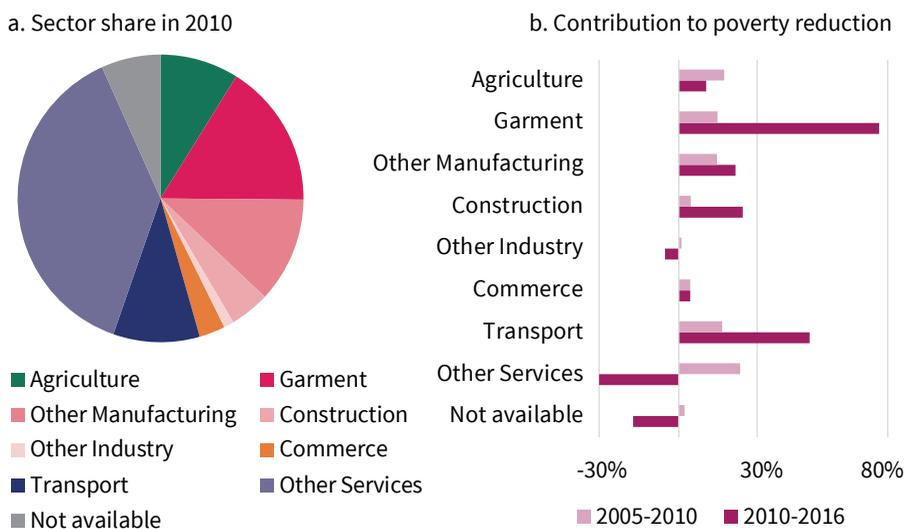
**Figure 2.15. Poverty reduction across sectors in urban areas, 2005-2016**



Source: Staff calculations using HIES 2005, 2010, and 2016.

Notes: Results obtained from Ravallion and Huppi (1991) decompose changes in poverty over time into intra-sectoral effects, a component due to population shifts across sectors, and an interaction (not displayed). Sector of employment defined based on reported hours of work in each sector. "Not available" means that the household was not working or that the household could not be classified into any sector because the data was missing.

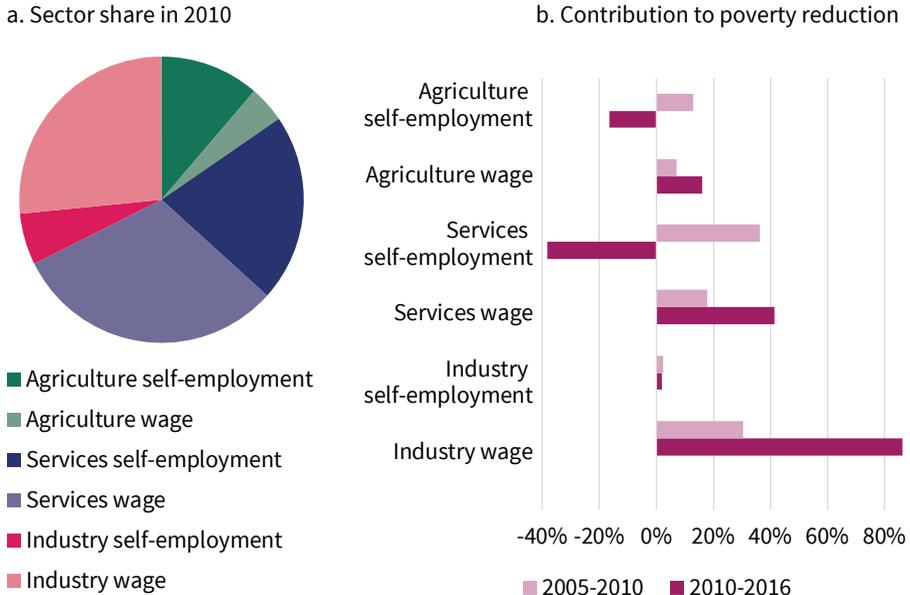
**Figure 2.16. Progress of households in the garment sector contributed most to urban poverty reduction**



Source: Staff calculations using HIES 2005, 2010, and 2016.

Notes: Results obtained from Ravallion and Huppi (1991) decompose changes in poverty over time into intra-sectoral effects, a component due to population shifts across sectors, and an interaction (not displayed). Sector of employment defined based on reported hours of work in each sector. "Not available" means that the household was not working or that the household could not be classified into any sector because the data was missing.

**Figure 2.17. Poverty reduction was fastest among wage workers, particularly in industry**



Source: Staff calculations using HIES 2005, 2010, and 2016.

Notes: Results obtained from Ravallion and Huppi (1991) decompose changes in poverty over time into intra-sectoral effects, a component due to population shifts across sectors (not displayed), and an interaction (not displayed). Sector of employment defined based on reported hours of work in each sector.

### Slow manufacturing job creation curbed poverty reduction and reduced female labor force participation

**Those with industrial jobs benefited, but few had the opportunity.** There has been little growth in the share of the Bangladeshi labor force engaged in industry, and this has limited the amount of poverty reduction derived from the country's industrial growth. Job creation in the ready-made garment (RMG) and textiles sectors combined has fallen from over 300,000 new jobs per year between 2003 and 2010 to 60,000 annually since 2010. In recent years, many of the new RMG and textiles jobs have been created in the periphery of urban centers, in areas which may be classified as rural for administrative purposes (Farole and Cho 2017).

**This lack of job creation has reduced productivity among the self-employed.** In urban Bangladesh, few poor households can afford to be unemployed, as safety nets are limited. Unemployment rates are about 2 percent in the Labor Force Survey (LFS). Those who cannot obtain wage work engage in subsistence

self-employment. As the availability of wage work declines, more people are engaged in subsistence self-employment, and this can have the effect of lowering productivity among the self-employed, as more marginal activities are undertaken. A labor market model of urban Bangladesh was developed to quantify this trade-off (Poschke 2019). Increasing job creation can thus have a positive impact on productivity among subsistence self-employed workers.

**There is a trade-off between improving labor regulations in manufacturing and creating more jobs in the sector.** Improving work conditions and pay has been essential for poverty reduction and for avoiding disasters such as the Rana Plaza garment factory collapse, which killed 1,134 garment workers in 2013. Poschke (2019) shows minimal negative impact on hiring resulting from the enforcement of regulations highly valued by workers, such as Employment Injury Insurance. As essential regulations are introduced to ensure workers receive a larger share of the surplus they generate, it is important that the cost of other regulations that firms face to establish and grow their businesses are reduced to mitigate any negative impacts on hiring.

**The slowdown in job creation in the RMG and textiles sector is also likely responsible for falling rates of female labor force participation (FLFP) affecting poor households.** Between 2005 and 2010, overall labor force participation in urban areas increased due to a substantial increase in FLFP. The expansion of the garment sector was an important force in raising FLFP, as 80 percent of employees in this sector are female. Between 2010 and 2016, FLFP declined about 4 percentage points (Table 2.5). FLFP rates in poorer and slum areas of Dhaka are significantly higher (58 percent), compared to the urban average (Kotikula et al. 2019). Even though men earn substantially more than women in urban areas, women's contribution to total household income is not small, and their exit from the labor market could have impacted household incomes. In poor and slum areas of Dhaka, for instance, men's average earnings are about BDT 13,000, compared to BDT 5,500 for women (Kotikula et al. 2019).

**Supply side factors are also important in determining whether a woman works, but it is not clear whether this can explain trends in FLFP.** FLFP is strongly determined by demographics—age, marital status, having young children. Survey data in poor areas of Dhaka show that having children of an age that requires childcare is significantly correlated with women being outside the labor force. In addition, women reported that access to childcare was a main constraint, while detailed time-use data show that women are often looking after children even when they are engaged in another activity, something that would be impossible to do if working

away from home (Kotikula et al. 2019). Women with more education in urban areas are less likely to work, indicating a socio-economic gradient in the choice to participate in the urban labor market. In addition, social norms are very different between women that work and women that do not. In poor areas of Dhaka, half of the women interviewed wear a burqa outside of their community, and 30 percent of women report not feeling safe in their community. Women who do not feel the environment outside of their house is safe are 10 percentage points less likely to participate in the labor market. And those who wear burqas are 8 percentage points less likely to engage in the labor market (Kotikula et al 2019). Taken together, however, it is unclear what these patterns of FLFP imply for trends in the FLFP rate. Increasing education levels could have contributed to lower rates of FLFP, but declining family sizes would increase the FLFP rate. If social norms have changed over time, this could have influenced FLFP, but without reliable data on trends in social norms, the nature and direction of putative influences remain unclear.

**Table 2.5:** Female labor force participation has declined in urban areas since 2010

Area	2002-03	2005-06	2010	2013	2015
<i>National</i>					
All	57	59	59	57	59
Male	87	87	83	82	82
Female	26	29	36	34	36
<i>Rural</i>					
All	58	59	60	57	60
Male	88	88	83	82	82
Female	26	30	36	34	38
<i>Urban</i>					
All	57	56	57	57	56
Male	85	83	80	82	82
Female	27	27	35	33	31

Source: Bangladesh Bureau of Statistics from Labor Force Surveys.

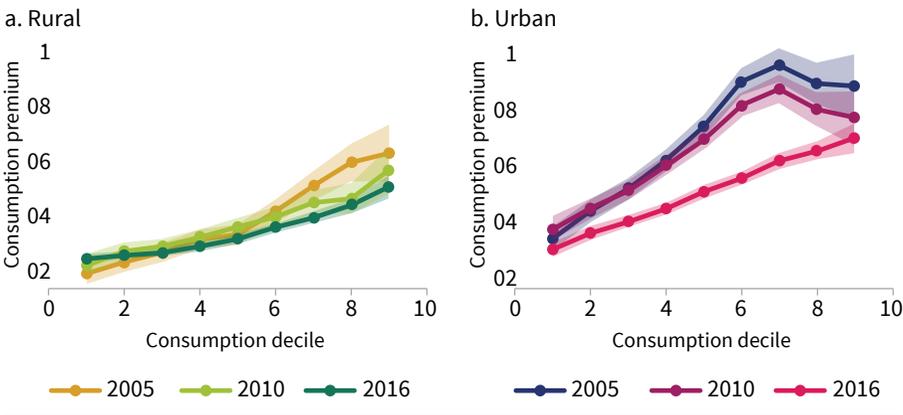
Note: Percentage of the population older than 15 years.

### Private returns to education fell in urban areas

Another concerning trend is that the private returns to education have fallen in urban Bangladesh, particularly in the middle of the consumption distribution. Figure 2.18 presents the correlation between years of education in a household and household per capita consumption, controlling for other

characteristics. The data shows that, although the returns to education are higher in urban areas than in rural areas, they have fallen substantially since 2010. The fall has been sharpest in the middle of the consumption distribution, where the proportion of households with some secondary education is largest. This is consistent with estimates of the return to education derived from earnings data in HIES (Saurav et al. 2019), which confirm that returns to primary and secondary education fell from 2010 to 2016.<sup>20</sup> The reduction in private returns is concerning and indicates that very real constraints to entrepreneurship and labor productivity may have been present in urban areas in Bangladesh in recent years. ADB and ILO (2016) note that returns to education in Bangladesh were already low by international standards in 2013.

**Figure 2.18.** The private return to education appears to have fallen in urban areas



**Source:** Staff calculation using HIES 2005, 2010, and 2016. For more details see Hill and Endara (2019b).  
**Notes:** Graph depicts the correlation between education and per capita consumption (at the household level) for each consumption decile, conditional on other household characteristics. Shaded color depicts the 95 percent confidence interval for the correlations.

**The gains of agglomeration in Dhaka and Chittagong are more limited for the poor**

A second priority for urban poverty reduction is ensuring that the benefits of agglomeration in the cities of Dhaka and Chittagong favor the poor. Economic density is much higher in Dhaka than in the rest of the country but living standards and poverty rates do not reflect this advantage. This is also true for Chittagong. In 2013, greater Dhaka comprised 10 percent of the population

<sup>20</sup> These results are also consistent with returns to education estimated using LFS data (ADB and ILO 2016), which indicate higher returns in urban areas than in rural areas.

and 36 percent of GDP, while Chittagong comprised 3 percent of the population and 11 percent of GDP (Aparicio and Muzzini 2013). On average, residents of Dhaka and Chittagong are 3.6-3.7 times more productive than the national average. These cities are growing, attracting 60 and 16 percent of internal migrants respectively (Farole and Cho 2017). However, the standard of living does not reflect this higher level of productivity. The poverty rate in Dhaka and Chittagong City Corporations is 9 and 12.1 percent respectively, compared with 24.3 percent nationally.

**Many poor households in Dhaka live in slums, facing poor housing, insecurity, and overcrowding to be near work.** Slums have much higher levels of monetary poverty, more children out of school, and lower levels of access to water and sanitation services (Table 2.6). Stunting is also much more prevalent in slum areas (Govindaraj et al. 2018), and almost half of slum residents fear eviction. Work was the most common reason households in slums gave for moving to their current residence. People often move to slums from other slums (39 percent), and work was their main reason for moving (59 percent). This was more often the case for female respondents.

**Table 2.6: Poverty, education, and WASH in slums and non-slums, Dhaka**

	Dhaka CC	Slums
Poverty rate	9.0	23.3
Can write a letter	76	47
Has no schooling	24	42
Some primary schooling	16	41
Some secondary schooling	37	14
Some post-secondary	25	3
Years of education	6.4	3.1
School attendance: overall (6-18 years)	77	57
School attendance: primary (6-10 years)	96	85
School attendance: secondary (11-15 years)	80	60
School attendance: high secondary (16-18 years)	44	20
Percentage of male adults who are earners (18 plus)	86	93
Percentage of female adults who are earners (18 plus)	28	49
Dependency ratio	0.51	0.62
Water is piped into dwelling	96	76
Share a toilet	62	91

Source: HIES 2016 and Bangladesh Urban Informal Settlements Baseline Survey (BUIBS) 2016.

Note: WASH denotes water, sanitation, and hygiene.

**Mobility is limited for the poorest households in Dhaka, limiting their ability to gain from agglomeration.** The poorest households predominantly commute on foot, and their median commute is 40 minutes, which means they only have access to jobs within a 4-5km radius from where they live (Hill and Rahman 2019). Poorer households thus have access to fewer jobs or else must change their place of residence much more frequently than better-off households to access work. This carries considerable monetary and non-monetary costs for the poor. In unions where the number of garment jobs available is low (in the bottom quintile), 26 percent of households report a member working in the garment industry. In unions where the number of garment jobs available is high (in the top quintile), 61 percent of households report a member working in the garment industry.

**Women's mobility is even more constrained.** A distinct spatial pattern can be observed regarding where working women live. Compared to men, women who work are more likely to walk to their jobs, and they commute shorter distances. Outside of work, mobility for women is also limited. While 84 percent of men in slums and low-income communities go outside their community every day, only 40 percent of women do so. One-quarter of women in poor areas of Dhaka only leave their community once a month, and one in ten women never leaves her community. This means that there are many women in Dhaka that live life as if they were in a remote village, even though they live in one of the biggest cities in the world.

## PART 3

# Distilling the evidence and looking ahead

**This poverty assessment tells a story of remarkable progress that began decades ago and continues today.** Critical actions taken decades ago, allowed Bangladesh to perform economically and realize high levels of per capita GDP growth, as well as improve human development outcomes. Investments in human capital supplied a rapidly transforming economy with the labor force capable of benefiting from expanded job opportunities outside agriculture. These elements have been important contributors for the current success in poverty reduction.

**The evidence for the period 2010-2016 suggests that many of the traditional drivers of poverty reduction in Bangladesh continue to play a role.** Educational attainment, lower fertility rates, agricultural growth, and international migration have helped reduce poverty in rural areas. Growth in rural services and manufacturing re-emerged as important drivers of progress. In urban areas, lower fertility rates and welfare gains among manufacturing employees have been important for reducing poverty.

**However, the evidence also points to the limits of some of these drivers in bringing about progress in the last six years.** Gains in educational attainment in the West and urban Bangladesh were more limited and returns to education fell quite substantially in urban areas. The West also made less progress on reducing fertility rates. Agricultural growth has been lower and less poverty reducing than in the past, which was particularly challenging for the rural West where livelihoods are concentrated in agriculture, and where slower progress on structural transformation was made. International migration and remittances also fell.

**The rest of this section draws lessons from the preceding analysis to inform public policies and contribute to ending poverty in Bangladesh.** Of note, the

analysis undertaken here only aims to provide high-level recommendations. Subsequently, more specific sectoral analyses will allow for more detailed policy prescriptions.

**Agriculture remains central for the poverty story but must become more poverty reducing.** Growth in agriculture remains an important avenue for poverty reduction and to reduce spatial disparities in income. A large share of the poor in rural areas remain engaged in the agricultural sector. Fifty-six percent of poor households are engaged in agriculture, compared to 45 percent of non-poor households. In addition, even with the rise in non-farm employment, most households engage in agriculture at least part-time. Moreover, the reliance on agriculture is still much higher in the West than the East. Despite the broader economic transformation observed in rural areas, the overall structure of agriculture has not changed much. Rice dominates agricultural production and has driven much of the growth in productivity (Gautam and Faruquee 2016). There is significant potential to increase productivity and incomes by supporting more diversification to non-rice crops and non-crop agriculture. For crops other than rice, there is substantial room to reduce current yield gaps (Mondal 2011). In addition, improved connectivity (e.g., roads and bridges) can help more isolated and poorer areas benefit from higher productivity – through better access to inputs but also due to the incentives to diversify production in order to meet a more diverse demand (Gautam and Faruquee 2016).

**Yet, rural income growth and poverty reduction will center more on the growth of non-farm sectors.** Contrasting trends between Bangladesh’s West and East underscore the importance of the non-farm sector for rural poverty reduction. Key drivers of growth in the non-farm sector are connectivity and proximity to urban areas. Households in the East living near the large urban centers of Dhaka and Chittagong have shown the largest increase in non-agricultural labor income, followed by households in districts well connected to other cities (Gautam and Faruquee 2016). Better connectivity is a key factor to support non-farm employment and its productivity. Further improvements in fertility rates and education can also support the transition to off-farm activities.

**Even though poverty is still highly rural, it is urbanizing rapidly and that will require new solutions.** Nearly all analysis of poverty and income dynamics in the country has been focused on rural poverty and mobility. This has important policy implications. For example, the graduation approach that was developed by the Bangladesh Rural Advancement Committee (BRAC), and which has received international recognition, is focused on physical asset transfer and livelihood

support that are well suited for rural Bangladesh but that have little applicability in urban centers. Particularly for urban areas, there is a need for better data, more rapid monitoring and evaluation of policies and progress, and more data-driven decision making.

**In urban areas, a focus on increasing productivity in the informal service sector needs to complement a drive for job creation in manufacturing.** Manufacturing growth has been an important driver of rural and urban poverty reduction, but more manufacturing jobs are needed in urban areas. This could also help increase productivity in subsistence self-employment by drawing some people out of such self-employment activities and increasing the marginal profitability of new self-employment ventures. Manufacturing job creation needs to be pursued, while continuing the recent growth in manufacturing wages and improvements in factory working conditions. This means reducing other regulatory costs that firms may face as they establish and grow their businesses. Other actions to increase productivity growth in informal services are also needed, particularly in city areas where access to manufacturing jobs is low. Policy experimentation on how best to do this is essential for hastening urban poverty reduction. For example, policy experimentation will help identify the appropriate mix of infrastructure and neighborhood investments relative to targeted skills training and access to credit.

**In Dhaka, better public transportation and better housing close to employment hubs can help make labor markets work better and reduce spatial disparities.** Spatial disparities are significant in Dhaka, and the cost of getting to work is an important facet of such inequality. Transportation solutions can make it easier for poor households to commute to manufacturing jobs in the center and northwest of the city that are helping reduce poverty. Opportunities also exist to expand access to affordable housing in eastern Dhaka and to improve the quality of services in slums that are located close to employment hubs, offering quality housing to employees at affordable prices.

**As labor income is the main source of income mobility for households, increasing female labor force participation is important to support future poverty reduction.** Job creation in sectors that have traditionally favored women will likely help reverse the declining trend in urban FLFP, while other factors that may constrain FLFP can be addressed through targeted interventions. Childcare emerges as an important constraint in urban areas. This is a challenge that does not exist to the same extent in rural areas, where work is more often in and around the house or farm. Improving access to affordable, quality childcare services would facilitate women's engagement in the labor force. Some women

may also benefit from access to more remunerative self-employment opportunities that could be pursued from home. Technical and vocational education and training (TVET) and “soft skills” are an important correlate of the nature of work that women engage in. This points to the potential value of investments in technical and soft-skills training or mentorship programs. Such programs could help women find jobs suited to their needs and goals and learn the skills (including soft skills) required for success. Testing which interventions work will be important. In addition, evidence from poor areas of Dhaka underlines the potential value of approaches such as making travel safer, ensuring that public spaces are female-friendly, and making female work more socially acceptable. Such strategies may increase women’s ability to grow their families’ incomes and find greater personal fulfillment, without fear.

**Additional priorities include speeding progress on educational attainment, fertility reduction, and structural change in the rural West, along with human capital investments in urban areas.** Investing in human capital continues to be a priority to make the most of Bangladesh’s transforming economy and the changing nature of work. More advanced cognitive and socio-behavioral skills will become increasingly important in labor markets and will require solid human capital foundations (World Bank 2019). Programs to improve the skills of working-age adults can help, but there is also a need to address deficiencies in human capital investments for the next generation. Many urban children are out of school, and malnutrition rates among young children in urban areas are high. Progress in educational investments in the rural West has lagged. An analysis of district public spending in education provides insights on some policy priorities (Genoni et al. 2019).

**Improving school attendance rates and learning outcomes in poorly performing districts requires better-targeted education spending, as much as it requires higher levels of spending.** Currently, education spending per student for primary and secondary levels presents large variations across Bangladesh, which is not correlated with attendance rates and internal efficiency indicators. Only when spending translates into lower student-to-teacher ratios do results appear to improve. However, Bangladesh’s student-to-teacher ratios remain generally sub-optimal compared to those in other countries (Genoni et al. 2019). This suggests that higher-quality education spending, not just increasing the overall budget, should be a priority for further progress in poverty reduction.

**Addressing norms, expectations, and perceptions around the benefits of schooling may reinforce progress.** According to HIES 2016, many households do not see value in education investments. About 51 percent of households with

primary-age children out of school report lack of interest or else the children's age as the main reasons for not attending. Similarly, four in ten secondary-age children out of school report lack of interest or being too old to go back as their main reasons. Work reasons follow (cited by one in four children not attending school), particularly for males. Family chores and marriage become an important reason for women not to attend secondary school (30 percent of women not attending). Similar reasons are found at the tertiary level of schooling.

**Safety nets could contribute more to poverty reduction in Bangladesh.** A third of poor households have access to social protection programs, compared to 18 percent of non-poor households. This suggests there is room to increase coverage and improve the quality of targeting. Coverage in urban areas is particularly low (Annex Tables A2 and A3), and safety nets for families with young children and elderly members could have a strong impact in reducing urban poverty. There is a natural life cycle to poverty, and well-designed safety nets can target support to households when they need it most: when children are young and when elderly household members must be cared for.

**The need for better data and data-driven decision making is more important now than before.** This is in part because Bangladesh's economy is becoming more complex and in part because gains are much more dependent on addressing behavioral constraints rather than traditional constraints of education and credit (female labor force participation is a case in point). Bangladesh is now also an economy where change is more rapid—three agricultural seasons is the norm now whereas three decades ago it was one—and there is more to lose from learning slowly. The need for policy experimentation has been noted at points in this section. The analysis has also highlighted areas where the existing database has been lacking (e.g. lack of data in urban areas, poor quality income data). There is a need for better data, more rapid monitoring of policies and progress, and more data-driven decision making.

**In sum, the country is facing new and re-emerging frontiers of poverty reduction—tackling urban poverty and poverty in the West.** What is needed today to push those frontiers is a step change that will require both traditional and new solutions. Not falling into the trap of complacency will be key to eradicate poverty in Bangladesh.



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# Data Description Annex

The Household Income and Expenditure Survey (HIES) is a comprehensive, nationally representative survey used to measure monetary poverty in Bangladesh. The HIES 2016/17 is the fourth round in the series of HIES conducted by the Bangladesh Bureau of Statistics (BBS) in 2000, 2005, and 2010. Before 2000, BBS monitored poverty using a smaller survey, the Household Expenditure Survey (HES), which, as its name indicates, only collected data on expenditure.

In Bangladesh, divisions are the first-level administrative geographical partitions of the country. As of 2016, the country has eight divisions: Barisal, Chittagong, Dhaka, Khulna, Mymensingh, Rajshahi, Rangpur, and Sylhet. For the poverty assessment, seven divisions are adopted, to be comparable across time. Each division is subsequently divided into 64 districts, or *zilas*. Each district is further subdivided into smaller geographic areas, with clear rural and urban designations. In addition, urban areas in the main divisions of Chittagong, Dhaka, Khulna, and Rajshahi are classified into City Corporations (CCs), and other urban areas.

A stratified, two-stage sample design was adopted for the HIES 2016/17 with 2,304 Primary Sampling Units (PSU) selected from the list of the 2011 Housing and Population Census enumeration areas. Within each PSU, 20 households were selected for interviews. The final sample size was 46,080 households (Ahmed et al. 2017). PSUs in the HIES 2016/17 were allocated at the district level. Therefore, the sample was stratified at the district level. Since there were a total of 64 districts in Bangladesh, the sample design included a total of 132 sub-strata: 64 urban, 64 rural, and four main CCs.

The HIES sample was also implicitly stratified by month. Data was collected over a year to capture seasonal variations in expenditure, expenditure patterns, and income. The HIES 2016/17 survey was launched on April 1, 2016, and field operations were completed on March 31, 2017. The previous HIES were also in the field for a period of a year but were collected in the same calendar year. As in previous years, there was an implicit temporal stratification of the sample with primary sampling units distributed by sub-periods (called terms).

The samples of the previous three rounds of the HIES were designed to provide reliable annual poverty estimates for the country's urban and rural areas

separately and the Statistical Metropolitan Areas (SMAs).<sup>21</sup> However, the HIES 2016/17 was designed to produce reliable poverty estimates at three different levels: (i) annual poverty estimates at the division level for urban and rural areas; (ii) annual poverty estimates for the country's 64 districts; and (iii) quarterly poverty estimates at the national level. This change implied quadrupling the sample size of HIES 2016/17, compared to previous rounds – from 12,240 in 2010 to 46,080 households.

The substantial increase in the sample size also required using a different sampling frame to accommodate the larger number of PSUs. The PSUs for all the previous rounds of the HIES were selected from the Integrated Multiple-Purpose Sample (IMPS) – a master sample updated after each Housing and Population Census. In the HIES 2016/17, the PSUs come from the list of Enumeration Areas (EAs) used for Bangladesh's 2011 Population and Housing Census.

The changes introduced in the HIES 2016 had implications for the comparability with previous HIES, as well as the use of specific information. We highlight the most relevant aspects for this poverty assessment. Overall, although these changes need to be kept in mind, they are unlikely to affect the main findings of this poverty assessment.

*Changes in the sampling frame affected the comparability of the survey strata across time and increased the likelihood of covering slum areas.*

The Post-Enumeration Check Survey (PECS) conducted after the completion of the 2011 Household and Population Census found that there was under coverage both in urban and rural areas, but this was more prevalent in urban areas. BBS thus used a two-step approach to adjust the 2011 census estimates. First, it reclassified urban and rural areas using the concepts of: (i) growth centers, (ii) urban agglomerations, and (iii) other urban areas. Second, it inflated all urban and rural counts from the 2011 Census of Population Areas to align with the PECS results. These two adjustments estimated the share of the urban population at 28 percent, which is the number that BBS has been using since then to produce official population projections and statistics. These adjustments (reclassification of areas and re-weighting) were also done in the HIES 2016/17 data to ensure a consistent urban share with the corrected 2011 census and with previous HIES rounds. However, 13 out of 2,304 enumeration areas were classified as rural when in fact they were urban. This classification error underestimates the urban share

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<sup>21</sup> In 2017 the country had 7 divisions: Dhaka, Chittagong, Barisal, Khulna, Sylhet, Rangpur, and Rajshahi.

of the population in HIES. The urban share that is calculated directly from the HIES microdata is 27.3 percent of the population, which is actually lower than the official share for 2011. The corrected share is 29.1 percent of the population, which is more consistent with the urbanization process observed in Bangladesh in the past years. The poverty estimates are also affected, though the changes are not statistically different from zero. Correcting for this classification error implies that the national poverty rate is 0.2 percentage points higher than the official poverty estimates. The urban poverty rate increases from 18.9 to 19.3 percent, and the rural poverty rate also increases from 26.4 to 26.7 percent. This poverty assessment reports the estimates correcting for the urban misclassification of enumeration areas.

Within urban areas, the comparability across time was affected as the concept of SMA was abandoned in the 2011 census. The concept of SMA was replaced by the concept of Rural/Urban/CC (RUC) in the 2011 Census of Population and Housing. Of the 64 districts, only in three does the old SMA concept not match perfectly with the new RUC: in the districts of Gazipur and Narayanganj in the Dhaka division (districts 33 and 67, respectively), and the district of Khulna in the Khulna division. For Gazipur and Narayanganj, a perfect match can be achieved by replacing all SMA areas to Other Urban areas. For Khulna district, however, a match is not straightforward, as the SMA area was divided into CC and Other Urban areas. In addition, all of the PSUs from the Khulna district available from the HIES 2010 come from SMA areas, and there is therefore no baseline for Other Urban Khulna district. For the analysis within urban areas, a reclassification was done to obtain a comparable trend for SMAs.

Another implication of the change in representativity and sampling frame is that the geographic strata used to compute the poverty lines are not comparable across time, and this implies that the price indices used to update the poverty lines are calculated using different strata in 2016. This particularly affects the update of the lines for the urban areas, especially the four strata that cover the City Corporations. A robustness check using the comparable strata translates into a higher urban poverty rate (24.7 compared to 24.3).<sup>22</sup>

Finally, the Bangladesh IMPS used to draw the samples from previous HIES excluded some geographic areas, such as urban slums. Therefore, the HIES 2016/17 has a higher likelihood of capturing slum areas.<sup>23</sup> The geographic informa-

<sup>22</sup> For more information see Ahmed et al. (2019), in the second volume of this poverty assessment.

<sup>23</sup> For details of the sampling design see Ahmed et al. (2017).

tion in HIES does not allow one to identify and separate the slum areas. However, this should be kept in mind when comparing poverty estimates, as poverty rates in slum areas are higher than other urban areas.

*The expansion of the sample size affected the quality of income information and limited its use for the poverty assessment*

Income data is always challenging to collect, but it appears that in the 2016/17 HIES the income data suffered from the increase in sample size and the change in the fieldwork protocols.<sup>24</sup> An analysis of the quality of the income data in HIES in 2016/17 compared to 2010 was conducted for this poverty assessment (Hill and Endara 2019b).

Information on whether the person is an earner can be obtained from the household roster (Section 1) and the employment roster (Section 4). In 2016, there is a significantly higher share of people that report being earners in the household roster but do not have information in the employment roster (7 percent compared to 0.45 percent in 2010). In addition, a larger share of respondents are listed as earners in the employment roster but are not classified as earners in the household roster (3 percent in 2016 versus 1 percent in 2010). It is possible that the earner or employment rosters are incorrect, but if not, there are about 13 percent of households in HIES 2016 with incomplete income data.

Because of the increase in the proportion of households reporting no earners and increased incompleteness of the data, there are more households reporting zero labor income (16 percent in 2016 versus 4 percent in 2010) and zero hours worked (12.4 percent in 2016 versus 9.5 percent in 2010). However, these zeros really reflect missing data. Given the higher prevalence of missing data, it is important

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<sup>24</sup> The data collection, entry, and transfer process for the HIES 2016/17 was conducted using paper questionnaires combined with CAFE (Computer-Assisted Field-Based Data Entry). The data entry system was combined with a data monitoring system for a selected set of variables important for poverty measurement. This data monitoring system fed from the compiled data to create a set of key indicators that were tracked on a continuous basis. The indicators that were tracked by team, term, division, and district included: number of households, household size, number of households with incomplete food and non-food consumption, number of households with incomplete durable items, number of daily food items consumed by households, number of weekly food items consumed by households, and number of non-food items and durables consumed by households. This information supported supervision of fieldwork and ensured that consumption data was complete and high quality for poverty estimation. However, other variables collected were not monitored, including income-related information. Ex-post analysis of the data indicate that the data entry of income-related variables suffered weaknesses due to lack of range checks and merging issues in the CSPro data entry program.

to be very clear when data is missing, rather than assuming income from a given source is zero when it is not reported.

To determine the type of bias the missing income data is likely to cause, we assess whether the missing data is systematic and in what ways. We find that the missing income data is systematic. Data is less likely to be missing in cities, presumably because of the greater reliance on employment other than self-employment. Data is more likely to be missing for better-off households in rural areas. Yet, there is no relationship between missing income and consumption in urban areas.

The analysis also indicates that the quality of wage income data, hours worked, self-employment income, and agriculture income is comparable with 2010. However, daily labor income has more missing data and is noisier. More work needs to be done to assess the quality of the crop production and income data. Yield and price data seem reasonable compared to 2010.

Finally, there are many instances of negative net income being reported: 14.3 percent of households reporting non-zero agricultural income have negative agricultural income, and 15.1 percent of households reporting non-zero non-agricultural income have negative non-agricultural income. The negatives do not seem to be systematic, no relationship with consumption or location is evident.

Overall, no large systematic error was found that undermines the 2016/17 income data entirely. The income data is less complete and noisier than the income data collected in 2010, with coding errors also limiting the number of observations for which accurate income data is recorded. Some households do not have complete income data, in comparison to a smaller proportion of such households in 2010. Richer households in rural areas in self-employment activities are more likely to be missing income data. It is important to correctly code this income data as missing and be aware of the limits of the income data in conducting analysis.

#### *Access to data*

The data and codes used to replicate the analysis presented in this poverty assessment can be accessed in [https://github.com/worldbank/BGD\\_Poverty\\_Assessment](https://github.com/worldbank/BGD_Poverty_Assessment)

# Annex Tables

Table A1. Characteristics of poor and non-poor households (average)

	Non-poor	Poor	Test of difference <sup>(1)</sup>	Test of difference <sup>(2)</sup>
<b>Demographics</b>				
Household lives in an urban area (%)	32.13%	22.72%	***	***
Household size	3.92	4.57	***	***
Household dependency ratio <sup>(3)</sup>	0.61	0.89	***	***
Age of household head	44.60	43.00	***	***
Household head is female (%)	13.88%	10.73%	***	***
Household head is married (%)	90.91%	91.24%		***
<b>Labor market</b>				
Share of adults who are earners	0.33	0.29	***	
Share of adults in agriculture	0.10	0.13	***	
Household head in agriculture (%)	28.19%	42.54%	***	Ref. group
Household head in industry (%)	19.06%	16.13%	***	***
Household head in services (%)	31.54%	25.60%	***	***
Household member has a chronic illness/disability	31.54%	24.26%	***	***
<b>Human capital</b>				
Household head is literate (can write a letter, %)	59.28%	38.54%	***	
Household head has no education (%)	41.47%	62.65%	***	***
Household head has some primary education (%)	8.55%	10.04%	***	***
Household head has completed primary education (%)	11.98%	10.50%	***	***
Household head has at least some secondary education (%)	37.89%	16.63%	***	Ref. group
<b>Assets</b>				
Household owns land (%)	35.20%	21.91%	***	***
Household owns a mobile phone (%)	93.93%	87.81%	***	***
Household has electricity (%)	80.72%	59.04%	***	***
Household has piped water (%)	13.92%	5.23%	***	***
Household has sanitary toilet (%)	28.79%	14.30%	***	***
<b>Transfers and credit</b>				
Household receives international remittances (%)	5.85%	2.03%	***	***
Household receives domestic remittances (%)	13.54%	11.51%	***	**
Household receives microcredit (%)	28.96%	33.56%	***	***
Household receives social protection program (%)	18.52%	31.69%	***	***

**Source:** Calculations using HIES 2000, 2005, 2010, and 2016. Note 1: Stars indicate whether mean for non-poor and poor is significantly different using a Wald test. Significance at the \*10%, \*\*5%, and \*\*\* 1% level. Note 2: Significance values are calculated for each year separately including division fixed effects. Significance at the \*10%, \*\*5%, and \*\*\* 1% level of probit regression correcting for the clustered nature of the errors. Note 3: Dependency ratio was calculated as the population aged zero to 14 and over the age of 65, to the total population aged 15 to 65.

**Table A2. Characteristics of rural poor and non-poor households (average)**

	Non-Poor	Poor	Test of difference <sup>(1)</sup>	Test of difference <sup>(2)</sup>
<b>Demographics</b>				
Household size	3.97	4.56	***	***
Household dependency ratio <sup>(3)</sup>	0.65	0.89	***	***
Age of household head	45.75	43.31	***	***
Household head is female (%)	14.64%	9.89%	***	***
Household head is married (%)	90.55%	91.76%	***	***
<b>Labor market</b>				
Share of adults who are earners	0.30	0.29	***	
Share of adults in agriculture	0.14	0.16	***	
Household head in agriculture (%)	38.08%	49.94%	***	Ref. group
Household head in industry (%)	14.81%	13.76%		***
Household head in services (%)	25.42%	21.55%	***	***
Household member has a chronic illness/disability	33.86%	25.14%	***	***
<b>Human capital</b>				
Household head is literate (can write a letter, %)	54.30%	37.54%	***	
Household head has no education (%)	46.52%	63.75%	***	***
Household head has some primary education (%)	9.34%	9.93%		***
Household head has completed primary education (%)	12.53%	10.53%	***	***
Household head has at least some secondary education (%)	31.48%	15.65%	***	Ref. group
<b>Assets</b>				
Household owns land (%)	40.41%	25.06%	***	***
Household owns a mobile phone (%)	92.50%	87.33%	***	***
Household has electricity (%)	73.23%	52.11%	***	***
Household has piped water (%)	2.13%	1.53%		***
Household has sanitary toilet (%)	21.54%	10.51%	***	***
<b>Transfers and credit</b>				
Household receives international remittances (%)	6.71%	2.12%	***	***
Household receives domestic remittances (%)	14.71%	11.98%	***	**
Household receives microcredit (%)	32.89%	34.58%	*	***
Household receives social protection program (%)	24.18%	35.77%	***	***

**Source:** Calculations using HIES 2000, 2005, 2010, and 2016. Note 1: Stars indicate whether mean for rural poor and non-poor is significantly different using a Wald test. Significance at the \*10%, \*\*5%, and \*\*\* 1% level. Note 2: Significance values are calculated for each year separately including division fixed effects. Significance at the \*10%, \*\*5%, and \*\*\* 1% level of probit regression correcting for the clustered nature of the errors. Note 3: Dependency ratio was calculated as the population aged zero to 14 and over the age of 65, to the total population aged 15 to 65.

**Table A3. Characteristics of urban poor and non-poor households (average)**

	Non-Poor	Poor	Test of difference <sup>(1)</sup>	Test of difference <sup>(2)</sup>
<b>Demographics</b>				
Household size	3.79	4.59	***	***
Household dependency ratio <sup>[3]</sup>	0.52	0.87	***	***
Age of household head	42.17	41.95		***
Household head is female (%)	12.26%	13.62%		***
Household head is married (%)	91.67%	89.50%	**	***
<b>Labor market</b>				
Share of adults who are earners	0.38	0.30	***	
Share of adults in agriculture	0.03	0.05	***	
Household head in agriculture (%)	7.31%	17.38%	***	Ref. group
Household head in industry (%)	28.03%	24.20%	**	***
Household head in services (%)	44.46%	39.41%	**	***
Household member has a chronic illness/disability	26.64%	21.27%	**	***
<b>Human capital</b>				
Household head is literate (can write a letter, %)	69.80%	41.93%	***	
Household head has no education (%)	30.79%	58.90%	***	***
Household head has some primary education (%)	6.87%	10.40%	***	***
Household head has completed primary education (%)	10.81%	10.41%		***
Household head has at least some secondary education (%)	51.43%	19.99%	***	Ref. group
<b>Assets</b>				
Household owns land (%)	24.19%	11.17%	***	***
Household owns a mobile phone (%)	96.94%	89.44%	***	***
Household has electricity (%)	96.53%	82.60%	***	***
Household has piped water (%)	38.83%	17.83%	***	***
Household has sanitary toilet (%)	44.10%	27.19%	***	***
<b>Transfers and credit</b>				
Household receives international remittances (%)	4.01%	1.72%	***	***
Household receives domestic remittances (%)	11.07%	9.93%		**
Household receives microcredit (%)	20.73%	30.08%	***	***
Household receives social protection program (%)	6.55%	17.84%	***	***

**Source:** Calculations using HIES 2000, 2005, 2010, and 2016. Note 1: Stars indicate whether mean for urban poor and non-poor is significantly different using a Wald test. Significance at the \*10%, \*\*5%, and \*\*\* 1% level. Note 2: Significance values are calculated for each year separately including division fixed effects. Significance at the \*10%, \*\*5%, and \*\*\* 1% level of probit regression correcting for the clustered nature of the errors. Note 3: Dependency ratio was calculated as the population aged zero to 14 and over the age of 65, to the total population aged 15 to 65.

Table A4 - International comparisons

Series Name	Bangladesh			India			South Asia			Low-income countries			Lower middle-income countries		
	2000	Circa 2011	Circa 2016	2000	Circa 2011	Circa 2016	2000	Circa 2011	Circa 2016	2000	Circa 2011	Circa 2016	2000	Circa 2011	Circa 2016
GDP per capita (constant 2010 US\$)	525	822	1062	827	1410	1874	800	1304	1696	486	644	700	1101	1716	2085
Urban population (% of total population)	23.6	31.2	35.1	27.7	31.3	33.2	27.4	31.2	33.1	26.2	29.9	31.7	33.0	37.4	39.6
Urban population growth (annual %)	3.6	3.6	3.3	2.5	2.4	2.3	2.8	2.6	2.5	3.8	3.8	3.9	2.8	2.7	2.6
Agriculture, forestry, and fishing, value added (% of GDP)	22.7	16.8	14.0	21.6	17.2	16.2	22.0	17.9	16.7	29.1	26.9	25.4	20.1	16.5	15.7
Employment in agriculture (% of total employment) (modeled ILO estimate)	64.8	46.6	41.1	59.6	49.0	45.1	58.9	48.5	44.8	71.2	65.5	63.5	53.8	44.8	41.0
Life expectancy at birth, female (years)	65.7	72.1	74.3	63.4	68.3	70.2	63.7	68.5	70.3	55.3	62.4	64.7	63.9	68.1	69.7
Life expectancy at birth, male (years)	65.0	69.3	70.9	61.8	65.8	67.1	62.1	66.0	67.2	52.2	59.0	61.1	61.1	64.7	66.0
Life expectancy at birth, total (years)	65.3	70.6	72.5	62.6	67.0	68.6	62.9	67.2	68.7	53.7	60.7	62.9	62.5	66.4	67.8
Mortality rate, infant (per 1,000 live births)	64.0	36.9	28.3	66.7	43.2	33.6	68.9	46.8	37.9	88.1	58.6	50.0	66.7	45.7	38.1
Fertility rate, total (births per woman)	3.2	2.3	2.1	3.3	2.5	2.3	3.5	2.7	2.5	5.9	5.0	4.7	3.5	2.9	2.8

Series Name	Bangladesh			India			South Asia			Low-income countries			Lower middle-income countries		
	2000	Circa 2011	Circa 2016	2000	Circa 2011	Circa 2016	2000	Circa 2011	Circa 2016	2000	Circa 2011	Circa 2016	2000	Circa 2011	Circa 2016
Literacy rate, adult total (% of people ages 15 and above)	..	58.8	72.8	..	69.3	..	57.7	65.5	71.0	50.7	56.8	60.6	66.7	72.2	76.4
Prevalence of stunting, height for age (% of children under 5)	50.8	41.4	..	..	..	..	51.3	40.6	35.9	47.0	39.2	35.9	45.5	36.2	32.2
Prevalence of undernourishment (% of population)	20.8	17.0	15.2	18.2	17.4	14.8	19.5	17.7	15.7	36.8	27.1	28.1	19.3	15.4	14.0
People using at least basic sanitation services (% of population)	25.3	41.4	..	21.7	38.2	..	23.9	40.6	..	19.9	27.2	..	35.4	48.0	..
Access to electricity, rural (% of rural population)	16.7	45.6	66.0	48.1	56.1	85.2	45.4	55.1	80.8	6.2	14.7	27.6	49.1	58.2	76.3
Access to electricity, urban (% of urban population)	81.2	90.2	94.0	88.7	92.9	98.5	88.7	93.2	98.3	46.2	59.9	67.6	89.9	93.2	96.1
Access to electricity (% of population)	32.0	59.6	75.9	59.4	67.6	89.6	57.4	67.0	86.6	15.1	27.7	39.9	62.5	71.1	84.1
School enrollment, primary, female (% net)			93.0	72.8	91.8		68.7	87.7	88.9	51.5	75.8	77.0	73.7	86.3	86.6
School enrollment, primary, male (% net)			88.1	86.2	89.2		82.4	87.1	90.2	61.0	81.3	81.5	82.9	86.7	88.9

Source: World Development Indicators.

