

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

Geoffrey Hayes

Gavin Jones

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Geoffrey Hayes¹

Gavin Jones²

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¹ National Institute of Demographic and Economic Analysis, University of Waikato, New Zealand

² Director, J Y Pillay Comparative Asia Research Centre, National University of Singapore

PREFACE

The year 2015 is a special year for the international community and Bangladesh alike. It is so for several reasons: 1) it marks the end of the target year set for the Millennium Development Goals (MDGs); 2) UN Member States will decide on the next Development Agenda to succeed the MDGs; 3) It is the first year after UN Member States re-affirmed their full commitment to the Programme of Action of the International Conference on Population and Development (ICPD), and agreed that the ICPD is an “unfinished agenda” still relevant to all countries. The ICPD Programme of Action calls on Governments to integrate population dynamics into their development programmes, particularly addressing gender equality and women’s empowerment, and the importance of planning for the needs of special population groups such as older persons; adolescents and youth; persons with disabilities; indigenous peoples. Other areas of emphasis are urbanization, internal and international migration; sexual and reproductive health and rights; and education. In Bangladesh, 2015 takes on a special importance as the Government goes into its 7th five-year Development Plan.

In the present Policy Paper entitled “*The Impact of Demographic Transition on Socio-economic Development in Bangladesh: Future Prospects and Implications for Public Policy*,” UNFPA offers an analytical review and policy recommendations on some of the key topics contained in the ICPD Plan of Action beyond 2014. The Paper is submitted to the consideration of the General Economics Division (GED) of the Ministry of Planning of Bangladesh, at a time when this Division formulates the Plan that will guide Government investments of the coming five years.

The Demographic Impact Policy Paper takes on a particular importance because the population density of the country as a whole, has reached unprecedented levels in human history with the exceptions of very few small City-countries such as Singapore, Malta and Bahrain. In addition, as highlighted in the document, Bangladesh is crossing a one-time “demographic window of opportunity”, that can be transformed into a “demographic dividend”, provided the right investments are made, especially on young people, now constituting 30% of the total population. This population cohort will continue to grow in absolute terms as the country adds 40 million more people to reach a staggering total population of 200 million by around 2050, on the lower growth scenario, even as fertility rates continue to decrease below replacement levels. The paper provides evidence for the wisdom of accelerating investment in quality education and health services, including sexual and reproductive health and family planning. Research into this Paper once again confirmed 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, which constitute 50% of the population, thus potentially increasing National productivity.

This Policy Paper is an abridged version of a larger Demographic Impact Study scheduled to come out at the end of March 2015. It is UNFPA’s and the authors’ hope that its contents will contribute to a people-centered 7th five-year Development Plan in Bangladesh.

I would like to thank and congratulate all the eminent national scholars who contributed research and analysis to different chapters of the Paper. Special thanks go to the two main authors, the international scholars Dr. Geoffrey Hayes and Prof. Gavin Jones. This Paper and the full Study would not be possible without the generous contribution of the European Union, to whom I register UNFPA’s sincere gratitude.

Argentina Matavel Piccin
UNFPA Representative in Bangladesh

CONTRIBUTORS

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Responsibility for any errors or omissions in this paper belongs to the authors alone and not with any of the individuals or institutions mentioned above.

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INTRODUCTION

Population and development: policy and planning

This paper 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 paper 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 sooner or later 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 (See Annex A, Figure 1). *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 analyzed in this paper 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 paper, then, concerns how Bangladesh has managed the transition period so far and what challenges lie ahead given that the transition may have 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 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 paper addresses each of the four perspectives indicated above, the primary emphasis is on population-development linkages at the macro- or country-level.

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, Bangladesh was 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.

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 1.1).

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 1.1).

Table 1.1: Poverty Headcount Ratios using different measures of poverty, 1984-2010

| 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 (2014b, 2014c); **Asian Development Bank (2014); # BBS (2011c).

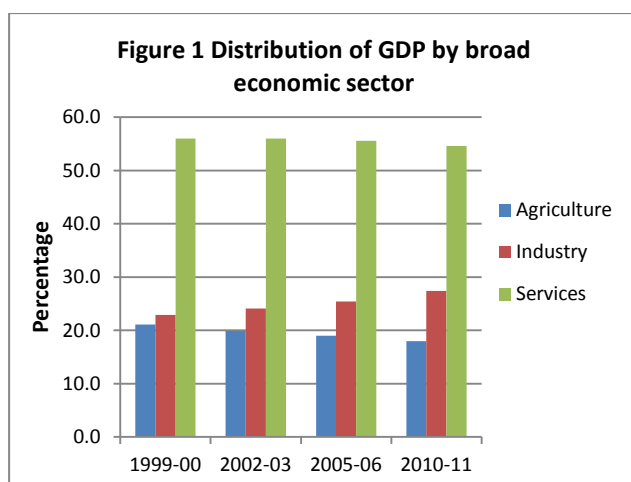
Recent revisions to the measure of poverty in Asia by the Asian Development Bank (2014) to take account of specifically Asian conditions, including food insecurity and vulnerability to shocks arising from drought, flood, earthquakes, storms, economic crises, etc., provide significantly higher poverty 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.

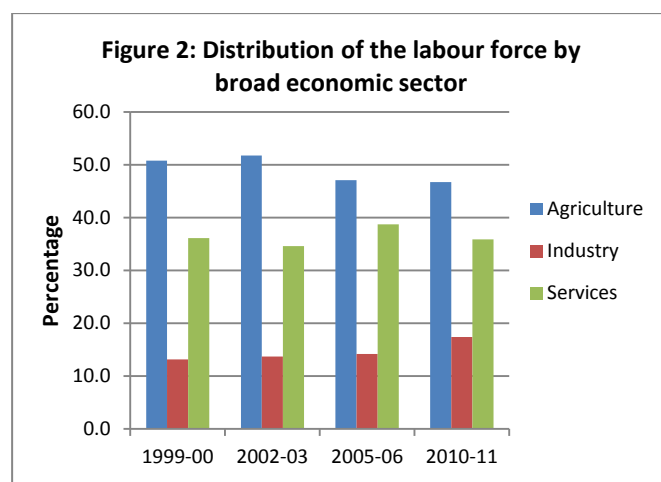
Structure of the economy

While the population of Bangladesh remains 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, although rising somewhat over this period, remains comparatively low in this sector. The implied higher productivity of labour in the services sector provides strong incentives for rural-urban migration, whether permanent, seasonal or circular.



Source: BBS, Unpublished tabulations



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 permits 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 Bangladeshi's 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. The garment industry provides direct employment for 4 million workers and indirectly to millions more. 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 early marriage, which limits access to education and employment while exposing women to domestic violence arising from a wide gap in age between spouses.

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 is 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.³ 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 have to 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 -

³ Estimated from data published in the Bangladesh Bureau of Statistics, *Statistical Pocketbook*, 2012.

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 greatly be 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.

Urbanization remains relatively low in Bangladesh—approximately 30 percent of the population lives in an urban area—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 (Streitfield 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 (NIPORT et al. 2014) 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 (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 South 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 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 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”. 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 territory 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. Early 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.⁴
- 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, the population reached 150 million by 2011 and is probably around 160 million currently.

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.

Nevertheless, Bangladesh currently faces the same demographic prospect highlighted by Arthur and McNicoll nearly four decades ago, namely a future population 50 to 75 million larger than its current one. The dynamics of population have changed, and age structures are different to what

⁴ 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.

they were, but growth will nevertheless continue and this will have profound implications for development. While the population growth rate is half what it was in the middle of the transition, 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.

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 recommendations for the 7th Five-Year Plan 2016-2021 are outlined in Chapter 4.

Key Points

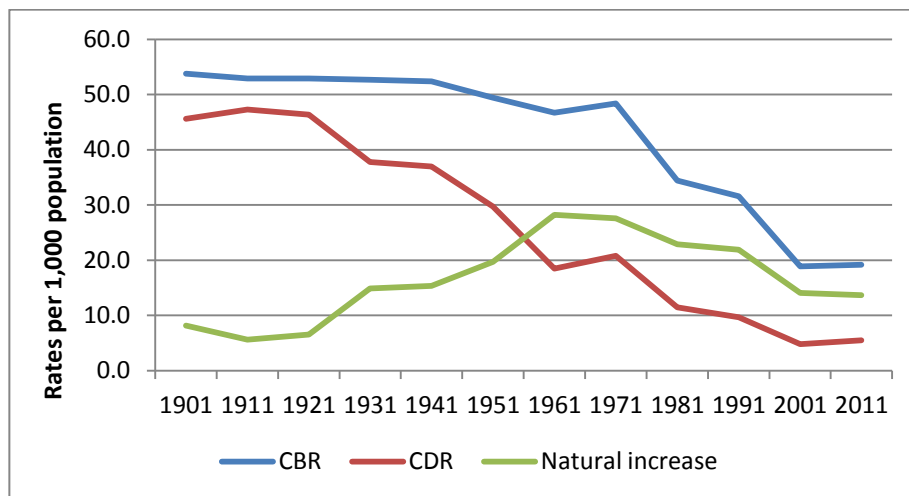
- The challenge facing developing countries as they pass through the demographic transition is how to avoid increasing poverty resulting from increasing population;
- Bangladesh has the highest population density of any major country;
- Poverty has declined sharply in recent decades but Bangladesh remains a poor country. The present poverty headcount ratio ranges from 32.5% to 58% depending on which definition is used;
- The “services” sector predominates in the economy but 50% of the labour force is still in agriculture;
- The productivity of labour in agriculture is low, although recently rising;
- Bangladesh's extremely high population density makes it a “special case” among developing countries as the land frontier was reached 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 universal marriage, and the young age of marriage and childbearing;
- Urbanization is low at about 30% and heavily concentrated in Dhaka where 37% of the population lives in slums;
- The population growth rate has declined to 1.4% 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.

THE DEMOGRAPHIC TRANSITION IN BANGLADESH

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 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. Population growth 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.

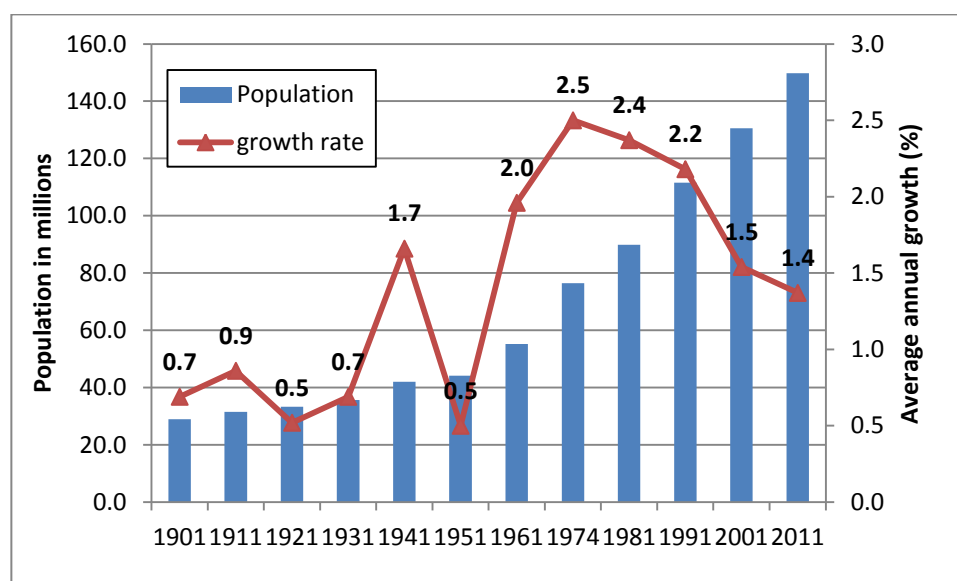
Figure 1.1: Evolution of rates of birth, death and natural increase, 1901-2011



Source: BBS, Various census reports.

Another way of looking at the transition is in terms of actual population growth trends, which reflects the effects of international migration as well as natural increase. This perspective is shown in 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—an average annual growth rate of 1.5 percent. By the end of the first decade of present century, the population had reached 150 million and was growing at an average rate of 1.4 percent, just below the long-term average. On the assumption that this is the current growth rate, 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.

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

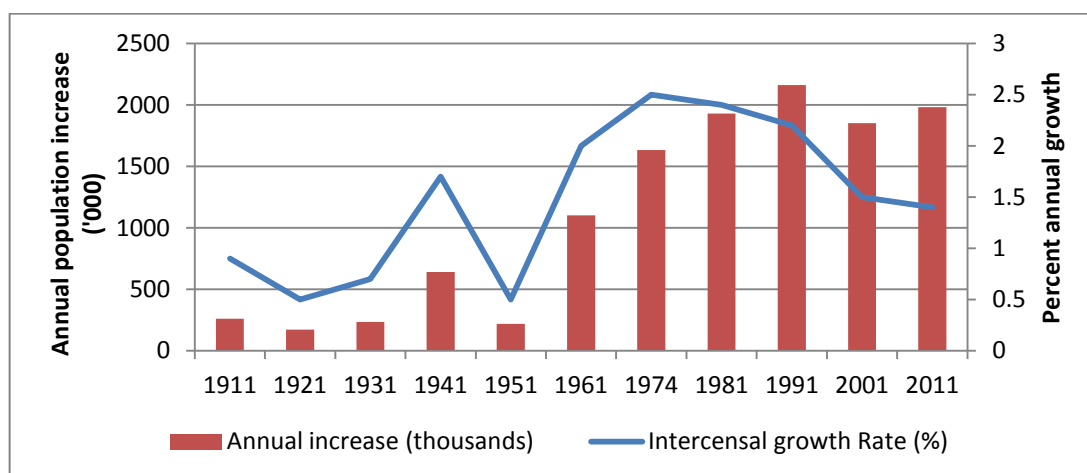


Sources: Abdur Rahim, An Appraisal of Census Populations of East Pakistan from 1901-1961, Research Monograph No. 2, Dacca, ISRT, University of Dacca, 1969 (derived from Population of Bangladesh, Country Monograph Series No. 8, ESCAP); Bangladesh Population Censuses 1974, 1981, 1991, 2001, and 2011, Bangladesh Bureau of Statistics

Note an important feature of the transition, and population growth generally, 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 population growth rate in Bangladesh has declined from 2.5 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 increased to 2.5 percent and the annual increase to 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 didn't 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.

Figure 1.3: Relationship between percentage and numerical population growth



Source: Annex table 1.

The mortality and fertility transitions

Demographically, population growth can only be caused by variations in the three components of population change: fertility, mortality and migration. Socio-economic change and other factors only affect population growth by working through these 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 in principle is circular. Permanent migration is much smaller in scale and does not have a major demographic impact so it will not be considered here.

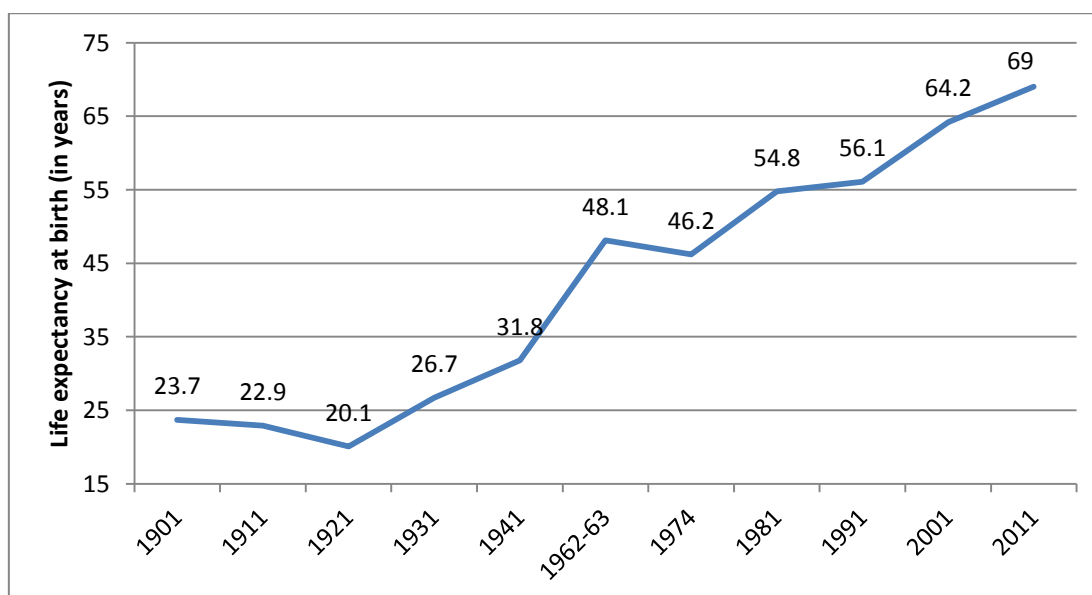
The mortality transition

The mortality transition (the evolution of death rates from high to low) can be measured by several indicators, each of which provides a perspective on changes in mortality within different risk groups. In this section we employ only an overall measure (Life expectancy at birth) and the Infant Mortality Rate (IMR) to illustrate trends.

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. The decade 1981-91 witnessed a slow improvement 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. Females have achieved larger gains in life expectancy than males in recent years. Thus, the life expectancy of males in 2011 reached 67.9 years for males but 70.3 years for females, a gap of 2.4 years, similar to the gap found in the developed countries.

Figure 1.4: Life expectancy trends, 1901-2011



Sources: See figure 1.5.

The data on life expectancy confirm what is evident from the crude death rates shown in Figure 1.1, that mortality decline was discontinuous in Bangladesh 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

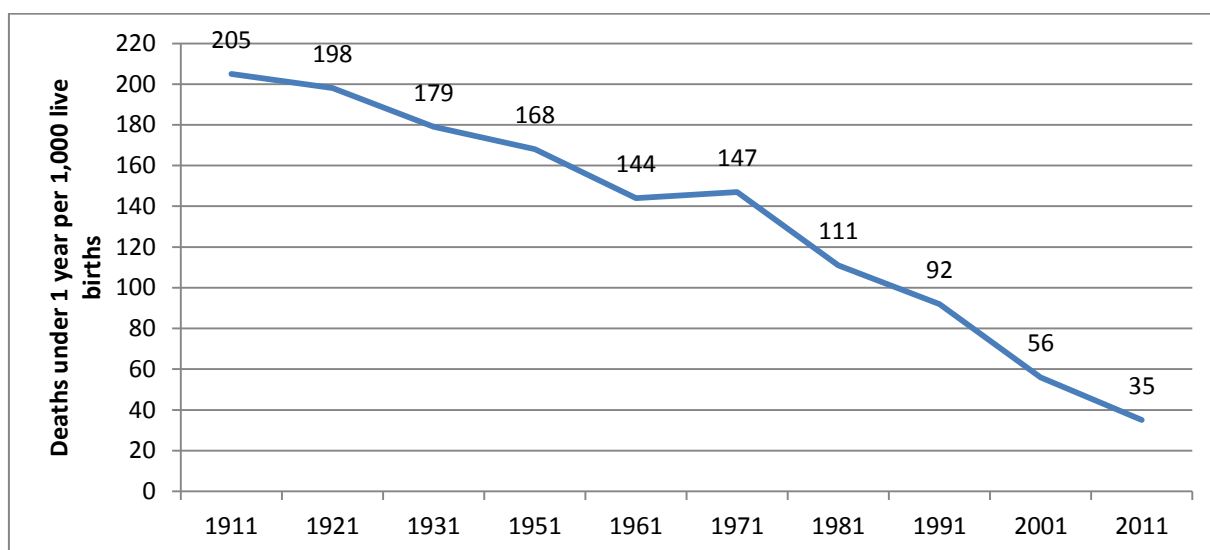
during the 1981-91 decade is particularly important as this preceded the decade during which fertility remained virtually constant. The two trends may be related given that mortality decline is one of the drivers of fertility decline.

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 it is 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.

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 is 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.

Figure-1.5: Infant Mortality Rate per 1000 Live Births, 1911-2011



Sources: 1911-1951, , Kingsley Davis, *The Population of India and Pakistan* (Princeton, Princeton University Press, 1951; 1961, Karol J. Krotki and Nazir Ahmed, “Vital Rates on East and West Pakistan”, *Pakistan Development Review*, Vol. 4, 1974, pp. 734-759; 1971, *Cholera Research Laboratory, Demographic Surveillance System—1974, 1975, 1976, 1977* (derived from Population of Bangladesh, Country Monograph Series No. 8, ESCAP); 1981-2011, Sample Vital Registration System 2011, Bangladesh Bureau of Statistics.

Other indicators of mortality show similar trends. The Maternal Mortality Ratio (MMR), for example, has followed the same trend as the Infant Mortality Rate. However, like the IMR the MMR ranges quite widely between regions, Sylhet Division’s MMR is seven times higher than Khulna’s (NIPORT et al. 2012). The MMR in rural areas is higher than in urban areas but as with the IMR, the gap has been declining in recent years and is now down to only a 10 percent difference.

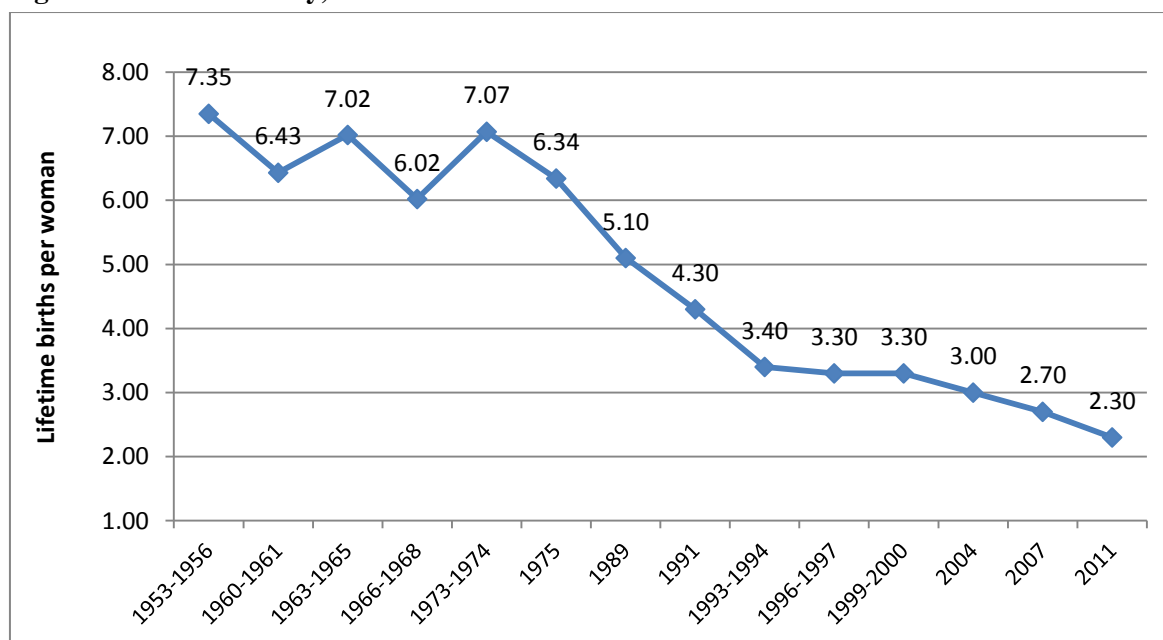
The fertility transition

As was evident in Figure 1.1, the crude birth rate remained over 50 per 1,000 for nearly five decades in 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 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 number of surviving children is a key determinant of fertility levels.

The total fertility rate (TFR), which measures average lifetime births per woman, provides a better measure of fertility than the crude birth rate, which is affected by the age structure. From the 1950s onwards, the TFR fluctuated around 7 births per woman (Figure 1.6) and remained there 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 fertility transition can be dated in the mid-1970s by which time the TFR had dropped by 0.8 of a birth relative to its peak.

The TFR exhibited a steady secular decline for two decades after the mid-1970s and by the early 1990s women were having half the number of children than 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, although some sources suggest that TFR has reached 2.1, which is the “replacement” level.

Figure 1.6: Total fertility, 1953-2011

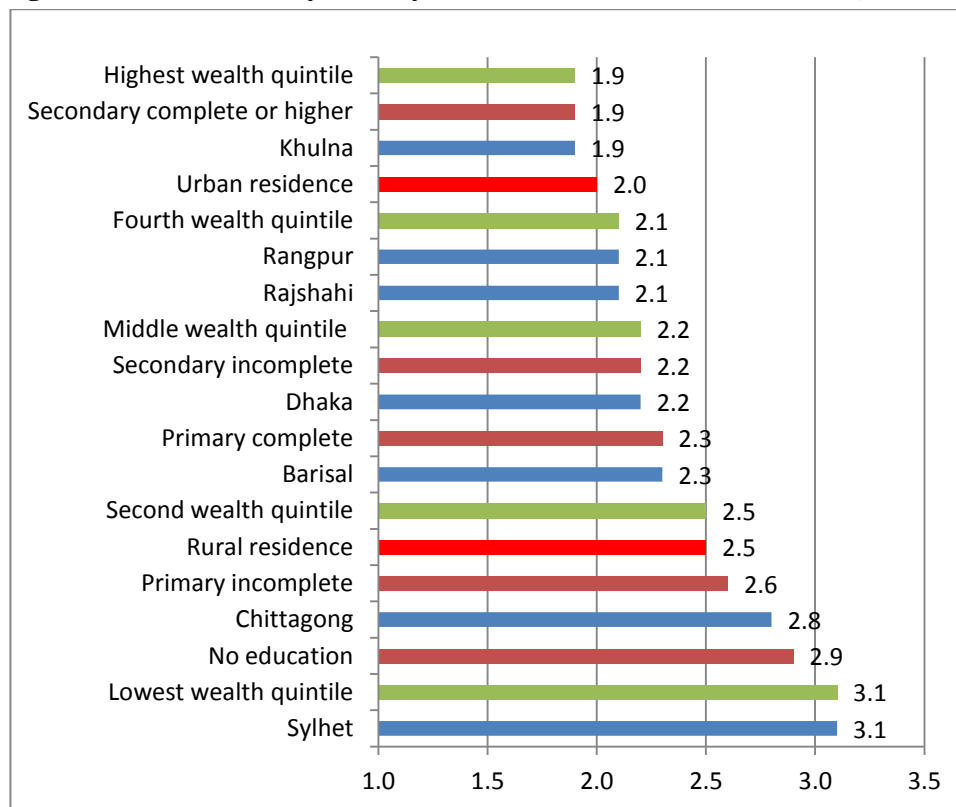


Sources: Population of Bangladesh, Country Monograph Series No. 8, ESCAP; BFS 1975, 1989, CPS 1991, Bangladesh Demographic & Health Survey, 1993-1994, 1996-1997, 1999-2000, 2004, 2007, and 2011 .

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 1.7). In rural 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 1.7: Total Fertility Rate by selected characteristics of Women, 2011



Source: NIPORT, Mitra & Associates and ICF International (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, richer 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. 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 during 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.
- 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.

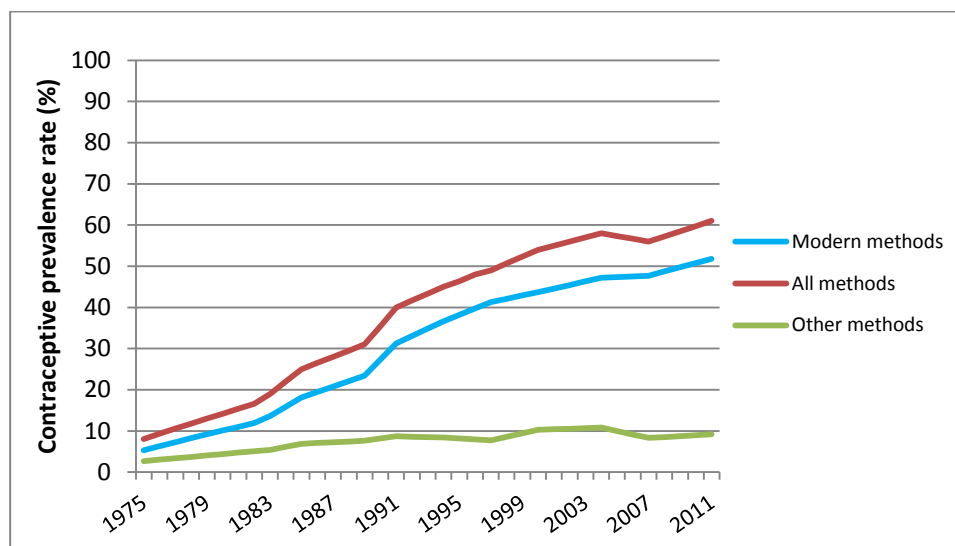
- Mother's age at first birth has also been increasing. The median age at birth is about 18 years across all age cohorts, excepting for women aged 20-24 years and 45-49 years. Only 4 percent of women aged 15-19 in 2010 reported having had their first birth before reaching 15 years compared to 11 percent of women in their forties.
- Growing landlessness has reduced the need for family labour, especially of child labour, in farm production and a decline in the value of children. Technological change in farming, including greater mechanization has also contributed to the declining value of children in production.
- Women's labour force participation rate has increased from 24 percent to 36 percent between 2000 and 2010. Part of this increase was due to the expansion of the RMG sector.
- 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.
- Urbanization has increased steadily after 1974 when only 9 percent of the population lived in an urban area. The urban proportion has now risen to about 30 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, an enhanced role in household decision making, relative freedom from more patriarchal structures, and higher contraceptive use. These changes have been made possible by improved schooling, employment, participation in NGO activities, access to micro-credit programmes, and increased access to mass media.
- Both enrolment levels and rates of completed education have increased significantly among women and illiteracy rates have declined

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

The weakening motivations to have children 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 1.8).

Family planning has been consistently supported by government policy—even before independence. In the first Five-Year Plan of East Pakistan (1960-65), "population control" was made an official policy. After independence the Bangladesh government gave top priority to containing the rate of population growth. 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. The religious environment was also conducive to the adoption of family planning.

Figure 1.8: Contraceptive Prevalence Rate (CPR), 1975-2011



Source: NIPORT, Mitra & Associates and ICF International 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.

Some observers have noted 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.

The demographic transition 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 signs of ageing. Life expectancy continues to increase.

Declining mortality is 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. The specific causes underlying the fertility transition are a matter of some controversy. Cleland et al. (1994) argued that fertility decline in Bangladesh up to the early 1990s 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”.

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

Some authors have also raised the possibility that Bangladesh’s fertility transition is driven not by the alleviation of poverty but by a change in the nature of poverty (Adnan, 1998). Rural poverty among those who had at least enough land to provide subsistence for a family nevertheless provided motivations to have enough surviving children to work the land and support the older generation when it was no longer able to work. The type of poverty that emerges out of rural landlessness and urban squalor is different: under these conditions children are a net disadvantage. 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.

The possibility that Bangladesh would experience a “poverty driven” fertility decline was foreshadowed by Arthur and McNicoll (1978), but this still remains a hypothesis in need of testing. That the CPR in Dhaka’s slums is 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) would, provide some support for the hypothesis. But the generally lower fertility in urban areas and among those with higher levels of wealth and education would not.

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. Essentially, this is the component of the population that remains in absolute or even extreme poverty.

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 of 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 one 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.

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;
- 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.

SOCIO-ECONOMIC DEVELOPMENT AND THE DEMOGRAPHIC TRANSITION

Introduction

Escape from poverty is one criterion for a successful passage through the demographic transition. But this is a minimal and somewhat negative standard of development. Sustained growth in per capita income well beyond the poverty level is the aim of most developing countries' socio-economic strategies—a goal that generally accords with the aspirations of the people. The role of the demographic transition in the achievement of sustained economic growth attracts different views and interpretations, some positive some negative. Viewed from the perspective of Bangladesh 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 population dynamics prevailing 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 the previous chapter has foreshadowed, there is evidence to support both points of view.

This chapter briefly 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 improved?

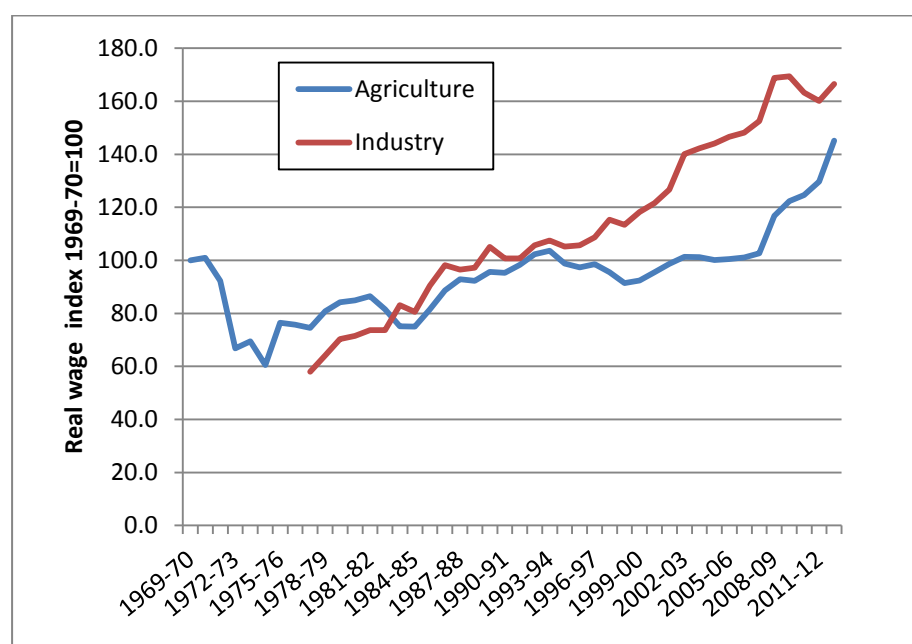
Productivity of labour: agriculture and industry

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 population growth can be said to have a negative impact on the economy.

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 and 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 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.

Labour force growth and absorption

In this paper, labour force “absorption” refers to the extent to which the increase in the population of working age (15 and over⁵) is matched by an increase in the population in full-time employment. During the demographic transition, the working age population is normally increasing at a faster rate than the total population. This is because the number of persons reaching working age reflects past not current fertility. The population reaching working age in the 2000-2010 decade in Bangladesh, the subject of this section, was born during the years 1985-1995, which happened to be a period of little or no decline in fertility.

Table 2.1 GDP per worker, 2000-2010 and annual growth rate

| Broad Economic Sectors | Real GDP per worker (BDT) | | | | Annual Growth rate (%) | | | |
|------------------------|---------------------------|---------|---------|---------|------------------------|---------|---------|-----------|
| | 1999-00 | 2002-03 | 2005-06 | 2010-11 | 1999-03 | 2003-06 | 2006-10 | 1999-2010 |
| 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 National Accounts Report, 2014.

⁵ This age range is somewhat arbitrary but is the conventional definition for industrial societies.

As the working age population grows, social and economic processes distribute this population into various statuses. Some transit smoothly from school to full-time work; others find only part-time or temporary work; some become fully 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; it is only possible to look at aggregate changes. The total labour force is always in flux as individuals move between categories. Thus labour force absorption is measured as

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

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"

Growth of the working-age population

According to estimates from the labour force surveys of 2000 and 2010 (Table 2.1), the working-age population increased by over 2.1 million persons per year over the decade—a total increase of 22.1 million. The rate of growth averaged 2.5 percent, considerably higher than the overall population growth rate. Urban growth rates were considerably higher than rural, particularly among women. This reflects rural-urban migration. Note also 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 | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| 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. | 6.4 | 3.0 | 3.40 | 3.3 | 3.0 | 3.5 |
| Rural | 57.7 | 29.9 | 27.8 | 72.0 | 36.4 | 36.2 | 14.9 | 6.5 | 8.40 | 2.3 | 2.0 | 2.6 |

Sources: BBS (2002, 2004, 2008 and 2011c).

Labour force growth

The increase in the total labour force was 16.0 million compared to 21.4 million growth in the working age population, leaving a balance of 5.4 million. This implies that 75 percent of the increase in the working-age population was "absorbed" into the economically active population while the balance of 25 percent was not.

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 | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| 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: BBBS (2002, 2004, 2008 and 2011a).

It is important to note that the female labour force has been increasing at a much faster rate than the male labour force—6.9 percent annually compared with only 2.0 percent for males. The most rapid labour force growth over the period was among rural women, but the female urban labour force also increased at a more rapid pace than among urban males.

If more women were working or expressing themselves as available for work, even if unemployed, it would be evident in the “Labour force participation rate” (LFPR). Figure 2.2 shows that female LFPR has increased steadily from about 10 percent in 1989 to 36 percent by 2010—an annual growth rate 5.8 percent per year. The male LFPR, on the other hand, has fluctuated around 82 percent with little long-term change. We do not know to what extent the rise in the female LFPR was the result of a perceived need to work, and to what extent due to cultural change that made it more acceptable for women to work in different fields, but whichever the explanation, it represented a major change in the Bangladesh labour market.

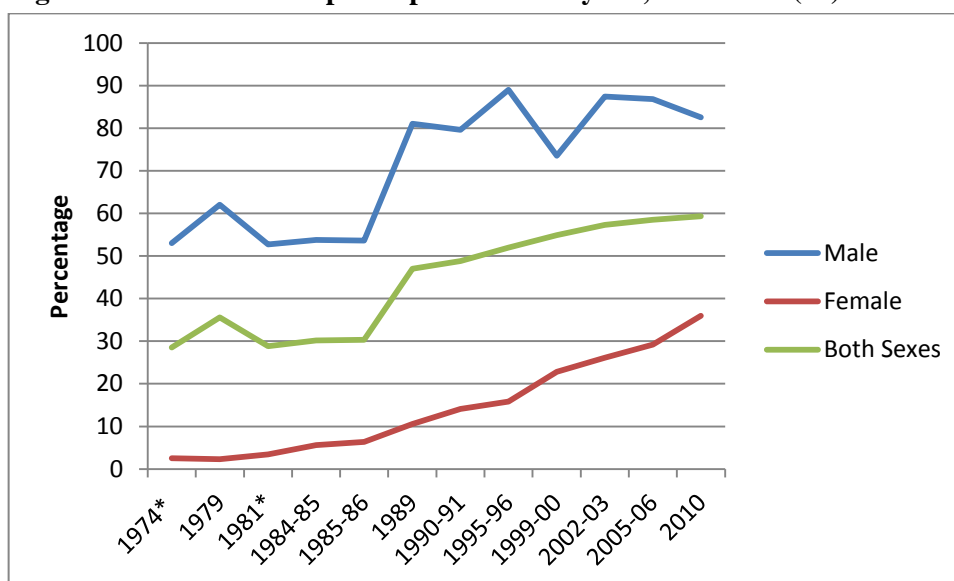
Labour force absorption rates

Labour absorption rates have been calculated using three different criteria. Table 2.4 defines the “employed” population as the economically active less the unemployed according to the “extended” definition of unemployment ($P_u + P_{ufw}$ in the above formula). This yields an overall absorption rate of 47.2 percent (61.3 percent for males and 34.3 percent for females). In Table 2.5, 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 differences between male and female rates is reversed, with the female rate higher than the male rate. Table 2.6 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 a great deal of 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 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.

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.

Figure 2.2: Labour force participation rates by sex, 1974-2010 (%)



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

*Data for 1974 and 1981 are from censuses and from labour force surveys for other years. Note that from 1974 until 2000, the labour force was defined as the economically active population aged 10 years and over. From 2003 onwards the definition changed to 15 years of age and over.

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 2.7 accounts for these. The great majority are women, reporting their activity as “housework”. The largest increase, though, is among “others”, which includes pensioners, other income earners, the disabled and beggars. Next to that group are students. Note that five times as many males joined the rank of students than females.

Table 2.7 Changes in economically inactive population, 2000-2010 by category (millions)

| Category | 2000 | | | 2010 | | | Change 2000-2010 | | |
|-----------|-------|------|--------|-------|------|--------|------------------|-------|--------|
| | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| Total | 33.50 | 6.10 | 27.40 | 39.00 | 8.40 | 30.60 | 5.50 | 2.30 | 3.20 |
| Students | 5.00 | 3.10 | 1.90 | 6.80 | 4.60 | 2.20 | 1.80 | 1.50 | 0.30 |
| Housework | 25.40 | 1.50 | 23.90 | 26.30 | 1.20 | 25.10 | 0.90 | -0.30 | 1.20 |
| Others | 3.10 | 1.50 | 1.60 | 5.90 | 2.60 | 3.30 | 2.80 | 1.10 | 1.70 |

Sources: See Table 2.3.

Table 2.4: 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 | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| 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 2.5: 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* | | | (4) Employed (2)-((3)+(4)) | | | (5) Absorption rate (4)/(1)*100 | | |
|-----------|-----------------------------|------|--------|-------------------------------------|------|--------|--------------------------|------|--------|--------------------|------|--------|----------------------------|------|--------|---------------------------------|------|--------|
| | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| 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 2.6: 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* | | | (4) Employed (2)-((3)+(4)) | | | (5) Absorption rate (4)/(1)*100 | | |
|-----------|-----------------------------|------|--------|-------------------------------------|------|--------|----------------------------|------|--------|--------------------|------|--------|----------------------------|------|--------|---------------------------------|------|--------|
| | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| 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.

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 2.8, 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 great majority of them women. Clearly, vulnerable forms of employment have remained predominant, especially among females.

Table 2.8: Employed persons aged 15 years and above by employment status, 2000-2010 (%)

| Employment Status | 2000 | | | 2006 | | | 2010 | | |
|-----------------------|-------|-------|--------|-------|-------|--------|-------|-------|--------|
| | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| 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 workers | 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 |

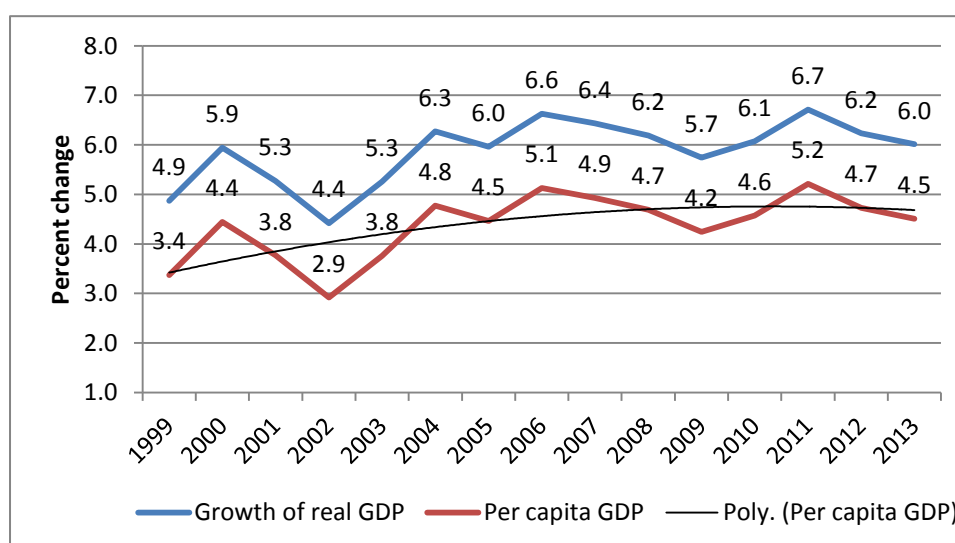
Sources: BBS (2002, 2004, 2008 and 2011a).

Economic Growth and Poverty

Economic growth

While Bangladesh has not experienced GDP growth to match the pace of the “Asian Tiger” economies (South 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 2.3). 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 2.3 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 clear evidence that Bangladesh has avoided the “low-level equilibrium poverty trap”.

Figure 2.3: Real (total) GDP growth and per capita GDP growth, 1999-2013 (%)



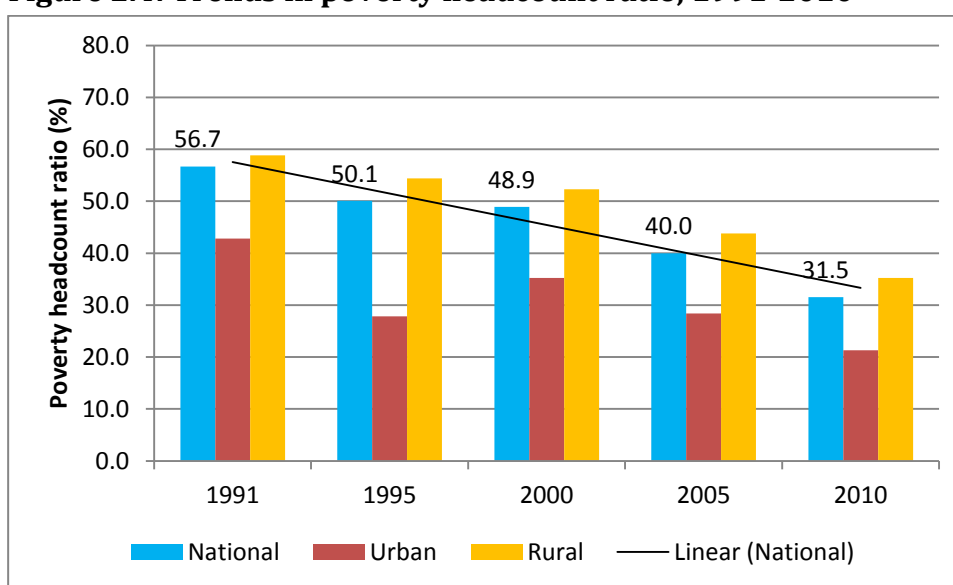
Source: BBS (2013a). *Fiscal years.

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 healthy growth in per capita GDP in recent years can be expected to translate into 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 2.4 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).

Other measures of poverty such as the international standard of \$US1.25 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. Yet another measure, the UNDP’s “Multidimensional Poverty Index” (MPI), suggests that 60 percent of the population was 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 2.4: Trends in poverty headcount ratio, 1991-2010



Source: BBS (2011c).

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. 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.

Basic Services: Housing and Sanitation

Access to basic social services, including adequate housing 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, 33 percent to pucca toilet, 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 (85 percent of households) is the tube well. 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 people 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 and the “arsenic adjusted rate” is 85 percent (BBS 2013).

Social protection and social security

Since the famine of 1974, the Bangladesh Government has provided support to poor and vulnerable population groups by distributing food or cash under several programmes (Rahman 2012). These programmes now fall under the umbrella of the “Social Protection and Safety Net” (SPSN) programme. The target of the SSNPS is the chronic poor, 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.

Khuda (2011) classified the major SSN programmes into four broad categories: employment generation programmes; programmes to cope with natural disasters and other shocks; programmes to provide incentives to parents for their children’s education; and programmes to provide incentives for families to improve their health status. These four categories can be classified into two broad groups: (1) Social Protection (which includes cash transfer allowances, conditional cash transfers, and food security) and (2) Social Empowerment which includes stipends, housing and rehabilitation, micro-credit, miscellaneous funds, and development programmes. Additionally, there are some programmes to address transient food insecurity during or after natural shocks (Khuda 2011; Raihan 2013). SSNPs are summarized in Table 2.9.

Table 2.9: 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 Program (formerly Food-for-Education); and Stipends for Female Secondary Students |
| Public works or training based cash or in kind transfer | Rural Maintenance Program; Food-for-Work; Vulnerable Group Development (VGD); and Employment Generation Program (EGP) |
| Emergency or Seasonal Relief | Vulnerable Group Feeding (VGF); Gratuitous Relief (GR); Test Relief (TR); and Open Market Sale (OMS) |

Source: Raihan 2013

The coverage of the SSN programmes is not 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 (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 the national budget and GDP peaked in 2010-11 and then started to decline (Barkat et al. 2013).

The important fact about the SSN programme lies not 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 (as outlined in Table 2.9) at this stage of its development, given the pressure of population growth. These programmes have presumably contributed to the decline in poverty.

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 shortage, 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 declined (Unnayan Onneshan 2014). Manufacturing and trade are largely concentrated on garment exports with high vulnerability in the global market. To spur economic growth there should be more diversification in the industrial sector.

Substantial progress in reducing poverty rates has been achieved, although doubt remains about the nature and extent of present levels of poverty. To make further inroads will require drawing more of the unemployed, underemployed and informal sector workers into more productive work, but in recent years, the formal sector has shown very limited absorption capacity (Ali, 2013). 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 informalisation process has accelerated the rate of labour migration by creating job opportunities, but the key issue is the 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. 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 towards women are significant challenges 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. 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, 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. 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 if 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 by 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;
- Social services have expanded and a social safety net programme has developed despite the pressures of population growth;
- The declining rate of population growth and reduced dependency ratios has contributed to development in Bangladesh over the past two decades.

FUTURE POPULATION PROSPECTS AND POLICY IMPLICATIONS

Introduction

Despite the uncertainty associated with them, population projections are essential if 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 demographic trends that public policy might attempt to influence (“population influencing” policies).

Population projections for Bangladesh 2011-2061

In the absence of up-to-date “official” population projections based on the 2011 census, new projections were prepared specifically for this report. The base year of the projections was the age-sex distribution derived from the 2011 census after adjusting for the census undercount and smoothing the age distribution to remove the effects of “age heaping”. As with previous projections for Bangladesh, the projection period is 50 years (2011-2061).

Three projections were prepared, which are here labelled the “high”, “medium” and “low” variants. This designation is based on assumptions regarding the future course of fertility. Assumptions regarding mortality and international migration were held constant in all three projections, so variation in the future population size and age structure are determined entirely by different fertility assumptions. These assumptions are:

- The “high” scenario assumes that the TFR would remain constant at its present level (2.3) for the entire projection period.
- 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 has also been assumed in the projections that the distribution of fertility by age of the mother will change through time. Bangladesh has a distinctive pattern of early marriage and childbearing. Declining fertility in recent decades has occurred in older age groups with the result that the proportion of births in younger age groups has been increasing. In these projections it is assumed that the age distribution of fertility will shift again to the older ages in the longer run given the possible increase in the age of marriage and first birth.

The mortality assumptions, which are identical in all three projections, are:

- Female life expectancy increases from 71.4 years in 2011-16 to 80 years by 2046-51 after which it remains constant. The rate of improvement averages 0.2 years per year.
- Male life expectancy increases from 69.1 years in 2011-16 to 77.8 years by 2046-51 and remains constant after that. The rate of change is 0.2 years per year, the same as for females. The gap between male and female life expectancy remains constant at 2.3 years.

Table 3.1: Projection assumptions

| Fertility | Total Fertility Rate | | | | | | | |
|------------------|--------------------------|---------|---------|---------|---------|---------|---------|---------|
| Scenarios | 2011-16 | 2016-21 | 2021-26 | 2026-31 | 2031-36 | 2036-41 | 2041-46 | 2046-51 |
| High | 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 |
| Low | 2.0 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| Mortality | Life expectancy at birth | | | | | | | |
| | Female | | | | | | | |
| All scenarios | 71.4 | 72.6 | 73.9 | 75.1 | 76.2 | 77.4 | 78.7 | 80.0 |
| | Male | | | | | | | |
| | 69.1 | 70.4 | 71.6 | 72.8 | 74.1 | 75.4 | 76.6 | 77.8 |
| | Both sexes | | | | | | | |
| | 70.3 | 71.5 | 72.7 | 74.0 | 75.2 | 76.4 | 77.6 | 78.9 |
| Migration | Assumed to be zero | | | | | | | |

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.

International migration has been assumed to be zero in these projections because a reliable data-set that provides a break-down of net international migration by age and sex is unavailable. The United Nations Population Division has estimated net international migration over most of the projection period used here (2011-61) at a rate of 2 per thousand or 0.2 percent (United Nations 2013). 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) of 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.

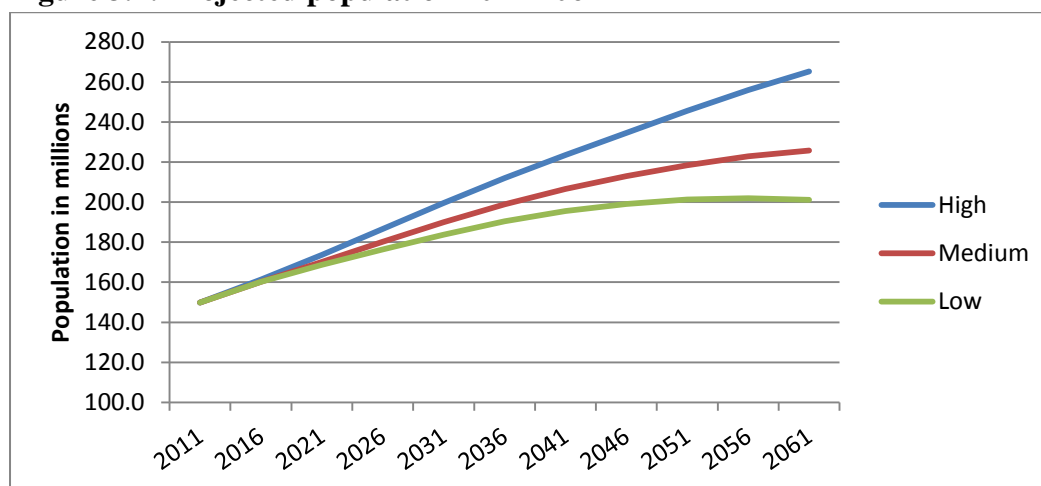
Projection results

All three scenarios indicate that significant population growth is likely to occur in Bangladesh over the coming decades (Table 3.2 and Figure 3.1). By 2021 (the end of the 7th Five-year Plan period), the total population would fall in the range 169-174 million, depending on which fertility scenario came to pass. Population increase would therefore range from 18.9 million (low scenario) to 23.8 million (high scenario) over the 2011-21 decade. This would translate into growth of between 1.9 to 2.4 million per year. Note that these are historically high levels. In Chapter 1 it was reported that annual growth peaked at 2.2 million per year during the 1981-91 inter-censal period (Table 1.1), despite the fact that the population growth rate had declined relative to its peak of 2.5 percent in the 1961-74 period. As demonstrated further below, population growth in annual numbers can remain high even though the rate of growth is declining.

The effect of different fertility assumptions on future population is substantial over the long term. By the end of the projection period (2061), the total population could range from 201 million to 265 million. The difference between these two figures (64 million) reflects the difference between a constant TFR of 2.3 and a TFR that declines to 1.6 by 2016-21 and remains constant at that level.

Table 3.2: Projected population under three scenarios, 2011-2061

| Scenarios | 2011 | 2016 | 2021 | 2025 | 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 |

Figure 3.1: Projected population 2011-2061

Under the high scenario an additional 115 million people would be added to the 2011 population by 2061, compared with 76 million under the medium scenario and 51 million under the low scenario. Note, however, that under the low scenario the population stabilizes by 2046 and there is little growth after that date. Only the “low” scenario shows the total population of Bangladesh levelling off within the next 50 years. The total population would have reached its peak of 202 million by 2056 and commenced a period of slow decline. The other two scenarios show continuing population growth beyond the projection period.

Population growth rates would decline under all three scenarios (Table 3.3), however the rate of decline would obviously be much faster under the “low” fertility scenario. By 2041-46 the population growth rate would fall below 1 percent annually in all three projections but under the low scenario the rate of growth would be only one-third the rate under the high scenario.

Table 3.3: Annual population growth rates in 5-year periods (%)

| Variant | 2011-16 | 2016-21 | 2021-26 | 2026-31 | 2031-36 | 2036-41 | 2041-46 | 2046-51 | 2051-56 | 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 |

Annual population increase would remain above 2 million persons per year until 2056 under the high scenario but drop to 1 million per year by 2051 under the medium scenario and to less than 1 million in the 2036-41 period in the low scenario.

Table 3.4: 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 | 2051-56 | 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 |

Probability analysis

Assigning a probability to a specific population projection is difficult because future policy directions 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 paper, with the LF scenario almost identical to the “medium” scenario of this paper and the AFT scenario almost identical to our “low” scenario.⁶

The absence of a “high” projection in the World Bank’s approach would appear to reflect a belief 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 the consequences for population growth, but we also give this scenario a low probability. The label “laissez-faire” for the highest of the World Bank’s projections implies that this would be the outcome in the absence of policy initiatives aimed specifically at achieving the AFT scenario. This too is consistent with the approach of this paper, in which the “medium” projection is the most likely and the “low” projection is the preferred “policy” projection.⁷

Projected age structure

The age structure of the population will certainly change in the future with some groups declining while others increase—both in absolute numbers and proportionately. 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”⁸ scenario the under 15 population would increase by about 5 million over the 50-year projection period.

The core labour force age group of 15-59 would increase significantly under all three scenarios. The increase would be from 86.7 million in 2011 to 152.3 million under the high scenario, 130.8 million under the medium scenario and to 117.1 million under the low scenario. Thus, significant growth in the working age population lies ahead.

But the most dramatic change to be expected in the demographic future of Bangladesh is the increase in the elderly population defined as age 60 and over. Because this age group is only affected by mortality and migration, and these are held constant in all scenarios, variations in fertility make no difference to the results. As shown in Table 3.5, the number of elderly would increase by five times, from 11.2 million in 2011 to 55.7 million in 2061, regardless of the fertility scenario.

⁶ The projected populations under the World Bank’s two fertility scenarios and the “medium” and “low” projections reported in this paper are also extremely close. The small differences 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 population as their base population.

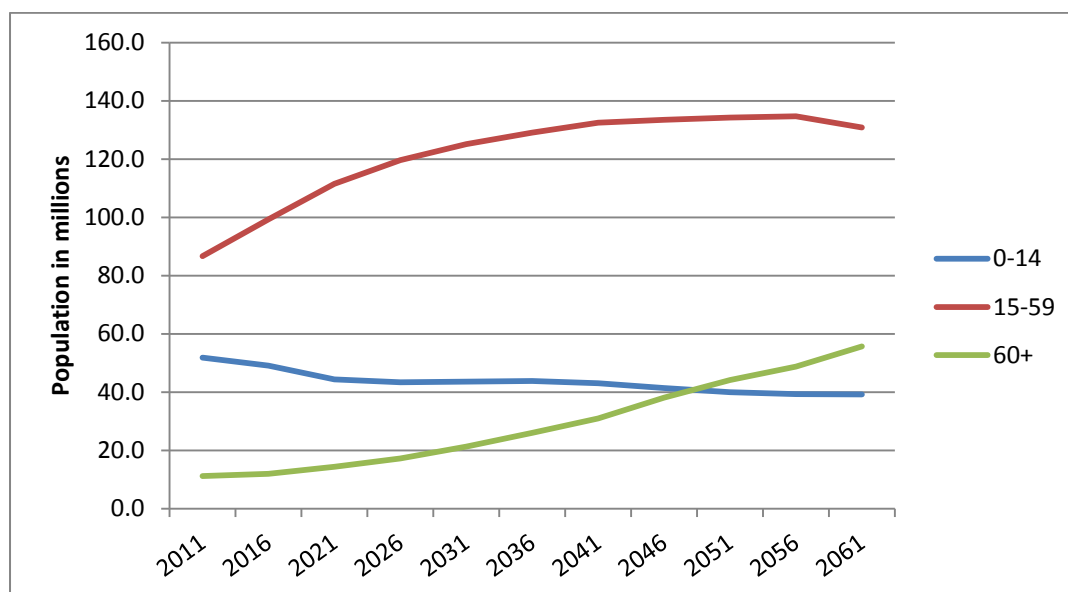
⁷ The World Bank projections AFT scenario is based on a linear extrapolation whereas the “low” scenario in the present paper is based on the “wanted fertility rate” as reported in the 2011 DHS (NIPORT, et al. 2013, p.80).

⁸ Note that the “high” fertility scenario is better described as “constant”. It is only high by comparison with the other scenarios and because the result is a larger population.

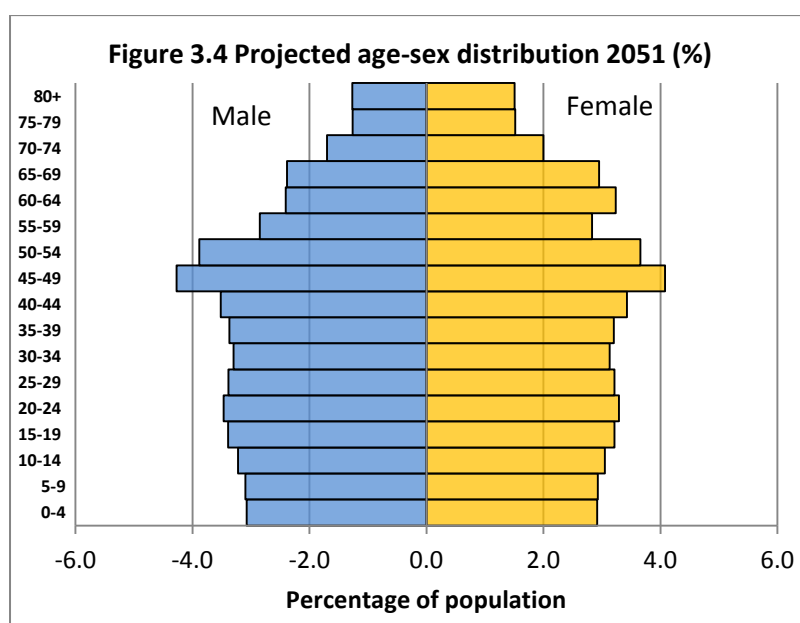
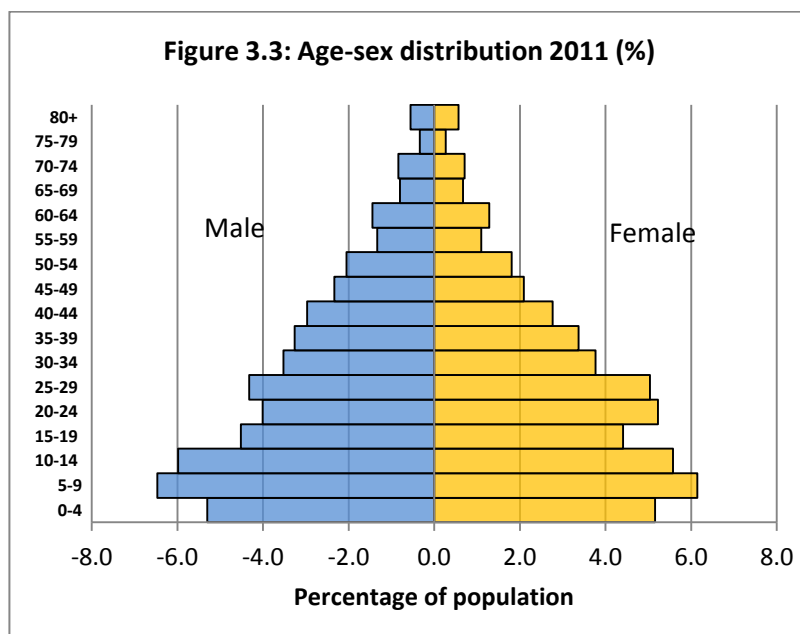
Table 3.5: Projected population in three main age groups, 2011-2061 (millions)

| | 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 |

Under the “medium” assumption, labour force growth would slow down and level off by 2051 and begin to decline (Figure 3.) and 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. A much faster shift of dependency from young to old would occur under the low scenario with the two age groups becoming approximately equal in size by 2041. Also, under this scenario the labour force would peak at about 129 million in 2041.

Figure 3.2: Projected population growth in the main age groups, “medium” variant

A comparison of Figures 3.3 and 3.4 show that dramatic change in the age distribution can be expected over the next few decades. By 2051, Bangladesh’s age distribution will be similar to that prevailing in today’s developed countries with a high proportion of the population in older ages and little change in the population under 40 years of age.



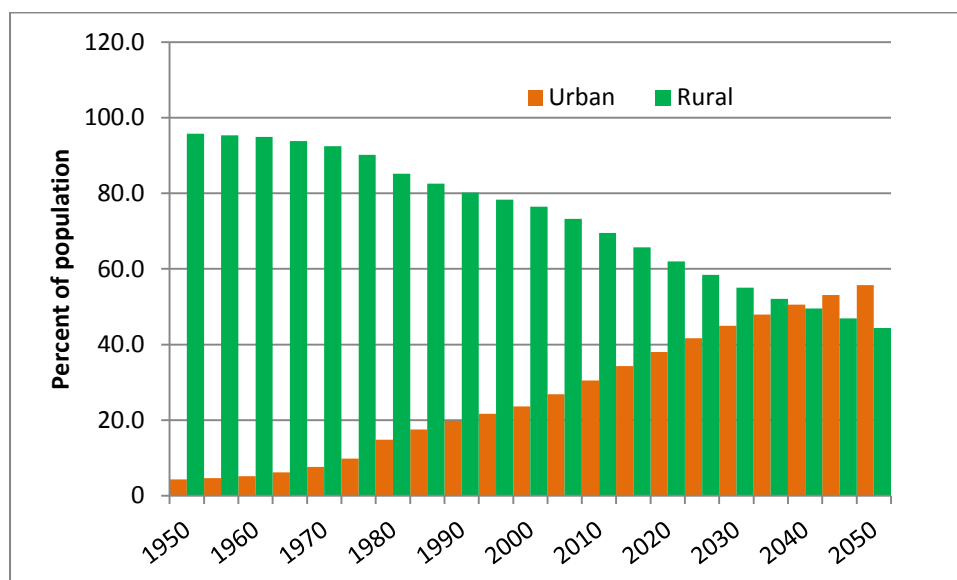
The demographic “dividend”

A plentiful supply of young, healthy and educated workers unburdened by both young and old dependants, can provide a boost to economic growth, providing the enabling social and economic conditions also exist. The period during which the proportion of the population in the labour force ages is increasing, provides a one-time “demographic window of opportunity”, or “demographic dividend” for investing heavily in human resource development. As measured by the proportion of the population in the labour force ages (here defined as ages 15-59) this “window” projected to open widely in Bangladesh over the next 10-20 years, which is a relatively short period. Similarly, the “dependency ratio” can be expected to drop sharply over the next 20 years before rising again with the growth of the elderly population. How widely the window will open and for how long depends upon which of the three fertility scenarios will actually occur; but all scenarios show a widening window over the 2011-21 decade. This is the optimum period for investing in human resources and establishing other enabling conditions for economic growth in Bangladesh.

Urban-rural distribution

Upon independence, Bangladesh was a predominantly rural society with less than 10 percent of the population living in urban areas. Over the subsequent decades, urban population growth has averaged 4.4 percent per year compared with 1.3 percent in rural areas. These differential growth rates, caused by net rural-urban migration and lower rates of natural increase in urban centres, explain the increasing proportion of the population living in urban areas, which is estimated to be 34 percent of the total in 2015 (Figure 3.5).

Figure 3.5: Rural-urban distribution (%) 1950-2010 and projected to 2050



Source: United Nations, Department of Economic and Social Affairs, Population Division (2014). *World Urbanization Prospects: The 2014 Revision*. New York: United Nations

Projections carried out by the United Nations Population Division (UNDESA 2014) suggest that this proportion will increase for the foreseeable future. By 2040 the urban population will exceed the rural population (Figure 3.5) and from that point onwards the rural population will start declining while the urban population will continue growing. The rural population reached its probable 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 urban.

The implications of future population change for socio-economic development

Population projections suggest that by the end of the 7th five-year plan period (2021) the population of Bangladesh would be somewhere between 169 and 174 million. Total population increase from 2011 to 2021 would therefore be in the range 19-24 million, or between 1.9 and 2.4 million persons per year. Despite the falling growth *rate*, absolute population growth in the short-run would be almost as high as it has ever been in Bangladesh. The challenge of absorbing these additional persons into the economy and simultaneously raising the level of living remains formidable.

Population density

By the end of the 7th 5-year Plan period in 2021, overall population density can be expected to increase by 15 percent under the high scenario and 13 percent under the medium scenario during this period. In the longer run (say, 2056) the population density of the entire country would be equivalent to the population density of Dhaka Division. If self-sufficiency in food is to be maintained then the productivity of the land would need to be raised, either through different types

of cropping or technology change. It appears inevitable that significant capital investment will be needed in agriculture to raise yields. Alternatively, a higher level of export-oriented industrialization would be needed to cover the costs of imported food. This would make Bangladesh vulnerable to international food prices, which tend to be volatile.

A larger population will, of course, increase the scale of the market for domestically-produced goods, ultimately reducing dependence on exports. For this effect to be realized, however, real incomes would need to rise and the efficiency of domestic production would need to match or exceed other producers. Otherwise, some form of tariff protection would be required.

Age distribution

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 more expensive than primary the overall impact may be small. An alternative 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.

The pressure on existing tertiary 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.

The expected long-run increase in the population of working age will maintain a strong demand for jobs. Labour force absorption has been inadequate in the last two decades leading to high rates of underemployment and surplus labour. Opportunities for “formal sector” employment appear to be diminishing. The challenge for Government 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.

The 60 and over population will increase by 3.2 million between 2011 and 2021, but growth of over 3.0 percent per year can be expected in the long-term. The main issue in the case of this age group is how support for the elderly population will be financed and secondly how it will be organized. Government social safety net programmes for the elderly are currently insufficient both in terms of population coverage and per-capita amount. 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 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.

Demographic Dividend and the Window of Opportunity

Bangladesh began to enter the “window of opportunity” period from 1991 onwards as the dependency ratio declined. By 2011 the dependency ratio had reached its lowest level in 100 years. By 2026, however, the dependency ratio will start to rise again. The speed of the rise depends somewhat on which projection comes to pass, but the turning point is between 2021 and 2031. This is a relatively short period. It covers at least the time-frame of the 7th five-year development plan, and at best the two plan periods after that. This does not mean that the window will close completely during these plan periods but rather that these will be favourable periods in which to adopt policies to take advantage of the “dividend”.

The demographic dividend is not automatic; it is achieved only if the correct human resources policies are pursued. The dividend appears as an addition to the growth that could be expected by capital investment in infrastructure, improved technology, manufacturing plant, or by trade policy, market liberalization, etc. Dividend theory focusses specifically on human resource development. The demographic bonus is more likely to be achieved if in addition to being in plentiful supply, young people are skilled, educated, healthy and productive. Consequently, dividend theory stresses the need to invest more in schooling and technical training to enhance work skills. At the same time, 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 much greater efforts 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. But modern economic growth is “science-based”; higher value added jobs require a greater understanding of science and technology.

The “second 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 attitude toward investment by creating a positive investment environment, economic growth can be sustained indefinitely, even though the dependency ratio is increasing. The policies required to achieve the second demographic dividend are concerned mainly with providing mechanisms and incentives for people to save during their working years. That implies developing retirement savings plans with favourable terms, especially with respect to taxation. Government might also consider the establishment of a “sovereign wealth fund” that could finance retirement benefits in the long term, which would take pressure off annual budgets.

Urbanization

If, as projected, all future population growth in Bangladesh will be urban, the implications for urban management and planning are profound. Urban infrastructure will need significant up-grading and ways and means found to reduce urban primacy by diverting rural-urban migration away from Dhaka to small and medium-size cities.

Fertility and family planning

Demographic pressure on the economy and society of Bangladesh would be significantly eased if the “low” fertility projection scenario would come to pass. To achieve this would require that actual fertility level (TFR) should approximate what the “wanted” TFR is according to the

2011 Demographic and Health Survey. At the national level, women are having 0.7 more births on average than they want, but this rises to 1.1 births in Chittagong and among women with no education. The “unmet need” for contraception for limiting family size is also highest among these groups. Access to quality family planning services needs to be improved in those areas in which unmet need is highest and among the least educated.

Main points

- Significant population growth will occur in Bangladesh in the coming decades, despite the declining rate of population growth;
- Annual population increase will likely range from 1.5 to 2.5 million persons per year during the 7th Five-year Plan period, depending on whether fertility remains above or below replacement level;
- Bangladesh’s population could reach 265 million by 2061 if fertility remains at 2011 levels or stabilize at 200 million by 2051 if fertility drops below replacement during the 7th Plan period and remains there;
- Significant changes in the age structure will occur and these will be beneficial for development in the short- and medium-term;
- The population aged 0-14 will stabilize while the labour force will continue to grow;
- Significant growth in the working age population can be expected in the future placing steady demand on the labour market;
- The number of elderly will increase faster than any other age group regardless of future fertility levels;
- The “demographic window of opportunity” will remain open for the next 10-20 years, providing a potential “bonus” to economic growth and development;
- The next two plan periods present a one-off opportunity to invest heavily in human resources, particularly in technical and vocational training;
- All future population growth in Bangladesh is likely to be in urban areas, placing heavy demand on urban infrastructure;

CONCLUSIONS AND POLICY RECOMMENDATIONS

Population and development interactions: lessons from the past

50 years ago, most observers were pessimistic about Bangladesh's development prospects, largely because of its high levels of poverty, high person/land ratio and rapid population growth rate. Over the 50 years, population has grown by 103 million, or 180 percent, 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 population growth continues as a result of demographic momentum.

Bangladesh has clearly escaped the low-level equilibrium poverty trap forecast by pessimists in part because the population growth rate has declined; yet, poverty is far from being eliminated. A large number of Bangladeshis 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.

In Bangladesh, socio-economic development and demographic change have interacted in a generally 'virtuous circle', and **it is crucial to ensure that this positive interaction continues**. On the development side, it is difficult to determine the key factors contributing to this but some elements include: (i) the development of a national spirit in independent Bangladesh and a greater degree of local control; (ii) improvement over time of government efficiency in the delivery of social services and more generally in development planning; (iii) the role of NGOs in service delivery and community development; (iv) overseas contract labour migration and remittances; (v) the role of foreign direct investment in increasing production and importing technology; (vi) foreign aid, which at an earlier stage brought not only resources but also expertise; (vii) micro-credit schemes opening up local small-scale investment

Much of the demographic transition occurred with half the population still living in poverty. In the early stages, it may have been a poverty-driven transition; 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, particularly later in the transition, because poverty levels have fallen considerably over the course of the transition, and lower fertility is associated with higher socio-economic status.

The fertility transition: what is the desirable fertility level?

The 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. Further declines in both fertility and mortality can be expected 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: better health has led to improved productivity. Because of more slowly growing youth population, educational efforts went further in raising enrolment ratios. Lower fertility has also enabled more women to enter the workforce.

In the present 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 (51 million from 2011 to the year when growth ceases), and its implications for population density, labour force absorption, urban population growth, and environmental concerns, are daunting.

There are only two possible mechanisms for reducing fertility in Bangladesh: (1) delaying marriage and (2) reducing fertility within marriage. Bangladesh is unique in the world in having almost reached replacement level fertility with a very young average age at marriage. Increasing the 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 enabling them to avoid 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.

Regarding fertility within marriage, **the key objective should be to reduce the level of unmet need for contraception**, because this means a reduction in fertility while respecting couples' reproductive preferences. The evidence shows that meeting unmet need will lead to Bangladesh's fertility falling below replacement level, even if age at marriage remains low.

Policy 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**. Given the young ages at marriage and the long period of potential childbearing that remains after couples have reached their desired family size, long-acting methods of contraception should be more readily available. The contraceptive supply chain needs to be secure, and efforts made to increase community involvement, including that of men, in family planning and reproductive health activities.

The mortality transition: how high will 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 towards those non-communicable causes of death that are more prominent in gradually ageing populations**.

The challenge of lowering morbidity and mortality levels among the poor must be placed at the top of the development agenda. The urban and rural poor face substantially higher mortality levels, because of inadequate nutrition, less healthy living environments and unaffordable health care when medical emergencies strike. There is a need to improve the access of the poor to health facilities, 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 lies within the government's fiscal capabilities but 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 (from 65 to 43) in the 20 year period 2011-2031 and to rise only slightly – from 43 to 46 - in the following 15 years (2031-2046). The potential advantages of the dividend during the coming 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.**

The policy prescriptions for taking advantage of the demographic dividend include good governance, the rule of law, strong investment in education and health, and removing barriers to investment of local and foreign resources in productive activities. However, **in Bangladesh's current situation, particular stress must 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 situation provides a great opportunity to raise enrolment ratios while at the same time taking steps to improve the quality of education and alter its mix to give more stress to technical and vocational 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.

Some specific steps include lengthening the period of compulsory education, raising the quality of the teaching force and enforcing teacher attendance, improving the quality of school buildings, and providing financial support for children from poor families. The education drive will be important not only in raising Bangladesh's international competitiveness, but also by contributing to lowering child marriage and raising the status of women.

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. 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. Throughout Bangladesh, the growing ranks of landless are finding it very hard to make a living in the rural areas. More generally, productivity – and wages – are higher in other sectors, providing an incentive to move to the city.

Whether Bangladesh can compete with other countries in expanding the industrial sector from a dangerous over-reliance on ready-made garments to other activities will depend on the quality of planning as well as finding productive niches in which Bangladesh has (or can develop) a comparative advantage. The expansion of education, placing greater focus on technical and vocational education and improving educational quality 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 international marketplace for emerging industries.

The 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 skill- and knowledge-based employment structure, consistent with the growing educational levels of the workforce.

Migration and urbanization – reducing agricultural workforce, shift to higher-productivity sectors: but can the cities cope?

Bangladesh has a surplus 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. Labour productivity, and wages in agriculture are very low, and underemployment of the rural workforce is high. If Bangladesh is to raise the overall level of productivity and incomes, productivity in the agricultural sector will need to rise and there will need to be a movement of workers out of the agricultural sector. This movement could be partly “in situ”, through the development of non-agricultural activities in rural areas. China's “in situ” urbanization through the growth of TVE (town and village enterprises), not requiring the relocation of the populations concerned, would be a valuable model for Bangladesh to follow. The search for non-agricultural work will not always require permanent relocation from rural to urban areas.

The rural population of Bangladesh will be declining from now on. Urbanization will be a key driving force in the future. With all population growth (some 75 million over the 50 years 2011-2061, according to the medium UN 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 economics of urban agglomeration, which can be realized in very large cities, and following an “intermediate cities” strategy which places greater emphasis on fostering the growth of selected intermediate cities deemed to have favourable prospects. Urban areas other than Dhaka will have to take much of the brunt of the massive increase in urban population that is expected. The urbanization strategy will need to include infrastructure development, not only in urban but also in rural areas.

Liveability for poorer city dwellers must be improved in cost-effective ways. This will require better approaches to 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, including in slum communities.

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. However, the approximately 2 million Bangladeshis living permanently in developed countries overseas are mostly highly skilled; policy should attempt to link them to Bangladesh in positive ways, to draw on both their skills and capital.

Temporary 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. Labour migration affects Bangladesh's demography and development by delaying childbearing and contributing remittances. It is hard to measure the extent to which migration contributes to raising productivity levels in the domestic economy after the workers return, but as the majority of workers are unskilled, they will have relatively limited opportunities to learn on the job.

Bangladesh should initiate skill development programmes for 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. Pre-departure briefings should also be improved to ensure a smoother integration of workers into their overseas environment, and Bangladesh missions in key destination countries should 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.

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

Population ageing will be the inevitable “downstream” consequence of fertility decline and the demographic bonus in Bangladesh. Though, like many other countries, Bangladesh will “grow old before it grows rich”, this is something to be planned for rather than feared. Ageing is proceeding more gradually in Bangladesh than in many countries where fertility declines have started earlier and been more rapid. When ageing reaches high levels in Bangladesh, people can work longer, thus offsetting the tendency for longer life expectancy to lengthen the period of retirement. At that time, those becoming elderly will be better educated and more healthy than is the case now, and the general level of economic development should be much higher than at present, thus resources will be available for pension schemes and health care. But the situation will be manageable only if good use has been made of the intervening period.

A very wide range of Social Safety Net Programmes have been developed, but at present, only 10-24 percent of the poor receive 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. Raising per capita income levels is very important in achieving this goal, but it is not sufficient. It is equally important to improve gender relations and build resilient and cohesive families and communities. **With population ageing, 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 state.**

The situation of women in Bangladeshi society has been improving, but very slowly and more rapid progress is needed. The greater involvement of women in the labour force, while to some extent reflecting the survival needs of families, also reflects important and on-going changes in gender norms. However, issues of gender-based violence, teenage childbearing, need for increased autonomy of women in the family, and the unfortunate situation of many widows all need urgent attention. **Continuing high levels of child marriage lie at the heart of gender issues in Bangladesh.** Child marriage both reflects attitudes to the role of women that need to change, and leads to consequences that perpetuate unequal gender relations: withdrawal of girls from school, wide age differences between spouses, and greater likelihood of domestic violence. Campaigns to address gender-based violence and early marriage are needed, with a special focus on enlisting the support of men for these programmes.

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, salinization, tidal surges in cyclones, flooding in the monsoon season, and river erosion displacing farmers, among others. Population growth over time has forced more people to move into environmentally dangerous areas to farm, where they are exposed to one or more of the above dangers. Given the limited supply 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.

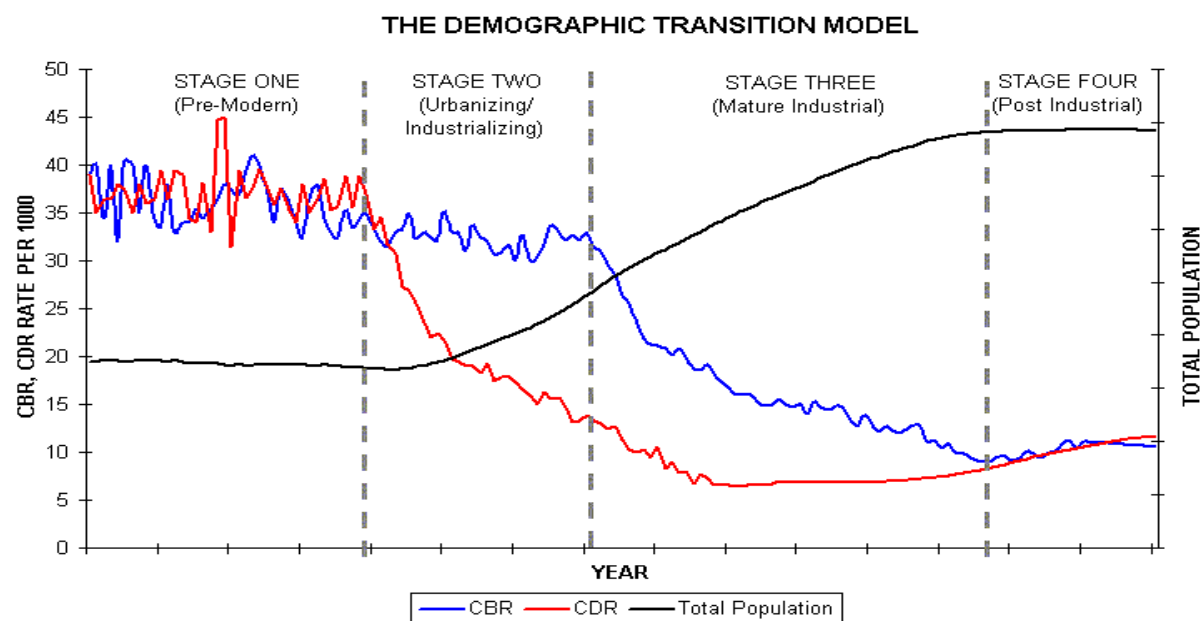
The likelihood that rural population growth has now almost ceased is an encouraging development from the point of view of achieving some kind of population-environment balance. However, a decrease in the rural population would be more desirable than mere stability, enabling withdrawal from some more disaster-prone areas.

Data improvements for effective population and development planning

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. There are long delays between the collection of census data and publication of detailed analytical reports. There are also multiple sources of data covering the same indicators, such as maternal mortality and fertility rates, and 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.**

Annex A

Figure 1



Annex Table A1: Population growth 1901-2011

| Census year | Population (millions) | Annual increase (millions) | Intercensal growth Rate (%) |
|-------------|-----------------------|----------------------------|-----------------------------|
| 1901 | 28.9 | -- | 0.7 |
| 1911 | 31.5 | 260 | 0.9 |
| 1921 | 33.3 | 172 | 0.5 |
| 1931 | 35.6 | 235 | 0.7 |
| 1941 | 42.0 | 640 | 1.7 |
| 1951 | 44.2 | 220 | 0.5 |
| 1961 | 55.2 | 1,100 | 2.0 |
| 1974 | 76.4 | 1,631 | 2.5 |
| 1981 | 89.9 | 1,929 | 2.4 |
| 1991 | 111.5 | 2,160 | 2.2 |
| 2001 | 130.0 | 1,850 | 1.5 |
| 2011 | 149.8 | 1,980 | 1.4 |

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