

THE IMPACT OF DEMOGRAPHIC TRANSITION ON SOCIO-ECONOMIC DEVELOPMENT IN BANGLADESH:

Future Prospects and Implications for Public Policy



European Union



**The Impact of the Demographic Transition on
Socioeconomic Development in Bangladesh:
*Future Prospects and Implications for Public Policy***

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PREFACE

The present UNFPA-commissioned report, *“The Impact of Demographic Transition on Socio-economic Development in Bangladesh: Future Prospects and Implications for Public Policy,”* provides an analytical review and policy recommendations on some of the key topics contained in the International Conference on Population and Development Plan of Action—beyond 2014. The ICPD Plan of Action calls on governments to integrate population dynamics into development planning and particularly to advance gender equality and women’s empowerment. It also highlights the importance of planning for the needs of special population groups, such as older persons, adolescents and youth, persons with disabilities, and indigenous people. Other areas of emphasis are urbanization, internal and international migration, sexual and reproductive health and rights, and education. This study was also undertaken in anticipation of important milestones coming up in 2015 as the MDGs draw to a close and a new post-2015 Sustainable Development Goals framework is being developed by the international community. In Bangladesh, 2015 assumes further significance as the Government is in the process of developing its 7th five-year Development Plan 2016-2021. An earlier Background Paper, based on the findings of this study, was submitted to the General Economics Division (GED) of the Ministry of Planning in support of preparations for this 7th five-year Development Plan.

This report highlights a number of critical population issues in Bangladesh, including the fact that gross population density has reached a level that is historically unprecedented for any nation-state in the world other than city-states. More positively, Bangladesh is experiencing a one-time “demographic window of opportunity”, that can be transformed into a “demographic dividend”, provided the right investments are made in young people, who now constitute 30 percent of the total population. This population cohort will continue to grow in absolute terms as the country adds at least 50 million more people to reach a staggering total population of at least 200 million by around 2041, even as fertility rates continue to decrease below replacement levels. The report also provides evidence for the wisdom of accelerating investments in quality education and health services, including sexual and reproductive health and family planning. Research undertaken for this paper furthermore confirms the urgency of addressing the root causes of gender inequality and gender based violence. Doing so will further unleash the potential of girls and women, who constitute 50 percent of the population, thus potentially increasing national productivity.

I would like to thank and congratulate all the eminent international and national scholars who contributed research and analysis to different chapters of the study. This report would not have been possible without the generous contribution of the European Union, to whom I extend UNFPA’s sincere gratitude.

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ABBREVIATIONS

ADB	Asian Development Bank
ANC	Antenatal Care
BBS	Bangladesh Bureau of Statistics
BDHS	Bangladesh Demographic Health Survey
BDT	Bangladesh Taka
BMET	Bureau of Manpower, Employment and Training
CBR	Crude Birth Rate
CDR	Crude Death Rate
CFW	Cash for Work
CPR	Contraceptive Prevalence Rate
DGFP	Directorate General of Family Planning
DGHS	Directorate General of Health Services
DMC	Dhaka Megacity
EU	European Union
FAO	Food and Agriculture Organization
FFW	Food for Works
FY	Financial Year
GDP	Gross Domestic Product
GED	General Economic Division
GHI	Global Hunger Index
GII	Gender Inequality Index
GNI	Gross National Income
GPI	Gender Parity Index
GR	Gratuitous Relief
HCR	Head Count Rates
HDI	Human Development Index
HIES	Household Income and Expenditure Survey
HNPSP	Health, Nutrition and Population Sector Programme
HPNSDP	Health Population Nutrition Sector Development Program
IHDI	Inequality Adjusted Human Development Index
ILO	International Labour Organization
IMPS	Integrated Multipurpose Sampling

IMR	Infant Mortality Rate
IPHN	Institute of Public Health Nutrition
LAPM	longer-acting and permanent methods
LFPR	Labour Force Participation Rate
MDG	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
MMR	Maternal Mortality Ratio
MoHFW	Ministry of Health and Family Welfare
MPI	Multidimensional Poverty Index
MR	Menstrual Regulation
NCD	Non Communicable Disease
NIPORT	National Institute of population Research and Training
NGO	Non-government Organization
OMS	Open Market Sales
PPP	Purchasing Power Parity
RH	Reproductive health
RMG	Ready Made Garment
SMA	Statistical Metropolitan Area
SME	Small and Medium Enterprises
SSN	Social Safety Net
SSNP	Social Safety Net Programmes
SPSN	Social Protection and Safety Net
TFR	Total Fertility Rate
UNDP	United Nations Development Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UK	United Kingdom
WHO	World Health Organization
USAID	United States Agency for International Development.
UN	United Nations
UNDESA	United Nations Department of Social and Economic Affairs
VGD	Vulnerable Group Development
VGF	Vulnerable Group Feeding
UNECA	United Nations Economic Commission for Africa



EXECUTIVE SUMMARY

INTRODUCTION: POPULATION, DEVELOPMENT AND PUBLIC POLICY

This report reviews demographic trends in Bangladesh, assesses the impact of these trends on socioeconomic development, and highlights the policy implications of the linkages between population dynamics and socio-economic development for policy and planning over the coming decades. The report describes the results of a series of population projections carried out for the purpose of this study in order to frame the possible demographic futures of the country and their implications. Based on these projections and the lessons learned from recent population-development interactions, the report concludes with a series of policy recommendations that may be incorporated into the 7th Five-Year Plan as well as future five-year plans and sector-based strategies.

The back-drop against which population trends in Bangladesh have been analyzed and policy recommendations formulated in this report is the model of the “demographic transition”. This model suggests that all countries undergoing socio-economic development pass from a situation in which birth and death rates are high and the population growth rate is low to a situation in which birth and death rates are low and the growth rate is again low. During the transition between these two stages is a period of progressively rapid population growth. From a policy perspective, the demographic transition model highlights the challenge that developing country governments face during the period of accelerating population growth. In short, ***how can a country ensure that it successfully passes through the transition period without experiencing a decline in the average level of living and hopefully improving it.*** The key issue for this study concerns how Bangladesh has managed the transition period so far and what challenges lie ahead given that the transition has some years left to run.

Population and development perspectives

From the 1950s up until the early 1980s, macroeconomic perspectives on population and development were heavily influenced by the concept of a population-poverty “trap”. At very low levels of per-capita income, it was argued, small improvements in welfare would result in reduced mortality leading to further population growth, which would return per capita income to its previous level, thus creating a “vicious circle”. Unless the rate of economic growth could receive a boost to overcome the trap and break the cycle of “circular causation”, poor countries experiencing rapid population growth were destined to remain poor. The population trap concept also stimulated public policies on the demographic side as well as the economic. If rapid population growth rates could be reduced directly by providing family planning services to those who might otherwise not have access to them, then the rates of population growth and economic growth might be brought into closer alignment and the population growth rate could potentially drop below the rate of economic growth, and the growth in per capita income would receive a boost. In some developing countries, including Bangladesh, such views led to the introduction of poorly formulated and sometimes coercive

family planning programmes; but such programmes were eventually modified by public opposition, both domestic and foreign. The question of whether, and if so how, Bangladesh has escaped the population-poverty trap is the main theme of this report.

Bangladesh: The national context

Formulating policies to address population and development relationships requires a sound understanding of the social, economic and cultural conditions of the country. Despite several decades of moderately high economic growth, Bangladesh remains a poor country today. Per capita GDP in nominal terms was \$1,033 in 2013 and Bangladesh ranked 186 out of 213 countries in per capita Gross National Income (GNI) placing it in the bottom fifth of countries ranked by income. Although incomes are rising, Bangladesh remains classified as a “low income” country by the World Bank, whereas neighbouring Pakistan, India, Sri Lanka and Bhutan have all graduated to “lower middle-income” status.

But the actual poverty rate and the number of persons considered to be poor in Bangladesh varies widely according to the definition of poverty employed. Based on the international standard measure of “extreme” poverty — less than \$US1.25 per day per capita — Bangladesh’s Poverty Headcount Ratio in 2010 was 43.3 percent, compared with 24.5 percent in the South Asian region as a whole. Using the \$2 per day consumption standard, 76.5 percent of the population was in poverty in 2010, a much higher figure. Using the ADB’s “Asian Regional Poverty Line” re-formulated in 2014 (\$1.51 per day per capita) 58 percent of Bangladesh’s population were in poverty as of 2010. The number of persons considered in poverty, based on these various estimates, ranges from 48 million to 86 million. Regardless of the measure employed, as of 2010 Bangladesh has the highest poverty rate in the Asia-Pacific region. More positively, the headcount poverty rate has been declining steadily over the past two decades according to all poverty definitions.

Bangladesh’s level of social development based on MDG and similar indicators compares favourably with neighbouring South Asian countries. However, Bangladesh has done comparatively poorly in antenatal care, births attended by a skilled medical provider and the proportion of underweight children. In other areas where Bangladesh’s development indicators are poor in absolute terms (such as maternal mortality and the percent of the population lacking improved sanitation) poor performance on these indicators is a characteristic of most South Asian countries.

Structure of the economy

The population of Bangladesh remains about 70 percent rural, while nearly 50 percent of the labour force is in agriculture. But the dominant economic sector in terms of output is “services”. The service sector generated 55 percent of GDP in 2010-11 with industry making up 27 percent and agriculture 18 percent. The share of agriculture in GDP has been declining over several decades, but relatively slowly, while the contribution of industry has been increasing. The on-going dominance of agriculture in the labour force suggests that the productivity of labour in agriculture, although rising somewhat over this period, remains comparatively low. The implied higher productivity of labour in the services sector, largely urban-based, provides strong incentives for rural-urban migration.

Social structure and organization

Bangladesh’s rural agricultural economy remains based on a small-holder or “peasant”

mode of production which most likely accounts for its low level of productivity. Population pressure combined with an initial distribution of land that was highly unequal has resulted in the number of land holdings less than 1.5 acres increasing through time while the number of holdings above 2.5 acres has been decreasing. There is little indication of significant accumulation of land-holdings up to a scale that would permit a more industrialized form of production through economies of scale. Complete landlessness has increased from 20 percent in 1968 to an estimated 40 percent today, but holdings of less than half an acre of land now characterizes another 39 percent of rural households who have land. These trends have made the family-based mode of production increasingly unviable. This in turn has implications for future population change because children are more likely to be a liability than an asset for the landless or urban poor household. As the economic value of children has declined, the desired family size has declined accordingly.

Another consequence of increasing landlessness, declining farm size and the decline in the family mode of agricultural production is fracturing of the family as individual members seek alternative forms of employment or attempt to supplement their low agricultural incomes. Rural-urban migration, overseas contract labour migration, rural-urban commuting, circular and seasonal migration and petty trading are among the activities that family members engage in today. The use of such household survival strategies is clearly associated with population growth, which has pushed population density to an extremely high level. While caste is no longer an important basis for social organization, the distribution of wealth and income has becoming increasingly unequal since the 1990s based on emerging class relations.

Gender relations and equality

The social and economic position of women has improved in recent decades in part because of women's increasing labour force participation rates. The expansion of the Ready Made Garment (RMG) industry has provided new opportunities for women to find wage work in urban areas, though women's employment has also increased in agriculture and services. The traditional seclusion of women has given way as the need for alternative sources of income outside of agriculture has intensified. The value of women's labour has risen and with it their social status. Nevertheless, gender inequality remains a serious impediment to women's advancement. Bangladesh remains a highly "patriarchal" society. Women are subject to harassment and discrimination in their new workplaces. While there is presently a gender balance in primary and secondary school enrolment rates, women are poorly represented in higher education (less than one-third of university students are female) and higher level technical and managerial positions. In rural areas, women's economic participation in the economy has been advanced by micro-credit schemes but these programmes have done little to address broader inequalities. Among the structural constraints to women's autonomy and success in the labour market is the practice of child marriage, which limits access to education and employment while making young women married to older husbands more vulnerable when facing domestic violence.

Geography, climate, resources, environment

It is impossible to exaggerate the importance of the unique population-environment relationship in Bangladesh. The country's location on the Indo-Gangetic plain has historically provided favourable conditions for subsistence agriculture, but population density reached 1,015 persons per square kilometre in 2011, three times the density of India and

seven times China's. Bangladesh is the only major country to have such high population density while half the labour force remains dependent on agriculture for their livelihood. Bangladesh's exceptionally high population density makes it a "special case" among developing countries and places it at great risk of reaching saturation in terms of its ability to absorb further population growth.

Although the population of Bangladesh has increased by 83 million persons since independence, the land under cultivation ("net cropped area") has declined by about 7 percent. There is no "land frontier" remaining in Bangladesh that would allow the supply of land to be increased through reclamation or other works. It is estimated that 26,000 people per year are losing their land due to the effects of flooding and erosion and those who lose their land either have to migrate to towns or cities or resort to living on chars—lands or areas of land that are created during floods, or other marginal lands. Further population increase can only intensify pressure on the land, which will be greatly exacerbated by expected climate change, including potential sea-level rise. Salinization, water-logging and river bank erosion are among the processes that affect the human use of the land and increase the vulnerability of various population groups, particularly the poor.

In 2011, about 92.3 million people (64 percent of the total population) were exposed to flood hazard to some degree. More than two thirds of these were subject to low or moderate river flooding or low flash flooding, which are the processes by which the fertility of the soil has been maintained. However, about 10 percent of these (9.3 million) are exposed to severe flash flooding and river flooding with another 7.2 percent (10.4 million) exposed to severe tidal surge which produces inundation, a form of flooding that can have long-lasting effects. Future population growth will increase the size of the vulnerable population, although rural-urban migration and population re-distribution could mitigate these effects.

Urbanization

Urbanization remains relatively low in Bangladesh—28 percent of the population lived in an urban area in 2011—despite significant rural-urban migration. Past estimates indicate that in the largest metropolitan areas, 63 percent of the urban population growth rate of 3.5 percent was due to net migration, the balance to natural increase. More crucially, slum populations have been increasing at double the rate of urban areas. In Dhaka, 37 percent of the city's population was estimated to be living in slums, where conditions remain poor. Three-quarters of slum households live in one room and the median living area is less than 40 percent of that of non-slum areas. Slum dwellers are disproportionately poor, the vast majority being in the lowest two wealth quintiles. Access to sanitation and adequate garbage disposal in the slums is limited and recent migrants form the poorest groups.

Population and development challenges

Studies conducted in the decade following independence and up to the turn of the century, reflected a general expectation among informed observers and researchers that Bangladesh's population-development situation was dire and the prospects for improvement through sustained development were poor. Bangladesh appeared to be a text-book case of a country in a population-poverty trap. A wide range of features of Bangladesh society were considered inimical to sustainable development, including weak local level government, the low position of women, early and universal marriage, the low demand for and use of contraception, low levels of education and literacy, declining real wages in agriculture, increasing landlessness, a low level of urbanization, minimal avenues for upward social mobility

and limited prospects for export-oriented industrialization. Observers of the Bangladesh situation, including several demographers, held out little hope of the country being able to employ any of the “escape routes” that had allowed other Asian countries to avoid the population-poverty trap.

As this report will show, the dire expectations of such authors—widely shared by others at the time and since—have not all come to pass. A demographic “breakthrough” has occurred, with fertility now at a level (TFR=2.3) that would have seemed impossible as recently as the 1980s. Socioeconomic conditions in Bangladesh have improved remarkably since then, despite population increasing consistently at nearly 2 million people per year.

But Bangladesh currently faces a similar demographic prospect as it did four decades ago: namely, a future population 50 to 75 million larger than its current one. While the dynamics of population have changed, and age structures are more favourable to economic development than they were previously, population growth will nevertheless continue and this will have profound implications for development. While the population growth rate is currently half what it was in the 1980s, annual growth remains in the range 1.6-2.0 million per year and this will persist for some time to come. At the same time, many of the symptoms of demographic increase, such as increasing landlessness and low agricultural productivity, persist, as do many of the constraints to modernization of agriculture and broader industrialization. Furthermore, new constraints arising from high population density, overcrowding and congestion in cities have emerged. Bangladesh’s development prospects have clearly improved, but many challenges remain.

1: THE DEMOGRAPHIC TRANSITION AND ITS CONSEQUENCES

Over the 110 years (1901-2011) for which data are available, the demographic transition in the area that now constitutes Bangladesh has followed relatively closely the trends anticipated by the classic demographic transition model. The period 1901-1921 corresponded to “Stage 1” of the model, characterized by high birth and death rates and natural increase of less than 1 percent per year. “Stage 2” commenced in the 1920s as the death rate declined steadily while the birth rate remained at a high level. This period lasted until the mid-1970s, after which the birth rate began its decline. The stage of falling mortality and stable fertility lasted for 50 years, during which time the population growth rate accelerated (the so-called “population explosion”) to a peak of 2.7 percent per year. “Stage 3” began when the birth rate commenced its decline in the early 1970s. Bangladesh currently remains in “Stage 3” of the transition insofar as “Stage 4” in the classic model implies that the rate of natural increase once again declines to less than 1 percent per year. As of the 2001-2011 decade the annual rate of growth was approximately 1.4 percent. In short, the transition remains incomplete.

Over the course of the transition, the population of Bangladesh has increased five-fold, from about 29 million in 1901 to 150 million in 2011, and an estimated 156 million in 2014. Despite the falling population growth rate in recent decades, the annual increase has remained around 2 million per year for some time, partly because of the population “momentum” effect, arising from the changing age structure.

The mortality and fertility transitions

Key indicators ranging from the Crude Death Rate to the Infant Mortality Rate and Life Expectancy at birth show that Bangladesh’s mortality transition commenced as early as

the 1920s. Mortality trends since then have been discontinuous because of such historical events as Partition and the Independence War, but overall mortality has now declined to a relatively low level. Although further increases in life expectancy can be anticipated in the coming years, the ageing of the population will increase the crude death rate and dampen the population growth rate.

Fertility indicators show that there was little change to fertility levels during the first 50 years of the mortality transition. The Crude Birth Rate remained around 50 per 1,000 up until 1971 and the Total Fertility Rate fluctuated between 6 and 7 throughout this period. The onset of the fertility transition can be dated to the mid-1970s by which time the TFR had dropped to 6.3 from its peak of 7.1 in 1971. The TFR exhibited a steady decline for two decades after the mid-1970s and by the early 1990s women were having half the number of children they were having twenty years previously. Fertility decline “stalled” during the 1990s with the TFR remaining in the range of 3.3-3.4 for almost a decade. After 2000, however, the TFR began declining again and as of 2011 is reported as 2.3. The classic demographic transition model considered replacement fertility to mark the end of the fertility transition, but further decline to “sub-replacement” has occurred throughout the developed world and is now occurring in many developing countries as well.

In Bangladesh’s case, the fertility situation is now characterized by wide differentials between groups; the wealthiest and most educated women have sub-replacement fertility and the poorest and least educated women have the highest fertility. There are also wide regional differences; the Chittagong Division in the East has much higher fertility than Khulna in the West, and rural fertility is also higher than urban.

The specific historical factors responsible for Bangladesh’s fertility transition are a matter of some controversy with some attributing the primary cause to the introduction of family planning programmes while others point to broad-based social and economic development that has profoundly changed the incentives for child-bearing. Emphasis must also be placed on mortality decline as a major factor, but it took many decades after the inception of mortality decline in Bangladesh for fertility to commence its decline, and this long delay is the primary reason why the population of Bangladesh has grown to such a high level.

It is arguable that Bangladesh’s fertility transition was delayed by its status as an economically and politically subordinate component of Pakistan. Following “Partition” fertility in Bangladesh increased, whereas it either declined or stabilized in other South Asian countries, including India. It was only after independence that fertility began to decline and the pace of decline has been such that the current (2011) TFR is now lower than in India, Pakistan and Nepal while being similar to Sri Lanka’s.

What is clear is that Bangladesh’s fertility transition commenced during a period in which poverty levels were very high, a somewhat paradoxical situation. It has been argued by some that this can be explained by the changing nature of poverty, with earlier forms encouraging large family size while later forms favoured small families. That the Contraceptive Prevalence Rate in Dhaka’s slums is currently higher than in non-slum areas and that fertility in slum areas has fallen more rapidly in recent years than it has in non-slum areas provides some support for the hypothesis. But the generally lower fertility in urban areas and among those with higher levels of wealth and education does not. From a comparative international perspective, however, Bangladesh occupies a unique position as regards the relationship between fertility and poverty. No other developing country with a similar level of poverty in recent decades has been able to achieve a near-replacement level of fertility.

The demographic consequences of the demographic transition

Age structure

Over the course of its demographic transition, Bangladesh's age structure has gone through profound changes. The proportion of the population aged 0-14 rose to a peak in 1974 and has since declined significantly. By contrast, the proportion of the population in the labour force age group (15-59) has increased, declined and then increased again over the same period. The elderly population has also increased steadily over the transition period as a proportion of the total, rising from 4.4 percent in 1911 to 7.5 percent in 2011. These changing proportions are reflected in the trend in the dependency ratio which peaked in 1974 but by 2011 had declined to a point lower than it had been 100 years earlier. These are favourable trends for development.

Although the 2011 age structure is much more "mature" than in 1974, it is still the case that the 5-9 age group is the largest age group in the population, comprising a little over 12 percent of the total. As the projections presented in Chapter 3 indicate, it will take several decades for this cohort to work its way through the age structure and as it does it will contribute to the "momentum" factor that ensures that population growth will continue even though individual fertility has declined to a historically low level.

Geographical distribution

The geographic distribution of population in Bangladesh has remained relatively stable at the Division level but the most urbanized Divisions (Dhaka and Chittagong), along with Sylhet Division, have been increasing their share of the total population while all the other Divisions are losing share. As of 2011, one third of Bangladesh's population lived in Dhaka Division. Thus, the population is becoming more centralized.

Internal migration and the urban transition

The gradual decline in the proportion of the workforce dependent on agriculture has been associated with a rise in the share of the population living in urban areas. Unfortunately, the nature of the data on internal migration and urbanization available from the 2011 Census leaves much to be desired, and requires cautious analysis to avoid drawing inappropriate conclusions.

In 2011, just under 10 percent of the Bangladesh population were living in a Zila other than where they were born, suggesting a very low level of internal migration. However, this proportion varied widely from only a few percent in many Zila to as high as 51 percent in Dhaka, 41 percent in Gazipur, 24 percent in Narayanganj (both of them located within the Dhaka Megacity), 14 percent in Khulna and 12 percent in Chittagong. Dhaka has attracted the lion's share of lifetime migrants - Dhaka District alone attracted over 4 migrants out of 10 (42 percent) and Dhaka Megacity region attracted at least 5.6 migrants out of 10.

Internal migration is male-dominant with females migrating in smaller numbers than males, to different destinations and for different reasons. Female migration tends to be shorter distance and for family-related reasons, mostly on account of marriage, rather than for economic reasons. Gender differences in marriage patterns may well be a partial explanation for the rather surprising finding from the census data that, while rural to urban migration is very important, rural to rural migration is higher than might be expected given the very limited opportunities of finding work in other rural areas. Of course, marriage migration of

females within a Zila would not be recorded in the Census figures, but no doubt there is considerable marriage migration which crosses Zila borders.

The reality is that during the last 2 to 3 decades, population within rural areas of the Dhaka Megacity region (i.e. rural areas of Dhaka, Gazipur and Narayanganj districts) has been growing very rapidly (7 to 16 percent per annum). The density of population of these rural areas is even higher than that of many secondary towns. Most of the people (migrants and natives) living within these “rural” areas usually work at nearby or distant urban areas (within the DMC region) through commuting. These rural areas are rapidly changing from rural to urban fringe and then to fully urban settlements. Yet many areas within these districts were reclassified from urban to rural between the 2001 and 2011 population censuses. Therefore, large numbers of those recorded as rural-rural migrants, especially those who are living within DMC and three SMAs, are actually rural-urban migrants/commuters.

The analysis of urbanization is complicated by the difficulty of relating 2011 populations for many urban areas with equivalent areas in 2001 or earlier years because of changes in definition. For this reason, only rather basic analysis of urbanization trends is possible. The key point is that urbanization in Bangladesh has been gradual, with the proportion urban reaching 28 per cent in 2011, slightly less than the proportion urban in India.

Within the limitations of the available data, the major characteristics and trends of urbanization in Bangladesh appear to be: (a) increasing urban primacy as population becomes increasingly concentrated in the vicinity of the capital city, Dhaka; (b) the large urban centres have higher population growth rates than small urban centres with the exception of Feni, Cox’s Bazar and Savar—all of which have above average growth rates; (c) urbanization is regionally unbalanced with the development of urban settlements highly concentrated towards the eastern part of the country. More than two thirds of the urban population resides in the eastern part of the country where the country’s capital and main port city (Chittagong) are located. Urbanization in the western part of the country remains low.

Population density

An obvious consequence of Bangladesh’s population growth during the transition is that its population density has continued to increase. As the most densely settled country in the world apart from wealthy city states such as Singapore or Monaco, Bangladesh’s population density is extraordinarily high. At 1,015 persons per sq. km in 2011, the whole of Bangladesh is almost as densely populated as some large cities in Western countries. However, population density varies according to the agricultural potential of different areas and the level of urbanization. In rural regions, density is very high in floodplains where the soil is very fertile and supports diverse agriculture. But the acute population pressures that have built up on the country’s floodplains has precipitated migration to urban areas as well as to less densely populated rural and marginal lands, including hilly/forested areas, mangrove forest regions, *haor* areas (shallow wetlands), *char* lands (islands created by floodwaters) as well as hazard/disaster prone and climate stressed coastal regions.

2: SOCIO-ECONOMIC DEVELOPMENT AND THE DEMOGRAPHIC TRANSITION

This chapter focuses in more detail on Bangladesh’s development experience within the context of the on-going demographic transition. It is evident that Bangladesh has partly

escaped from the “poverty trap”. What is less clear is the extent to which it has moved beyond this minimal standard of progress.

Productivity of labour: agriculture and industry

The productivity of labour in agriculture, as evident in the trend of real wages, has remained historically low and did not begin to increase until the first decade of this century. Labour force growth, driven by population growth, has contributed to low productivity in agriculture. However, real wages in agriculture appear to have risen quite strongly since 2007-08. The gap in real wages between the agricultural and industrial sectors has been closing in very recent years.

Labour force growth and absorption

The working-age population (15 years and over) increased by over 2.1 million persons per year over the 2000-2010 decade. The rate of growth averaged 2.5 percent per year, considerably higher than the overall population growth rate. The rate of growth in the economically active population was higher – 3.3 percent per year – resulting from the rapid increase in the number of women expressing their willingness (or perhaps need) to work. The number of economically active women increased quite dramatically over this period; the female labour force increased by 8.6 million (100 percent) while the male labour force increased by 7.3 million (22.7 percent).

While the male labour force participation rate has fallen somewhat (84.0 percent in 2002; 82.5 percent in 2010), for females it rose sharply from 23.9 percent to 36.0 percent over the same period. The percentage of women economically active at ages 20-45 increased from around 25 percent in 2000 to around 45 percent in 2010. This increase was partly real, and partly due to more complete enumeration of unpaid family workers engaged in activities such as livestock and poultry raising. Of women’s employment in 2010, 65 per cent was in the agriculture sector, compared with 40 percent of men’s.

The rise in female employment was heavily concentrated in the category “unpaid family helpers”. In 2010, 56.3 percent of working women were unpaid family helpers (compared with only 7.1 percent of working males). Increased female employment in the RMG sector (almost all in the employee category) was only a small proportion of the increase in female employment, albeit an extremely important part in terms of its influence in modifying traditional attitudes to women’s employment, and changing the social context for women, particularly in urban areas.

In Bangladesh, measurement of women’s participation in economic activities in surveys remains a highly inaccurate exercise, and women’s economic activity probably continues to be underestimated. There is still considerable scope for raising the female LFPR; this has the potential to make a major contribution to economic growth, raising the incomes of poor families and improving women’s status in society, though these contributions are hindered by the discriminatory aspects of women’s employment conditions and wages.

The overall rate of labour absorption over the decade 2000-10 was just below 50 percent. That is, about 50 percent of the increase in the working age population were in employment and not underemployed by 2010. The other 50 percent were either unemployed, underemployed or not in the labour force. It needs to be stressed that many (probably most) of those who joined the economically inactive population were not actually seeking work or needing work.

Economic Growth and Poverty

GDP growth has comfortably exceeded population growth in Bangladesh, resulting in a healthy increase in per capita GDP. In the period since 1999, GDP has increased at an average rate of 5.9 percent annually, while allowing for population growth of 1.5 percent per year gives average per capita growth of 4.4 percent. The levelling-off of the population growth rate over the period 2001-2011 will have contributed to per capita income growth as well as producing an age structure more conducive to growth.

All available measures of poverty show a declining trend from the early 1990s to 2010. According to the national poverty estimate, poverty has declined by 44 percent over a period of nearly two decades. The main issue of contention is the current level of poverty, with the headcount poverty ratio in 2010 ranging from 76.5 percent to 31.5 percent depending on the definition employed. Poverty clearly remains very much in evidence. About 18 percent of Bangladesh's population remained in extreme poverty in 2010.

Who are the poor? The poverty rate declines sharply as educational level rises. In rural areas, the highest poverty rates are found among those with either no land or a holding too small to form a farm or even a garden. Finally, poverty is closely related to household size. Poverty rates rise with household size up to 9-10 persons per household and then decline. However, the direction of causality is a matter of some debate.

Although poverty has declined by most measures in recent decades, income inequality has nevertheless worsened over the past two decades. The share of the poorest quintile in national income declined from 6.5 percent in 1991-92 to 5.2 in 2010 and a similar decline is evident in both rural and urban areas.

International migration

The economic and social impact of temporary labour movement is extremely important. Between 10 and 16 percent of Bangladesh's labour force in 2010 was working abroad. Women constituted about 14 percent of the overseas contract workers going abroad in 2013. Increasing contract labour migration has been accompanied by a simultaneous flow of migrant remittances to Bangladesh. Annual remittance receipts through formal channels only (banks and money transfer services) were US\$13.9 billion in 2013, though this excludes the large volume of goods brought back from overseas or cash transferred by informal methods. But reported remittances alone were equivalent to 60 percent of earnings from garment exports, 53 percent of total exports, and were equivalent to 11 percent of GDP in 2013. The contribution of contract labour migrants to development in Bangladesh would be higher if migrants were more skilled and there was a demand for such skilled workers abroad.

Internal migration and urbanization

In the face of continuing population growth in rural areas, declining supply of farm land and shortage of employment opportunities, the cities continue to attract migrants, notwithstanding the difficult living conditions most of them encounter. The urban planning issues for Bangladesh are immense. Dhaka is currently ranked by the UN Population Division as the 11th largest urban agglomeration in the world. Over 30 percent of Dhaka's population live in slums, and a global liveability survey in 2014 by UK-based organization EIU ranked Dhaka as one of the least liveable urban centres among the 140 cities surveyed. But the

issues facing smaller cities and towns should not be overlooked. Shortage of resources for infrastructure development and maintenance of services, and scarcity of planning skills are faced by all these other cities and towns.

Notwithstanding the enormous problems faced in planning and managing the cities and towns, urbanization in Bangladesh can be considered to have contributed to development. It has enabled some of the surplus rural labour force to be moved into areas where their income earning opportunities are somewhat better than the prospects they faced in rural areas, and enabled others to survive when natural disasters forced them to move. Moreover, urban areas are well ahead of rural areas in terms of labour productivity and the indicators making up the human development index. Nevertheless, the high proportion of slum population and low incomes of many urban dwellers means that the move to an urban area represented a “least worst” choice for many. Fortunately, the relatively rapid pace of fertility decline averted a far more difficult situation than would have been produced by more rapid rural population growth.

Human Development

All components of the Human Development Index (HDI) have clearly improved since 1980, but per capita income more so than the other indicators. Nevertheless, Bangladesh remains in the “Low Human Development” category and its HDI ranking of 142 in 1980 remained virtually unchanged in 2013 when it was 143. The rate of improvement in Bangladesh’s HDI has been very reasonable (1.7 percent per year between 1990 and 2000) by developing country standards but still insufficient to advance the country into the “Medium Human Development” category. Bangladesh’s Gender Inequality Index (GII) (which measures gender-based inequalities in reproductive health, empowerment, and economic participation) was below the South Asia average. It ranked 111 out of 148 countries on gender inequality in 2012.

Education

The adult literacy rate has increased very slowly in Bangladesh—from 53 percent in 1998 to 59 percent in 2010 according to the Sample Vital Registration Survey. Illiteracy remains a major issue in Bangladesh and a significant constraint on development. While the net primary enrolment rate is now approaching 100 percent, only 44 percent of boys and 36 percent of girls completing primary education were functionally literate, indicating the poor quality of primary education. A surprising feature of Bangladesh’s educational situation is its low enrolment rates in secondary schooling. Secondary enrolment in Bangladesh has lagged well behind the South Asian region as well as other Asian countries such as China and Indonesia. At the tertiary level, from the 1980s up to 2011, the number of students enrolled in public universities increased more than ten-fold. In 2011 only 30 percent of the university students were female.

Health

A number of Bangladesh’s health outcome indicators have improved significantly in recent decades. Infant and under-five mortality rates, for example, have declined at or above the pace required to achieve the targets specified in the MDG framework for the 1990-2015 period, as has the Maternal Mortality Ratio (MMR). Demographic factors such as declining fertility and a decreasing proportion of births to high risk mothers have contributed to a

substantial decline in the MMR since 1990 along with improved access to and use of health facilities. Improved educational achievement among women of child-bearing age, higher incomes and reduced poverty rates have also contributed.

Although many of Bangladesh's health indicators have improved in a context of on-going (although declining) poverty (for example, the proportion of births delivered in a health facility rose from 9 per cent in 2001 to 23 per cent in 2010), others have shown less progress, including severe anaemia in children and pregnant women, the proportion of underweight children under five years, stunting among under-five year old children, and some reproductive health indicators.

Bangladesh's doctor to patient ratio has remained low over the past two decades despite improving trends. Bangladesh has consistently had half the number of physicians per 10,000 population as India and Sri Lanka and less than half the number of Pakistan. Bangladesh is lagging far behind other South Asian countries in terms of the ratio of nurses and midwives to population, and the ratio is unfortunately trending downwards.

Basic Services: Housing, Sanitation and Social Protection

Access to basic social services, including adequate housing, clean water and sanitation is far from universal in Bangladesh. Housing quality has been improving slowly, but in urban areas homeless people can be found sleeping at railway terminals and bus stations, at ports, and in empty markets, parks, and stairways. Access to hygienic toilet facilities is generally inadequate. In rural areas, the proportion of the population having access to safe water has increased from 77 to 84 percent, but it remained almost unchanged at around 87 percent in urban areas.

The Bangladesh Government's social protection and social welfare programme, which accounted for 15.2 percent of the national budget and 2.5 percent of GDP in 2009-10, is directed toward the chronically poor, pensioners, widows, war veterans, people with disability, transients and people vulnerable in special circumstances. It is impressive that Bangladesh, as a poor country, has been able to establish a comprehensive system of social welfare at this stage of its development, given the pressures of population growth. However, its effectiveness could be greatly improved. A multiplicity of programs under the SSNP umbrella has contributed to poor implementation arising in part from programme overlap and lack of resource allocation. The amount of benefit per household at the national level is small. The selection process of beneficiaries is lengthy, often influenced by political considerations, and has two major leakages—inclusion entry fee for beneficiaries and fraudulent muster rolls, especially in workfare programmes.

The expected changing age structure of population in Bangladesh will increase the pressure on the State to increase the allocation of funds to support the elderly. Currently, around 28 percent of the population aged 60 years and above are living below the national poverty line, while many older people are close to the poverty line and therefore vulnerable.

Bangladesh development in the context of the demographic transition

The Bangladesh economy has performed well, maintaining annual real growth rates around 6 per cent for the past two decades, but it is not certain whether this rate of growth can be maintained. While there has been some success in raising agricultural productivity and a degree of structural transformation, more dynamic development of the industrial

and service sectors is needed to draw a rising share of workers into higher-productivity work. Manufacturing and trade are largely concentrated in the garment sector with high vulnerability in the global market. To spur economic growth the industrial sector requires diversification.

Substantial progress in reducing poverty rates has been made, but further progress will require more of the unemployed, underemployed and informal sector workers to be drawn into higher productivity work. The formal sector has shown very limited absorptive capacity in recent years. The accelerated participation of women in the labour market is an encouraging development, but an even higher proportion of females than of males were in the informal sector.

There are major constraints and challenges to the acceleration of economic growth, including relatively low levels of human development, low enrolment and completion rates in secondary education, low investment-GDP ratio, infrastructure deficits and lack of good governance. Despite the progress of recent decades in women's health, education, nutrition, economic opportunities and political participation, women in Bangladesh remain far behind men on these indicators. Prevailing socio-cultural perceptions of and attitudes towards women are significant barriers to progress.

The allocation of resources to health and education remain low and a decreasing share of the total budget. This appears to reflect an insufficient recognition of the crucial role of these two sectors in development and the major challenges Bangladesh faces in upgrading them. While target indicators have been achieved in the health sector, issues of accessibility and coverage of public health facilities remain, adversely affecting the poorer segments of the society. In the area of social protection, the existing programmes are mostly rural focused, with a limited coverage, backed by meagre allocation and managed by a fragmented bureaucratic set-up. A new approach is needed to respond to emerging challenges.

There is no doubt that Bangladesh has coped with the potential threats of rapid population growth during the demographic transition rather better than many observers in the 1970s and 1980s thought possible. Over the next half century, the share of the working age population in the total population will be favourable for raising per capita production; the dilemma is that this positive factor will become strongly negative unless productive employment opportunities expand rapidly.

3: FUTURE POPULATION PROSPECTS AND THEIR POLICY IMPLICATIONS

Population projections for Bangladesh 2011-2061

New population projections were prepared specifically for this report. The projections cover the 50-year period 2011-2061. Three projections were prepared and these have been labelled the "high", "medium" and "low" variants. The same assumptions regarding future mortality and net migration (the latter assumed to be zero, because of lack of data) were used in all three projections, so the differences between the variants in terms of the total population size and age structure are determined entirely by assumed fertility trends.

The fertility assumptions can be summarised as follows

- High scenario: the TFR would remain constant at its present level (2.3) for the entire projection period.
- Medium scenario: the TFR declines to 2.1 ("replacement" level) in the 2011-16

period, to below replacement (1.9) by the 2016-21 period and remains at 1.9 through to 2061.

- Low scenario: the TFR declines to below replacement (2.0) during the 2011-16 period and to 1.6 by the 2016-21 period where it remains until the end of the projection period.

Projection results

Population growth

All three scenarios indicate that significant population growth is likely to occur in the coming decades. Under the high scenario an additional 115 million people would be added compared with an additional 76 million under the medium scenario and 51 million under the low scenario. These are all large numbers given Bangladesh's current and future development challenges. In the high and medium projections, population will still be increasing at the end of the projection period.

Age structure

The population aged under 15 years will experience absolute decline under the medium and low projections, particularly under the latter which would result in a decrease from 51.9 million in 2011 to 28.3 million in 2061. Under the high scenario the under 15 population would increase by about 5 million over the 50-year projection period.

The population in the core labour force ages (here defined as age 15-59) would increase significantly under all three scenarios. Relative to 2011, 65.8 million persons would be added under the high scenario, 44.1 million under the medium and 30.4 million under the low scenario. These additions to the labour force would present major challenges for Bangladesh—even under the low scenario.

The most dramatic change to be expected in the future is the increase in the elderly population, defined conventionally as age 60 and over. The number of elderly would increase by five times, from 11.2 million in 2011 to 55.7 million in 2061. Given that the labour force will be growing at a much slower rate than the elderly population in the future, the number of workers per elderly person will decline. Between 2011 and 2031, the number of working age persons per elderly person will decline from 7.7 to 5.9, and by 2061 to between 2 and 3, depending on which fertility scenario is realized.

Population “momentum” will play a key role in future population growth. Bangladesh's age structure reflects its earlier, higher fertility and this will result in continued population growth for decades even if fertility falls below replacement level. By the year 2061, however, the effect of population momentum on growth will have largely played itself out.

Urbanization

Urbanization is closely associated with the demographic transition as well as a key driver of it. The 2011 census reported that the urban population had reached 41.9 million that year and comprised 28 percent of the population. This is well below the global average of 54 percent. The urban growth rate over the 2001-11 period appears to have been 2.9 percent per year, which is double the national population growth rate.

There are no “official” national projections of urban growth in Bangladesh. The only available urban projections are those carried out by the United Nations Population Division. These suggest that the pace of urbanization over the next 35 years (2015-2050) could accelerate somewhat relative to urbanization in the past. The rural population reached its peak of 105 million in 2010 and is projected to decline to 89.5 million by 2050, indicating that all future population growth in Bangladesh will be in urban areas.

Bangladesh is characterized by a high level of urban “primacy” with about 32 percent of the urban population residing in one Mega-City, Dhaka. In absolute numbers, Dhaka is projected to reach 27.4 million by 2030, an increase of 86 percent over the population in 2010. This implies an average annual growth rate of 4.3 percent. While other cities will also grow, their proportion of the total urban population is expected to decline or remain static.

Implications of future population change for socio-economic development

The most immediate and obvious impact of future population growth is an increase in population density. By 2056 under the medium scenario, or by 2041 under the high scenario, the population density in the whole of Bangladesh would be equivalent to the current density of Dhaka Division (1,520 persons per km²). This will present a formidable development challenge for Bangladesh, not necessarily through increased numbers of people seeking to make a living off the land, since all growth is expected to be in urban areas, but through the need to absorb a further 60 million people in Bangladesh’s already crowded cities and slum areas.

The relative stability of the 0-14 population will reduce pressure on institutions that cater to the needs of young children, most obviously health and education, but since secondary education is much more expensive than primary education, there may be little relief of pressure on the education budget. The 15-59 age range includes both secondary and tertiary students as well as economically active workers. For potential tertiary students the pressure on existing teaching and training facilities will increase, possibly leading to rationing of student places. For the increasing population destined for the labour force rather than school, the main challenge is to accelerate job-creation.

The relentless increase projected in the 60 and over population will place increasing pressure on the Government to introduce a universal social pension at a level that would prevent an elderly person falling into poverty, if not already amongst the poor. Government social safety net programmes for the elderly are currently insufficient both in terms of population coverage and per-capita payments. As far as family support for the elderly is concerned, the decline in the ratio of persons of working age relative to the older population will make it difficult to provide sufficient support for older family members whose support is labour-intensive, such as the chronically ill.

The Demographic “dividends”

The period during which the proportion of the population in the labour force ages is increasing relative to other age groups (as reflected in a declining dependency ratio), provides a one-time “window of opportunity”, for investing heavily in human resource development. As a population ages further, however, the dependency ratio increases again, the “window” gradually closes and the demographic dividend is no longer available. The dependency ratio is projected to continue falling for another 10-20 years before rising again as the population ages. The two decades from 2011 to 2031, then, represent the optimum period

for investing in human resources and establishing other enabling conditions for economic growth in Bangladesh. Taking advantage of the demographic dividend is an urgent imperative for Bangladesh. The dividend is not automatic; it is achieved only if the appropriate policies and development strategies are pursued.

If the benefits of the demographic dividend are achieved, per capita income will rise and with more persons economically active, the savings rate will also increase. As people grow older they will tend to save and invest to provide financial security in their old age, which will result in the accumulation of wealth and investment capital. If Bangladesh can harness the people's motivation to save and invest by creating a positive investment environment, economic growth can be sustained indefinitely, even when the dependency ratio is increasing. This benefit is usually referred to as the second demographic dividend, and can be maximized if incentives are provided for people to accumulate private savings during their working lives. The State can also play a further role here by establishing a "Sovereign Wealth Fund" to help finance future pensions.

In summary, a population of 200 million 20-25 years from now appears almost inevitable given the doubtful prospects for further rapid fertility decline in Bangladesh. While the average desired family size has been falling steadily, the means available to couples to achieve their family size goals are lagging behind, as reflected in the "unmet need" for family planning. However, the potential remains for the population to increase to 265 million by 2061 and still be growing.

4: CONCLUSIONS AND RECOMMENDATIONS

Population and development interactions in Bangladesh: Learning lessons from the past

Though Bangladesh remains a country with many poor people and vulnerable in many respects, over recent decades, socio-economic development and demographic change appear to have interacted in a 'virtuous circle'. It is crucial to ensure that this positive interaction continues. Bangladesh has unique features, which makes it difficult to predict future trends on the basis of what has happened in other countries: (1) It has extremely high population density; (2) It is probably the poorest country to have succeeded in lowering fertility rates to near-replacement levels. Population momentum – the legacy of an earlier, high fertility age structure, will carry population growth forward well beyond the time when fertility falls to replacement level.

The fertility transition: what is the desirable fertility level?

Both the mortality and fertility transitions have contributed to development in many ways. For example, overall better health leads to improved productivity; because of more slowly growing youth population, educational efforts went further in raising enrolment ratios; lower fertility has enabled more women to enter the workforce. However, the population growth expected even in the low projection (52 million between 2011 and when growth ceases), and its implications for population density, labour force absorption, dealing with urban population growth, and environmental concerns, is daunting. To minimize further population growth, fertility substantially below replacement level would be desirable.

What is necessary to lower fertility to below-replacement level? Raising average age at marriage by two or three years will not necessarily reduce fertility very much, because it will still leave ample time for couples to have many children. However, greater maturity at the

time of marriage will likely lead to lower fertility for other reasons, including opening other potential roles for the woman, and a greater likelihood of avoiding unwanted pregnancies. Policy on age at marriage should use communications strategies advocating later marriage and legal approaches to enforcement of minimum age at marriage laws. Lengthening of the compulsory education period should also have a significant effect on age at marriage.

On the issue of reducing fertility within marriage, the key objective should be to reduce the level of unmet need for contraception through improved reproductive health services, because this means a reduction in fertility without in any way violating the principle of respecting a couple's reproductive preferences. Meeting unmet need will lead to Bangladesh's fertility falling below replacement level, even if age at marriage remains low. Long-acting methods of contraception should be made readily available for women with a long period of potential fertility who do not want more children. More effective counselling is needed about the advantages and disadvantages of different contraceptive methods and contra-indications for their use. Post-intervention care needs to be improved.

The mortality transition: how high can life expectancy go?

In order to raise life expectancy further, it will be necessary to continue with communicable disease programs that have been the main thrust to date, but also to modify health systems to cope with the shift in burden of disease towards those non-communicable causes of death that are more prominent in gradually ageing populations. To extend healthy life expectancy, the challenge of lowering morbidity and mortality levels among the poor must be placed at the top of the agenda. Their access to health facilities needs to be improved, both in terms of geographical distance but even more importantly, in terms of financial accessibility. It is time to be planning a comprehensive health insurance system that both lies within the government's fiscal capabilities but that also provides the poor with access to needed medical care.

Age structure and the demographic dividend: taking advantage of youth, building human resources

Bangladesh is about half way through the period when it has benefited and will benefit from the demographic dividend. Dependency ratios are expected to decline further in the 20 year period 2011-2031 (from 65 to 43) and to rise only slightly in the following 15 years (from 43 to 46). Thirty years from now, the dependency ratio will still be well below its current level of about 58.

The most basic contribution of the demographic dividend to development is in raising the ratio of workers to dependants, thus contributing to higher per capita incomes. But there are many others. The advantage taken of the dividend during the next three decades will be crucial in determining whether Bangladesh can enter the ranks of the middle income countries. Sound socio-economic policies are the key, but a particular case can be made for a major drive in educational investment, because of the levelling off in the number of school-aged children. This could enable improvements in both enrolment ratios and quality of education. This is not only an opportunity, but also a necessity, because Bangladesh is competing in a highly competitive international marketplace in which many other countries are taking similar steps.

Taking advantage of the second demographic dividend will require policies to promote both individual savings and the creation of a sovereign wealth fund to ensure that economic growth continues as the population ages.

Labour absorption, employment and underemployment: how will future population growth affect efforts to achieve “job-rich” economic growth?

There are many reasons why people are leaving the agricultural sector. One is forced movement – caused by river erosion, increasing salinity, etc. More generally, productivity—and wages—are higher in other sectors, providing an incentive to move to the city.

Can Bangladesh compete with other countries in expanding the industrial sector from a dangerous over-reliance on ready-made garments to other activities? Productive niches need to be found in which Bangladesh has (or can develop) a comparative advantage. Education and training will have a major role to play in any efforts to widen Bangladesh’s industrial and service sectors, by providing workers with the qualities needed to enable Bangladesh to compete in the competitive international marketplace for emerging industries.

Migration and urbanization

For Bangladesh to raise average levels of productivity substantially productivity in the agricultural sector will need to rise and/or there needs to be a net movement of workers out of agriculture. Such movement could be partly “in situ”, without permanent relocation from rural to urban areas, through the growth of non-agricultural activities in the rural areas. Valuable models are provided by China’s “in situ” urbanization through the growth of TVE (town and village enterprises), as well as the earlier experience of Japan, Korea and Taiwan, where urban-rural labour mobility through commuting and other mobility were key elements in the development process.

United Nations projections indicate that the rural population of Bangladesh will be declining from now on. With urban areas having to absorb the entire increase in Bangladesh’s population, a comprehensive urban and regional development strategy is needed. Dhaka is already one of the largest urban agglomerations in the world, with one third of its population living in slums, so other urban areas will have to take much of the brunt of the massive increase in urban population.

Food security will be a major issue as urban populations increase. Another increasingly urgent need is to improve their liveability for poorer citizens in cost-effective ways. This will require approaches involving physical planning, transportation policy, housing policy, and the harnessing of community resources in building cohesive communities.

International migration: what role in population dynamics and the economy?

Overseas labour migration has become an important element in Bangladesh’s employment situation, reflecting the search for better opportunities by Bangladesh’s burgeoning labour force. Labour migration affects Bangladesh’s demography and development by delaying childbearing and contributing remittances. Bangladesh should initiate skill development programs in order to raise the skill levels of those going overseas as contract workers, improve pre-departure procedures in order to ensure a smoother integration of workers into their overseas environment, and ensure that Bangladesh missions in key destination countries explore labour markets and protect the interests of Bangladeshi workers.

Ageing and social security: how to avoid impoverishment among the elderly and enhance welfare?

Ageing is the inevitable “downstream” consequence of fertility decline and the demographic bonus. Though, like many other countries, Bangladesh will “grow old before it grows rich”, this is something to be planned for rather than feared. By the time ageing reaches high levels in Bangladesh, those becoming elderly will be better educated and more healthy than at present, with a much higher level of economic development than at present, making more resources available.

But the situation will be manageable only if good use has been made of the intervening period, in terms of raising income levels, developing programs of active ageing, introducing appropriate income support programs and modifying health systems to adjust to the altered pattern of both communicable and non-communicable disease and disability resulting from a rising proportion of elderly in the population.

At present, only 10 percent to 24 percent of the poor receive Social Safety Net Programme benefits, and these schemes also suffer from mis-allocation, fraud and corruption. Ways need to be found of improving targeting and increasing coverage of the poor, within the fiscal capabilities of the Bangladesh government.

Gender, family and community: improving gender relations, building resilient families and communities

The ultimate goal of development planning is to increase human wellbeing. The aim of improving gender relations and building resilient and cohesive families and communities is as important as raising per capita incomes. Resilient families and communities will be crucial in ensuring that the needs of the elderly can be met through the contributions of state, family and community.

The situation of women in Bangladeshi society has been improving, but there is a long way to go. The greater involvement of women in the workforce reflects important and on-going changes in social norms. However, issues of gender-based violence, teenage marriage and childbearing, limited autonomy of women in the family, lower wages for women than for men in comparable work, and the destitution and neglect of many widows all need urgent attention.

Population and sustainable development: environmental threats and ecological impacts

Given the shortage of cultivable land in Bangladesh, there has been no alternative in the past to movement of people into areas highly vulnerable to environmental disasters - low-lying areas affected by sea level rise, tidal surges in cyclones, flooding in the monsoon season, river erosion displacing farmers, among others. If global warming continues as predicted, rise in sea levels will bring further dangers to the approximately 30 million Bangladeshis living in vulnerable coastal areas and islands in the Bay of Bengal.

The likelihood that rural population growth has now ceased in Bangladesh should assist in achieving some kind of population-environment balance. A decrease in the rural population would be more desirable than mere stability, enabling some withdrawal from more disaster-prone areas. Environmental concerns of the growing urban areas will be a major challenge for the future.

Data improvements needed for effective population and development planning in Bangladesh

The quality of the available data for population and development planning does not always meet expectations, and it is not always made readily available to researchers. Multiple sources of data cover some indicators, such as maternal mortality and fertility rates. Major shortcomings are evident in the census data on urbanization and internal migration. There appears to be little systematic, comparative assessment of data quality that might guide researchers in their selection of data sources. A systematic appraisal of data needs and shortcomings should be conducted by the BBS, as a foundation for improving the data base for population and development planning.



Paddy field in Sylhet, Bangladesh. September 2013. Photo credit: K.M. Asad/Drik



INTRODUCTION

POPULATION AND DEVELOPMENT: POLICY AND PLANNING

This report reviews demographic trends in Bangladesh, assesses the impact of these trends on socioeconomic development, and highlights the policy implications of the historical linkages between population dynamics and socio-economic development for policy and planning over the coming decades. The paper reports the results of a series of population projections carried out for the purpose of this study in order to frame the possible demographic futures of the country. Based on these projections and the lessons learned from recent population-development interactions, the report concludes with a series of policy recommendations that may be incorporated into the 7th Five-Year Plan (2016-21) and future five-year plans as well as sector-based strategies.

It is important to acknowledge that making plans and policies with respect to population issues in order to enhance development is complicated by a wide range of factors, regardless of the national context. First, neither “development” nor “population” are simple concepts comparable to the rate of investment or the output of a commodity. On the contrary, both are compound, multi-dimensional phenomena. Certain dimensions of population may impact negatively on some dimensions of development and positively on others and it may be difficult to determine the net effect. Secondly, population change may be positive for development in the short-run and negative in the long-run, or vice versa. Furthermore, the relationships between population factors and aspects of development may change over time; the linkages between the two are only loosely deterministic and far from causal in the strict scientific sense. While many of these features are shared with other social sciences, population science is particularly prone to criticism due to the difficulty of establishing causation; population-development relationships tend to be probabilistic and conditional on other factors, only some of which are known. Part of the reason for this difficulty is the fact that the dynamics of population and their linkages to development outcomes are highly context-specific. The national context is particularly important but in a globalizing world the international system also plays an important role.

In the population-development domain, the standard model for addressing population change at the level of a whole society or nation-state is the “demographic transition” model. This model suggests that all countries undergoing socio-economic development pass from a situation in which birth and death rates are high and the population growth rate is low to a situation in which birth and death rates are low and the growth rate is again low. Rapid population growth occurs only during the transition from one relatively stable situation to another relatively stable situation. This model contains only three variables: the birth rate, the death rate, and the difference between them, which is the rate of natural increase or the rate of population growth not accounting for net migration. The demographic transition model forms the back-drop against which population trends in Bangladesh have been analysed in this report and policy recommendations have been formulated.

From a policy perspective, the demographic transition model provides a very clear formulation of the challenge that developing country governments face during the period of accelerating population growth. In short, ***how can a country ensure that it successfully passes through the transition period without experiencing a decline in the average level of living and hopefully improving it?*** In addressing this challenge governments typically adopt two types of policy interventions: “population influencing” policies attempt to change one or other demographic variable, either directly or indirectly, while “population responsive” policies attempt to ameliorate the problems created by past population trends that it is no longer possible to influence. The aim of both types of policy intervention is the same: to ensure that population change does not impact negatively on the standard of living—and especially that population change does not translate into increasing rates of poverty. The key issue for this report, then, concerns how Bangladesh has managed the transition period so far and what challenges lie ahead given that the transition has some years left to run.

POPULATION AND DEVELOPMENT PERSPECTIVES

While the demographic transition model provides a useful backdrop for understanding long-term population change, to understand the determinants of the transition (which is essential for policy-making) more complex models that link population trends to their actual causes and consequences are required. These models are not discussed in great detail in this paper but it is useful to distinguish between four main perspectives on the interactions between population and development:

- The “macroeconomic”, focused on the economy and society as a total system;
- The “microeconomic”, which focuses on the family or community level;
- The “population-environment” perspective, which considers the impact of population on the natural environment, including the depletion of non-renewable resources and the degrading of the ecological systems and the renewable resources on which human life depends;
- The social perspective, which focusses on such issues as poverty and social inequality, gender inequality, unwanted fertility, and the denial of reproductive rights and services.

In each of these perspectives, the key question is: how are population variables (growth, age structure and geographical distribution) translated into a development outcome? Of prime importance—what is their specific contribution to preventing increased rates of poverty, which is a real possibility under conditions of rapid population growth.

While the present report addresses each of the four perspectives indicated above, the primary emphasis is on population-development linkages at the macro- or country-level. However, there are significant variations in approach within the macro perspective that are relevant to the present paper and require some articulation.

From the 1950s up until the early 1980s, approaches to population and development were heavily influenced by the concept of a population-poverty “trap”. At very low levels of per-capita income, it was argued, small improvements in welfare would result in reduced mortality leading to further population growth, which would in turn return per capita income to its previous level (Nelson 1956). Thus, poor economies would remain poor unless the rate of economic growth could receive a sudden boost to overcome the “trap” and break the cycle of “circular causation”. The population-poverty “trap” formulation influenced both

the theory and practice of development in the 1950s and 1960s. The key mechanism linking population to development was the rate of capital accumulation, which was believed to be the primary driver of economic growth. Population growth in this view depressed the rate of savings which in turn kept the rate of capital investment low, thus limiting the rate of economic growth.

The population “trap” concept was also partially responsible for stimulating public policies that operate on the population side rather than the socio-economic. If rapid population growth rates could be reduced directly by providing family planning services to those who might otherwise not have access to them, then the rates of population growth and economic growth might be brought into closer alignment and ideally the population growth rate would drop below the rate of economic growth, thus boosting the growth in per capita income. The relatively simple arithmetical model of the population-development relationship being a race between two rates of growth was appealing to many policy-makers and development specialists and this became the orthodox view for many decades up to the 1980s. In some developing countries the orthodox view led to the introduction of poorly formulated and occasionally coercive family planning programmes supported by the belief that the end justified the means. In most countries, including Bangladesh, such programmes were eventually modified by public opposition, both domestic and foreign.

A second school of thought within the macro perspective, which emerged in the 1960s, argued that far from being a constraint on development population growth may provide a stimulus to economic growth by encouraging technological innovation, particularly in agriculture (Boserup 1965). Extreme formulations of the benefits of population increase and



Farmers carrying bundles of ripen paddy. Photo credit: Sanjoy Shubro/Drik.

ever-larger populations subsequently emerged in the 1980s, exemplified by the work of the Simon (1981). Specifically intended as a rebuttal to the view that population growth would in the long run lead to the depletion of non-renewable resources and the consumption of renewable resources in excess of their capacity to regenerate, this school of thought argued that the “ultimate resource” is people. Larger populations create “economies of scale” both in production techniques and in enlarged markets for goods as well as making the creation of new knowledge more likely.

A third approach within the macro perspective (sometimes labelled “revisionism”) emerged in the 1980s alongside the ascendance of “neo-liberal” economic theory. As applied to the economic development of poorer countries, neo-liberal economic theory called for programmes of “structural adjustment”, stressing a reduced role for publically-owned corporations through privatization, the liberalization of trade, the floating of national currencies on the open market, reduction in the size of the public service, greater labour market “flexibility”, a reduction or elimination of government subsidies and the general promotion of “free market” solutions to economic problems. The adoption of such reform measures would, it was believed, accelerate economic growth in developing countries and thereby eliminate the population problem. In this formulation, the solution to population problems was believed to lie in the reform of a country’s economic *institutions* rather than in the provision of family planning services or advancing the status of women.

Qualified support for the “revisionist” perspective was provided by the U.S. National Research Council (Working Group on Population Growth and Economic Development 1986), which supported the view that inefficient, malfunctioning or non-existent markets were responsible for countries being unable to adjust to, or reap the benefits of, population growth and the economies of scale that larger populations provided. Partly as a result of this study as well as the reducing trend in fertility in the developing regions of the world, many economists and policy-makers concluded that population was more or less a “neutral” factor in development and this contributed to a weakening of support for population programmes.

According to Kelley and McGreevey (1994), the so-called “revisionist” perspective reflects a long-standing consensus among economists that while population growth generally has an adverse impact on development in poor countries it is extremely difficult to quantify that impact and much depends on both the country context and the time-frame. In recent years economists have come to a better understanding of the role of “human resources” in accounting for economic growth and development. The concern about population growth diverting savings away from “productive” investment into “unproductive” expenditure on health and education is now understood to have been exaggerated. In fact, improved health and education are crucial for economic growth and development in their own right. If rapid population growth impedes the formation of “human capital” then this can act as a brake on development; but even in the context of rapid population growth it is possible to find ways to raise education levels and improve health conditions.

BANGLADESH: THE NATIONAL CONTEXT

Formulating policies to address population and development relationships requires a good understanding of the social, economic and cultural institutions of the country. In the case of Bangladesh such an understanding must begin with the historical fact that the nation-state of Bangladesh did not exist as a formal entity prior to independence in 1971. From that perspective the country is only 44 years old. From 1947 up to independence the geographical region that is now Bangladesh was the Eastern half of Pakistan. From the beginning of British

rule in the 18th century, the area of present-day Bangladesh formed much of the province of Bengal with a culture somewhat distinct from the rest of India. The fact that population and economic data are available for the geographical area now occupied by Bangladesh for the pre-1971 period makes it possible to describe long-term trends, which is essential from the perspective of the demographic transition. Obviously, however, only the policies of the governments of the nation-state of Bangladesh as presently constituted, both past and present, have immediate relevance.

The state of socio-economic development

Despite several decades of moderately high economic growth, Bangladesh remains a poor country. This has important implications for population dynamics and the demographic transition. Per capita GDP in nominal terms was \$1,033 in 2013 and Bangladesh ranked 186 out of 213 countries in per capita Gross National Income (GNI) placing it in the bottom fifth of countries ranked by income (World Bank 2014a). In South Asia, only Afghanistan and Nepal ranked lower than Bangladesh in GNI per capita. Although incomes are rising, Bangladesh remains classified as a “low income” country by the World Bank, whereas neighbouring Pakistan, India, Sri Lanka and Bhutan have all graduated to “lower middle-income” status.

Poverty

Based on the international standard measure of “extreme” poverty—less than \$US1.25 per day per capita (PPP)—Bangladesh’s Poverty Headcount Ratio in 2010 was 43.3 percent, compared with 24.5 percent in the South Asian region as a whole (World Bank 2014b). Using the \$2 per day consumption standard, 76.5 percent of the population was in poverty in 2010, a much higher figure. Over the 1989-2010 period, poverty declined by 43.2 percent using the \$1.25 standard while the \$2/per day poverty measure dropped by 17 percent, an average rate of 1.8 percent and 0.7 percent, respectively (Table 1).

Bangladesh’s national poverty line gives significantly lower rates of poverty than international definitions. By this measure poverty declined from 56.7 percent of the population in 1992 to 31.5 percent in 2010 (Table 1).

Table 1: Poverty Headcount Ratios using different measures of poverty, 1992-2010

Poverty measure	1992	1996	2000	2005	2010
<\$1.25 per day*	70.2	60.9	58.6	50.5	43.3
<\$2.00 per day*	93.0	85.5	84.4	80.3	76.5
National poverty line#	56.7	50.1	48.9	40.0	31.5
Asian regional poverty line**	--	--	--	64.5	58.0
Poverty line incl. food insecurity**	--	--	--	50.5	47.8
Poverty line incl. vulnerability**	--	--	--	56.4	50.9

Sources: *World Bank (2014c, 2014d); **Asian Development Bank (2014); # BBS (2011c).



A colourful boat sails through a char region. Photo credit: © UNICEF/BANA2009-00214/Noorani.

Recent revisions to the measure of poverty in Asia by the Asian Development Bank (2014) to take account of specifically Asian conditions, including food insecurity and vulnerability to shocks arising from drought, flood, earthquakes, storms, economic crises, etc., provide significantly higher poverty estimates for Bangladesh. Using the “Asian regional poverty line” (\$1.51 per day) developed by the ADB, Bangladesh’s poverty rate would have been 58 percent in 2010. Adjusted for food insecurity and vulnerability to natural disasters and other risks, Bangladesh’s Poverty Headcount Ratio in 2010 would be 47.8 and 50.9 percent, respectively. Whichever of these figures is employed, as of 2010 Bangladesh has the highest poverty rate of any country in the Asia-Pacific region (ADB 2014). It is important to keep this in mind when assessing population trends in the country, particularly the fertility transition.

Clearly the number of persons considered to be poor in Bangladesh would vary widely according to the definition of poverty. In 2010, the latest year for which comparative data are available, the range is from 86 million people using the ADB’s revised Asian regional poverty line to 48 million using the Bangladesh national poverty line.

Development indicators

Bangladesh’s level of social development and recent trends based on MDG and similar indicators (Table 2) shows that it compares favourably with neighbouring South Asian countries. In broad general terms it has advanced at or somewhat above the rate of improvement in South Asia as a whole, depending on which indicator is employed. However, Bangladesh has done comparatively poorly in antenatal care, births attended by a skilled medical provider and the proportion of underweight children. In other areas where Bangladesh’s development indicators are poor in absolute terms (such as maternal mortality and the percent of the population lacking improved sanitation) poor performance on these indicators is a characteristic of most South Asian countries. Part of the explanation for Bangladesh’s apparently spectacular pace of development over the past two decades noted by many observers (e.g., Economist 2012; Faarland and Parkinson 1976; World Bank 2013b) is that past expectations were uniformly low.

Table 2: Development indicators for Bangladesh in comparative perspective ca 1990-2013*

Indicator	Year	Bangladesh	India	Pakistan	Nepal
GNI per capita, \$PPP	1990	820	1,160	2,000	810
	2013	3,190	5,350	4,840	2,260
Life expectancy at birth	1990	55.9	56.3	55.8	49.4
	2013	69.0	65.0	65.0	68.0
Infant Mortality Rate (per 1,000 live births)	1990	99.6	88.4	106.1	98.8
	2013	33.2	41.4	69.0	32.2
Under 5 Mortality Rate (per 1,000 live births)	1990	143.7	125.9	138.6	142.2
	2013	41.7	52.7	85.5	39.7
Maternal deaths (per 100,000 live births)	1990	574	560	400	790
	2010	194	190	170	190
Infant immunization rate (%)	1990	65.0	56.0	50.0	57.0
	2011	96.0	74.0	83.0	86.0
Adult female literacy rate (%)	1991	40.8	47.8	35.3	35.0
	2011	55.1	--	42.0	46.7
Percent of children underweight	1990	66.0	52.8	39.0	42.6
	2013	31.9	43.5	39.9	29.1
Antenatal care (at least one visit) (%)	1993	27.5	61.9	25.6	15.4
	2012†	58.7	74.2	60.9	58.3
Births attended by skilled provider (%)	1991	5.0	34.2	18.8	7.4
	2013†	34.4	52.3	43.0	36.0
Percent of population with improved sanitation	1990	39.0	18.0	27.0	6.0
	2010	56.0	36.0	48.8	37.0

Sources: GED (2014); World Bank (2014a); UNESCO (2015); Population Reference Bureau (2012); UNDESA, Population Division (2013a); UNDESA, Statistics Division (2015).

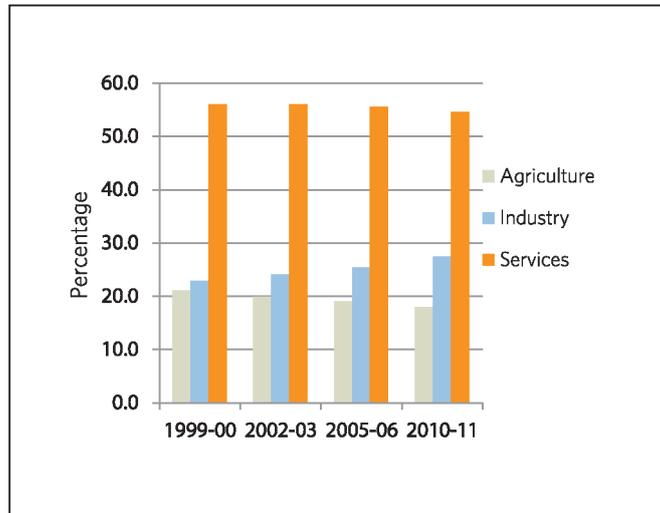
*Note: Reference year may vary slightly between countries. † The 2014 DHS, the results of which were officially released after the completion of this report (NIPORT et al. 2015), shows that 79 percent of women who had given birth in the three years prior to the survey had received at least antenatal care at least once and that 42 percent of births were attended by a medically trained provider. To maintain comparability with other countries the figures shown in this table have been left unchanged.

Structure of the economy

While the population of Bangladesh remains about 70 percent rural, and nearly 50 percent of the labour force is in agriculture, the dominant economic sector in terms of output is “services”. The service sector generated 55 percent of GDP in 2010-11 with agriculture making up 18 percent and industry 27 percent (Figure 1). The share of agriculture in GDP has been declining over several decades, as would be expected in a developing economy, but relatively slowly. The services sector is by far the largest sector, although its share is also declining, while the contribution of industry has been increasing. The expansion of banking, insurance, micro-credit, transportation and telecommunications accounts for the large services sector.

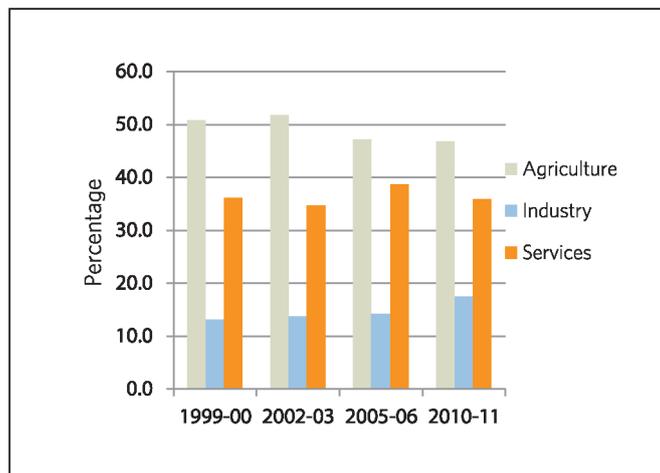
On the other hand, the on-going dominance of agriculture in the labour force, which is apparent in Figure 2, suggests that the productivity of labour in agriculture, although rising somewhat over this period, remains comparatively low. The implied higher productivity of labour in the services sector provides strong incentives for rural-urban migration, whether permanent, seasonal or circular.

Figure 1: Distribution of GDP by broad economic sector



Source: BBS, Unpublished tabulations

Figure 2: Distribution of the labour force by broad economic sector



Source: BBS, Unpublished tabulations

Social structure and organization

The fact that nearly 50 percent of the labour force remains in agriculture while the agriculture sector generates 18 percent of GDP suggests that poverty and low incomes are particularly concentrated in the rural sector. This raises questions as to how the rural sector is organized given that rural social organization is an important determinant of the demographic transition (McNicoll and Cain 1989; McNicoll 2006).

Bangladesh's rural agricultural economy remains based on a small-holder or "peasant" mode of production. Land reforms introduced shortly after independence failed to re-distribute land from those with large holdings to small farmers (Chaudhury 1989). Population pressure combined with an initial distribution of land that was highly unequal has resulted in dramatic changes in the distribution of farm-holdings by size over the past three decades. The number of holdings less than 1.5 acres has increased while the number of holdings above 2.5 acres has decreased. The land area occupied by marginal and small farms has increased significantly while the area occupied by "large" farms (2.5 acres and above) has declined (BBS 2013b).

The data on landholding suggest that the "family mode of production" has remained predominant and there is little indication of significant accumulation of land-holdings up to a scale that would permit a more industrialized form of production through economies of scale. Complete landlessness has increased from 20 percent in 1968 to an estimated 40 percent today (Chaudhury 1989; Mahbub 2014), but landholders having less than half an acre of land now characterizes another 39 percent of rural households who have land (BBS 2013b). An increasing proportion of the rural labour force is becoming poorly-paid "day labourers", effectively a rural proletariat. The nuclear and extended family has been fracturing as individual members seek alternative forms of employment or attempt to supplement their low agricultural incomes with a strategy of "occupational multiplicity" (Adnan 1998). Rural-urban migration, overseas contract labour migration, rural-urban commuting, circular and seasonal migration and petty trading are among the activities that family members engage in today. The use of such household survival strategies is clearly associated with population growth, which (along with a static supply of land) has increased population density to an extremely high level. The increasingly unviable family mode of production in turn has implications for future population change because children are more likely to be a liability than an asset for the landless or urban poor (Adnan 1998).

While the caste system has declined in importance in Bangladesh following independence, the distribution of wealth and income is becoming increasingly unequal based on emerging class relations. Although national poverty rates have declined significantly, the distribution of income and wealth has not improved significantly in recent years. While most Bangladeshis have benefited from economic growth and development, this does not mean that the economic gains from development are being distributed equally.

However, women's labour force participation has been increasing over the past two decades and this has improved the position of women in society. This is largely due to the rapid expansion of the garment industry, which has provided new opportunities for women to find wage work in urban areas, though women's employment has also increased in agriculture and services. Employers in the garment industry prefer to recruit young unmarried women as they are more "docile" than men and less likely to join trade unions (Rahman and Islam 2013). The garment industry provides direct employment for between 2 and 4 million women, depending on whose estimates are used, though the lower end of the range appears much more likely (see Box in Chapter 2). The traditional seclusion of women has given way as the need for alternative source of income outside of agriculture intensifies. In turn, this has raised the value of women's labour and accordingly their social status. The preference for sons has weakened as women are increasingly able to earn sufficient money to support their parents and fulfil the social roles previously reserved for males.

Nevertheless, gender inequality remains a serious impediment to women's advancement. Bangladesh remains a highly "patriarchal" society. Women are subject to harassment and discrimination in the workplace. While there is presently a gender balance in primary and

secondary school enrolment rates, women are poorly represented in higher education and therefore higher level technical and managerial positions. In rural areas, women's economic participation in the economy has been advanced by micro-credit schemes but these programmes have done little to address broader inequalities. Among the structural constraints to women's autonomy and success in the labour market is the custom of child marriage, which limits access to education and employment while making young women married to older husbands more vulnerable when facing domestic violence.

Geography, climate, resources, environment

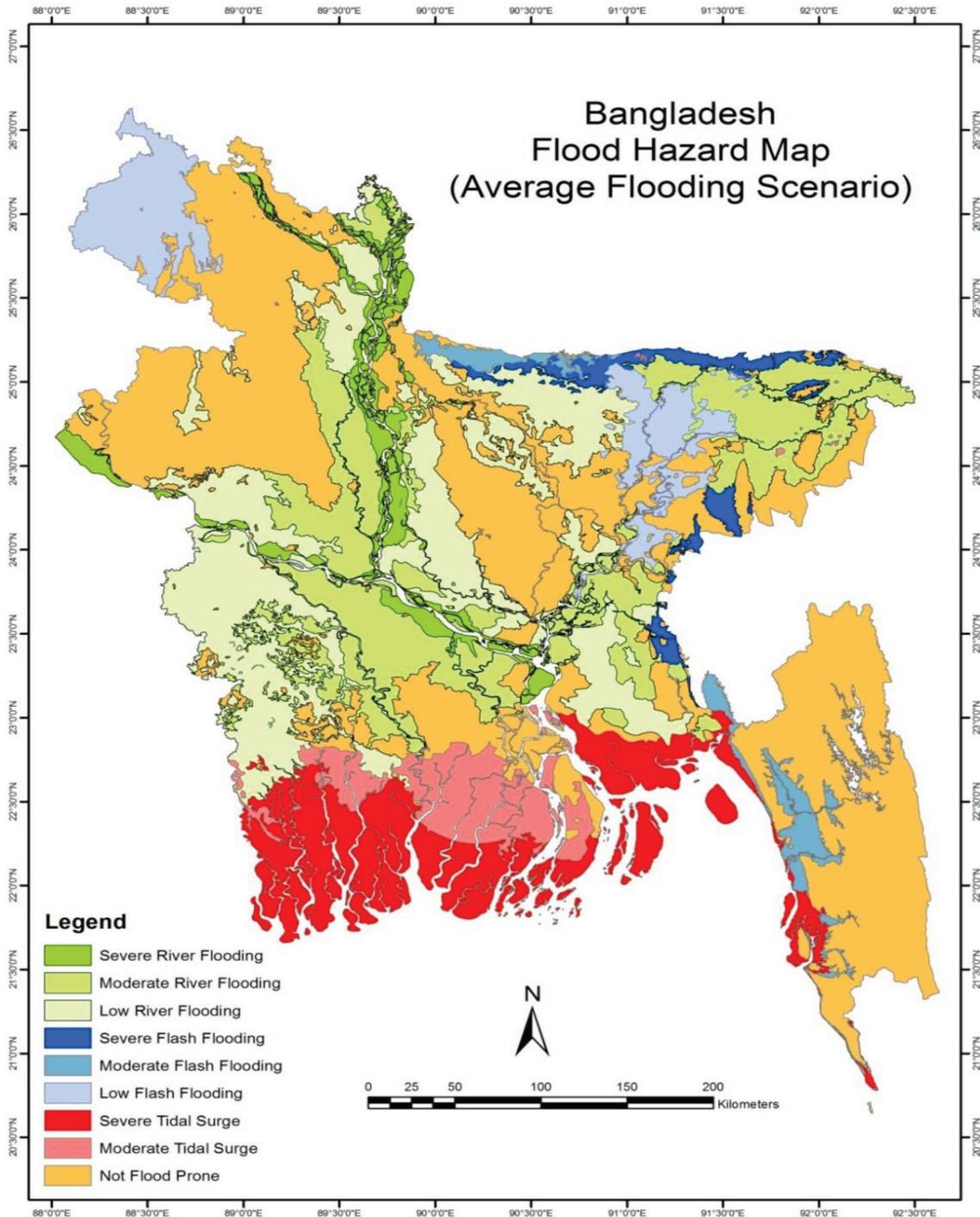
It is impossible to exaggerate the importance of the unique population-environment relationship in Bangladesh. The country's location on the Indo-Gangetic plain has historically provided favourable conditions for subsistence agriculture: a favourable climate, fertile soil, plentiful fresh water supply, abundant growth of vegetation with a great biodiversity within a small area have supported a vigorous peasant mode of production based on the use of family labour. But population density reached 1,015 persons per square kilometre in 2011, three times the density of India and seven times China's. While similar density can be observed elsewhere in Asia at sub-national levels (e.g., Java in Indonesia) Bangladesh is the only major country to have such high density while half the labour force remains dependent on agriculture for their livelihood. As Streatfield and Karar (2008) noted, Bangladesh's exceptionally high population density makes it a "special case" among developing countries and places it at great risk of reaching saturation in terms of its ability to absorb further population growth.

Although the population of Bangladesh has increased by 83 million persons since independence, the land under cultivation ("net cropped area") has declined by 6.6 percent.¹ Essentially there is no "land frontier" remaining in Bangladesh that would allow the supply of land to be augmented. It has been estimated that 26,000 people per year are losing their land due to the effects of flooding and erosion (Hessel 2013). Those who lose their land either have to migrate or resort to living on chars—lands or areas of land that are created during floods, or other marginal lands. Such areas usually lack safe drinking water, sanitation, health and education services, or roads. The country and its people are now exposed to a wide range of climate-related risks. Acute population pressure on the country's floodplains causes rural displacement and migration to urban areas as well as to less densely-populated rural and marginal lands like hilly/forest areas, mangrove forest region, *haor* areas, *char* lands and even hazard/disaster prone and climate-stressed coastal regions. Further population increase can only intensify this pressure, which will be greatly exacerbated by expected climate change, including potential sea-level rise. Salinization, water-logging and river bank erosion are among the processes that affect the human use of the land and increase the vulnerability of various population groups, particularly the poor.

The scale of Bangladesh's exposure to flooding can be seen in Map 1 and the number of persons exposed to flood risks of varying degrees of seriousness is shown in Table 3.

¹ Estimated from data published in the Bangladesh Bureau of Statistics, *Statistical Pocketbook*, 2012.

Map 1: Areas affected various types of flooding



Source: Bangladesh Agricultural Research Council, accessed at: <http://maps.barcapps.gov.bd/index.php?t=ecological>

Table 3: Population at risk of flooding in 2011

Flood Category	Population at risk	Percent of population
severe flash flooding	2,513,398	1.7
moderate flash flooding	4,062,619	2.8
moderate tidal surge	4,737,522	3.3
low flash flooding	6,689,880	4.6
severe river flooding	6,828,615	4.7
severe tidal surge	10,353,453	7.2
moderate river flooding	5,775,667	17.9
low river flooding	31,361,084	21.8
Total flood prone	92,322,238	64.1
Not flood prone	51,721,448	35.9
Total population	144,043,686	100.0

Source: Calculated by A.Q.M. Mahbub from 2011 (sample) census data.

In 2011, about 92.5 million people (64 percent of the total population) were exposed to flood hazard to some degree. More than two thirds of these were subject to only low or moderate river flooding or low flash flooding, which are the processes by which historically the fertility of the soil has been maintained. However, about 10 percent of these (9.3 million people) are exposed to severe flash flooding and river flooding with another 7.2 percent (10.4 million people) exposed to severe tidal surge which produces inundation, a form of flooding that can have long-lasting effects. Future population growth along with expected climate change will increase the number of persons exposed to flood risk with negative consequences for agricultural output and livelihoods in general.

Urbanization

Urbanization remains relatively low in Bangladesh—28 percent of the population lived in an urban area in 2011—despite significant urban-rural migration. Past estimates indicate that in the largest metropolitan areas, 63 percent of the urban population growth rate of 3.5 percent was due to net migration, the balance to natural increase (Streatfield and Karar 2008). More crucially, slum populations have been increasing at double the rate of urban areas. In Dhaka, 37 percent of the city’s population was estimated to be living in slums. Although living conditions in urban slums have been improving in some respects, conditions remain highly inadequate. According to NIPORT et al. (2014), three-quarters of slum households live in one room and the median living area is less than 40 percent of that of non-slum areas. Slum dwellers are disproportionately poor, the vast majority being in the lowest two wealth quintiles. Access to sanitation and adequate garbage disposal is poor. Recent migrants form the poorest groups in slum areas.

The absence of significant urban planning and uncontrolled migration resulting in extremely high urban density in the poorest areas has contributed to deteriorating environmental conditions, particularly in the largest cities. Air pollution (related to traffic congestion)

drainage overflow, flooding and water-logging, poor sanitation and inadequate water supply are common in urban areas. It is likely that impoverished rural-urban migrants will find their quality of life little improved compared to the places they have left.

Population and development challenges

Studies conducted in the decade following independence and up to the turn of the century, reflected a general expectation among informed observers and researchers that Bangladesh's population-development situation was dire and the prospects for improvement through sustained development were poor (Faaland and Parkinson 1976; Arthur and McNicoll 1978; Chaudhury 1989; Khan 1988, McNicoll and Cain 1989).

Of the eight Asian countries, including Bangladesh, that Khan (1988) compared employing a simple model of the relationship between population growth and poverty, the author concluded that "Bangladesh is the most extreme example of demographic pressure leading to reduced person-land ratio, declining access to land, increased landlessness, and higher incidence of extreme poverty." The other countries in Khan's sample, including Pakistan, Thailand, Philippines, India, China, Taiwan and The Republic of Korea had each in their own way found ways to avoid falling into the population-poverty "trap" that seemed to characterize Bangladesh's situation. China, Taiwan and the Republic of Korea had implemented effective land reform programmes to prevent landlessness. Thailand and the Philippines had been able to expand the area of land in production because the land "frontier" was still open. Pakistan and Taiwan had developed rural industry that effectively absorbed surplus labour from agriculture. India's experience was similar to Bangladesh but its initial endowment of land per agricultural worker was much more favourable and poverty remained relatively stable. Pakistan and Taiwan were able to absorb more labour into agriculture. Pakistan was also an early adopter of international labour migration as a development strategy. Korea industrialized rapidly, successfully absorbing rural labour into export-oriented manufacturing.

Khan and the other authors cited above held out little hope of Bangladesh being able to apply any of the "escape routes" that had allowed the other seven countries to avoid the population-poverty trap. Chaudhury (1989) noted the "great dilemma" of the Bangladesh situation whereby "increasing pressure of population reduces steadily the size of inherited plots, but on the other hand, the majority of the rural households who own small pieces of land, find in a larger family size an important means for their upward mobility". For this author, both an agricultural and demographic "breakthrough" was required if Bangladesh was to feed its present population.

The argument that an agricultural and demographic breakthrough was unlikely in Bangladesh in the foreseeable future was laid out most systematically and forcefully by Arthur and McNicoll (1978). The demographic and economic circumstances that translated population growth into poverty, in their view, were likely to persist, largely because of the nature of Bangladesh's institutions. The initial endowment of land—more unfavourable than in any other Asian country—and the "unique environmental circumstances" of Bangladesh are important starting points of their analysis. Quite obviously the "static expansion" of population along Indonesian lines had limited scope because the land frontier had been reached early in Bangladesh. Other constraints they listed include:

- Local level government is weak and unable to implement national policy at the community level; government initiatives are captured by local elites who disproportionately benefit.

- Rural social organization is diffuse and fragmented without clear territorial or corporate features; this works against agricultural development where organization and cooperation are imperative.
- Women's position is low and they have little autonomy. Family life is characterized by early and universal marriage and the confinement of women in the domestic sphere. Child marriage (<16 years) is perpetuated by the need for social security: the earlier a son is born the more likely that he will be old enough to inherit land and provide support before his mother is widowed.²
- Although fertility is high (TFR=7 at that time), and contraceptive use is only 3.7 percent, demand for family planning is low.
- High fertility advantages the wealthy but the community suffers through low and declining real wages, the disadvantaged position of young women and the pressure on the next generation to find a means of subsistence.
- The prospects for providing women with the education needed to reduce their fertility, raise their age at marriage and adopt contraception are poor.
- The joint family system does not provide a mechanism for adjusting fertility levels to changing economic circumstances.
- Urbanization is low and avenues for social mobility are few;
- The prospects of Bangladesh entering into export-oriented manufacturing or other forms of industrialization are limited.

According to Arthur and McNicoll, these overall circumstances were likely to ensure that the population of Bangladesh would reach 160 million by year 2000. In the event, because fertility declined faster than they anticipated, it took until 2011 for the population to reach 150 million and the 160 million mark will probably not be reached until 2016.

As the following chapters will show, the dire expectations of these authors - widely shared by other observers at the time and since - have not all come to pass. A demographic "breakthrough" has in fact occurred, with fertility now at a level (TFR=2.3) that would have seemed impossible as late as the 1990s. Socioeconomic conditions in Bangladesh have improved remarkably since then, despite population increasing consistently at nearly 2 million people per year. Explaining how this occurred presents a significant intellectual challenge to researchers.

Despite significant progress, Bangladesh currently faces a similar demographic prospect as that highlighted by Arthur and McNicoll nearly four decades ago: namely, a future population 50 to 75 million larger than its current one. While the dynamics of population have changed, and age structures are more favourable to economic development than they were previously, population growth will nevertheless continue at a moderate pace and this will have profound implications for development. The population growth rate is currently half what it was in the middle of the transition, but annual growth remains in the range 1.6-2.0 million per year and this will persist for some time to come. At the same time, many of the symptoms of demographic increase, such as increasing landlessness and low agricultural productivity, persist, as do many of the constraints to modernization of agriculture

² Early age of marriage is not just a "cultural preference" in South Asia but is linked to the risk of becoming widowed in the context of the "joint family" system characterized by exogamous marriage.

and broader industrialization. Furthermore, new constraints arising from high population density, overcrowding and congestion in cities have emerged.

The following chapter will briefly outline the contours of Bangladesh's demographic transition in order to identify when and why the fertility transition in particular accelerated contrary to expert expectations. Chapter 2 outlines some of the socioeconomic trends that accompanied the transition as it proceeded—addressing in particular the issue of labour force absorption. In chapter 3 we report the results of population projections conducted for this study to assess the possible demographic futures of Bangladesh. The policy implications of the demographic prospects for Bangladesh, informed by the previous chapters, and the general recommendations are outlined in Chapter 4.

Key Points

- The challenge facing developing countries as they pass through the demographic transition is how to avoid increasing poverty resulting from rapid population growth;
- Bangladesh has the highest population density of any major country in the world;
- Although poverty has declined sharply in recent decades, Bangladesh remains a poor country. The present poverty headcount ratio ranges from 31.5 percent to 58.0 percent depending on which definition is used;
- The “services” sector predominates in economic output but 50 percent of the labour force is still in agriculture;
- Although recently rising, the productivity of labour in agriculture remains low;
- Bangladesh's extremely high population density makes it a “special case” among developing countries as the land frontier was reached (or exceeded) decades ago;
- Rural landlessness is increasing and the average farm size is falling because of population growth and the fixed amount of land;
- Most expert observers in the 1980s and 1990s were pessimistic about the prospects for development in Bangladesh because it appeared to lack the options available to other Asian countries;
- Among the conditions considered least conducive to development was the low position of women, as evident in the young age of marriage and childbearing, and very limited involvement in the paid workforce;
- Urbanization is low at under 28 percent and heavily concentrated in Dhaka where 37 percent of the population lives in slums;
- The population growth rate has declined to 1.4 percent per year but numerical growth remains high and will continue to range from 1.6 to 2.0 million per year for some years to come;
- Large numbers of people are losing their land due to the effects of flooding, river-bank erosion and salinity; the numbers affected by these problems will increase in future with climate change and population growth.



A Santal couple leaning against the mud wall of their home. Noagaon, Bangladesh. 2009. Photo credit: Mahmud/Drik

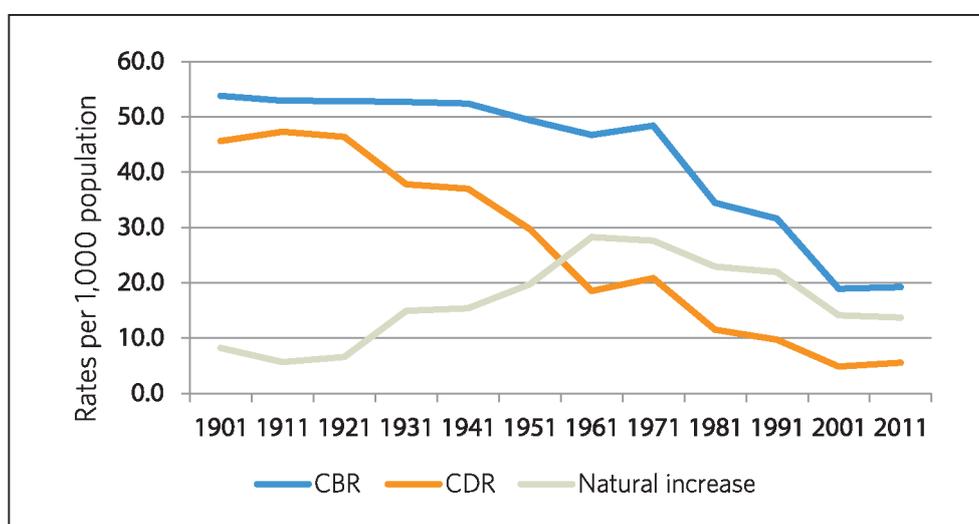


1: THE DEMOGRAPHIC TRANSITION AND ITS CONSEQUENCES

THE TRANSITION IN OUTLINE

The demographic transition in Bangladesh is encapsulated in broad outline in Figure 1.1, which shows the evolution of crude rates of birth, death and natural increase over a period of 110 years. The data follow relatively closely the trends anticipated by the classic demographic transition model. The period 1901-1921 corresponded to “Stage 1” of the model, characterized by high birth and death rates and population growth (natural increase) of less than 1 percent per year. “Stage 2” commenced in 1921 as the death rate declined while the birth rate remained high and lasted until 1971, after which the birth rate began its decline. This stage of the transition lasted for 50 years, during which time the population growth rate accelerated (the so-called “population explosion”) to between 2.5 and 2.7 percent per year. “Stage 3” began when the birth rate commenced its decline sometime after 1971. The population growth rate declined more slowly than the birth rate because the death rate continued to drop as well, maintaining a growth rate of above 2 percent per year until the early 1990s. Bangladesh currently remains in “Stage 3” of the transition insofar as “Stage 4” in the classic model implies that the rate of natural increase (i.e., growth excluding net international migration) once again declines to less than 1 percent per year. As of the 2001-2011 period, the rate of growth was approximately 1.4 percent. In short, the transition remains incomplete. Note that the independent state of Bangladesh has been in “Stage 3” for its entire national existence, stages 1 and 2 being completed during previous political arrangements.

Figure 1.1: Evolution of rates of birth, death and natural increase, 1901-2011



Sources: Bangladesh Bureau of Statistics (BBS), Census reports 1974-2011.



Woman transporting Jackfruit on boat. Bangladesh. Photo credit: Md. Kabirul Islam/Drik.

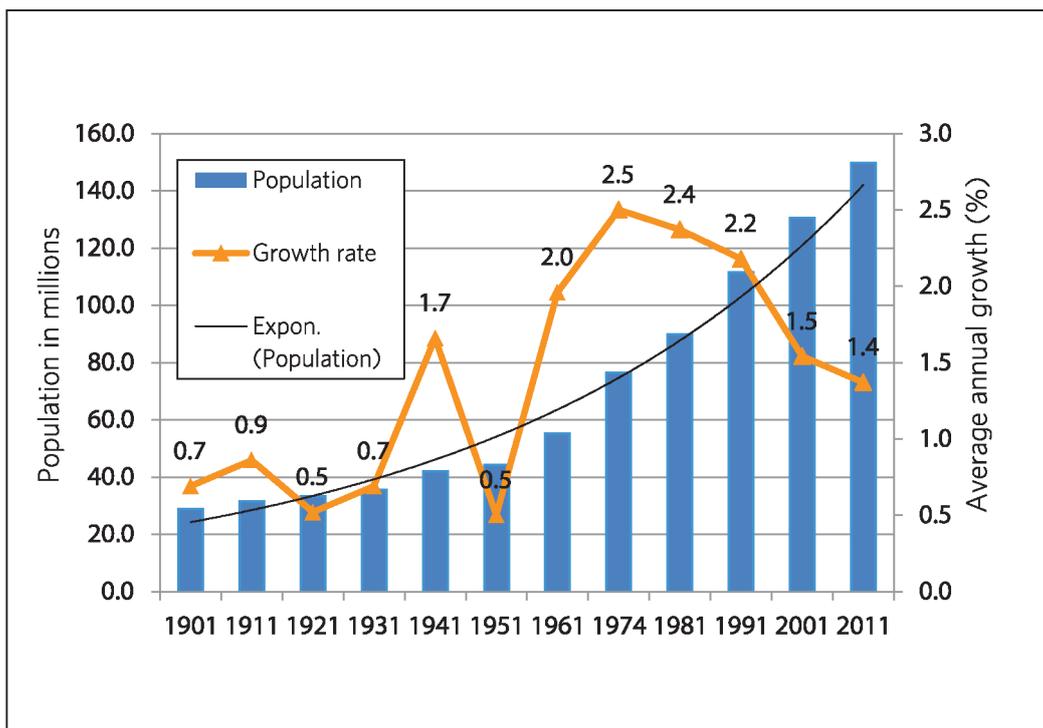
Another way of looking at the transition is in terms of actual population growth trends, which reflect the effects of international migration as well as natural increase. This perspective is shown in Table 1.1 and Figure 1.2 where it will be apparent that the population of the area that now constitutes Bangladesh has increased from about 29 million in 1901 to 150 million in 2011—a five-fold increase. Assuming that the 2001-11 intercensal growth rate of 1.4 percent has continued unchanged up to the present, the population would have reached 156.4 million in 2014, implying that about 6.4 million people (1.6 million per year) have been added to the population since the last census was taken in 2011.

Table 1.1: Population growth and gross population density 1901-2011

Census year	Population (millions)	Annual increase (thousands)	Intercensal growth rate (%)	Density (population/km ²)
1901	28.9	--	0.7	214
1911	31.5	260	0.9	225
1921	33.3	172	0.5	241
1931	35.6	235	0.7	285
1941	42.0	640	1.7	299
1951	44.2	220	0.5	374
1961	55.2	1,100	2.0	518
1974	76.4	1,631	2.6	609
1981	89.9	1,929	2.4	755
1991	111.5	2,160	2.2	876
2001	130.0	1,850	1.5	881
2011	149.8	1,980	1.4	1,015

Sources: Rahim (1969); BBS, Population Censuses 1974, 1981, 1991, 2001, and 2011

Figure 1.2: Population 1901-2011 and annual intercensal growth rates (%)

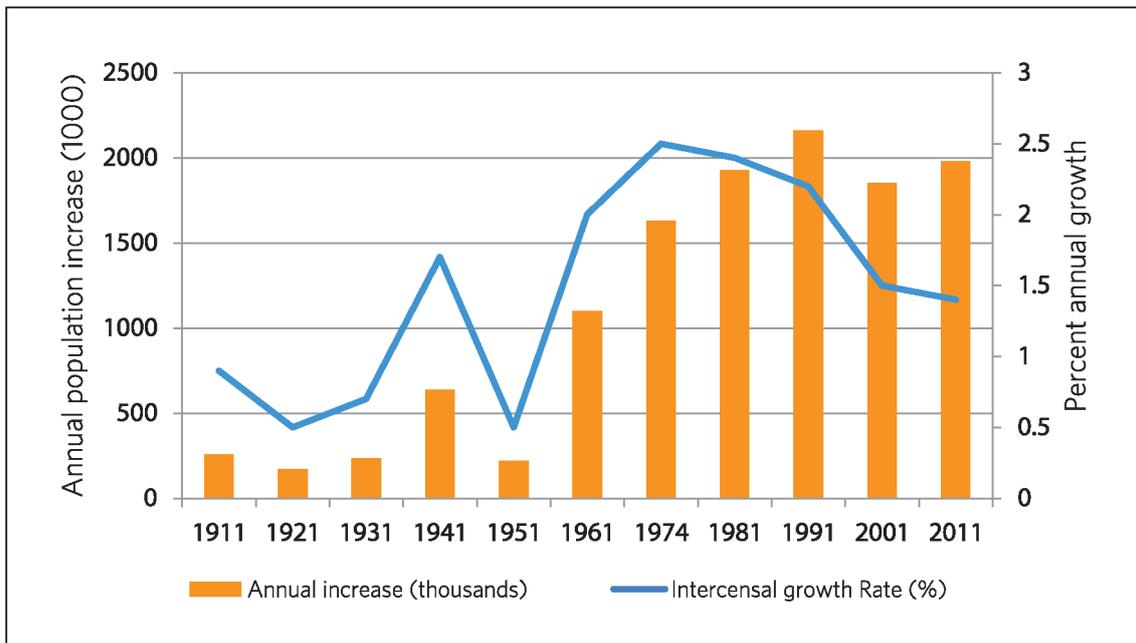


Source: Table 1.1.

An important feature of the transition, and of population growth generally, is that populations continue to grow, sometimes substantially, even though the annual growth rate has declined to a historically low level. During the period since independence, the intercensal population growth rate in Bangladesh has declined from 2.5 percent to 1.4 percent – a significant decrease. Despite this, the population has more than doubled over the same period because the base population is also rising.

The effects of this phenomenon are apparent from Figure 1.3. By 1974, the annual growth rate had reached 2.5 percent and the annual increase 1.6 million. Although the growth rate had declined by 1981, the annual increase climbed to 1.9 million by that year and to 2.2 million per year by 1991 and did not drop below 2 million per year until 2001. Even with a significantly lower population growth rate in the first decade of this century, the annual increase in population reached nearly 2 million persons per year between the censuses of 2001 and 2011. While the decline in the population growth rate is rightly applauded as a sign of successful socio-economic development, from a planning perspective (including the absorption of a growing youth population into the economy) it is the numerical growth that must be taken into account because this is where the real impact of population growth is felt.

Figure 1.3: Relationship between percentage and numerical population growth, 1911-2011



Source: Table 1.1

THE MORTALITY AND FERTILITY TRANSITIONS AND THE ROLE OF INTERNATIONAL MIGRATION

Logically, population growth (whether positive or negative) can only be caused by variations in the three components of population change, namely, fertility, mortality and migration. Socio-economic change and other factors can only affect population growth by working through these basic demographic components. In countries unaffected by significant net international migration, only mortality and fertility need to be taken into account. Although Bangladesh is not unaffected by international migration, most external migration takes the form of contract labour migration, which is generally circular. Circular migration does not generally have a direct demographic effect, unless a significant number of temporary migrants find ways of remaining abroad and do not return home. It is not known how many temporary contract workers from Bangladesh (or students studying abroad) are able to change their status to permanent or long-term migrants in this way. Circular migration may have a significant indirect impact on population dynamics, however. The absence of husbands for long periods, other things being equal, will tend to reduce fertility rates and returning migrants may well bring new ideas about family size home with them. Remittance flows can also have an indirect demographic impact by raising family income or wealth which in turn may result in lower mortality and/or fertility within the family.

Accurate data on net external migration from Bangladesh, which potentially has a direct impact on growth, are difficult to find. Estimates compiled by the United Nations Population Division (UNDESA 2013a) indicate that approximately 3 million persons emigrated from Bangladesh in the 1970-75 period, which covers the timeframe of the independence war and its aftermath. By the 1980-85 period, however, net movement had declined to about 43,000 per year. A further rise in net emigration to about 280,000 per year is suggested for the 2000-2010 decade. Assuming annual growth of 1.98 million over the last intercensal

period (Table 1.1), net emigration would have reduced the growth rate by about 14 percent over this decade. Put another way, annual growth in the absence of net emigration would have been 2.26 million per year instead of the 1.98 million actually recorded using census figures, and the population growth rate would have been 1.6 percent per year instead of the recorded rate of 1.4 percent. However, it is impossible to verify these figures using the standard demographic balancing equation.³

Given the uncertainty surrounding net external migration, we do not discuss it further in this chapter. However, international contract labour will be covered in Chapter 2 with a specific focus on its economic implications.

The mortality transition

The mortality transition can be measured by various indicators, each of which provides a perspective on changes in mortality within different risk groups. The broad general trend in mortality over the transition is already evident from the Crude Death Rate (CDR) in Figure 1.1. But the CDR is also affected by the age structure, which is responsible for the slight rise in the CDR over the past decade and is a consequence of population ageing. Life expectancy at birth provides a summary measure of overall mortality decline that is unaffected by age structure change.

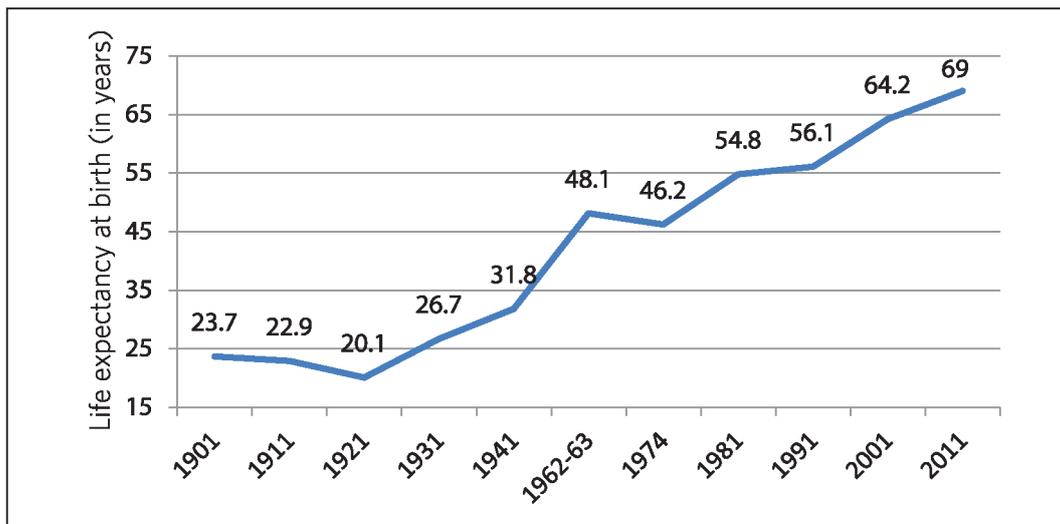
Life expectancy

Life expectancy at birth was extremely low up to the 1920s (“Stage 1” of the transition) and had reached barely 32 years by the 1940s (Figure 1.4). Such an extreme level of mortality would have resulted in powerful motives for childbearing that would have endured for some generations. Between 1941 and 1961 life expectancy increased by an additional 15 years, a significant improvement, despite the trauma of Partition. The period during which the war of independence occurred saw a decline of life expectancy by about two years, obviously caused by both casualties and civilian deaths due to the disruption of health services and a collapse in the level of living. The decade 1981-91 witnessed a slow recovery with life expectancy increasing by only 1.3 years. The subsequent decade (1991-2001) saw a more rapid improvement of 8 years and a further increase of 4.8 years by 2011 brought life expectancy for both sexes to 69 years. Females have achieved larger gains in life expectancy than males in recent years. Thus, the life expectancy of females reached 70.3 years in 2011 compared with 67.9 years for males, a gap of 2.4 years— similar to that found in developed countries.

The data on life expectancy confirm what is evident from the crude death rates shown in Figure 1.1, that the mortality decline in Bangladesh was somewhat discontinuous due to the effects of war, famine and natural disasters. But periods of slow improvement in mortality conditions have occurred well after the traumas of Partition and the war for independence. The slow-down in mortality improvement during the 1981-91 decade is particularly important as this preceded the decade during which fertility remained virtually constant. The two trends may be related given that mortality decline is one of the drivers of fertility decline.

³ Applying the equation to obtain net migration ($M+(P_{2011} - P_{2001}) - (B-D)$) to Bangladesh census and vital data does not verify the net emigration estimate of 280,000 per year.

Figure 1.4: Life expectancy trends, 1901-2011

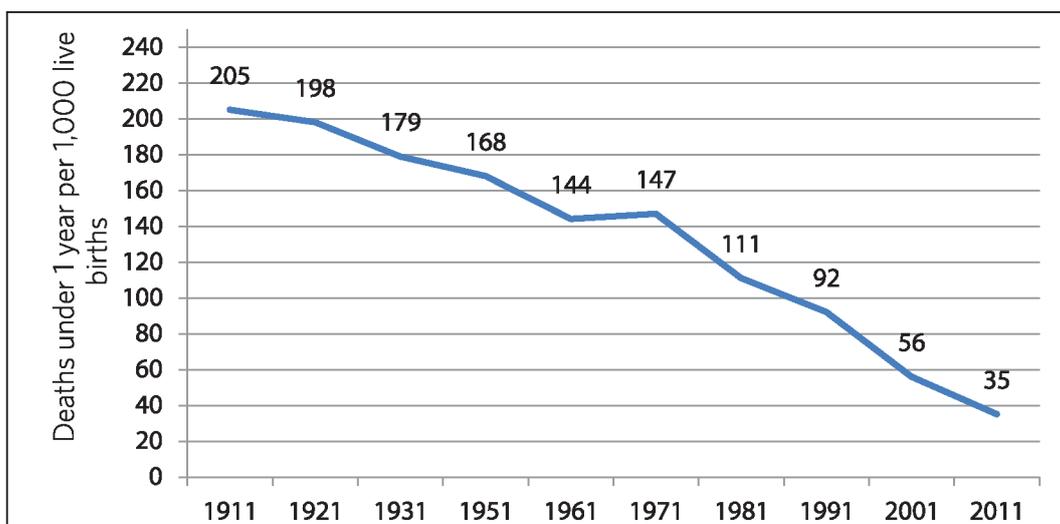


Sources: Davis (1951); Krotki and Ahmed (1974); UNESCAP (1981); Bangladesh Bureau of Statistics (2011a).

Infant mortality

In the early stages of the mortality transition, declining infant mortality plays a major role in increasing life expectancy. Declining infant mortality also contributes to lower fertility rates by lowering the “replacement” incentive for having children. The striking decline in Bangladesh’s IMR over 100 years is evident in Figure 1.5. Like life expectancy, with which is it closely connected, infant mortality has not declined uniformly over time. An increase was evident during the independence war, after which the decline was continuous. However, a slow-down in the rate of decline was evident in the 1981-91 decade. This was less than the slow-down in life expectancy, which suggests that mortality decline was slower among adults during this period.

Figure 1.5: Infant Mortality Rate (IMR) per 1000 Live Births, 1911-2011*



Sources: Davis (1951); Krotki and Ahmed (1974); UNESCAP (1981), Bangladesh Bureau of Statistics (2011b). Note that according to the 2014 DHS, the Infant Mortality Rate was 38 per 1,000 in the three years prior to the survey (NIPORT et al. 2015).

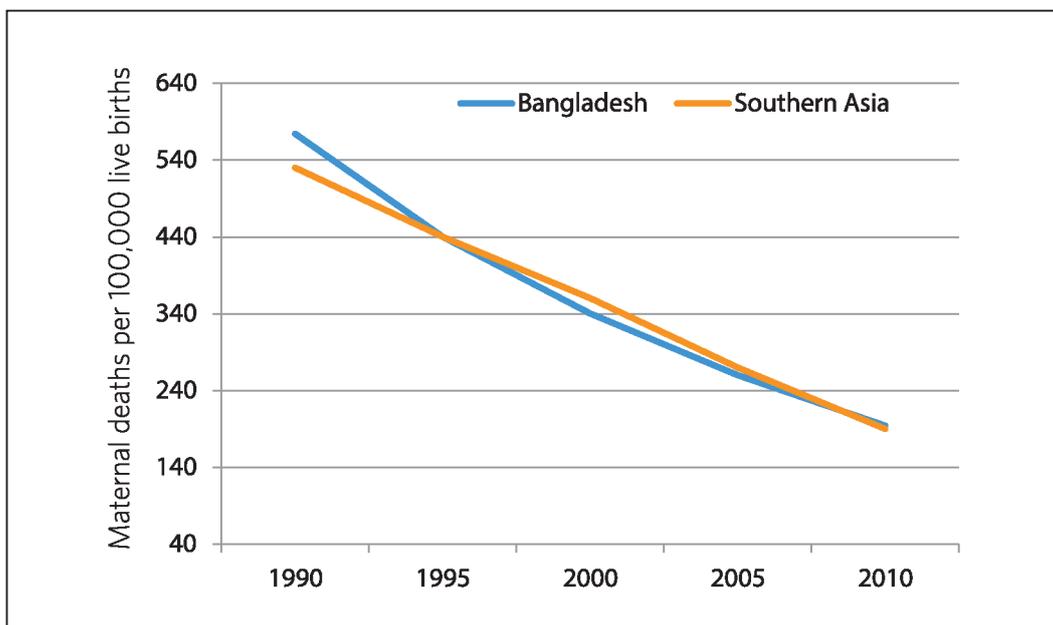
Also during this period there was a significant gap between rural and urban areas. In 1981 the IMR was 112 in rural areas and 99 in urban areas. However, the rural-urban gap has been declining – in 1981 the difference was 13 deaths, but this declined to 4 deaths per 1,000 live births by 2011. Significant regional gaps also exist, although these have also been narrowing in recent years. Infant mortality rates remain higher than average in Barisal, Rajshahi, and Sylhet divisions. The IMR is also higher for children of mothers who are uneducated or who belong to the lowest and second-to-lowest wealth quintiles. The children of mothers aged less than 20 years also have higher than average death rates.

Maternal Mortality

Although maternal deaths do not represent a large proportion of overall deaths in a population, at high rates of maternal mortality the contribution is not negligible. In Bangladesh, maternal deaths made up 14 percent of all deaths among women in the reproductive age range in 2010 (GED 2014). But as women of reproductive age constitute only about 25 percent of the total population, the impact of maternal deaths on the total number of deaths and the overall death rate is not very large.

The official estimates used for measuring progress toward the MDGs show that Bangladesh's Maternal Mortality Ratio has declined by 5.4 percent per year since 1990, which is the same rate of decline as experienced in the South Asia region as a whole (Figure 1.6).

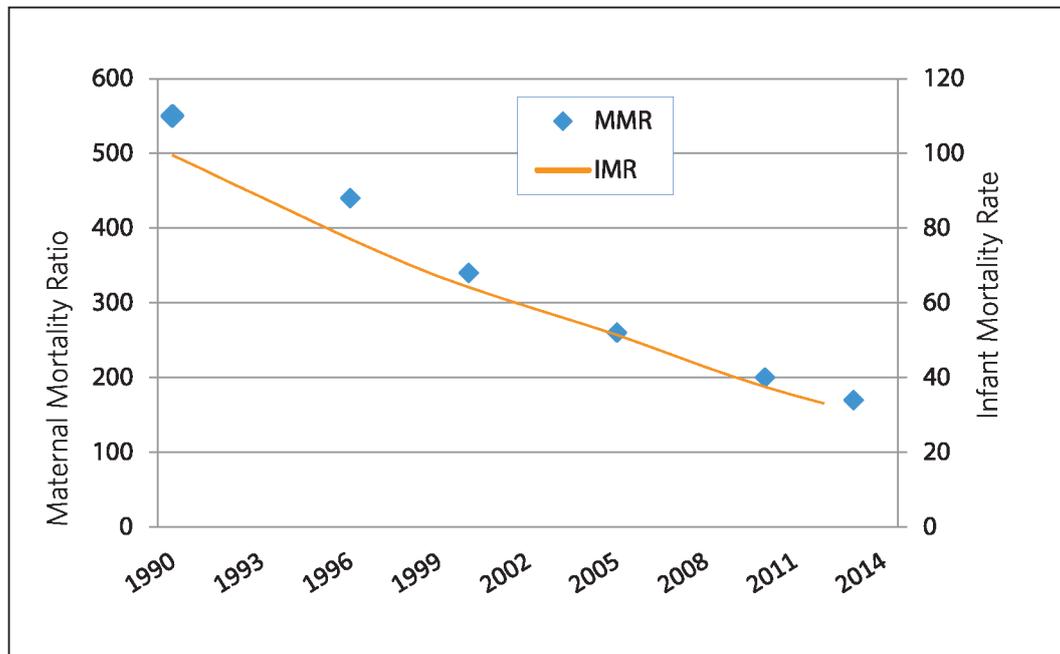
Figure 1.6: Maternal mortality ratio, 1990-2010, Bangladesh and South Asia



Sources: GED (2014); WHO et al. (2014)

Maternal mortality is closely related to infant mortality as evident in Figure 1.7. Although not tested in this study, it is highly likely that the same factors are responsible for both trends, particularly rising female education, the expansion and improvement of health services and declining poverty rates.

Figure 1.7: Trends in MMR and IMR 1990-2011



Source: See Figures 1.5 and 1.6.

Mortality transition: a summary of trends and determinants

The data reviewed above show that the mortality transition in Bangladesh commenced in the 1920s during the British colonial administration. As indicated by life expectancy, mortality declined steadily for some decades until a series of cataclysmic events caused a slow-down in the early 1970s. A less pronounced slow-down was also evident in the 1980s. The mortality transition was associated with socio-economic development: including, increasing per capita income; improved sanitation, hygiene, medical knowledge and technology; and immunization campaigns, supported by foreign assistance. Nevertheless, the mortality transition occurred in a context of initially very high poverty rates, including low levels of literacy and education, as well as poor nutrition, after which poverty rates were gradually lowered. This suggests that programmes directed at the poor may have been a significant factor.

Clearly the mortality transition accounts for the steady increase in the rate of population growth in Bangladesh from the 1920s through to the early 1970s, after which the birth rate commenced its decline. While declining mortality, and especially infant mortality, is a pre-condition for the eventual decline in fertility, it took nearly five decades for the relationship between declining mortality and a declining birth rate to be realized. The reasons for this are discussed further in the following section.

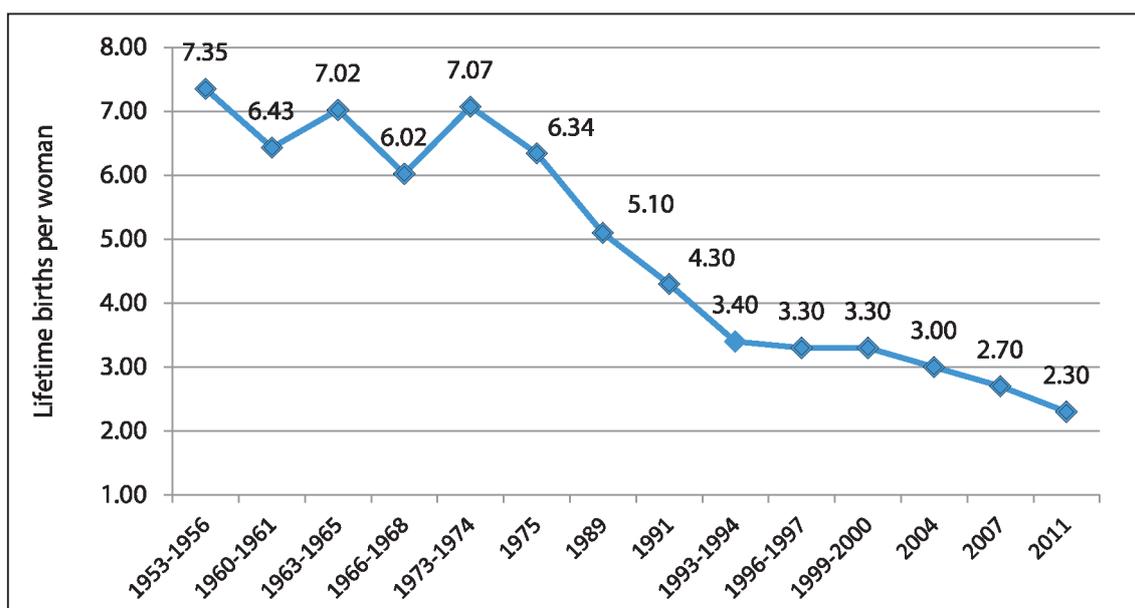
The fertility transition

As was evident in Figure 1.1, the crude birth rate remained over 50 per 1,000 for nearly five decades in the area which is now the independent state of Bangladesh after the turn of the 20th century. Birth rates above 50 per 1,000 at the national level suggest a “natural” fertility regime, implying that little or no deliberate effort is made on the part of couples to limit the number of children they have. This type of fertility regime can be understood given that mortality was also extremely high. In the context of a society lacking other sources of security in older age, the perceived likely number of surviving children is a key determinant of fertility levels (as discussed further below).

The Total Fertility Rate (TFR), which measures average lifetime births per woman, provides a better measure of fertility than the crude birth rate, which, like the death rate, is affected by the changes in the age structure. From the 1950s onwards, the TFR fluctuated around 7 births per woman (Figure 1.8) and remained at around that level until the early 1970s. An average TFR of 7 implies that some women would have given birth to 10 children, or possibly more, in their lifetime. There is little doubt that such high rates of childbearing would have contributed to maternal deaths, particularly among high multiparous women. The onset of the fertility transition can be dated in the mid-1970s by which time the TFR had dropped by 0.7 of a birth relative to its peak.

The TFR exhibited a steady decline for two decades after the mid-1970s and by the early 1990s women were having half the number of children they were having twenty years previously. Quite obviously this was a generational shift such that the mothers of the 1990s were giving birth to half the number of children that their mothers had. Over the second half of the 1990s and up to 2000, however, the decline in the TFR “stalled”, with the TFR remaining in the range of 3.3-3.4. After 2000, however, the TFR began declining again and as of 2011 is reported as 2.3.

Figure 1.8: Total fertility, 1953-2011*

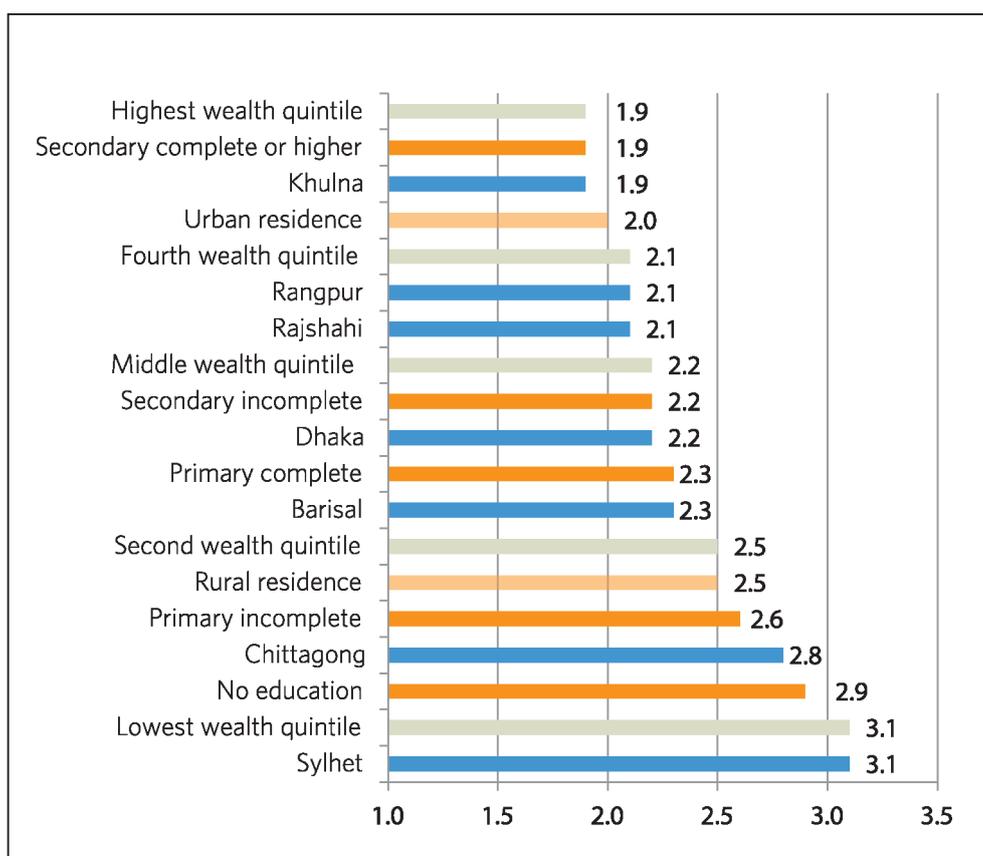


Sources: UNESCAP (1977); BFS 1975, 1989, CPS 1991, Bangladesh Demographic & Health Survey, 1993-1994, 1996-1997, 1999-2000, 2004, 2007, and 2011.

*Note that the TFR remained unchanged between 2011 and 2014 at the national level. See: NIPORT, et al. (2015).

What is strikingly evident, however, is that fertility rates now vary widely according to the socio-economic status of mothers and their regions of residence (Figure 1.9). In urban areas the TFR is 2.0 compared with 2.5 in rural areas. Women with no education have a TFR of 2.9, compared with 1.9 for women with completed secondary schooling or higher education. Women in the top wealth quintile also have a TFR of 1.9, while women in the lowest wealth quintile have a TFR of 3.1. The relationship between wealth (a reflection of past income) and education on the TFR is clearly an inverse one. As a woman's status on these indicators rises, the TFR declines. Regional differences are more complex with the Chittagong Division in the East having much higher fertility than Khulna in the West.

Figure 1.9: Total Fertility Rate by selected characteristics of Women, 2011



Source: NIPORT, et al. (2013)

The effects of some of these broader indicators have also been measured using data from the 1993-94 and 1996-97 Demographic and Health Surveys. Aside from the negative impact of education, which is clear from the 2011 DHS data as well, fertility is lower among women who: (1) are in employment; (2) live in landed households; (3) have access to mass media; or (4) live in a home with electricity. Having ever-used a method of contraception is also related to lower fertility (Khuda 2004).

That fertility differences between women in various socio-economic positions have emerged at all is a sign of development. But these variations could potentially exist at a low level of development. That is, wealthier women may well have fewer children but they may comprise a very small proportion of the population. However, a number of indicators suggest that, despite the pessimism of observers during the decades prior to 2000, relatively broad-

based development has taken place in Bangladesh and the proportion of women in the population with the motivation to have a small family is assuredly rising. The key indicators of this include:

- Between 1980s and 2000s, GDP increased by four times. Annual GDP growth rates increased from 3.4 percent during the 1980s to over 6 percent between 2006-07 and 2012-13. Over the same period, per capita GDP increased by 2.6 times. In real terms, per capita GDP increased from US\$206 in 1980 to US\$ 1,044 in 2014 (BBS 2013a).
- The age of marriage has been rising, even if at a slow pace. The median age at marriage has risen from around 14 years for women who are currently in their late forties to 16.6 years for women in their early twenties (NIPORT et al. 2013). Though this figure is still very low, there is evidence to suggest that age at marriage may be systematically understated in surveys (Streatfield et al., 2015).
- Mother's age at first birth has also been increasing. The median age at birth is about 18 years across all age cohorts, excepting for women aged 20-24 years and 45-49 years. Only 4 percent of women aged 15-19 in 2010 reported having had their first birth before reaching 15 years compared to 11 percent of women aged in their forties (NIPORT et al. 2013).
- Women's labour force participation rate has increased from 24 percent to 36 percent between 2000 and 2010 (BBS 2011b). Part of this increase was due to the expansion of the Ready-Made Garment sector, and women's increased involvement in agriculture.
- Female adult literacy has increased from 26 percent in 1991 to 55 percent in 2011 (GED 2014). The proportion of the female population completing junior secondary schooling or higher reached 55.6 percent in 2011 (BBS 2015). Female gross secondary enrolment has increased from 46.3 percent in 1999 to 57.2 percent in 2012 (UNESCO 2015).
- There is clear evidence of increasing rural landlessness and decreasing size of landholdings among those with land. The average size of landholdings has declined from 2.3 acres in 1984 to 1.5 acres in 2005). Similarly, the number of large farms (7.5 acres and over) has dropped by 64 percent since the mid-1980s while the number of small holdings under 0.5 acres has increased by two and a half times over the same period (Khuda, Barkat and Roy 2015). These trends have reduced the need for family labour, especially of child labour, in small-holder farm production and a decline in the economic value of children. Technological change in farming, including greater mechanization, has also contributed to the declining value of children in production.
- The reduced demand for child labour, especially of sons, has reduced the economic and security value of sons and raised the value of women's work. The reduced dependence on sons, increasing person-land ratios, and increasing number of female-headed households have accelerated the process of nuclearization of joint families and has weakened the influence of family members, particularly mothers-in-law, on the fertility of women (Adnan 1998).
- Urbanization has increased steadily after 1974 when less than 10 percent of the population lived in an urban area. The urban proportion has now risen to about 28

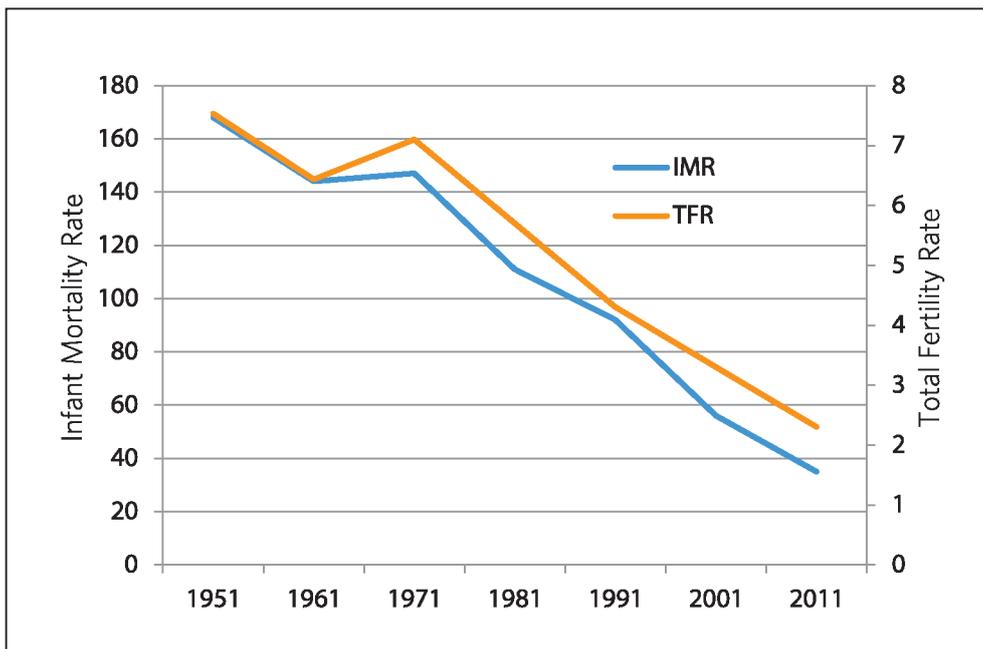
percent, driven by rural poverty and growing landlessness as well as the possibility of better opportunities, especially for women. Rising urbanization has brought more women into contact with the lower fertility norms of urban areas.

- Women now have greater freedom of movement, increased involvement in income-earning activities, an enhanced role in household decision making, and higher contraceptive use. These changes have been made possible by improved schooling, employment, participation in NGO activities, access to micro-credit programmes, social campaigns by government and NGOs, and increased access to mass media (Khuda et al. 1990a, 1990b; Schuler and Hashemi 1994; Islam et al. 2000).

Considered as a whole, these broad-based socio-economic changes have profoundly changed the incentives for childbearing in Bangladesh over the past three decades.

However, as previously mentioned, the effects of declining infant and child mortality must also be taken into account. As Figure 1.10 demonstrates, since the 1950s the trend in the TFR matches almost perfectly the trend in the Infant Mortality Rate. While this is at best a correlation in time, it suggests that the two indicators are closely related – a proposition that is strongly supported in demographic theory.

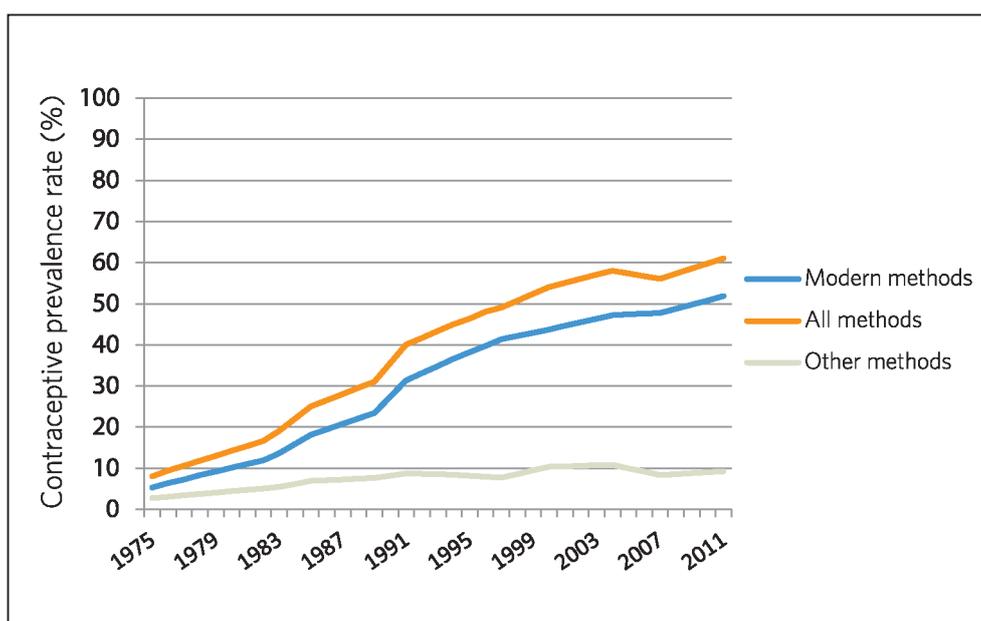
Figure 1.10: Trends in Infant Mortality Rate and Total Fertility Rate, 1951-2011



Source: Figures 1.5 and 1.6.

The weakening motivations to have children arising from socio-economic change and increasing survivorship of children in turn increased the demand for family planning services. Arthur and McNicoll's review of population and development linkages in the late 1970s noted that there was little demand for family planning at the time and the Contraceptive Prevalence Rate (CPR) was only 3.7 percent; but clearly conditions have changed sharply since then. As of 2011, the CPR has increased to 52 percent for modern methods and to 61 percent for all methods combined (Figure 1.9).

Figure 1.11: Contraceptive Prevalence Rate (CPR), 1975-2011



Source: NIPORT, et al. (2013).

*From 1975 to 2004, the CPR was based on married women aged 10-49. From 2007 onwards, the reference group was married women aged 15 to 49.

Family planning has been consistently supported by government policy - even before independence - but until recently in the spirit of “population control”. In the first Five-Year Plan of East Pakistan (1960-65), “population control” was made an official policy. After independence the Bangladesh government also gave top priority to containing the rate of population growth. The first Five-Year Plan stated that “no civilized measure would be too drastic” to achieve a reduction in population growth (Jiggins 1994). The Five-Year Plan of 1975-80 proposed a multi-sectoral and broad-based family planning programme, with NGOs and the private sector encouraged to complement government programmes. There was little overt religious opposition to the adoption of family planning. In 1975 a Division of Population Control and Family Planning was set-up within the Ministry of Health and Population Control. Until the mid-1980s, however, the family planning programme was marred by the use of coercive practices, such as financial incentives to encourage sterilization and the use of targets to motivate health and family planning workers. Significant abuses on the part of District and sub-district administrations were evident, including the withholding of wheat rations to destitute women unless they accepted sterilization, regardless of whether they had finished childbearing or not (Jiggins 1994). After the 1994 International Conference on Population and Development (ICPD) in Cairo, family planning became re-oriented toward individual couples, emphasizing client choice and voluntarism.

Some observers have argued that Government family planning programmes have weakened since the mid-1990s (Khuda and Barkat 2012a, 2012b; Streatfield and Karar 2008) and it is possible that this contributed to the stalled fertility transition during that decade. A decline in the CPR is evident between 2004 and 2007 but as it applied to both modern and “other” methods (the latter not dependent on the supply of services other than advice) it was possibly related to the change of definition. Recent shortcomings of the family planning programme identified by various authors include:

- Weakening Government “commitment”;
- Frequent “stock-outs” of contraceptive supplies;
- Organizational weakness of the programme;
- Low contraceptive use among married adolescents;
- Low fieldworker visitation;
- Declining trend in the relative share of LAPM;
- Increasing reliance on short-term methods;
- High discontinuation rate;
- Increasing resort to induced abortion and “Menstrual Regulation”
- High level of “unmet need” in some Divisions.

Certainly there have been changes in the use and practice of contraception. The use of short-term methods, especially the pill, has increased resulting in a change in the contraceptive method mix. The pill now accounts for 52 percent of modern method use compared to 48 percent in 1994 and injectables account for 21 percent compared to 12 percent in 1994. Similarly, the relative share of LAPM declined from 32 percent to only 11 percent in 2011. The change in the contraceptive method mix has implications for the family planning programme in respect of reliance on fieldworkers (whose home visitations are quite infrequent), especially among the poor, rural women, for re-stocks of modern temporary methods and on the overall programme sustainability. About one-fifth of married women aged 35 years and above and over one-quarter of those with three or more surviving children rely on the pill. Relying on the pill rather than accepting LAPM reduces the efficiency of the programme (Khuda and Barkat 2012a and 2012b). But sterilization and IUD remain unpopular among Bangladesh women who intend to use contraception in the future (NIPORT, et al. 2013).

The high discontinuation rate in Bangladesh is possibly a reflection of the poor quality of family planning services. This results in a high incidence of induced abortions. In 2010, an estimated 647,000 induced abortions and 653,000 menstrual regulation (MR) procedures were performed in Bangladesh (Singh et al. 2012). The 2010 MR rate is similar to the 1995 rate. Combining MR and abortion rates gives an estimated overall pregnancy termination rate of 37 per 1,000 women aged 15-44 years, implying that 30 percent of all pregnancies are terminated. These figures are higher than the equivalent rates for South Central Asia but similar to the rate for South Eastern Asia (Sedge et al. 2012).

The 2011 Bangladesh DHS does not consider menstrual regulation (MR) to be a family planning method so it is not included in the data on CPR. However, the 2011 DHS showed that 9.4 percent of currently married women who have ever heard of MR have used MR, suggesting that a sizeable percentage of currently married women have used MR to avoid unintended/unwanted births (NIPORT et al. 2013).

Despite a rising CPR, unmet need for contraception increased from 11 percent in 2004 to 13.5 percent in 2011. Further, if those using traditional methods of FP (9.2 percent in 2011) are considered, unmet need for effective methods of contraception was 22.7 percent in 2011, although this is clearly an over-estimate of the level of unmet need, as some people use traditional methods quite effectively. Unmet need is highest in Chittagong division (21 percent), while it is lowest in Khulna and Rangpur divisions (less than 10 percent). Limiters account for more of the unmet need (8 percent) than spacers (5 percent). The increase in unmet need may reflect insufficient fieldworker home visitations, the supply of family

planning methods and services, and/or an actual increase in the demand for family planning (Khuda and Barkat 2012a, 2012b).

The fertility transition: a discussion of causes

Declining mortality is normally a precondition for declining fertility and this association is clear in the Bangladesh case. While the fertility transition has been uneven and somewhat slow by comparison with the East Asian developing countries (“Asian Tiger” economies), it has proceeded at a more rapid pace than might have been anticipated three decades ago.

It is arguable from the comparative data shown in Figure 1.12 that Bangladesh’s fertility transition was delayed by its status as an economically and politically subordinate component of Pakistan. Following “Partition” fertility in Bangladesh increased, whereas it either declined or stabilized in other South Asian countries, including India. It was only after independence that fertility began to decline and the pace of decline has been such that the current (2011) TFR is now lower than in India, Pakistan and Nepal while being similar to Sri Lanka.

The specific causes underlying the fertility transition in Bangladesh are a matter of some controversy. Cleland et al. (1994) argued that up to the early 1990s, fertility decline in Bangladesh was entirely due to the strong family planning programme then being implemented. They contend that:

“It is difficult to argue that fertility decline in Bangladesh has been driven by a process of socioeconomic development involving urbanization, mechanization, growing prosperity, and literacy... improved access to contraception brings about a response in terms of declining fertility”.

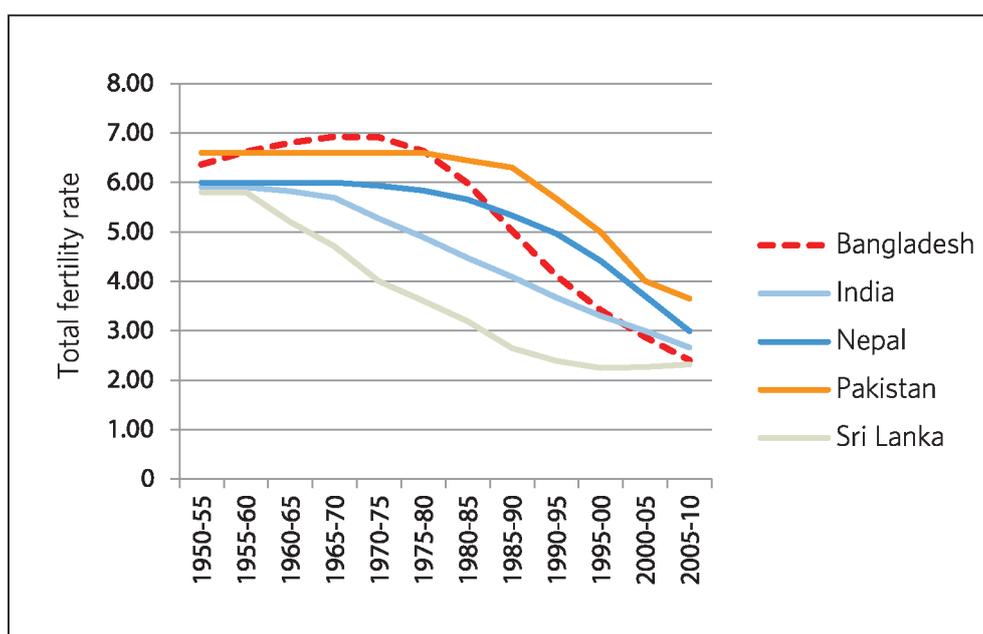
This is a minority view. Caldwell et al. (1999), Khuda and Hossain (1996) and Khuda et al. (2001) found that significant changes in educational achievement, economic activity, family size norms and the development aspirations of the people were already occurring



Mother with her child. Bangladesh. Photo credit: Momo Mustafa/Drik

in the 1980s and 1990s. Family planning services no doubt facilitated the decline, but only because the demand for family limitation was rising. The reasons for the stalled fertility transition in the 1990s are not completely clear. The 1990s was a period of reduced international support for family planning, in part because funds were diverted to the fight against HIV/AIDS (Bongaarts, et al. 2012), but this would not necessarily have weakened the Bangladesh programme. As mentioned, it has been suggested that the government family planning programme weakened during this period, but the CPR continued to rise, suggesting that those who wanted to obtain contraception were able to do so. Bongaarts (2006) found no evidence that family planning “programme effort” weakened during the period that fertility stalled in Bangladesh.

Figure 1.12: Fertility transition in five South Asian countries, 1950-2010.



Source: UNDESA (2013b).

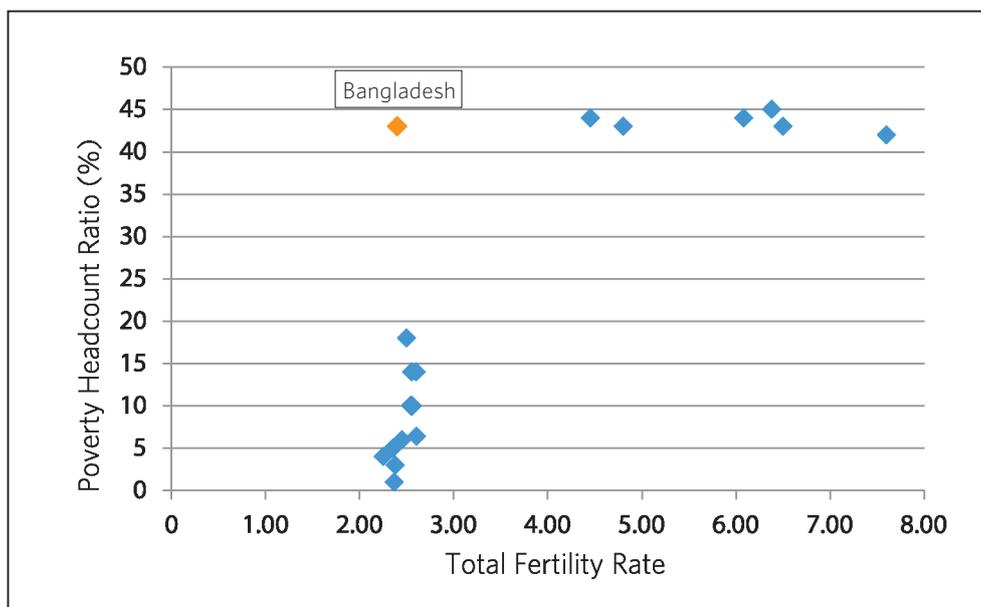
The possibility that Bangladesh’s fertility transition has been driven not by the alleviation of poverty but by a change in the nature of poverty has been raised (Adnan 1998). According to this thesis, rural poverty, at least among those who have enough land to provide subsistence for a family provides motivations to have enough surviving children to work the land and support the older generation when it was no longer able to work. On the other hand, the type of poverty that emerges out of rural landlessness and urban squalor is different: under these conditions children are a net disadvantage, so there is a “poverty-led demand for contraception among the poor” (Barkat-e-Khuda and Hussain 1996). To support the elderly under urban conditions requires that children acquire education and skills; physical labour is not enough as the capital value of land is lacking. Only the development of “human capital” through education provides hope for parents with only their children to provide old-age support, but investments in education and health are costly for families, so it can be expected that parents would be motivated to invest more of their scarce resources in fewer children.

The idea that Bangladesh could experience a “poverty driven” fertility decline in the future was foreshadowed by Arthur and McNicoll (1978) but the proposition remains untested

statistically. That the CPR in Dhaka’s slums is currently higher than in non-slum areas and that fertility in slum areas has fallen more rapidly in recent years than it has in non-slum areas (NIPORT et al. 2014) appears to provide some support for the hypothesis. But the generally lower fertility in urban areas and among those with higher levels of wealth and education does not.

However, from a comparative international perspective, Bangladesh occupies a unique position as regards the relationship between fertility and poverty. Countries that have a TFR within +/- 0.2 of Bangladesh’s have uniformly lower poverty rates – at least half and up to 97 percent lower. Conversely, countries whose percent poverty headcount ratio (\$1.25 per day) falls within two or three percentage points of Bangladesh’s rate (43 percent in 2010) generally had significantly higher Total Fertility—ranging from almost double to over three times Bangladesh’s rate (Figure 1.13).⁴ Clearly, at the national level Bangladesh has achieved something quite remarkable by breaking the general relationship between poverty and fertility. A full explanation for this outcome is beyond the scope of this report.

Figure 1.13: Relationship between poverty and TFR in countries that have either the same TFR or the same poverty rate as Bangladesh, 2005-10*



Sources: World Bank (2014b); UNDESA, Population Division (2013b)

*See Appendix A to this Chapter for the list of countries and data values.

The possible future course of fertility in Bangladesh is covered in subsequent chapters. Suffice it to say here that there is considerable scope for reducing the TFR in Divisions where it remains well above the national average, such as Chittagong and Sylhet. These are the Divisions in which the gap between wanted and actual fertility is the widest and unmet need for contraception is highest. The same is true for the bottom two quintiles of the wealth distribution, particularly the bottom quintile in which the gap between wanted and actual fertility is double the national average. This is the component of the population that remains in absolute or even extreme poverty.

⁴ The dataset excludes 11 countries that matched Bangladesh on fertility but for which no poverty data were available.



Tamanna, 16, stands outside her home with an award she received for preventing child marriage in her community at Bhasantek slum in Dhaka. Photo credit: © UNICEF/BANA2014-00006/Khan.

THE MORTALITY AND FERTILITY TRANSITIONS IN BANGLADESH: BEYOND EXPECTATIONS?

While not all of the expert observers of the population-development situation in Bangladesh in previous decades were sceptical about the possibilities of progress (Caldwell, et al. (1999) were among the optimistic group) many were. Clearly the mortality transition was underway well before Bangladesh became an independent nation so this was not in doubt. But the low level of economic development and high level of poverty cast doubt on the pace of further mortality decline. As this brief historical review shows, the mortality transition in fact maintained its pace and is still on-going. The recent rise in the crude death rate is likely a function of the changing age structure, which already shows the early signs of ageing, driven by an on-going increase in life expectancy.

Bangladesh has met the challenge of “managing the demographic transition” – up to a point. Whether it could have done better is a question that would require many “counter-factual” arguments and a suitable universe of comparison. Also, a number of questions still remain about what has driven the fertility transition. Given the growth of inequality with development it is possible that fertility decline has occurred for different reasons according to the position a person occupies on the income distribution. In any case, it is clear that it is the richer and better educated women who have the lowest fertility and the poorest and least educated who have the highest. This is clearly in line with the basic expectations of transition theory.

THE DEMOGRAPHIC CONSEQUENCES OF THE VITAL TRANSITIONS

The demographic transition not only has consequences for population growth but also for age composition and geographic distribution. Urbanization is normally both a consequence and a determinant of the mortality and fertility transitions, but in the Bangladesh case urbanization still remains relatively low. The most profound changes that occur during the transition are in the age structure.

Age composition

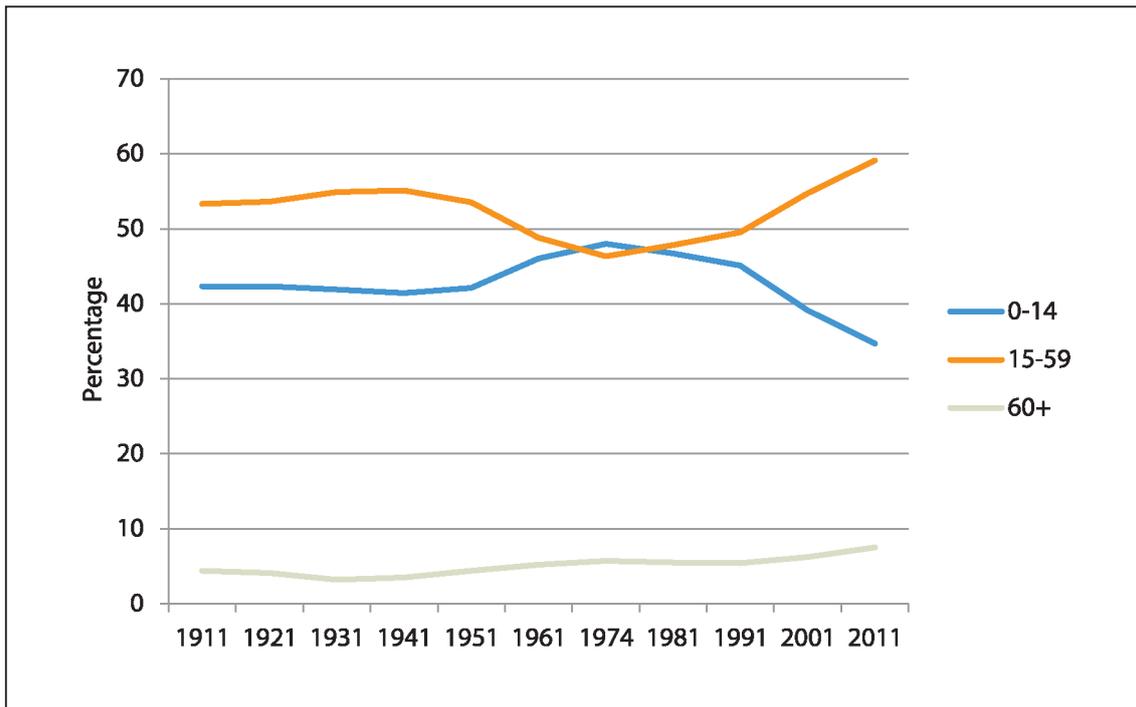
A country approaching the end of its demographic transition will have a very different age structure to the one it had at the beginning and different again from the one it had in the middle of the transition, but the impact varies according to the age group. In the case of Bangladesh, considering only the three major age-groups, it is evident in Table 1.2 that the proportion of the population aged 0-14 rose to a peak in 1974 and has since declined significantly. By contrast, the proportion of the population in the core labour force age group (15-59) has increased, declined and then increased again over the same period. The elderly population has also increased steadily over the transition period as a proportion of the total, rising from 4.4 percent in 1911 to 7.5 percent in 2011. The changing proportions of these major age groups are reflected in the trend in the dependency ratio which peaked in 1974 and by 2011 had declined to lower than it had been 100 years earlier. These long-run proportional shifts are shown clearly in Figure 1.14.

Table 1.2: Percentage Distribution of Population by age groups, 1911-2011

Census year	Major age groups			Dependency Ratio
	0-14	15-39	60+	
1911	42.3	53.3	4.4	87.6
1921	42.3	53.6	4.1	86.6
1931	41.9	54.9	3.2	82.2
1941	41.4	55.1	3.5	81.5
1951	42.1	53.5	4.4	86.9
1961	46.0	48.8	5.2	104.9
1974	48.0	46.3	5.7	116.0
1981	46.7	47.8	5.5	109.2
1991	45.1	49.5	5.4	102.0
2001	39.1	54.7	6.2	82.8
2011	34.7	59.1	7.5	71.4

Sources: 1911-1974, Rahim (1969); 1974 Bangladesh Population Census Report, BBS 1977; 1981-2011, Bangladesh Population Census Reports, BBS.

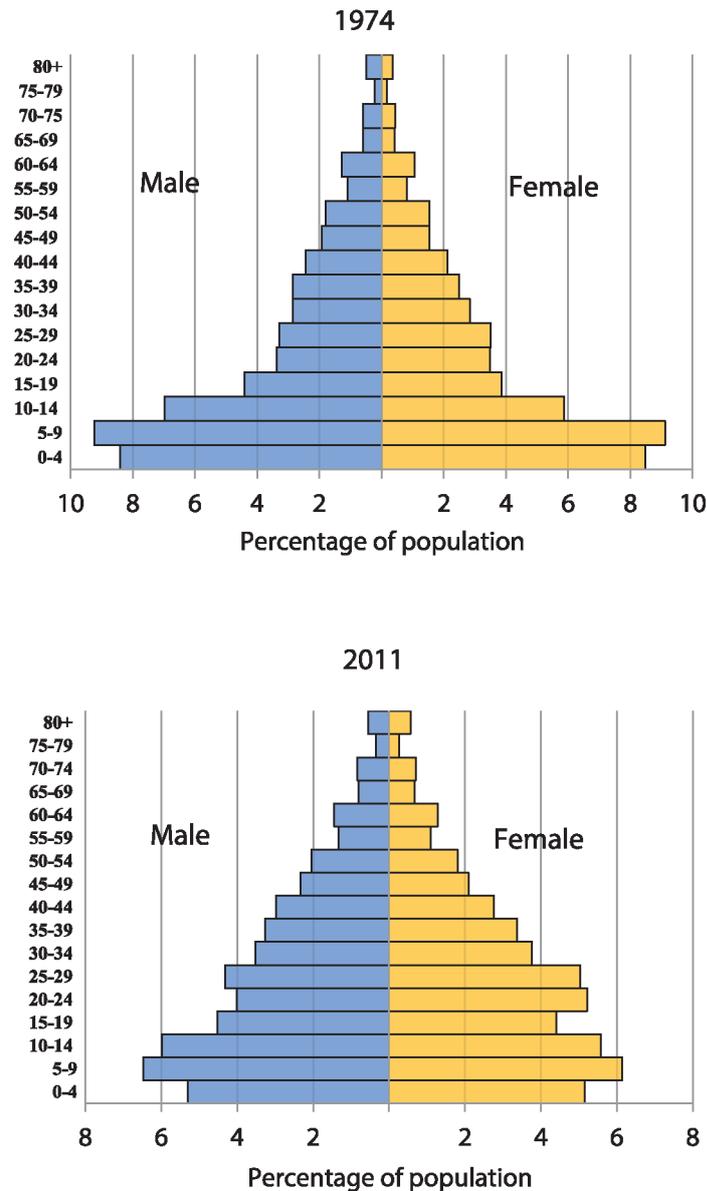
Figure 1.14: Changing age structure in Bangladesh (in percent): 1911-2011



Sources: Rahim, M.A. (1969); Bangladesh Bureau of Statistics, Reports of the Bangladesh Population Census, 1977; 1981-2011.

The difference between the 1974 and 2011 age-sex distribution is clearly evident in Figure 1.15. The 1974 distribution shows the effects of high fertility in the 1965-70 period which resulted in the 5-9 age group comprising over 18 percent of the population. Although the under-enumeration of children may have been a factor, the smaller 0-4 age group relative to the 5-9 suggests the beginning of fertility decline. Nevertheless, the population was poised for large increases in the youth population in the coming decades. Although the 2011 age structure is much more “mature” than in 1974, it is still the case that the 5-9 age group is the largest age group in the population, comprising a little over 12 percent of the total. As the projections presented in Chapter 3 indicate, it will take several decades for this cohort to work its way through the age structure and as it does it will contribute to the “momentum” factor that ensures that population growth will continue even though fertility has declined to a historically low level.

Figure 1.15 Age-sex distribution in 1974 and 2011



Sources: BBS, Census Reports, 1974 and 2011.

Geographical distribution

The geographic distribution of population in Bangladesh has not been analysed in much detail, perhaps due to the limitations of census data. At the Division level, it is clear that the most urbanized Divisions (Dhaka and Chittagong), along with Sylhet Division have been increasing their share of the population since the 1990s while all the other Divisions are losing share. But even among those Divisions that are gaining share, the largest gain by far is in Dhaka Division, no doubt due to the fact that Dhaka “megacity” is located there. As of 2011, one third of the population was in Dhaka Division. Thus, the population is becoming more centralized. Aside from Dhaka, however, the overall geographical distribution, at least at the Division level, has been quite stable since the 1990s. The detailed analysis of population distribution at Zila level is beyond the scope of this study.

Table 1.3: Population distribution by Division, 1991-2011

Division	Number (millions)			Percent			Change
	1991	2001	2011	1991	2001	2011	1991-2011
Dhaka	32.7	39.0	47.4	30.7	31.4	32.9	2.2
Chittagong	20.5	24.3	28.4	19.3	19.5	19.7	0.4
Rajshahi	14.2	16.4	18.5	13.4	13.2	12.8	-0.5
Rangpur	12.0	13.8	15.8	11.3	11.1	11.0	-0.3
Khulna	12.7	14.7	15.7	11.9	11.8	10.9	-1.0
Sylhet	6.8	7.9	9.9	6.4	6.4	6.9	0.5
Barisal	7.5	8.2	8.3	7.0	6.6	5.8	-1.2
TOTAL	106.3	124.4	144.0	100.0	100.0	100.0	--

Source: BBS 2013 Statistical Yearbook.

Internal migration and the urban transition

The gradual decline in the proportion of the workforce dependent on agriculture has been associated with a rise in the share of the population living in urban areas. This is not surprising, because although many rural dwellers engage in non-agricultural work, or divide their time between agriculture and other activities, the towns are the main focus of non-agricultural activities. Thus much of the increase in non-agricultural activities has been associated with the movement of workers to urban areas.

Unfortunately, the nature of the data on internal migration and urbanization available from the 2011 Census leaves much to be desired, and requires cautious analysis to avoid drawing inappropriate conclusions. A detailed discussion of these data issues is included as Appendix B (p.40). It must be stressed here that the data defects are serious enough to cast a pall of uncertainty over much of the following analysis.

Internal migration

The census collected data that allows both lifetime and recent (5 year) migration to be analyzed. For each Zila, the proportion of the current population born outside the Zila or living outside the Zila 5 years ago can be ascertained, and the nature of the move can also be ascertained - whether rural-urban, rural-rural, urban-urban or urban-rural. Only 9.7 percent of the Bangladesh population in 2011 were living in a Zila other than where they were born. This proportion varied from only a few percent in many Zila to as high as 50.8 percent in Dhaka, 40.9 percent in Gazipur, 24.2 percent in Narayanganj (both of them located within the Dhaka Megacity), 13.8 percent in Khulna and 11.5 percent in Chittagong. Dhaka had attracted the lion's share of lifetime migrants - Dhaka District alone attracted over 4 migrants out of 10 (41.9 percent) and Dhaka Megacity region attracted at least 5.6 migrants out of 10.

Of all lifetime moves across Zila boundaries recorded in 2011, the distribution across the four types was as shown in Table 1.4.

Table 1.4: Direction of lifetime migration, 2011 census

Type of movement	Percent of all movement
Urban to urban	8.9
Urban to rural	3.7
Rural to rural	43.2
Rural to urban	44.3

Source: BBS (2012).

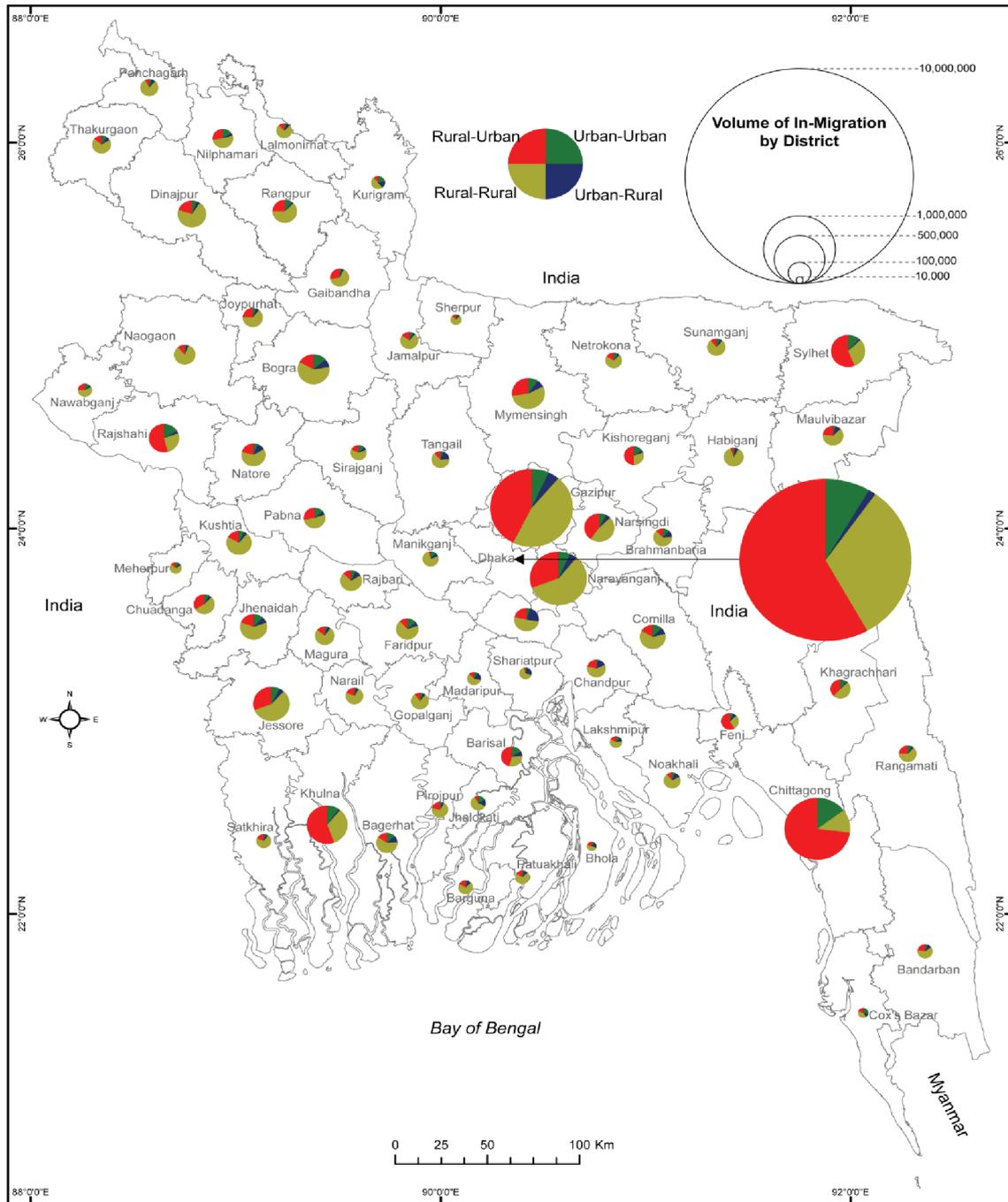
Map 2 (following page) is a pie chart showing the volume of lifetime migration to each district represented by the size of the pie, as well as the proportion of each of the four kinds of migration within each pie. The dominance of the Dhaka area and to a lesser extent, of Chittagong, as destinations of lifetime migration is clear.

Unfortunately, the different patterns of male and female migration have not yet been tabulated in the census reports. However, other studies in Bangladesh show a tendency for females to migrate in smaller numbers than males, to different destinations and for different reasons. Female migration tends to be shorter distance and for family-related reasons, mostly on account of marriage, rather than for economic reasons (Islam 2008; Rahman et al. 2010; Alam and Khuda 2011). Gender differences in marriage patterns may well be a partial explanation for the rather surprising finding from the census data that, while rural to urban migration is very important, rural to rural migration is higher than might be expected given the very limited opportunities of finding work in other rural areas. Of course, marriage migration of females within a Zila would not be recorded in the Census figures, but no doubt there is considerable marriage migration which crosses Zila borders.

Turning to migration over the past five years, the percentage of rural-urban migrants is even lower than in the case of lifetime migration – 34.6 percent, and the percentage of rural-rural migrants about the same – 42.9 percent. The low proportion of rural-urban migrants is surprising. Of all migration reported, 58.8 percent was into the Dhaka Megacity (DMC), if this is taken to be the combined Zila of Dhaka, Gazipur and Narayanganj. The most surprising – indeed, unbelievable – aspect of the figures is that 41.4 percent of the enormous volume of migration into DMC was recorded as rural-rural migration, despite the fact that there are only small residual rural areas still remaining in this Megacity.

The reality is that during the last 2 to 3 decades, population within rural areas of the Dhaka Megacity region (i.e. rural areas of Dhaka, Gazipur and Narayanganj districts) has been growing very rapidly (7 to 16 percent per annum). The density of population of these rural areas is even higher than that of many secondary towns. Most of the people (migrants and natives) living within these “rural” areas usually work at nearby or distant urban areas (within the DMC region) through commuting. These rural areas are rapidly changing from rural to urban fringe and then to fully urban settlements. Yet many areas within these districts were reclassified from urban to rural between the 2001 and 2011 population censuses (see Appendix B to this Chapter for details). Therefore, large numbers of those recorded as rural-rural migrants, especially those who are living within DMC and three Statistical Metropolitan Areas (SMAs), are actually rural-urban migrants/commuters. This unfortunately prevents meaningful interpretation of the recorded data.

Map 2: Lifetime migration at Zila level, 2011 census



Source: BBS (2014c)

Urbanization

Major changes in the categorization of the urban population between the population censuses of 2001 and 2011 are described in Appendix B to this Chapter. The analysis of urbanization is complicated by these changes, because of the difficulty of relating 2011 populations for many urban areas with equivalent areas in 2001 or earlier years. For this reason, only rather basic analysis of urbanization trends is possible. The key point is that urbanization in Bangladesh has proceeded gradually, the proportion urban reaching 28 per cent in 2011, slightly less than the proportion urban in India.

The population census in 2011 identified 506 urban centres in Bangladesh, of which 43 are cities (100,000 to 4,999,999 population), 310 are paurashava towns or municipalities (5,000 to 99,999 population) and the remaining centres are classified as other urban areas which usually have no full-fledged municipality. The geographical distribution and relative populations of urban centres having a population of 25,000 or more is shown in Map 3, which also shows growth rates over the 20-year period 1991-2011. Table 1.5 provides some additional analysis of urban growth patterns. Major characteristics and trends of urban population in Bangladesh are presented below:

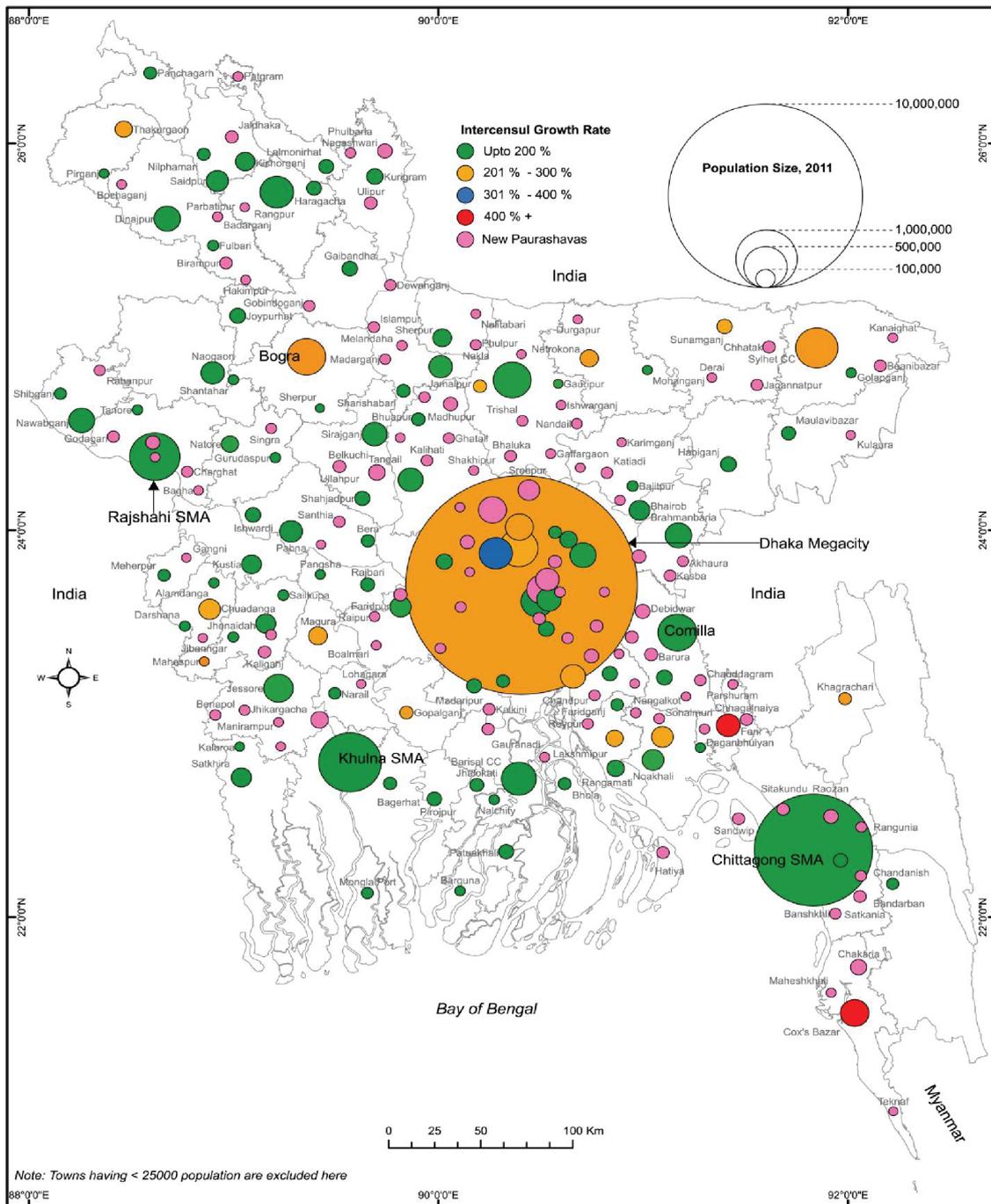
- (a) **Increasing urban primacy:** Urban centres as well as population are becoming increasingly concentrated in the vicinity of the capital city, Dhaka, in the centre of the country. In 2011 Dhaka Megacity (DMC) with an area of over 1500 km² had a population of 14.2 million or 34 percent of the country's total urban population. Its population is five times higher than Chittagong SMA, the country's second biggest urban agglomeration, and 2.6 times higher than the combined population of the next three largest SMAs (Chittagong, Khulna and Rajshahi). The level of primacy of Dhaka Megacity has been increasing over time: in the 1991 Census it held 28.9 percent of the country's urban population as against 34 percent in the 2011 Census.⁵ Among the 32 megacities in the world, DMC has climbed to 11th rank because of its rapid population growth, fuelled by massive migration. Between 1991 and 2011, it more than trebled in population. Increasingly dense population, destruction of natural drainage and wetlands, severe air and water pollution along with uncontrolled and haphazard growth of the city provide severe challenges to planners. Due to these environmental and social threats, the city was recently ranked one of the most unliveable cities in the world.

- (b) **Big cities exhibit higher growth:** It has been observed that the large urban centres usually have higher population growth rates than small urban centres. The average growth rate of city corporations was 179 percent between 1991 and 2011. Within the same inter-census period, the growth of cities was 166 percent. Similarly, first and second order paurashava towns grew by 159 percent and 136 percent, respectively. In general, then, the larger the city, the higher the growth rate. Dhaka Megacity –the single largest urban agglomeration in the country grew by 218 percent between 1991 and 2011. Chittagong, Khulna and Rajshahi SMAs had much lower growth rate (between 113 and 179 percent). Three smaller cities, however, proved to be exceptions to this general rule: Feni (575 percent growth), Cox's Bazar (476 percent growth) and Savar (384 percent growth).

⁵ This figure of 34 percent is the proportion if compared with the adjusted urban population of 41.9 million. If compared with the enumerated population of 33.6 million, it rises to 42 percent of the urban population.

(c) **Regionally unbalanced urbanization:** The development of urban settlements in Bangladesh is highly concentrated towards the eastern part of the country (see Map 2 and Table 1.5). More than two thirds of the urban population (69 percent) resides in the eastern part of the country where the country's capital (Dhaka) and main port city (Chittagong) are located. Compared with the western region, the eastern part is much better provided with certain vital urban facilities such as natural gas, electricity, transport, credit, and markets. As a result, over the decades, major non-agricultural activities such as manufacturing, construction, transportation, health, education and other service sectors have been concentrated in cities in the eastern region. This has

Map 3: Urban populations in 2011 and growth rate 1991-2011



Source: Constructed by A.Q.M. Mahub from 2011 Census data.

attracted millions of rural-urban migrants (temporary or permanent) to cities in the eastern region as their destination for earning a livelihood. The concentration of rural urban migration in the eastern region can also be seen from the predominance of this stream in Map 2 (red colour in the pie diagram) in the eastern region and in almost all large urban centres.

The urbanization level in the western part of the country remains very low. In 2011, the proportion of urban population in Rangpur, Rajshahi, Khulna and Barisal divisions was 13.4 percent, 17.9 percent, 18.0 percent and 16.4 percent, respectively as against 32.9 percent and 24.3 percent in Dhaka and Chittagong divisions, respectively. The low level of urbanization in the western region also reflects the poor socio-economic condition of the hinterland of urban centres in that region. Cities and towns located in the western part of the country are not only smaller but are also growing more slowly than those in the eastern part of the country. The three cities which exceeded 300 percent growth are all located in the eastern part of the country. Among the top 43 cities including Dhaka Megacity and three SMAs, only 15 are located to the western region and the average growth of these cities was 140 percent. On the other hand, 28 cities in the eastern part recorded a 212 percent growth rate (Table 1.5).

Table 1.5: Urban population and growth rate by city type, 1991-2011

Type of urban centre	Population 2011	Inter-censal growth rate (%) (1991-2011)
Dhaka Megacity	14,171,567	218.4
Chittagong SMA	3,724,433	179.1
Khulna SMA	1,046,341	113.6
Rajshahi SMA	679,889	134.0
Barisal City Corporation	339,308	161.9
Sylhet City Corporation	531,663	207.8
Other Cities (popn.100,000 to 500,000)	7,095,426	n.a.
Paurashavas (popn. 50,000 to 99,999)	3,059,388	158.7
Paurashavas (popn. 25,000 to 49,999)	4,573,958	136.2
Paurashavas (popn. 5,000 to 24,999)	1,816,845	n.a.
Bangladesh urban (based on enumerated urban population)	33,563,183	160.8
Bangladesh urban (based on adjusted urban population)	41,943,532	186.8
28 cities in the Eastern part of the country		212.0
15 cities in the Western part of the country		139.8

Source: Calculated from *Bangladesh Population and Housing Census 2011*. National Report, Vol. 3, Urban Area Report, BBS, 2014c.

Population density

Another obvious consequence of Bangladesh's population growth is that its population density has continued to increase. As the most densely settled country in the world apart from city states such as Singapore, Hong Kong or Monaco, Bangladesh's population density is extraordinarily high. At over 1015 persons per sq. km, the whole of Bangladesh is almost as densely populated as some large cities in Western countries, including Houston, Philadelphia and Brisbane. However, population density varies according to the agricultural potential of different areas and the level of urbanization. In rural regions, density is very high in floodplains where the soil is very fertile and supports diverse agriculture. Rural densities range from 300 to 8,000 persons per sq. km at the district level. High population density arises from the favourable characteristics of this delta region for intensive agriculture: a hot and humid climate, fertile soil, enormous fresh water supply, and abundant growth of vegetation with great biodiversity within a small area. Nevertheless, the acute population pressures that have built up on the country's floodplains has precipitated migration to urban areas as well as to less densely populated rural and marginal lands, including hilly/forested areas, mangrove forest regions, haor areas, char lands as well as hazard/disaster prone and climate stressed coastal regions.

Key points

- Bangladesh's demographic transition has followed the general trends anticipated by the "demographic transition model" but with some unique features;
- The mortality transition commenced in the 1920s and is still on-going; Infant, child and maternal mortality rates have declined consistently over several decades;
- The fertility transition commenced 50 years later and has been very uneven;
- Fertility decline "stalled" in the 1990s, resulting in larger birth cohorts which translated into a rapidly-growing labour force in the 2000s;
- A weakening of government family planning programmes may have contributed to the stalled fertility transition;
- The current TFR of 2.3 is the lowest of any country with similar levels of poverty;
- Fertility is closely related to socioeconomic status, particularly education of women;
- Regional variations in fertility are also evident and require explanation;
- The causes of fertility decline are not completely clear, but socioeconomic development has played a major role along with family planning programmes;
- The relationship between fertility and poverty may have changed over time as household production decreased in importance and work outside the home increased, especially for women;
- As could be expected, the demographic transition has been accompanied by changes in age structure with the 0-14 age group declining as a proportion of the total and other age groups increasing;
- The urban population growth rate is approximately double the national rate but the urban population is still under 30 percent of the total population.

Appendix A: Data Table for Figure 1.13

Country	Poverty Headcount Ratio @ \$1.25/day (PPP) circa 2005-10*	Total Fertility Rate (2005-10) †
Uganda	45.00	6.38
Burkina Faso	44.00	6.08
Sao Tome-Principe	44.00	4.45
Bangladesh	43.00	2.40
Angola	43.00	6.50
Kenya	43.00	4.80
Niger	42.00	7.60
Indonesia	18.00	2.50
South Africa	14.00	2.55
Cape Verde	14.00	2.60
Bhutan	10.00	2.55
Venezuela	10.00	2.55
Peru	6.40	2.60
Colombia	6.00	2.45
El Salvador	5.00	2.35
Argentina	4.00	2.25
Morocco	3.00	2.38
Mexico	1.00	2.37

Sources: *World Bank (databank.worldbank.org/data/views/reports/tableview.aspx) accessed 8/04/2015.

†UNDESA, Population Division (2013b).

Appendix B: Issues in analyzing internal migration and urbanization from the 2011 Population Census

Analysis of internal migration and urbanization from the 2011 Population Census is a major challenge, because of changes in definition and lack of clarity in the census reports about these changes and their effects.

Internal migration in the 2011 Census refers to moves across Zila boundaries – both lifetime and over the previous five years. In the case of the previous five years, respondents are classified as migrants if they had changed their place of residence for a period of six months or more. The published data show only gross in-migration for each Zila, and are for males and females combined. Respondents were asked to report whether their birthplace or former place of residence was an urban or rural area. This was then presumably related to the classification of the rural or urban nature of the current place of residence to determine whether such migrants were classified as rural-rural, rural-urban, urban-rural or urban-urban. However, some of the findings strain credibility, especially the 41.4 percent of recent migrants to Dhaka Megacity recorded as rural-rural migrants.

Changes in classification of urban areas appear to explain the above paradox, as well as providing even more headaches for the analysis of urbanization. The key point is that the definition of urban used from 1981 to 2001 was changed in 2011. The concept of Statistical Metropolitan Areas (SMAs), including growth centres and urban agglomeration areas adjacent to large cities, was abandoned, and only the areas covered under city corporations were treated as urban. Due to the changed definition of urban areas, the proportion of urban population declined from 23.5 percent in 2001 to 23.3 percent in 2011 (2011 Census, National Volume 3: Urban Area Report, p. 9). This is hardly surprising, as the actual land areas considered urban **declined** by 17.2 per cent nationally, and most of all in Chittagong Division (by 24.3 percent) and Dhaka Division (by 30.2 percent). The most dramatic decline of all in land area classified as urban was in Dhaka Zila, precisely the area where urban population was growing most rapidly. Here the land area defined as urban declined from 797.5 sq. km. in 2001 to 213.8 sq. km. in 2011, a decline of 73 percent (2011 Census, National Volume 3: Urban Area Report, Table 3.2.2). This presumably provides the explanation for the strange finding noted in the previous paragraph: that 41.4 percent of migrants to Dhaka Megacity were rural-rural migrants.

The other districts with the most marked decline in area classified as urban were those containing the largest cities – Chittagong (a decline of 64 percent), Khulna (a decline of 59.6 percent), and two districts forming part of Dhaka Megacity – Gazipur (a decline of 63.6 percent) and Narayanganj (a decline of 42.6 percent).

The Census report made an attempt to enable users to make comparisons with earlier censuses by adjusting the urban population for 2011, consistent with earlier definitions; it also adjusted the figure by the PEC adjustment factor; this raised the urban population from 33,563,183 to 41,943,532, and the urban percentage to 28.0 percent. This would indeed appear to be a more realistic figure. However, they did not proportionately adjust the population figure for each urban centre or each administrative area such as district or division. The bulk of the adjustment appears to have been done for SMA areas only. Therefore from the BBS Urban Area Report we are unable to calculate actual or realistic urban population figures for any city, town or administrative area.

The adjustment of urban areas in the 2011 Census is mystifying, as it is precisely the opposite of normal practice. In most countries, the re-drawing of urban boundaries is for the

purpose of incorporating peri-urban areas, previously designated as rural but in fact having urban characteristics, into the urban area. It seems that in Bangladesh the reverse process occurred with areas previously being considered urban being re-classified as rural.



A rural mother with her child. Bangladesh. 2012.. Photo credit: Momo Mustafa/Drik.



2: SOCIO-ECONOMIC DEVELOPMENT AND THE DEMOGRAPHIC TRANSITION

INTRODUCTION

Escape from the poverty trap is one criterion for a successful passage through the demographic transition, but most countries hope to do better than this. Sustained growth in per capita income well beyond the poverty level is the aim of most developing countries' socio-economic strategies. The role of the demographic transition in the achievement of sustained economic growth and increased per capita income attracts different views and interpretations. Viewed from the perspective of Bangladesh's circumstances in the 1970s and 1980s, many expert observers (some of whom were cited in the introduction) struggled to envision a positive outcome for the country given the rate of population growth and the overall development prospects at the time. Others saw the beginnings of the same socio-economic trends that had propelled some Asian developing countries into the stage of high mass consumption. Thus opinion was divided between the "pessimists" on the one hand and the "optimists" on the other. As foreshadowed in the previous chapter, there is evidence to support both points of view.

The previous chapter has also illustrated the specific course of the demographic transition in Bangladesh and its determinants, confirming that the country has passed through the expected stages of mortality decline and rapid population growth, followed by fertility decline and the slowing of growth. Importantly, it has been shown that despite fertility decline and a slowing growth rate, annual population increase remains historically high due to the effects of demographic "momentum" caused by the age structure and the relentlessly increasing base population. The present chapter focuses in more detail on Bangladesh's development experience within the context of this on-going demographic transition. That development has occurred is not in doubt. It is evident that Bangladesh has escaped from the "poverty trap". What is less clear is the extent to which Bangladesh has moved beyond this minimal standard of progress and if it has, how this has been achieved? As highlighted in the introduction, there is more than one way to escape the poverty trap and every country has its own unique challenges to address and strategies to overcome them.

This chapter therefore assesses Bangladesh's development experience in terms of the following questions:

- Has the productivity of labour in agriculture, the driving force that facilitates the movement of people out of subsistence production into urban-based manufacturing, increased during the transition or stagnated?
- To what extent has the rapid increase in the population of labour force age that accompanies the demographic transition been absorbed into the economy by a commensurate increase in the number of jobs of a reasonable quality?
- Has sustained economic growth per capita occurred despite (or because of) rapid

growth in the labour force?

- To what extent have poverty rates declined and/or the nature of poverty changed during the course of the transition?
- Has human development taken place as measured by the key indicators of human welfare, including health, education?
- Has the supply of social services kept pace with population growth and has social security actually improved?

Positive answers to these questions would suggest that Bangladesh has successfully managed the development challenges posed by the demographic transition, but it is likely that success is a matter of degree. To the extent that positive answers to these questions can be provided, a secondary question arises: how has Bangladesh achieved the level of development that prevails today as the demographic transition enters into its late stages? This question goes beyond the scope of the present study but some suggestions can be proposed.

PRODUCTIVITY OF LABOUR: AGRICULTURE AND INDUSTRY

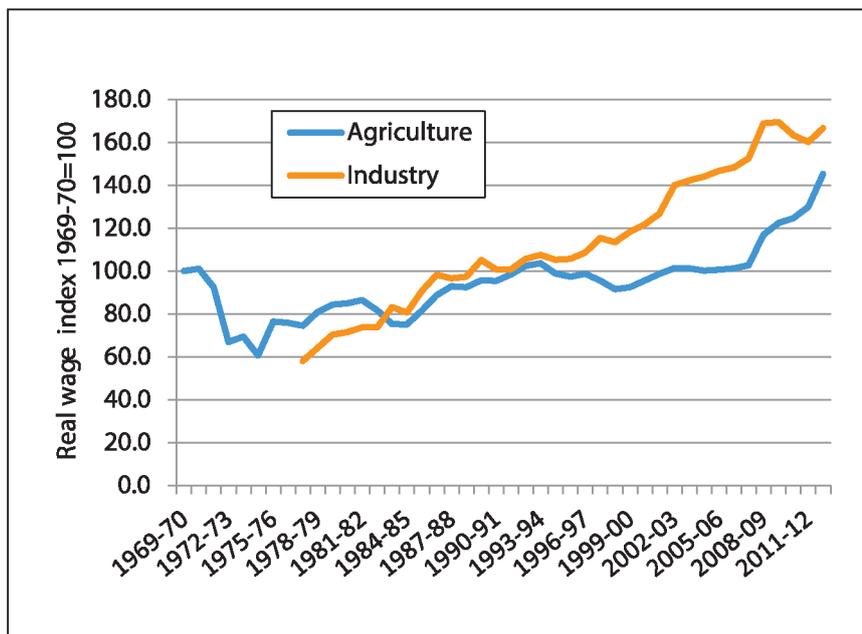
Under conditions of rapid population growth, average output per worker potentially declines. This is because every new addition to the labour force will contribute less than the average output per worker. This can occur if the total amount of capital is fixed and each additional worker reduces the capital/labour ratio which subsequently reduces productivity per capita by “shallowing” capital. In Bangladesh the main form of rural capital is land and this has been in fixed supply at least since the 1970s. A key indicator of changes in productivity is the trend in real wages. If real wages are declining in a context of population growth, then a case can be made that population growth is having a negative impact on the economy. However, other factors may also have an impact on wages, including the demand for labour, which in turn is affected by factors such as trends in export markets, so the role of population needs to be seen in the context of these other factors and not in isolation.



A man and a boy carry paddy shoots in a village of Bangladesh. Photo credit: K.M. Asad/Drik.

Figure 2.1 shows that real wages in agriculture fell in the early 1970s, after which they increased at a very slow pace. The agricultural wage did not return to its 1969-70 level until the early 1990s and remained almost unchanged until 2007-08. The real wage in agriculture was virtually the same in 2008-09 as it had been three decades earlier. This is strong evidence that labour force growth has maintained a steadily depressing effect on agricultural wages over a long period of time. A sharp upward inflection is evident from 2007-08, the cause of which requires further investigation. By contrast the real wage in industry increased steadily from 1977-78 to 2007-08 when it levelled-off and then declined. It is evident that the gap in real wages between the agricultural and industrial sectors has been closing in very recent years.

Figure 2.1: Real wages in agriculture and industry, 1969-70 to 2012-13



Source: Islam and Taslim (1996); Taslim (2014)

Data on GDP per worker (Table 2.1) also suggest that labour productivity in agriculture has been increasing over the past decade but at a relatively slow rate and with significant fluctuations. The slowest productivity growth has been in industry and the highest in services, with agriculture in-between. Using this measure, economic growth has been keeping pace with the growth of the labour force, but only just. However, the stronger performance of agriculture since 2003 according to this measure is encouraging, and is roughly consistent with the rise in real wages in agriculture.

Table 2.1 GDP per worker, 2000-10 and annual growth rate

	Real GDP per worker (BDT)				Annual Growth Rate (percent)			
	1999 -2000	2002 -2003	2005 -2006	2010 -2011	1999 -2003	2003 -2006	2006 -2010	1999 -2010
Broad Economic Sectors								
Agriculture	37,655	35,001	40,190	43,223	-2.4	4.6	1.8	1.4
Industry	157,689	160,290	178,618	176,612	0.5	3.6	-0.3	1.1
Services	140,441	147,322	143,201	170,654	1.6	-0.9	4.4	1.9

Sources: BBS (2013e)

LABOUR FORCE GROWTH AND ABSORPTION

Labour force “absorption” refers to the process whereby an increase in the population of working-age who are available for work is accompanied by a simultaneous and equal increase in the number of jobs or livelihoods. For example, if the population of working-age (conventionally defined as persons aged 15 years of age and over) was increasing at the rate of 2.5 percent annually, and if the number of jobs or viable livelihoods was increasing at the same rate, then it could be said that the economy was “absorbing” labour—in other words that work was available to all who wanted or needed it. It is important to note that not everyone wants or needs to work. Persons receiving income from the ownership of property or financial assets, including pensions, need not be in the labour force to maintain their desired level of living because they earn a living by utilizing their capital rather than their labour. Similarly, some women (and occasionally men) may prefer to stay out of the labour force performing household work only (or no work at all) while being supported by the income of other household members. Others may be forced to remain home, such as when women are prevented from working by family members who object, or face discrimination in the labour market. Because of such cultural factors as well as personal preferences, the standard by which the rate of labour absorption is assessed is by no means clear.

The issue of labour force absorption is also complicated by difficulties in measuring the population available for work, both actual and potential. The potential labour force is the population of “working age” (which is defined in industrial economies and in Bangladesh labour force surveys as the population aged 15 and over). In less industrialized economies in which a significant proportion of the population lives within a “village mode of production”, persons under the age of 15 may also be engaged in “work”, as defined by the system of national accounts (i.e., contributing to GDP). In recognition of this, earlier labour force surveys and censuses in Bangladesh measured the working age population from 10 years of age. But this is no longer appropriate where schooling is compulsory up to age 14. Children under 15 must then be excluded from the working age population and the potential labour force, despite the fact that some may in fact work. There are also difficulties at the other end of the age range. In industrial countries with national pension plans, the age of eligibility for the pension (65-67 years) may be used as the effective end of the working life. But many older persons continue working and in countries lacking formal pension systems the older population may have little choice but to work.

The measure of availability for work is the Labour Force Participation Rate (LFPR). This refers to the proportion of the working age population that is either in employment (including “self-employment”) or available for employment, expressed as a percentage. The calculation of the LFPR requires the prior determination of who can be considered part of the labour force or “economically active” population. The concept of economically active refers to persons who produce the goods and services (or who are willing to produce the goods and services if opportunities are available) that are included in the calculation of GDP. Labour force definitions do not come to terms with the complex reality that women’s household activities save expenditures that would otherwise have to be incurred, and free up other members for economic activities. But even in applying the accepted definition of the labour force, there may be a cultural bias that leads to women being excluded from the economically active population because their work is treated as “domestic”, even if in fact it results in the production of goods for sale or exchange either in larger markets or between households.

In Bangladesh, women’s participation in productive activities within the home was historically limited, due to traditional social barriers (Abdullah and Zeidenstein 1982; and other references cited in Basak 2013), and to the extent that women did productive work, their activities were not normally considered as work by those responding to survey questions or by the survey enumerators. Indeed, many kinds of household economic activities were specifically excluded by the definitions used. In the 1996 Labour Force Survey, economic activities excluded “household economic activities such as care of poultry and livestock, threshing, boiling, drying (paddy) etc.” In later rounds, however, such activities were considered as work and the shift in definition has had the effect of raising the LFPR of women. But women engaged exclusively in domestic activities such as washing, cleaning, food preparation and child care within the home remain outside the “labour force” as it is conventionally defined if such work is part of the duties associated with kinship roles (wife, daughter, etc.).⁶

There are a number of other difficulties in measuring the labour force that arise from the fact that labour force surveys and censuses rely upon information provided by respondents at household level—both those who answer for themselves and those whose labour force status is reported by others, such as a household head. (Labour force data are not generally collected at the workplace by direct observation.) This introduces an element of subjectivity to the determination of whether someone is available for work and/or looking for work. Persons actively looking for work are included in the labour force and hence form part of the numerator used to calculate the labour force participation rate. Those who have stopped looking for work because they believe there is no work available, are normally excluded from the labour force altogether. In Bangladesh, “beggars” are excluded from the labour force as well even though by most definitions begging is work. Thus it is important to pay close attention to how surveys and censuses draw the line between work and other activities and how these lines shift through time.

⁶ The exclusion of such activities as “work” does not imply that such work is of intrinsically less value than activities carried on outside the home. The difference is that domestic activities (whether by women or men) are not carried out for the purpose of monetary reward or exchange (though they may be necessary in order to free other household members to engage in economic activities) but are “self-rewarding” in the sense that they reflect sentimental bonds between related individuals. Where domestic work is carried out by unrelated persons for monetary gain or for some form of exchange (That is, an “extrinsic” reward) then it is included as work for the purpose of measuring the labour force and is included in GDP.

Another difficulty is that labour force surveys and censuses tend to include as many persons in the labour force as possible rather than exclude them, by using such minimalist criteria as having done one hour of “work” within the reference week (as done in the Bangladesh labour force survey and census). Where there is a doubt as to whether a person is economically active or not, the benefit is usually given to being in the labour force rather than outside it. This means that to understand the process of labour absorption it is necessary to explore the nature or degree of a person’s involvement in the labour force, such as the number of hours worked, whether paid or unpaid, or paid in cash or in kind, as well as the conditions of work. In terms of conditions of work, a distinction is often made between work in the “formal” sector of the labour market and the “informal” sector (or informal economy), with the implication that the latter provides inferior conditions of work. This distinction may be extended to the rural village sector whereby “self-employed” (i.e., persons not in an employer-employee relationship) such as a farmer cultivating crops on his own land, or a fisherman using his own boat gear is defined as working in the “informal sector”. It is doubtful that this is a useful characterization within the rural village economy and the term “informal” is better restricted to urban situations where its meaning is clearer.

Another effort to characterize the quality of work is the concept of “decent work” developed by the ILO, and defined as follows:

Decent work sums up the aspirations of people in their working lives. It involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men (ILO 2015).

In general, the informal economy is not considered to be providing opportunities for “decent work” (ILO 2015), so the expansion of the informal economy is considered by to be a regressive form of development. In any case, the measurement of decent work presents many statistical challenges and the present paper does not attempt to assess labour absorption by means of this concept.⁷

Labour Force Participation

The labour force participation rate has two components: (1) the population of working age; (2) the economically active population. We consider each of these in turn. The analysis is focussed mainly on the period 2000-2010 because labour force surveys prior to 2000 employed different definitions of the economically active population, particularly in regards to women’s activities. If census data are used, a much longer data series on the working age population would be available but it is preferable to employ the data generated by labour force surveys to avoid inconsistency between the two sources.

(1) Growth of the working-age population

Based on data from labour force surveys, the working-age group (15 years and over) increased by over 2.1 million persons per year over the 2000-2010 decade—a total increase of 21.4 million (Table 2.2). The rate of growth averaged 2.5 percent per year, considerably higher than the overall population growth rate. Urban growth rates were considerably higher than

⁷ The ILO has proposed 18 decent work indicators, many of which are not available from censuses and surveys and require special studies. See Castillo (2010).

rural, particularly among women. This reflects rural-urban migration. Note that rural males had the lowest rate of increase, again related to their higher rates of rural-urban migration relative to females.

Table 2.2: Working-age population, 2000-2010 (millions)

Residence	2000			2010			Change 2000-2010			Rates of Growth (%)		
	Total	M	F	Total	M	F	Total	M	F	Total	M	F
Total	74.2	38.4	35.9	95.6	47.9	47.7	21.4	9.5	11.8	2.5	2.2	2.8
Urban	16.6	8.5	8.1	23.0	11.5	11.0	6.4	3.0	3.4	3.3	3.0	3.5
Rural	57.7	29.9	27.8	72.0	36.4	36.2	14.9	6.5	8.4	2.3	2.0	2.6

Sources: BBS (2002, 2004, 2008 and 2011b)

(2) Growth of the economically active population ("labour force")

While the population of working-age increased by 21.4 million over the decade, the total labour force increased by 16.0 million (from 40.7 million in 2000 to 56.7 million in 2010) leaving a balance of 5.4 million persons that presumably were added to the economically inactive population (Table 2.3). It is important to note that the female labour force increased by 8.6 million (100 percent) while the male labour force increased by 7.3 million (22.7 percent). Clearly the number of economically active women increased quite dramatically over this period. There were also rural and urban variations: the increase was much greater in rural areas (11.9 million) than in urban areas (4.1 million), although these proportions match the overall urban-rural distribution of population. Overall, rural females accounted for 43 percent of the total increase in the economically active population, which is an unexpected finding. Conversely, urban females account for only 11 percent of the increase in the labour force over this period, despite the apparent expansion of opportunities for female labour in urban areas in recent years.

Table 2.3 Labour force 15 years and over by place of residence and sex: 2000-2010

Residence	2000			2010			Change			Annual percent change		
	Total	M	F	Total	M	F	Total	M	F	Total	M	F
Total	40.7	32.2	8.6	56.7	39.5	17.2	16.0	7.3	8.6	3.3	2.0	6.9
Urban	9.2	7.1	2.2	13.3	9.3	4.0	4.1	2.2	1.8	3.7	2.7	6.0
Rural	31.5	25.1	6.4	43.4	30.2	13.2	11.9	5.1	6.8	3.2	1.8	7.2

Sources: BBS (2002, 2004, 2008 and 2011b)

Trends in the labour force participation rate

Table 2.4 shows that the overall labour force participation rate (LFPR) has increased from 47.0 percent in 1989 to nearly 60 percent in 2010. The main reason for the overall increase in the LFPR is the greater participation of women, whose LFPR has more than tripled since 1989. On the other hand, the male LFPR has tended to fluctuate over time, possibly due to changes in survey methodology or definition in labour force surveys.

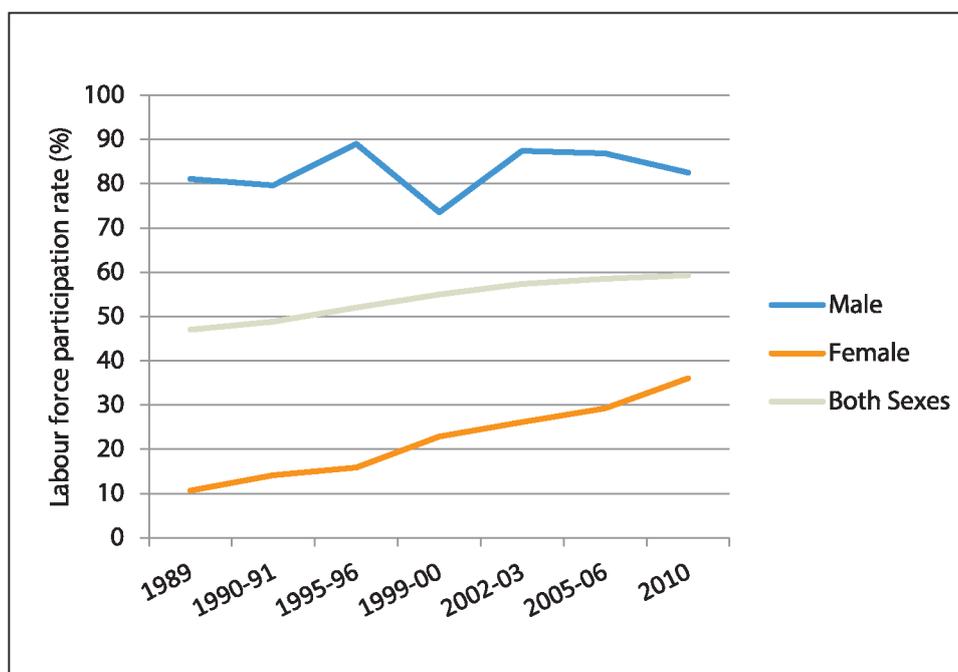
Table 2.4: Labour force participation rate by sex, 1989-2010*

Year	Male	Female	Total
1989	81.0	10.6	47.0
1990-91	79.6	14.1	48.8
1995-96	89.0	15.8	52.0
1999-00	73.5	22.8	54.9
2002-03	87.4	26.1	57.3
2005-06	86.8	29.2	58.5
2010	82.5	36.0	59.3

Sources: Khuda (1982, 1988); BBS (2002, 2004, 2008 and 2011a)

*Note that up until the 1999-2000 Labour Force Survey, the labour force was defined as the economically active population aged 10 years and over. From 2002-2003 onwards the definition changed to 15 years of age and over.

Figure 2.2: Labour force participation rates by sex, 1989-2010 (percent)



Sources: Table 2.4

GENDER ASPECTS OF LABOUR FORCE PARTICIPATION

The period since 2000 has seen more change in the extent and structure of women's employment than of men's. As definitions used in the labour force surveys changed after 1996, meaningful comparison of findings from the labour force surveys can only be made for the period from 2000 onwards. While the aggregate men's labour force participation rate at ages above 10 has fallen somewhat (84.0 percent in 2002; 82.5 percent in 2010), for females it rose sharply from 23.9 percent to 36.0 percent over the same period (Table 2.5).

Table 2.5: Labour force participation rates by age and sex, 2000-2010 (percent)

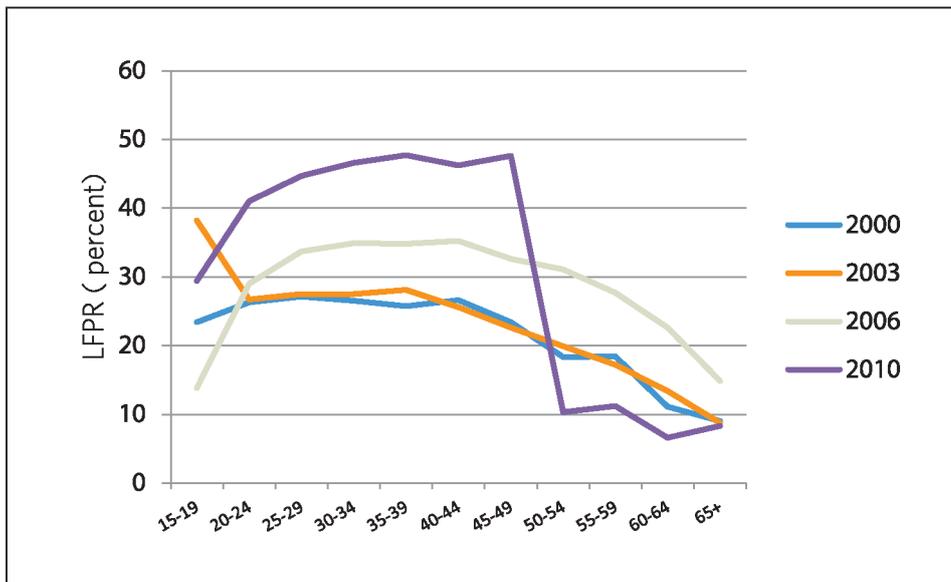
Age Group	Both Sexes				Males				Females			
	2000	2003	2006	2010	2000	2003	2006	2010	2000	2003	2006	2010
15-19	41.7	49.7	41.7	39.4	55.9	58.9	62.9	48.4	23.4	38.2	13.8	29.4
20-24	47.0	53.8	53.0	56.7	74.0	84.9	80.4	75.9	26.3	26.7	29.0	41.0
25-29	54.2	58.4	60.8	66.6	91.3	97.7	95.3	98.2	27.1	27.5	33.7	44.7
30-34	60.8	62.1	64.7	70.8	95.7	99.7	98.7	97.3	26.5	27.5	34.9	46.6
35-39	63.7	64.6	66.2	72.8	98.2	99.8	98.8	98.3	25.7	28.1	34.8	47.7
40-44	66.6	65.9	68.2	72.8	97.8	99.7	97.7	98.1	26.6	25.6	35.2	46.2
45-49	66.0	64.6	68.8	74.3	97.6	99.5	97.8	97.4	23.4	22.6	32.6	47.6
50-54	60.6	62.8	66.8	56.1	95.8	99.2	95.4	94.1	18.3	19.9	31.1	10.3
55-59	62.4	61.0	62.9	51.2	93.5	97.3	92.7	88.5	18.4	17.2	27.7	11.2
60-64	48.8	52.6	55.8	45.0	81.4	87.8	82.7	77.2	11.1	13.4	22.6	6.6
65+	37.4	40.3	38.7	34.8	56.6	66.1	59.3	57.9	9.0	8.7	14.8	8.3
TOTAL	54.9	57.3	58.5	59.3	84.0	87.4	85.8	82.5	23.9	26.1	29.2	36.0

Sources: BBS (2002; 2004; 2008; 2011b)

Figures 2.3 and 2.4 present age specific LFPRs for females and males, respectively, by age. For females, there is a striking increase from around 25 percent of women in the labour force at ages between 20 and 45 around 2000 to around 45 percent in the same age groups in 2010.⁸ By contrast, male labour force participation rates by age are much more stable through time with relatively minor changes between surveys. If any trend is evident it is the decline of male LFPRs in 2010 after age 45, particularly relative to 2003.

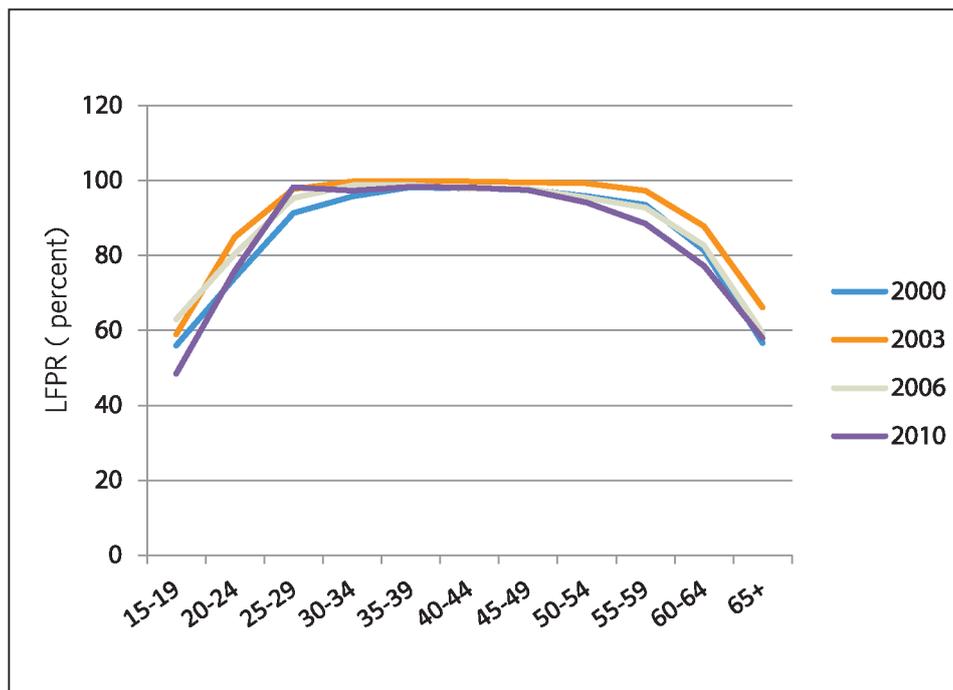
⁸ The precipitous drop between ages 45-49 and 50-54 is clearly inconsistent with the pattern in earlier years, and does not appear credible. It is likely that this is due to some kind of calculation error in the construction of Table 2.5.

Figure 2.3: Female labour force participation rates by age, 2000-2010



Source: Table 2.5

Figure 2.4: Male labour force partition rates by age, 2000-2010



Source: Table 2.5

Box A: How many women are employed in the RMG sector?

The ready-made garment (RMG) sector is the major employer of women in urban areas of Bangladesh, as well as being the sector bringing most foreign exchange into the Bangladesh economy (in 2011-12, the RMG sector contributed almost 79 per cent of all Bangladesh's export income). Its importance in opening employment opportunities for women, many of them from poor rural backgrounds, has been lauded for its contribution to improving the lot of women in Bangladesh, though wages and working conditions in the sector are subject to much criticism.

Given its importance in all these respects, it is surprising that information on the numbers employed in this sector is very difficult to come by, and of doubtful quality. For example, an Asian Development Bank policy brief in 2006⁹ gave a figure of 4.5 million workers, 80 per cent of whom were females. Its source was Reuters Newsagency. The World Bank (2013a) says there are about 3 million women working in the sector. Most international agencies appear to use the figure on employment in the RMG sector given in the *Statistical Pocketbook of Bangladesh*. The 2013 edition indicates that employment in the RMG sector increased as follows in recent years:

2006-07:	2.4 million
2007-08:	2.8 million
2008-09:	3.5 million
2009-10:	3.6 million
2010-11:	3.6 million
2011-12:	4.0 million

The source of these figures was not official labour force surveys or other surveys, but rather the Bangladesh Garment Manufacturers and Exporters Association. The figures are not broken down by sex. This provides an additional problem in estimating the number of female workers, because there are no reliable figures on the proportion of females among garment workers, although it appears to have been declining over time. According to one study (Lopez-Acevedo and Robertson, eds 2012), the female share had fallen to 62 per cent as of 2009. Assuming that men continued to make up 62 per cent of RMG workers, this would mean that about 2.23 million workers in the industry in 2010-11 were women, rising to 2.48 million in 2011-12. However, in 2010-2011, **the total number of women employed in the entire manufacturing sector was only 1.91 million (according to the 2010 Labour Force Survey), or 1.97 million (according to the 2011 Population Census)**. Although the RMG sector employs by far the largest number of women out of all manufacturing activities, some are also employed in other activities, particularly in *beedi* cigarette manufacturing. Unfortunately, neither the 2010 Labour Force Survey nor the Population Census reports provide any table giving a more detailed breakdown of manufacturing sector employment by sub-sector.¹⁰

The usually accepted number of women employed in the industry is therefore clearly exaggerated – but it is not clear by how much.

References

Lopez-Acevedo, G. and R. Robertson (eds), 2012, *Sewing Success? Employment, Wages, and Poverty following the End of the Multi-Fibre Agreement*, Washington DC: The World Bank.

⁹ Asian Development Bank, 2006, "Establishing Social Protection for Women Garment workers in Bangladesh", Social Protection Policy Briefs, ADB, Manila.

¹⁰ Although manufacturing sector employment is tabulated by occupational group in the 2010 Labour Force survey report, this does not provide a satisfactory basis for estimating employment in the RMG sector.

The increase in women's labour force participation was partly a real increase, and partly due to more complete enumeration of unpaid family workers engaged in activities such as livestock and poultry raising (Rahman and Islam 2013). "Changes in social attitude during the recent years and growing awareness about the need for recognition of women's economic activity resulted in enumeration of women doing livestock and poultry raising as agricultural labour force (the figure was 1 million in 2000 and 3.975 million in 2006). This has obviously raised female LFPR. It may be concluded that the recent increase of the female LFPR has resulted from counting unpaid women workers in the family who are engaged in livestock raising as employed labour force" (Rahman and Islam 2013).

Sectors where female employment rose most over the period were in poultry and livestock raising, in a variety of rudimentary non-farm activities, thanks mainly to the spread of micro-credit, and—particularly in urban areas—in sales and vending, and in the RMG sector. Note that 65 percent of women's employment in 2010 was in the agriculture sector, compared with 40 percent of men's. The share of manufacturing was almost the same for both – 12.8 percent for males, 11.8 percent for females.

Given the nature of the economic activities in which women's employment increased most, it is not surprising that the rise in female employment was heavily concentrated in the category "unpaid family helpers". In 2010, 56.3 percent of working women were unpaid family helpers (compared with only 7.1 percent of working males); 71.8 percent in rural areas and 22.3 percent in urban areas. Increased female employment in the RMG sector (where they are almost all in the employee category) was only a small proportion of the increase in female employment in Bangladesh, albeit an extremely important part in terms of its influence in modifying traditional attitudes to women's employment, and changing the social context for women, particularly in urban areas. Actually, to the extent that a substantial part of the increase in women's LFPR was through increased recognition of previously under-recorded aspects of women's work rather than through actual increases in women's work participation, the contribution of the RMG sector to the increase was greater than it appears from the figures. This is because increased employment of women in the RMG sector is a reality which can be fairly accurately measured. As the box on the previous page shows, however, there is some doubt about the actual numbers working full-time in the RMG sector.

It must be recognized that in Bangladesh, measurement of women's participation in economic activities in surveys remains a highly inaccurate exercise. Although the official definitions have been widened to include home-based economic activity, and this has led to increased recorded LFPR for females in Bangladesh labour force surveys, prevailing social attitudes probably continue to result in an underestimate of such activities.¹¹

In any event, the measured female LFPR (36 percent during 2006-10) is slightly above the South Asian average, which itself is affected by similar measurement issues to those faced by Bangladesh. The South Asian average is the lowest of any region except the MENA region (which is slightly lower) and well below East Asia, where it was 67 percent in 2010. Clearly, there is still very considerable scope for raising the female LFPR in Bangladesh; this has the potential to make a major contribution to economic growth, increasing the

¹¹ One study using a sample survey in eight districts using the BBS definition found much higher female LFPR than the Labour Force Survey (67 percent as against 36 percent). The authors argued that prevailing social attitudes do not recognize women's home-based economic activity as work, and also that the limited time available for the conduct of interviews in the labour force survey tended to lead to interviewers avoiding categorizing women as working (Mahmud and Tasneem 2011).

incomes of poor families and improving women's status in society. Raising female labour force participation is a declared policy goal in the Sixth Five Year Plan.

The contribution of women's work to improving their status in society and to raising family income, however, is hindered by the discriminatory aspects of women's employment conditions and wages. One study found that women's earnings are 21 percent lower than men's, of which the pure gender wage gap was 15.9 percent (Rahman and Islam, 2013). In the RMG sector, where most of the factory buildings are overcrowded, congested and poorly ventilated, with limited staff amenities, employers prefer younger and unmarried women because they are more docile, averse to joining trade unions, and less likely to bargain for higher wages (Majumder and Begum, 2006).

In summary, employment in Bangladesh remains overwhelmingly in the informal sector (87.5 percent in 2010), and female employment is primarily as unpaid family helpers. The RMG sector is the only major employer of women in the manufacturing sector, and while its growth has had a major impact on the situation of women in urban areas, there is an urgent need to foster the expansion of other sectors within manufacturing, as well as to spread the location of RMG factories as much as possible, to enable more women from outside the cities to find employment there. The share of women in the RMG workforce is said to have fallen from about 90 percent up to the end of the 1990s, when the industry focused on woven garments, to 62 percent in 2009, with a rise in the share of knitted garments, a sector in which males provide more than half the workforce (Rahman and Islam, 2013).

LABOUR FORCE ABSORPTION RATES

As the working age population grows, social and economic processes distribute the growing numbers of potential workers into various statuses. Some individuals transit smoothly from primary or secondary school to full-time work; others find only part-time or temporary work; some become unemployed and need to be supported by others (the family or the state); some may elect to stay in school and undertake post-secondary education, thus delaying their entry into the labour force; yet others may emigrate and find work abroad; others may remain in the household doing domestic work; a fortunate few may be endowed with sufficient inherited capital or income from capital that they do not need to work.

The logic of the following analysis is to start with the increase in the working age population over the limited period of 2000-2010 and to trace the numbers flowing into the above positions. It is clearly impossible to trace actual individuals in this process but it is possible to look at aggregate changes. In reality the total labour force is always in flux as individuals move between categories.

The labour force absorption rate may be measured as follows:

$$A = \frac{\Delta P_{15+}}{\Delta P_{ea} - (\Delta P_u + \Delta P_{ufw} + \Delta P_{un})} * 100$$

Where:

A = Absorption rate

ΔP_{15+} = increase in the population of working age

ΔP_{ea} = increase in the economically active population ("labour force")

ΔP_u = increase in the unemployed defined narrowly

ΔP_{ufw} = increase in the category of "unpaid family workers" working <15 hrs/wk

ΔP_{un} = increase in the "underemployed"

However, this is a somewhat extreme formulation because it discounts the underemployed and unpaid family workers. According to this formula, only the population in full-time regular employment is fully “absorbed” in the economy. It is important to acknowledge that labour absorption is a matter of degree and the rate of absorption may vary according to the criteria used.

In this report, labour absorption rates have been calculated using three different criteria. In Table 2.6, the “employed” population has been defined as the economically active less the unemployed where the “extended” definition of unemployment ($P_u + P_{ufw}$ in the above formula) has been applied. This yields an overall absorption rate of 47.2 percent (61.3 percent for males and 34.3 percent for females). By this measure, the labour force absorption rate is below 50 percent.

In Table 2.7, the employed population is defined as the economically active less the unemployed according to the “narrow” definition (P_u) plus the underemployed (P_{un}). This application of the formula results in a similar total absorption rate (48.6 percent) but the difference between male and female rates is reversed, with the female rate higher than the male rate. Table 2.8 defines employment as the economically active population less the unemployed based on the “extended definition” ($P_u + P_{ufw}$) plus the underemployed (P_{un}). This is the full application of all the terms in the above formula and yields the lowest absorption rates, 26.4 percent for males and 22.9 percent for females.

These results allow considerable room for interpretation. The inclusion of unpaid family workers in the same category as the formally unemployed may be considered by some to be inappropriate as such a status may provide a reasonable level of living in Bangladesh, if not an actual wage. Similarly, the 35 hours a week threshold for defining the underemployed may be too restrictive as this would be considered full-time work in more developed economies—at least for salaried workers. Also, the analysis does not take account of the numbers who are working in excess of a normal working week. Finally, the analysis does not distinguish between “formal” and “informal” sector employment. Many of those included here among the employed may have very unsatisfactory working conditions as measured by the criterion of “decent work”.

Table 2.6: Percent labour force absorption rate using extended unemployment definition, 2000-2010

Residence	(1) Working age population*			(2) Economically active population*			(3) Unemployed (extended)*			(4) Employed (2)-(3)*			(5) Absorption rate (4)/(1)*100		
	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F
Total	21.40	9.50	11.80	16.00	7.30	8.60	5.90	1.48	4.56	10.10	5.82	4.04	47.2	61.3	34.3
Urban	6.40	3.00	3.40	4.10	2.20	1.80	1.01	0.15	0.86	3.09	2.05	0.94	48.3	68.2	27.8
Rural	14.90	6.50	8.40	11.90	5.10	6.80	4.88	1.36	3.52	7.02	3.74	3.28	47.1	57.5	39.0

Table 2.7: Percent labour force absorption rate using under-employment definition, 2000-2010

Residence	(1) Working age population*			(2) Economically active population*			(3) Unemployed (narrow)*			(4) Underemployed*			(5) Absorption rate (4)/((1)+(4))*100					
	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F			
Total	21.40	9.50	11.80	16.00	7.30	8.60	0.84	0.53	0.31	4.75	3.31	1.34	10.41	3.46	6.95	48.6	36.4	58.9
Urban	6.40	3.00	3.40	4.10	2.20	1.80	0.33	0.18	0.15	0.53	0.31	0.18	3.24	1.72	1.47	50.7	57.2	43.1
Rural	14.90	6.50	8.40	11.90	5.10	6.80	0.51	0.36	0.16	4.24	3.01	1.14	7.15	1.73	5.50	48.0	26.6	65.5

Table 2.8: Percent labour force absorption rate using extended unemployment+ under-employment definition, 2000-2010

Residence	(1) Working age population*			(2) Economically active population*			(3) Unemployed (extended)*			(4) Underemployed*			(5) Absorption rate (4)/((1)+(4))*100					
	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F			
Total	21.40	9.50	11.80	16.00	7.30	8.60	5.90	1.48	4.56	4.75	3.31	1.34	5.35	2.51	2.70	25.0	26.4	22.9
Urban	6.40	3.00	3.40	4.10	2.20	1.80	1.01	0.15	0.86	0.53	0.31	0.18	2.56	1.74	0.76	40.0	58.0	22.4
Rural	14.90	6.50	8.40	11.90	5.10	6.80	4.88	1.36	3.52	4.24	3.01	1.14	2.78	0.73	2.14	18.7	11.2	25.5

*Numbers refer to increases between 2000 and 2010

Leaving these considerations aside, the analysis suggests that the Bangladesh economy has absorbed at best just under 50 percent of the increase in the working age population into the economy in a satisfactory way over the 2000-2010 decade. The other half of the 15 and over age group have found themselves unemployed, under-employed or not in the labour force at all. It should be stressed that the rate of absorption of the available labour force would be considerably higher if it were possible to measure and adjust for the number of persons who voluntarily remained outside the labour force. In particular, many women are not seeking to be economically active outside the home – either because their husband or other family members do not agree with them doing so, or because they are content to be home-makers. The data required to take such persons into account are not presently available.

The economically inactive population

As noted earlier, there was an unaccounted-for balance of 5.4 million persons who had entered the working-age population but had not joined the economically active population (“labour force”). Table 2.9 accounts for these¹². The great majority are women reporting their activity as “housework”, but the largest increase by far is among “others”, which includes pensioners and other income earners and the disabled. Next to that group are students. Note that five times as many males joined the ranks of students as females.

Table 2.9 Changes in economically inactive population, 2000-2010 by category (millions)

Category	2000			2010			Change 2000-2010		
	Total	M	F	Total	M	F	Total	M	F
Total	33.5	6.1	27.4	39.0	8.4	30.6	5.5	2.3	3.2
Students	5.0	3.1	1.9	6.0	4.6	2.2	1.8	1.5	0.3
Housework	25.4	1.5	23.9	26.3	1.2	25.1	0.9	-0.3	1.2
Others	3.1	1.5	1.6	5.9	2.6	3.3	2.8	1.1	1.7

Sources: BBS (2011b)

Employment Status

Another indicator of the successful absorption of labour is the extent to which the labour force is shifting toward more secure or at least less vulnerable forms of employment. As shown in Table 2.10, however, there has been little overall change in the relative shares of the different employment status categories. Self-employed workers, the dominant group, declined somewhat from 47 percent in 2000 to 41 percent in 2010, but day labourers remained at around 23 percent; and employees hovered at around 15-17 percent. In contrast, unpaid family workers increased from 12 percent of the labour force to 22 percent. The evidence indicates that vulnerable forms of employment have remained predominant over the decade, especially among females.

¹² The table shows an increase of 5.5 million. The difference between this figure and the data in Tables 2.2 and 2.3 is probably due to a rounding error.

Table 2.10: Employed persons aged 15 years and above by employment status, 2000-10 (percent)

Employment Status	2000			2006			2010		
	Total	M	F	Total	M	F	Total	M	F
Employee	16.7	15.8	20.3	13.9	14.6	11.7	14.6	17.0	8.9
Employer	0.3	0.3	0.0	0.3	0.3	0.1	0.2	0.2	0.2
Self-employed	46.7	51.4	26.6	41.9	50.0	15.9	40.8	47.5	25.1
Day Labourers	24.3	26.1	19.0	22.2	25.4	12.2	22.6	28.2	9.5
Unpaid family worker	12.0	6.4	34.1	21.7	9.7	60.1	21.8	7.1	56.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: BBS (2002, 2004, 2008 and 2011b)

Summary: labour force trends

The analysis above has focused on the relatively short period of 2000 to 2010, but the observed patterns and trends nevertheless provide an indication of past trends and relevant lessons about what could potentially occur in the future. The main conclusions are as follows:

- The growth rate of the working age population has exceeded the overall population growth rate because of the relatively high proportion of young people in the population in 2000. This pattern of high growth in the working age and labour force ages will continue for some decades to come (see Chapter 3). The challenge of labour force absorption will remain a pressing one.
- The rate of growth in the economically active population was 3.3 percent per year, which is higher than the growth rate of the working age population. This rate of growth was only possible because of the rapid increase in the number of women expressing their willingness (or perhaps need) to work.
- The formal rate of unemployment has hardly changed during the decade but this is partly due to the limited applicability of this concept of unemployment in a still predominantly rural economy.
- Labour force participation rates are stable for males but have increased rapidly for females, especially in the 15-49 age range. This reflects an increasing “demand” for jobs for women, but also changes in the methods used to measure women’s activities.
- Underemployment rates are erratic through time but generally increasing. Male underemployment rates have doubled while female rates have declined.
- The number of persons in employment (excluding the unemployed) has increased by 15.2 million, but this drops by one third when the unemployed are defined according to the extended definition.
- The overall rate of labour absorption over the decade 2000-10 is just below 50 percent, (but as low as 25 percent using more restrictive definitions of



Apprenticeship Program. UNFPA.

employment). That is, about 50 percent of the increase in the working age population were in employment and not underemployed by 2010. The other 50 percent were either unemployed, underemployed or not in the labour force. It needs to be stressed that many (probably most) of those who joined the economically inactive population were not actually seeking work or needed to work.

- While the economically inactive category was predominantly made up of those doing housework (most of them females), the share of this group in the economically inactive fell from 76 percent to 67 percent over the period. The increase in the inactive category was primarily due to the increase in “others” (including pensioners, other income earners or the disabled), and in the school-going population, which accounted for one third of the increase in the inactive population.

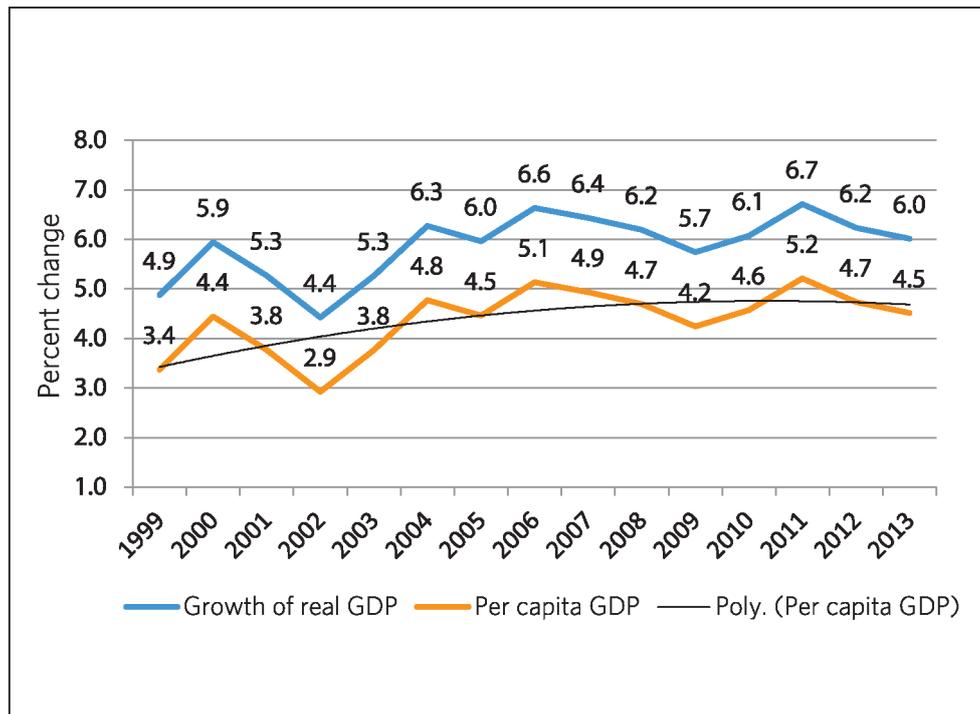
The overall conclusion is that while the Bangladesh economy has been improving in many respects in recent decades, with moderately high rates of economic growth and decreasing poverty, the rate of labour force absorption has been insufficient to provide adequate employment to many millions of people. The momentum of population growth from the 1990s decade has very likely contributed to this outcome. A lower birth rate during the 1990s and following through in the form of slower labour force growth in the first decade of the 21st Century might have improved the present situation, although this is far from certain.

ECONOMIC GROWTH AND POVERTY

Economic growth

While Bangladesh has not experienced GDP growth to match the pace of the “Asian Tiger” economies (Republic of Korea, Singapore, Taiwan and more recently, China), it is evident that GDP growth has comfortably exceeded population growth, resulting in a healthy increase in per capita GDP (Figure 2.5). Over the two decades 1980-2000, Bangladesh’s GDP increased four times over whereas population increased by about 45 percent. The more recent period shown in Figure 2.5 suggests that GDP has increased at an average rate of 5.9 percent annually, while allowing for population growth of 1.5 percent per year gives average per capita growth of 4.4 percent. This is a comfortable rate of growth and *prima facie* evidence that Bangladesh has avoided the “low-level equilibrium poverty trap”. Certainly the levelling-off of the population growth rate over the period 2001-2011 will have contributed to per capita income growth as well as producing an age structure more conducive to growth.

Figure 2.5: Real (total) GDP growth and per capita GDP growth, 1999-2013 (%)*



Source: BBS (2013a). *Fiscal years.

A full explanation of the determinants of Bangladesh's economic growth performance is outside the scope of this study, but most informed observers attribute the country's positive economic trends to the following factors:

- The process of denationalization and other structural reforms dating from the 1980s, which improved the efficiency of banking, telecommunications, aviation, media and jute production through private sector development.
- The emergence of a large-scale export-oriented garment industry facilitated by Bangladesh's comparative advantage as a supplier of cheap factory labour and the liberalization of the textile trade.
- The advent of large-scale international contract labour migration, which resulted in large remittance flows that provide a large boost to domestic consumption.
- Considerable foreign bilateral and multilateral aid and foreign direct investment in export processing zones.
- The development of micro-credit provided through NGOs stimulating rural entrepreneurship, especially among women.
- The development and expansion of new industries, such as ship-building, telecommunications, pharmaceuticals, ceramics, information technology, etc.

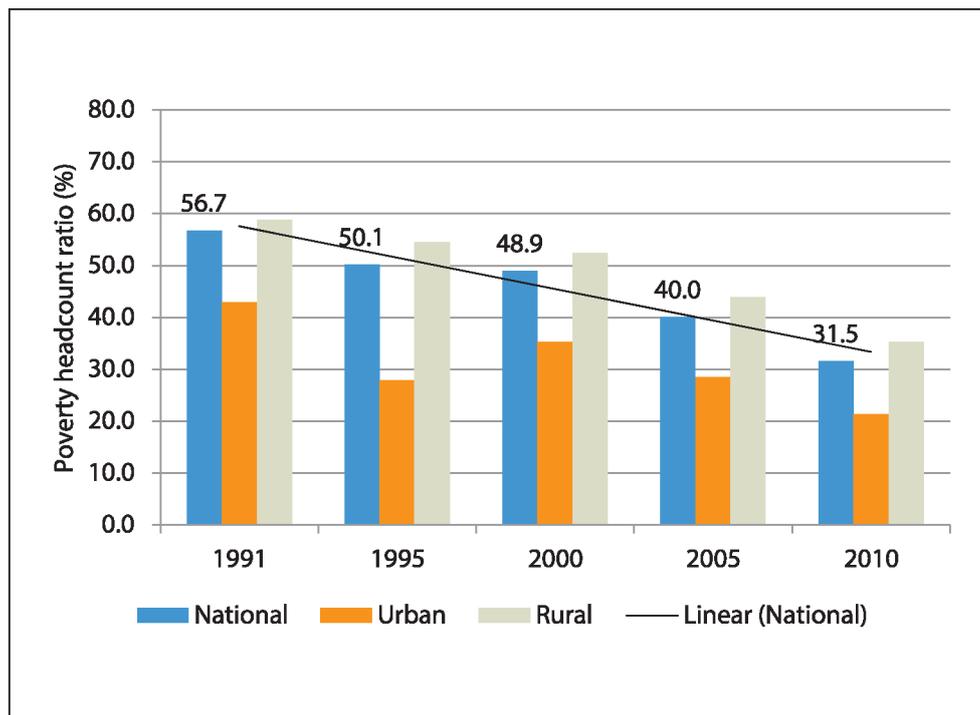
Despite these positive trends, the analysis of labor force absorption demonstrates that the rate of economic growth and the restructure of the economy have been insufficient to significantly reduce surplus labour in the economy, although the impact on poverty reduction has been positive.

Poverty

As already noted, escaping various "poverty traps" is the primary challenge of developing countries passing through the demographic transition. Economic growth is the primary determinant of decreased poverty, so the healthy growth in per capita GDP in recent years should be reflected in a declining poverty rate—at least at the national level. While the poverty rate in Bangladesh is highly sensitive to the definition used, all available measures of poverty show a declining trend from the early 1990s up to the latest year for which data are available (2010 in most cases). Figure 2.6 shows the trends in the *national* poverty line since 1991. Based on this measure poverty has declined by 44 percent over a period of nearly two decades. Urban poverty declined faster (-50.2 percent) than rural (-40.1 percent).

Alternative measures of poverty such as the international standard of an income below \$US1.25 (PPP) per day also show a declining trend since the 1990s. The "poverty gap ratio" has also decreased significantly. The main issue of contention is not the direction of poverty trends but the current level, with the headcount poverty ratio in 2010 ranging from 76.5 percent to 31.5 percent depending on the definition employed (see Table 1). Yet another measure, the UNDP's "Multidimensional Poverty Index" (MPI), suggests that 60 percent of the population were living in households experiencing "multiple deprivations" (UNDP 2014). The multidimensional poverty headcount is 14.5 percentage points above the income poverty line, implying that Bangladeshis living above the income poverty line may still suffer serious deprivations in education, health and living conditions.

Figure 2.6: Trends in poverty headcount ratio, 1991-2010



Source: BBS (2011e).

Other poverty measures, such as the Asian Regional Poverty line developed by the ADB (see Table 1.1) suggest a similar level of poverty as the MPI—58 percent in 2010. Adjusted for food insecurity and vulnerability, the ADB’s poverty headcount ratio drops somewhat but is still high at 48 and 51 percent, respectively. These are significantly higher levels of poverty than indicated by the national poverty line, and at the least indicate that Bangladesh has a long way to go to bring poverty down to the levels observed in East or Southeast Asia. The higher levels of poverty suggested by alternative indicators are perhaps more consistent with growing landlessness, urban underemployment and a large pool of under-utilized labour than is suggested by the national Poverty Headcount Ratio.

Variations in poverty

Bangladesh’s national poverty line has two levels—an “upper” poverty line, which is employed for the purpose of MDG reporting and similar purposes, and a lower or “extreme” poverty line which measures absolute deprivation. Despite a significant decline in general poverty over recent decades, about 18 percent of the population remained in extreme poverty in 2010 (Table 2.11) and the extremely poor remain a majority of the generally poor. Extreme poverty would appear to be declining at a more rapid rate than general poverty based on the trend between 2005 and 2010, but this is largely because of the rapid decline (47 percent in five years) of extreme poverty in urban areas. In rural areas, the rate of decline in both general and extreme poverty has been considerably slower.

Table 2.11: Poverty Head Count Rate (CBN) by severity of poverty and residence, 2005 and 2010

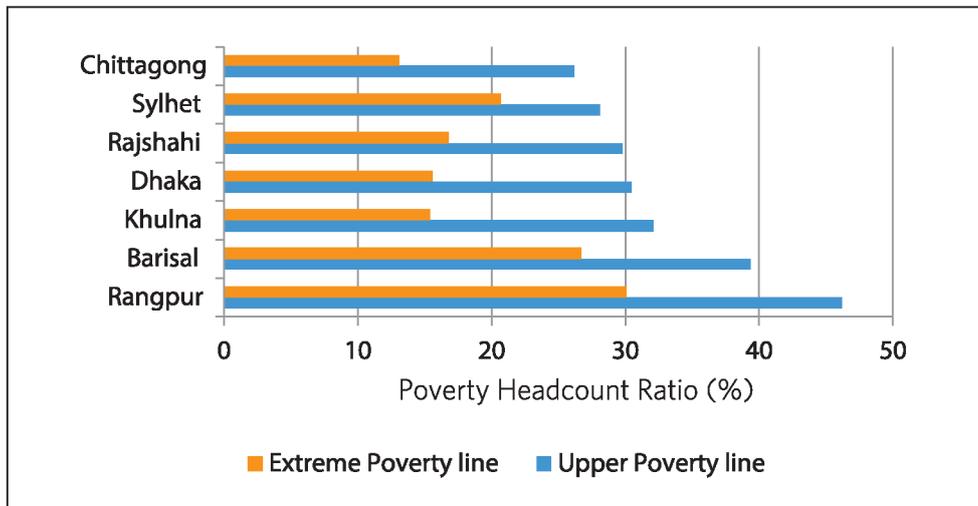
Residence	Upper Poverty Line		Lower Poverty Line	
	2005	2010	2005	2010
National	40.0	31.5	25.1	17.6
Rural	43.8	35.2	28.6	21.1
Urban	28.4	21.3	14.6	7.7

Source: BBS (2011e).

Poverty rates vary by geographical area. At the Division level, Barisal and Rangpur had the highest poverty rate in 2010 using the “upper poverty line” and Chittagong and Sylhet had the lowest (Figure 2.7). Barisal and Rangpur also have the highest rates of “extreme” poverty with Chittagong, Dhaka and Khulna having the lowest. Over the decade 2000-2010, the rate of extreme poverty has declined fastest in Dhaka, Khulna and Chittagong, and slowest in Sylhet and Barisal. All forms of poverty tend to be lower in urban areas and the rate of decline is also faster than in rural areas. Thus, the location of a large city within a Division will tend to result in a lower poverty rate and a faster decline in poverty in that Division. Sylhet is a possible exception to this pattern where poverty is ameliorated to some extent by its high proportion of international labour migrants and its connections with the Bangladeshi diaspora. However, poverty rates by Division generally reflect the east/west divide in terms of overall development with the eastern side of the country significantly better off than the western side. It is possible that this divide can be explained partly by deteriorating environmental conditions, including river bank erosion, leading to shortages of food, clean water and building materials, in the western side.

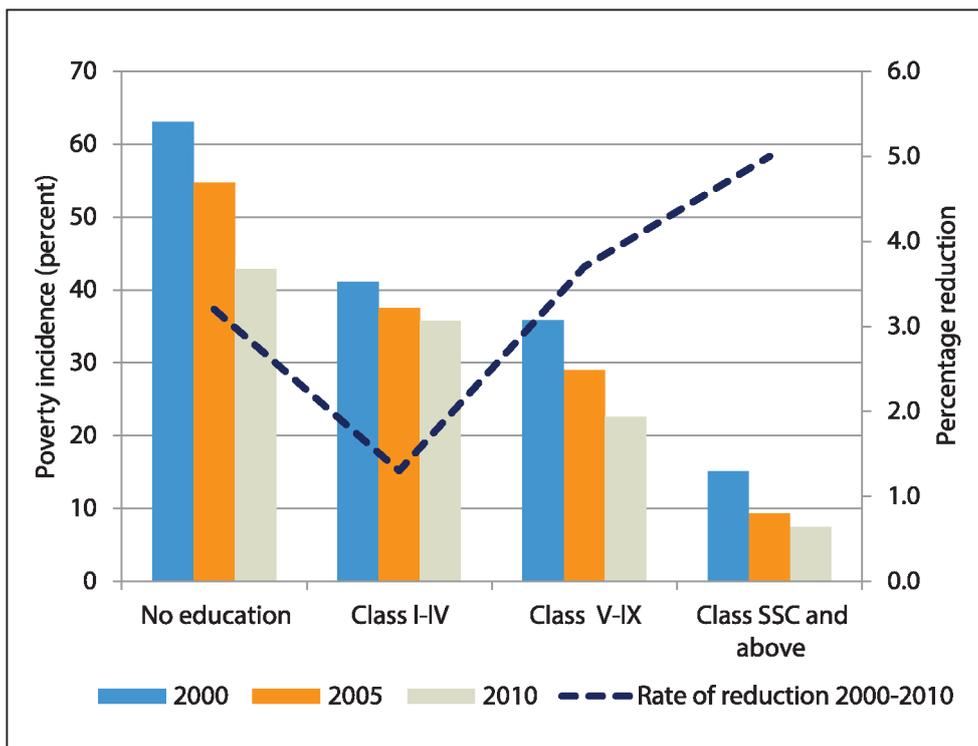
There is also a clear relationship between education and poverty, although this relationship is to some extent cross-cut by other factors, such as rural or urban residence. The illiterate are much more likely to be in poverty than the literate. The poverty rate declines sharply as educational status rises: the incidence of poverty is about six times higher among those with no education than those with completed Secondary School Certificate (Class 10) and higher levels of education (Figure 2.8). Furthermore, poverty declined much more rapidly over the 2000-2010 decade among those with the highest level of educational attainment. The slowest rate of decline in poverty over this period was among those who had completed Class I-IV. A possible explanation for this difference is that persons at that level of education may represent the working poor who may not be poor enough to benefit from social safety net programmes. It is known that household characteristics other than educational attainment are also related to poverty, such as having a widowed or divorced household head. Such households are disadvantaged by their lack of assets and alternative sources of livelihood, especially among females.

Figure 2.7: Poverty headcount ratio by Division and degree of poverty, 2010



Source: BBS (2006b; 2011e). Titumir (2014).

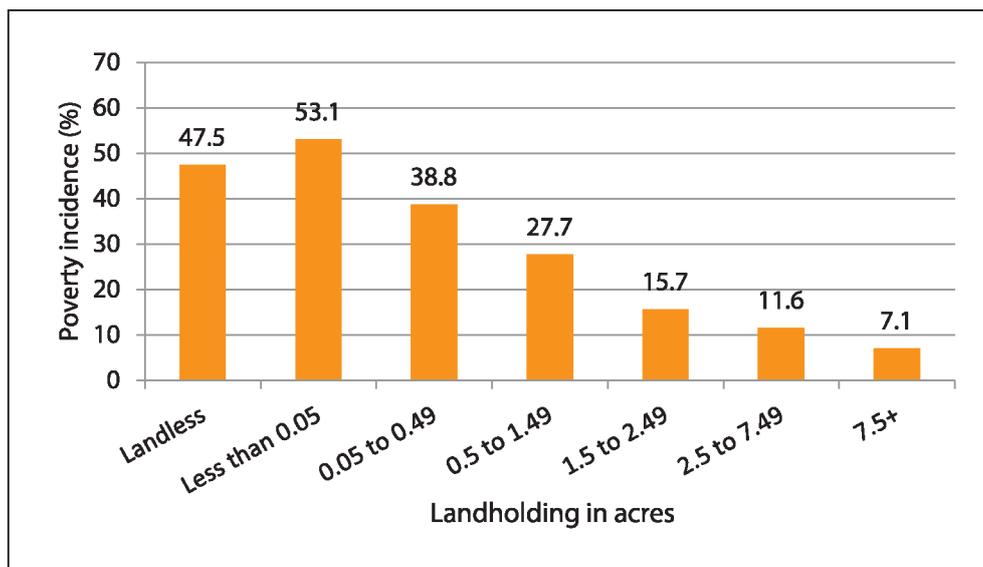
Figure 2.8: Relationship between education and poverty, 2000-2010



Source: BBS (2006b; 2011e). Titumir (2014).

In rural areas poverty is closely related to the size of landholdings (Figure 2.9). The highest poverty rates are found among those with either no land or a holding too small to form a farm or even a garden. Poverty drops most significantly when the size of landholding reaches 1.5-2.5 acres and is lowest among the “rich” landowners holding 7.5 or more acres.

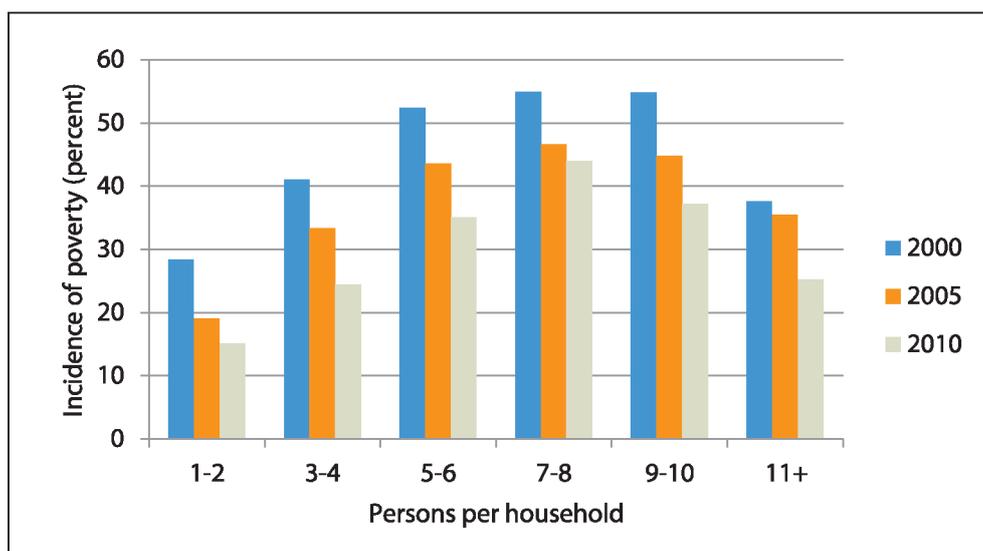
Figure 2.9: Relationship between rural landholding and poverty, 2010



Source: BBS (2006b; 2011e). Titumir (2014)

Finally, poverty is closely related to household size, as shown in Figure 2.10. The overall distribution is consistent in each of the three survey-years with poverty rates rising with household size up to 9-10 persons per household and then declining. The direction of causality (whether large household size causes poverty or poverty causes large household size) is a matter of some debate. In the Bangladesh context it is worth recalling the statement of Rafiqul Chaudhury (1989) who pointed out the dilemma of population and land in rural areas: "...on the one hand the increasing pressure of population reduces the size of inherited plots steadily, but on the other hand, the majority of the rural households who own small pieces of land, find in a larger family size an important means for their upward mobility. This vicious circle may continue till poor peasants find alternatives, other than through their children, to enhance their economic position."

Figure 2.10: Poverty and household size, 2000-2010



Source: BBS (2006b; 2011e); Titumir (2014).

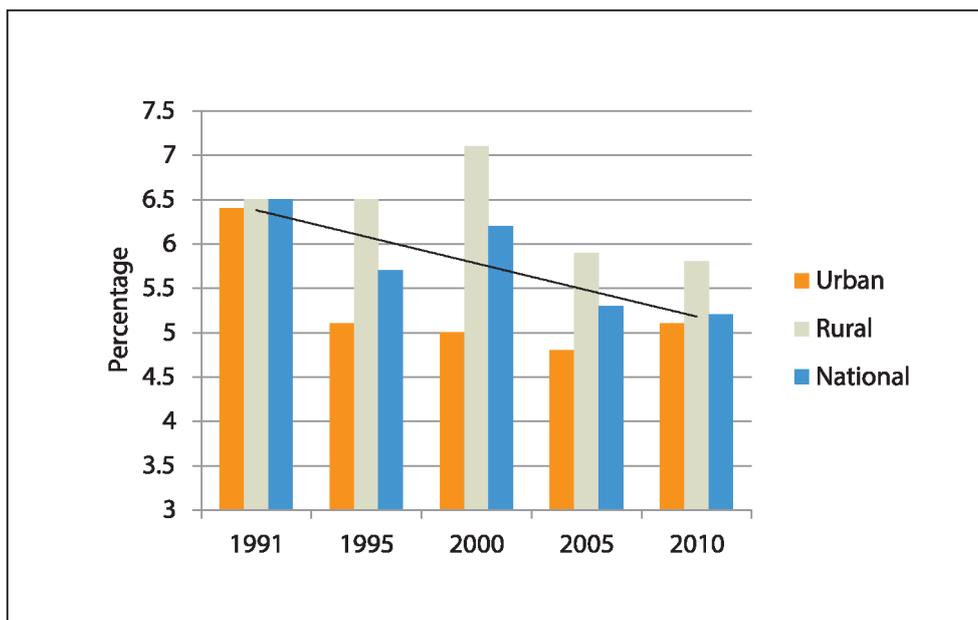
Occupation is also related to poverty. In 2010, “Service Workers” had the highest poverty rates of all occupations (44.2 percent) whereas in 2005 agricultural workers had the highest rate (48.2 percent). But the highest poverty rates in 2010 were recorded among rural service workers (49.1 percent) while in urban areas the poverty rate among service workers was considerably lower (34.4 percent) (BBS 2013c).

Poverty decline in Bangladesh is generally attributed to moderate but sustained economic growth, significant inflows of migrant remittances, the declining population growth rate, a trend toward an economically more favourable age structure, the development of new industries, increases in real labour income, improved infrastructure, and the expansion of social safety net programmes. In other words, broad-based development on a number of fronts has contributed to poverty reduction. Possibly the social safety net programmes developed in recent years would have had a greater impact had it not been for various shortcomings, such as overlap and duplication between and among the various implementing agencies, poor selection of beneficiaries, leakages and wastages of various kinds (World Bank 2006; Khuda 2011a).

Inequality of income

Although poverty has declined by most measures in recent decades, income inequality has nevertheless worsened over the past two decades. The share of the poorest quintile in national income declined from 6.5 percent in 1991-92 to 5.2 in 2010 and a similar decline is evident in both rural and urban areas (Figure 2.11). These data suggest that the poor are getting poorer relative to other income groups, despite the fact that the headcount poverty rate has been declining. There is evidence to suggest that widening income differentials between those with higher education compared to the less-educated is the single most important factor accounting for increasing inequality (ADB 2005; 2007).

Figure 2.11: Share of Poorest Quintile in National Income, 1991-2010



Source: 1991-92 HIES; 2000, 2005 and 2010 HIES, BBS.

Another measure of inequality is provided by the Gini coefficient, which shows that overall income inequality in Bangladesh has increased over the past two decades, but remained largely unchanged over the 2000-10 decade (Table 2.12). Income inequality is, however, less in Bangladesh than in most South Asian countries.

Table 2.12: Gini coefficients for income in Bangladesh, 1991-2010

Residence	1991	1995	2000	2005	2010
National	0.388	0.432	0.451	0.467	0.458
Rural	--	--	0.497	0.497	0.452
Urban	--	--	0.393	0.428	0.430

Sources: BBS 1991-92 HIES; BBS (2006b; 2011c).

INTERNATIONAL MIGRATION

Bangladesh is a migration-oriented society but accurate data on the levels and trends of net international movement are extremely scarce. Some migration streams, such as those from Sylhet to the UK were established around the time of partition and are therefore long-established and on-going. During the 1950s the British Government facilitated emigration from Bangladesh under a statutory mechanism of ‘Employment Vouchers’, thus establishing other migration streams to the UK. The 2011 UK Census counted 447,201 people who identified themselves as Bangladeshi (Economist 2015) and an estimated half million Bangladeshis are living in the United States (Huguet 2010). A somewhat dated estimate (Rahman 2013) suggest that 1.2 million Bangladeshis were living permanently abroad around 2004, while the UN Statistics Division estimates the “international migrant stock” at 1.4 million in 2013 (UNDESA 2015) and Ullah (2013) puts the number at 2 million. But these numbers are quite small relative to the numbers engaged in contract labour migration and represent a small proportion of the home population. Possibly around 6.5 million Bangladeshis are working abroad at any one time (Rahman 2013), but some estimates put the number as high as 9 million (Rahim and Alam 2013). These numbers are clearly much higher than the number of Bangladeshi’s living abroad permanently.¹³

Given that the total overseas migrant stock (i.e., permanent residents) of Bangladeshis is barely 1 percent of the present population of Bangladesh after more than 40 years since the establishment of the country, it is clear that the demographic impact of international out-migration (emigration) is small. On the other hand the economic and social impact of all forms of movement (both permanent and temporary) is extremely important. Assuming that the figure of between 6.5 and 9.0 million temporary overseas workers is correct, it implies that between 10 and 16 percent of Bangladesh’s labour force in 2010 was working abroad. These proportions are significant in several respects: they reflect an alternative and more lucrative form of labour absorption to local employment¹⁴; and they provide a reverse flow of remittances of substantial proportions which have a significant economic impact, particularly in the reduction of poverty.

¹³ The figures on the overseas migrant stock of Bangladeshis excludes persons of Bangladesh origin living or working temporarily or permanently in India.

¹⁴ It does not affect the analysis of labour force absorption because absentees are not included in the working-age population or the labour force.

The flow of migrant workers going overseas has tended to fluctuate widely, reflecting the rise and fall in the demand for workers in the receiving countries, which can be affected by economic booms and busts and local events, including wars. Figures cited for annual flows refer to those recruited through formal employment agencies, whether government or private, but informal channels also exist and migrants using these channels are probably not recorded.

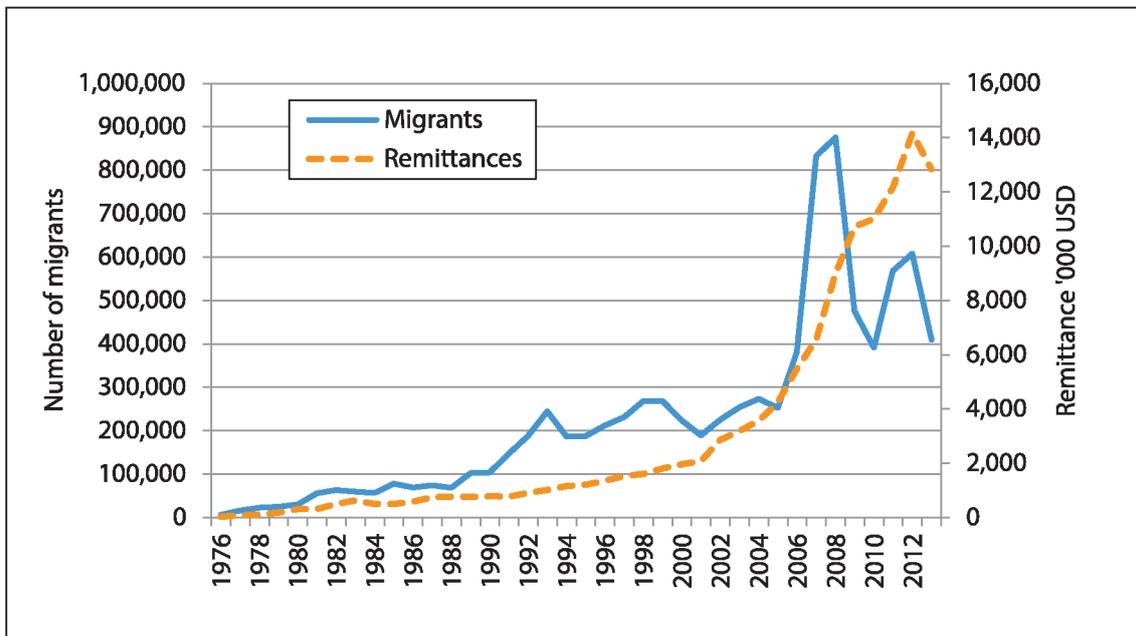
Increasing contract labour migration has been accompanied by a simultaneous flow of migrant remittances to Bangladesh. Annual remittance receipts reached \$US1 billion as long ago as 1993 and by 2012 had reached US\$14.2 billion, dropping to US\$13.9 billion in 2013 (Figure 2.12). However, these figures refer to funds remitted through formal channels only (banks and money transfer services) and therefore exclude the value of goods brought back from overseas or cash transferred by informal methods.

Many Bangladesh contract workers abroad employ the “hundi” system of transferring money and goods back to their family in Bangladesh, and this system of informal funds transfer may also be employed by businessmen to evade tax and import duties. The system functions by means of trusted individuals with strong family or community ties receiving money from migrants abroad to be delivered to relatives at home through a network of agents (Rahman and Yeoh 2008). The amount of money transferred through such social networks is difficult to measure, but estimates suggest that from 6 percent to 70 percent of migrant remittances to Bangladesh are channeled through the hundi system, depending upon the country of origin (Rahman and Yeoh 2008). Obviously total remittances flows and their impact on the economy of Bangladesh would be very much higher if these informal transfers could be taken into account.

Some idea of the importance of reported remittances to the Bangladesh economy can be obtained by the fact that in fiscal year 2013, recorded remittances (\$US14.5 billion) were equivalent to 60 percent of earnings from garment exports and 53 percent of total exports (Titumir 2014). Even this calculation understates the relative importance of remittances given that they reflect direct returns from labour, whereas export receipts for garments represent gross receipts which do not account for input costs, such as imported cloth and machinery.

Reported migrant remittances are the second largest source of foreign exchange earnings for Bangladesh next to the garment sector, and were equivalent to 11 percent of GDP in 2013 (Rahim and Alam 2013), about the same proportion as in Philippines (Huguet 2010). Remittances are seven times the amount received by the Government in foreign aid and 13 times direct foreign investment (Khuda and Barkat 2014). Remittances contribute to maintaining the country’s balance of payments and foreign reserves and also play a major role in reducing poverty (Osmani 2004; Rahim and Alam 2014).

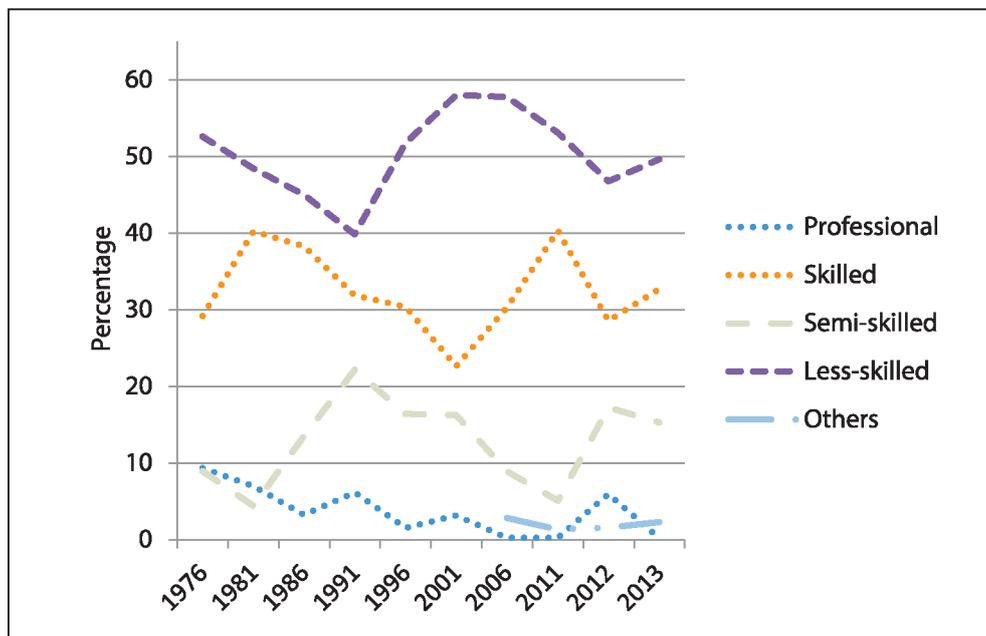
Figure 2.12: Overseas employment and remittances, 1976 to 2013



Source: BMET 2014 (<http://www.bmet.gov.bd/BMET/viewStatReport.action?reportnumber=31>)

Potentially, the contribution of contract labour migrants to development in Bangladesh would be higher if migrants were more skilled and there was a demand for such skilled workers abroad. Although the skill-mix has varied over time, the majority of migrant workers from Bangladesh are still “less-skilled” or “semi-skilled”. Professionals are a very small proportion of the total (Figure 2.13).

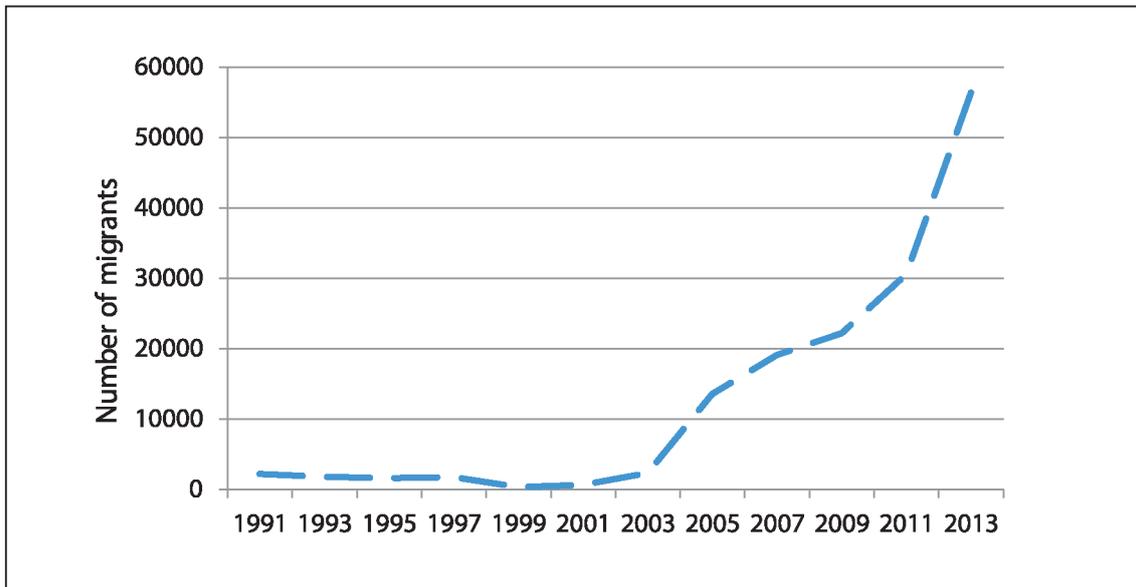
Figure 2.13: Distribution of contract workers by skill level, 1976-2013



Source: BMET (2013): Overseas Employment and Remittances From 1976-2013 [<http://www.bmet.gov.bd/BMET/viewStatReport.action?reportnumber=31>]

Until 2003 Bangladesh Government policy prevented the international labour migration of women (Islam 2010). After these restrictions were lifted the number of female migrants has increased to reach over 56,400 in 2013 (Figure 2.14). Women constituted about 14 percent of the overseas contract workers going abroad in 2013.

Figure 2.14: Overseas employment of female workers, 1991-2013



Source: BMET 2014 (<http://www.bmet.gov.bd/BMET/viewStatReportaction?reportnumber=16>)

INTERNAL MIGRATION AND URBANIZATION

The difficulties in analyzing trends in migration and urbanization in Bangladesh have been documented in Chapter 1, which also interpreted the census data on migration and urbanization to the extent possible. What is clear is that, in the face of continuing population growth in rural areas, fixed (indeed declining) supply of farm land and shortage of employment opportunities, the cities continue to attract migrants, notwithstanding the difficult living conditions most of them encounter. The urban planning issues for Bangladesh are immense. The growth of urban population and infrastructure leads to the loss of 0.3 percent of Bangladesh’s cultivated land each year. Detailed analysis of Dhaka’s problems (Dewan and Corner 2013) indicates that the city faces worsening air and water pollution, flooding, waste disposal problems and perhaps vector and water-borne diseases because of overcrowding. Waterbodies, cultivated areas, vegetation and wetlands/lowlands are all under extreme pressure and shrinking in area. Much of Dhaka’s rapid growth has been in informal settlements with little or no attempt being made to limit the risk of environmental degradation. Over 30 percent of Dhaka’s population live in slums. A global livability survey in 2014 by a UK-based organization EIU ranked Dhaka as one of the least livable urban centres among the 140 cities surveyed.

Dhaka is currently ranked by the UN Population Division as the 11th largest urban agglomeration in the world. Its level of primacy is high, due to its central location, relatively good road, rail and river access, and its strong concentration of industry, business and commerce, administrative decision-making role, access to credit, and informal sector activities. These factors interact and the “path dependency” of increasing advantage reinforces its

dominance, a dominance set to continue unless diseconomies of agglomeration become increasingly disruptive. But the planning issues Dhaka faces are immense, and because of its dominance of the urban hierarchy, the discussion of urban issues in Bangladesh is focused, perhaps excessively, on Dhaka. Urban development issues are certainly at their starkest in Dhaka, but the issues facing smaller cities and towns should not be overlooked. Shortage of resources for infrastructure development and maintenance of services, and scarcity of planning skills are faced by all these other cities and towns, from Chittagong and Khulna down to the small regional centres.

Notwithstanding the enormous problems faced in planning and managing the cities and towns, up to this point urbanization in Bangladesh can be considered to have contributed to development. Urbanization has enabled some of the surplus rural labour force to be moved into areas where their income earning opportunities are somewhat better than the prospects they faced in rural areas, and enabled others to survive when natural disasters forced them to move. Moreover, urban areas are well ahead of rural areas in terms of labour productivity and the indicators making up the human development index. Nevertheless, the high proportion of slum population and low incomes of many urban dwellers means that the move to an urban area represented a “least worst” choice for many. Fortunately, the relatively rapid pace of fertility decline averted a far more difficult situation than would have been produced by more rapid rural population growth.

When Bangladesh’s development experience is compared with the well documented and remarkably successful development experience of the densely settled East Asia countries (Japan, Republic of Korea, and Taiwan), one striking difference can be observed (among others). A factor common to these countries as they developed was the close integration of the densely settled rural areas with nearby towns and cities through commuting and division of family labour resources between farming and urban income earning activities. Development of efficient transport networks was crucial in this pattern of development. This has not happened to any great extent in Bangladesh because of the failure to develop a good transportation network, despite the potential inherent in the compact shape of the country and the very large rural populations located within a radius of 100 km of large cities and towns.

HUMAN DEVELOPMENT

The concept of human development refers primarily to the qualitative aspects of development, even though many of its indicators are statistical. A broad overview of human development is provided by the “Human Development Index” (HDI), which combines a measure of health, education and income (Table 2.13). All components of the HDI have clearly improved since 1980, but per capita income more so than the other indicators. Bangladesh’s performance on the HDI is similar to its performance on poverty reduction, namely a 46 percent improvement over the period 1990-2013 (UNDP 2014). Nevertheless, Bangladesh remains in the “Low Human Development” category and its HDI ranking of 142 in 1980 remained virtually unchanged in 2013 when it was 143. The rate of improvement in Bangladesh’s HDI has been very reasonable (1.7 percent per year between 1990 and 2000) by developing country standards but still insufficient to advance the country into the “Medium Human Development” category.

Furthermore, the HDI masks inequality in the distribution of human development across the population. The Inequality Adjusted Human Development Index (IHDI) takes into account inequality in all three dimensions of the HDI by ‘discounting’ each dimension’s average value,

according to its level of inequality. Bangladesh's HDI of 0.515 in 2012, when discounted for inequality, drops to 0.374, i.e. a loss of 27.4 percent. But this is a somewhat smaller loss than in the South Asia region, Pakistan or Nepal (Table 2.14), suggesting that inequality is less extreme in Bangladesh than elsewhere in South Asia by a small margin.

Table 2.13: HDI trends in Bangladesh, 1980-2012

Year	Life expectancy	Expected years of schooling	Mean years of schooling	GNI per capita (2005 PPP\$)	HDI value
1980	55.2	4.4	2.0	649	0.312
1985	56.9	4.5	2.4	715	0.333
1990	59.5	5.0	2.9	762	0.361
1995	62.1	6.0	3.3	860	0.397
2000	64.7	7.0	3.7	1,003	0.433
2005	66.9	8.0	4.2	1,220	0.472
2010	68.6	8.1	4.8	1,631	0.508
2011	68.9	8.1	4.8	1,701	0.511
2012	69.2	8.1	4.8	1,785	0.515

Source: United Nations (2013)

Table 2.14: HDI and other related indicators for Bangladesh and selected South Asian countries

Countries/Region	HDI value	HDI rank	IHDI	Overall Loss (%)	GH value	GH rank	MPI value
Bangladesh	0.515	146	0.374	27.4	0.518	111	0.292
Pakistan	0.515	146	0.356	30.9	0.567	123	0.264
Nepal	0.463	157	0.304	34.2	0.485	102	0.217
South Asia	0.558	—	0.395	29.1	0.568	—	—
Low HDI	0.466	—	0.310	33.5	0.578	—	—

IHDI=Inequality Adjusted Human Development Index

GII=Gender Inequality Index

MPI=Multidimensional Poverty Index

Source: United Nations (2013).

At 0.518 in 2012, Bangladesh's Gender Inequality Index (GII) (which measures gender-based inequalities in reproductive health, empowerment, and economic participation) was below the South Asia average and Pakistan (meaning less gender inequality), but higher than Nepal. Bangladesh ranked 111 out of 148 countries on gender inequality in 2012, which places it in the bottom 25 percent of all countries on this measure.

Education

The adult literacy rate has increased very slowly in Bangladesh—from 53 percent in 1998 to 59 percent in 2010 according to the Sample Vital Registration Survey (BBS Statistical Yearbook 2012). Census data show lower literacy rates and a slower rate of improvement, with literacy increasing from 48 to only 53 percent between the 2001 and 2011 censuses, about a 10 percent rise in a decade. At the national level, adult female literacy was just under 50 percent in 2011 compared to 57 percent for males, but literacy has been increasing faster for females than for males at least according to census data. At the Zila level, female literacy was as low 33.3 percent, meaning that two-thirds of adult women were illiterate in such places, and even male literacy is below 40 percent in some Zila. These figures indicate that illiteracy remains a major issue in Bangladesh and a significant constraint on development.

Primary schooling

The net primary enrolment rate has increased significantly over the 1990-2013 period, especially for girls, and is now approaching 100 percent (Table 2.15). Gender parity was essentially achieved in year 2000, but female enrolment has since exceeded male.

Table 2.15: Trends in Net Enrolment Ratio at primary level in Bangladesh, 1990-2013

Year	Total	Girls	Boys
1980	60.5	50.8	69.4
1995	75.8	73.9	77.5
2000	85.5	85.8	85.2
2005	87.2	90.1	84.4
2010	94.8	97.6	92.2
2013	97.3	98.2	96.2

Source: GED (2014).

Little information is available on the quality of education in Bangladesh. The 2011 Bangladesh Literacy Assessment Survey was conducted to assess four different measures of literacy levels: (i) reading, (ii) writing, (iii) numeracy, and (iv) communication and comprehension (BBS 2013d). The functional literacy rate was lower in rural (51 percent) than urban areas (66 percent), among both males and females (BBS 2013d, Table 4.1). The functional literacy rate increases with the level of education. However, only 44 percent of boys and 36 percent of girls completing primary education were functionally literate, indicating the poor quality of primary education.

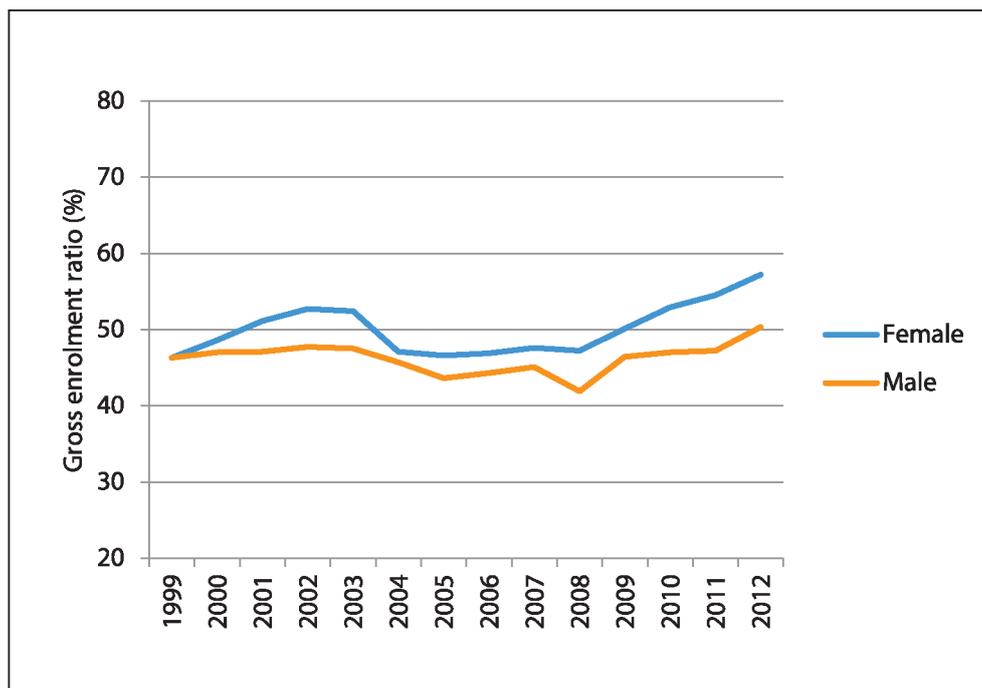


Photo credit: Daily Star.

Secondary education

A surprising feature of Bangladesh's educational situation is its low enrolment rates in secondary schooling. As indicated in Figure 2.15, male secondary enrolment was generally flat between 1999 and 2011 and only reached 50 percent in 2012. Female enrolment has increased at a faster rate than male over this period (and particularly since 2009) but was still under 60 percent in 2012. Female secondary enrolment essentially levelled-out between 2004 and 2008, an unusual phenomenon. But clearly the overall low rate of secondary schooling was not caused by gender inequality and is rather a function of overall low enrolment rates among both sexes.

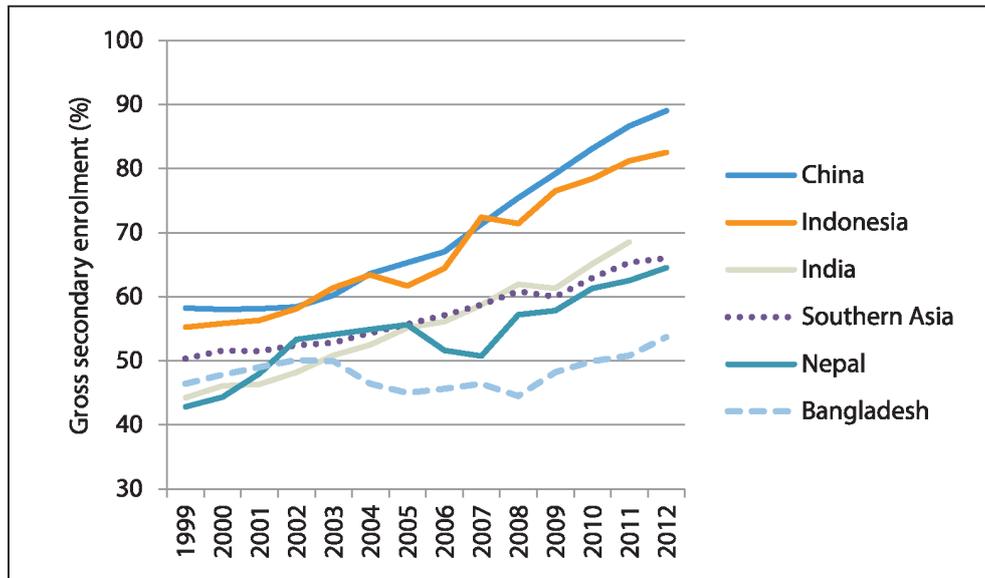
Figure 2.15: Gross secondary enrolment rate by sex, 1999-2012



Source: UNESCO (2015).

A comparative perspective is provided by Figure 2.16, which shows that secondary enrolment in Bangladesh has lagged well behind the Southern Asian region as well as other Asian countries such as China and Indonesia. It is not clear why Bangladesh has fallen back. In 2003, the secondary enrolment rate was equal to that of India, but by 2011 it was only 74 percent of India's level, and 59 percent of China's. This is despite the steady expansion of secondary schools and the increasing number of teachers.

Figure 2.16: Gross secondary enrolment rates in selected Asian countries, 1999-2012 (both sexes)



Source: UNESCO (2015).

Gender parity at the primary and secondary levels was essentially achieved between 2000 and 2005, but from year 2000 onwards, more girls are attending secondary school than boys (Table 2.16),

Table 2.16: Gender Parity Index (GPI) at primary and secondary education in Bangladesh, 1990-2013

Year	GPI (Primary)	GPI (Secondary)
1990	0.82	NA
1991	NA	0.52
1995	0.90	0.82
2000	0.96	1.06
2005	1.01	1.04
2010	1.02	1.14
2011	1.02	1.13
2012	1.01	1.14
2013	1.00	NA

Source: GED (2014).

The figures on educational attainment (Table 2.17) essentially confirm the enrolment data, revealing that only 40.4 percent of 20-24 year-olds had attained senior secondary level in 2011, while about 56 percent have attained junior secondary or less. The proportion of university graduates among the 2011 population is very low at 4.1 percent in the 15 and over population as a whole and rising to a maximum of 6.2 percent among those aged 30-34.

Table 2.17: Adult educational attainment by 5-year age group, Bangladesh, 2011.

Age group	Highest class passed						Total
	No schooling	Primary	Junior secondary	Secondary/higher sec.	Graduate	Masters or higher	
15-19	1.6	23.1	28.4	46.8	0.2	0.0	100
20-24	2.2	26.6	26.9	40.4	3.7	0.3	100
24-29	3.4	30.2	25.4	33.8	5.3	1.8	100
30-34	5.2	32.2	22.7	31.0	6.2	2.7	100
35-39	7.4	35.5	21.6	27.6	5.6	2.3	100
40-44	9.5	35.9	20.2	26.5	5.7	2.2	100
45-49	10.4	37.3	20.0	25.9	4.6	1.8	100
50-54	13.3	39.0	17.8	24.4	4.3	1.3	100
55-59	13.6	39.3	17.2	24.4	3.9	1.5	100
60-64	15.1	41.1	16.3	22.8	3.7	1.1	100
65+	15.6	41.4	17.4	21.7	3.0	0.8	100
All ages 15+	7.1	32.7	22.7	32.0	4.1	1.4	100

Source: BBS (2012).

Tertiary education

From the 1980s up to 2011 (the last year for which data are available), the number of students enrolled in public universities increased more than ten-fold. In 2011 there were 316,331 students attending public universities, of whom 34 percent were female—indicating a large gender gap at this level of education. In addition, another 279,205 students were attending private universities, of whom 25 percent were female, a significantly larger gender gap. Overall, 30 percent of the 595,500 university students in Bangladesh were female (a ratio of 2.3:1), but in private universities the male/female ratio is as high as 27:1 (State University of Bangladesh), and 9:1 ratios are not uncommon, including in the University of Communication Technology and Science.

Health

A number of demographic indicators that measure mortality, and therefore contribute to the measurement of population growth, are also indicators of health status, given that mortality rates are a direct (although incomplete) measure of the health of a population.¹⁵ A full picture of the health situation requires an understanding of morbidity as well as mortality, but this task is beyond the scope of the present report; we focus mainly on mortality, but from an epidemiological perspective.

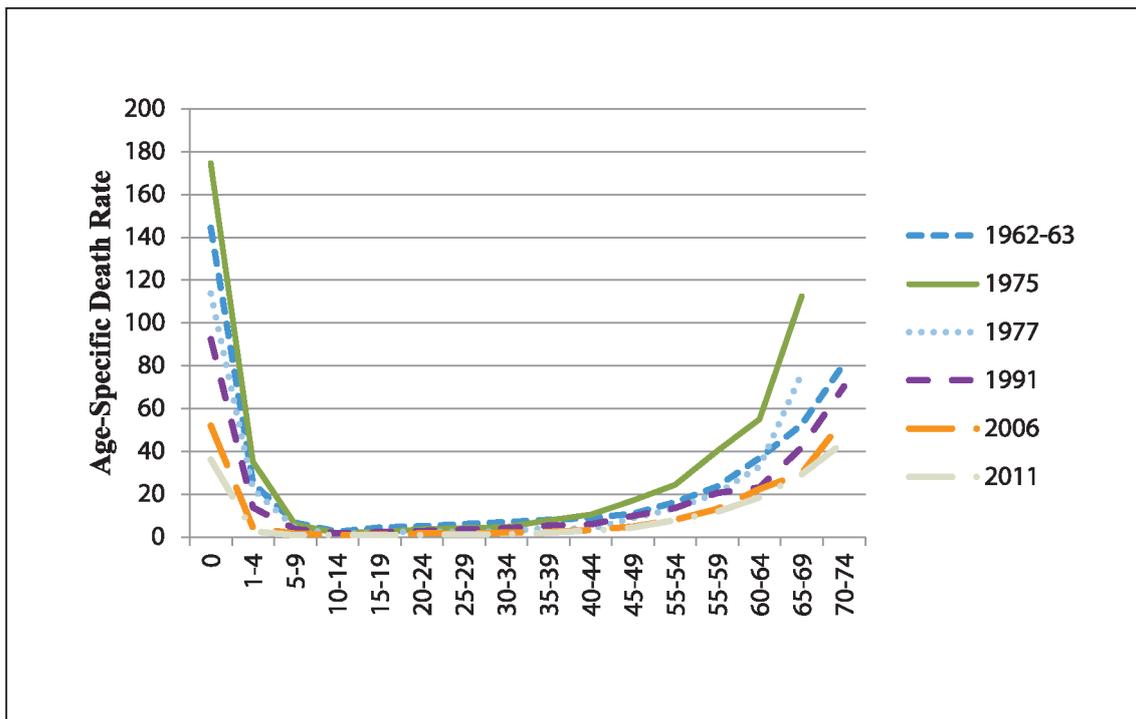
As already outlined in Chapter 1, a number of Bangladesh's health outcome (mortality) indicators have improved significantly in recent decades. Infant and under-five mortality rates, for example, have declined at or above the pace required to achieve the targets specified in the MDG framework for the 1990-2015 period, as has the Maternal Mortality Ratio (MMR). Demographic factors such as declining fertility and a decreasing proportion of births to high risk mothers (such as high parity births) have contributed to a substantial decline in the MMR since 1990 along with improved access to and use of health facilities. Improved educational achievement among women of child-bearing age, higher incomes and reduced poverty rates have also contributed. The proportion of pregnant women receiving ANC from a qualified provider has increased to 55 percent from 30 percent in 2004 (Khuda and Barkat 2014a; 2014b) and the proportion receiving the recommended 4 or more ANC visits rose from 18 percent in 2005 to 26 percent in 2010.¹⁶ The proportion of births delivered in a health facility rose from 9 percent in 2001 to 23 percent in 2010. Many of these same factors, along with a two-thirds increase in the percentage of 1-year olds immunized against measles, will have contributed to lower infant and child mortality. As pointed out in Chapter 1, maternal and child mortality rates are closely correlated.

Inasmuch as lower death rates indicate improved health, *adult* health conditions have also improved between 1975 and 2011 as is evident in the much reduced age-specific death rates above the age of 40 in 2011, compared to 1975, and above the age of 60 compared to 1991 (Figure 2.17). The combined effect of reduced infant and child mortality and lowered adult mortality has been an increase in life expectancy to 69 years for both sexes combined in 2011.

¹⁵ The difference between the demographer's use of a mortality indicator and an epidemiologist's use of the same indicator is one of perspective: for the demographer mortality is an "independent" variable with precise effects on population growth; for the health specialist or epidemiologist mortality is a "dependent" variable which has multiple and complex causes.

¹⁶ The recently released figures from the 2014 DHS on the indicators in this paragraph are: ANC from a qualified provider, 63.9 percent; proportion of pregnant women receiving 4 or more ANC visits, 31.2 percent; the proportion of births in a health facility, 31.2 percent (NIPORT, et al. 2015). These figures show on-going improvement in these RH indicators, consistent with past trends.

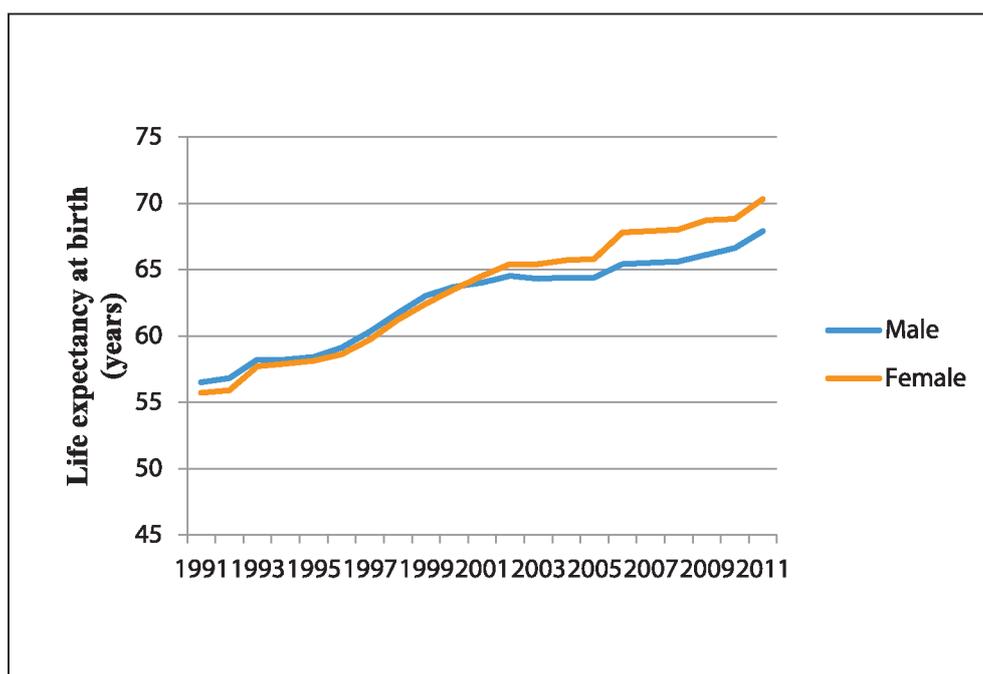
Figure 2.17: Age-specific death rates, 1962-2011 (both sexes)



Sources: 1962-1963, F. Yusuf, "Abridged life tables for Pakistan and its provinces 1962-64", Sydney Conference Proceedings (Liege, IUSSP, 1967), pp. 533-541; Report on the 1974 Bangladesh Retrospective Survey of Fertility and Mortality (Dacca, 1977), pp. 89-90. 1975, Demographic Surveillance System: Matlab, vol. 4, 1977 (derived from Population of Bangladesh, Country Monograph Series No. 8, ESCAP); 1991-2011, Sample Vital Registration System 2011, Bangladesh Bureau of Statistics.

As can be seen from Figure 2.18, life expectancy for females, which was equal to that of males through the 1980s, began to exceed male life expectancy from 2002 on and by 2011 the gap had increased to 2.4 years. It is likely that the growing importance of Non-Communicable Diseases (NCD) as a cause of death is responsible for higher mortality among older males as males tend to be at higher risk than females due to lifestyle factors. Higher male adult mortality is the "normal" pattern globally, so the current gap between male and female life expectancy in Bangladesh is not exceptional.

Figure 2.18: Life expectancy at birth by sex, 1991-2011



Source: Sample Vital Registration System, BBS.

Although many of Bangladesh's health indicators have improved in a context of on-going (although declining) poverty, other indicators have shown less sign of progress. Severe anaemia in children and pregnant women is 64 percent and 46 percent, respectively. The proportion of children under five years assessed to be underweight was 41 percent in 2011 (NIPORT et al. 2013). And stunting among under-five year old children years was 43 percent in 2013. A number of the Reproductive Health indicators used in the MDG framework are also poor. The proportion of births attended by skilled health personnel is variously estimated as between 26.5 and 43.5 percent depending on the data source.¹⁷ Even at the upper end of these estimates, the proportion is too low. Only 25.5 percent of mothers attend at least four times for antenatal care and only 54.5 percent attend ANC clinics at least once.¹⁸

The availability of adequately trained and skilled health personnel is one determinant of health status, although access to the services they provide may be constrained by many barriers. Bangladesh's doctor to patient ratio has remained low over the past two decades despite improving trends. Bangladesh has consistently had half the number of physicians per 10,000 population as India and Sri Lanka and less than half the number of Pakistan (Table 2.15). It is closer to the situation in Nepal although recent data for that country are lacking.

Bangladesh is lagging far behind other South Asian countries in terms of the ratio of nurses and midwives to population. Depending on the year of measurement, India and Sri Lanka have between five and six times as many nurses and midwives as Bangladesh, and Pakistan has almost twice as many (Table 2.18). In the other South Asian countries shown, the

¹⁷ GED (2014).

¹⁸ Refer to footnote 11 for recent data from the 2014 DHS, which show some improvement since 2011.

ratio of nurses and midwives to population is trending upwards; by contrast, the trend in Bangladesh appears to be downwards. Furthermore, in most countries there are approximately twice as many nurses and midwives as doctors; in Bangladesh there appear to be fewer nurses than doctors—a very unusual situation, but one which has persisted for a very long time in Bangladesh. While this may be an indication of a bias against women in medical occupations, there is no necessity for nurses to be women. In many countries male nurses are common, although midwives tend to be female.

Table 2.18: Physicians per 10,000 population in Bangladesh and other South Asian countries, 2000-2012

Year	Bangladesh	India	Pakistan	Nepal	Sri Lanka
2000	--	5.5	6.4	--	--
2001	2.3	5.6	--	--	4.5
2002	--	5.8	--	--	--
2003	2.5	5.9	--	--	--
2004	2.6	6.0	--	2.1	5.5
2005	5.5	6.0	--	--	4.9
2006	3.1	6.0	--	--	4.9
2007	2.9	6.0	7.8	--	5.2
2008	--	6.4	--	--	5.2
2009	--	6.5	--	--	6.4
2010	--	6.9	--	--	6.8
2011	3.6	7.4	--	--	--
2012	--	7.0	--	--	--

Source: WHO

(<http://apps.who.int/gho/athena/data/download.xsl?format=xml&target=GHO/HRH>)

Table 2.19: Nurses and midwives per 10,000 population in Bangladesh and other South Asian countries, 2000-2011

Year	Bangladesh	India	Pakistan	Nepal	Sri Lanka
2000	--	12.1	4.2	--	--
2001	--	12.3	4.3	--	12.0
2002	--	--	--	--	8.4
2003	2.5	--	--	--	--
2004	3.1	--	4.6	4.6	--
2005	2.8	--	3.0	--	13.3
2006	2.8	--	--	--	15.7
2007	2.7	13.9	3.8	5.4	--
2008	--	14.4	5.4	--	14.2
2009	--	--	5.8	--	14.6
2010	--	--	5.7	--	16.4
2011	2.2	--	--	--	--

Source: WHO

(<http://apps.who.int/gho/athena/data/download.xml?format=xml&target=GHO/HRH>)

Basic Services: Housing and Sanitation

Access to basic social services, including adequate housing, clean water and sanitation is far from universal in Bangladesh. Housing quality has been improving slowly, but in urban areas homeless people can be found sleeping at railway terminals and bus stations, at ports, and in empty markets, parks, and stairways (Ahmed et al. 2011; Ghani 2001; PCSL 2011). Access to hygienic toilet facilities is generally inadequate: 45 percent of households have access to a katcha toilet (pit latrine with bamboo walls), 33 percent to pucca toilet (pit toilet with block or brick walls), 18 percent have access to a sanitary latrine, and 4 percent use open space. The proportion of households with no toilet facilities at all has decreased between 2005 and 2010, from 11 percent to 4 percent (BBS 2011c). Overall, the rate of access to improved sanitation has increased between 1990 and 2012. There are wide variations between rural and urban areas, although the rural-urban gap has decreased sharply from 24 percent in 1990 to 3 percent in 2012.

The main source of drinking water in Bangladesh is the tube well, used by 85 percent of households. Only 11 percent of households have access to tap water. Between 2005 and 2010, the rate of using tube well water for drinking purposes declined 4 percentage points, while the rate of using tap water increased around 3 percentage points (Government of Bangladesh 2011). Only 2 percent of rural households had access to tap water while 36 percent of urban households did. The rural-urban differential in access to safe drinking water has decreased over the years. In rural areas, the proportion of the population having access to safe water increased from 77 to 84 percent, but it remained almost unchanged at around 87 percent in urban areas. The MICS survey 2012-13 shows that almost 90 percent

of households have access to safe drinking water, while the “arsenic adjusted rate” is 85 percent (BBS 2014b).

Social protection and social security

Beginning in 1974, and mainly precipitated by the large-scale floods that occurred that year, the Bangladesh Government has gradually developed a significant social protection and social welfare programme (SSNP), which by the 2009-10 fiscal year accounted for 15.2 percent of the national budget and 2.5 percent of GDP. An idea of the scale of the SSNP can be attained from Table 2.20, which lists only the main programmes. However, the SSNP includes many programmes and projects that in other countries might not be classified as falling in the category of social protection as such. In any case, the broad thrust of the SSNP is directed toward the chronically poor, pensioners, widows, war veterans, people with disability, transients and people vulnerable in special circumstances (Roy, Murshid and Begum 2011). Each of these groups is poor for different reasons, and special remedial measures have been formulated to address their poverty and vulnerability.

The coverage of the SSN programmes is far from universal and many researchers have argued that progress has not been satisfactory (CPD 2008; Raihan 2013). But the coverage of SSN programmes has been widening and the benefits are gradually expanding. In 2005 there were 11 SSN programmes from which 13 percent of households received benefits. By 2010, the number of programmes had increased to 30 and 25 percent of households received benefits (BBS HIES 2011). Thirty percent of rural households received benefits from these programmes compared with 9 percent of urban households. The budgetary allocation for SSNPs has been increasing but the percentage share of SSNPs in both the national budget and GDP peaked in 2010-11 and then started to decline (Barkat et al. 2013).

Table 2.20: Main Social Safety Net Programmes in Bangladesh

Cash transfers	Old Age Allowance; Widowed and Distressed Women Allowance; and Disabled Allowance
Conditional cash transfers	Primary Education Stipend Programme (formerly Food-for-Education); and Stipends for Female Secondary Students
Public works or training based cash or in kind transfer	Rural Maintenance Programme; Food-for-Work; Vulnerable Group Development (VGD); and Employment Generation Programme (EGP)
Emergency or Seasonal Relief	Vulnerable Group Feeding (VGF); Gratuitous Relief (GR); Test Relief (TR); and Open Market Sale (OMS)

Source: Raihan (2013).

The number of people receiving benefits from “shock-based” transfer programmes was higher than the number receiving benefits from age-based vulnerability, transfer programmes and extreme poverty based transfer programmes. (Table 2.21) The number of beneficiaries within the SSN programmes also varies. For example, 7.5 million people affected during disasters benefited from the Vulnerable Group Feeding programme, followed by Gratuitous Relief (6.5 million), Test Relief (5 million) and Climate Victim Rehabilitation (10,650 landless families). Under the age-based transfer programmes, 9 million students benefitted from stipend programmes (6 million for primary education and 3 million female students in rural areas for secondary education). Additionally, 2 million people aged 60 years and above and 1 million vulnerable women (widows, deserted and destitute women) benefited from this programme.

Table 2.21: Model wise programmes, target population, number of beneficiaries and nature of benefits

Model	Programme's name	Target group	Number of beneficiaries	Nature of benefit
Shocked based Transfer	Vulnerable Group Feeding	Disaster affected	7.5 million	Food
	Test Relief	Disaster affected	5 million	Food
	Gratuitous Relief	Disaster affected	6.5 million	Food
	Fund for the Welfare of Acid Burnt and Disabled	Victims by the acid Violence	NA	Cash Plus
	Climate Victim Rehabilitation	Landless Families	10,650 landless families by 2012	Homestead plot
Extreme Poverty based Transfers	Food for Work Programme	Destitute rural women	3.13 million	Food Plus
	Vulnerable Group Development	Widowed or married with disabled husband	750,000	Food Plus
	Employment Generation Programme	Rural poor unemployed	NA	Income transfers
	Honorarium for Injured Freedom Fighters	Poor Injured Freedom Fighters	8,000	Income transfers

	Grants for Orphan Students in Orphanages	Orphan Students	6,000	Income transfers plus
	Maternal Health Voucher Scheme	Poor Rural Mother	100,000	Income transfers plus
	SOUHARDO	Poor people of Wetlands and coastal areas	74,000 households	Food Plus
	Open Market Sales	Poor people	NA	Subsidies food
Age-based Vulnerability Transfers	Old Age Allowance	60+ poor Elderly	2 million	Income transfers
	Allowances for Widowed, Deserted and Destitute Women	Widow, Deserted and Destitute women	1 million	Income transfers
	Secondary Education Stipend	Female student in rural areas	3 million	Income transfers plus
	Primary Education Stipend	Primary student in rural areas	6 million	Income transfers plus

Source: Pradhan, Mohd and Sulaiman (2013).

The important fact about the SSN programme in the context of this report lies not so much in the details of the specific type of programme or its budgetary allocation but rather in the fact that Bangladesh, as a poor country, has been able to establish a comprehensive system of social welfare at this stage of its development, given the pressures of population growth. The available evidence suggests that the SSNP has made a significant contribution to the decline in poverty in recent decades (Pradhan, Mohd, and Sulaiman 2013).

However, the effectiveness of the SSN programmes could be greatly improved. A multiplicity of programmes under the Social Safety Net Programme umbrella has contributed to poor implementation arising in part from programme overlap and lack of resource allocation. The amount of benefit per household at the national level is around 483 Taka per month (HIES 2011), enough to purchase only a few kg of rice. The selection process of beneficiaries is lengthy and often influenced by political considerations. Rahman and Choudhury (2012) identified two major leakages in all SSNPs: inclusion entry fee for beneficiaries and



Village women attend a non formal educational class. The adult literacy rate in Bangladesh is about 40%. Photo credit: Shahidul Alam/Drik.

fraudulent muster rolls, especially in workfare programmes. Most of the SSNPs are focused in rural areas and therefore the urban poor have no access to benefits. Khuda (2011) has identified the leakages and other problems affecting all SSNPs, arguing that community leaders often select beneficiaries arbitrarily and therefore there is gross mis-targeting in the SSNP beneficiary selection process. Due to the selection process, in many cases one household concurrently received more than one SSNP benefit (Ahmed 2005).

The expected changing age structure of population in Bangladesh will increase the pressure on the State to increase the allocation of funds to support the elderly. Currently, around 28 percent of the population aged 60 years and above are living below the national poverty line, while many older people are close to the poverty line and vulnerable to falling into poverty in the event of natural shock (Khondoker 2013). Though there is little data at the national level regarding the proportion of people eligible for SSNPs (Pradhan, Mohd and Sulaiman 2012), different data sources suggest that only between 10 percent (Morshed 2009) and 24 percent (HIES 2011) of the poor receive SSNP benefits.

BANGLADESH DEVELOPMENT IN THE CONTEXT OF THE DEMOGRAPHIC TRANSITION

The Bangladesh economy has performed well and has maintained annual real growth rates around 6 per cent for the past two decades; but it is not certain whether this rate of growth can be maintained. While there has been some degree of structural transformation, a more dynamic increase in the industrial and service sectors is needed to draw a rising share of workers into higher-productivity work and transform the economic structure. Obstacles to this include lack of investment in the industrial sector, skilled labour shortages, technological inefficiency and lack of policy inducement for industry. Other macroeconomic indicators also exhibit a negative trend as the growth of exports and imports of capital goods and raw

materials for industries has slowed (Unnayan Onneshan 2013). Manufacturing and trade are largely concentrated in the garment sector with high vulnerability in the global market. To spur economic growth the industrial sector requires diversification.

Substantial progress in reducing poverty rates has been achieved, although doubt remains about the nature and extent of present levels of poverty. Unofficial measures provide higher estimates of poverty than official ones. To make further inroads into poverty more of the unemployed, underemployed and informal sector workers need to be drawn into more productive work, but the formal sector has shown very limited absorption capacity in recent years (Ali, 2013). While the service sector is now the largest economic sector in terms of output and employment, it is also the case that service workers are the most likely to be poor. This is probably related to the high level of informalization in the services sector. The accelerated participation of women in the labour market is an encouraging development, but an even higher proportion of females than of males were in the informal sector. The informalization process has accelerated the rate of labour migration by creating job opportunities, but the key problem is the low productivity of these activities.

There are also major constraints and challenges to the acceleration of economic growth, including relatively low levels of human development, low investment-GDP ratio, infrastructure deficits and lack of good governance. Low enrolment and completion rates at the secondary level compared with neighbouring countries are a major development constraint. Without improvements in education it is very difficult to build a knowledge- and skills-based economy. The continuing issue of absorbing new entrants to the labour force into productive employment and raising the wellbeing of those already in the workforce, most of them concentrated in the informal sector, must necessarily take centre stage. Despite the progress of the last few decades in women's health, education, nutrition, economic opportunities and political participation, women in Bangladesh remain far behind men on these indicators (Rahman 2013). Prevailing socio-cultural perceptions of and attitudes towards women are significant barriers to progress.

The allocation of resources to health and education has remained at a low level while decreasing as a percentage of the total budget. This appears to reflect an insufficient recognition of the crucial role of these two sectors in development. Although primary school enrolment has become more or less universal and the increase in female enrolment at all levels is encouraging, drop-out rates remain high at the secondary and tertiary levels. The gender gap in higher education remains very wide, especially in the private universities. While target indicators have been achieved in the health sector, issues of accessibility and coverage of public health facilities remain, adversely affecting the poorer segments of the society. In the area of social protection, the existing programmes are mostly rural focused, with a limited coverage, backed by meagre allocation and managed by a fragmented bureaucratic set-up. A new approach is needed to respond to emerging challenges.

Although Bangladesh has achieved significant reduction in mortality and fertility rates, the population remains youthful, with roughly half aged under 25 years of age. The next half century of Bangladesh's growth will depend very much on the degree of success in educating the next cohort of workers and finding productive employment for them. The positive factor is that the share of the working age population in the total population is favourable for raising per capita production; the dilemma is that this positive factor will become strongly negative unless productive employment opportunities expand rapidly. The predominantly youthful labour force promises opportunities, if properly capitalized, for faster economic growth; on the other hand, growing unemployment and under-employment are also possible outcomes.



Adult education program of the women's cooperative Shaptagram in Pangsha, Faridpur, Bangladesh. Photo credit: Shahidul Alam/Drik.

There is no doubt that Bangladesh has coped with the potential threats of rapid population growth during the demographic transition rather better than many observers in the 1970s and 1980s thought possible. As this brief review has demonstrated, progress is evident in many dimensions of development. Certainly, Bangladesh has avoided the “poverty trap” that seemed inevitable in the 1980s. Nevertheless, poverty is still very much in evidence, despite economic growth, improved human development, and a range of social welfare initiatives. In order to maintain progress during the remainder of the demographic transition period, it is important to understand the factors underlying economic growth and development. Most observers attribute Bangladesh’s recent development to the growth of the garment industry and the in-flow of remittances from international labour migrants. In the absence of systematic studies showing the contribution of these factors in economic growth the proposition remains plausible but untested. It is also unclear whether past development strategies will be adequate to meet the challenge of future population change in a changing global environment.

Key points

- The productivity of labour in agriculture, as evident in the trend of real wages, has remained historically low and did not begin to increase until the first decade of this century;
- Labour force growth, driven by population growth, has contributed to low productivity in agriculture;
- The growth of the working age population has exceeded the overall population growth rate due to the effects of past fertility;
- Only about half of the increase in the working age population has been matched by an increase in full-time employment;
- The economy is not presently absorbing the increasing labour force;
- The economically inactive population has been increasing;
- Nevertheless, Bangladesh has avoided the “poverty trap” as evident in declining poverty rates;
- But poverty remains very much in evidence with some measures indicating a headcount ratio of over 50 percent;
- Labour force participation rate of women has increased rapidly while that of men has remained relatively static;
- Human development has improved but Bangladesh’s relative position compared to other countries has not changed significantly;
- Secondary school enrolment and completion rates have lagged very much behind neighbouring countries such as India and China;
- The gender gap in primary and secondary education has been eliminated but only 30 percent of university students are female;
- Social services have expanded and a social safety net programme has developed despite the pressures of population growth;
- Overall, the declining rate of population growth and reduced dependency ratios has contributed to development in Bangladesh over the past two decades.



Dhaka city skyline. Bangladesh. November 20, 2013. Photo credit: Habibul Haque/Drik.



3: FUTURE POPULATION PROSPECTS AND THEIR POLICY IMPLICATIONS

INTRODUCTION

Despite the uncertainty associated with them, population projections are indispensable for development planning purposes. Projections are essential if infrastructure needs related to the provision of education and health services, water supply and sanitation, transportation and communications, electricity production and food supply are to be identified sufficiently far in advance to ensure their timely availability when needed. Future patterns of demand are determined not only by total population size but also by age structure, as education and health services vary widely between various age groups. Short-run projections inform “population-responsive” policies whereas long-run projections help to identify possible demographic trends that public policy might attempt to influence (“population influencing” policies).

POPULATION PROJECTIONS FOR BANGLADESH 2011-2061: METHODS AND ASSUMPTIONS

Given the absence of existing “official” population projections based on the most recent population census (2011), new population projections were prepared by the research team specifically for this report. Although several existing projections are available for Bangladesh, the base year for these is the 2001 census.¹⁹ The projections reported in this chapter employ the age-sex distribution derived from the 2011 census as the base population, after adjusting for the census undercount and smoothing the age distribution to remove the effects of “age heaping”. As with previous projections in Bangladesh, the projection period is 50 years so the projections cover the period 2011-2061.

The methodology employed in the projections is the “cohort-component” method, which involves the separate application of assumptions regarding future trends in fertility, mortality and international migration. The projections were carried out by the “DemProj” computer programme. This programme and the overall methodology of projections are described in Stover and Kirmeyer (2008). It is important to note that projection assumptions are specified in five year periods and do not allow for changes within this time period.

The projection assumptions were formulated by the research team and reflect an expert view on the range within which future trends in fertility, mortality and migration are expected to fall. Statistical modelling was not used, although recent trends in fertility, mortality and migration were taken into account. Three projections were prepared and these have been labelled the “high”, “medium” and “low” variants. The labelling of the variants or “scenarios”

¹⁹ The United Nations Department of Economic and Social Affairs (UNDESA 2014) projections, 2012 revision, and recent projections commissioned by the World Bank (El-Saharty, Ahsan and May 2014) are two such examples.

is a relative one. That is, the high variant employs the highest fertility level considered plausible and results in the highest future population; conversely, the low variant is based on the lowest likely fertility level and this variant produces the lowest future population. The medium scenario falls between the high and low variants. Assumptions regarding future mortality and net migration were held constant in all three projections, so the differences between the variants in terms of the total population size and age structure are determined entirely by assumed fertility trends.

Fertility

The fertility assumptions can be summarised as follows (see Table 3.1).

- The high scenario assumes that the TFR would remain constant at its present level (2.3) for the entire projection period.²⁰
- The medium scenario assumes that the TFR drops to 2.1 (“replacement” level) in the 2011-16 period, to below replacement (1.9) by the 2016-21 period and remains at 1.9 through to 2061.
- The low scenario assumes that the TFR declines to below replacement (2.0) during the 2011-16 period, and to 1.6 by the 2016-21 period where it remains until the end of the projection period. In the case of fertility, the TFR remains unchanged in each scenario from 2021 until the end of the projection.

It will be apparent that the low scenario assumes that fertility would decline most rapidly and to well below replacement level by 2016, while the high scenario simply assumes that the TFR will simply continue at its present level up to 2061.

Table 3.1: Fertility assumptions: Total fertility rates

Scenarios	Total Fertility Rate									
	2011-16	2016-21	2021-26	2026-31	2031-36	2036-41	2041-46	2046-51	2051-55	2055-61
High	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Medium	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Low	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6

While the TFR is the primary determinant of the number of births, the age distribution of fertility may also have some effect. The projection programme requires assumptions about the current distribution of fertility by age of the mother and whether this is expected to change. Bangladesh has a distinctive pattern of early marriage and therefore early child-bearing. In recent decades, fertility has mainly declined in older age groups with the result that the proportion of births in younger age groups has been increasing. It has been assumed in these projections that the age distribution of fertility will shift again to older ages in the

²⁰ The value of the TFR is based on the estimate reported in the 2011 Demographic and Health Survey and covering the period 2009-11 (NIPORT, et al. 2013). Note that a recently released estimate from the 2014 DHS indicates that the TFR remained at 2.3 for the period 2012-14. (See NIPORT, et al. 2015).

longer run given the likely increase in the age of marriage and first birth. Bangladesh's distinctive fertility patterns by age are discussed in detail by Stover and Kirmeyer (2008).

Mortality

The mortality assumptions are based on the expected future trends in life expectancy. The limit on how high life expectancy can climb is set at 80 years by the DemProj programme, so that is the maximum specified under the mortality assumption for females and would be reached in the 2046-51 period (Table 3.2). The assumptions imply a relatively slow improvement in general health conditions over 50 years with life expectancy at birth increasing approximately 0.25 years per year over the projection period. As with fertility, the number of deaths is affected not only by the level of life expectancy but also by age specific death rates. In these projections, the age pattern of mortality is assumed to follow the United Nations "General" model life table. In previous years mortality by age in Bangladesh could be assumed to follow a "South Asian" pattern. However, recent declines in infant and under-5 mortality in Bangladesh indicate that the South Asian model no longer matches Bangladesh's mortality conditions which are now better represented by the UN "General" model.

Table 3.2: Mortality assumptions: Life expectancy at birth

Scenarios	Life expectancy at birth*							
	2011-16	2016-21	2021-26	2026-31	2031-36	2036-41	2041-46	2046-51
Total	70.3	71.5	72.7	74.0	75.2	76.4	77.6	78.9
Male	69.1	70.4	71.6	72.8	74.1	75.4	76.6	77.8
Female	71.4	72.6	73.9	75.1	76.2	77.4	78.7	80.0

*Constant from 2046-51 to 2055-61.

International migration

International migration has been assumed to be zero in this set of projections. It is acknowledged that Bangladesh experiences significant temporary contract labour migration as well as permanent net emigration. However, there is no reliable data-set available from Bangladesh sources that provides a break-down of net international migration by age and sex. In its projections, the United Nations Population Division has estimated net international out-migration over most of the projection period used here (2011-61) at a rate of 2 per thousand or 0.2 percent.²¹ In the 2011-16 period this rate would have resulted in net international migration of 320,000 persons and would have reduced the rate of population growth from 1.3 percent to 1.1 percent. Thus, international migration is potentially significant and would have a similar effect (based on UN assumptions) as decreasing the number of births by about 10 percent. The potential effects of international migration should be kept in mind when reviewing the projection results presented below.

²¹ UN Population Division (2012).

Basis for assumptions

Assumptions regarding future trends in fertility and mortality have been based on the judgement of the authors rather than by statistical methods such as linear extrapolation. Linear extrapolation is a reasonable method in the early stages of the demographic transition but not in the late stages, which Bangladesh is now entering. Fertility does not generally decline linearly when approaching the replacement level but rather the rate of decline slows down and increases can sometimes occur. Similarly, life expectancy does not continue to increase linearly when it reaches high levels (70 or above).

WHICH FUTURE SCENARIO IS MOST PROBABLE?

Assigning a probability to a specific population projection is difficult because future policy directions and development trends are unknown and their effects somewhat unpredictable. The practice of conducting three projections is normally to ensure that the outside limits are defined with the middle projection seen as the most probable. Recent projections by the World Bank (El-Saharty, Zunaid-Ahsan and May 2014) follow a different logic and employ only two fertility scenarios: a “laissez-faire” (LF) scenario, assuming that the TFR declines to 2.0 by 2016 and remains there until 2051; and an “accelerated fertility transition” (AFT), whereby the TFR would decline to 1.7 by 2016 and also remain there until 2051. These fertility assumptions are extremely close to those employed in the projections carried out for this report, with the LF scenario almost identical to the medium scenario of this paper and the AFT scenario similar to our low scenario.²²

The absence of a high projection in the World Bank’s approach possibly reflects the view that a continuation of the TFR at its present (i.e., 2011) level of 2.3 is unlikely and therefore need not be considered. The present paper included a high projection in order to demonstrate what the consequences for population growth would be if the TFR did continue at its present (i.e., 2009-11) level. Although a further decline in the TFR is likely before the end of the projection period given recent trends, it is by no means certain. The label “laissez-faire” for the highest of the World Bank’s two projections implies that this would be the outcome in the absence of policy initiatives aimed specifically at achieving the AFT scenario. This is consistent with the approach of this paper, in which the medium projection is seen as the most probable while the low projection is the preferred “policy” projection.²³

PROJECTION RESULTS: A SUMMARY

Total population

Table 3.3 shows the variation in total population that could be expected based on different fertility trends and the same data are presented graphically in Figure 3.1. All three scenarios indicate that significant population growth is likely to occur in the coming decades. Clearly the range is very wide at the end of the projection period with the high projection 64.1 million

²² The small differences in the projection results are probably due to the fact that the projections carried out for the present paper used the 2011 census population as the base population whereas the World Bank projections use the 2001 census population as their base population.

²³ The World Bank’s AFT scenario is based on a linear extrapolation of past trends whereas the “low” scenario in the present paper is based on the “wanted fertility rate” as reported in the 2011 DHS (NIPORT, et al. 2013, p.80).

higher than the low projection. In effect, this is the difference between a quick decline in the TFR to 1.6 by the 2016-21 period compared with the TFR remaining constant at its 2011 level of 2.3.

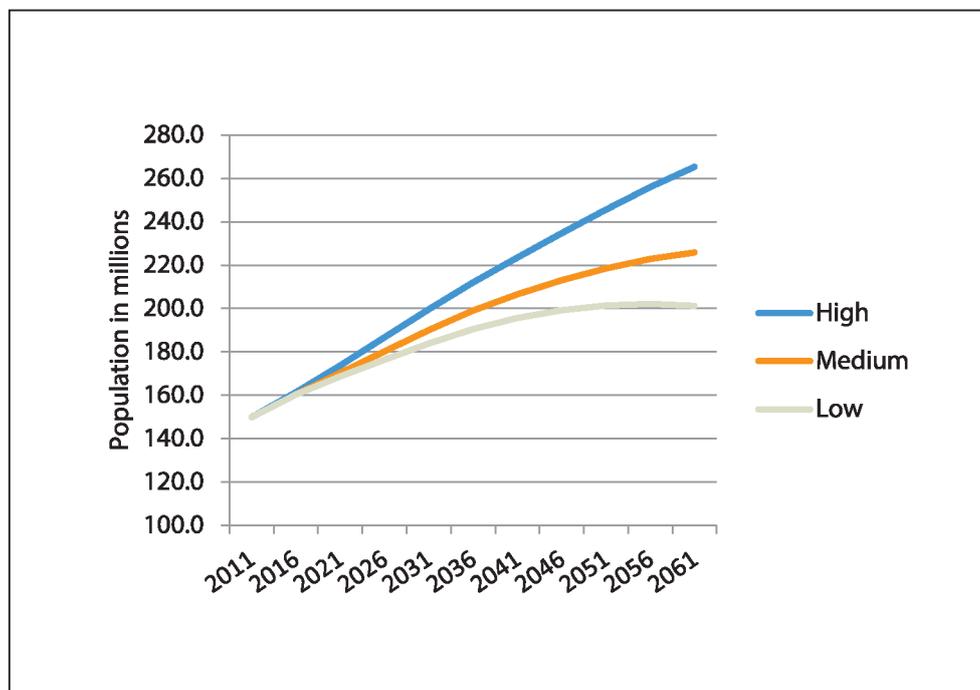
Table 3.3: Projected population under three fertility scenarios, 2011-2061

Scenarios	2011	2016	2021	2026	2031	2036	2041	2046	2051	2056	2061
High	149.8	161.3	173.6	186.6	199.6	212.0	223.5	234.5	245.6	256.0	265.2
Medium	149.8	160.3	170.2	180.2	190.0	198.9	206.5	212.9	218.4	222.8	225.7
Low	149.8	160.2	168.7	176.3	183.8	190.4	195.6	199.1	201.3	202.0	201.1

In terms of the population that would be added to the 2011 base population, under the high scenario an additional 115 million people would be added compared with an additional 76 million under the medium scenario and 51 million under the low scenario. These are all large numbers given Bangladesh's current and future development challenges.

Another important observation is that only the low scenario shows the total population of Bangladesh levelling off within the next 50 years. According to this scenario, the total population would reach a peak of 202 million by 2056 and thereafter begin to decline slowly. Under the other two scenarios, population growth would continue beyond the projection period.

Figure 3.1: Projected population 2011-2061



Under all three scenarios the rate of population growth would decline steadily (Table 3.4), but the rate of decline would obviously be much faster under the low fertility scenario than in the other two. By 2041-46 the population growth rate would be below 1 percent annually in all three projections, but under the low scenario the growth rate would fall below 1 percent annual growth as early as the 2016-21 period.

Table 3.4: Annual population growth rates in 5-year periods (percent)

Variant	2011-16	2016-21	2021-26	2026-31	2031-36	2036-41	2041-46	2046-51	2051-55	2056-61
High	1.47	1.46	1.41	1.28	1.13	1.00	0.94	0.90	0.78	0.65
Medium	1.27	1.14	1.12	1.00	0.85	0.68	0.56	0.48	0.34	0.20
Low	1.23	0.89	0.88	0.78	0.64	0.46	0.30	0.17	0.01	-0.16

Another way of understanding future population growth is to look at the actual numerical increase in population rather than the rate of growth (Table 3.5). This statistic indicates the number of additional persons who would have to be accommodated by the social and economic system if the standard of living is to be maintained or improved. In the case of the high scenario, population increase would remain above 2 million persons per year until 2056. Under the medium scenario growth would still be around 2 million persons per year up to the 2021-26 period but would drop below 2 million from then on and steadily decline. In the low scenario the annual addition would be less than 2 million from 2011 onwards and drop to less than 1 million by 2036-41. The challenge of accommodating further population growth will nevertheless be quite formidable over the next 20 years, regardless of which scenario comes to pass.

Table 3.5: Annual population change in 5-year periods (millions)

Variant	2011-16	2016-21	2021-26	2026-31	2031-36	2036-41	2041-46	2046-51	2051-55	2056-61
High	2.36	2.54	2.63	2.55	2.40	2.24	2.20	2.20	2.00	1.73
Medium	2.04	1.94	2.01	1.91	1.69	1.41	1.20	1.05	0.76	0.44
Low	1.97	1.49	1.55	1.44	1.22	0.89	0.59	0.35	0.01	-0.32

Age structure

The age structure of the population will certainly change in the future with some groups declining while others increase—both proportionately and in total numbers (Table 3.6). The population aged under 15 years will experience absolute decline under the medium and low projections, particularly under the latter which would result in a decrease from 51.9 million in 2011 to 28.3 million in 2061. Under the high scenario the under 15 population would increase by about 5 million over the 50-year projection period.

Table 3.6: Projected population in three main age groups, 2011-2061 (millions)

	High scenario			Medium scenario			Low scenario		
	0-14	15-59	60+	0-14	15-59	60+	0-14	15-59	60+
2011	51.9	86.7	11.2	51.9	86.7	11.2	51.9	86.7	11.2
2016	50.1	99.3	12.0	49.1	99.3	12.0	49.0	99.3	12.0
2021	47.8	111.5	14.4	44.4	111.5	14.4	42.8	111.5	14.4
2026	49.8	119.6	17.2	43.4	119.6	17.2	39.5	119.6	17.2
2031	52.3	126.1	21.3	43.6	125.1	21.3	37.5	125.0	21.3
2036	53.5	132.5	26.0	43.8	129.1	26.0	36.9	127.6	26.0
2041	53.5	139.0	31.0	43.0	132.5	31.0	35.9	128.7	31.0
2046	53.4	143.1	38.1	41.4	133.5	38.1	33.7	127.4	38.1
2051	54.1	147.3	44.2	39.9	134.3	44.2	31.3	125.8	44.2
2056	55.7	151.5	48.8	39.4	134.7	48.8	29.4	123.8	48.8
2061	57.1	152.3	55.7	39.2	130.8	55.7	28.3	117.1	55.7

The population in the core labour force ages (here defined as age 15-59) would increase significantly under all three scenarios. From 86.7 million in 2011, this age group would increase to 152.3 million under the high scenario, 130.8 million under the medium scenario and to 117.1 million under the low scenario by 2061. Relative to 2011, 65.8 million persons would be added under the high scenario, 44.1 million under the medium and 30.4 million under the low scenario. These additions to the labour force would present major challenges for Bangladesh—even under the low scenario.

But the most dramatic change to be expected in the demographic future of Bangladesh is the increase in the elderly population defined conventionally as age 60 and over. The effects of different fertility scenarios on the number of elderly will be zero because this age group is only affected by mortality and migration, and these are held constant in all scenarios. As shown in Table 3.6, the number of elderly would increase by five times, from 11.2 million in 2011 to 55.7 million in 2061. Obviously this increase is a function of the pyramidal shape of the age structure, leading to successively larger cohorts replacing those in the elderly population, as well as increasing life expectancy.

Changes in the absolute size of the main population age groups are shown in the following graphs by fertility variant. Labour force growth and growth of the elderly are particularly apparent in the case of the high scenario (Figure 3.2). As fertility remains constant at 2.3, just above the replacement level, the increase in the 0-14 population is relatively small.

Under the medium assumption, labour force growth will slow down and level off by 2051 and begin to decline (Figure 3.3). Little labour force growth will occur after 2041. With declining fertility and rising life expectancy, the population aged 0-14 and 60+ will be approximately equal sometime between 2046 and 2051. After this point in time, old-age dependency will exceed youth dependency.

Figure 3.2: Population growth in the main age groups, high variant

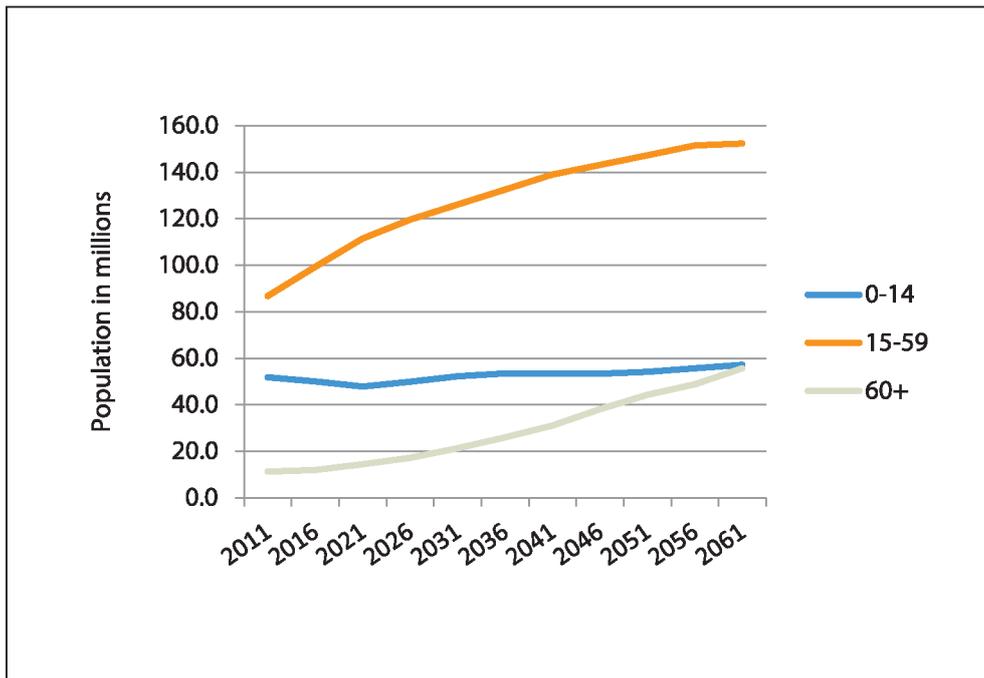
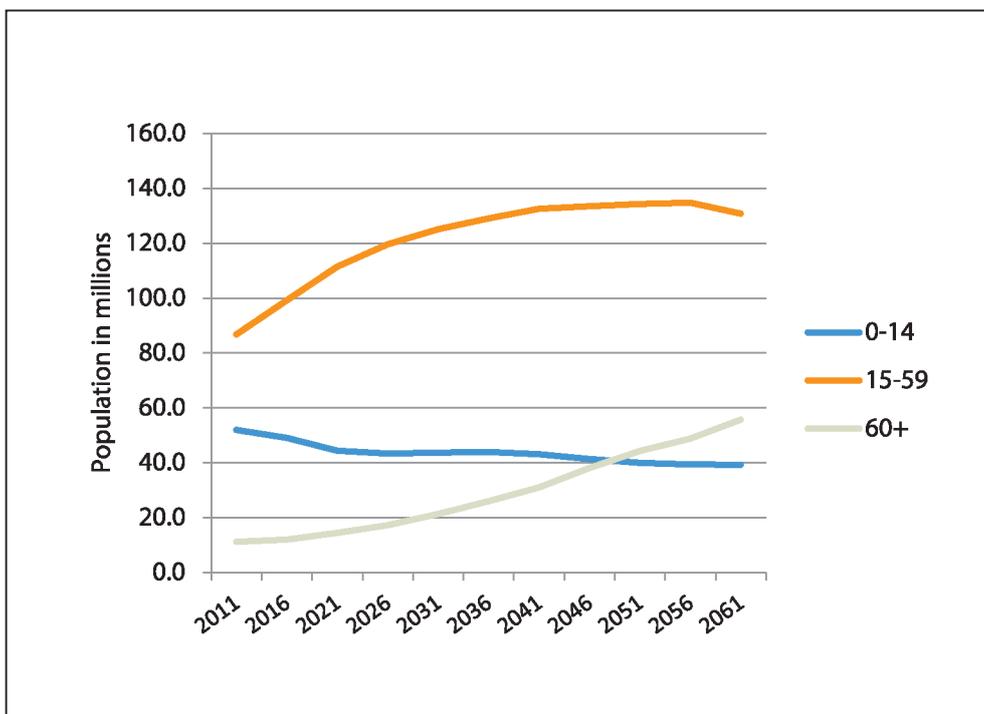


Figure 3.3: Population growth in the main age groups, medium variant

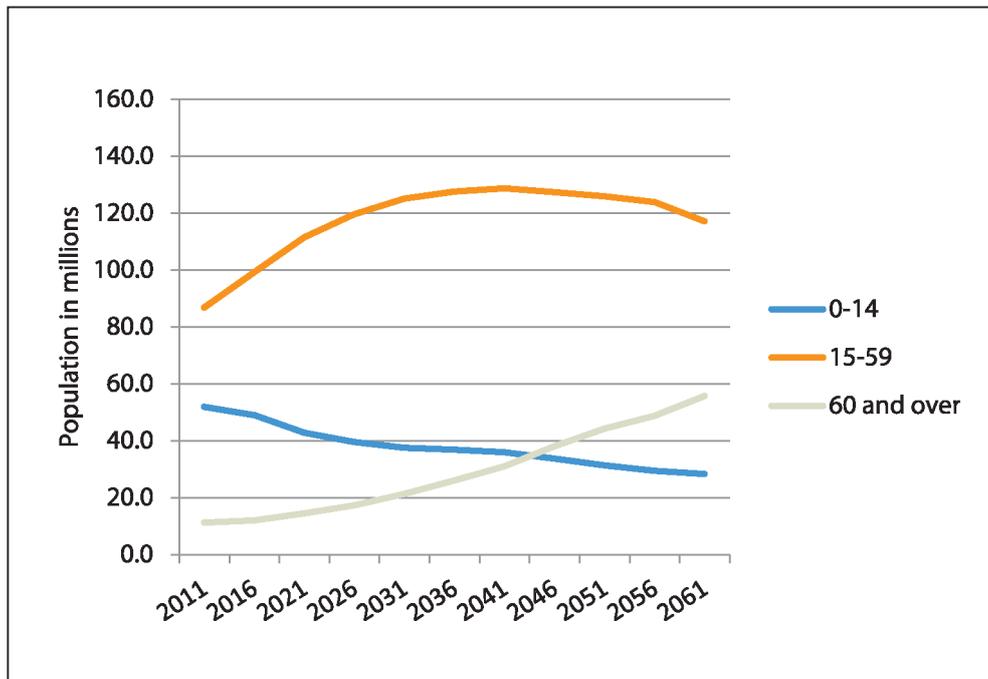


The low variant implies a much faster shift of dependency from young to old with the two age groups becoming approximately equal in size by 2041. Under this scenario the labour force would peak at about 129 million in 2041 but decline slowly to 117 million by 2061.



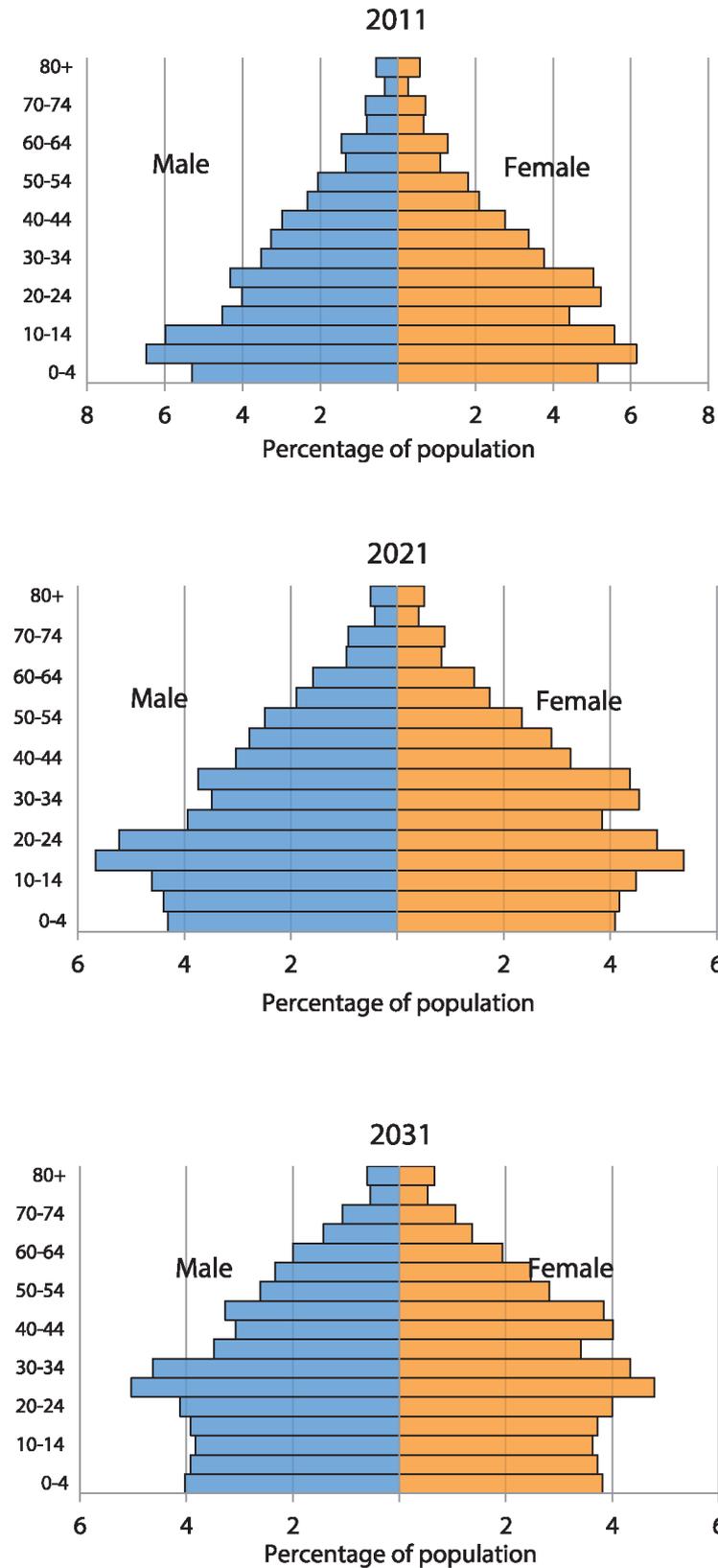
Standing outside their home, an old man and a young girl child smile in Kalaboho village on the outskirts of the city of Jabalpur. Bangladesh. Photo Credit: © UNICEF/BNG-2014-Noorani-0353/.

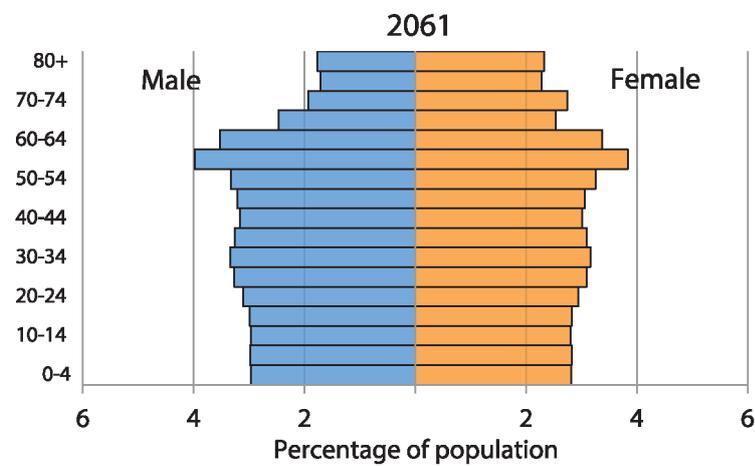
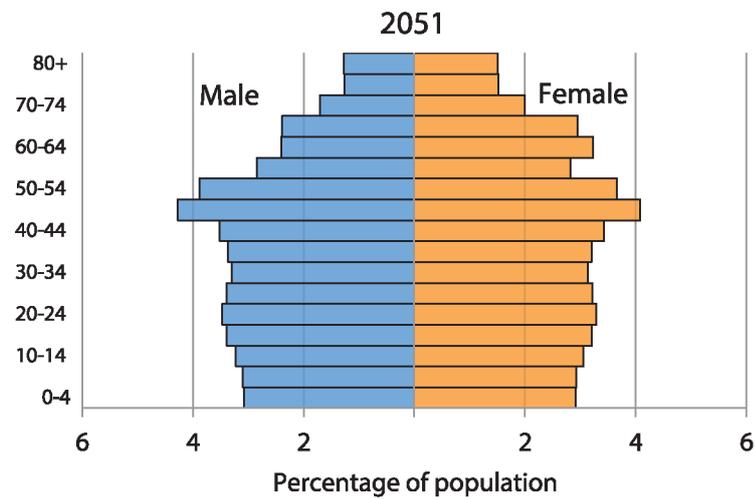
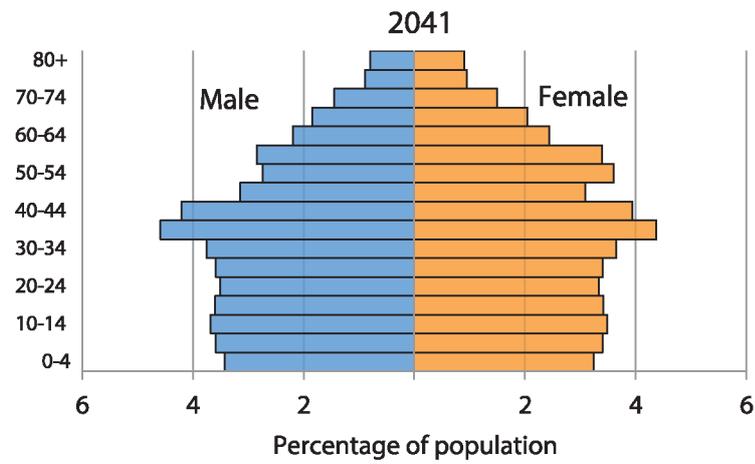
Figure 3.4: Population growth in the main age groups, low variant



Age structure changes within the full age range by five-year age groups are reflected in the following age “pyramids” (Figure 3.5). For convenience we show the medium scenario only.

Figure 3.5: Age structure change 2011-2061 (Medium variant)





These pyramids illustrate the steady working through the age structure of the relatively large birth cohorts of the 1996-2006 decade. Given that the TFR was declining during those years it is likely that an increase in the number of women of childbearing age was responsible for these larger birth cohorts. By 2061 this cohort will be reaching older age (55-59) and then start contributing to the ageing process. The projected 2061 age pyramid would be similar (i.e. “coffin-shaped”) to that of the presently developed countries, with an almost equal distribution in all age groups up to the 50-54 group and further ageing at the top to be expected.

THE ROLE OF POPULATION “MOMENTUM”

Population momentum refers to population growth that is caused by the age structure rather than the rate of natural increase or total fertility. The age structure will affect growth if, for example, the proportion of women in the child-bearing age range is increasing due to higher fertility rates in the past. It can be seen in the age pyramids shown in Figure 3.5 that this will be the case in Bangladesh up until 2051 when the large cohort of women that entered the child-bearing age range between 2001 and 2011 will reach the end of their reproductive lives. Even if the TFR declines in the future, the number of births per year could continue to increase because of this age-structure effect. Aside from this, the effect of momentum on growth is apparent in the replacement of each 5-year age cohort by a larger cohort below it in the age pyramid, as can be seen diagrammatically in the year 2021 age pyramid in Figure 3.5. Although the effect of declining fertility is evident in the age structure at ages below 15, this is not sufficient to offset the effect on population growth of the successively larger age cohorts above this. By the year 2061, however, the effect of population momentum on growth will have largely played itself out. The component of growth that is caused by the age structure is unaffected by policies aimed at reducing individual fertility, although the momentum effect can be off-set more quickly if the TFR falls well below replacement level.

In the projections described above, it is apparent that variations in fertility will continue to have an effect on population growth in Bangladesh. This is evident in the difference between the ultimate population size and the various fertility scenarios. But population momentum will also contribute to growth. This can be shown by a population projection exercise that uses the same total population but a different age structure as the base population combined with the same inputs as in the present projections. In this case the age distribution was adjusted to remove the effects of the relatively large birth cohorts of the 1996-2006 period. The results of this exercise are shown in Table 3.7. The table shows that with a different age structure that would result in fewer women in childbearing ages after 10 years (i.e., by 2021) population growth would be lower, even with the same fertility rate, but the difference does not become marked until after 2021. By the end of the projection period the difference is 17.1 million. This shows the extent to which “momentum” can be expected to contribute to population growth over the next five decades.

Table 3.7: The effects of population “momentum” on population growth, 2011-2061

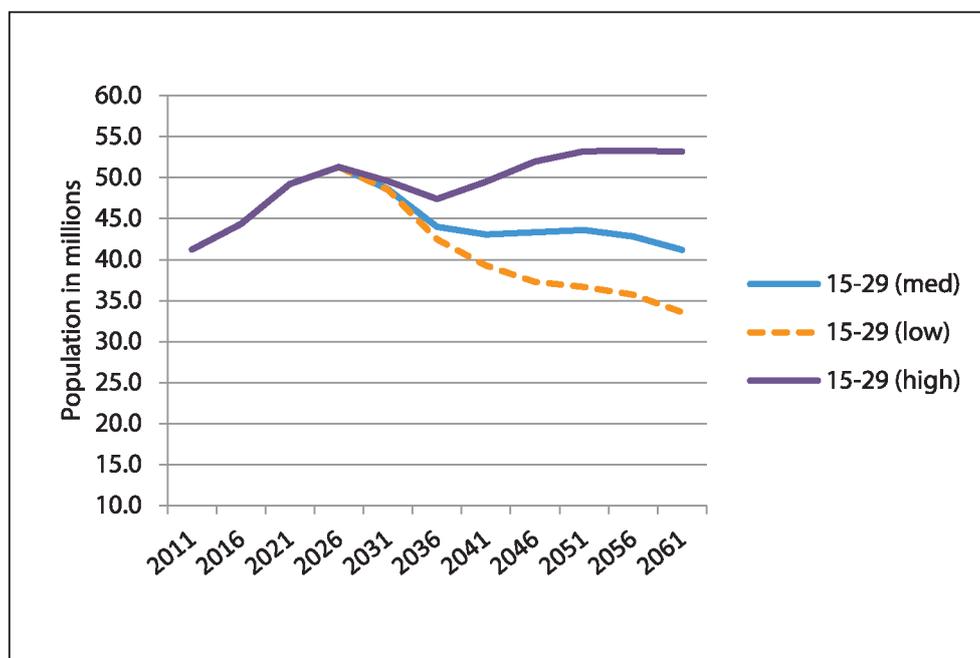
Scenarios	2011	2016	2021	2025	2031	2036	2041	2046	2051	2056	2061
Medium	149.8	160.3	170.2	180.2	190.0	198.9	206.5	212.9	218.4	222.8	225.7
Simulation	149.8	161.0	170.2	178.0	185.0	191.4	197.2	202.2	206.1	208.2	208.6
	0	0.3	0	2.2	5.0	7.5	9.3	10.7	12.3	20.6	17.1

THE FUTURE OF YOUTH AND ELDERLY

The “youth” population

For demographic convenience, “youth” is generally defined as the age group 15-24. In some societies, Bangladesh included, the “youth” population is understood as persons aged 15-29. Figure 3.6 shows the projected population of the 15-29 age group based on the three fertility scenarios. Under the high scenario, the youth population would expand in two “wave-like” patterns. The first wave would occur over the 2011-26 period. In absolute numbers the 15-29 age group would grow from 41.2 million in 2011 to 51.3 million in 2026, implying growth of 24.5 percent over the period. A second wave of growth would occur after 2036 under the high scenario but the trend would level-off and then begin to decline under the medium and low scenarios.

Figure 3.6 Projected youth population aged 15-29, 2011-2061

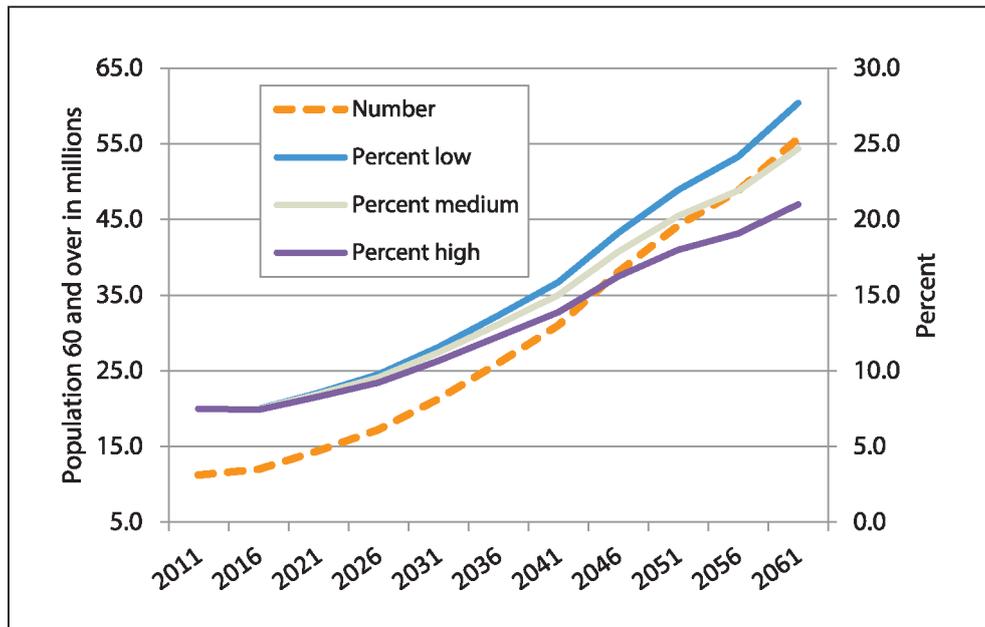


The elderly and population ageing

Ageing is the process whereby the *proportion* of old people (here defined as 60 years of age and over) increases as a result of declining fertility in earlier periods and increased longevity (life expectancy), and the *number* of elderly people increases rapidly as a result of both factors. Both of these processes can be seen in Figure 3.7. However, beginning from the 2011 base, the increasing number of elderly over the projection period is determined only by improved life expectancy because fertility change over the projection period will have no impact on the number of elderly. Therefore, the number of elderly is the same in all three projection scenarios. The elderly would increase from 11.2 million in 2011 to 55.7 million in 2061, an absolute increase of 44.5 million. Thus, the population of older people would increase by five times over during this period, which would make this the most rapidly increasing age group in the population. For example, in the 2026-31 period, the population of labour force age will be growing at just under 1 percent per year whereas the 60 and over population will be growing at 4.2 percent per year, over four times as fast.

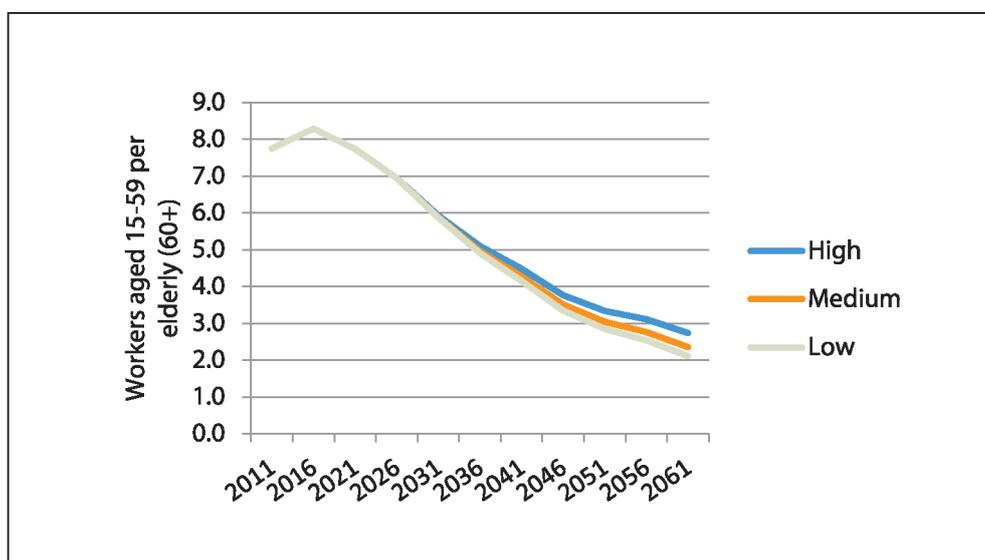
The proportion of elderly will depend on which fertility scenario comes to pass but the trend will be the same in all three scenarios, namely a rapid increase in the proportion of elderly in the population. Even under the high fertility scenario the proportion of elderly would be over 20 percent by 2061 whereas it would reach almost 28 percent under the low scenario (Figure 3.7, right axis).

Figure 3.7 Projected number and proportion of 60 and over population, 2011-2061



Given that the labour force will be growing at a much slower rate than the elderly population in the future, the number of “workers” per elderly person will decline. Between 2011 and 2031, for example the number of working age persons per elderly person will decline from 7.7 to 5.9 (Figure 3.8). By 2061 the potential support ratio will be between 2 and 3, depending on which fertility scenario is realized.

Figure 3.8: Potential support ratio, 2011-61 under three fertility scenarios



POPULATION DISTRIBUTION AND URBANIZATION

Geographical distribution

As shown in Chapter 1 (see Table 1.3) the geographical distribution of population in Bangladesh remained relatively stable at the Division level over the past two decades. Aside from Dhaka Division, whose share of the total increased from 30.7 to 32.9 percent since 1991, only Chittagong and Sylhet increased their share of the total population while the other Divisions lost share. But both the gains and losses have been relatively small: even Dhaka Division only gained 2.2 percentage points over a 20-year period—despite being the location of the country's capital and “Mega-city” of Dhaka and the primary destination for rural-urban migrants.

Quite aside from urbanization as such, the geographical redistribution of population may play a similar role in development to the extent that population moves in such a way as to more efficiently combine the factors of production. The migration of labour to resource extraction sites where it would otherwise be scarce is one example. Where a land “frontier” still exists the redistribution of population to places with surplus land provides economic benefits, especially where agricultural exports are possible. The evidence for Bangladesh suggests that there is in fact no land frontier remaining and the redistribution of population is therefore minimal and what has occurred – for example, movement onto char lands and haors - is driven more by environmental crises than by economic efficiency.

There are currently no projections of the future geographical distribution of Bangladesh's population, but on the basis of past trends, what redistribution is likely to occur will be closely associated with urbanization.

Urbanization

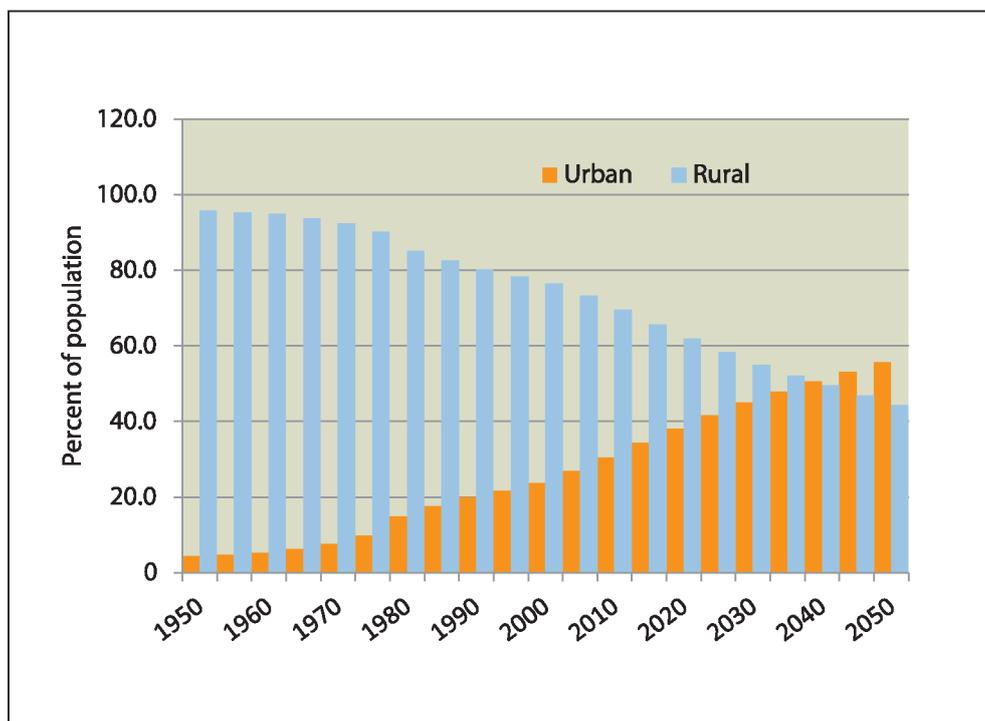
Urbanization is closely associated with the demographic transition as well as a key driver of it. The urban transition is an important form of structural transformation of an economy and society. According to the “two-sector” model of economic development, rural population growth at rates higher than the rural economy can absorb provide an “unlimited” supply of labour that can fuel industrialization, precisely because it is available at low cost to the industrial sector. Rural-urban migration is the mechanism by which labour is transferred from a situation in which its marginal productivity is very low, or even zero, to one in which its marginal productivity is positive and entrepreneurs are able to generate profits by employing migrants and migrants are able to earn a wage. Thus, the rate of urbanization is in itself an important indicator of development. But much depends upon its form. In some contexts, urbanization occurs without industrialization, simply because cheap labour alone is not enough to drive industrialization; capital investment may be lacking because the country has few comparative advantages in manufacturing for a global market. Under such circumstances, urbanization may be driven mainly by the growth in services, such as appears to be occurring in Bangladesh.

At independence, Bangladesh was a predominantly rural society with only about 9 percent of the population (6.2 million) living in urban areas. The 2011 census reported that the urban population had reached 41.9 million that year and comprised 28 percent of the population (BBS 2014c). This is well below the global average of 54 percent (UNDESA 2014). In effect, Bangladesh has been urbanizing at the rate of 0.5 percent a year, a slow rate for a developing country. Boundary changes in 2011 make it difficult to calculate the present urban growth rate. If the urban growth rate is calculated on the basis of the 2001 boundaries, the

rate of growth over the 2001-11 period would be 2.9 percent per year, which is double the national population growth rate.

As is the case with the national population projections there are no “official” projections of urban growth or the geographical distribution of population at any level in Bangladesh. The only available urban projections are those carried out by the United Nations Population Division (UNDESA 2014). These projections suggest that the pace of urbanization over the next 35 years (2015-2050) could accelerate somewhat relative to urbanization in the past, but that pace would still not be particularly rapid. It would take until 2040 before the urban population exceeds the rural population and reaches the average level of urbanization in the world today (Figure 3.9) and from that point onwards the rural population will start declining while the urban population will continue growing. The rural population reached its peak of 105 million in 2010 and is projected to decline to 89.5 million by 2050. Conversely the urban population is projected to reach 112 million by 2050 and would still be growing. In effect, this suggests that all future population growth in Bangladesh will be in urban areas.²⁴

Figure 3.9: Rural-urban distribution (%) 1950-2010 and projected to 2050

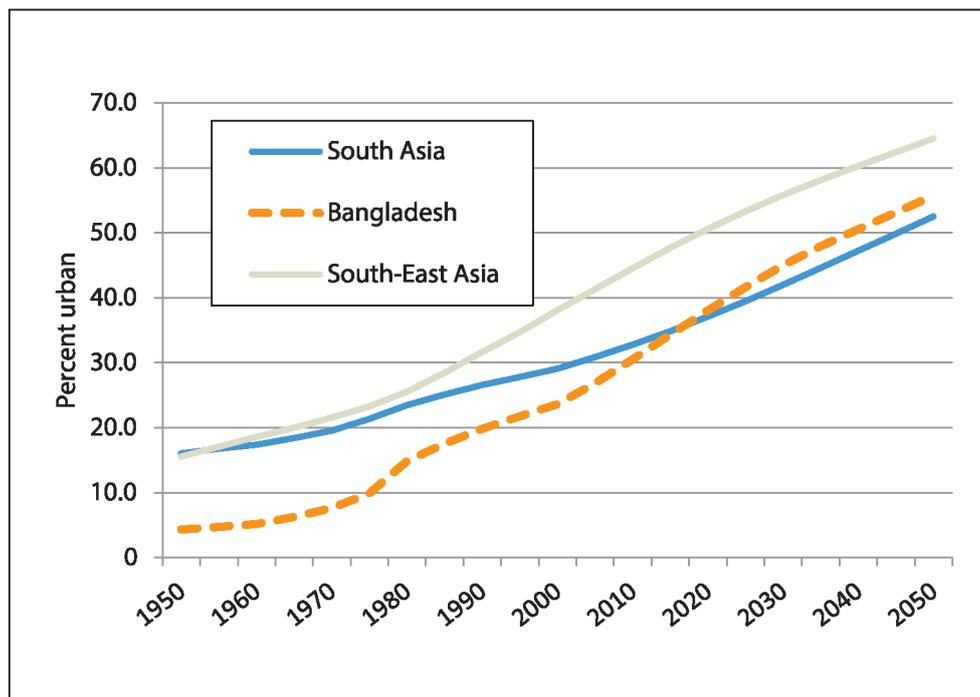


Source: United Nations, Department of Economic and Social Affairs, Population Division (2014).

Compared with the South and South-East Asia regions, Bangladesh has historically had a low level of urbanization. It was not until 1985 that Bangladesh reached the level of urbanization of South and South-East Asia in 1950. By 2015 it is projected (UNDESA 2014) that Bangladesh will have caught-up with the level of urbanization in South Asia as a whole but is not likely to reach the level expected in South-East Asia over the next few decades (Figure 3.10).

²⁴ These projections could be affected by changes in the definition of urban introduced in the 2011 census.

Figure 3.10: Urban growth trends compared with South and South-East Asia



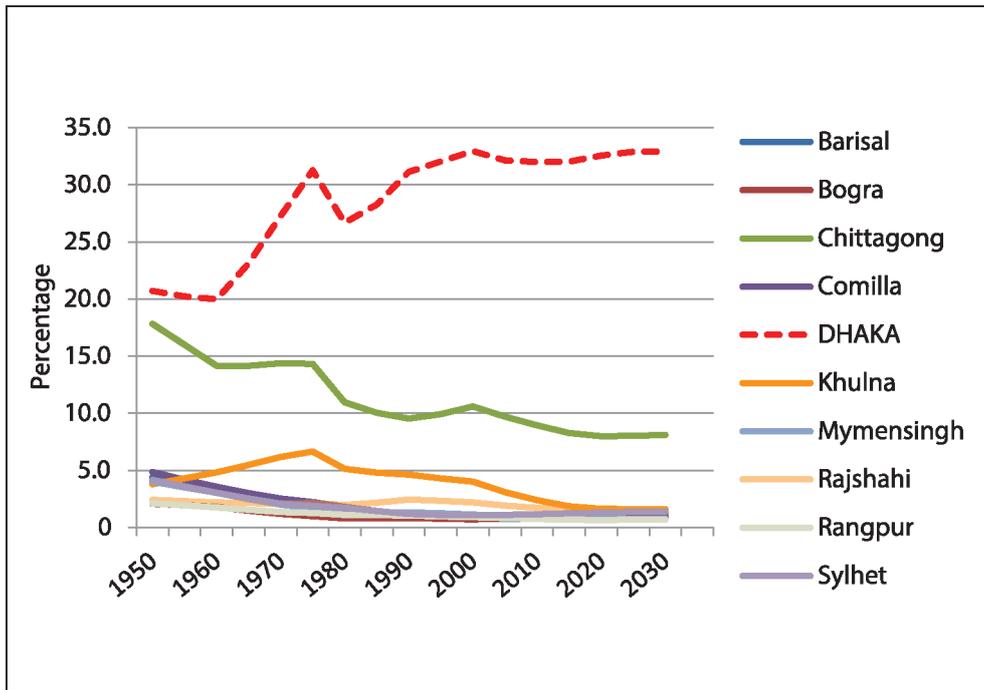
Source: United Nations, Department of Economic and Social Affairs, Population Division (2014).

The future urban population by city size

The character of urbanization is determined not only by the proportion of the population that is urban but also by the distribution of the urban population among cities and towns. Bangladesh is characterized by a high level of urban “primacy” with about 32 percent of the urban population residing in one Mega-City, Dhaka (similar to Bangkok in relation to Thailand’s urban population). According to the UN Population Division’s projections, Dhaka will remain Bangladesh’s primate city for the foreseeable future (Figure 3.11) based on current trends.

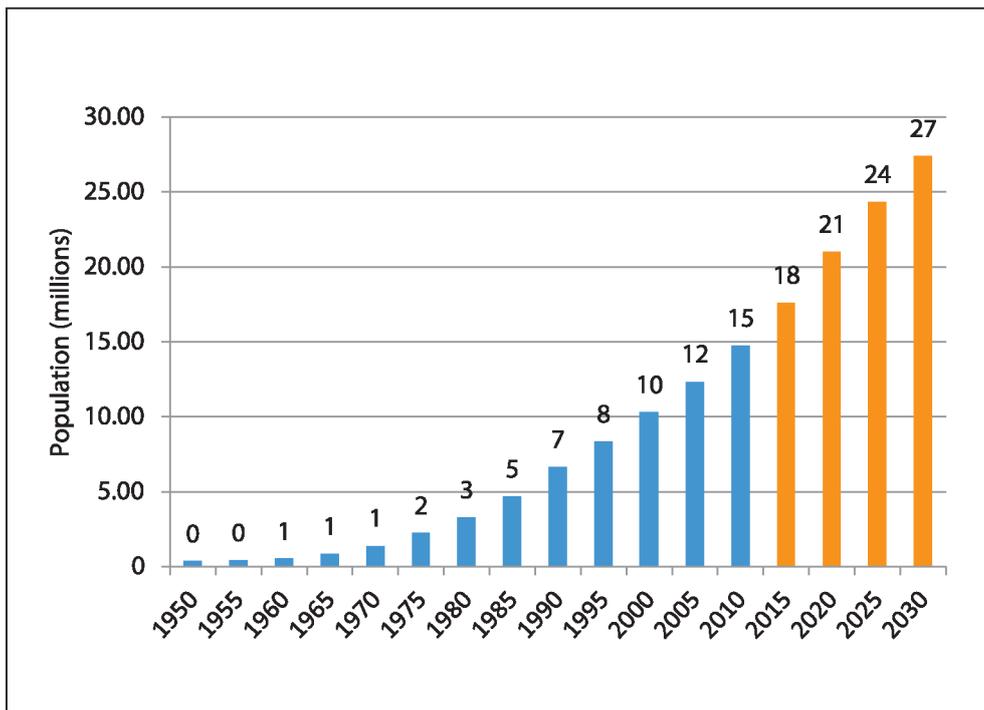
In absolute numbers, Dhaka is projected to reach 27.4 million by 2030, an increase of 86 percent over the population in 2010 (Figure 3.12). This implies an average annual growth rate of 4.3 percent. While other cities will also grow, their proportion of the total urban population is expected to decline or remain static.

Figure 3.11 Proportion of Bangladesh's urban population in ten cities with a population of 300,000 or more, 1950-2030



Source: United Nations, Department of Economic and Social Affairs, Population Division (2014).

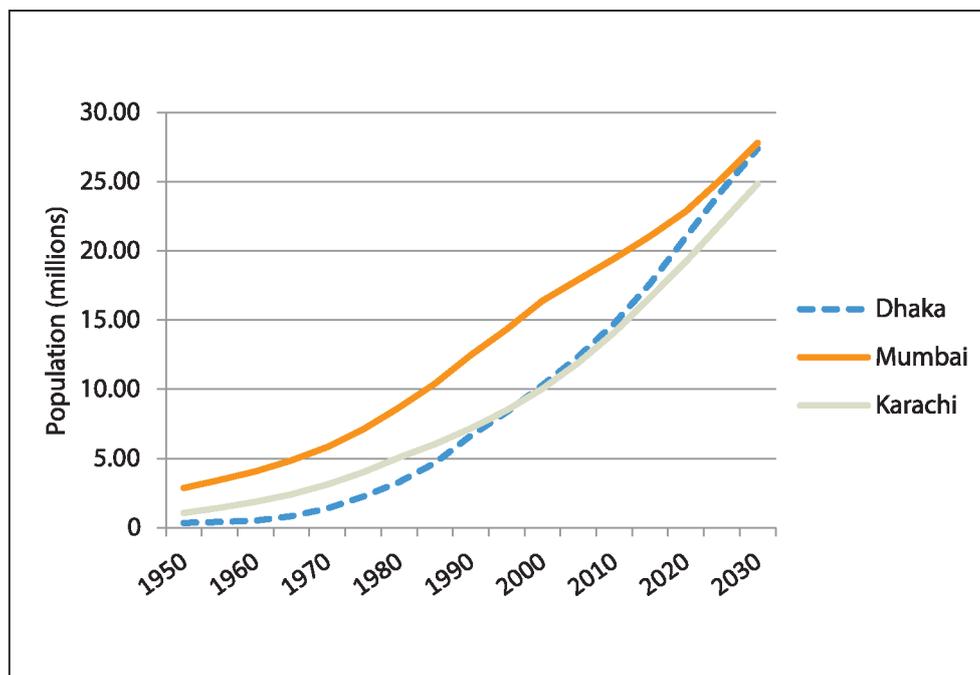
Figure 3.12: Actual and projected population of Dhaka, 1950-2030



Source: United Nations, Department of Economic and Social Affairs, Population Division (2014).

Within the time frame of the UN Population Division's 2014 Revision (up to 2030) there is no indication that the growth of Dhaka's population will level-off or that the total population will stabilize. Projections suggest that Dhaka's population will catch up with Mumbai by 2030 (Figure 3.13).

Figure 3.13: The projected growth of Dhaka city compared with Mumbai and Karachi, 1950-2030



Source: United Nations, Department of Economic and Social Affairs, Population Division (2014).

THE IMPLICATIONS OF FUTURE POPULATION CHANGE FOR SOCIO-ECONOMIC DEVELOPMENT

Future population change obviously depends upon which of the projections described above actually occurs, although we can be relatively certain about short-term change in older age groups because their growth is not affected by changes in fertility. There are three dimensions of population change that should be considered: (1) total population size; (2) Age distribution; (3) geographical distribution. We consider each of these in turn.

Total population

The most immediate and obvious impact of future population growth is an increase in population density, implying greater population pressure on land and other natural resources, including water supply, as well on infrastructure of all types. By 2056 under the medium scenario, or by 2041 under the high scenario, the population density in the whole of Bangladesh would be equivalent to the current density of Dhaka Division (1,520 persons per km²). This will present a formidable development challenge for Bangladesh.

If national self-sufficiency in food production is to be maintained, agricultural yields per unit of land would need to be raised, either by producing different types of crops, improving the technology of production or both. The low rate of capital investment needed to raise yields has been a perennial problem in Bangladesh (Chaudhury 1989), though rising agricultural wages since 2007 (see Figure 2.1) suggest some real breakthroughs. The World Bank (2013) reports that agricultural productivity has been improving with faster technology adoption. "Farmers have shifted from growing low yield, single-crop, deep-water rice to double-cropping of short-maturity, high-yield rice. There has also been a pronounced shift away from sharecropping to fixed-rent leasehold tenancy. Landless and marginal farmers have been the major beneficiaries of this change". Further increases in agricultural productivity could obviate the need for further export-oriented industrialization to provide the income to cover the costs of imported food.

Table 3.8: Gross population density, 2011-2061 (Persons per km²)

Scenarios	2011	2016	2021	2025	2031	2036	2041	2046	2051	2056	2061
High	1,015	1,093	1,176	1,264	1,353	1,437	1,515	1,589	1,664	1,735	1,797
Medium	1,015	1,086	1,153	1,221	1,288	1,348	1,399	1,443	1,480	1,510	1,529
Low	1,015	1,086	1,143	1,195	1,246	1,290	1,325	1,349	1,364	1,369	1,363

Increased population density due to population growth would not necessarily increase the number of persons seeking to make a living off the land assuming that all future population growth will be in urban rather than rural areas. But significant improvements in the level of living and the further reduction of poverty in rural areas would require more than just the stabilization of the rural population but actual declines in the rural population through net rural-urban migration would be essential. Present levels and rates of internal migration appear to have mainly offset rural natural increase without producing an actual decline in the rural population.

It could be argued that a larger population would produce positive benefits in Bangladesh by increasing the scale of the market for domestically-produced goods, ultimately reducing dependence on exports. But Bangladesh already has a sufficiently large population to provide economies of scale in production and consumption. The key need is to raise the per capita purchasing power of this large population. Looked at in this way, a larger population would only be beneficial if it led to a more rapid increase in overall purchasing power than a more slowly growing population, and this seems unlikely. Lack of economies of scale is not a development constraint in Bangladesh; it is more likely that even the present situation as regards population density in relation to resources is resulting in diseconomies of scale due to congestion costs, particularly in urban areas.

Age distribution

The main age age-structure changes to be expected in the future can be summarized as follows:

1. Growth in the 0-14 population will slow down or stop completely. Under the medium scenario, the 0-14 age group will decline by 7.5 million relative to 2011

followed by a period of relative stability.

2. The population of core labour force age (15-59) will continue to increase for the foreseeable future but will peak-out at 129 million in 2041 under the low scenario or at 135 million in 2056 under the medium scenario. Nearly 25 million will be added to this age group between 2011 and 2021.
3. The elderly population will grow by 44.5 million by 2061 regardless of which projection comes to pass.

Each of these trends has different implications for socio-economic development.

0-14 population

The relative stability of the 0-14 population will reduce pressure on institutions that cater to the needs of young children, most obviously health and education. Education facilities can be adapted and renovated to cater for the needs of older, secondary school-age children, whose numbers will still be rising. Teacher training will need to be reoriented toward secondary school or primary-school teachers re-trained to teach the secondary curriculum. In general, pressure on the education budget will receive some relief, but since secondary education is much more expensive than primary the overall impact may be small. An alternative (or complementary) scenario is that the funds saved by having to teach fewer young students could be used to increase the quality of education, particularly to better prepare primary-level students to reach the secondary level.

15-59 population

This age range includes both secondary and tertiary students as well as economically active workers. For potential students the pressure on existing teaching and training facilities will increase, possibly leading to rationing of student places. This can be averted by greater investment in technical-vocational training facilities as well as professional and higher education. Investment in facilities implies teacher training as well as physical infrastructure. The need to create new facilities or expand old ones gives Government an opportunity to decentralize the student population by concentrating on areas other than metropolitan Dhaka.

For the increasing population destined for the labour force rather than school, the main implication is the availability of employment in “decent work”. As shown in Chapter 2, labour force absorption has been inadequate in the past two decades leading to high rates of underemployment. Opportunities for “formal sector” employment appear to be diminishing. The challenge is to accelerate job-creation, but the economic strategies that might achieve this would require careful review for possible unintended consequences. Increasing public sector jobs, for example, would be a potential drain on the government budget and threaten the achievement of other goals, unless the jobs could specifically contribute to human resource development. Higher government spending in health and education has implications for taxation; increased revenues would be required if borrowing is to be avoided. Borrowing may be justified to support technical and vocational training as the investment return is potentially high. Alternatively, budget priorities would need to be revised given that the allocation for education and technology in the 2013-14 fiscal-year was only 2.2 percent of GDP, which is low by international standards.

60+ population

The 60 and over population can be expected to double to 21.3 million between 2011 and 2031. Beyond that point, the population in this age group will increase relentlessly at over 3.0 percent per year for the foreseeable future. The primary policy issue is how support for the growing elderly population will be financed. Government social safety net programmes for the elderly are currently insufficient both in terms of population coverage and per-capita payments. Increasing pressure will be placed on Government to introduce a universal social pension at a level that would prevent an elderly person falling into poverty, if not already amongst the poor. Existing programmes also have a great deal of “leakage” and the most needy and eligible may not receive their entitlements. These institutional weaknesses will need to be repaired.

Under customary values and social arrangements, common in most Asian-Pacific countries, the responsibility for supporting the elderly falls on the younger generation. Current demographic, social and economic trends threaten these arrangements. Demographically, the long-term trend is for the potential support ratio to fall, implying fewer persons of working age relative to the older population. This implies that a higher proportion of elderly support will have to come from capital rather than labour. Socially, both nuclear and extended families are becoming fragmented under economic pressure. Urbanization, internal migration and international migration have positive economic benefits but these may not provide sufficient support for older family members whose support is labour-intensive, such as the chronically ill.

FUTURE POPULATION CHANGE AND THE DEMOGRAPHIC “DIVIDENDS”

The “first” demographic dividend

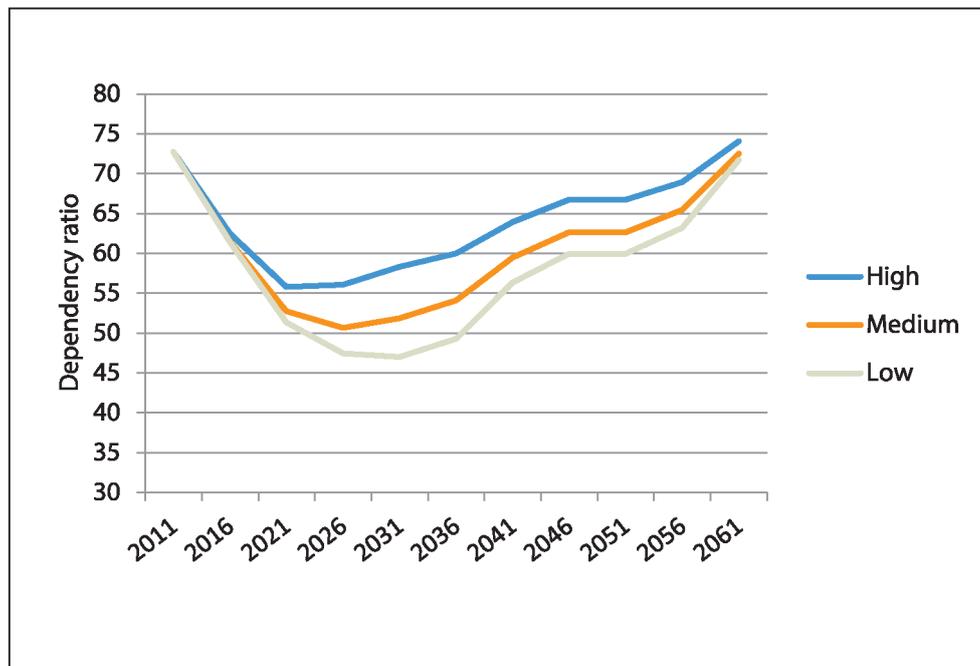
A favourable relationship between various age groups, given their different contributions to production and consumption, follows from the demographic transition. As demonstrated by the experience of the “Asian Tiger” economies during the 1970s and 1980s, a plentiful supply of young, healthy and educated workers relative to both young and old dependants can provide a boost to economic growth, provided that the enabling social and economic conditions are also present. The period during which the proportion of the population in the labour force ages is increasing relative to other age groups (as reflected in a declining dependency ratio), provides a one-time “window of opportunity”, for investing heavily in human resource development. Such timely investments provide a “demographic dividend” to the economy. As a population ages further, however, the dependency ratio increases again, the “window” gradually closes and the dividend is no longer available (see Box 1).

Box 1 Definition of the first demographic dividend

“The demographic dividend is the accelerated economic growth that may result from a decline in a country’s mortality and fertility and the subsequent change in the age structure of the population. With fewer births each year, a country’s young dependent population grows smaller in relation to the working age population. With fewer people to support, a country has a window of opportunity for rapid economic growth if the right social and economic policies are developed and investments made” (UNECA 2013).

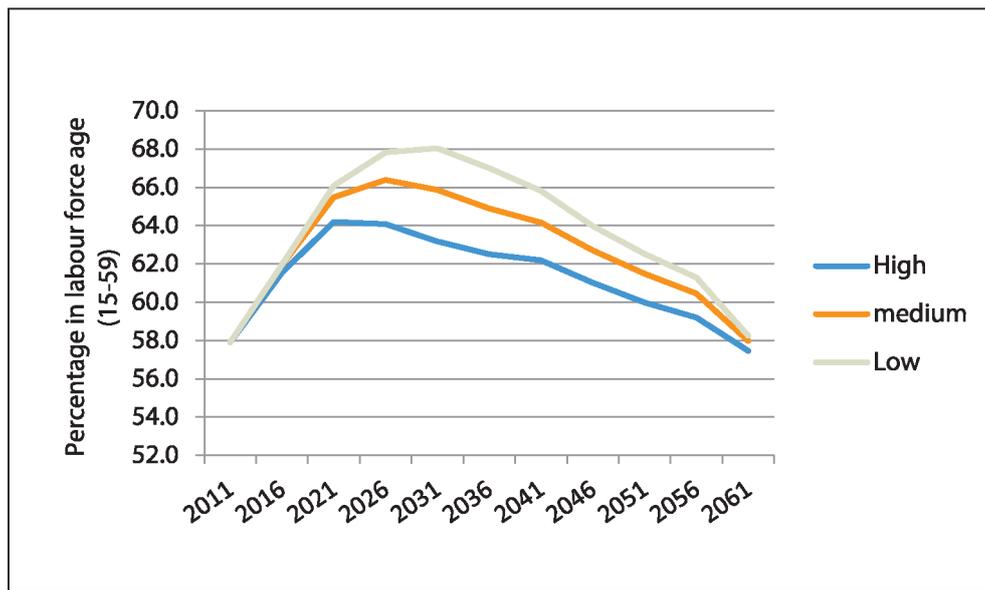
As shown in chapter 1, Bangladesh began to enter the demographic dividend period from the 1990s as the dependency ratio declined as a result of declining fertility in earlier years. To some extent the country has already benefited from the dividend, but the dependency ratio is projected to continue falling for another 10-20 years before rising again as the population ages (Figure 3.14).

Figure 3.14: Dependency ratio under three fertility scenarios



Another indicator of the demographic dividend period is the proportion of the population in the labour force ages (here defined as 15-59). By 2011 this proportion had reached its highest level in 100 years, and it will continue to rise for the next 10-20 years (Figure 3.15). When the proportion of the population of labour force age will reach a peak depends on which of the three projection scenarios comes to pass. The low scenario would result in the labour force peaking at 68 percent of the population in 2031, while in the medium scenario the peak would be 66.4 percent in 2026. In the high scenario the labour force would reach a peak of 64.2 percent of the population and this would be reached in 2021. The two decades from 2011 to 2031, then, represent the optimum period for investing in human resources and establishing other enabling conditions for economic growth in Bangladesh; after 2031 the window will begin to close rapidly due to the increasing elderly population and the declining 0-14 age group.

Figure 3.15: Proportion of the population in the labour force ages under three fertility scenarios



Regardless of how it is measured and which projection scenario turns out to be correct, the turning point that marks the end of the first demographic dividend period will fall between 2021 and 2031. Taking advantage of the demographic dividend is therefore an urgent imperative for Bangladesh. The concept of the demographic dividend emphasizes that the dividend is not automatic; it is achieved only if the appropriate policies and development strategies are pursued. The dividend appears as an addition or “bonus” to the growth that could be expected as a result of capital investment in infrastructure, improved technology, the machinery of manufacturing, or by trade policy, market liberalization, etc. Policies that promote investments of those types are not what is meant by “appropriate” policies in this context, even though capital investment and international trade are important drivers of economic growth in themselves and the low dependency ratio characteristic of the window period can provide additional resources for such investment. Rather, dividend theory focusses on human resource development, which implies greater investment in schooling and technical training to build work skills. The concept also suggests that these investments should be easier for governments to make given that the dependent population is at its lowest relative to the working age population.

In Bangladesh this implies a much greater effort by the government and its development partners to ensure that young people complete a full course of secondary education, and if possible to go beyond secondary school to technical and vocational training. Evidence already presented shows that the secondary school completion rate remains low, even though initial enrolment rates are high, and the quality of secondary education leaves much to be desired. Similarly, the proportion of the labour force with tertiary and vocational qualifications is low. Bangladesh’s education system has yet to reflect the fact that modern economic growth is “science-based”; higher value added jobs require a greater understanding of science and technology and technical training.

The “second” demographic dividend

During the middle period of the demographic transition when growth in the number of people in the working age population exceeds the growth in the number of young dependents, resources become available for investment in productive activities, spurring faster growth of the economy and a consequent rise in the per capita income (Mason and Lee 2007)²⁵. This is the “first” demographic dividend.

If the benefits of the first demographic dividend are achieved, per capita income will rise and with more persons economically active, the savings rate will also increase. As people grow older they will tend to save and invest to provide financial security in their old age, which will result in the accumulation of wealth and investment capital. If a country can harness the people’s motivation to save and invest by creating a positive investment environment, economic growth can be sustained indefinitely, even though the dependency ratio is increasing. The benefit of the second dividend is usually larger than the first one and can last longer (See box 2).

Box 2 The “Second” Demographic Dividend

“The first dividend yields a transitory bonus, and the second transforms that bonus into greater assets and sustainable development. These outcomes are not automatic but depend on the implementation of effective policies. Thus, the dividend period is a window of opportunity rather than a guarantee of improved standards of living. The dividends are sequential: the first dividend begins first and comes to an end, and the second dividend begins somewhat later and continues indefinitely” (Lee and Mason 2006).

What policies are needed to capitalize on the second demographic dividend? The main challenge is to provide incentives for people to accumulate private savings during their working lives. That implies developing retirement savings plans with favourable terms, especially with respect to taxation. Another challenge is to establish a sovereign wealth fund that could finance retirement benefits in the long term, as well as taking pressure off annual budgets as the working age population begins to decline. Given the low coverage of formal pension plans in Bangladesh, movement toward a universal social pension is essential in the short- to medium-term.

The realization of the benefits of the first and second demographic dividends is highly policy-dependent—as stressed above. Unless employment opportunities for a growing working age population can be improved, the economic gains of the first demographic dividend will not be realized. Similarly, in the absence of a favourable policy environment which encourages savings, the gains from the second demographic dividend would not come either. Therefore, Bangladesh needs to act promptly to capitalize on the opportunities created by demographic dividends to accelerate its economic growth rate beyond its current level.

²⁵ There are estimates that the demographic dividend contributed more than one-third to the increase in per capita income of Eastern and South-East Asian countries during their boom period (Bloom and Williamson 1998, Mason 2001).

CONCLUSIONS

While Bangladesh is approaching the end of the final stage of the demographic transition, population momentum and above replacement fertility would ensure that population growth will be a feature of Bangladesh's circumstances for many years to come. To offset population momentum and to significantly bring forward the date on which a population growth rate below 0.5 percent per year²⁶ will be achieved would require that future fertility trends follow the lowest of the three fertility scenarios outlined above. Even then, a 0.5 percent growth rate and an annual increase below 1 million per year are still 25 years away when measured from our 2011 baseline.

A population of 200 million 20-25 years from now appears almost inevitable given the doubtful prospects for further rapid fertility decline in Bangladesh. While the average desired family size has been falling steadily, the means available to couples to achieve their family size goals are lagging behind, as reflected in the "unmet need" for family planning.

As Bangladesh advances towards a total population of at least 200 million the age structure will inevitably change also. In particular, the elderly population will soon become the fastest-growing age group in the country. The likelihood that Bangladesh will "get old before it gets rich" presents a major development challenge, both to the Government and to families and individuals. The avoidance of increased poverty in old age will depend largely upon how successfully Bangladesh is able to gain the benefits of the first and second demographic dividends while also achieving broad-based and equitable economic development.

The lead-up to the milestone of a population of 200 million will also feature relentless urban growth. The urban planning required to ensure that urbanization makes a positive contribution to development has not been much in evidence in past decades. The absorption of a further 60 million people in Bangladesh's already crowded cities and slum areas will present possibly the biggest development challenge of all.

²⁶ At 1 percent growth, which would occur between 2026 and 2031 under the medium fertility scenario, the population of Bangladesh would still be growing by 1.9 million persons per year. For population growth to drop below 1 million per year by the 2026-31 period would require that the annual growth rate decline to less than 1 percent, which would only occur if the low fertility scenario came to pass.

Key Points

- A set of three population projections have been prepared for Bangladesh based on the 2011 population, and covering the period from 2011 to 2061.
- There are three alternative assumptions about trends in fertility: TFR unchanged at 2.3 over the entire projection period; TFR declining to 1.9 by 2016-21 and remaining at that level thereafter; and TFR declining to 1.6 by 2016-21 and remaining at that level thereafter.
- In all projections, gradual increase in expectation of life is assumed, and net international migration is assumed to be zero.
- The lowest figure for the 2061 population is 201 million in the low projection. The projected increase from 2011 is 115 million in the high projection, 76 million in the medium projection and 51 million in the low projection. These are all large numbers given Bangladesh's current and future development challenges.
- In the high and medium projections, population will still be increasing at the end of the projection period.
- In the high projection, population will be increasing by more than 2 million every year until the 2051-56 period, but in the low projection, growth will have ceased entirely in the 2051-56 period.
- Age structure changes will be pronounced in all projections, with elderly population growing fastest, working age population also growing rapidly and numbers of children roughly steady or declining.
- In the medium projection, the age structure changes gradually from a pyramidal shape in 2011 to a coffin shape by 2061. Because of the initial age structure, population momentum will carry growth forward for decades even after fertility has fallen below replacement level.
- The pace of urbanization may well increase, and according to United Nations projections, all population increase is likely to be in urban areas from now on.
- Dhaka will continue to dominate Bangladesh's urban hierarchy. It is already one of the world's major megacities, and its population could reach 27 million by 2030.
- Bangladesh will benefit from a demographic dividend (increasing share of working-age population in total population) until sometime between 2021 and 2031. Maximum use needs to be made of this dividend by investing in Bangladesh's human capital.
- If the benefits of the first demographic dividend are achieved, a second demographic dividend is likely to occur, with increased rates of saving as people prepare for their retirement.



A smiling girl, in the classroom of a non-formal primary school, setup by CONCEARN, in Khaliajuri, Netrokona, Bangladesh. Photo credit: Shahidul Alam/Drik.



4: CONCLUSIONS AND RECOMMENDATIONS

1. Population and development interactions in Bangladesh: Learning lessons from the past

50 years ago, most observers were pessimistic about Bangladesh's development prospects, largely because of its high levels of poverty and high man/land ratio. Over the 50 years, population has grown by 103 million, or 180%, resulting in almost a trebling in population density. Yet socio-economic development has also proceeded – indicated by a changing employment structure, educational advances, urbanization, rising per capita incomes, and a declining proportion of the population living in poverty. Over this period, demographic transition has occurred, evidenced by substantial declines in both mortality and fertility, though substantial population growth continues as a result of demographic momentum. Something has gone right, and Bangladesh has escaped the low-level equilibrium poverty trap forecast by pessimists, according to which there was no way to break the cycle of high mortality, high fertility and continued impoverishment. What exactly has gone right needs to be studied carefully, because of its implications for policy in the face of further substantial population growth in Bangladesh.

Overall, Bangladesh performance on socio-economic and demographic fronts has exceeded what many would have expected. The MDG goals on poverty, and on the proportion of underweight children, have been achieved. Rates of stunting and wasting are down, and access to reasonable sanitation has improved for the majority of the population.

Yet Bangladesh remains a country with many poor people and vulnerable in many respects. Population momentum — the legacy of an earlier, high fertility age structure, will carry population growth forward well beyond the time when fertility falls to replacement level. To minimize further population growth, fertility substantially below replacement level would be desirable. However, the effect this would have on longer-term age structure needs to be considered.

There are many unique aspects of Bangladesh's population-development situation, which make it difficult to predict the future on the basis of what has happened in other countries. Two of them can be emphasized. (1) Extremely high population density (2) Bangladesh has lowered fertility to near-replacement levels while most of the population relies on agriculture for its livelihood, and with close to half the population living in poverty. It is probably the poorest country to have succeeded in lowering fertility to near-replacement levels (though Vietnam would come close).

The interaction of demographic change and socio-economic development is complex. To what extent has the socio-economic development contributed to the demographic change, or the demographic change contributed to socio-economic development? It would appear that both have interacted in a 'virtuous circle', and it is crucial to ensure that this positive interaction continues. But have there been other factors that have been the main driving force behind both the demographic and socio-economic changes? It would appear that

there have indeed been many other positive factors, but it is hard to identify just what these are, and even more difficult to determine their relative importance. Some candidates include:

- Development of national spirit in independent Bangladesh
- Improvement over time of government efficiency in the delivery of social services and more generally in development planning
- The role of NGOs in service delivery and community development
- Contract labour migration and remittances
- The role of foreign direct investment in increasing production and importing technology
- Foreign aid, and investment by bilateral and multilateral development partners, bringing not only resources but also expertise
- Micro-credit schemes opening up local small-scale investment

Much of the demographic transition occurred with half the population still living in poverty. Can we talk of a poverty-driven demographic transition? Certainly, in the early stages such an argument appears to have considerable force, particularly if we accept the argument of Adnan (1998) that high fertility may have become dysfunctional for poor families as a result of increasing landlessness and the dissociation of the productive unit from the reproductive unit. But factors other than poverty have obviously come into play, both in the early stages and particularly later in the transition, because poverty levels have fallen considerably over the course of the transition.

Though the current poverty situation is much better than it was when the demographic transition started, about one third of the Bangladesh population still lives below the national poverty line, and another large group not far above it. Thus large numbers still face a perilous existence, and for them, it is crucial to chart a demographic course for the country that will best contribute to development.

2. The fertility transition: what is the desirable fertility level?

What we referred to as the first demographic transition is nearly complete in Bangladesh. The decline in both mortality and fertility has been impressive, and both have reached fairly low levels, but there is still some way to go. It cannot be assumed that the transition will be completed automatically. Fertility has recently increased in Indonesia, Sri Lanka, and Mongolia, from levels similar to that reached in Bangladesh, surprising many observers. Nevertheless, it is reasonable to expect further declines in both fertility and mortality if sound socio-economic development policies are followed and if the family planning/reproductive health programme is pursued vigorously.

Poverty reduction has undoubtedly facilitated the mortality decline - but the lowered birth rate has also contributed, by reducing the number of women giving birth in disadvantaged situations. Both the mortality and fertility decline have contributed to development in many ways. For example, overall better health leads to improved productivity. Because of more slowly growing youth population, educational efforts went further in raising enrolment ratios. Lower fertility has enabled more women to enter the workforce.

In the situation faced by Bangladesh, further decline in fertility to replacement level and somewhat below is necessary, and as soon as possible. The population growth expected even in the low projection (52 million between 2011 and when growth ceases), and its implications for population densities, labour force absorption, dealing with urban population growth, and environmental concerns, is daunting.

What is necessary to get fertility to below-replacement level? Given that childbearing outside marriage is not socially acceptable in Bangladesh, there are only two possible mechanisms – delaying marriage and reducing fertility within marriage. Bangladesh is unique in the world in almost reaching replacement level fertility with a very young average age at marriage. Raising average age at marriage by two or three years will not necessarily reduce fertility very much, because it will still leave ample time for couples to have many children. However, greater maturity at the time of marriage will likely lead to lower fertility for other reasons, including opening other potential roles for the woman, and a greater likelihood of avoiding unwanted pregnancies. Moreover, later childbearing will reduce rates of population growth by extending the mean length of time to replace a generation. But there are many other reasons why age at marriage needs to be raised:

- Young marriage prevents girls from realizing their educational potential
- Young marriage with wide age differences keeps women in a subservient role.
- Domestic violence tends to be greater when the bride is very young (Rahman et al. 2014)
- There are health issues for both mother and child when childbearing is too early – higher MMR, higher rates of miscarriage, higher rates of obstetric fistula, lack of maturity in raising a baby. These reproductive health aspects provide a strong argument for delaying marriage.

On the issue of reducing fertility within marriage, the key objective should be to reduce the level of unmet need for contraception and increase the uptake of available services, because this means a reduction in fertility without in any way violating the principle of respecting a couple's reproductive preferences. It is important to stress that the evidence shows that meeting unmet need will lead to Bangladesh's fertility falling below replacement level, even if age at marriage remains low. It will also help to some extent in lowering mortality rates – both maternal mortality and infant mortality. Overseas labour migration is undoubtedly also having an effect on lowering fertility; 12 percent of women have husbands living elsewhere, 40 percent of whom have not been visited by the husband in the last 12 months.

Policy, then, needs to address both early marriage and fertility within marriage. By tackling early marriage and childbearing and the wide age gap between spouses, reproductive health benefits, lower fertility and benefits for women's status will result. A two-pronged approach to age at marriage, using communications strategies advocating later marriage and legal approaches to enforcement of minimum age at marriage laws, should be followed. Lengthening of the compulsory education period can also be expected to have a significant effect on age at marriage.

With regard to marital fertility, the key policy issue is how to strengthen the reproductive health programme to ensure that the level of unmet need for contraception is reduced. One obvious point is that long-acting methods of contraception should be readily available for women with a long period of potential fertility who do not want more children. This is particularly important in the face of very young ages at marriage in Bangladesh, and the



A child bride from a fishing community in Cox's Bazar, Chittagong, Bangladesh. Photo credit: Nazir Uddin Mahmud/Drik.

evidence that a long period of potential childbearing remains after couples have reached their desired family size. However, long-active methods (e.g. NORPLANT, IUD) have a negative image among many women according to DHS surveys. This appears to reflect a history of inadequate counselling about the advantages and disadvantages of different contraceptive methods, contra-indications for use of these methods, and inadequate post-intervention care. More effective counselling is needed to enable women to make reasoned choices about contraceptive methods, and also to inform men about long-term methods open to males. Aside from this, the contraceptive supply chain needs to be secure, and efforts made to increase community involvement in family planning and reproductive health activities.

On the basis of some East Asian countries' experience with ultra-low fertility, there might be a concern that policies to reduce fertility in Bangladesh will lead eventually to similar very low levels of fertility, and the accompanying problems of shrinking labour force and very high levels of ageing. While there is no guarantee that such low levels will never be reached in Bangladesh, this is really an issue for policy well into the future. Bangladesh's immediate problems of employment creation, further massive population increase and environmental concerns require a decline in fertility to a level somewhat below replacement level. If and when such a level is reached, modification of policies to give greater emphasis to support for building larger families can be considered.

3. The mortality transition: how high can life expectancy go?

Bangladesh has been very successful in lowering mortality levels, achieving the MDG for infant mortality reduction. Expectation of life at birth, according to the United Nations, has reached 70 years for males and 71 years for females. While this is a remarkable improvement over the figures of 49 and 47, respectively, in 1970, it is still well behind countries such as Japan and South Korea, where such figures are now over 80. In order to raise life expectancy further, it will be necessary to continue with communicable disease programmes that have been the main thrust to date, but also to modify health systems to cope with the shift in burden of disease towards those non-communicable causes of death that are more prominent in gradually ageing populations in countries undergoing economic development.

While recognizing Bangladesh's success in lowering mortality, it must be recognized that it is not only life expectancy that needs to be extended, but also healthy life expectancy. The relationship between morbidity and poverty is very important in a population with relatively high levels of poverty. The challenge of lowering morbidity and mortality levels among the poor must be placed at the top of the agenda. Both in rural and urban areas, mortality levels are substantially higher among the poor, both because of poorer nutrition, less healthy living environments and unaffordability of health care when medical emergencies strike. Further lowering of poverty levels should result in lowered mortality, but along with this, there is a need to improve the access of the poor to health care, both in terms of geographical distance to facilities but even more importantly, in terms of financial accessibility. It is time to be planning a comprehensive health insurance system that both lies within the government's fiscal capabilities but that also provides the poor with access to needed medical care, based on a strong primary health care system.

4. Age structure and the demographic dividend: taking advantage of youth, building human resources

Bangladesh is about half way through the period when it has benefited and will benefit from the demographic dividend. Dependency ratios have been falling since 1975, and are expected to decline further in the 20 year period 2011-2031 (from 65 to 43) and to rise only slightly in the following 15 years (2031-2046 - from 43 to 46). Thirty years from now, the dependency ratio will still be well below its current level of about 58, and will still be slightly below it 45 years from now.

Fairly good use has been made of the dividend so far, but the advantage taken of the dividend during the further three decades will be crucial in determining whether Bangladesh can enter the ranks of the middle income countries. The dividend will be strengthened and extended in time if fertility can be rapidly lowered to replacement level, because for some time after that, the youth dependency ratio will be lowered more than the aged dependency ratio will be raised.

The policy prescriptions for taking maximum advantage of the demographic dividend are basically the same prescriptions as would be provided for maximizing socio-economic development in any situation: sound, non-corrupt governance, stressing the rule of law, strong investment in education and health, removing barriers to investment of local and foreign resources in productive activities, etc. However, in Bangladesh's current situation, particular stress can be placed on the need for a major drive in educational investment, because of the levelling off of the number of school-aged children. This provides a great opportunity to raise enrolment ratios while at the same time taking steps to improve the quality of

education. This is not only an opportunity, but also a necessity, because Bangladesh is competing in a highly competitive international marketplace in which many other countries are taking similar steps. What is needed, then, is to lengthen the period of compulsory education, raise the quality of the teaching force and enforce teacher attendance, improve the quality of school buildings, including toilets (very important for keeping girls in school), and provide financial support for children from poor families. The education drive will be important not only in raising Bangladesh's competitiveness, but also by contributing to lowering child marriage and raising the status of women. This is the time to do it, when numbers of school-age children are no longer growing.

5. Labour absorption, employment and underemployment: the role of agriculture and of sectoral shift in employment in efforts to achieve "job-rich" economic growth

Bangladesh has an over-supply of workers in the agricultural sector, many of them attempting to make a living from tiny farms or as landless labourers seeking work on other people's land or in other activities. Average labour productivity, and wages, in agriculture are very low, and underemployment of the rural workforce is high. Many people are leaving the agricultural sector. Not all of this movement results from probabilistic economic calculus of possible gain. Some of it is forced movement – often crisis-driven - caused by river erosion, increasing salinity, etc. Thus outmigration is particularly marked in Barisal, and Khulna, where substantial rural populations are particularly vulnerable to the effects of salinity and to natural disasters.

For Bangladesh to raise average levels of productivity substantially, productivity in the agricultural sector will need to rise and/or there needs to be a net movement of workers out of the agricultural sector. The dilemma is that the projected substantial further growth of Bangladesh's population and labour force over the coming decades will further increase the workforce reliant on primary industry (agriculture, fishing, etc.) unless the increase is totally absorbed by other sectors, which in terms of location of population, means primarily in urban areas. United Nations projections indicate that urban areas are indeed likely to absorb the entire increase in Bangladesh's population.

While such a development would lessen the pressure on primary industry to absorb an ever-increasing workforce, it raises a number of crucial issues. The first is the danger of neglecting investment in agricultural development when the main action appears to be in other sectors. The fact is that agriculture will continue to employ a very large share of Bangladesh's workforce for many decades to come, and that poverty is concentrated particularly in the population dependant on agriculture. Thus both in terms of a viable development strategy and of focusing on the welfare of the poorest segments of the population, a strategy to raise productivity in agriculture is crucial. Happily, despite all the problems stemming from the high population density in rural areas, there is evidence that further increases in agricultural productivity can be achieved. Recent productivity increases in agriculture have been substantial, due to adoption of higher-yielding varieties and double-cropping of rice, diversification of crops, a shift away from sharecropping into fixed-rent leasehold tenancy, and better availability of credit (World Bank 2013: 197). There is no reason why such developments cannot continue.

The other crucial issue relates to the strategy for developing the industrial and services sectors. Can Bangladesh compete with other countries in expanding the industrial sector from a dangerous over-reliance on ready-made garments to other activities? This will



Students celebrating their convocation at Dhaka University, Bangladesh. Photo credit: Mohammad Asad/Drik.

depend on the quality of planning mentioned in the previous section as well as more specific factors – for example, finding productive niches in which Bangladesh has (or can develop) a comparative advantage. Given the Bangladesh workforce’s relatively low levels of education, the emphasis will need to be on industrial activities which, like the successful RMG and construction industries, can provide employment to those with only limited education. In the longer run, though, there is no doubt that the expansion of education and improvement of educational quality could have a major role to play in any efforts to widen Bangladesh’s industrial and service sectors, by providing workers with the qualities needed to enable Bangladesh to compete in the competitive international marketplace for emerging industries.

The demographic dividend will provide a favourable context for the maturing of Bangladesh’s industrial structure. It will facilitate more rapid expansion of educational enrolment ratios, and enable the educational budget to go further in terms of educational quality. Through its positive effect on enabling more rapid increases in the average educational attainment of young workers entering the labour force, the demographic bonus will contribute to increases in per capita GDP through the higher productivity of the labour force. This is in addition to its effect in raising the ratio of workers to dependants. Both of these positive effects of the demographic bonus are, of course, contingent on the availability of jobs or of opportunities for self-employment in a growing economy. The government should focus on job creation in both the short and long-term – the former, by promoting SMEs and self-employment in the industrial and service sectors, and diversifying agricultural production to emphasize higher-yielding crops; and the latter, by a strategy of gradually shifting the economy toward a more skilled and knowledge-based employment structure, consistent with the growing educational levels of the workforce.



Photo credit: Daily Star.

6. Migration and urbanization: can the cities cope?

Once fertility has reached the relatively low levels attained in Bangladesh, migration inevitably assumes a greater role in population change. A focus on nudging migration flows in ways that will maximize positive developmental impacts is therefore increasingly important.

Movement of workers out of agriculture does not necessarily have to involve physical relocation. In theory, such movement could be partly “in situ”, through the growth of non-agricultural activities in the rural areas. China’s “in situ” urbanization through the growth of TVE (town and village enterprises), not requiring the relocation of the populations concerned, could be a valuable model for Bangladesh to follow. So could the earlier experience of Japan, Korea and Taiwan, all of them densely populated countries, where urban-rural labour mobility through commuting and other mobility were key elements in the development process. Thus the search for non-agricultural work will not always require permanent relocation from rural to urban areas. Bangladesh government policy to set up a well-planned garment industrial park beside the Dhaka-Chittagong highway, and the possibility of spreading the location of RMG factories elsewhere as major highways are improved, could contribute to creation of more industrial jobs closer to large rural workforces. Better provision of micro-credit may also assist in the development of small-scale non-agricultural activities in rural areas.

As already noted, United Nations projections indicate that the rural population of Bangladesh will be declining from now on. Urbanization will be a key driving force. With all population growth (some 75 million over the 50 years 2011-2061, according to the medium projection) occurring in urban areas, it is crucial for Bangladesh to develop a comprehensive urban development strategy. This will require careful assessment of the relative merits of taking advantage of the economies of urban agglomeration, which can be realized in very large cities, and following an “intermediate cities” strategy which aims to develop a network of cities, with greater emphasis on fostering the growth of selected intermediate cities. There

are strong and hotly contested arguments for each of these approaches, which cannot be dealt with in detail here. However, given that Dhaka is already one of the largest urban agglomerations in the world, with one third of its population living in slums, it seems clear that other urban areas will have to take much of the brunt of the massive increase in urban population that is expected.

The key point to be made is that developing a cohesive and feasible strategy is of crucial importance, given that the urban areas will have to absorb the entire increase in Bangladesh's population, despite the many problems faced by the vast numbers of urban poor. The strategy will need to include infrastructure development, not only in urban but in rural areas. Transportation infrastructure was extremely important for the earlier patterns of commuting in Taiwan and Japan.

Food security will be a major issue as urban populations increase. Another urgent need, which will grow even more urgent as the cities continue to grow, is to improve their liveability for poorer citizens in cost-effective ways. This will require approaches involving physical planning, transportation policy, housing policy, and the harnessing of community resources in building cohesive communities. With the right approaches, it is possible to develop a rich community life, with the safety of women in particular better guaranteed than at present, including in slum communities.

7. International migration: what role in population dynamics and the economy?

Permanent migration, either in or out, appears to play a relatively minor role in population change in Bangladesh, though outmigration across the Indian border is substantial enough to have had both political and economic consequences in some of India's states. At the same time, overseas labour migration has become an important element in Bangladesh's employment situation. Like urbanization, it reflects the search for better opportunities by Bangladesh's burgeoning labour force. The demographic structure is intimately tied up with labour migration both as a cause and a consequence. As a cause, the high population density and associated poverty and domestic labour market pressures result in the search for a way out through international labour migration. Families will sacrifice much, including selling livestock or land to finance a member's acceptance as a migrant worker, to realize the much higher wages potentially available overseas, even though this sometimes leads to impoverishment if the contract is not renewed or an accident or ill health cuts short the worker's contribution. As a consequence, labour migration affects Bangladesh's demography and development by delaying childbearing and contributing remittances. The extent to which it helps raise productivity levels in the domestic economy after the workers return is hard to measure, but as about two thirds of the workers are unskilled, working mainly in the construction and manufacturing industries, they will have relatively limited opportunities to learn on the job.

Bangladesh should initiate skill development programmes in order to raise the skill levels of those going overseas as contract workers, using international labour migration in a focused way to bring back further skills and raise productivity, as well as contributing remittances. It should also improve pre-departure procedures in order to ensure a smoother integration of workers into their overseas environment, and ensure that Bangladesh missions in key destination countries assist in exploring labour markets in these countries and protecting the interests of Bangladeshi workers. Particular vigilance is needed in ensuring the rights, dignity and security of female workers.

8. Ageing and social security: how to avoid impoverishment among the elderly and enhance welfare?

Population ageing will inevitably take place in Bangladesh. Ageing is the inevitable “downstream” consequence of fertility decline and the demographic bonus. Though, like many other countries, Bangladesh will probably “grow old before it grows rich”, this is something to be planned for rather than feared. Why? Because (1) Ageing is proceeding more gradually in Bangladesh than in many countries where fertility declines have started earlier and been more rapid. (2) People can work longer, thus offsetting the tendency for longer life expectancy to lengthen the period of retirement. (3) When ageing reaches high levels in Bangladesh, (a) those becoming elderly will be better educated and more healthy than is the case now; (b) the general level of economic development should be much higher than at present, thus resources will be available for pension schemes, etc. But the situation will be manageable only if good use has been made of the intervening period, in terms of raising income levels, developing programmes of active ageing, introducing appropriate income support programmes and modifying health systems to adjust to the altered pattern of both communicable and non-communicable disease and disability resulting from a rising proportion of elderly in the population.

Turning to social services, there is a very wide range of Social Safety Net Programs, but at present, only 10 percent to 24 percent of the poor receive Social Safety Net Program benefits, and these schemes also suffer from mis-allocation, fraud and corruption. Ways need to be found of improving targeting and increasing coverage of the poor, within the fiscal capabilities of the Bangladesh government. A key question is whether this is the most efficient way to proceed, or whether there should be some kind of integrated national social safety net scheme.

9. Gender, family and community: improving gender relations, building resilient families and communities

The ultimate goal of development planning is to increase human wellbeing. Raising per capita income levels is very important in achieving this goal, but it is not sufficient. The aim of improving gender relations and building resilient and cohesive families and communities is equally important. Indeed, in the face of the inevitable ageing of the population, resilient families and communities will be crucial in ensuring that the needs of the elderly can be met through the three-fold contributions of family, community and the state. There is a need to ensure that the family’s contribution to elder care does not fall overwhelmingly on women.

The situation of women in Bangladeshi society has been improving, but there is a long way to go. The greater involvement of women in the workforce, while to some extent it may reflect the urgent survival needs of families, also reflects important and on-going changes in social norms. However, issues of gender-based violence, teenage childbearing, need for increased autonomy of women in the family, lower wages for women than for men in comparable work, and the destitution and neglect of many widows all need urgent attention. Continuing high levels of child marriage both reflect attitudes to the role of women that need to change, and lead to consequences that perpetuate unequal gender relations: withdrawal of girls from school, wide age differences between spouses, and less capability of young wives to deal with domestic violence.

Government programmes and efforts of community organizations need to focus on the more comprehensive involvement of women in all aspects of national life. Campaigns to

address gender-based violence and early marriage are needed, with a special focus on enlisting the support of men for these programmes.

10. Population and sustainable development: environmental threats and ecological impacts

Bangladesh remains highly vulnerable to environmental disasters, with large low-lying areas affected by sea level rise, tidal surges in cyclones, flooding in the monsoon season, river erosion displacing farmers, among others. Population growth over time has forced people to move into environmentally dangerous areas to farm, where they are exposed to one or more of the above dangers. Given the shortage of cultivable land in Bangladesh, there has been no alternative in the past to movement into these vulnerable areas. If global warming continues as predicted, rise in sea levels will bring further dangers to the approximately 30 million Bangladeshis living in vulnerable coastal areas and islands in the Bay of Bengal.

The other aspect of population-environment relationships that needs to be considered is the impact of population change on the environment. The likelihood that rural population growth has now ceased in Bangladesh is an encouraging development from the point of view of achieving some kind of population-environment balance. However, a decrease in the rural population would be more desirable than mere stability, enabling some withdrawal from the more disaster-prone areas. Also, it must be borne in mind that stability of the rural population at this stage can only be achieved if very substantial urban growth takes place. Thus environmental concerns of the growing urban areas will be a major challenge for the future.

11. Data improvements needed for effective population and development planning in Bangladesh

Bangladesh has quite rich data sources for population and development planning, in the form of the decennial Population Census, labour force surveys, Demographic and Health Surveys, maternal and child health surveys, among others. Data indicating the quality of education and the performance of students is limited, and estimates of international migration flows (not including temporary migration for work) are non-existent. The quality of the available data does not always meet expectations, and it is not always made readily available to researchers. In the case of census data, while preliminary results are made available fairly quickly, there are considerable delays in bringing out detailed analytical reports. Census data on urbanization and internal migration are particularly problematic. There are also multiple sources of data covering the same indicators, such as maternal mortality and fertility rates. There appears to be little systematic, comparative assessment of data quality that might guide researchers in their selection of data sources. Without a strong data base and a body of researchers who utilize and assess this data base, planning is handicapped. Therefore, a systematic appraisal of data needs and shortcomings should be conducted by the BBS, the national statistical organization, as a foundation for improving the data base for population and development planning.



Students use laptop at the campus area. October 4, 2011. Photo credit: Mohammad Asad/Drik.



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Use of population data for planning and budgeting is critical for inclusive and equitable development.

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