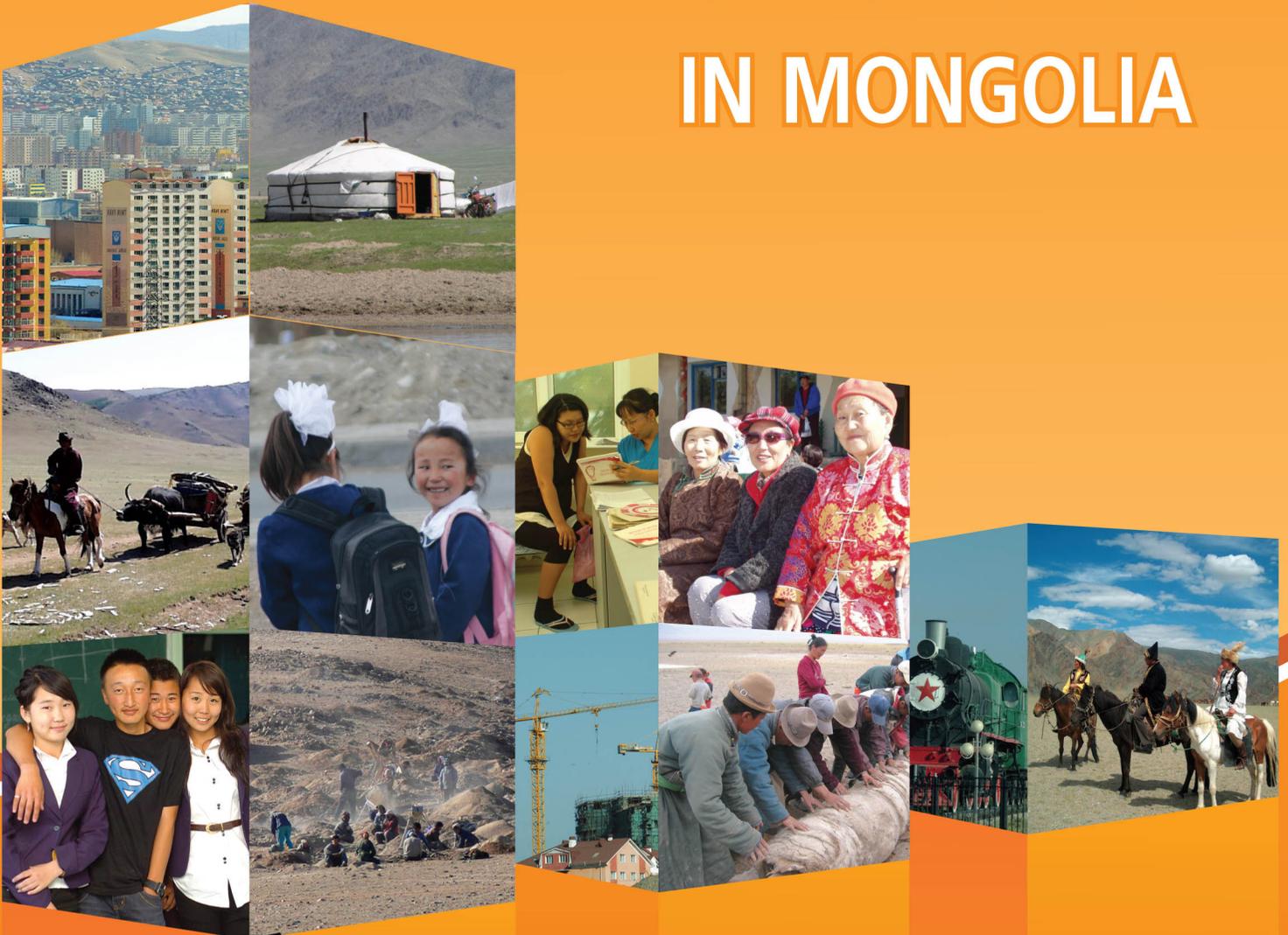


# IMPLICATIONS OF DEMOGRAPHIC TRENDS FOR SOCIO-ECONOMIC DEVELOPMENT AND PUBLIC POLICY IN MONGOLIA



# **IMPLICATIONS OF DEMOGRAPHIC TRENDS FOR SOCIO-ECONOMIC DEVELOPMENT AND PUBLIC POLICY IN MONGOLIA**

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## PREFACE

Population issues have long been at the forefront of public dialogue and official concern about Mongolia's national development. Successive governments have applied explicit and implicit policies to address the population problems of the country as they were perceived at that time. Prior to the present era, which dates from around 1990, governments adopted policies to increase the population growth rate and hence the total population of the country, believing that its survival was at stake. Distinctive among these policies was a range of measures to promote a high birth rate, both by inducements to mothers and restricted access to reproductive health services. During the transition to a market-based economy and a free society, the birth rate declined to a low level, again raising concerns about the possibility that population growth would remain low for the foreseeable future and threaten the country's national development.

Less noticeable in public policy discussions was the issue of age structure or composition. Deliberate efforts to raise the birth rate to a high level, followed by a sharp decline in fertility during the economic transition, have bequeathed to Mongolia an age structure which is as much a policy concern as population growth and population size. The age structure revealed in the 2010 Population Census shows an irregular shape, which will remain in the population for a long time. Such an age structure will produce fluctuations in the size of different age groups, placing variable demands on goods and services, including public services, over the next few decades.

In order to address issues such as these, in 2011 the National Innovation and Development Committee (NIDC) requested the United Nations Population Fund (UNFPA) to commission a detailed study of population trends in Mongolia and their implications for socio-economic development. The UNFPA in turn recruited a team of national experts in demography,

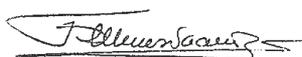
economics and social policy to carry out the study under the guidance of an international consultant and the supervision of a national consultant and team leader.

The report which follows has described the main demographic trends in Mongolia over the past several decades and analyzed the impact of these trends on socioeconomic development. In particular the study analyzed the impact of population on the labour force, health and education, urbanization, poverty and the urban environment. The study sought to explicate the policy implications of current demographic trends as well as likely future patterns.

In broad general terms the results of the study are positive. For example, the study finds that fears that Mongolia would follow other Asian countries down the road of ultra-low fertility and ultimately population decline are not well-founded. Recent fertility trends suggest that broad-based economic growth and confidence in the future are the key determinants of the birth rate. Extreme measures associated with the past are neither applicable nor necessary.

On the other hand, Mongolia is facing some demographic challenges. Foremost among these is demographic ageing, which has now begun to accelerate. The absorption of the growing labour force also creates a challenge for economic policy, most obviously in job-creation. The rapid rate of urban growth and increasing urban primacy, fueled by high levels of rural-urban migration, is another challenge that Mongolia presently faces.

Although the ultimate solutions to these issues lie outside the scope of this report, it is hoped that the report will raise awareness of population issues in Mongolia, foster on-going policy dialogue and stimulate relevant authorities and communities to take population issues into account in their planning-with the ultimate aim of improving the quality of life for all.



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## Acknowledgements

“The Implications of Demographic Trends for Socioeconomic Development and Public Policy in Mongolia” study was undertaken by the team of national researchers, including the Population Training and Research Centre at the National University and Gerege Partners Co.Ltd from November 2011 to November 2012.

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## List of Acronyms and Abbreviations

ADB	Asian Development Bank
CBR	Crude birth rate
CDR	Crude death rate
GDP	Gross Domestic Product
GNI	Gross National Income
HDI	Human Development Index
IMF	International Monetary Fund
IMR	Infant mortality rate
NDIC	National Development and Innovation Committee
NCD	Non-communicable Disease
NSO	National Statistical Office
RHS	Reproductive Health Survey
TFR	Total fertility rate
U5MR	Under-5 mortality rate
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
UNDESA	United Nations Department of Economic and Social Affairs
UNFPA	United Nations Population Fund
WB	World Bank

## Glossary and Definitions

Age structure	The distribution of a population between age groups, usually organized in 5-year categories
Aged dependency ratio	Persons aged 65 and over per 100 persons aged between 15 and 64
Ageing	The process in which the proportion of the population in older age groups increases
Agglomeration economics	The economic advantages that arise from the clustering of business firms together in a central place.
Crude birth rate	The number of births per 1,000 persons in the general population. It is called "crude" because it includes in the denominator persons who are not at risk of giving birth.
Crude death rate	The number of deaths per 1,000 population. It is called "crude" because the denominator includes persons at very different risks of dying.
De-facto population census	A census based on the actual number of persons counted within the territorial boundaries of the country
De-jure population census	A census that includes in the population count persons temporarily abroad but normally resident in the country
Demographic transition	The historical tendency of a population to move from a stage in which mortality and fertility are high and population growth is low to a stage in which fertility and mortality are low and population growth is again low. In between these two stages is the demographic transition, usually accompanied by high population growth.
Dependency ratio	The number of children (0-14) plus the number of elderly (65 and over) per 100 persons aged 15-64.
Under-5 mortality rate	The probability of dying before reaching the exact age of 5 years, usually calculated from a life-table.
Total fertility Rate (TFR)	The number of children that a woman would give birth to on average if she were to have children at the same rate that women are presently having through the age range 15-49 years.
Youth dependency ratio	The number of children (0-14) per 100 persons aged 15-64.
Population momentum	The tendency of a population to grow, even after fertility has dropped to a low level, because the number of women in the child-bearing age range is increasing.

Feminization	The process by which an age group is made up of more females than males.
Infant mortality rate	Deaths under the age of one year divided by the number of births multiplied by 1,000.
Life expectancy at birth	The average number of years that a person would live from birth based on the current age-specific death rates
Exponential growth	A pattern of growth in which the annual increment over a unit of time is itself increasing
Fertility transition	The change through time from a high birth rate to a low birth rate
Mortality transition	The change through time from a high death rate to a low death rate
Epidemiological transition	The change from a situation in which the main cause of death is infectious disease to a situation in which the main causes of death are non-communicable diseases (NCDs)
Demographic bonus	The positive economic consequences that arise when the ratio between workers and dependents is greatest; that is, there is a high proportion of working-age persons in the population and a low proportion of dependents.
Demographic "window of opportunity"	The time period during which the "first demographic bonus" is available.
First demographic bonus	The economic advantages of a low dependency ratio.
Second demographic bonus	The accumulation of financial assets in anticipation of an ageing population intended to provide retirement income for the elderly.
Pro-natalist policy	Government policies directly aimed at increasing the birth rate or the total number of births.
Population projection	A statistical extrapolation into the future based on assumptions about the possible future trends in fertility, mortality and migration.
Replacement fertility	The average number of births per woman required to ensure long-term population growth given present levels of child mortality. If mortality is moderate, replacement fertility is 2.1 children per woman on average.
Population-influencing policy	A government policy explicitly intended to influence a demographic variable such as fertility, mortality or migration.
Population-responsive policy	A government policy that is intended to respond to a pattern or trend of demographic change in order to minimize its potential negative consequences or to enhance its expected benefits.

Projection scenario	A set of assumptions employed in a population projection referring to future changes in fertility, mortality or migration
Labour force participation rate	The proportion of the population aged 15 years of age and over that is economically active (contributing to the production of goods and services in an economy or willing and able to contribute)
Urban primacy	A situation in which the urban population is concentrated in one large city rather than distributed across a hierarchy of medium-sized cities and small towns.
Discouraged worker	A person who is willing and able to work but has given up looking for employment because of a belief that no suitable work is available.
Social transfers	Payments made to a population group from taxation and other forms of revenue collected by governments and paid by other groups.
Net migration	The difference between in-migration and out-migration or between immigration and emigration
Gross migration	The total movement in both directions (in-migration plus out-migration or immigration plus emigration)
Urbanization	The process by which the urban population increases as a proportion of the total.
Sub-replacement fertility	A total fertility rate below 2.1 children per woman on average.
Maternal Mortality Ratio	The number of deaths related to pregnancy and childbirth per 100,000 live births.
Informal sector	An economic sector characterized by the absence of formal employment contracts, social insurance, occupational safety standards and consisting mainly of self-employed workers.
Sex ratio	Males divided by females multiplied by 100. Indicates the number of males per 100 females.
Headcount poverty ratio	Persons living below the poverty line as a proportion of the total population.
Poverty line	The level of income (in cash or in kind) below which a person is considered to be in poverty.

## Executive Summary

The purpose of this report is to describe the evolution of population patterns and trends in Mongolia and to explain the implications of these trends for socioeconomic development and public policy. The report identifies and provides a rationale for various policy options that the national government, in collaboration with other stakeholders, may wish to adopt to address the key population and development issues facing Mongolia in the coming decades. To accomplish this task it is important not only to review the recent demographic history of Mongolia but also to preview the projected population trends in the future. Although it is not possible to predict future population change with certainty, it is possible to assess the probability of certain trends occurring and to some extent to modify those trends where they are inconsistent with the public or national interest.

The linkages between population and development are complex and reciprocal. The report outlines a simple framework for analyzing these relationships in Mongolia. It is apparent that while population factors may have an impact on development, the reverse is also true—that development can have an impact on population. This report attempts to show the interactions between the two processes in Mongolia.

### Chapter 1 - Demographic patterns and trends in Mongolia

- **Population growth.** Mongolia's population has increased from 647,500 in 1918 to 2,647,500 in 2010, an increase of 2.0 million people over 92 years. This reflects an average growth rate of 1.5 percent per year over this period. The overall trend of growth has followed an exponential pattern which is typical of most countries. Mongolia's population growth rates have followed the expected phases of the "demographic transition" model: a period of low population growth caused by high mortality from 1918-1956, a period of rapid population growth caused by declining mortality and rising fertility from 1960 to 1990, and a period of slow population growth caused by low fertility and mortality from 1990 to date. Mongolia's population growth rate reached a peak of 2.9 percent during the period 1969–1979 and has declined steadily since. Declining fertility and the emigration of foreign residents were the main causes of the decline in the population growth rate. During the most recent intercensal period (2000-2010) the growth rate averaged 1.1 percent per year.

- **The rise and decline in fertility.**

Fertility trends in Mongolia have followed a somewhat unusual course compared with most Asian countries. Although the total fertility rate (TFR) was already high in the 1950s, government pro-natalist policies pushed the rate even higher to reach 7.5 average lifetime births per woman by the 1970s. By the 1980s the fertility rate began to decline but dropped particularly rapidly during the economic transition of the 1990s. Over the 5-year period 1988-1993, the TFR dropped by nearly 50 percent. By 2005 the TFR had declined to 1.95 children per woman, below the level required to maintain long term population growth. At that point it was not clear if Mongolia's fertility level would remain below replacement or if the low level of fertility was a temporary result of the economic crises. The upward trend in fertility since 2005 suggests that sub-replacement fertility in Mongolia was a temporary phase. By 2011 the TFR had climbed back to 2.6, about the same level as in 1993.

- **Impact of declining fertility.**

The very rapid decline in the total fertility rate during the 1990s resulted in the number of births dropping from 75,000 per year in the late 1980s to 47,000 per year by the 2000-2005 period. The decline in births has had a dramatic impact on the age structure, with the age cohorts born between 1990 and 2005 becoming successively smaller. As fertility has increased again after 2005 the younger age groups have started to increase again. However, the changed age structure

will result in future population growth following a "wave-like" pattern of rises and falls. This will also occur in the annual births which can be expected to rise and fall over the next several decades. The changing age structure is likely to present a major challenge in the future. The proportion of children (0-14) has already declined from 46 percent in 1969 to 27 percent in 2010 and can be expected to decline further.

- **Urbanization and spatial redistribution.**

Urbanization has occurred at a rapid rate since 2000 with Ulaanbaatar's population growing at 4.2 percent per year while the rural population has declined by -1.9 percent on average. This has resulted in Ulaanbaatar's share of the total population rising to 44 percent and the urban population increasing to 68 percent of the total. The rural population has correspondingly declined from 43 percent of the total in 2000 to 32 percent in 2010. In numerical terms, the rural population has declined by 180,000 people over this decade. Aside from Ulaanbaatar, only five aimags have gained population over the past decade and these are all areas in which mines are in operation or under development. At the regional level, however, all regions have been losing population share while Ulaanbaatar's population share has increased rapidly. Rural-urban migration is the principle cause of these population shifts. Some of this migration is return migration of people who had previously migrated from Ulaanbaatar to the rural areas during the economic transition.

- **The demographic transition in Mongolia.** The mortality transition has lagged behind the fertility transition, which is the reverse of the normal pattern. This is a result of high adult male mortality, resulting in a wide gap between female and male life expectancy. NCDs, related to such lifestyle factors as alcohol and tobacco use, high fat consumption and lack of exercise are the principal causes of high adult male mortality. The fertility transition has reached the stage where the birth rate will tend to fluctuate but possibly not fall below the replacement level again. Uncertainty about future fertility trends is one of the key population challenges facing Mongolia, especially as the Population will be entering a period of rapid population ageing in the next few years.

## Chapter 2 – The impact of population trends on socioeconomic development

- **Population “pressure” on human resources development, labour markets and infrastructure.** Annual population increments dropped from a high of 59,000 in 1986 to a low of 17,000 in 1993 followed by an increase to 45,000 in 2009. As a result, population pressure has been variable over the period. Despite these annual variations, population growth continued at a moderately fast rate, particularly in the 15 and over age group during the 1990-2010 period (an average rate of 2.4 percent). The core working age group also grew erratically but

increased at the slightly lower average rate of 2.2 percent per year. This rate of growth would have been sufficient to place considerable pressure on labour markets, particularly during a period of economic shocks and major structural change in the economy.

- **The economy has not absorbed labour force growth.** Although comparative data from 1990 are not available, the period 2000-2010 did not witness significant growth in the economically active population. Although the economically active population increased from 944,083 to 1,075,790 over the period (an increase of 13.9 percent) the economically inactive population increased by 43.1 percent—from 580,289 to 830,189. Of the total increase in the 15 and over age group over the decade (381,597), only 35 percent became economically active while 65 percent moved into various economically inactive categories. Of these, 129,491 (approximately 52 percent) became enrolled in educational institutions, while another 12.4 percent reported being “unable to find a suitable job”. By 2010, a total of 121,519 persons aged 15 and over reported that they were unable to find suitable work and had therefore dropped out of the labour force. This is in addition to the 164,110 persons who were unemployed according to the standard definition. Census data indicate that the standard (“narrow”) unemployment rate was 15.3 percent while the “broad” or extended unemployment rate (including discouraged workers) was 23.9 percent. While it is clear that the

economy grew at a rapid rate over the 2000-2010 decade, this growth did not produce sufficient jobs to ensure that all those who were willing and able to work could find employment.

- **The labour force participation rate has declined.** In 2010 the labour force participation rate was 56 percent of the population aged 15 and over, a drop from 62 percent in 2000. Much of this decline is accounted for by the increase in the number of persons attending educational institutions (up 76 percent) and the number of willing workers “unable to find a suitable job” (up 35 percent), but other categories such as “pension and income recipient” and “disabled” have also increased. The expansion of educational opportunities has clearly played a significant role in absorbing the increase in the working age population over the past decade and this will contribute to raising the quality of human resources in the future. However, significant supplies of “surplus labour” are present in the economy.
- **The “first demographic bonus” is not being realized.** A low proportion of dependents and, conversely, a high proportion of working age people in a population should provide a favourable environment for economic development and employment growth. In Mongolia the working age population was 58 percent of the total population in 1989 but by 2010 it had increased to 72 percent, resulting in the lowest dependency ratio in six decades. The dependency ratio has dropped by 50 percent since 1975. Other things

being equal, this demographic trend should have facilitated job creation by reducing the dependency burden on the economy and families, thus providing more resources to improve the quality of the labour force and invest in productive enterprises. Although it is clear that investment in human resources has been made, it has not thus far translated into significant employment growth. Part of the reason for this is “structural” unemployment—meaning that job vacancies and unemployment co-exist because the unemployed do not have the skills that the labour market requires. There is clearly a need for improved human resources planning.

- **Economic growth has exceeded population growth.** Mongolia’s GDP has increased at an average rate of 10.6 percent per year, while the population has grown at 1.5 percent per year. Consequently, per capita GDP has also increased rapidly—at over 9 percent annually. Using “counterfactual conditional” logic, a higher rate of population growth during this period would (at least arithmetically) have translated into a lower rate of growth in per capita income. For example, if the rate of population growth had been 2.5 percent instead of 1.5 percent, per capita income would have been about 13 percent lower than it actually was. On these grounds it can be argued that Mongolia’s rate of population growth was conducive to a high rate of per capita income growth, although the main factor is obviously GDP growth caused by the rapid increase in export revenue from mining. However, given

persistently high open and “disguised” unemployment it would appear that the high rate of increase in per capita income has not contributed to broad-based improvements in the level of living.

- **Poverty has decreased in 2011 but remains high.** Between 1995 and 2010, the official poverty headcount ratio increased from 36 to 39 percent of the population while the poverty gap ratio remained unchanged. The Gini coefficient of income distribution remained unchanged from 2002 until 2010. These figures suggest that during the recent period of rapid economic growth, income distribution remained much the same and the poor and unemployed remained about the same as a proportion of the total population. In 2011 the official poverty head count ratio dropped by 9.4 percentage points to 29.8 percent. The causes of this sudden decline are not presently known and much more analysis of the data sources would be required to explain it. In this context, the main point is that poverty has remained high over more than a decade. Furthermore, rural poverty is significantly higher than urban, despite rapid urbanization over the same period. There is evidence that poverty is highest among larger households, suggesting that high fertility at the household level may contribute to poverty.
- **Human development has improved.** Although unemployment and poverty has remained at high levels, some dimensions of human development have improved, despite population

growth and the economic transition. Mongolia’s Human Development Index dropped from 1985 to 1995, as might be expected but increased after 1995. Between 1995 and 2011 the HDI has improved by 26 percent (from 0.519 to 0.653) with Mongolia scoring particularly well on education and literacy. Mongolia’s present HDI compares well with Asian developing countries that have higher per capita income. Mongolia’s health delivery system has gone through structural change from a hospital-based system to a primary health care approach with a significant increase in the number of private hospitals and clinics. The ratio of doctors to population has been maintained, although the number of nurses has declined. The number of hospital beds increased by 7 percent per year between 2003 and 2010, well above the rate of population growth. The overall improvement in the health status of the population (as measured by infant and child mortality, immunization rates, etc.) is an indication that health care delivery has adapted to population pressure. It is likely that the moderate to slow rate of growth in the general population after 1990 has helped the health care system to adjust.

- **Urbanization, rural-urban migration and the demand for housing.** The demand for housing in urban areas, and particularly in Ulaanbaatar, has out-paced the supply, leading to a deterioration in housing quality. This is not surprising given the rapid pace of urbanization. The number of households has increased faster

than population growth, suggesting the greater nuclearization of living arrangements. The types of dwelling that has increased at the most rapid rates has been houses that are not fully equipped with utilities and houses not otherwise conforming to housing standards. The population living in gers has increased at a faster rate than the population since 2000. Proportionally, fewer people lived in gers in 2010 than 10 years previously but there were 47,200 more households in gers in 2010 than in 2000 and gers still made up the majority of housing types. The principle problem with gers in urban areas is their lack of services and air pollution caused by their poor heating systems. Access to adequate housing may be deteriorating as house and apartment prices are increasing as demand exceeds supply.

- **Urbanization and the environment.**

The rapid pace of urbanization has contributed to deteriorating environmental quality, particularly in Ulaanbaatar. Ger districts contribute to this due to their inadequate sanitation, heating arrangements and poor treatment of waste. Air, water and soil quality have all deteriorated in recent years. Respiratory and infectious disease through polluted air and water are either increasing or stable. In this regard, health services are not keeping up with the increased incidence of environment-related sickness. To date, these conditions do not appear to deter rural-urban migration, probably because migrants believe that the long-term benefits outweigh the short-term costs of poor living conditions.

- **Social services and the social security of the elderly.**

The transition from a socialist to a market-based economy was particularly hard on elderly people. In the 1990-95 period, population growth in the 60 and over population became negative. And population growth in this age group stalled. This was mainly due to decreasing life expectancy among males. Major reforms to the social protection system were implemented in the early 1990s. Both the number of beneficiaries and total expenditure have increased significantly over the last five years. The number of beneficiaries of the state welfare pension and the social insurance fund pension is currently well above the population aged 60 and over. Benefits have been increasing above the rate of inflation. Thus, the social security of the elderly has more than responded to demographic pressure, which has been minimal during the past decade.

- **The “second demographic bonus” is not being realized.**

The second demographic bonus *potentially* arises as the working-age population accumulates assets from their current earnings to support their consumption in old age. This provides a “bonus” to the economy because the accumulated assets can be invested in productive enterprises, thus maintaining the rate of economic growth and creating jobs. It would appear that the accumulation of assets for retirement purposes is not occurring, at least on the part of the state. There may well be private savings being accumulated for this purpose but there would not appear to be a

specific retirement savings programme. Although the social insurance pension is a contributory scheme and is in theory a “fund” the contributions to the fund from current employees do not cover the payments being made to retirees. The shortfall in contributions is made up by the state from its revenues. The social welfare pension is a non-contributory scheme and is therefore a direct social transfer programme and no assets are accumulated. In short, the second demographic bonus is not being realized.

### Chapter 3 – Future population prospects and policy implications

- **Projection scenarios for Mongolia.** The NSO has constructed three future population “scenarios” for Mongolia’s future population trends from 2010 up to 2040. These are labeled the “high”, “medium” and “low” scenarios on the basis of the fertility assumptions employed. The high scenario assumes the continuation of the current level of fertility (between 2.5 and 2.6 children per woman); the medium scenario assumes a gradual decline over the projection period while the low scenario assumes a faster decline in fertility over the three decades up to 2040. All three projections assume that there will be net immigration (although at a declining rate) and that life expectancy will continue to increase. It is further assumed that the gap between male and female life expectancy will narrow only slightly from about 9 years at present to about 8 years by 2040. The

difference between the projections is solely determined by the different fertility assumptions.

- **Projection results.** All three projections show the population of Mongolia reaching 3 million between in 2017 or 2018. To reach 4 million would take until 2038 under the high scenario and 2040 under the medium scenario. Under the low scenario the population would not reach 4 million within the projection period. Assuming that the assumptions of the medium projection come to pass, the population of Mongolia will increase by approximately another 1.4 million people between 2010 and 2040. However, the pace of population growth would slow down over this period—from about 1.7 percent per year at the moment to 1 percent by about 2037. However, none of the projections suggest that Mongolia will have either negative growth or a declining population by 2040. In this respect Mongolia differs from a number of other Asian countries which face the prospect of negative growth rate and a declining population within 50 years. However, it is not very likely that Mongolia will reach a population of 5 million before 2060 if that growth were to be achieved by natural increase alone and possibly not even then. Only a significant level of immigration would produce a population of 5 million within the next 50 years.
- **Changing age structure will be Mongolia’s main future population challenge in the future.** While the population is projected to increase by another 1.4 million people before

possibly stabilizing, this growth will not be evenly distributed across all age groups. Most population growth beyond 2010 will occur in the 15 and over age group. The under 15 population will continue to grow for the next decade but virtually level-off after that. The labour force population (15-64) will continue to grow for the next three decades but will remain stable as a proportion of the total population. The 65 and over age group will grow faster than any other group in the future by a large margin. This age group would possibly increase by three and a half times between 2010 and 2040 if the medium fertility assumption turns out to be accurate. Consequently, the aged dependency ratio will increase rapidly over the coming decades.

- **Future population increase will occur in a series of "waves"**. Because of the uneven age structure caused by the rapid decline in fertility from the late 1980s to about 2005, future population trends will follow "wave-like" patterns. The older population will be unaffected but younger groups, beginning with emerging birth cohorts will fluctuate in size through time. The number of births will fluctuate from a high of about 62,000 per year to a low of 54,000 as the proportion of mothers in the population also fluctuates. Similar fluctuations will occur in the younger labour force age groups.
- **The future scale of rural-urban migration and urbanization is uncertain.** High levels of rural-urban migration fuel urban growth but

must eventually decline unless rural fertility remains significantly higher than urban, thereby providing a continuous source of new migrants. This is unlikely to occur in Mongolia. Fertility expectations in rural areas are not much higher than in urban areas. Simulations that assume a continuation of rural-urban migration and high population growth in Ulaanbaatar result in Ulaanbaatar having 71 percent of the total population of Mongolia by 2030 with another 24 percent in other urban areas, leaving only 5 percent in rural areas. This extreme level of urbanization cannot be taken as a realistic possibility but highlights the very high rate of urban growth over the 2000-2010 decade. A slow-down in urban growth can be expected even in the absence of urban decentralization policies. With such a high level of urban "primacy", policy interventions may be difficult or costly to implement.

- **Policy challenges of future growth:**
  - Although fertility has returned to well above replacement (the TFR reached 2.6 in 2011) it cannot be guaranteed that fertility will remain at or near this level in the future. Policy measures to maintain the TFR in order to offset the effects of ageing will need to be considered;
  - To take advantage of the first "demographic bonus" development policy needs to focus on employment growth to absorb the present surplus labour into the economy and to absorb future increase;

- To take advantage of the “second demographic bonus”, a pension fund or capital wealth fund would need to be created, earnings from which would cover future pension expenses; policies to encourage personal savings could also help.
- The drivers of rural-urban migration need to be addressed, namely poverty and poor access to employment and services;
- The rapid pace of ageing will place pressure on social services, especially pensions and healthcare. Medical services will need some re-direction toward gerontology. Expanded facilities may be required for the destitute elderly or the oldest-old population suffering from incapacity and limited mobility. The high proportion of widows in the elderly population will pose a particular challenge for caregivers.
- Social and economic planners need to be aware of the wave-like patterns of growth that are expected in the future. These patterns can be expected in the number of births and the young labour force ages and will continue for many years.

## Chapter 4 – Conclusions and policy recommendations

- **Issue 1: Population and development interactions.** This paper has demonstrated that population and socioeconomic development are in a reciprocal relationship and mutually influence one another.

While population patterns can impact on development, the reverse is also true. These relationships have not been carefully studied from a holistic perspective in Mongolia. To better understand the inter-linkages between population and development much more applied research is needed. For this reason it is recommended that the Government establish a population research unit in the Ministry of Population Development and Social Protection. The unit would be assigned the tasks of improving the knowledge base on population and development linkages, supporting the integration of population issues into development planning and improving the quality of policy dialogue on population issues. It is also recommended that the 2004 National Population Policy be revised and up-dated.

- **Issue 2: The fertility transition.** Evidence presented in this report suggests that the decline in the Total Fertility Rate to below replacement level in 2005 was temporary and does not indicate that Mongolia will have long-term sub-replacement fertility like many Asian and European countries. However, there is no guarantee that this proposition is correct. Accordingly, it is recommended that the Government monitors fertility patterns and trends closely and study their determinants. Several countries in Europe and Asia have implemented policies aimed at raising fertility above replacement. In Mongolia the challenge is less daunting, namely to maintain the TFR at or near its present levels. Policy measures to accomplish this need to be reviewed

and carefully designed. In particular, the child allowance programme needs to be studied carefully to determine its impact on fertility and mother and child welfare.

- **Issue 3: The mortality transition.** The wide gap between male and female life expectancy is a cause for concern. Aside from shorter lives for men it deprives women of a partner in their old age. The primary reason for male life expectancy being significantly lower than female appears to be the high mortality rates of middle-aged men. Lifestyle factors such as tobacco and alcohol consumption, a low level of physical exercise and high dietary consumption of animal fats contribute to the Non-communicable diseases that underlie higher male mortality. It is therefore recommended that the Government strengthen public health programmes to address NCDs by encouraging healthy behavior among men.
- **Issue 4: Age structure and the demographic bonus.** As indicated in this report, neither the first nor the second demographic bonuses are contributing to socioeconomic development in Mongolia. Measures to address the first demographic bonus are primarily macro-economic in nature rather than demographic. The challenge is how to create an economy that produces jobs (“job-rich” economic growth). To meet this challenge the obstacles to employment growth need to be understood and removed. The related challenge is to improve the quality of human resources planning

so that labour supply and demand are harmonized. Social programmes to address the unemployed and unemployable population may also be needed. To achieve the second demographic bonus requires action on the capital side, namely to facilitate the accumulation of assets to fund future retirement, including the establishment of a superannuation fund.

- **Issue 5: The urban transition and the spatial distribution of population.** Mongolia has experienced a population “implosion” over the past decade with almost all population increase concentrated in Ulaanbaatar. This has resulted in a high level of urban “primacy”, with little population growth in other urban centres. Ulaanbaatar’s infrastructure is inadequate to cope with population increase of 4.2 percent annually, together with increasing incomes. As a result, housing standards and environmental quality have deteriorated. Despite these negative consequences, Ulaanbaatar continues to provide better opportunities for poverty reduction, employment, education and other social services than rural areas. A high level of urban primacy in developing countries is not unusual and Mongolia is not unique. Urban primacy is driven by the economies of scale and the benefits of “agglomeration”—the clustering together of industries that provide services to each other and trade goods between them. Despite the problem of congestion, a city of 1 million provides efficiencies in the production of goods and services that cannot be provided in smaller cities and towns. The re-

direction of rural-urban migration to other cities is constrained by the fact that Mongolia has not developed an urban hierarchy of cities and towns of different sizes. The next smallest town after the capital has only 7 percent of the population of Ulaanbaatar and is therefore unable to provide the range of industries and services that would attract businesses and migrants. There is no easy policy response to urban primacy, but it is recommended that the Government review the “lessons learned” in other developing countries that have attempted to re-direct internal migration away from their primate city. The Government should also review its regional development strategy to address the other side of rapid urbanization—the relative and absolute decline in the rural population, given the role of nomadic animal husbandry in Mongolia’s culture. Ways need to be explored to ensure that this form of life is maintained.

- **Issue 6: Ageing and social security.** Ageing will present a major challenge to Mongolia’s economy and society in the coming decades. One policy response has already been mentioned, namely to monitor fertility trends and to prepare measures to ensure above-replacement fertility. This includes a review of the success (or otherwise) of programmes implemented in ‘ultra-low’ fertility countries. Given that new population projections have been prepared by NSO, it would also be useful to examine these projections in more detail to determine the possible future costs of social welfare and social insurance pension arrangements and

the effects on government expenditure. While the 2009 National Strategy on Population Ageing is relatively recent, a review of the implementation of the strategy is now due and should be carried out. The strategy may need to be revised in the light of the new population projections.



## Introduction

The purpose of this report is to describe the evolution of population patterns and trends in Mongolia and to explain the implications of these trends for socioeconomic development and public policy. In particular, the paper will identify and provide a rationale for various policy options that the national government, in collaboration with other stakeholders, may wish to adopt to address the key population and development issues facing Mongolia in the coming decades. To accomplish this task it is important not only to review the recent demographic history of Mongolia but also to look at the projected population trends in the future. Although it is not possible to predict future population change with certainty, it is possible to assess the probability of certain trends occurring and to some extent to modify those trends where they are inconsistent with the public or national interest.

Before describing key aspects of Mongolia's demographic history and its present status, it is important to have some understanding of the general framework that demographers and economists use to research the relationship between population change and socioeconomic development. The following section provides a brief overview of this framework. This discussion concludes by stressing the importance of

the national context in understanding how population and development are linked. In the section that follows, some key aspects of Mongolia's development as a nation state are described and their relevance to population is explained briefly.

### Population and development linkages

To understand how population trends and processes are related to socioeconomic development in any country it is first necessary to identify the key variables on the population side on the one hand and the development side on the other. Once these variables have been identified it is then possible to explain the linkages between them. Given these potential linkages it is then a matter of investigating and explaining how these relationships have operated in a specific national context. Box A provides a simple compendium of the variables that are normally taken into account in such an analysis and will be employed in this paper.

According to the classical theory of the relationship between the population and development, population growth above a certain level reduces the rate of capital accumulation, hence economic growth, by reducing the *per capita* availability of productive resources. 19<sup>th</sup> century economists focused mainly on agricultural land and it was assumed that there was a

limit to how much food could be grown in a given area. Population growth would result in the most fertile land being used up first. With further population growth less productive land would need to be utilized, thereby reducing the yield per area. Increasing population pressure on the land would reduce the food available per capita eventually resulting in starvation as the population outgrew its food supply. In turn this would increase the death rate and hence the population growth rate. This cycle is sometimes described as a

population “trap”.

But productive capital goes beyond land and includes equipment and machinery and the natural resources required to produce them. Even if food production keeps pace with population growth, it is possible that natural resources other than land (minerals and fossil fuels) would become increasingly scarce or costly, leading to a reduced rate of capital accumulation and therefore a slower pace of economic growth and development.

### Box A: Key dimensions of population and development

Population	Socioeconomic development
Population <b>growth</b> (rate) and its determinants: <ul style="list-style-type: none"> <li>• Fertility</li> <li>• Mortality</li> <li>• Migration</li> </ul> Population age-sex <b>composition</b> <ul style="list-style-type: none"> <li>• Main age groups by dependency/ activity status (workers and dependents and various sub-groups)</li> </ul> Geographical <b>distribution</b> <ul style="list-style-type: none"> <li>• Rural-urban</li> </ul>	Economic <b>growth</b> (rate), total and per-capita (GDP/GNI) and its determinants <ul style="list-style-type: none"> <li>• Capital accumulation</li> <li>• Quality of human resources</li> <li>• Productivity</li> </ul> Availability of Public <b>services</b> <ul style="list-style-type: none"> <li>• Health</li> <li>• Education</li> <li>• Social (welfare) services</li> <li>• Infrastructure</li> </ul> <b>Environmental</b> quality, sustainability, <ul style="list-style-type: none"> <li>• Habitat</li> <li>• Natural Resources</li> </ul>

Another mechanism by means of which population growth reduces the rate of economic growth, according to general theory, is by the diversion of financial and other resources away from productive use towards welfare expenditure. Where population growth rates are high, the number of dependents in a household relative to the number of producers (workers) will be high and possibly increasing. Under such conditions, all

available household resources will be used up in providing basic welfare (health, education and housing) support to children leaving little or no funds available for saving. With a low rate of savings, the accumulation of financial capital will also be low thus reducing the rate of capital accumulation and productive investment.

A related process concerns the accumulation of “human capital”. Human

capital refers to the education and skills possessed by a labour force. Under conditions of rapid population growth, households and the state find it difficult to provide more than a basic education to children. Investment in education is merely “demographic”, meaning that increasing resources are committed simply to maintain the current average quality of the labour force. Thus, where the number of labour force entrants is growing as a result of population growth, it is very difficult to improve the quality of the labour force. The quality of a labour force (in terms of its standard of health, general education and specific occupational skills) is central to modern economic growth. In an industrial economy a healthy, educated labour force is more likely to attract capital than an uneducated one.

The need to provide basic health and education services to growing populations is another process by which population growth diverts public resources away from productive use to less- or non-productive use with the result that economic growth suffers. Population growth may add stress to systems of service delivery that are often already stressed by other factors.

With the rate of population growth declining in many developing countries as a result of the fertility transition, the focus of demographic-economic studies has shifted to the development implications of the age structure. An age structure that is most conducive to economic growth and development is one in which the working age population is increasing relative to the population of dependents. Where the number of children has declined due to a drop in fertility, but the elderly

population is still a small proportion of the total, a so-called “demographic window of opportunity” will be opened. Eventually this “window” will close as the elderly population increases in number and proportion. The demographic window facilitates the accumulation of investment and human capital and thereby contributes to economic growth. This process has been described as a “demographic bonus” or “demographic dividend” (Mason and Lee, 2007).

As a population ages, another potential “bonus” appears. In anticipation of retirement, especially where state pensions are minimal, working age people can be expected to accumulate savings. These savings provide capital for investment in productive enterprises. This investment will in turn contribute to employment and economic growth. This process provides a “second demographic bonus” to the economy. Unlike the first demographic bonus, which will eventually disappear as the aged dependency ratio increases, the second demographic bonus is permanent. The concepts of the demographic window and the first and second bonus have become an integral part of the population-development framework.

Over recent decades, the impact of population growth on the natural environment has emerged as a key population-development issue. Even assuming that all the impediments to economic growth can be overcome, economic growth under conditions of rapid population growth requires the utilization of ever-greater quantities of natural resources. Depending upon the production techniques in use and the

existence and application of environmental regulations, the result may be the despoliation of the natural environment, reflected in polluted waterways, reduced air quality, higher levels of carbon-dioxide in the atmosphere, the loss of species, and reduced access to natural wilderness.

The relative impact of population growth on these socioeconomic and environmental variables depends significantly on its rate. At the level of whole countries, and excluding the effects of international migration, a population growth rate above 2 percent per year is generally considered to be "high". In developing countries passing through the "demographic transition" from high to low population growth, growth rates of over 3 percent per year are common, although the number of countries with a growth rate above 3 percent is declining rapidly.

### Limitations of the "general theory"

The general theory of population and development is a plausible account of what has happened in many developing countries over the past 60 years. However, several decades of research have revealed that these processes and effects are not inevitable—at least at the level of the nation-state. The key factor that determines the ability of a country to avoid a cycle of rapid population growth and a low and stagnating level of development is the overall context of development at the national level. That context includes a wide range of economic, social and cultural factors. For example, the general theory was originally formulated in, and still applies most obviously to, agricultural societies in which

the primary output of households is food and in which population density is already high relative to the available production technology and the quality of land. Under such conditions, rapid population growth may result either in a steady-state of low per capita income or an actual decline in the level of living. This phenomenon is sometimes described as a "population trap".

In agricultural societies that are richly endowed with good quality of land, and where land is equally available to all, population growth may result simply in the expansion of the area of cultivation without a significant deterioration in the average level of living. In other words, total output will increase but per capita output will be static and there will be little or no "development", understood to include the capacity of a country to produce more complex goods than food.

Countries that have been able to absorb rapidly increasing numbers of people while simultaneously experiencing an improving standard of living are generally those that have adaptable institutions that are able to increase productivity and efficiency often by finding economic opportunities in the global marketplace.

The ability of the world as a whole and various individual nation-states to avoid the consequences described in the general theory is closely related to the development and application of *technology*. The development of agricultural technology, for example, explains why food output has in fact kept pace with population growth and the population trap has been avoided.

But the general principle holds in a range of other areas. As a result of improved health technology, for example, similar health outcomes can be achieved at much lower cost than in the past. A high quality of life does not necessarily require per capita incomes equivalent to those of the most developed nations because medical technology has become cheaper and more efficient.

While population change (particularly growth) can impact on development, it is also the case that the level and nature of development can impact on population. The key challenge for countries seeking to raise incomes and enhance the quality of life is to create a “virtuous circle” in which development takes a form that produces positive population outcomes that in turn foster and promote a higher level of development. It will be apparent from this paper that the adoption of appropriate development policies, including population policies, can contribute to this goal.

### **Mongolia’s evolution as a nation-state**

Given the role that the national context plays in population-development relationships, it is important to provide a brief overview of Mongolia’s development as a nation-state and to note, in particular, the implications of this development for demographic issues.

Taking into account the scale of the Mongol Empire, which at one point encompassed a population of 100 million people and formed the largest contiguous land empire in world history, it is evident that the Mongolian people have a history that is possibly unequalled

among the world’s civilizations in terms of its achievements in warfare, culture, public administration and geographical scale. However, the history of the modern nation-state of Mongolia dates from its formal declaration of independence in 1911 and obviously encompasses a much smaller group of people than during the empire period. During the first decade of nominal independence, Mongolia was governed by a form of theocratic rule under Buddhist leadership. When independence was again declared in 1921 it was under a secular administration. Mongolia’s independence was fragile up until the 1940s.

Mongolia’s political economy from the 1920s to the late 1980s was essentially determined by the application of communist principles to a society that in no way resembled the European industrial societies in which these principles had been developed. Government policies largely followed Soviet practices, including collectivization of agriculture and herding, the purging of real or perceived political opposition and the destruction of religion. There is little doubt that these traumatic events would have had major effects on demographic processes in Mongolia, although these are not well documented.

In communist societies, the combination of the single-party state and the command economy provides the government (in effect the party leadership) with unprecedented control over population processes, particularly internal migration and fertility levels. In the absence of a “socialist” theory of population it was up to the leadership to decide what population patterns provided a positive reflection on socialism as a system. As

socialist practice evolved, specific policies changed but the control of the state was constant. The tools available to the state largely consisted of the control of internal movement (movement outside the country was restricted), policies toward marriage and family (e.g., whether divorce was easy or difficult) and the provision or restriction of contraception and abortion. Many of these policies were applied in Mongolia (see Box B)..

### **Geography, climate and economy**

Geography and climate are the predominant factors that determine the character of Mongolia as a society and culture and have an impact on its demography and economy. Despite the immense land area of Mongolia (1.6 million square kilometres), the supply of arable land is limited, constraining the development of a settled, large-scale agricultural mode of production. Nomadic pastoralism has been the preferred mode of production since prehistoric times and crop cultivation has been of much lesser importance. Nomadism was an appropriate adaptation to a harsh climate and widely distributed pastures. The low population density found in countries in which much of the land is made up of steppes, mountains and desert is due to the low carrying capacity of the land, not to other factors that might retard population growth. In fact, nomadism

is usually accompanied by a distinctive demographic pattern in which the number and spacing of children is deliberately controlled to ensure that mothers are not excessively burdened by the need to travel with young, breast-feeding children, whose survival may be threatened. Infanticide and long periods of post-partum abstinence are characteristic of such societies. Sedentarisation of such groups usually results in an increase in fertility, although previous practices may persist if the population is facing resource scarcity.

The constraints imposed on Mongolia's economic development by nomadic pastoralism began to be overcome in the 1930s as a result of Soviet support in the creation of an economy based on settled agriculture, mining and industry (Worden and Savada 1991; Bawden, 1989). At the same time, Soviet approaches to social development, including the provision of health and education services were applied, supported by large-scale financial subsidies. As in the Soviet Union, a growing labour force was considered essential for successful industrialization. As late as the 1960s, when the negative effects of rapid population growth on economic development were becoming recognized in other world regions, Mongolia was employing pro-natalist policies to increase the population growth rate (See Box B).

## Box B: Pronatalist policies from the socialist period

*The Third Five-Year Plan (1961-65) included a pro-natalist policy aimed at achieving rapid population growth. A number of child-bearing incentives were sanctioned by formal laws, and the Women's Union, a Government agency, was given responsibility for promoting large families. Women who had had more than eight children received the Mother's Glory Order Grade 1; Grade 2 was bestowed if they had had five children. These women received cash allowances and other benefits, including the right to retire at age 50 years. The labor code protected the rights of working mothers and ensured them financial assistance. A tax was levied on unmarried adults and childless parents. In 1969, the import, distribution and use of modern contraception were prohibited by law, and strict criteria were imposed for abortion and sterilization (Neupert, 1994).*

Policies of this type are generally only associated with Soviet-style industrialization, a mode of production that was particularly labour-intensive. There was also a political element in the context of the Cold War in that significant population growth was taken as a sign of the economic superiority of the communist system. As will be noted in this report, the high level of fertility engendered by such policies was not sustainable, even prior to the collapse of the Mongolian economy after the withdrawal of Soviet subsidies and other economic supports in the early 1990s.

Mongolia's economic structure has changed substantially since the socialist period and the present structure will be described later in this report. The main point to emphasize here is that population issues have to be understood in the context of a country's social and economic system. An urban, industrialized economy and society will be associated with specific demographic patterns. An agrarian

economy will tend to have different patterns, although much will depend on the form of land ownership and the extent of social inequality. At the same time, political factors may also play a role, as when the state chooses to intervene in what many consider the private sphere of family and reproduction.

Mongolia's present population situation is in part a function of the legacy remaining from the social, economic and demographic policies of the Socialist period and in part a function of recent trend in its political economy. Although Mongolia is often described as a "developing" country, its demographic transition from the post-World War II period is not typical of developing countries in general. And although it is not officially classified by the IMF as one of the countries "in transition" from a centrally-planned socialist economy to a capitalist-market one (IMF, 2000) that is in fact what the country has been undergoing since the early 1990s. The impact of population change must be seen

in the light of this transformation and the future of population in Mongolia must also be understood in the context of the likely future development of Mongolia's new economy and society based upon the principles of free-market capitalism and respect for human rights.

### **The structure of this paper**

Chapter 1 provides an overview of Mongolia's demographic history. Mongolia's first census as an independent state took place in 1918, followed by a series of censuses conducted at various intervals up to the latest in 2010. This paper focuses mainly on the post-World II period from 1950 onwards. This is the point in time when Mongolia's population began to grow after many decades of stagnation. The key issue is the relative contribution of the main demographic variables (fertility, migration and mortality) to growth. The second issue is the demographic consequences of six decades of population growth. The focus is mainly on the age composition and the geographical distribution of the population-particularly rural-urban distribution.

Chapter 2 explains the relationship between population change (as described in Chapter 1) and socio-economic development. This relationship is a dynamic one in the sense that population change impacts on development and the resulting pattern of development in turn impacts upon population. The key issue is the extent to which past population growth has been absorbed by the economy and society such that the level of living has been maintained or improved.

Following from the analysis of past and recent economic and demographic trends in Chapters 1 and 2, Chapter 3 considers the prospect for further population growth over the next few decades and the potential impact of these trends on socioeconomic development. The baselines for this analysis are the population as of the most recent census in 2010 and the emerging economic structure of the recent past. Future population prospects have been assessed using a series of population projections conducted by the National Statistical Office in 2012. The chapter will also consider the policy implications of the most likely future demographic and economic trends.

Chapter 4 will summarize the preceding analysis and outline the policy options that are potentially available to the Government in collaboration with its development partners. Some recommendations will be put forward, including recommendations regarding issues in need of further analysis. The chapter will conclude by considering whether it is possible to specify an "optimum" population for Mongolia.





## CHAPTER

1

# Demographic Patterns And Trends In Mongolia

**This chapter provides a brief sketch of the main demographic trends in Mongolia. The starting point is the first post-independence population census conducted in 1918, but the detailed analysis mostly commences from 1950.**

### Population Growth

The 1918 census recorded a population of 648,100 (Table 1.1, Figure 1.1). Over the following 32 years the population increased by only 124,300 (less than 4,000 per year)-an average annual rate of 0.8 percent. It was not until the early 1960s that the population reached one million. The second million was reached in the late 1980s. Based on the “medium” population projection, Mongolia’s population will reach 3 million by about 2017. The *de facto* (resident) population as enumerated in the 2010 census was 2.65 million. Another 107,140 Mongolian citizens were reported as living abroad.

**Table 1.1: Population size and average annual rate of growth (%), 1918–2010\***

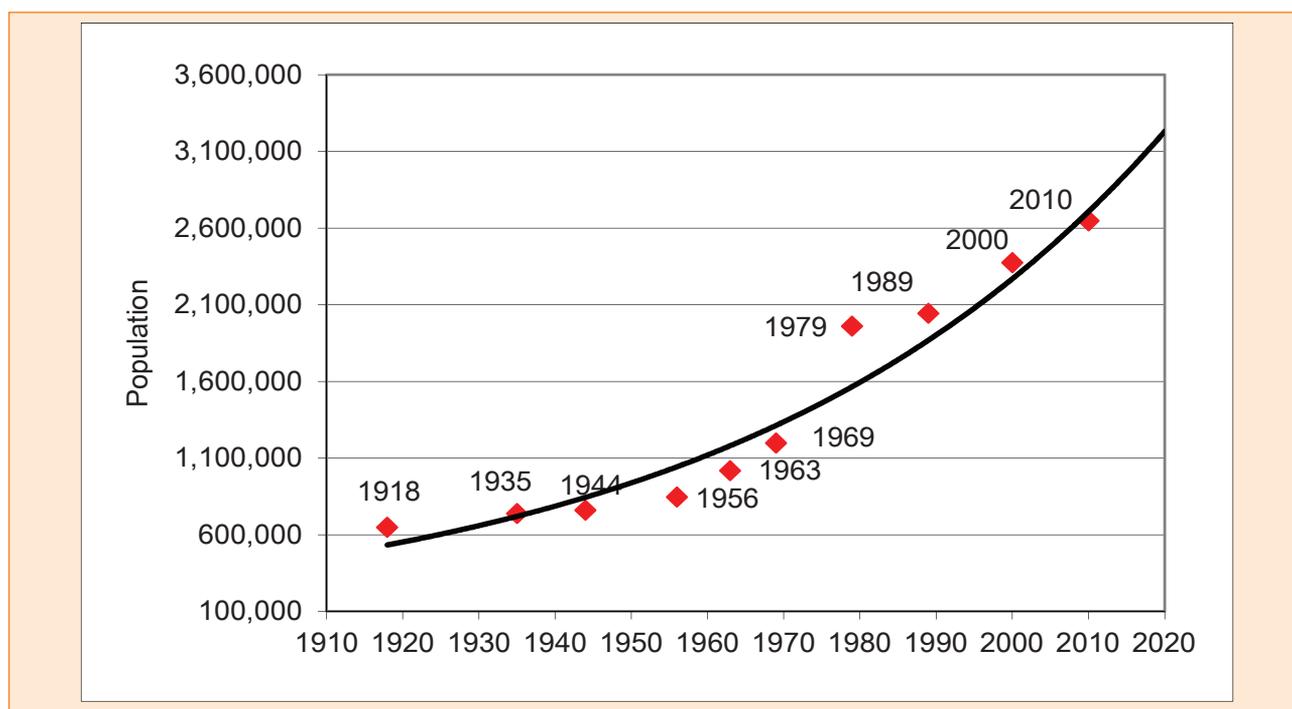
Census year	Population	Rate of growth
1918	647.5	-
1935	738.2	0.8
1944	759.1	0.3
1956	845.5	0.9
1963	1,017.1	2.6
1969	1,197.6	2.8
1979	1,595.0	2.9
1989	2,044.0	2.5
2000	2,373.5	1.4
2010	2,647.5	1.1

*Source:* 2010 Population and Housing Census \*The 2010 population is the residential population of Mongolia. It does not include Mongolians living abroad.

The trend line displayed in Figure 1.1 shows an exponential pattern of growth, which is typical of countries experiencing continuous population growth. The main deviation from an exponential trend is the 1979 census count, which is much higher than would be expected with a normal

exponential growth trend. This is more than likely a function of the rapid increase in fertility that occurred from the 1960s to the mid-1970s. Similarly, the lower than expected census counts in 1956 and 1963 reflect the high mortality levels of this period.

**Figure 1.1: Population growth in Mongolia by census year 1918–2010\***

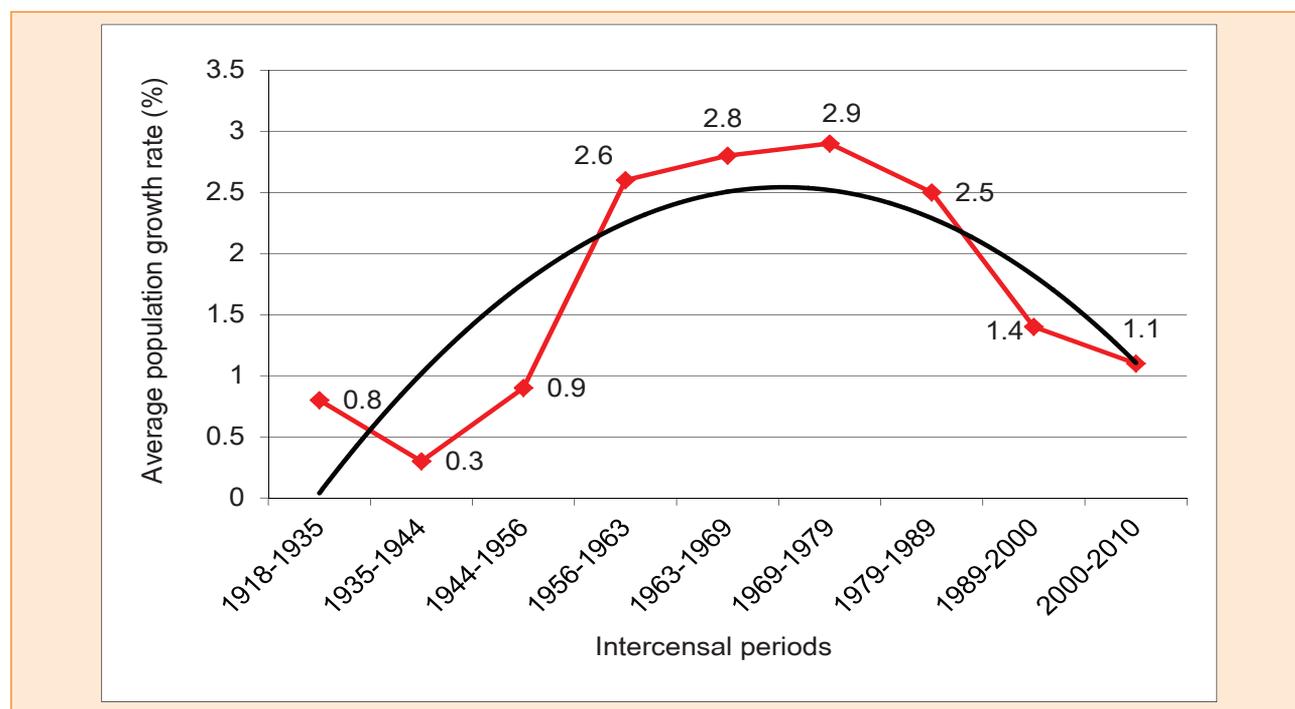


Source: Table 1.1. Trend line shows an exponential growth trend.

As is evident from Figure 1.2, the annual average rate of population growth has fluctuated quite widely since the 1920s-- from a low of 0.3 percent in the period 1935-44 to a peak of 2.9 percent in the 1969-79 decade. Over the 2000-2010 intercensal period, the average rate of growth of the *resident* population has

dropped to 1.1 percent annually. However, there is a clear historical pattern: a period of slow growth up to the late 1950s, a period of rapid increase from the early 1960s to a peak in the late 1970s, followed by a period of slow growth from the late 1970s up until 2010.

**Figure 1.2: Mongolia's intercensal population growth rates 1918–2010\***



Source: Table 1.1. The trend line is based on a polynomial equation.

The overall average rate of population growth in Mongolia from 1918 to 2010 was 1.5 percent per year. This rate of growth is somewhat lower than it would have been were it not for the fact that population growth was very low from 1918 to the early mid-1950s because of high mortality during this period.

The patterns of population growth exhibited in Table 1.1 and Figures 1.1 and 1.2 are similar to those observed in virtually all countries undergoing modernization and industrialization since the 19<sup>th</sup> century. Prior to the introduction of modern public health measures, and given the very low income levels in preindustrial economies, the death rate will generally be high. The birth rate barely exceeds the death rate resulting in a very slow

rate of population growth. In the early stages of development, improvements in the standard of living, including improved education, public health and hygiene, the death rate will begin to decline, sometimes quite rapidly. In the meantime, the birth rate may remain high resulting in a period of rapid population growth. The period of rapid population growth (sometimes called the population “explosion”) usually lasts for several decades as the birth rate slowly begins to decline in response to the decline in the death rate. During the period when the gap between the birth rate and the death rate is very wide, the population growth rate will typically peak at about 3 percent per annum, or possibly higher.

This general historical pattern is known

to demographers as the “demographic transition”. Although not every country follows this pattern exactly, demographic transition theory provides a broad general guide to what can be expected during the process of modernization and development. The general pattern is that the population growth rate is low at the beginning and at the end of the transition and high or very high in the middle.

In the case of Mongolia, the period of rapid population growth lasted approximately three decades—from about 1960 to 1990. Population growth increased rapidly after the mid-1950s, peaked at about 3 percent per annum and then declined rapidly from the mid-1980s. Mongolia’s period of rapid growth was quite short by developing country standards but was not unlike other modernizing countries in Asia and elsewhere. However, there are a number of unique factors in the Mongolian case that will become evident when the determinants of population growth (mortality and fertility in particular) are considered in historical perspective.

### **Determinants of population growth**

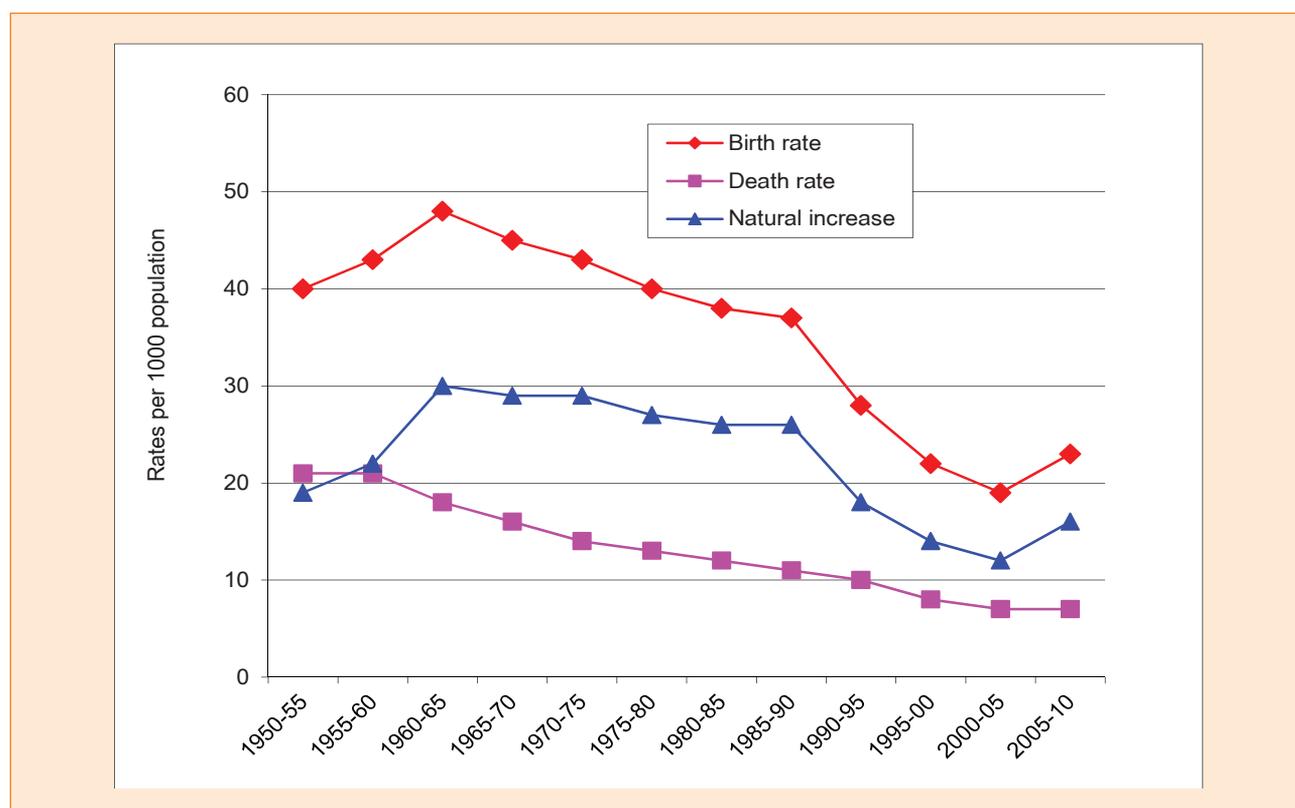
From a demographic perspective, variations in the population growth rate can only result from changes in the birth

rate, the death rate and the migration rate. Historically, each of these factors undergoes its own particular “transition”, sometimes in sequence and sometimes simultaneously. In many countries, the transition from high to low mortality occurs before fertility has begun to decline. Mongolia did not follow this pattern exactly.

### **The mortality transition**

Detailed information on the mortality conditions prevailing in Mongolia prior to the 1950s does not appear to be available. Some sources suggest that prior to independence in 1911 the territory of Inner Mongolia had very low life expectancy caused by particularly high infant mortality and the presence of bubonic plague and venereal disease (Buhe, nd; UNICEF, 1991). The latter may have also have lowered fertility. The high proportion of men living a monastic life may also have contributed to a low birth rate. These circumstances may have persisted well into the post-independence period given that the population growth rate did not rise above 1 percent until the mid-1950s. Brief periods of elevated mortality would also have occurred during the political purges and the destruction of the monasteries during the late 1930s.

**Figure 1.3: Trends in mortality, fertility and natural Increase: 1950-55 to 2005-10**



Source: World Population Prospects: The 2010 Revision, United Nations Population Division, 2011.

It is apparent from Figure 1.3 (based upon data compiled by the United Nations Population Division)<sup>1</sup> that Mongolia's death rate had already declined well below the birth rate by the 1950s, thus contributing to a population growth rate approaching 2 percent per annum. Although the death rate continued declining, particularly from the mid-1950s onwards, the rate of decline was quite slow. It took from the 1950-55 period until 1985-90 period for the death rate to drop by 50 percent—a period of 35 years.

By contrast, China's death rate declined by 50 percent in just 15 years from the same initial level as Mongolia's. China's mortality decline was certainly rapid by world standards and perhaps not a fair comparison, but at least up to the 1990s, mortality declined faster in South Korea and Turkmenistan, as well as in the less developed countries as a group, than in Mongolia. Mongolia's crude death rate is now identical to China's, but China reached there much faster.

The other conclusion to be drawn from Figure 1.3 is that although the fall in the death rate contributed to the increasing rate of population growth rate during the

<sup>1</sup> Data compiled by the United Nations Department of Economic and Social Affairs (UNDESA), population Division, are employed in this paper for international comparisons because the UN ensures consistency of methodology wherever possible. However, the ultimate source of data on Mongolia is the Mongolia National Statistical Office.

1950s, the rising birth rate made a greater contribution. Over the decade between the mid-50s to the mid-60s, the crude birth rate increased by about 20 percent, more than the death rate declined. However, the combination of the two resulted in the rate of natural increase reaching 3 percent sometime in the late 1960s.

In this respect Mongolia's demographic transition differs from the standard model, as previously explained, as well as the experience of a number of Asian countries. Population increase during the 1950s and 1960s was caused not by a stable birth rate and a rapidly declining death rate but by an *increasing* birth rate and a *slowly* declining death rate. As will be discussed in the next section, Mongolia's birth rate was already high (40 births per 1,000 population) in the 1950s before it began climbing even higher, eventually reaching 48 per 1,000 in the 1960s before beginning its slow downward trend. A crude birth rate approaching 50 per 1,000 is extremely high at the level of a whole country and is usually only found among religious sub-groups whose ideology emphasizes women's exclusive role in society as bearers of children.

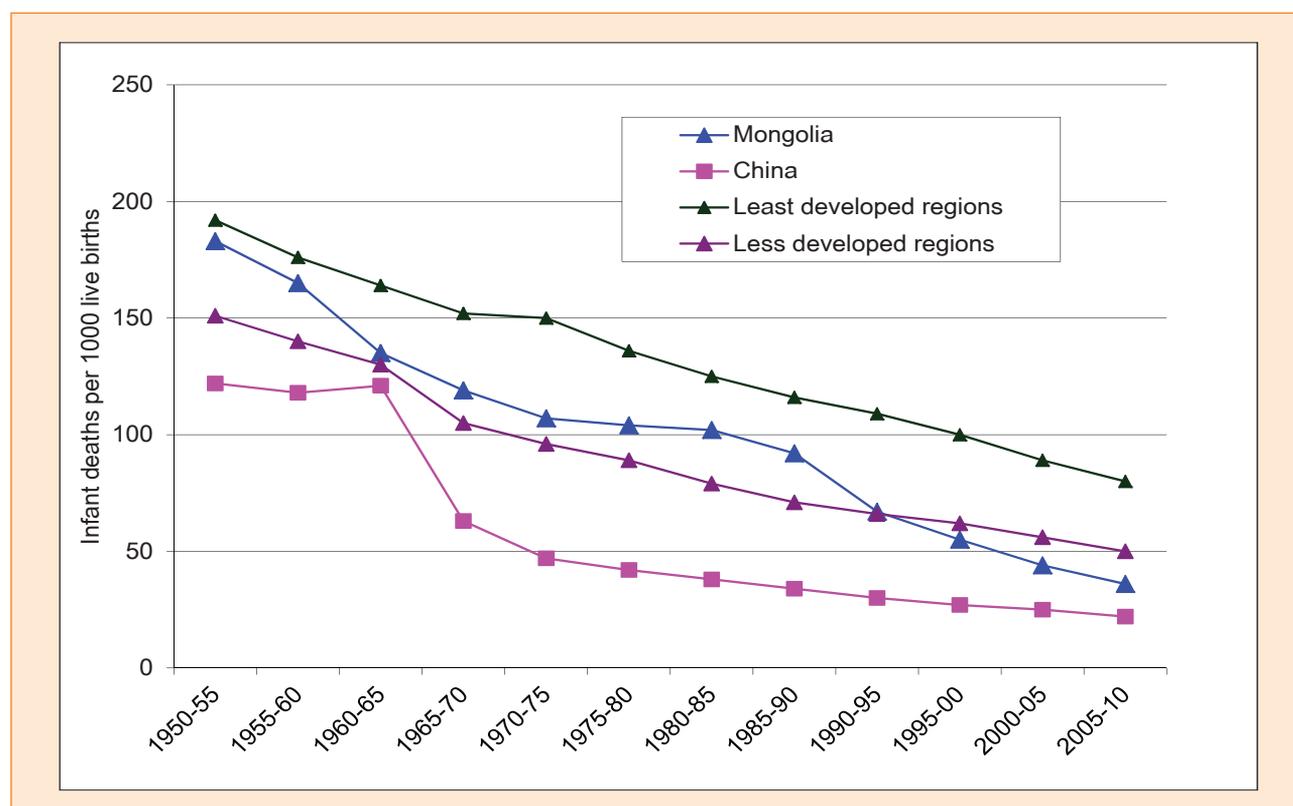
### Infant and child mortality

A further illustration of Mongolia's slow mortality transition can be seen in the

trends in infant mortality. A high death rate in a country is frequently a result of very high infant and child mortality. When overall mortality is declining, it is normally the infant mortality rate (IMR) that declines first. In the 1950s, Mongolia's IMR stood at 183 deaths per 1,000 live births—meaning that 18.3 percent of children died before reaching one year of age (Figure 1.4). This rate was not far below that of the poorest (i.e., "least developed") regions of the world. Like all world regions, Mongolia's IMR has declined steadily over the subsequent 50 years but the rate of decline slowed down significantly from the 1960s to the early 1990s, generally remaining higher than the *less* developed regions but lower than the *least* developed regions. Only in the 1990s did Mongolia's IMR drop below the *less* developed regions and to begin to approach the level achieved by other eastern Asian countries.

It is also useful to compare Mongolia's infant mortality trends with those of China's. While Mongolia's IMR declined faster than China's in the 1950s and 1960s, China's IMR dropped much more rapidly after 1965 and continued to decline through the 1970s and 1980s when Mongolia's IMR virtually stalled (Figure 1.4).

**Figure 1.4: Trends in the infant mortality rate 1950-2010**

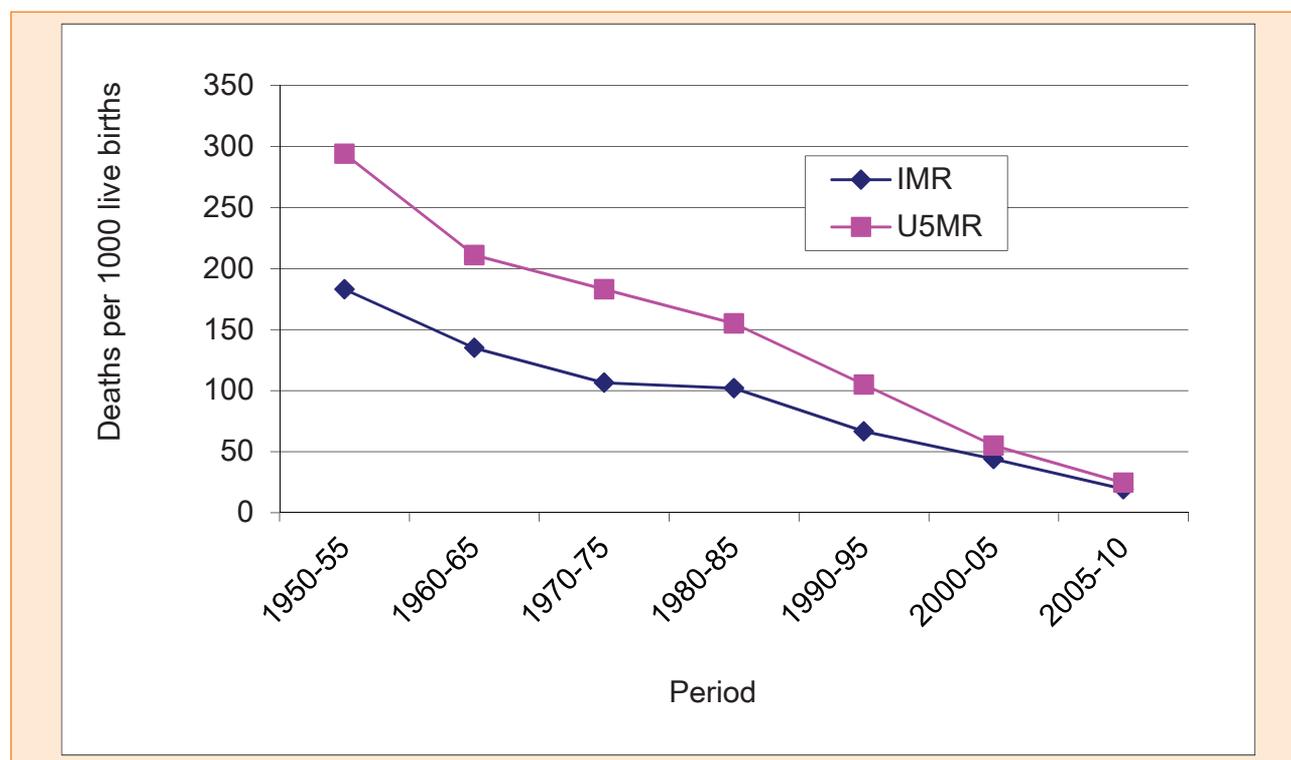


Source: World Population Prospects: The 2010 Revision, United Nations Population Division, 2011.

Another indicator of the Mortality transition is the trends in the under-five mortality rate which is the sum of the infant mortality rate (deaths before age 1) and the mortality rate of children who survive past 1 year of age but die before reaching 5 years of age. Deaths of children prior to age 1 and deaths after age 1 usually have different causes, with older children more at risk of contracting fatal infections from the environment and younger children more vulnerable to circumstances associated with the perinatal period (e.g., low birth weight, birth trauma).

It will be evident from Figure 1.5 that Mongolia's under-5 mortality rate was very high in the 1950s, during which time almost 30 percent of children did not survive to five years of age. The wide gap between the IMR and the under-5 mortality rate shows that deaths in childhood were almost as frequent as deaths in infancy. Over the mortality transition, however, the gap has gradually narrowed to the point where the death rate of children aged 1-4 is very low and almost all deaths under 5 years of age are deaths in infancy.

**Figure 1.5: Trends in the under-5 and infant mortality rates 1950-2010**



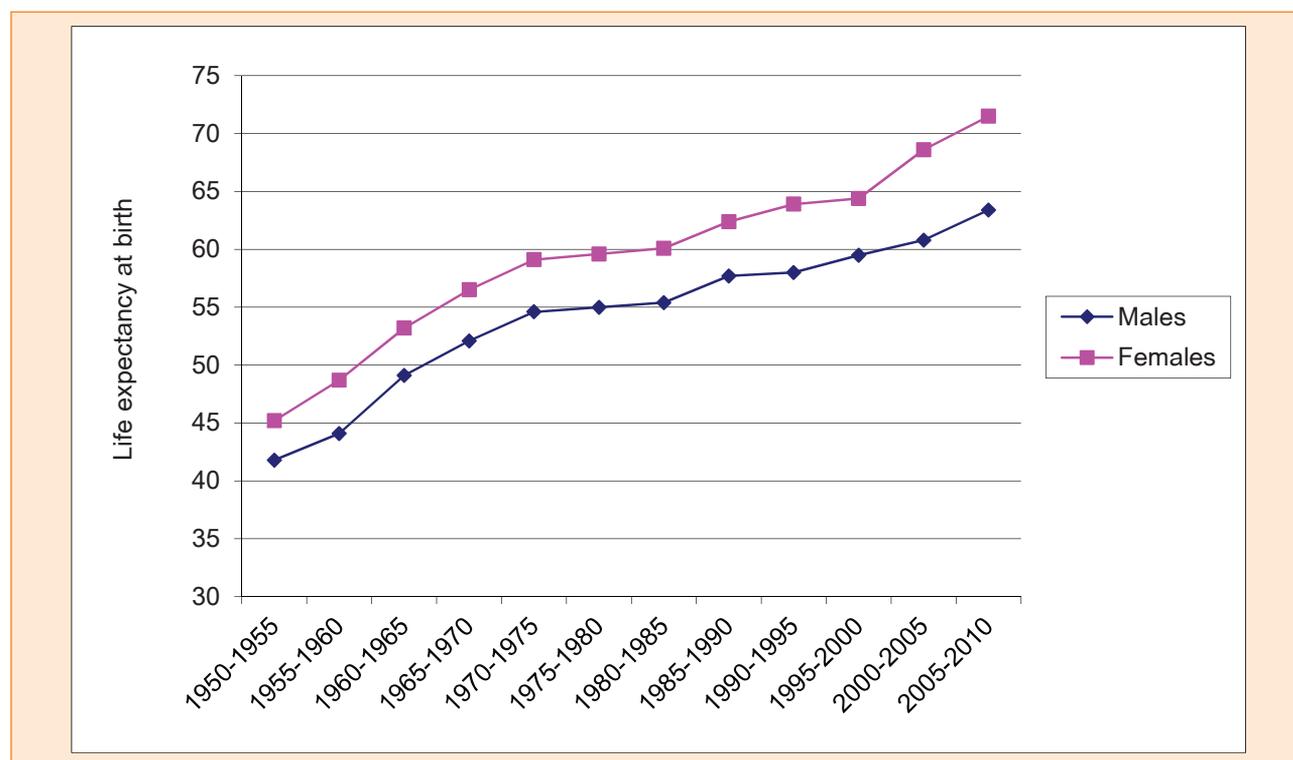
Source: World Population Prospects: The 2010 Revision, United Nations Population Division, 2011.

### Life expectancy

The last indicator of the mortality transition to be considered is “life expectancy at birth”, referring to the number of years that a group of people would live on average given the death rates that presently apply in each age-sex group. This measure gives an indication of the overall mortality level across the entire age range. Given that male and female mortality patterns are somewhat different, life expectancy is normally calculated separately for each sex, as well as both sexes together.

Mongolia’s life expectancy was well below 50 years in the 1950s-42 years for males and 45 years for females (Figure 1.6). Although general mortality conditions improved up to the early 1970s, from the 1970s to the mid-1980s there was very little improvement. The upward trend in life expectancy continued from the mid-1980s onward but the rate of improvement accelerated, particularly for females after 1995. These data confirm what was apparent in the infant and child mortality trends, namely that mortality improvement stagnated in the 1970s and 1980s but accelerated from the late 1980s onwards.

**Figure 1.6: Life expectancy at birth: 1950-2010**



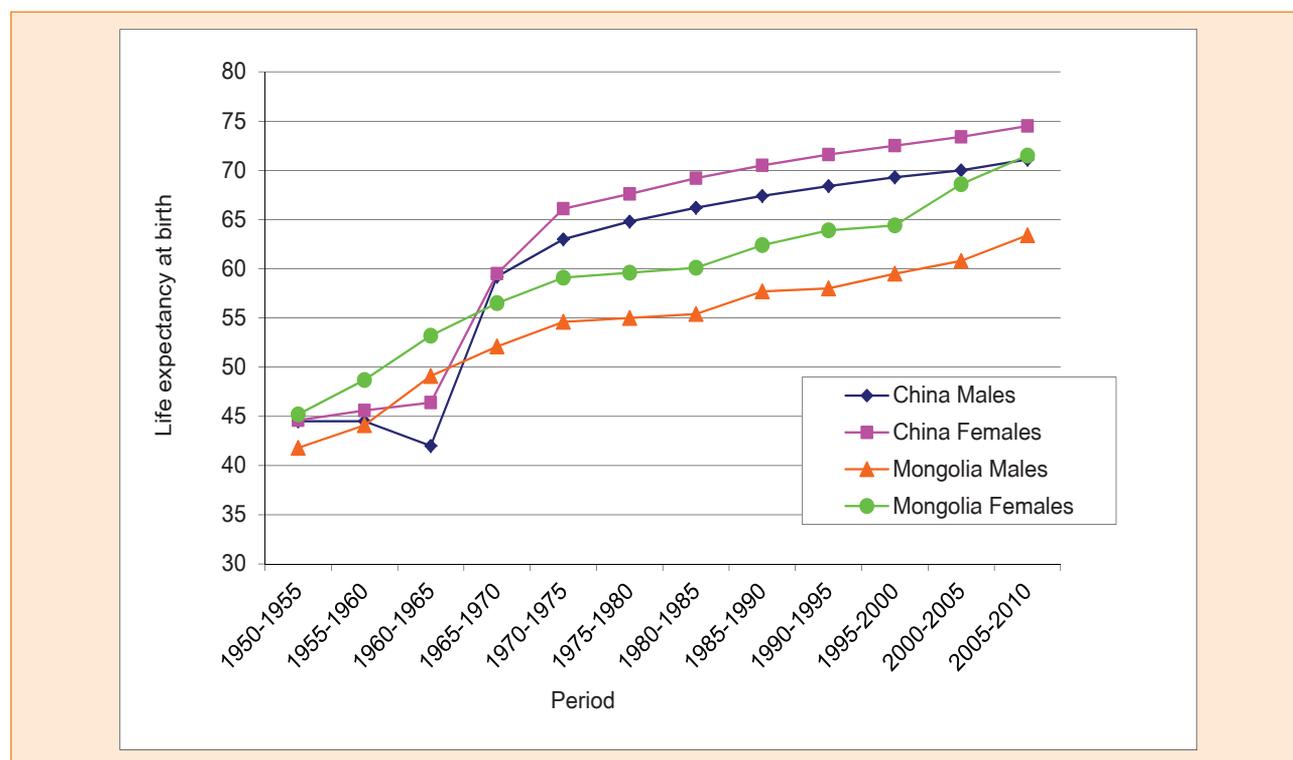
Source: World Population Prospects: The 2010 Revision, United Nations Population Division, 2011.

It is also clear that despite the mortality improvements in recent years, life expectancy for males still lags significantly behind females. In the 2005-2010 period, females lived 8.1 years longer than males on average.

Mongolia's progress in improving life expectancy since the 1990s has been impressive, but once again it is instructive to compare Mongolia's trends with those of China, as presented in Figure 1.7. Although China's life expectancy increased at an astounding rate between the mid-1960s to the mid-1970s (rapidly outpacing Mongolia), this reflected recovery

from the famines of the 1960s. China's life expectancy subsequently increased steadily and continued to rise above Mongolia's through to the present day. In the most recent period covered by UN data, China's life expectancy exceeded Mongolia's by 7.7 years for males and by 3.0 years for females. This comparison further highlights the special problem of high male mortality in Mongolia. It is clear from a comparison of male and female survival ratios that excess male mortality is concentrated in the adult ages, not among children and youth, suggesting that "lifestyle" factors are the primary cause.

**Figure 1.7: Life expectancy trends 1950–2010 in Mongolia and China by sex**



Source: World Population Prospects: The 2010 Revision, United Nations Population Division, 2011.

### The fertility transition

Figure 1.3 in the previous section showed that Mongolia’s birth rate did not follow the expectations of the standard theory of demographic transition. In standard transition theory, birth rates in the pre-transition period are near the maximum and population growth during the transition period is caused by a rapidly declining death rate. In Mongolia the sequence was different. This is better illustrated by means of the “Total Fertility Rate” (TFR) which is the average number of lifetime births per woman, than by the Crude Birth Rate shown in Figure 1.3.<sup>2</sup> Mongolia’s TFR trend is shown in

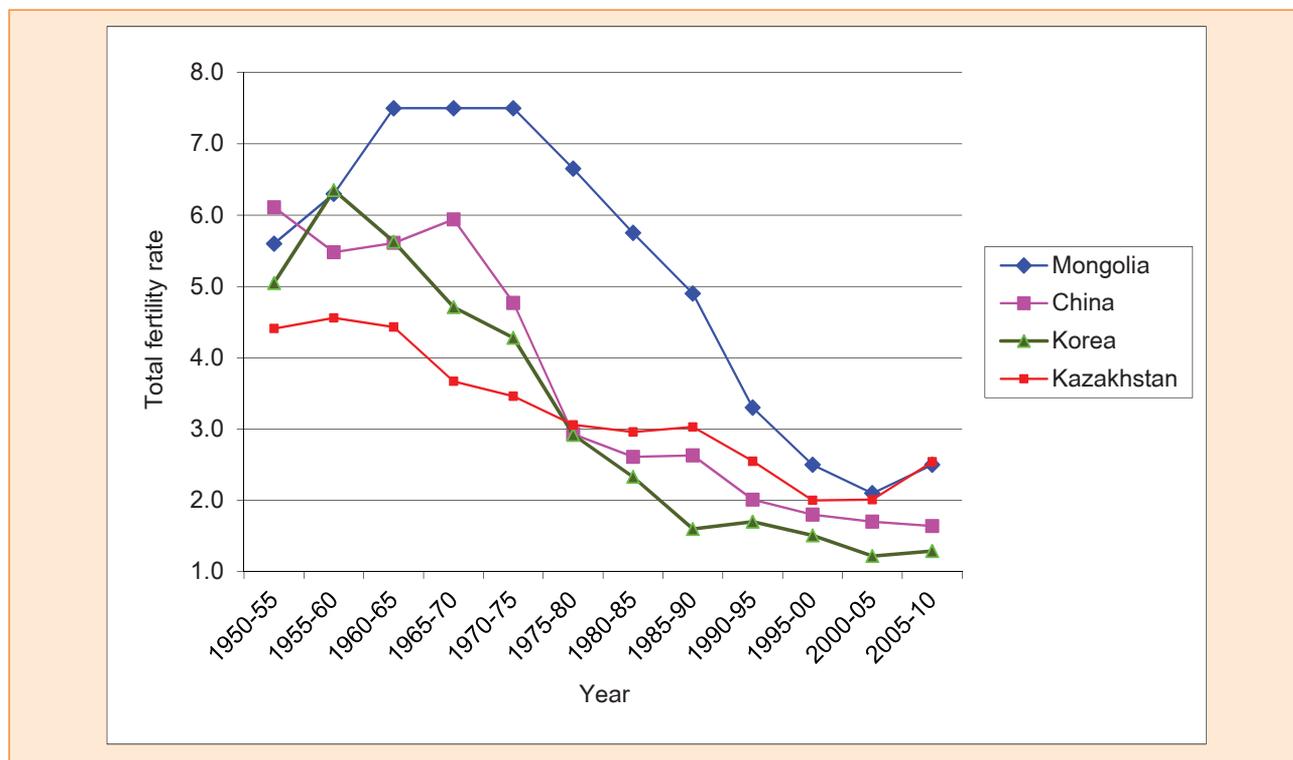
Figure 1.8 along with China, South Korea and Kazakhstan. Although China and Korea had TFRs similar to Mongolia’s in the 1950s, in both countries the TFR subsequently declined from that peak. In the case of Mongolia the TFR continued climbing to a high of 7.5 children per woman and stayed at that level until the mid-1970s. The TFR declined rapidly for the next 30 years reaching the “replacement” level of 2.1 in the 2000-2005 period.<sup>3</sup> The TFR actually fell below replacement in 2005, reaching a historical low of 1.95 in that year (Figure 1.9).<sup>4</sup>

<sup>2</sup> See Glossary and Definitions for an explanation of the Total Fertility Rate.

<sup>3</sup> “Replacement” fertility is the number of births per woman required to ensure that the next generation is the same size as the current one. See Glossary and Definitions.

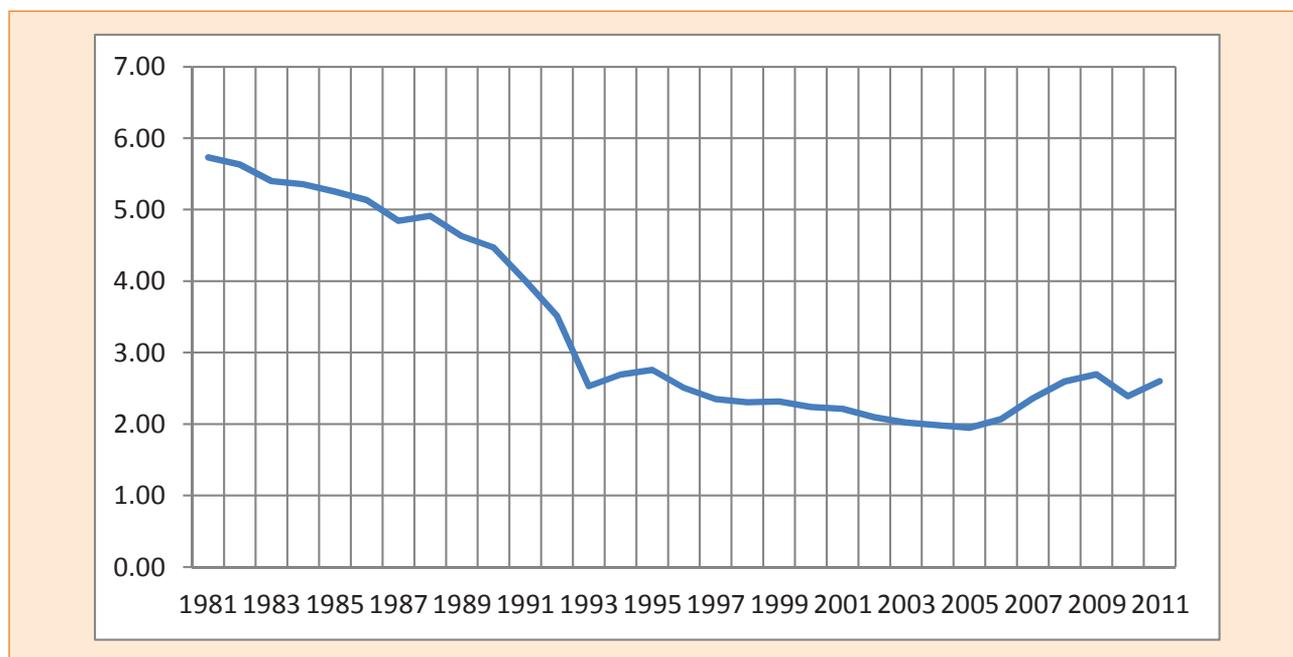
<sup>4</sup> NSO, Mongolian Statistical Yearbook, 2006.

**Figure 1.8: Trends in the TFR in Mongolia and selected countries, 1950-2010**



Source: World Population Prospects: The 2010 Revision, United Nations Population Division, 2011.

**Figure 1.9: Total fertility rate by year 1981-2011**



Source: NSO

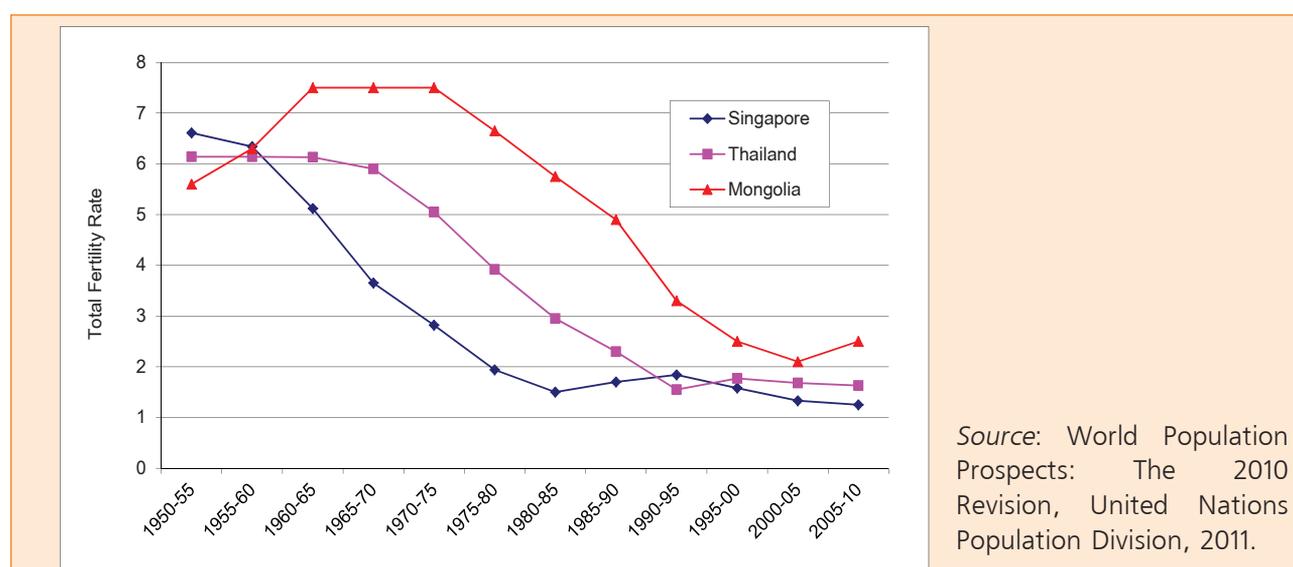
What is unique about Mongolia's fertility transition is not so much the rapid decline in fertility beginning in the late 1970s but a twenty-year period of increasing fertility after the TFR had reached an already high level of 5.6 children per woman in the 1950s. Perhaps what is also remarkable about the speed of Mongolia's fertility decline relative to other Asian countries is that the TFR had much further to decline to reach replacement level. Singapore's TFR declined by 4.5 births per woman in 25 years; Thailand's declined by 4 births per woman in 30 years; but Mongolia's TFR declined by 5.4 births in a period of approximately 32 years. These differences are evident in Figure 1.9. It is therefore justified to describe Mongolia's fertility transition as one of the most rapid in Asia or possibly anywhere in the world.

Also evident in Figures 1.8 and 1.9 is the upward "bounce" in Mongolia's TFR after 2005. After reaching an average of 2.1 during the 2000-2005 period, the TFR increased to 2.5 in the subsequent

5-year period. Whether this increase was caused by Government policies to increase fertility is an issue discussed later in this report, along with the issue of whether the policies contained in the Third Five-Year Plan of 1961-65 was responsible for the increase in fertility during the 1960s and the maintenance of high fertility during the 1970s. As of 2011, the TFR had climbed again to 2.6 (Figure 1.9), suggesting that Mongolia's fertility transition is not following the pattern observed in Thailand, Viet Nam and Korea (as well as some European countries) but rather following its own course.

This is apparent in Figure 1.10, which compares Mongolia's fertility decline with Singapore's and Thailand's. In the latter countries, fertility has continued to decline after reaching replacement level. In the case of Thailand, the era of population growth is coming to an end and population decline is a real possibility in the coming decades.<sup>5</sup>

**Figure 1.10: Mongolia's fertility trends compared with Singapore and Thailand 1950-2010**



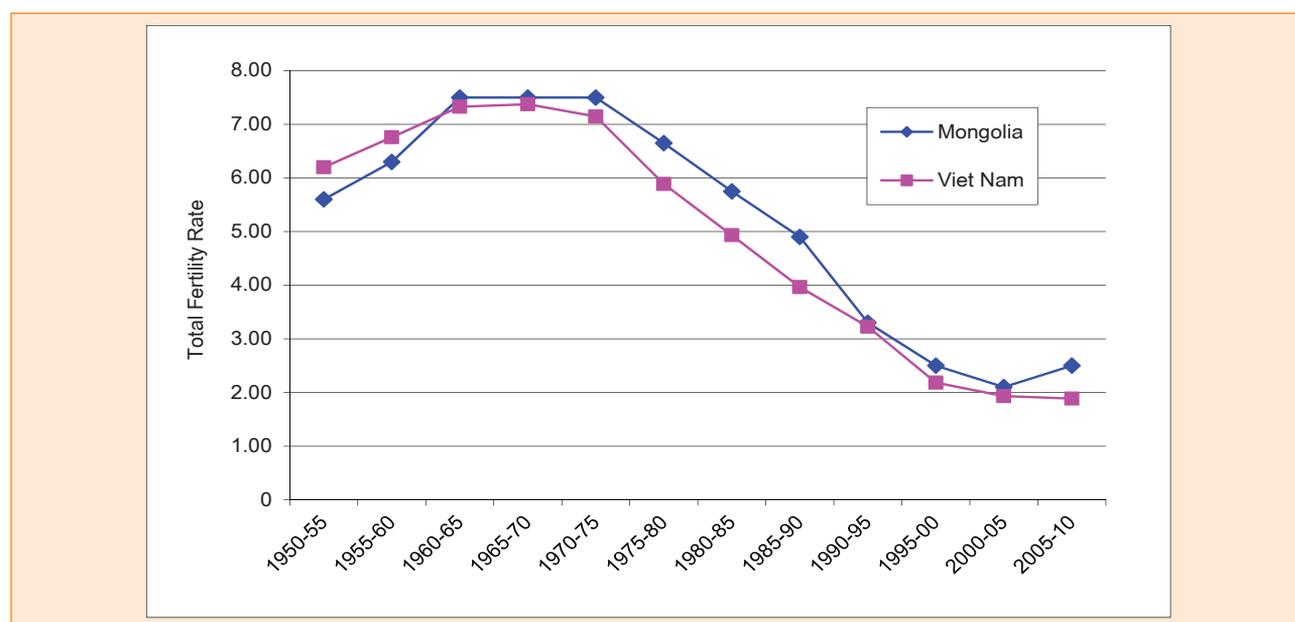
Source: World Population Prospects: The 2010 Revision, United Nations Population Division, 2011.

<sup>5</sup> See UNFPA (2011)

It is useful to note that only one other country in the world has had a fertility transition comparable to Mongolia's, and that is Viet Nam. The remarkably close resemblance between the fertility transitions in the two countries is evident in Figure 1.11. The similarity of the fertility transitions in these two countries is surprising given the very different histories of the two countries. Viet Nam is a densely-settled and largely agricultural country with a current population of 89 million people, while Mongolia has low population density and a population under

three million. Furthermore, fertility in Viet Nam was rising during the first Indo China war birth, stabilized at a high level during the second Indo-China war, and dropped rapidly when the country became unified under a communist government after 1975. But there is an important difference between the two countries. In Mongolia the TFR increased again after reaching a low of 2.1 whereas Viet Nam's TFR has remained below replacement level. This again suggests that Mongolia's fertility transition may not follow the patterns observed in South East Asia.<sup>6</sup>

**Figure 1.11: Mongolia's and Viet Nam's fertility transition compared**



Source: World Population Prospects: The 2010 Revision, United Nations Population Division, 2011.

### International Migration<sup>6</sup>

Prior to the 1990s, international migration did not play a significant role in Mongolia's population growth trends. While a

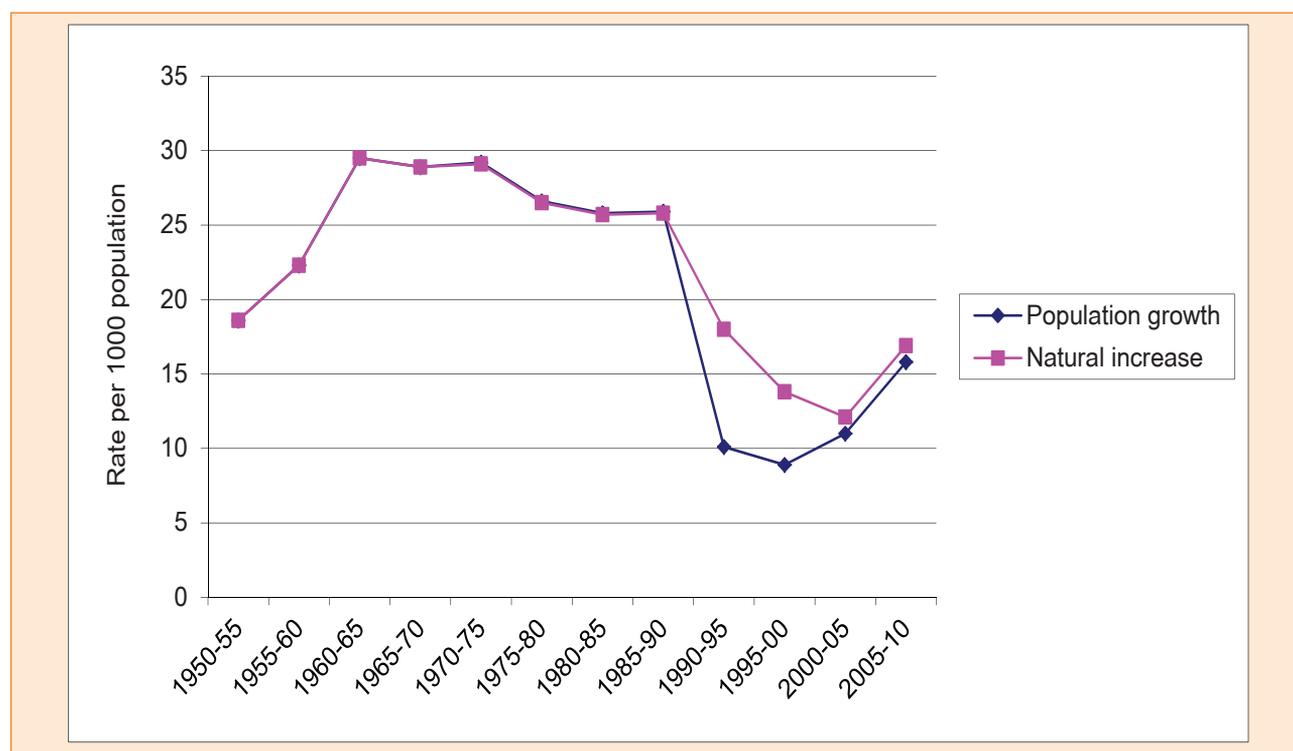
significant number of foreigners became resident in Mongolia during the socialist period, they were mainly temporary immigrants from Russia and other socialist countries rather than permanent or long-term migrants. This group consisted of military personnel and construction

<sup>6</sup> The prospects for future fertility are discussed in Chapter 3.

workers as well as advisers in health and education—a reflection of the substantial economic and technical assistance provided to Mongolia by the CMEA (Council for Mutual Economic Assistance) countries. With the collapse of the USSR, the number of foreigners living in Mongolia decreased substantially. After the programmes of assistance to Mongolia wound down, most foreign advisers were withdrawn, leading to a significant outflow of people. The foreign population of Mongolia declined from 56,680 in 1989 to only 8,128 persons in 2000, suggesting a net outflow of 48,552 persons during that decade. The outflow would have reduced the rate of population growth in Mongolia by about 20 percent. By 2010 the number of foreigners enumerated in Mongolia had doubled again to 16,320.

The free migration of Mongolians out of the country was restricted during the socialist period, but with the transition to a market economy after 1990, the number of Mongolians who emigrated increased considerably. An indication of the net outflow of population, both foreigners and Mongolian citizens can be obtained by comparing the rate of natural increase with the rate of population increase (Figure 1.12). Up until the 1985-80 period, the two rates were the same, indicating virtually no net migration. In the 1990-95 period, a gap opened up between natural increase and actual increase, indicating a net outflow of population from the country. This gap closed again by 2000-05 although there remains a small net outflow up to 2005-10.

**Figure 1.12: Net international migration 1918–2010 using the demographic method**



Source: UNDESA, World Population Prospects, 2010 Revision.

Table 1.2 provides an approximate estimate of the scale of net migration using the simple demographic method illustrated in Figure 1.11. It is apparent that the net outflow of population reached a peak of -17,000 people per year in the

period 1990-95. During this five-year period, the net outflow of people totaled 85,000. Net migration dropped to -11,000 per year during the subsequent five years and to -3,000 per year over the ten years 2000-2010.

**Table 1.2: Estimated net international migration using the demographic method (in thousands) 1950-2010**

	Births	Deaths	Natural increase	Population increase	Net migration
1950-1955	33	18	15	15	0
1955-1960	39	19	20	20	0
1960-1965	49	19	30	30	0
1965-1970	54	19	35	34	-1000
1970-1975	59	19	40	40	0
1975-1980	63	21	42	42	0
1980-1985	69	22	47	47	0
1985-1990	75	22	53	53	0
1990-1995	62	22	40	23	-17000
1995-2000	52	20	32	21	-11000
2000-2005	47	17	30	27	-3000
2005-2010	62	17	45	42	-3000

Source: UNDESA, World Population Prospects, 2010 revision.

### **Mongolia's demographic transition-a summary**

Mongolia's population growth trends have followed the broad expectations of demographic transition theory but there are some notable deviations from the "classic" model. Over the past 100 years, Mongolia's population growth rate has passed through the three stages of the demographic transition: (1) a period of slow growth caused by high mortality and moderate fertility; (2) a period of rapid population growth caused by rising fertility and declining mortality; (3) a

period of slow growth caused by low fertility and moderately low mortality. In this respect, Mongolia has followed a demographic path very similar to that followed by other countries undergoing modernization and industrialization.

Mongolia has deviated from the expected pattern in two respects. First, rather than declining from a high level in the 1950s and 1960s, the birth rate began climbing to a very high level reaching a peak of 7.5 children per woman in the 1970s. Very few Asian countries have experienced such an increase in fertility. Second, Mongolia's

death rate has declined slowly compared to other Asian countries and the adult male death rate remains significantly higher than the adult female death rate.

The significant increase in fertility during the 1960s and the maintenance of high fertility through until the mid-1970s needs explanation if Mongolia's demographic history is to be fully understood and lessons learned for the future. Where increased fertility has been observed in other pre-industrial societies the usual cause is the undermining of traditional customs and practices that previously kept fertility to a manageable level, given the resource constraints faced by that society. Such practices include long periods of post-partum abstinence, extensive breast-feeding, abortion and infanticide. In some colonial societies these practices were discouraged by colonial authorities because the death rate had increased due to imported diseases that previously did not exist.

It is unlikely that these factors were operative in Mongolia in the 1960s, although not impossible. The surge in fertility that occurred in the 1960s was from an already high fertility level that would have been sufficient to offset the level of mortality prevailing at that time and ensure positive population growth. A more likely explanation is the "pro-natalist" policies imposed by the government and described in the introduction of this paper (see Box B). There is little doubt that by restricting access to contraception and abortion; by encouraging early marriage; by providing rewards and incentives to women for having many children, and by penalizing the unmarried and childless, it is possible

to push the birth rate to a high level. It seems apparent that this is what occurred in Mongolia to an extreme degree.

Policies of the type introduced in Mongolia and other socialist countries to increase fertility were generally not sustainable. They represented an extreme intrusion of the state into the private realm of couples and families and therefore encountered social resistance, eventually having to be abandoned.

Such policies also have negative demographic consequences in the longer run. By pushing the birth rate to a high level the state contributed to the very rapid decline in fertility that followed. A commonly observed phenomenon in the fertility transition is that birth rates may fall very rapidly after reaching very high levels. This is observable in Viet Nam as well as in Mongolia. As a result, the population age structure is affected, producing a very uneven pattern of increase in some age groups and decrease in others which can persist in the population for a very long time

Fertility in Mongolia reached a historical low in 2005 when the reported TFR was 1.95. However, unlike a number of other countries in which the TFR has dropped below replacement level, Mongolia's TFR climbed back up to 2.6 by 2011. The future prospects for fertility change in Mongolia are discussed in Chapter 3, but it should be noted that the recent increase in Mongolia's TFR, combined with an increase in the population of women in the reproductive age range, will ensure that Mongolia's population will continue to grow over the next several decades.

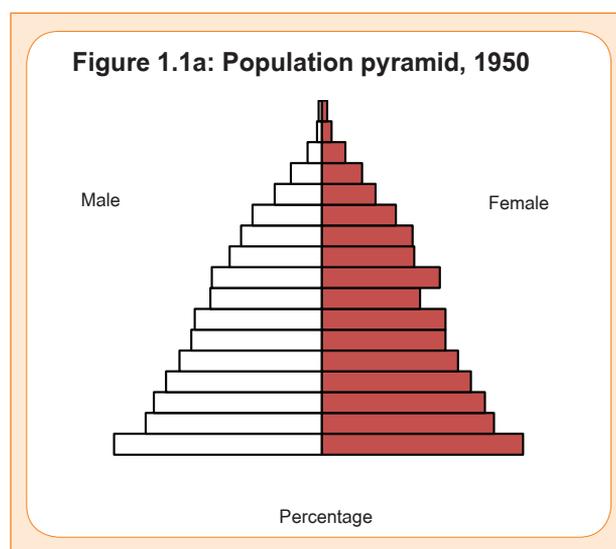
Although the fertility transition is virtually complete in Mongolia, the mortality transition still has some way to go, mainly because of the slow pace of improvement in male life expectancy. If mortality decline among males can be accelerated, this will increase the rate of population growth marginally, although it will also contribute to ageing.

### The changing age composition

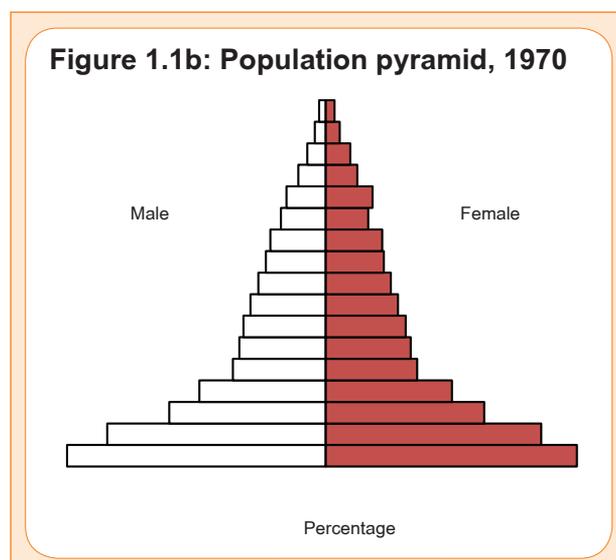
The fertility and mortality transitions have important consequences for the age structure of a population. Declining fertility results in a falling proportion of children and young people in the population. Declining mortality usually contributes to an increasing population in the labour force age groups and the elderly. These two processes together produce an ageing population. The age structure transformation that accompanies the demographic transition have profoundly important consequences for the economy and society. These will be discussed in more detail in subsequent chapters in the case of Mongolia.

The changing age composition of Mongolia's population is evident from the shapes of the age "pyramids" from 1950 through to 2010 (Figure 1.13) The 1950 age distribution is typical of a population that has had stable birth and death rates for a long period of time. The small broadening of the population aged 0-4 also suggests a recent increase in fertility.

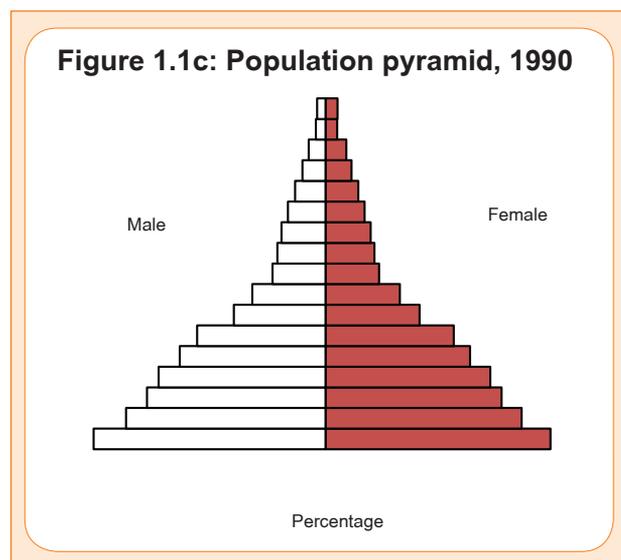
**Figure 1.13: Percentage age-sex distribution 1950-2010**



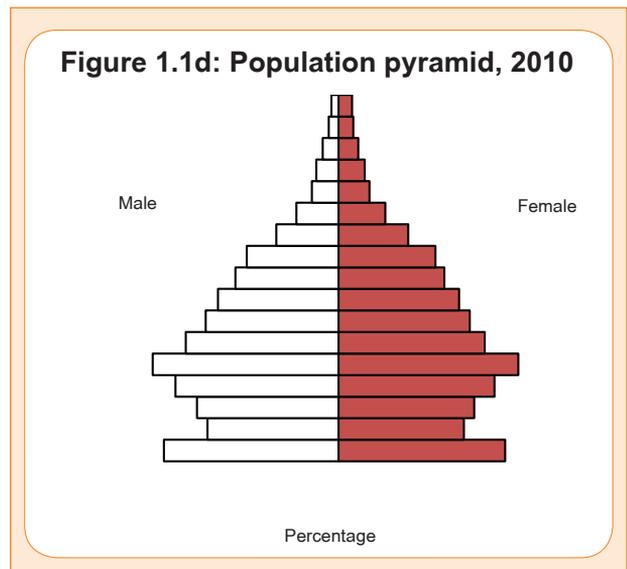
The 1970 pyramid has a radically different shape. The effects of the rapid increase in fertility during the 1960s is evident in the expanding "base" of the pyramid, with the age groups 0-4 and 5-9 growing in proportion to the total. The pyramid indicates that nearly 20 percent of the population consisted of children under 5 years of age.



By 1990, the pyramid is filling out in the adult age groups as the large birth cohorts of the 1960s and 1970s enter into the older age groups. The shape of the pyramid in the young adult ages suggests that mortality was also having an impact. Although fertility had declined significantly by the 1990s, the proportion of children aged 0-4 remained quite high because the proportion of women of childbearing age had been increasing. While the average number of children per woman was falling, there were more women of reproductive age in the population, thus the number of births was rising.



By 2010, the shape of the age pyramid had radically changed. Twenty years of rapid fertility decline had resulted in a proportional reduction in the age groups 5-9, 10-14, and 15-19. The largest age group in the population is now the 20-24 group. The increasing size of this group is also responsible for an increase in the 0-4 population given that 20-24 is the age at which most women marry and many have their first child.



Prior to 2010, the prospects for an ageing population were not very apparent; however, the 2010 pyramid shows that the older age groups (60 and over) are likely to grow over the coming decades.

The social and economic implications of these age structure changes will be discussed in greater detail in the following chapter. The main point to emphasize here is that the rapid increase in fertility in the 1960s and the steadily high level of fertility during the 1970s followed by a rapid decline has created a very uneven age structure with several age groups growing, declining and then growing again. Such population "waves" create special difficulties for social planners-particularly those responsible for education and health. The 2010 pyramid suggests that the number of primary school entrants has been declining over the past 15 years; but the recent increase in births will result in an increase in the primary school population beginning around 2015. A similar problem will exist in the young working age population. The number of new entrants

into the labour force probably reached a peak in the 2005-10 period but this number will decline over the next 15 years before rising again. This will create challenges for labour force planners.

Statistical indicators of Mongolia's age structure transformation are given in Table 1.3 from past censuses. These data confirm what was apparent from the age pyramids. The percentage of the population, 0-14 years old, has declined

(from 44.5 percent in 1969 to 27.3 percent in 2010) while the percentage of the working age population(15-64 years) has increased (from 49.5 percent to 69.0 percent during the same period). The percentage of the population aged 65 years and over has declined from 6.0 to 3.7. Note that the actual numbers in these age groups have increased substantially with population growth; what has changed is their relative contribution to the total.

**Table 1.3: Selected indicators of age and sex composition, 1969, 1979, 1989, 2000 and 2010**

Indicator	1969	1979	1989	2000	2010
Total population (000)	1197.6	1595.0	2044.0	2373.5	2754.7
<i>Percentage of the population</i>					
0-14	44.5	44.3	41.9	35.8	27.3
15-64	49.5	50.8	54.1	60.8	69.0
65+	6.0	4.9	4.0	3.4	3.7
Total	100.0	100.0	100.0	100.0	100.0
Sex ratio	99.4	99.8	99.5	98.5	98.1
Median age	18.7	17.3	18.6	21.6	25.9
Child dependency ratio	89.6	88.8	78.3	58.9	39.6
Elderly dependency ratio	12.1	10.2	7.7	5.7	5.4
Total dependency ratio	101.7	99.1	86	64.6	45.0
Ageing index	13.5	11.5	9.9	9.7	13.6

Source: National Statistical Office, Population and Housing Censuses, years 1968, 1979, 1989, 2000 and 2010.

Although the *proportion* of older persons was lower in 2010 than in 1969, the population of Mongolia is nevertheless ageing. This is apparent in the fact that the average (median) age has increased from 18.7 years in 1969 to 25.9 in 2010. The primary reason for this is the relative decline in the population 0-14 and the increase in the population age 15-64. Thus, the population has been growing more "middle-aged". When this group

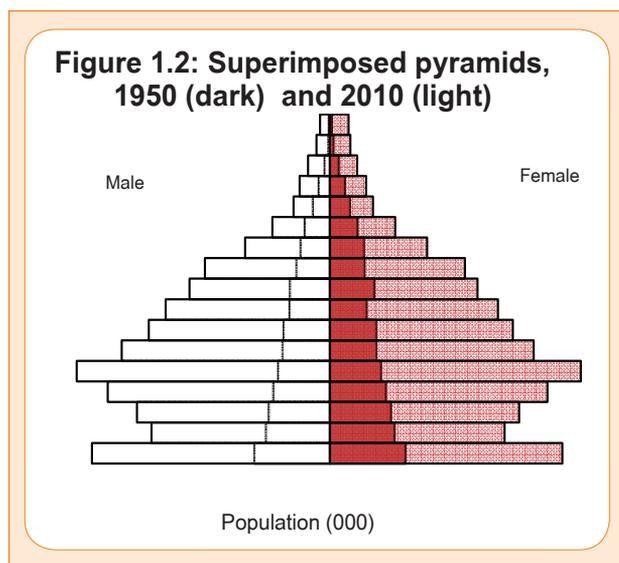
reaches 65 the median age will rise rapidly as will the proportion of elderly.

In broad terms, Mongolia's present age structure is favourable to social and economic development because the proportion of the population of working age has been rising relative to the "dependent" population (0-14 and 65+). However, the very uneven distribution of the various age groups will create

challenges for social and economic planning in the coming decades.

An indication of these challenges can be gained from Figure 1.14 (1.2), which shows the age composition in 1950 and 2010 in actual numbers. Although the shape is similar to that of the earlier pyramids that showed the proportional distribution, this figure shows how much larger some key age groups are, compared to 1950. Providing education, training and job opportunities to age groups that will increase and decrease in a wave-like pattern will provide an unusual challenge for educational institutions and development planning.

**Figure 1.14 Population age structure 1950 and 2010**



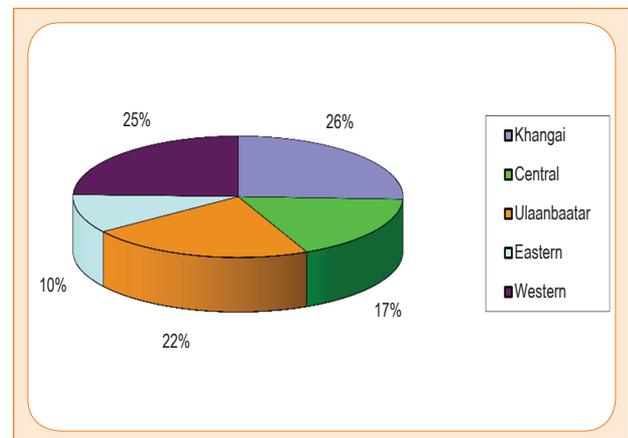
Source: NSO

### Geographical distribution and urbanization

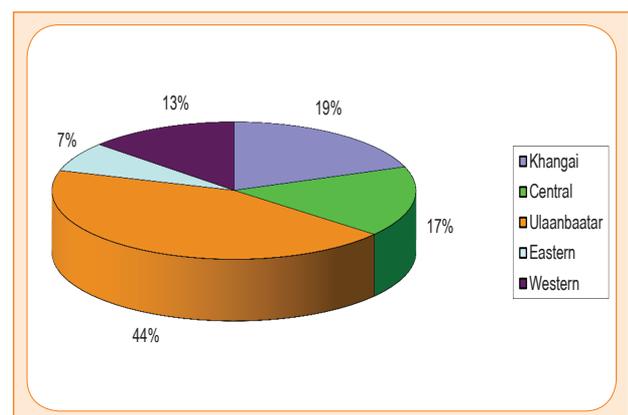
The internal distribution of Mongolia's population has changed significantly since the 1960s. This is made clear by

comparing Figures 1.15 and 1.16, which show the distribution by region in 1963 and 2010, respectively. Ulaanbaatar's share of the total population doubled from 22 percent in 1963 to 44 percent in 2010. The populations of all the other regions have declined in proportion to the total but not equally; the population share of Western region has dropped the most—from 25 percent in 1963 to 13 percent in 2010. The Central region has declined the least—from 18 percent to 17 percent).

**Figure 1.15: Population distribution by region, 1963 census**



**Figure 1.16: Population distribution by region, 2010 census**

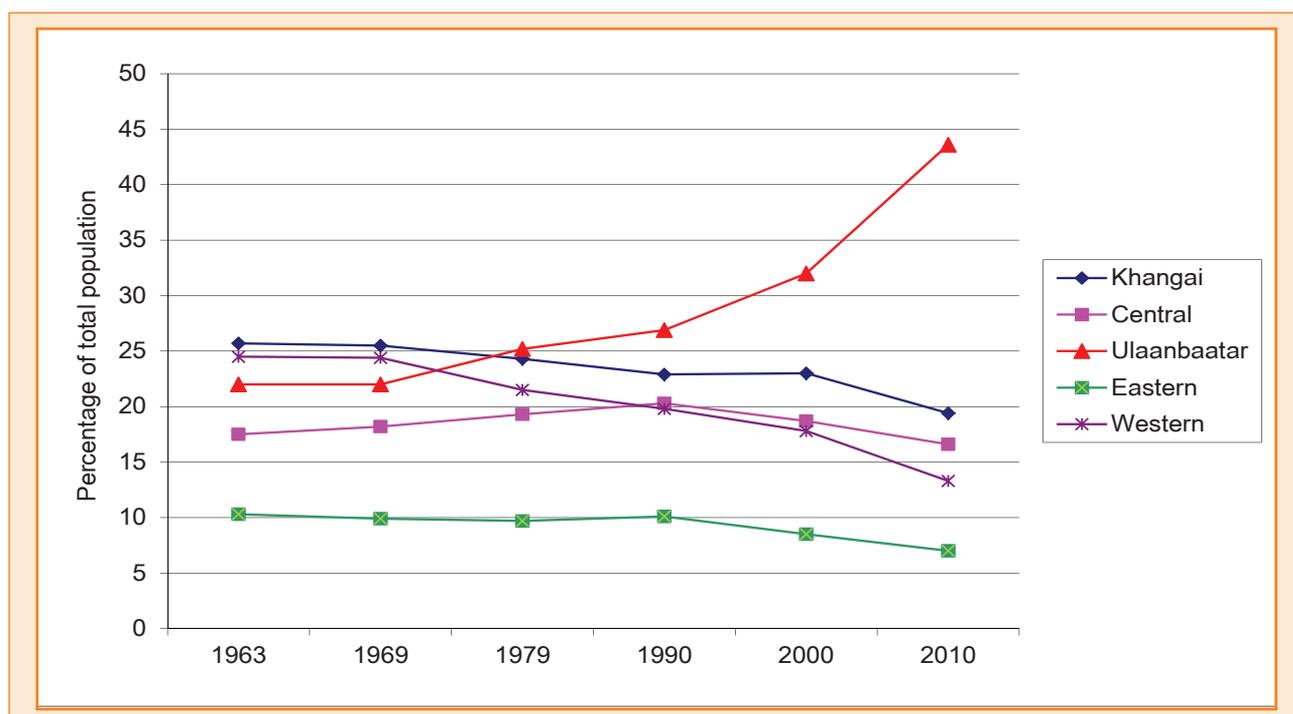


Source: NSO, Population census 1963-2010

The historical trends that produced this concentration are apparent from Figure 1.17 which shows that while Ulaanbaatar's share of the total population has been increasing since the late 1960s, the pace of concentration accelerated after 1990 and particularly after 2000. The increasing share of population in Ulaanbaatar has

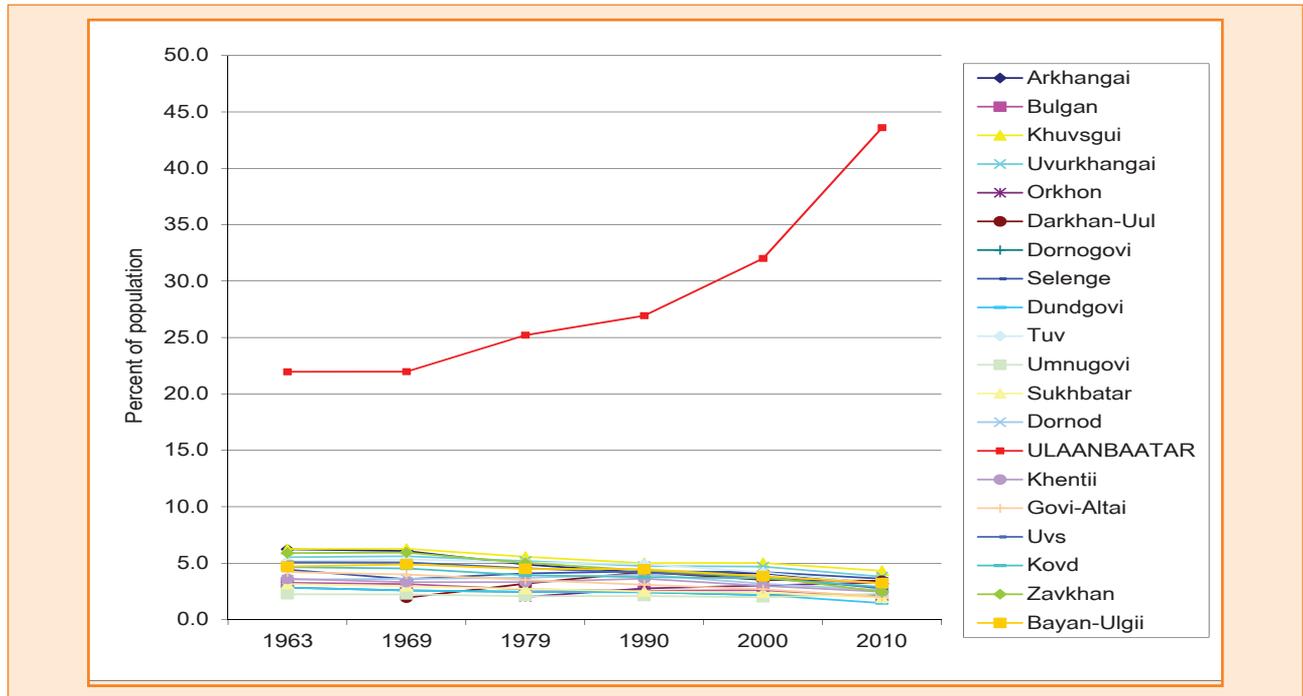
been at the expense of almost all aimags, as is apparent in Figure 1.18. Figure 1.19 further illustrates that all aimags have lost population share since 1990. This is clearer in Figure 1.19, which shows the aimags without Ulaanbaatar. Almost all aimags have lost population share since 1990 or 2000.

**Figure 1.17: Trend of population concentration, 1950-2010**



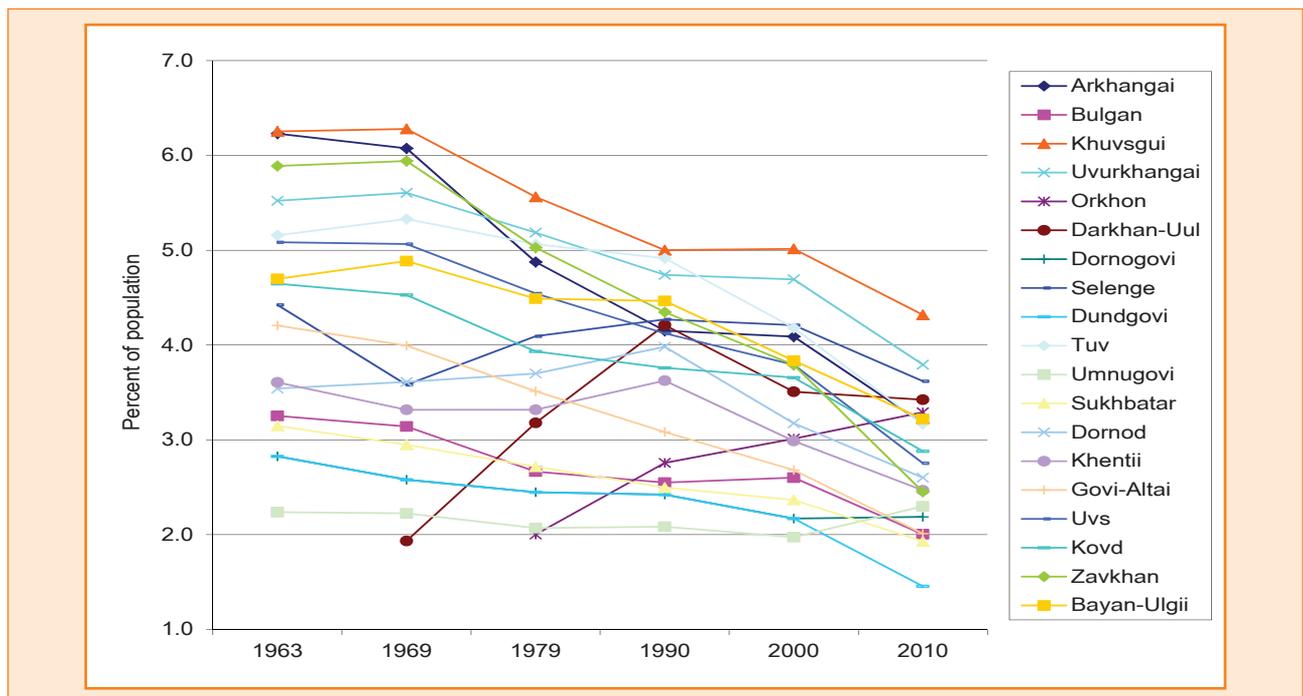
Source: NSO, Population census.

**Figure 1.18: Population share by aimag and the capital city 1963-2010**



Source: NSO Population Census

**Figure 1.19: Distribution of population by aimag (share of total) 1963-2010**

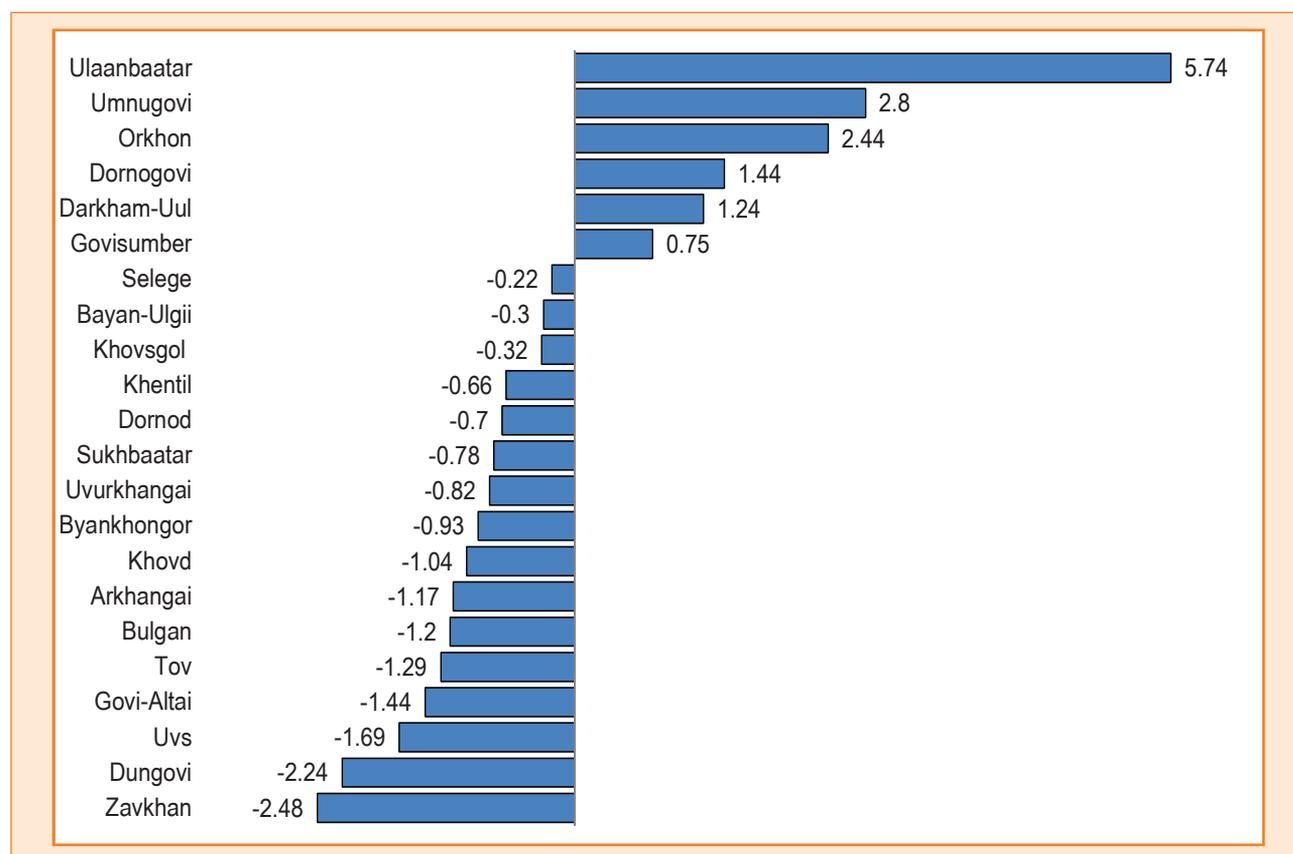


Source: NSO, Population Census

The declining share of the population in the aimags is due to their lower population growth rates relative to high growth in Ulaanbaatar. The lower rates of growth in the aimags are a result of net out-migration, as previously mentioned at the regional level, rather than low rates of natural increase. Aside from Ulaanbaatar, only five aimags have had a positive rate of growth, while the remaining 16 aimags have had negative growth (Figure 1.20). Four of the aimags with more than -1 percent growth were in the Western Region. All but one of the aimags with positive growth are located in the Central Region.

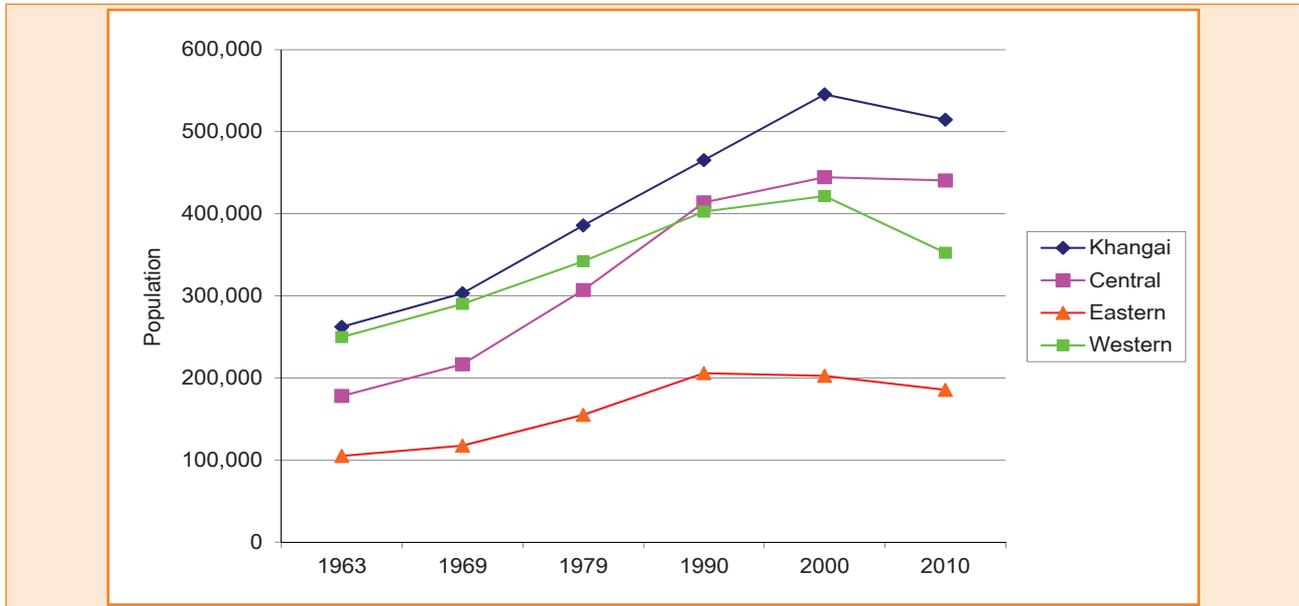
Falling population share does not *necessarily* mean that the population is falling in absolute numbers; however, it appears that the 2000 census year marks the point where regional populations may have reached their historical peak and began to decline. This is most obvious in the case of Western and Khangai regions (Figure 1.21). In Central region the population has leveled-off since 2000 while Eastern region shows a small decline. The trends in absolute numbers are similar to the trends in population share.

**Figure 1.20: Annual population growth, aimags and Ulaanbaatar, 2000 to 2010**



Source: NSO

**Figure 1.21 Population growth by region, 1963-2010**

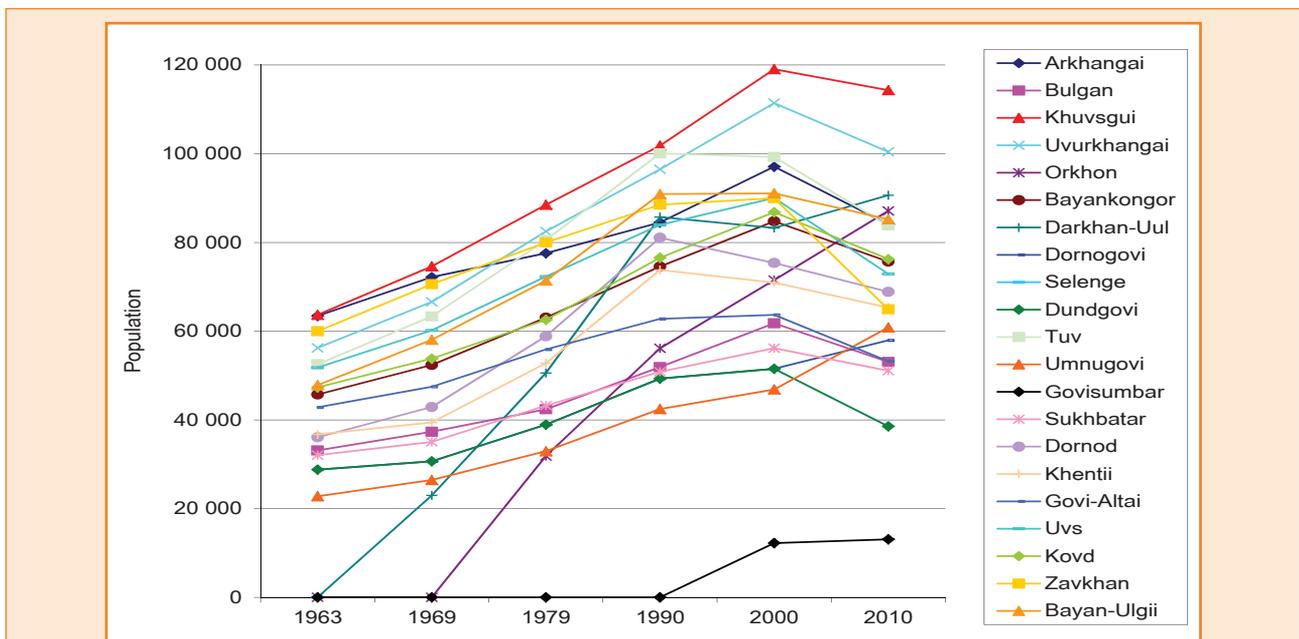


Source: NSO, Population census

The year 2000 also marks the point when the populations of most aimags reached their peak and began to decline (Figure 1.22). The exceptions to this pattern are the four provinces of Dornogovi, Govisumber, DarkanUui and Orkhon, all

of which continued to have population growth (as shown in Figure 1.20). All of these provinces are in the Central region with the exception of Orkhon, which is on the border of Khangai and Central.

**Figure 1.22: Population growth by aimag, 1963-2010**



Source: Population Census, various years

## Internal migration

Although geographical variations in natural increase can have some impact on population distribution, the primary factor is usually internal migration. The scale of recent internal migration between regions is apparent from Table 1.8, which shows net lifetime migration between regions—including Ulaanbaatar in the 2010 census.<sup>7</sup> In all regions other than Ulaanbaatar, the number of out-migrants is larger than the number of in-migrants, indicating negative migration (population loss). The opposite occurs in Ulaanbaatar, where more people

arrived than departed, resulting in a net migration gain. (Non migrants refers to persons born in a region and still resident there). The largest net migration loss has been from the Western region (-243,059), followed by Khangai, Eastern and Central. Only Ulaanbaatar had a net migration gain (543,644). The importance of migration to Ulaanbaatar's population growth is evident in the fact that in 2010 the in-migrant population (590,399) exceeded the native-born population (563,891). These figures suggest that 51 percent of Ulaanbaatar's population is made up of migrants from other regions.

**Table 1.4: Life time migration by region and capital city 2010 Census**

Region	Non migrants	In-migrants	Out-migrants	Net migrants
Western	344,993	7,544	250,603	-243,059
Khangai	464,447	50,279	216,486	-166,207
Central	315,203	125,490	166,771	-41,281
Eastern	172,001	13,298	84,880	-71,582
Ulaanbaatar	563,891	590,399	46,755	543,644

Source: National Statistical Office, 2010 Population and Housing Census

## Rural-urban distribution<sup>7</sup>

Mongolia's population was 80 percent rural in the 1950s, but urbanization occurred quite rapidly right up to 1990, after which the pace of urban growth declined abruptly. During the 1950s the urban population grew at the very high rate of 7.8 percent per year while the rural population experienced negative growth. The urban growth rate

subsequently declined to a low of 0.9 percent in the 1990-95 period while the rural growth rate increased to 1.1 percent. Since 2000, urban population growth has accelerated again and rural growth has once again turned negative. As shown in Table 1.5, the urban population increased by 453,600 persons in the 2000-10 decade, an average rate of 2.9 percent. Although not as high as the rate of urban growth during the socialist era this is nevertheless a high rate in so far as its continuation would lead to another doubling of the urban population within 24 years. The implications of this would be particularly serious if Ulaanbaatar

<sup>7</sup> "Lifetime" migration refers to persons born in one aimag who recorded as resident in another aimag at the time of the census. Net lifetime migration refers to the difference between persons born in aimag A and living in aimag B and persons born in aimag B and living in aimag A. The person could have migrated at any time from birth.

were to remain the primary focus of urban growth. During the 2000-10 period, 87 percent of urban population increase occurred in Ulaanbaatar, and only 13 percent in other urban areas. It is important to note that urban areas have increased by much more than rural

areas have decreased, so not all of the growth in the urban sector is a result of migration. It is likely that about 50 percent of urban growth in the last decade is a result of natural increase in the current urban population.

**Table 1.5: Urban and rural population change, 2000-2010**

Area	Year		Change	Annual rate of growth (%)
	2000	2010		
Rural	1,029.0	849.4	-179.6	-1.9
Ulaanbaatar	760.1	1,154.3	394.2	4.2
Other urban	584.4	643.8	59.4	1.0
Total urban	1,344.5	1,798.1	453.6	2.9
Total	2,373.5	2,647.5	274.0	1.1

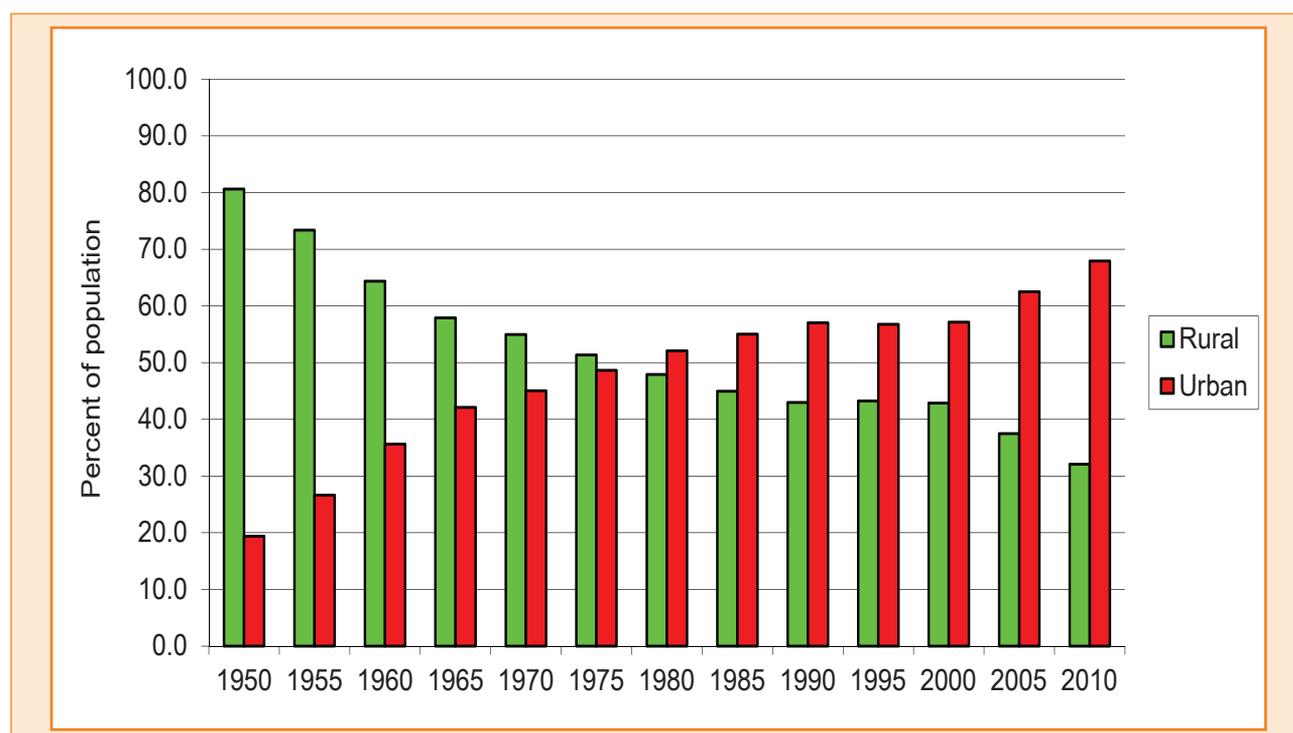
Source: NSO, Population Census, 2010.

While urban population growth has been variable since the 1950s, the overall result is that Mongolia's population is now 68 percent urban and 32 percent rural (Figure 1.23). By comparison with the less developed regions of the world this is a high level of urbanization, but not unlike that found in Iran, Ukraine and Lithuania. Mongolia is much more urbanized than Central Asia, which is only 41 percent urban and also China, which

remains only 51 percent urban despite its rapid pace of industrialization. An economy focussed on resource extraction is not necessarily less urbanized than one based on manufacturing. Australia and Canada, both resource-based economies, are 89 percent and 81 percent urban, respectively.<sup>8</sup> Thus it is likely that Mongolia's evolution to a predominantly resource-based economy will result in greater urbanization rather than less.

<sup>8</sup> Data on levels of urbanization are from UNDESA, World Urbanization Prospects, 2011 Revision.

**Figure 1.23 Rural-urban population distribution 1950-2010**



Source: World urbanization prospects 2011, United Nations Population Division; 2010 census of Mongolia

### Summary and conclusions

This chapter has shown that population growth in Mongolia over the past century has followed the general historical pattern anticipated by demographic transition theory but with some significant variations. Population dynamics have clearly passed through three stages: (1) an early period of low population growth caused by high mortality and moderate fertility; (2) a transition period of high population growth caused by a rapid increase in fertility and declining mortality; (3) a period of slow growth caused by very rapidly declining fertility in the context of declining mortality. In broad general terms Mongolia now has a “modern” demographic system, not unlike some advanced industrial countries,

despite the fact that it is classified as a “lower middle-income” country by virtue of its per capita income.

As also explained, Mongolia’s demographic transition exhibited a number of special features that remain relevant to the relationship between population trends and development, in both the short- and long-term. The most important of these features is the rapid increase in fertility during the 1960s and 1970s, most likely caused by the application of “pro-natalist” policies inspired by approaches adopted in other socialist societies. These policies were applied during a period when the number of children per woman was already high by the standards of industrializing countries, whether capitalist or socialist.

The result of this was to push the average number of children to reach among the highest levels observed in any national society. Fertility remained high through most of the 1970s but could not be sustained in the next generation of women. What followed was one of the most rapid declines in fertility observed in any recently-developing country-including Thailand or Singapore.

The mortality transition in Mongolia also displayed some unusual features although these are not as dramatic as in the case of fertility. Mongolia's mortality transition essentially "stalled" during the late socialist period (mid-1970s to mid-1980s). Infant mortality hardly changed for about a decade and life expectancy stopped increasing. Life expectancy among males still remains significantly lower than for females.

The rapid rise in fertility during the 1960s followed by its rapid decline from the late 1970s through until 2005 has left a legacy in the form of a highly uneven age structure. This age structure will produce wave-like growth patterns in various age groups in future decades as the large birth cohorts of the 1960s to 1980s mature and age. Annual births in Mongolia peaked at about 75,000 per year in the 1985-90 period. Persons born in those years are now reaching 20-25 years of age-the early labour force ages. Generating sufficient jobs to absorb this group into the labour force is one of the major economic challenges faced by Mongolia at the present time.

The present age structure also contains the potential for rapid ageing. In the short

run the population will become more "middle-aged"; in the longer run the older population (60 and over) will increase rapidly.

This chapter has also shown that the geographical distribution of Mongolia's population has been changing rapidly, particularly since 2000. This redistribution is taking the form of a population "implosion" toward the centre of the country, centered upon Ulaanbaatar. Western, Eastern and Khangai regions are losing population share and also declining in absolute number. Central is stable and Ulaanbaatar has doubled its population share since 1963. The population share of almost all aimags is declining and in many the absolute population size is also falling. Only those aimags benefiting from mining development are increasing their population share and experiencing population growth.

The primary determinant of population re-distribution is internal migration. Aside from Ulaanbaatar, all regions have net migration loss, with Western and Khangai having the largest migration losses. Ulaanbaatar has been gaining about 54,400 migrants on average per year over the past decade. Population re-distribution in Mongolia clearly takes the form of urbanization, with Ulaanbaatar the primary locus of growth.

### **Policy implications**

Policy issues will be covered in greater detail in the following chapters. Based on the above analysis, the following issues can be identified:

- **Fertility transition.** The maintenance of fertility above replacement level (2.1 children per woman on average) to ensure long-run population growth and to alleviate the problems associated with rapid ageing. Although the average number of children per woman has risen to 2.6, this rise may be temporary and some policy response may be called for.
- **Mortality transition.** Male life expectancy is lower than it should be due to high male adult mortality. Efforts are needed to address non-communicable disease, diet, exercise, alcohol consumption and tobacco use among men.
- **Labour force absorption.** New entrants to the labour force will increase in number in the short-run before falling again. This pattern of rise and fall has implications for education, training and employment creation. There may be cycles of labour shortage and surplus.
- **Social services and planning.** Age structure patterns suggest a future of fluctuations in demand for services, particularly health and education as different age groups increase and decrease.
- **Rapid urban growth.** The absorption of population growth, particularly in Ulaanbaatar will be an on-going challenge. The implications of a high level of urban primacy will require review.
- **Prospects for population decline in rural areas.** Declining population share in some regions and aimags and absolute decline in others. This will have implications for service provision, rural and regional development.



# The Impact Of Population Trends On Socioeconomic Development

This chapter considers the impact of population change and growth on Mongolia's socioeconomic development. As pointed out in the main introduction, the standard model of the relationship between population and development envisions that population growth will reduce the rate of economic growth by diverting funds away from capital investment toward "demographic" investment—the investment required to simply maintain the same level of living among a larger population. Demographic investment in that sense does not contribute to a higher quality labour force, nor create new employment opportunities. While total economic output may increase, average income remains the same, or possibly declines.

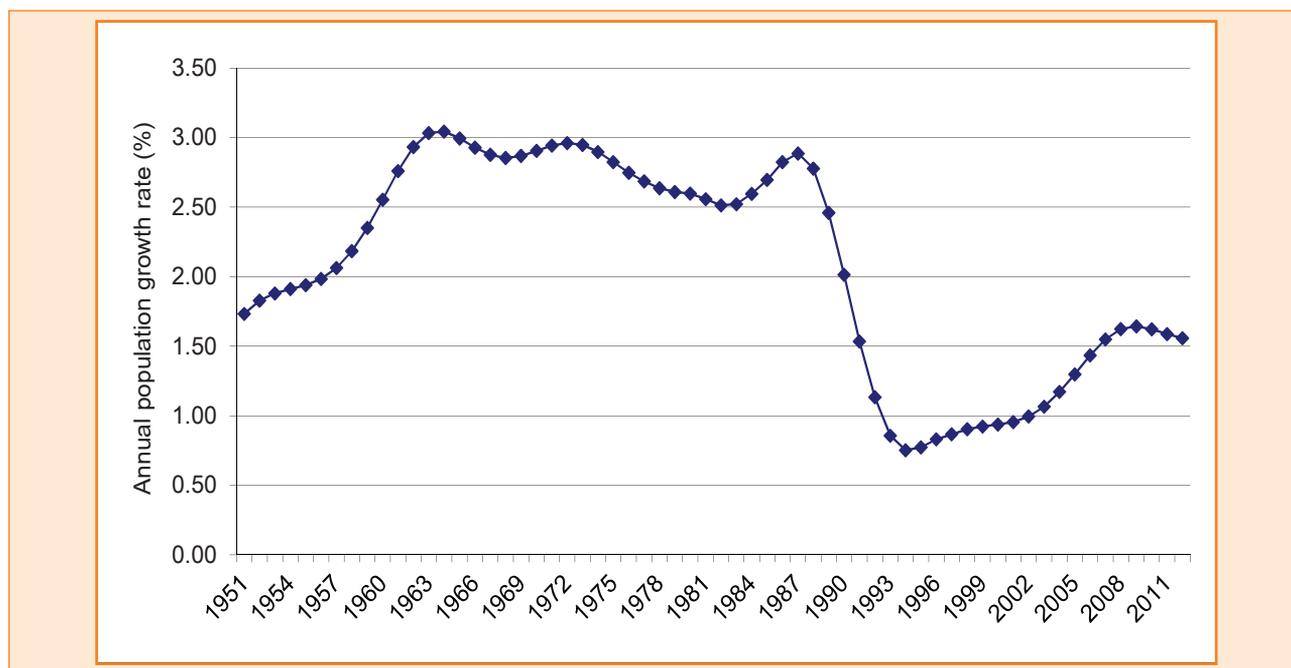
The type of evidence required to support the expectations of the standard model would include: static or falling school enrolment ratios; rising unemployment and under-employment rates; growing poverty; static or rising infant and child mortality rates and a static or falling per capita GDP—in short, a declining standard of living. Although a variety of conditions may contribute to such negative trends, population increase may be one of them. Where general living standards are rising, despite rapid population growth, it can be argued that population growth is not

providing a brake on development; and in some cases it may be claimed that population growth has been a positive factor.

An important qualification to the standard model is that it is referring primarily to situations of "rapid" population growth. Although there is no precise definition of what rate of growth is *rapid*, the general rule of thumb used by economic demographers is that an annual growth rate above 2 percent per year is rapid or fast. Figure 2.1 shows that by this standard the period of rapid population growth in Mongolia lasted from 1957 to 1990—a period of 33 years. However, from 1960 to 1987 (a period of 27 years) the rate of growth was 2.5 percent and for about a decade (1963-73) the rate of growth was just below 3 percent. Thus, Mongolia's population growth rate was rapid for about three decades.

As Figure 2.1 also shows, the rate of growth plummeted from 1987, reaching rock-bottom (0.8 percent) in 1994. Subsequently the growth rate has risen again to a little over 1.5 percent per year. By the standard given above, Mongolia no longer has a "rapid" rate of population growth and is unlikely to return to rapid growth in the future.

**Figure 2.1: Population growth rate by year, 1950–2010**



Source: World Population Prospects: The 2010 Revision, The United Nations Population Division, 2011.

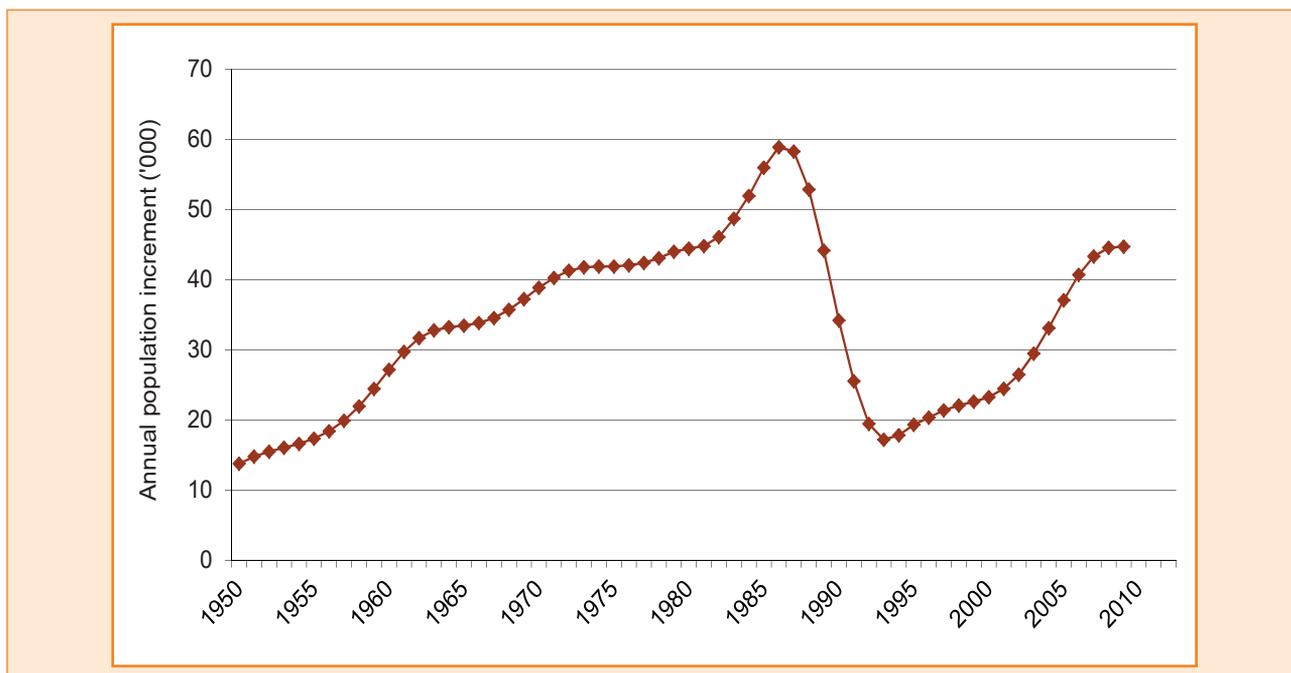
Although the rate of growth is an important statistic, the absolute number of people being added to the population is a more meaningful indicator of population “pressure”. Figure 2.2 shows that the annual additions to Mongolia’s population increased from about 14,000 in 1950 to just under 60,000 in 1987. After the rapid decline in the growth rate during the 1990s, the annual population increment dropped to below 20,000. It began increasing again to reach 45,000 in 2010. Mongolia therefore experienced maximum population “pressure” (on institutions and resources) during the late 1980s. A new phase of population growth (as measured by the annual increment) commenced around 1995 and has now reached the level of the early 1980s. Although the *rate* of growth has declined, the base population is increasing so the

annual addition to the population is also increasing again.

When a population is growing by natural increase rather than in-migration, the annual increment is made up mainly of births, less infant and child deaths. In Mongolia, the annual number of births (Figure 2.3) essentially follows the same pattern as the total population increment with a constant rise in annual births to reach a maximum of 75,000 per year in the late 1980s, dropping to 47,000 in the 2000-2005 period and rising again to 62,000 in the 2005-10 period<sup>9</sup>. These fluctuations are clearly a function of the rise and fall of the birth rate a generation earlier.

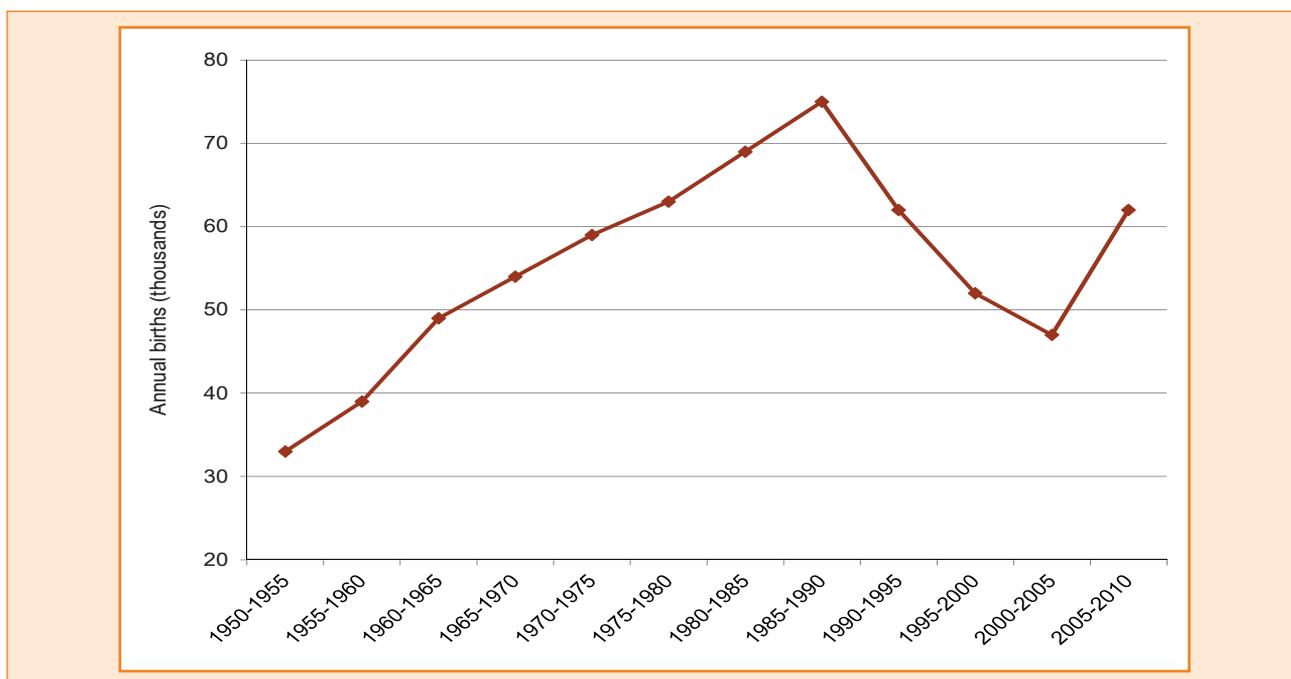
<sup>9</sup> The Ministry of Health reported 70,576 births in 2011 (NSO, Monthly Bulletin of Statistics, 2012/7.)

**Figure 2.2: Annual population increase by year, 1950-2010**



Source: World Population Prospects: The 2010 Revision, The United Nations Population Division, 2011.

**Figure 2.3: Annual births, 1950-2010 (5-year averages)**



Source: World Population Prospects: The 2010 Revision, The United Nations Population Division, 2011.

Fluctuations in annual population increase present a confusing picture to development planners who may be attempting to ensure that the supply of public services (health and education in particular) responds to demographic demand. The rapid decline in the number of births in the early 1990s would have substantially reduced the pressure on birthing facilities and mother and child health personnel. But it would have been a mistake to assume that this trend would continue and that the training of maternal health personnel could be rolled back and birthing facilities converted to other uses. Similarly, it would have been a mistake for education planners to assume that the declining number of entrants into primary schools indicated a permanent trend when the data suggest that this dip would be temporary and that primary school numbers would rise again within a few years. Similar issues arise when considering changes in the labourforce.

### The labour force

The size of a labour force is obviously a major factor in total economic output. An increasing labour force implies an increase in total output, assuming that average output per worker remains the same. If the productivity of labour and other factors of production are also increasing, then per capita income will also rise. If output is only increasing at the same rate as the labour force, or more slowly, then per capita income will remain static or decline and the economy will remain in a "population trap". However, the determinants of total output are obviously complex and depend upon the

type of economy. In a resource-extraction economy, for example, a rise in export prices will increase GDP without necessarily increasing the size of the economically active population or the proportion that is employed.

The potential labour force is the population of working age (typically age 15 and over) less the economically "inactive" groups (students, the disabled, retired persons and "domestic" workers). Although the *rate of growth* in Mongolia's working age population has fluctuated widely, there has been a steady increase in the population aged 15 and over (Figure 2.4). The trend follows a similar exponential growth curve as the total population. The actual increase has been from about 500,000 in 1950 to 2.0 million in 2010. The "economically active" (labour force) population is that segment of the working age group that is contributing to economic output as measured by Gross Domestic Product (GDP) or is able and willing to contribute to output. This proportion is measured by the "participation rate"—the percentage of the 15 and over population that is either employed or unemployed.

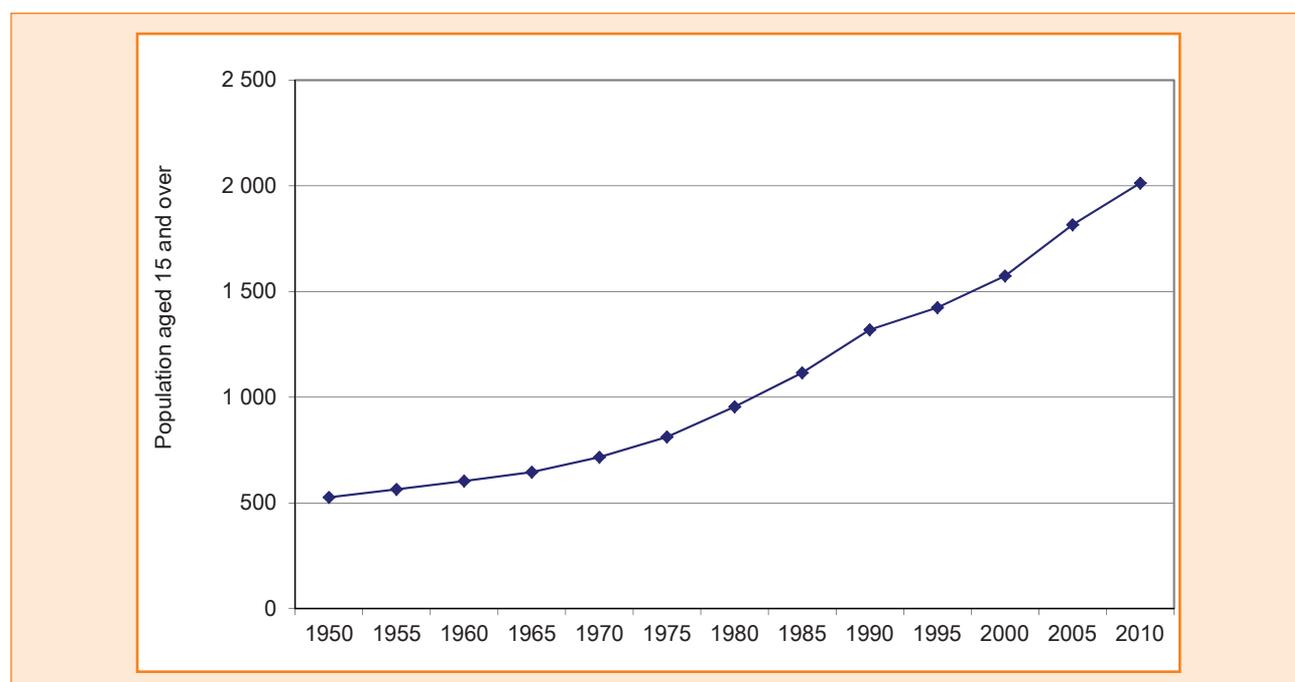
Long-term comparable data on this indicator are unavailable<sup>10</sup> but Table 2.1 shows that the participation rate has fallen from 61.9 percent in 2000 to 56.4 percent in 2010. This suggests that there has been a shift out of the labour force and into the economically inactive population over the decade. Such a shift could occur even in the absence of a

<sup>10</sup> In earlier censuses, the labour force participation rate was calculated as a percentage of males aged 15-60 and females aged 15-55. Using such measures increases the participation rate substantially. See Ronnas (2011).

growing population of working age, so the question is whether this shift is related to demographic factors or only to economic ones. The demographic explanation would be supported if the number of persons who were economically active remained static and all the growth in the labour force age groups was

among the economically inactive groups. The economic explanation would be supported if the absolute numbers in the economically active group were increasing and that the drop in the participation rate reflected a relative shift to other categories, such as higher education.

**Figure 2.4: The working age population 1950-2010 (15 and over)**



Source: World Population Prospects: The 2010 Revision, The United Nations Population Division, 2011.

In fact, the data show that both processes have occurred. The economically active population has increased by 13.9 percent over the decade and some categories of the economically active population have increased at a much higher rate (e.g., employers and employees). Furthermore, the number of persons in employment has increased by 132,500 (from 83 to 85 percent of the labour force) over the decade. On the other hand, there were about 250,000 more persons in

the economically *inactive* categories in 2010 compared with 2000—a 43 percent increase.

The main conclusion to be drawn from Table 2.1 is that the economy has not fully absorbed the increasing population of working age into the labour force over the past decade and that there has been a significant increase in the economically *inactive* population. Although the number of economically active persons has

increased by 13.9 percent, the increase in the working age population was 25 percent over the same period, thus

there was a significant shortfall in the economically active population relative to the potential.

**Table 2.1: Labour force status of the population 15 years and over in 2000 and 2010**

Labour force status	2000		2010		Change 2000-10	
	Number	Percent	Number	Percent	Number	Percent
Total population	2,373,500	--	2,647,545,	--	274,045	11.5
Population 15 and over	1,524,372	64.2	1,905,969	72.0	381,597	25.0
<b>Total economically active</b>	<b>944,083</b>	<b>61.9</b>	<b>1,075,780</b>	<b>56.4</b>	<b>131,697</b>	<b>13.9</b>
Employers	9,964	1.1	26,895	2.5	13,041	130.9
Employee	321,444	34.0	604,588	56.2	191,184	59.5
Self-employed	243,242	25.8	297,991	27.7	9,503	3.9
Members of cooperatives	3,690	0.4	2,152	0.2	-1,836	-49.8
Contributing family member	197,441	20.9	138,776	12.9	-79,677	-40.4
Other	3,400	0.4	3,698	0.4	298	8.8
Total employed	<b>779,151</b>	82.5	<b>911,664</b>	84.7	132,513	17.0
Unemployed	164,932	17.5	164,116	15.3	-816	-0.5
<b>Total labour force</b>	<b>944,083</b>		<b>1,075,780</b>	<b>100.0</b>	<b>131,697</b>	<b>13.9</b>
<b>Total not economically active</b>	<b>580,289</b>	<b>38.1</b>	<b>830,189</b>	<b>43.6</b>	<b>249,900</b>	<b>43.1</b>
Attending education institution	171,003	29.5	300,494	36.2	129,491	75.7
Pension or income recipient	163,666	28.2	191,907	23.1	28,241	17.3
Disabled	36,912	6.4	55,888	6.7	18,976	51.4
Household duties	76,307	13.1	108,403	13.1	32,096	42.1
Unable to find suitable work	90,353	15.6	121,519	14.6	31,166	34.5
Not interested in working	--	-	3,283	0.4	--	--
Other	42,048	7.2	48,695	5.9	6,647	15.8
Employed as % of total population	779,151	32.8	911,664	34.4	132,513	
Employment rate*	--	82.5	--	84.7	--	2.2
Unemployment rate (narrow)*	164,932	17.5	164,116	15.3	-816	-0.5
Unemployment rate (broad)**	255,285	24.7	285,635	23.9	30,350	11.9

Source: NSO, 2010 Population and Housing Census of Mongolia

\* Percent of Economically active population.

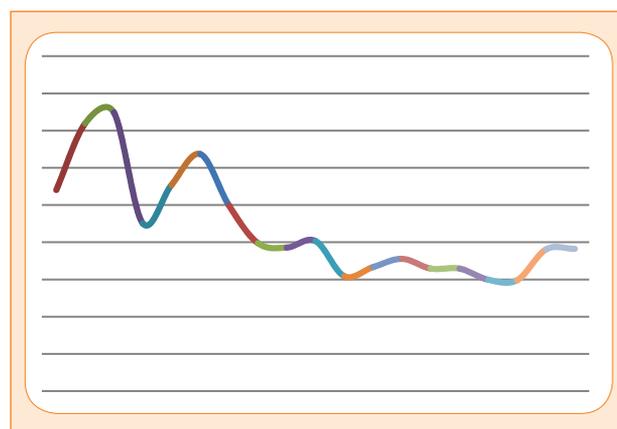
\*\* Includes those unable to find suitable work.

Over half of the increase in the economically inactive population is accounted for by an increase of 129,471 persons attending educational institutions—a 76 percent increase over 2000. This presumably reflects the expansion of university and technical education. This trend should be interpreted positively in that it reflects investment in human resources and will contribute to a more skilled labour force in the future. More troubling is an increase of 31,166 in the number of persons who reported that they were unable to find a suitable job. In 2000 there were already 90,353 persons in this category but by 2010 this had increased to 121,519—a 35 percent jump.

Equally significant from the point of view of labour absorption is what has happened to the formal unemployment rate. Unemployment can be defined *narrowly*, referring only to those persons who are without work but are willing and able to work and have actively been seeking a job, or *broadly* to include “discouraged workers”—those who are willing and able to work but have not been actively looking for a job because they believed that an “appropriate job” was not available. According to census data, the number of persons unemployed in the narrow sense based on job-search activity declined only slightly (a drop of 816 persons or -0.5 percent) between 2000 and 2010. The unemployment rate accordingly declined from 17.5 to 15.3 percent. Using the “broad” definition of unemployment, the unemployment rate has decreased only very slightly from 24.7 percent to 23.9 percent over the decade.

The number of “registered” unemployed is not comparable with census data because the latter includes persons who have not registered. However, the trend in registered unemployment is not unlike that indicated by census data. Unemployment rose sharply during the 1990s due to the collapse of many industrial enterprises in cities (Figure 2.5) precipitating urban-rural migration. Although the number of registered unemployed has trended downward since the mid-1990s, from 2000 onwards the trend is basically flat, despite some fluctuations, with a tendency to increase over the last few years.

**Figure 2.5: Registered unemployed (1992–2010)**



Source: NSO

In sum, while the economy of Mongolia has been absorbing labour over the past decade the rate of absorption has been much slower than the rate of increase in the population of labour force age. The shortfall in labour absorption has been partially made up by the expansion of educational opportunity, but not fully. The number of pensioners and income recipients has also increased as well as

the population engaged in household duties. On the other hand, the number of job seekers has remained static and the number of “discouraged” workers has increased. Both the narrow and broad unemployment rates have remained about the same.

Can this situation be attributed to demographic change? Clearly demographic change alone cannot explain the inadequate rate of labour absorption, but there is no doubt that there has been demographic pressure on the labour force. During the 2000-2010 period the population of labour force age was growing at 2.5 percent annually. Although not as high as during the 1980s, this rate is certainly high enough to provide significant pressure on the labour market. This pressure is particularly evident when population growth patterns are broken down by age groups (Figure 2.6). The most rapid and largest increases have been in the 15-19 and 20-24 age groups, although the former is now declining as a result of fertility decline 20 years previously.

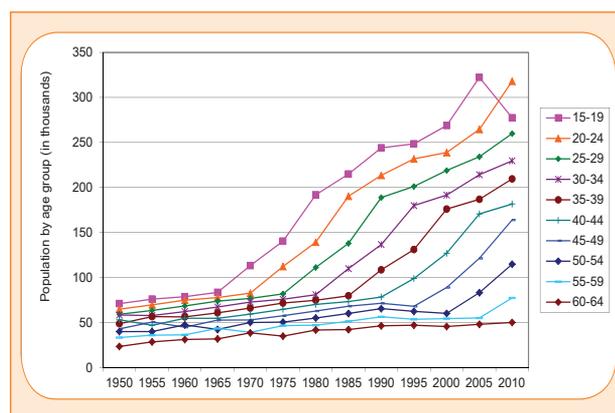
Demographic increase has certainly contributed to the increase in surplus labour in Mongolia, although it is not its primary cause. The counter-factual proposition that had the rate of population growth in the labour force ages been higher (e.g., 3 percent per year), the supply of surplus labour would have been greater is difficult to prove but is highly likely.

### Policy implications

The policy implications of these data have to do with capacity of the economy to

create sufficient employment to meet the demographic demand. Increasing the absorptive capacity of the economy would require a development strategy that focuses on job creation. The large number of “discouraged” workers also suggests that the “quality” of the jobs on offer is insufficient to satisfy the aspirations of new, educated labour force entrants and that other forms of income support are available that allow the unemployed to remain outside the labour force. This is a form of “structural” unemployment, that can only be corrected by the development of more appropriate skills to meet the existing labour market demand.

**Figure 2.6: Population increase by age groups, 1950-2010**



Source: World Population Prospects: The 2010 Revision, The United Nations Population Division, 2011.

### Dependency

As discussed further in the following chapter, recent demographic trends should have been *favourable* to economic development and growth because the proportion of working age people in the total population has increased from 58 percent in 1989 to 73 percent in 2010 (Table 2.2). This means that, conversely,

the proportion of persons in the “dependent” age groups (0-15 and 65 and over) has been declining, thereby reducing

the dependency “burden” on society and the economy.

**Table 2.2: The working age population as a proportion of the total population (by census years)**

	1989			2000			2010*		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total population	2,043,954	1,020,669	1,023,285	2,373,493	1,177,981	1,195,512	2,754,685	1,363,923	1,390,762
Working age population	1,188,273	588,548	599,725	1,524,372	749,890	774,482	2,001,807	981,552	1,020,255
Working age population, %	58.1	57.7	58.6	64.2	63.7	64.8	72.7	72.0	73.4

Source: NSO.

\* Note that the 2010 figures include Mongolians living abroad. Table 2.1 is based on the resident population only.

This demographic situation is known as the “demographic window of opportunity” or “demographic bonus”, concepts referred to in the introduction. It is considered a bonus because the economic pressure of having a high proportion of dependents in the population is temporarily relieved, thus allowing public and private expenditure to concentrate on improving the quality of human resources and investing in productive enterprises. The “window” is open widest when the proportion of children (0-14) has fallen as a result of declining fertility but the proportion of elderly dependents in the population has yet to rise significantly. This is the present situation of Mongolia and will remain so for some years to come (Spoorenberg, 2011). When the proportion of elderly in the population starts to increase, as it will over the next decade or so, the “window” will begin to close because both public and

private expenditure will once again have to focus on supporting an increasing number of dependents, leaving less revenue available for investment in development and improving skills.

The temporary reduction in the dependency burden creates an opportunity for higher household savings rates, reduced pressure on public services, increased government revenue and more investment in the human capital of children through higher quality education. But without favorable socio-economic conditions to absorb the increased number of working age persons, the “demographic bonus” cannot ensure economic development. Instead, the “youth bulge” is likely to become a burden on the social welfare system and potentially a cause of social unrest (Urdal, 2004). As shown above, the current trends are in

this direction with the economy unable to absorb the growing youth population in productive employment. So long as government revenue holds up, educational scholarships can continue to make it possible for young people to remain economically inactive, while also reducing social tensions, but eventually the youth have to graduate and find employment according to the normal life-cycle.

### The changing structure of the labour force

The structure of employment by sector has changed considerably over the last ten years 2000-2010 (Table A2.1 in the annex section) as the structure of the economy has changed. Employment in the agricultural sector has declined from nearly half in 2000 to little over a quarter

of total employment in 2010. Since 2005 (Table 2.3) the share of industry has started to grow again as a result of mining activities after declining steady since the 1990s. The contribution of mining to GDP has more than doubled in the last ten years from 11 percent in 2000 to nearly 24 percent in 2010. However, the rate of employment in mining and construction is relatively low. While agriculture's share of GDP is 14 percent, its share of total employment is 66 percent. By contrast, the mining sector produces nearly one quarter of GDP but less than 5 percent of the labour force is engaged in mining (NSO, 2011). These data simultaneously explain the high level of rural poverty and the difficulties of absorbing labour in an economy dominated by resource extraction.

**Table 2.3: Percentage share of GDP, by sector, 1970-2010**

Sector	Years						
	1970	1980	1990	1995	2000	2005	2010
Agriculture	33.1	17.4	15.2	38.0	29.1	24.7	14.3
Industry	26.3	33.3	40.6	27.5	21.9	34.4	36.2
Services	40.6	49.3	44.2	34.5	49.0	50.0	49.5

Source: ADB (1994) and ADB (2004a), NSO (2010)

Paradoxically, despite the presence of considerable under-utilized labour in Mongolia (reflected in a high and static unemployment rate) the mining industry finds it necessary to employ migrant workers. According to the 2010 census, the number of foreigners living in Mongolia for over 6 months has doubled since 2000, exceeding 6 thousand in 2010

(NSO, 2011). In particular, the number of foreigners working in Umnugobi province where mining is concentrated has increased from only 8 persons in 2000 to nearly 4 thousand in 2010. Of the 16,320 foreign nationals resident in Mongolia, nearly 84 percent are contracted employees and over 57 percent are working in mining and construction.

The other paradox is the co-existence of high unemployment and a large number of unfilled job vacancies. According to a study commissioned by the National Committee for Innovation and Development (2011), there were 100,000 unemployed and 50,000 unfilled vacancies in 2010. This discrepancy arises in part because a high proportion of university and college students study the humanities and social sciences rather than the science, engineering and technical subjects in demand in the mining, construction, and infrastructure sectors. These statistics suggest that the low rate of employment growth relative to the expansion of the working age population is partly a result of a skill mismatch on the labour market. The particular range of skills in demand in the mining sector does not appear to match the skills available among the unemployed or the recently graduated. This situation is not unique to Mongolia. Most mining operations in developing countries have difficulty recruiting labour to take up the remote and often dangerous jobs associated with mining.

Part of the solution to this problem in Mongolia is to increase the emphasis on technical and vocational education and training (TVET). This shift of focus has already occurred with the development of a TVET strategy. In time this strategy will possibly enable Mongolia to meet the skills requirement of the mining industry, thereby addressing the issue of youth unemployment and dependence on migrant labor. It is important, however, for economic and educational planners to pay close attention to the projected population entering the labour force ages in the coming years. Because of the

unevenness of the age structure it is likely that the young labour force population will be fluctuating over the next decade.

### **Economic growth and national income**

Despite the vast land area of Mongolia, the size of its economy is quite small. Total GDP in 2010 was \$10.8 billion (in \$PPP)<sup>11</sup>. This makes Mongolia the second-smallest economy in Asia next to the Maldives. Mongolia's total economic output falls just below Laos and the Kyrgyz Republic. However, Mongolia's economy has grown rapidly over the 2000-10 decade. This is evident from Figure 2.7, which shows a rapidly growing economy, with total output increasing by a factor of 3 over a ten-year period. But it is important to note that GDP in 2000 was significantly lower than it had been a decade earlier. In the early 1990s, the Mongolian economy was in crisis and by 2000 total output had shrunk by more than half its previous level and infrastructure was collapsing.<sup>12</sup> Consequently, much of the growth that occurred in the following decade was off a historically low base and reflected the re-building of the economy on free market foundations.

Per capita income in Mongolia has grown over the past decade at a similar rate to total output. Figure 2.8 shows the trend in per capita GDP, also expressed in \$PPP. The World Bank classifies countries based upon Gross National Income (GNI). Mongolia's per capita GNI of \$1,890, places the country in the "lower

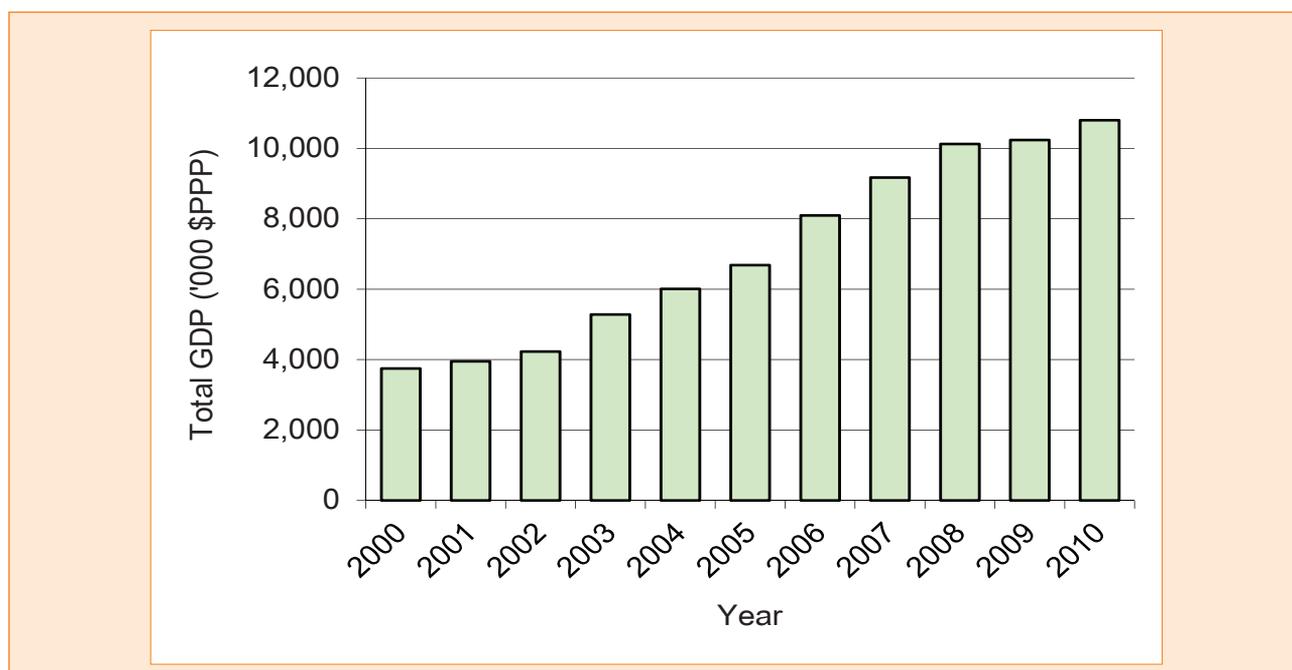
<sup>11</sup> PPP= purchasing power parity, which is based on international dollars adjusted to remove the effects of exchange rate variations.

<sup>12</sup> Asian Development Bank (2010).

middle-income” category based on the Bank’s system of classification.<sup>13</sup> Other Asian countries that fall in this category include the Philippines (\$2,050), Sri Lanka (\$2,290) and Indonesia (\$2,580). Despite rapid economic growth, Mongolia’s comparative position in the Asia-Pacific region has barely changed over the past decade. In 2000 Mongolia ranked 26 out

of 33 Asia-Pacific countries in GDP per capita and fell well below the average for developing countries in the region. In 2010, Mongolia still ranked 26<sup>th</sup> out of 33 countries, so despite significant economic growth its relative position has not changed.<sup>14</sup> Mongolia’s per capita GDP remains about half that of China’s and less than half that of Thailand’s.

**Figure 2.7: Total Gross Domestic Product 2000–2010 (\$PPP)**

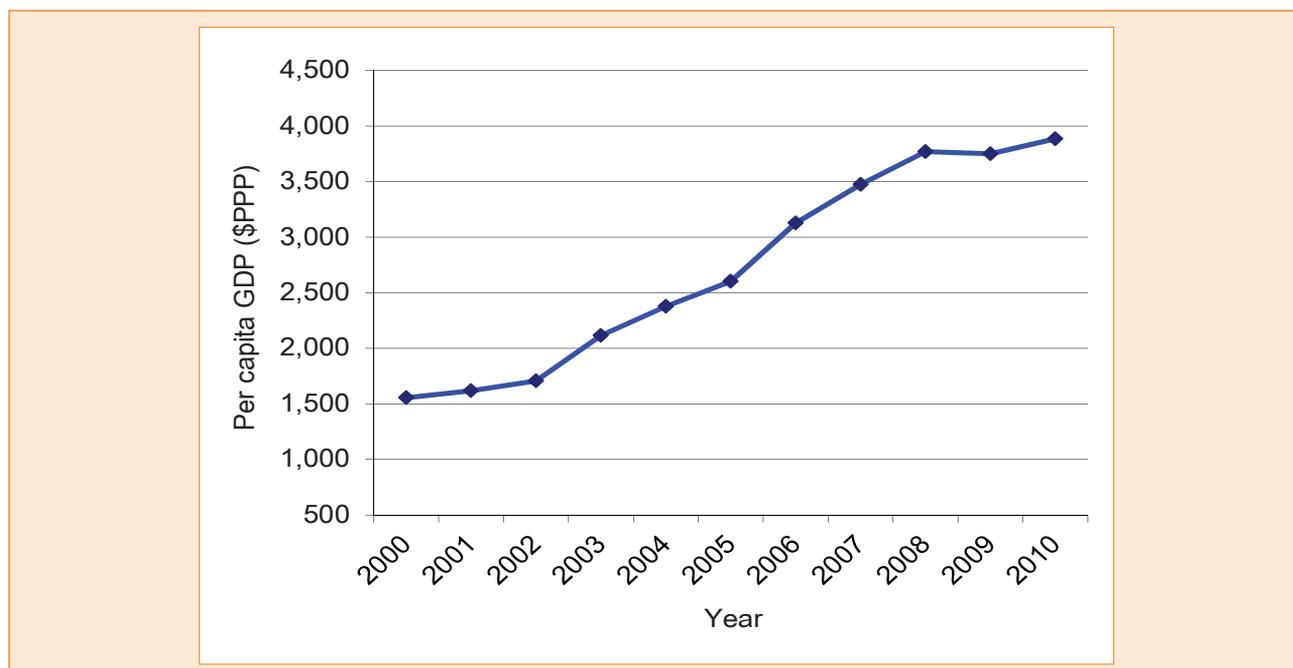


Source: ADB (2011c).

<sup>13</sup> <http://data.worldbank.org/about/country-classifications>

<sup>14</sup> ADB (2011c).

**Figure 2.8: Per-capita GDP 2000-2010 (\$PPP)**

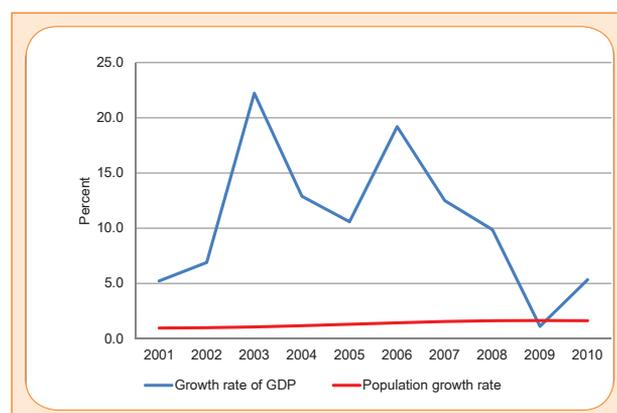


Source: ADB (2011c)

Mongolia's economy contracted during the 2008-09 global recession. Economic growth was negative in 2009 (-1.3%) but became positive again (6.1%) in 2010. This contraction had an impact on the growth of per capita GDP, which leveled-off between 2008 and 2009 (Figure 2.9). The principal cause of the economic downturn was a 26 percent drop in exports. This demonstrates the extent to which Mongolia has become an export-oriented economy and vulnerable to international shocks, particularly commodity prices. Exports currently account for 57 percent of GDP. By contrast, China's exports account for only 30 percent of its GDP due to its large domestic economy.<sup>15</sup>

<sup>15</sup> ADB (2011c)

**Figure 2.9: Economic growth (GDP) and population growth (2001-2010)**



Source: ADB (2011c); NSO (2011).

### The impact of population

From a purely arithmetical perspective, a slower rate of population growth translates into a higher rate of economic growth, providing that total output is increasing. Conceptualized as a race

between the growth of output and the growth of population, it is clear that in Mongolia the growth of output has been winning (Figure 2.8). This would have been the case had the rate of population growth doubled or tripled. However, the economic slump in 2008-09 illustrated the extent to which increasing per capita income is dependent upon on high commodity prices and export revenue.<sup>16</sup> Although the rapid rate of increase in the population of labour force age over the past decade has contributed to the problems of labour absorption, the solution is not demographic but economic. As will be shown in the following chapter, labour force growth can be expected to continue for the foreseeable future as a new phase of population growth occurs. The problem of labour force absorption is therefore not going to disappear soon. As Ronnas<sup>17</sup> has argued, the challenge for Mongolia is to how to achieve “job-rich” economic growth in order to absorb the pool of “surplus labour” that has emerged since the 1990s and to make the economy less dependent on commodity exports. From a demographic perspective this calls for “population-responsive” policies that reflect the inevitable (and predictable) consequences of the demographic dynamics of a generation ago. What these policies should be in detail is beyond the scope of this paper but several authors have argued that further structural reforms to improve market efficiency and boost the manufacturing sector are called for.<sup>18</sup>

<sup>16</sup> The decline in export income had a major impact on government revenue and forced the government to borrow funds to support its budget.

<sup>17</sup> (2011)

<sup>18</sup> Lanchovichina and Gooptu (2007); Ronnas (2011)

### Poverty and human development

High levels of unemployment and other forms of underutilized labour in a low- or medium-income developing country would be expected to produce a significant level of poverty, and this is what is observed in Mongolia. The exact poverty picture in Mongolia is somewhat confused by variations in definition. Mongolia’s MDG report clearly uses a national poverty line rather than international standard measures, as is common practice in many countries. In Mongolia MDG 1 refers to halving the population living below “the minimum living standard” rather than halving the proportion of the population living in “absolute poverty” as per the original MDG framework. The figures in Table 2.4 refer to the minimal living standard definition, at least from 1995 to 2010.

It is apparent that poverty by this definition has remained stubbornly high (between 35 and 39 percent of the population) for more than 15 years during a period of spectacular economic growth. In 2011 the poverty rate is reported to have dropped to about 30 percent possibly as a result of changes in the method used to calculate it. Social transfer programmes may also have had some effect.

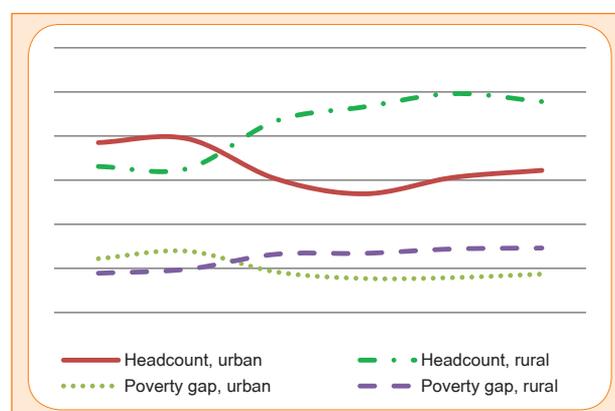
**Table 2.4: Key poverty indicators 1995–2010**

Poverty indicators	National average						
	1995	1998	2002–2003	2007–2008	2009	2010	2011
<b>Headcount</b>	36.3	35.6	36.1	35.2	38.7	39.2	29.8
<b>Poverty Gap</b>	10.9	11.7	11.0	10.1	10.6	11.3	7.6
<b>Poverty Severity</b>	4.8	5.6	4.7	4.0	4.1	4.6	8.0
<b>Giniindex</b>	na	na	0.33	0.36	0.33	0.33	na

Source: NSO (2011) na=not available

Despite large-scale rural-urban migration, official poverty rates are presently much higher in rural areas than in urban ones (Figure 2.10). In the 2007-2008 period the poverty headcount was 47 percent in rural areas compared with 27 percent in urban areas and 22 percent in Ulaanbaatar. As Figure 2.10 shows, the geographical distribution of poverty changed in the early years of this century. During the 1990s rural poverty rates were lower than in urban areas and rural poverty was declining. This was made possible by favourable weather conditions for animal husbandry combined with good cashmere prices on domestic and export markets, resulting in improved incomes and livelihoods among the rural population compared to urban dwellers. Urban conditions were worsening as a result of severe job losses in both the private and public sectors.

**Figure 2.10: Poverty indicators by urban and rural population (1995–2010)**



Source: NSO

Deteriorating economic conditions in rural areas and improvement in the urban job market resulted in the poverty situation reversing around 2000 with rural poverty rates increasing and urban poverty declining. Between 2010 and 2011, the official headcount national poverty rate declined from 39 to 30 percent—a decrease of 24 percent in one year. In rural areas poverty declined from 48 to 33 percent, a drop of 30 percent, while in urban areas the headcount poverty rate declined by 17 percent from 32 percent to 27 percent. Thus, poverty appears to be declining

across the country. Such abrupt declines in poverty are unusual and require more in depth explanation.

### The impact of population

The primary causes of poverty are economic rather than demographic; but the two processes are linked. Over the past two decades, demographic change in Mongolia has been more a *consequence* than a cause of economic conditions, including poverty. This was evident in the large-scale urban-rural migration of the 1990s as the urban economy collapsed and rural prospects were better. It was also evident in the rapid decline of fertility during the same period as families lost confidence that their economic future was secure and curtailed child-bearing; and it was also evident in the reverse-flow of migrants from rural to urban centres as rural conditions worsened and urban conditions improved. The improved economic conditions in the country, particularly in urban areas, have no doubt contributed to the recent rise in fertility as families have regained confidence in their future. These general patterns exhibit what the demographer Kingsley Davis labeled the “multi-phasic” demographic response to changing economic conditions.<sup>19</sup> When people’s economic security is threatened by population growth and a deteriorating economic situation they will adjust their demographic behavior accordingly by reducing their fertility (by whatever means is available) and migrating to locations of greater economic opportunity.

There is little doubt that the high levels of fertility of the 1970s were

<sup>19</sup> Davis (1963).

not economically sustainable, even in the context of the socialist economy. Such high rates of fertility were also not sustainable from the viewpoint of the health and welfare of women and children. Rural women in particular suffered the impact of the pro-natalist policies of the socialist period. In the 1975-1980 period, the TFR in rural areas reached 8.2, an extremely high level.<sup>20</sup> The urban TFR in this period was significantly lower (5.9), but still very high by the standards of developing and developed countries at that time. Had these rates continued, or declined more slowly, the impact of the economic collapse in the 1990s would certainly have been worse and poverty would more than likely have been higher.

The impact of demographic factors on poverty (the reverse causation to that suggested above) is perhaps more evident at the micro-level of families and households than at the macro-level of geographical regions. Ronnas observed that

While only 13.4 per cent of the two member households and 21.8 per cent of the three member households were below the poverty line in 2007/08, 53.4 per cent of the households with seven members and 69 per cent of the households with more than eight members suffered from income poverty.<sup>21</sup>

<sup>20</sup> National Statistical Office, unpublished data. This figure refers to *average* fertility. Allowing for the probability that some women were infertile, that others died before living out their full reproductive years or became widowed, and that maternal mortality would have been high, some women would have been giving birth to many more children than the average.

<sup>21</sup> Ronnas (2011).

More analysis of poverty data would be required to determine the extent to which large household size is a function of higher fertility or migration, although it is likely to be a function of both.

### Human development

Human development refers to standards of health and education, both of which are linked to the quality of the labour force. The Human Development Index (HDI) combines education and health indicators to create a broader indicator of human welfare than per capita GDP. Human development can be improving, regardless of trends in per capita GDP, depending upon how effectively and efficiently national income is being spent. Mongolia's 2011 HDI of 0.653

ranks it 110 out of 187 countries and places it in the "medium human development" group". Mongolia's HDI is below Thailand's but above Indonesia's and Viet Nam's. In general, Mongolia scores well on human development relative to its per capita GNI. Although Indonesia has higher GNI per capita than Mongolia, its HDI is lower. While Mongolia's high rate of economic growth has not created sufficient jobs to employ the population of working age, human development has nevertheless been improving. Although Mongolia's HDI declined after 1990, since 1995 has improved at a similar rate to the "medium human development" countries as a group.<sup>22</sup> Mongolia's HDI and its components are shown separately in Table 2.5.

**Table 2.5: Human Development Index (HDI) and indicators, 1980 to 2011**

Years	Life expectancy at birth	Expected years of schooling	Mean years of schooling	Per capita gross national income	HDI
1980	57.3	10.8	5.7	..	..
1985	58.8	10.6	6.6	2,073	0.529
1990	60.5	10.0	7.6	1,953	0.540
1995	61.2	7.7	7.7	1,835	0.519
2000	63.1	9.5	8.1	1,997	0.555
2005	66.0	12.6	8.2	2,550	0.611
2010	68.2	14.1	8.3	3,136	0.647
2011	68.5	14.1	8.3	3,391	0.653

Source: <http://hdrstats.undp.org/images/explanations/MNG.pdf> (accessed in 29/5/2012)

One reason for the improvement in Mongolia's HDI is that the expected years of schooling and mean years of schooling have increased from 1980 to 2011. The most recent values are 14.1 and 8.3 years, respectively. In order to have a point of comparison, these values are 15.9 and

11.3 years, respectively, in countries with the highest HDI and 8.3 and 4.2 years in countries with the lowest HDI. In other words, Mongolia scores relatively high on these indicators.

<sup>22</sup> UNDP Human Development Report: <http://www.undp.org>

Mongolia's ranking on other education indicators such as literacy and school enrolment (Table 2.6) is also good relative

to high HDI countries, although the percentage of GDP spent on education is lower than expected.

**Table 2.6: Selected indicators of performance of the education system, Mongolia and countries with the highest and lowest Human Development Indices (HDI), circa 2010**

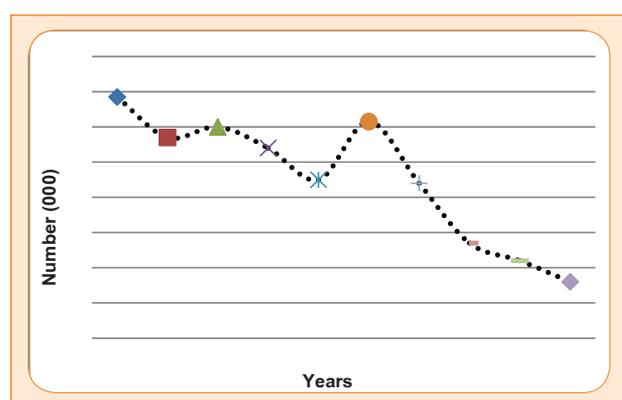
Indicators	Mongolia	Highest HDI	Lowest HDI
Percentage of adult illiteracy (15+years)	97.5	93.2	59.8
Gross Enrollment Ratio			
Primary	110.1	102.7	96.5
Secondary	92.2	99.7	35.0
Tertiary	52.7	72.9	6.2
Pupil-teacher ratio (students per teacher)	30.4	-	-
School teachers trained to teach (%)	100.0	-	-
Public expenditure on education (% of GDP)	4.7	11.9	5.0

Source: [http://hdr.undp.org/en/media/HDR\\_2011\\_EN\\_Tables.pdf](http://hdr.undp.org/en/media/HDR_2011_EN_Tables.pdf) (accessed 30/5/2012)

Another indicator that suggests important progress in the educational system is its retention capacity, as indicated by the decline in the number of drop-outs aged 8 to 15 years. Figure 2.11 shows that after some fluctuations during the early 2000s by the second half of the decade a sharp decline can be observed.

An important feature in Mongolia's education situation is the small number of students in technical and vocational schools as compared to universities. However, this situation has started to change: in 2000 about 5 percent of the post-secondary students pursued technical studies, but by 2010 this percentage had doubled to over 10 percent.

**Figure 2.11: School drop-outs (000), age 8 to 15 years, 2001 to 2010**



Source: NSO

### The impact of population

The slow pace of population growth during the 1990s was probably favorable for the performance of the educational system, especially at the primary level. As the number of births fell, some pressure on the education system, especially in the primary grades, would have been relieved, allowing for improvements in the quality of education. As shown in the next chapter, the upward trend in the birth rate will again place pressure on the

education system within a few years, and this is something that policy-makers in the education field will need to take account of.

## Basic social services: health and housing

### Health

Mongolia made rapid progress in many dimensions of human development and welfare during the Socialist period (1920-1990). Typically, nearly 40 percent of government expenditure was directed toward providing education, health services and social protection services to the population. As a result, early-age mortality decreased, life expectancy increased and literacy reached almost 100 percent. These achievements were set-back during the early 1990s when the socialist economy collapsed and the transition to a free-market economy commenced. The economic crisis resulted in significant reductions in education, health and other social welfare expenditures which in turn had a negative impact on the quality of life.

After a painful decade of adjustment, public expenditures again increased and social indicators have subsequently continued to improve. These improvements took place in a specific demographic context, therefore raising the question of the extent to which population dynamics have contributed in any way to maintaining or improving the supply of social services. The issue

of education has to some extent been addressed in the context of the human development index and labour force quality. This section focuses on the issue of health services.

Before the transition to the free-market economy, the health care system, based on the Soviet Union's *Semashko* model, was financed completely by the state. But the Soviet system provided health services almost exclusively in hospitals, with little emphasis on primary health care. According to the Asian Development Bank<sup>23</sup>, the *Semashko* model was not sustainable in a country with a sparse population, unless sufficient funding was provided by the government. Evidently, the system collapsed after the reforms. Nevertheless, mortality rates (other than maternal mortality, which increased temporarily) continued declining.

Major reforms to shift the provision of services from hospitals to primary health care services started by the mid-1990s. As Table 2.7 shows, there has been a structural shift in health service delivery, with private hospitals and clinics increasing significantly while specialized and Soum hospitals have declined in number. However, the ratio of medical doctors to population has remained relatively stable at around 27 per 10,000 population. On the other hand, the ratio of nurses to population has declined significantly from 92 to 57 per 10,000 population. The number of pediatricians has dropped by about 63 percent between 1990 and 2010.

<sup>23</sup> Asian Development Bank (2008).

**Table 2.7: Number of health centers and health providers**

Indicators	1990	1995	2000	2005	2010
<u>I. State health centers</u>					
Clinical and specialized hospitals	-	24	19	17	16
District and aimag central hospitals	-	22	30	30	35
Inter-sum hospitals	-	-	13	31	37
Soum hospitals	294	384	334	287	274
<u>II. Private health centers</u>					
Private hospital and clinics	-	238	466	683	1113
Family practice clinics	-	822	99	228	218
<u>III. Health personnel</u>					
Medical doctors	6,180	5,682	6,498	6,788	7,497
Pediatricians	1,331	692	716	488	494
Medical doctors per 10,000 people	29	25	27	27	27
Nurses and other medical personnel per 10,000 people	92	59	56	57	57

Source: NSO

It is difficult to judge the extent to which the health delivery system has responded to demographic change, but it appears that the system has improved, especially based on health outcomes. To take one example, the percentages of one-year olds lacking DTP and measles vaccination in Mongolia are quite low-5 and 6 percent, respectively. The average rates in countries whose Human Development Index is very high (the most developed countries) are 5 and 7 percent, respectively, while countries with very low HDI values have 26 and 28 percent, respectively. Mongolia's health system performs quite well on this indicator. However, the percentage of the GDP expended in health is only 4.7 percent in Mongolia while in countries with the very high human development index values is 11.2 percent and in countries with very low values is 5.1 percent. These comparisons suggest that the substantial privatization of health

services and a relative decline in the ratio of health service personnel to population have not resulted in a deterioration of health services or health status.

Given the decline in the rate of population growth during the 1990s, the demographic pressure on the health system was relatively light during the transition to a mixed private-public health system. A more serious problem during this period would have been a shrinking health budget and other resources. Had the population continued growing at the same pace as during the 1980s, maintaining health services would have been much more challenging.

However, population *growth* is not the only demographic issue; the changing age composition is also important. Although the total population has not experienced an absolute decline, the infant and child population is starting to decline (see the

population pyramids in Chapter 1). This may not have had an immediate effect on the health service demand, but it is a matter that should be considered in health planning. The middle age population and the elderly are increasing more rapidly than the child population. These trends suggest the future importance of preventive medicine and also geriatric services. The same is implied by the changes in the prevalence of selected causes of death as non-communicable diseases become the main causes of morbidity and mortality. This *epidemiological transition* will make it necessary to adjust the priorities of the health system in coming decades.

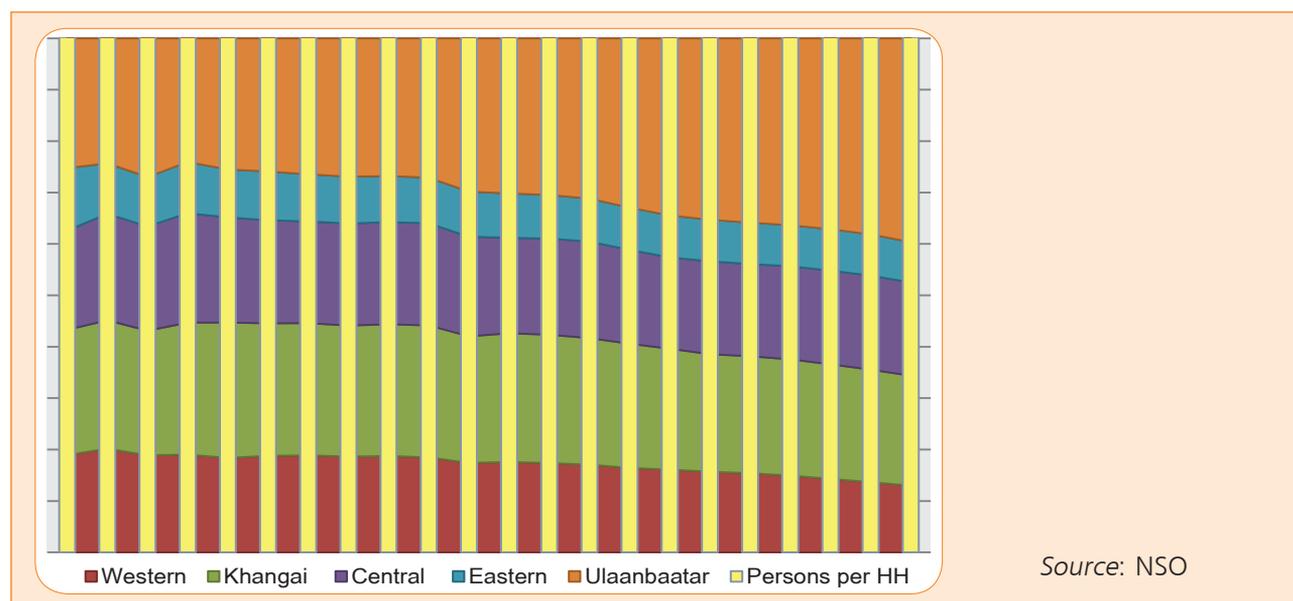
### Housing

Population dynamics directly affect the demand for housing. Particularly important is the growth in the population of prime marriage age-usually 20 to 35 years and the present number of households in the country. One indicator used to estimate the demand for housing is the male population in this age group. From 1980 to 2010 the

male population aged 20-35 increased from 163,000 to 405,000 or 2.5 times. Another useful indicator to demonstrate the increase in household demand is the growth in the number of households. From 2000 to 2010 the number of households increased from 541,100 to 713,800 or 31.9 percent in just one decade.

Demographic changes and their impact on household arrangements are evident from Figure 2.5. The average number of persons per household has fallen by nearly a quarter in 2010 compared to its 1989 level. A steep decline in the average number of persons per household occurred in 1991 and fluctuated between 1994 and 2004. Since 2005 it has fallen gradually to 3.7 persons in 2010. Also, the household numbers in all regions have fallen universally during the last decade due to out-migration. The biggest decline was in the Western region. It can be observed that the growth in household numbers in Ulaanbaatar has accelerated since 2000.

**Figure 2.12: Changes in household numbers by region and persons per household (1989-**



Modern housing is essential to ensure a clean, safe and comfortable living environment. Many families arriving in Ulaanbaatar from rural areas in search of better lives build their *gers* and settle on the outskirts of the city where in many instances access even to basic services is lacking.

Table 2.8 shows, for 2000 and 2010, the number of households by type of housing units. The table also shows the percentages corresponding to household that live in the different types of dwellings and the percentage growth from 2000 to 2010.

**Table 2.8: Households by type of dwelling 2000 and 2010**

Type of dwelling	2000		2010		Percentage growth 2000-2010
	Number (000)	%	Number (000)	%	
Total	541.1	100.0	713.7	100.0	31.9
Flat	119.0	22.0	152.3	21.3	28.0
Houses with all utilities	-	-	3.8	0.5	-
Ger	275.6	50.9	322.8	45.2	17.1
Houses without utilities	133.9	24.7	209.9	29.4	56.8
Housing not complying to standard	3.4	0.6	8.1	1.1	138.2
Other	9.2	1.7	16.8	2.4	82.6

Source: National Statistical Office, 2012

*Gers* accounted for 45 percent of all households in 2010, followed by houses without utilities; flats are in the third place. During the decade, the number of household has increased by 31.9 percent while the number of households in flats by 28.0 percent and the number living in *gers* by 17.1 percent. These percentages suggest that the number of flats increased less than the number of households during the period under consideration and that some households living in *gers*, moved to another type of dwelling. There are very slight improvements in the housing conditions between 2000 and 2010. However, if one considers absolute numbers an additional 33 thousand households are living in flats today compared to 10 years ago.

However, there is still a high demand for modern affordable housing for the majority in Mongolia. But due to low wages and a poorly developed mortgage market many cannot afford to buy a flat. Some initiatives, such as 4,000, 40,000 and 100,000 flats projects, have been introduced by the national Government. These efforts are directed not only at providing affordable modern housing with necessary utility services for middle and low income households but also to reduce the main source of air pollution in towns and cities-the ger districts.

Mongolia's construction sector has been expanding rapidly in recent years. The number of housing units per household has increased six-fold between 2003 and

2010 (Table 2.9). Many new buildings for such support services as schools, cultural activities and hospitals have also been built.

But as the rising population in the marriage age range indicates, the potential demand for modern housing will remain high.

**Table 2.9: New buildings built between and population in marriage age 2003 and 2010**

Type	2003	2004	2005	2006	2007	2008	2009	2010
Housing, <i>HH numbers</i>	1 478	3 536	3 165	4 579	3 725	5 416	6 338	9 899
Hospitals, <i>beds</i>	189	246	331	384	320	246	221	305
Schools and build-ings for cultural events, <i>seats</i>	1 784	5 725	5 093	8 641	11 641	7 894	9 965	17 593
Population in marriage age (20-30 years old)	497.3	503.1	508.9	484.4	499.6	522.7	550.7	570.6

Source: NSO

### The impact of population

Population pressure on the supply of housing is due to the high levels of fertility prevailing in the past, as well as rural-urban migration. The large cohorts born in the 1970s and 1980s became adults, formed their own household and family and obviously required a housing unit. Many of these families have migrated to urban areas, increasing the demand for housing in cities. As the new, smaller generations reach marriage age, the pressure on housing will gradually diminish. Had fertility not declined during the 1990s the pressure on housing in the coming decades would have been higher.

### Population Distribution and Urbanization

As previously noted, population redistribution in Mongolia has taken the form of urbanization, which is the increase in the urban share of total population. In turn, urbanization has been concentrated in Ulaanbaatar, resulting in a high level of urban “primacy”. Table 2.10 shows that Ulaanbaatar’s population growth rate has been high (4.2 percent) over the past decade as compared with the rate of growth in rural areas (-1.92 percent) and other urban centres (0.97 percent). Rural-urban migration is the principle driver of population growth in Ulaanbaatar, although natural increase among the present urban population has also contributed.

**Table 2.10: Indicators of population distribution according to rural, urban and Ulaanbaatar, 2000 to 2010**

Area	Year		Absolute increase	Annual rate of growth
	2000	2010		
Rural	1,029.0	849.4	-179.6	-1.92
Ulaanbaatar	760.1	1154.3	394.2	4.18
Other urban	584.4	643.8	59.4	0.97
Total	2,373.5	2,647.5	274.0	1.09

Source: National Statistical Office 2010 Population and Housing Census of Mongolia.

It is clear that most of the urban population is now concentrated in Ulaanbaatar (Table 2.11). The other urban centers are comparatively small and their average annual rates of growth are lower than the national population growth rate. This suggests negative net migration

which means that they are probably losing population. The capacity of these urban centres to provide alternative destinations for rural out-migration appears to be limited, although they may function as “stepping-stones” to Ulaanbaatar.

**Table 2.11: Population, percentages, and average annual population growth, according to type of urban centers 1989, 2000 and 2010**

Urban Center	Population			Percentages			Annual rate of growth	
	1989	2000	2010	1989	2000	2010	1989-2000	2000-2010
Ulaanbaatar	548.5	760.1	1,154.3	47.0	56.5	64.2	2.97	4.18
Darhan and Erdenet	141.8	154.8	159.2	12.2	11.5	8.9	0.80	0.28
Aimag centers	475.7	429.7	484.7	40.8	32.0	27.0	-0.92	1.20
Total urban	1166	1344.6	1798.2	100.0	100.0	100.0	1.30	2.91

Source: National Statistical Office, Population and Housing Census, 1989, 2000 and 2010

Urbanization normally plays a positive role in social and economic development. Historically, the relationship between urbanization and economic growth has been strong. Today, cities generally have greater potential for reducing poverty than rural areas and this appears to

be the case in Mongolia. Cities are the main sites of economic growth in most countries and account for a high share of national economic production: Countries that are highly urbanized tend to have higher incomes, more stable economies, stronger institutions and are better able

to withstand the volatility of the global economy. Proximity and concentration give cities the advantage in the production of goods and services by reducing costs, supporting innovation and fostering synergies among different economic sectors. But proximity and concentration also have the potential to improve people's lives directly and at lower cost than rural areas: For instance, cities can provide much cheaper access to basic infrastructure and services to their entire populations. As a result, urban poverty rates are, overall, lower than those in rural areas; the transfer of population from rural to urban areas may help to reduce national poverty rates.

In 2006 the Government of Mongolia introduced a policy on informal employment that can be considered an attempt to improve the situation of the urban poor and enhance the potential value of urbanization. The objective of this policy is to *formalize* informal employment by providing government services, creating legal, economic, labor and social protection guarantees to protect people in informal employment from risks. These policies should contribute to economic growth. The implementation strategy includes links with macroeconomic policy, legal improvements, coordination

with employment promotion policies, improvements in social protection, and cooperation through social dialogue and public participation<sup>24</sup>.

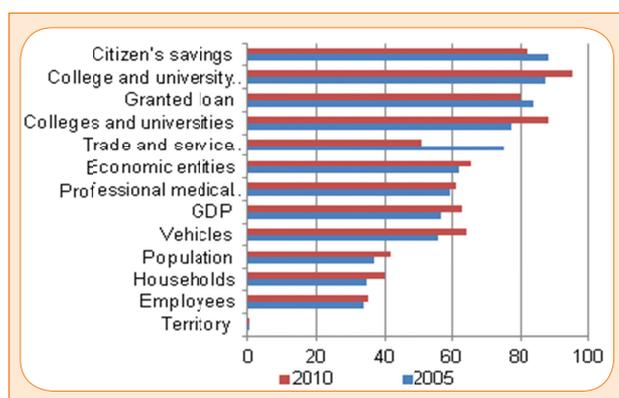
### ***Ulaanbaatar***

Ulaanbaatar is clearly the largest and the most important centre in the political, economic and cultural life of Mongolia. Regional disparities in terms of medical provision, schooling, industrial activity, financial transactions, or the location of high-income groups are extreme. Major differences are apparent in the locations of economic and social institutions. Industries, services and distribution of wealth, capital and resources are mostly concentrated in Ulaanbaatar.

While Ulaanbaatar city occupies only 0.3 percent of the total territory of Mongolia, the most prominent public and private institutions of economic, higher learning and best medical services are centred there. There is significant economic and social disparity between Ulaanbaatar city and the other parts of the country. In 2010 the capital accounted for more than 50 percent of total economic entities, medical professionals and vehicles (Figure 2.13). Ulaanbaatar is the chief generator of economic growth in the country since more than 60 percent of Mongolia's GDP is produced in the capital.

<sup>24</sup> Government of Mongolia, UNDP, ILO and SIDA (2007).

**Figure 2.13: The share of Ulaanbaatar to total, 2005 and 2010**



Source: UlaanbaatarCity Administration 2005 and 2010

As a general principle, people tend migrate from locations of low social and economic opportunity to places where opportunities are greater. This process is occurring in developing countries around the world just as it did during the early periods of development in the economically advanced countries. Ideally the urban population will be distributed across a range of towns and cities of different sizes, thereby establishing an urban hierarchy containing a small number of large cities, several medium-size cities and many small towns. However, for many developing countries only one large urban area has developed, and most rural-urban migration is directed there. This is the current situation of Mongolia. The heavy concentration of the urban population in Ulaabaatar has had many consequences for the city. Population pressure has increased the load on social and public services, increased the demand for housing and had a negative impact on environmental quality.

Even in the socialist era, when government investment in housing in

some years reached more than 20 percent of total investment, the demand exceeded the supply. The housing deficit continued into the free-market capitalist period. Rural-urban migrants solved the housing problem by use of *gers*, the traditional Mongolian tent. Ulaanbaatar, and other cities, are surrounded by districts of *gers*. The 2010 Census reported that 29 percent of households in Ulaanbaatar are in *ger* districts—more than 300,000 persons. The population in *ger* districts in the capital city has been increasing by 10 percent per year over the past decade. It is estimated that 80 percent of in-migrants in Ulaanbaatar live in *ger* districts<sup>25</sup>.

*Ger* districts do not have the level of public services that most people expect: only 22 percent of households have access to piped water, 43.9 percent have to travel more than 200 meters to get water and 63 percent have to share a toilet or do not have access to sanitation. However, 97 percent of *gers* have electricity, 80 percent have their waste collected by authorized collectors and 91 percent of occupants own their plot of land.<sup>26</sup>

### Urbanization and environmental quality

There has been a significant deterioration of air quality in Ulaanbaatar and other urban centres in recent years. The concentration of various pollutants in the air of big cities has been increasing since 2004. The number of days when this amount surpassed the amount permitted

<sup>25</sup> Bolormaa Ts.

<sup>26</sup> According to the law on land privatization, a household is entitled to own 0.07 hectare of land (this law is sometimes blamed for the expansion of *ger* district areas).

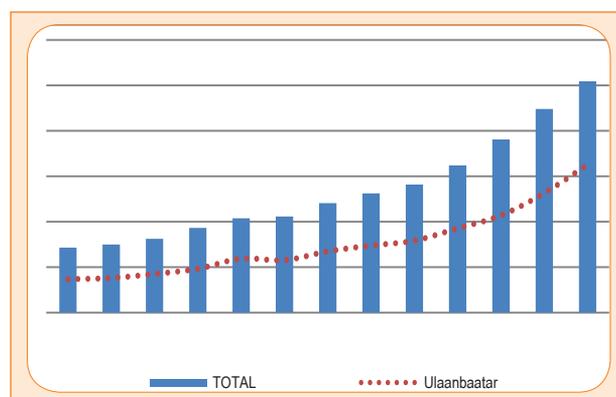
by air quality standards has been increasing as well. The annual average content amount of air pollutants in the air of Ulaanbaatar, Darkhan, Erdenet, Murun and Khovd is many times higher than that of other cities.

According to tests carried out in 2007, the amount of sulfuric dioxide in the air exceeded the acceptable limit 159 times in the months between December and March, and the amount of azot dioxide exceeded the air quality standard 512 times. The main sources<sup>27</sup> of air pollution in Ulaanbaatar are the coal and wood-burning stoves used by 154,000 households in ger district areas (90.0 percent), 3 power stations (6.0 percent), 92,700 vehicles (2.0 percent), and 1,400 medium-scale low-pressure industrial boilers (1.0 percent). These sources consume about 5.9 million tons of coal and 2,372 cubic metres of wood, in turn which emit 260,000 tons of pollutants into the air-318 kg of pollutant per person in the city. Lack of green facilities, garbage thrown in open space and areas with soil erosion contribute to suspended particles in the air. Construction and land erosion in and around Ulaanbaatar has contributed to an increase in dust clouds with a negative impact on air quality.

The number of automobiles in Mongolia, and particularly in Ulaanbaatar, has been increasing at a much faster pace than total population or indeed the urban population (Figure 2.14). The number of vehicles in Ulaanbaatar increased from 13,600 in 1990 to 106,800 in 2008-an

average increase of almost 30 percent per year. It is estimated that these vehicles emit an 14-15 tons of lead per year.<sup>28</sup>

**Figure 2.14: Registered vehicles 1998-2010 in Ulaanbaatar and Mongolia**



### Health consequences of air pollution

The effects of common air pollutants on health is obviously negative, Sulphuric dioxide (SO<sub>2</sub>) deteriorates respiratory system and causes coughing and sore eye, as well as diseases of asthma and lungs (table 2.15). Carbon monoxide (CO), on the other hand, contributes to heart attack, other cardiovascular diseases, and asthma. CO also damages human organs and cells by oxygen deficiency, premature birth and decreased of work efficiency. Azot dioxide (NO<sub>2</sub>) causes damages to eyes, lungs, skin and mucous membrane and eventually leads to bronchial asthma, pneumonia, influenza, heart and serious respiratory diseases. Big particles (PM<sub>10</sub>) and small particles (PM<sub>2.5</sub>) cause respiratory ailments, skin, liver and lung cancers, heart ailments and many kinds of hereditary diseases. As for lead (Pb), it damages central nerve system and leads to anemia and accumulates in bones of

<sup>27</sup> Metropolitan Governor's Office, UNDP, 2009 "Millennium Challenges of Ulaanbaatar", Pilot Report, Ulaanbaatar

<sup>28</sup> T.Oyunbayar, 2008 "Lead causes children to experience mental exhaustion", Democracy newspaper, No. 175 (287).

pregnant women and children. Loss of appetite, kidney cancer and premature birth are possible consequences. Benzo-a-pyrene (C<sub>20</sub>H<sub>12</sub>) causes lung and digestive tract cancer.

Cases of respiratory diseases caused by both indoor and outdoor pollution such as acute bronchitis, bronchiectasis and bronchial asthma have been increasing since 2006 (table 2.10).

**Table 2.12: Respiratory diseases, Mongolia, 2002–2008**

Indicators (per 10000 persons)	Year					
	2004	2006	2007	2008	2009	2010
Asphyxia, bronchiectasis	265.9	33.25	40.57	51.30		
Bronchial asthma	2.90	14.46	15.80	19.20		

Source: Health Agency, 2009. "Health Indicators 2008", Ulaanbaatar

According to a recent study conducted in Ulaanbaatar (Batmunkh, 2008), air pollution contributes to respiratory disease and has a negative impact on children's brain development and pregnant women. Last year, there were 27,183 new-born babies in Ulaanbaatar, 4 percent of whom weighed less than 2.5 kg. Even though genetic diseases and dietary deficiency may have contributed to low birth weight, air pollution may have played some role.

### Water pollution

Polluted rivers and water supplies are another symptom of urbanization in Mongolia. Also the actual water reserves are decreasing. Ger districts make a significant contribution to water pollution due to inadequate sanitation and poor treatment of garbage. Some infectious diseases related to poor water quality are increasing in Mongolia (Table 2.11). As of 2008,<sup>29</sup> there were 41,082 cases of 33 kinds of acute communicable diseases at the national level, which shows an

increase of 2,711 more cases or 6.4 increase per 10,000 persons compared with the previous year. Ulaanbaatar accounted for 53.7 of all infection cases, although it only accounts for 44 percent of the population.

**Table 2.13: Trends of infectious disease through water (per 10000 persons), Mongolia, 2004–2008**

Indicators	2004	2006	2007	2008
Typhoid	0.1	0.0	0.0	0.0
Salmonellosis	0.8	0.5	0.7	0.8
Dysentery	8.8	7.3	9.2	8.9
Hepatitis A	20.8	21.7	34.2	35.0

Source: Health Agency, Government Implementing Agency, 2009. "Health indicators, 2008", Ulaanbaatar

Table 2.14 summarizes the impact of urbanization and urban growth on the natural environment. It is apparent that activities to provide urban dwellers with drinking water, heating, electricity, transportation, and jobs also contribute

<sup>29</sup> Health agency, 2009 "Health indicators, 2008", Ulaanbaatar

to poor air, water and soil quality-given the technology that is presently in use. The deteriorating quality of the urban

environment is also contributing to respiratory and other infectious diseases.

**Table 2.14: Effects of Urbanization and City Growth**

Changes	Effects of changes	Causes of effects
Intensive growth of city households and population	Places not meeting basic needs and illegal land use	<ul style="list-style-type: none"> <li>• Apartment market development is weak</li> <li>• Apartment rent is high</li> <li>• Poor and vulnerable community are unable to have apartments</li> </ul>
Increase in service demands and needs <ul style="list-style-type: none"> <li>• water</li> <li>• sanitary facilities</li> <li>• throwing of garbage and waste</li> <li>• transportation</li> </ul>	<ul style="list-style-type: none"> <li>• Over-burden of service sectors</li> <li>• Weakening capacity of service providers and facilities</li> </ul>	<ul style="list-style-type: none"> <li>• State is in charge of supply</li> <li>• Price regulation is tough</li> <li>• Subsidy is high</li> </ul>
Increasing hard and harmful garbage and waste	Soil and air pollution	<ul style="list-style-type: none"> <li>• Throwing garbage mechanism and its management are bad</li> <li>• No facility designed for garbage handling</li> </ul>
Increasing water use	Underground water pollution	Regulation of public resources use is weak
Increasing entity control and activities	<ul style="list-style-type: none"> <li>• Water quality pollution</li> <li>• Environmental pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Overuse of water</li> <li>• No facility designed for sewage handling</li> </ul>
Ghetto and suburbia expansion <ul style="list-style-type: none"> <li>• Ger district</li> <li>• Homeless people</li> <li>• Illegal, non-residential areas</li> </ul>	<ul style="list-style-type: none"> <li>• Land and eco system's downfall</li> <li>• Risks to lose one's life and property</li> </ul>	<ul style="list-style-type: none"> <li>• Low-income families are unable to have apartments</li> <li>• Mistaken policy of city planning</li> <li>• Activities on land organizing are weak</li> </ul>
Land use of historical and specially protected areas	Disappearance of items of cultural heritage and historical memory	<ul style="list-style-type: none"> <li>• Insufficient regulations and legal ground</li> <li>• People tend to disrespect valuable items or cultural values</li> </ul>

### The impact of population

Urbanization, the rate at which a county's population is becoming more urban and less rural, is largely driven by rural-urban migration. Urban population growth is the sum of net in-migration and natural increase. In the early stages

of the transition to an urban society and economy, net in-migration is the predominant cause of urban population growth. In the later stages, as the population becomes predominantly urban, natural increase becomes the primary cause of urban growth. At this point in

Mongolia's urban transition, it is likely that more than half of the urban growth rate is due to net in-migration and half to natural increase.

Rural urban migration is one of the main components of population change in Mongolia, being the primary cause of the rapid rate of urbanization over the past decade. Urban growth has, in turn, had a major impact on the provision of some social services, particularly housing, transport and air quality. On the other hand, the health and education sectors appear to have adjusted adequately to the increased demand for their services. Similarly, urbanization and the migration that drives it has had a positive effect on the level of poverty. Despite the outflow from rural areas and the rapid net inflow to urban areas, and Ulaanbaatar in particular, rural poverty has increased and urban poverty has decreased.

Nevertheless, some planners and policymakers in rapidly urbanizing countries want to limit urban growth. This is difficult to achieve in the absence of migration controls and may have negative consequences for poverty reduction. Rapid urbanization can result in uncontrolled urban expansion that overwhelms infrastructure and public services. However urbanization may also unleash potential economic growth if adequate policies are implemented. The solution is not to attempt to prevent urban growth by restricting rural-urban movement, but to solve the problems that accompany the process. Urban growth often evokes images of urban poverty, misery and despair as well as economic

and social marginality. But the potential benefits of urbanization far outweigh the disadvantages. This description would seem to apply to urbanization in Mongolia. Ger districts cannot be compared with or characterized as "slums", despite their disadvantages and shortcomings.

However, ger districts contribute to environmental problems such as air and water pollution. Thus it must be concluded that urban growth, mainly driven by rural-urban migration, is not being adequately accommodated. For many people, the quality of urban life may be lower than in rural areas, but many parents accept that access to such amenities as superior schools, hospitals and leisure activities, as well as the prospects of getting a wage job, are worth the trade-off in environmental quality and potentially a higher rate of infectious disease. To improve living conditions and environmental quality would require major investments in improved housing, sanitation, water supply and mass transportation.

### **Social protection and security: the elderly**

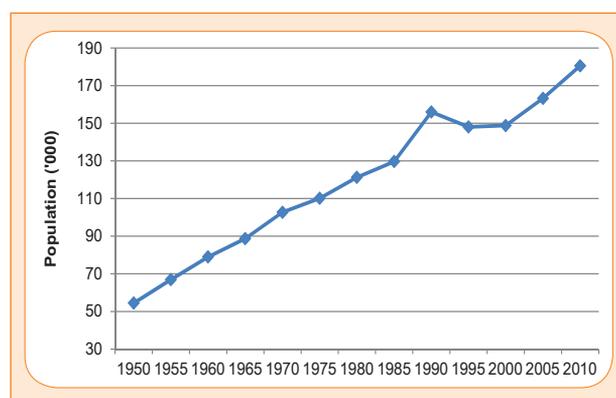
Another indicator of a country's capacity to absorb population growth and the age structure changes that accompany variations in growth rates is its ability to ensure the social protection of vulnerable groups. Among the key vulnerable groups are the unemployed, victims of industrial accidents the disabled, youth, the widowed and the elderly. Social security also includes access to affordable health care. This section is focused on the elderly.

## The elderly population

The 60 and over population (the usual definition of "old") reached 151,159 in 2010 and comprised 5.7 percent of the population. The United Nations Population Division had projected that the 60 and over population would reach 180,000 by 2010 (Figure 2.15) but the enumerated population fell well short of this number. In any case, the growth pattern of this age group shows the impact of the political and economic transition during the 1990s, during which time the 60 and over population actually declined. The most likely causes of this decline would be age-selective net emigration and increased mortality.

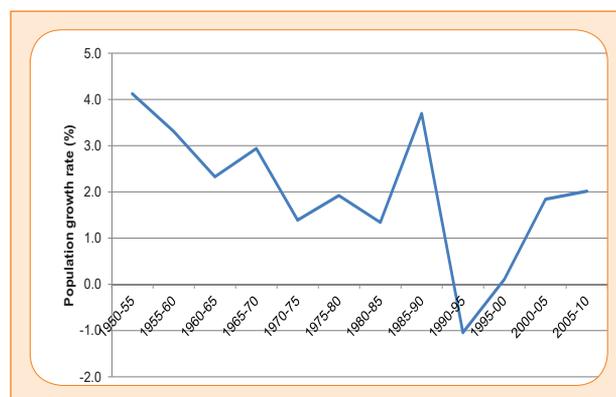
The growth rates exhibited by this age group have been very erratic over the 1950-2010 period. According to The UN Population Division estimates (Figure 2.16) the growth rate in this age group increased in the mid-1980s but then dropped dramatically in the late 1980s and became negative (-0.1 percent) in the early 1990s. It appears likely that these changing growth rates were linked with political-economic conditions during these periods. Not only did fertility fall but mortality increased—at least among the elderly.

**Figure 2.15: Population aged 60 and over, 1950-2010**



Source: UNDESA

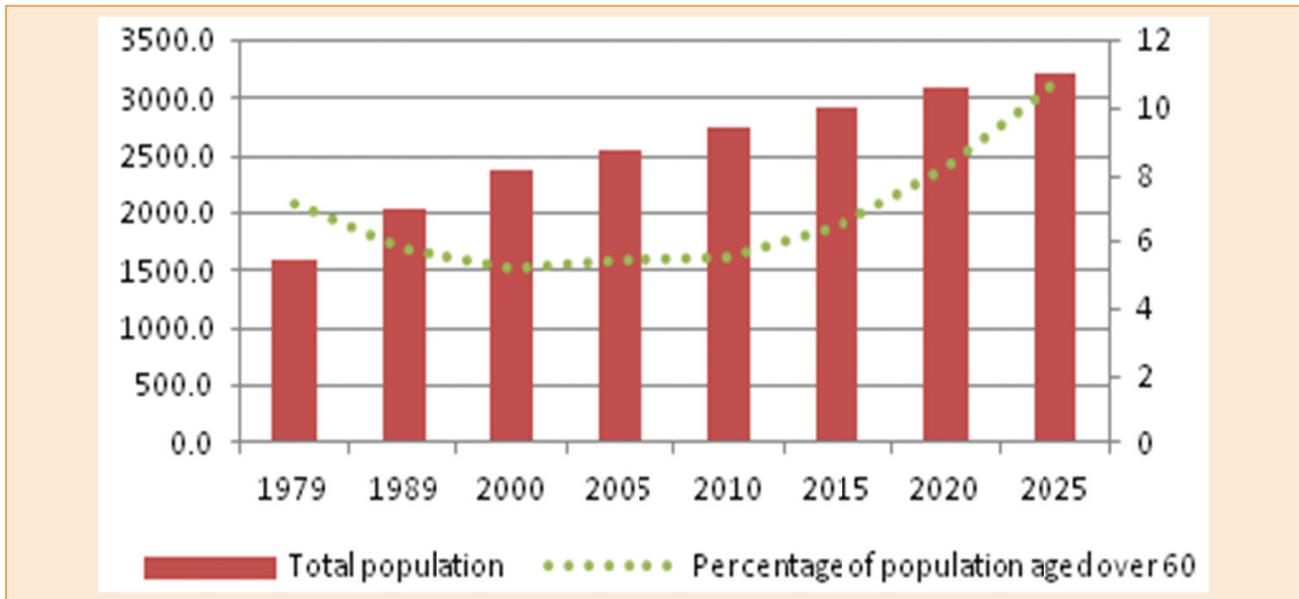
**Figure 2.16: Population growth rates of the 60 and over population, 1950-2010**



Source: UNDESA

Because of changing fertility patterns in the past, the percentage share of elderly in the population had been declining from the late 1970s but started to increase after 2000 (Figure 2.17). However, as Figure 2.17 also shows, a significant proportional shift toward older ages is not expected until after 2010. By 2025 the population aged 60 and over is projected to comprise 10.8 percent of the total population.

**Figure 2.17: Total population and percentage share of population aged 60 and over 60**

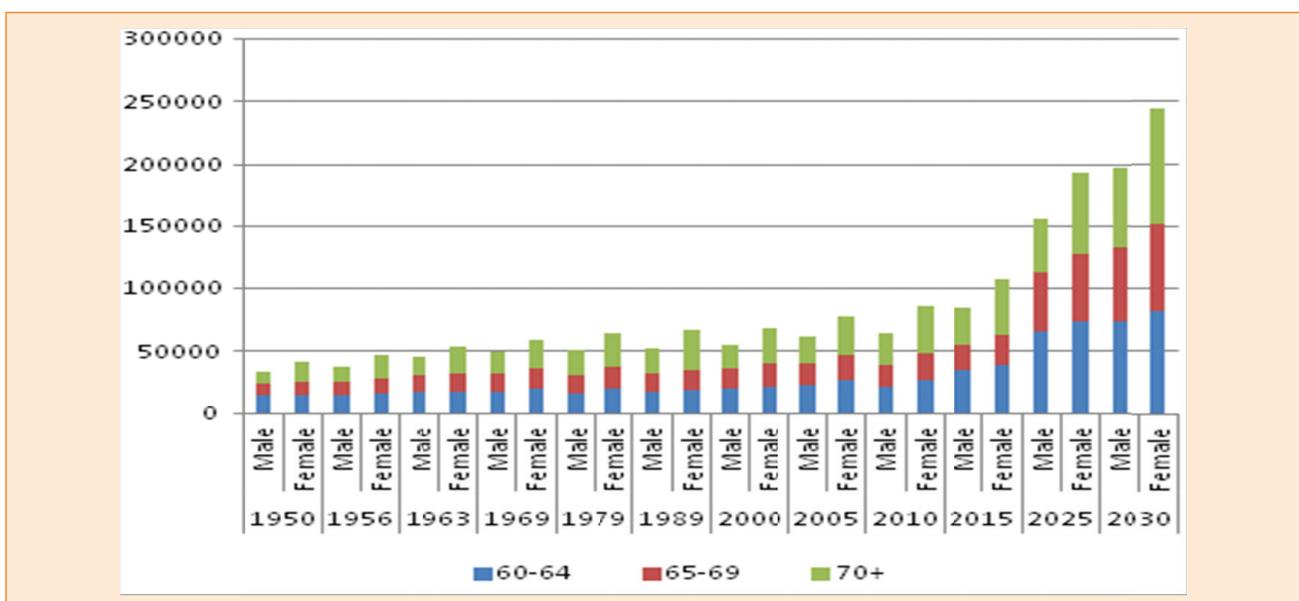


Source: NSO

The future ageing of Mongolia’s population is also evident in Figure 2.18, which shows that the oldest age groups (70 and over) can be expected to increase rapidly, particularly the female elderly.

Because the elderly population has been relatively stable as a proportion of the total and in absolute numbers, the real test of the social security system is yet to come.

**Figure 2.18: Population aged 60 and over 1950–2030**



Source: NSO

The “pressure” on society resulting from ageing can be gauged by the aged dependency ratio, the number of people in the age group 65 and over per 100 persons of working age. In Mongolia this ratio was falling between 1969 and 2010 but will increase in the future (Table 2.14). Because of the decline in fertility during the 1990s, the ratio of elderly to children under 15 (the “ageing index”) was also declining but is also projected to increase steadily beyond 2010. An increasing ageing index signals a shift in dependency from the young to the old. This shift in dependency will have important implications for health care as the health needs of the elderly are very different from those of children and cost much more to address.

**Table 2.14: Aged dependency ratio, 1969–2010 and projected to 2025**

Year	Aged/elderly dependency ratio <sup>a</sup>	Ageing index <sup>b</sup>
1969	12.1	13.5
1979	9.8	11.2
1989	7.5	9.7
2000	5.7	9.7
2010	5.4	13.6
2015	5.9	15.8
202 <sup>c</sup>	6.8	19.3
2025	8.8	27.4

a - number of aged people (65+) per hundreds of working age (15-64)

b - number of aged people (65+) per hundreds of children aged less than 15 years old

c - medium variant population projection (UNDESA?)

### Feminization of ageing

Because female life expectancy is higher than male in most countries, the older

population has a lower sex ratio than in younger ages and is therefore more “feminine”. In Mongolia it can be seen (Table 2.15) that female life expectancy at birth reached 72.3 years in 2010 while male life expectancy was much lower at 64.9 years. As a result, the sex ratio in the 60 and over population is well below 100 and is expected to remain that way for several decades. The high proportion of widows in the “oldest old” age groups present a major challenge for care-givers and social welfare systems.

**Table 2.15: Life expectancy at birth, 1969 to 2010 and projected to 2030**

Year	Life expectancy at birth			Sex ratio of population aged 60 and over (male population per 100 female population)
	Both	Male	Female	
1969*	61.2	60.5	61.9	85.2
1979	63.0	60.7	65.1	78.1
1989	63.3	60.3	66.1	77.8
2000	63.7	61.1	66.6	79.3
2005	65.2	62.1	68.6	79.9
2010	68.1	64.9	72.3	74.9
2015**	70.6	68.4	72.7	83.3
2025**	74.0	71.8	76.1	83.9
2030**	75.5	73.3	77.6	84.3

Source: NSO Mongolia 100 years

Note: \* NSO,

\*\* NSO, Population projection medium variant, 2008

### Social welfare and social protection arrangements

During the socialist period, the social security system in Mongolia was based on a combination of consumer subsidies

and universal benefits supported by the central budget. All sectors of society were covered by the pension system. Since the reforms of the 1990s, a new social security system has been developed and a series of Social Insurance Laws enacted, including the following:

- Social Insurance Law, May 1994
- Law of Pensions and Benefits Provided by the Social Insurance Fund, June 1994
- Citizen's Health Insurance Law, July 1993 (renewed in April 2002)
- Law of Employment Injury and Occupational Disease Pension, Benefits and Payments Provided by the Social Insurance Fund, June 1994
- Law of Unemployment Benefit Provided by the Social Insurance Fund, June 1994
- Law of Military Service Pension and Benefits, June 1994.

Thus, a legal framework has been established to address a wide range of vulnerable groups. The key issue for this paper is the extent to which the welfare of these groups has been maintained, or enhanced in the face of demographic change. The section will concentrate on the elderly. While the elderly population currently remains below six percent of the population, it has been growing and the 60 and over age group is projected to increase rapidly over the coming decades, potentially placing strain upon the pension system. To what extent has the social welfare system accommodated to the increasing elderly population?

## Social security and income of the elderly

Despite the fact that Mongolia is a lower middle-income country, it has developed a comprehensive system of social security and social insurance not unlike the "welfare state" systems in effect in the economically advanced and much richer countries. The social insurance system covers five major programs: i) pension insurance, covering old age, disability and survivors' pensions, ii) employment injury and occupational disease insurance, iii) unemployment insurance includes unemployment benefit and skills training, iv) benefit insurance includes sickness benefit, pregnancy and maternity leave, and funeral costs and v) health insurance.

The Government of Mongolia is aware of the need to address the ageing population and has designed pension and other social welfare schemes to support the elderly. Parliament approved the revised State policy on population and development in 2004, which incorporates population ageing issues, whereas other relevant laws and regulations legalized issues concerning social welfare, protection and care services provided by the state for the elderly and creation of favorable living and working conditions for them<sup>30</sup>.

The Government also approved a national strategy for Population Ageing in Mongolia in 2009. The strategy addresses not only the issues of social welfare services for older people, but also aims to eliminate possible barriers to every individual's

<sup>30</sup> MSWL, UNFPA, 2008, Minister's speech on National Forum on "Population ageing in Mongolia"

lifetime employment, entitlement to social protection, and exercise of his/her rights as a member of society by actively participating in social activities while ageing<sup>31</sup>.

The ageing strategy consists of two fundamental components: i) Strategy to prepare for population ageing and; ii) strategy to improve the livelihood of older people. The main purpose of the strategy to prepare for population ageing is to ensure future social security for the working age population by increasing employment of working age people and implementing an employment-sensitive economic policy. The strategy to improve the livelihood of older people includes such issues as providing older people with employment opportunities, ensuring older people's entitlement to a guaranteed and livable income, enhancing quality and access to health services for older people, improving infrastructure for older population, behavior among public, and creating a favorable environment for older people's participation in social activities by enabling them to be active community members.

Under the Social Welfare Law of Mongolia, women aged 55 and over and men aged 60 and over are regarded as the aged population. The Social Welfare Law of Mongolia approved in 1995 created a social welfare system in the country that aimed to ensure that the state guaranteed lifetime support of vulnerable people who cannot afford independent living and support themselves. Although the Law was renewed in 1998 and 2006, and exposed to changes and alterations in 2000 and

2008 respectively, the key concept social welfare system has remained-to target the vulnerable population. Provided by the Law on Social Welfare and relevant regulations, citizens including elderly, people with disabilities, full and half orphan children, single household head men and women etc are eligible for social welfare pensions, benefits, assistance and concessions.

**Social welfare pension:** The social welfare pension scheme supports vulnerable people who are not entitled to receive pensions from the social insurance system. Very poor men aged 60 years old or more, and women of 55 years or more who are unable to maintain themselves, with no children or relatives to support them; who are legal dependents of the elderly or disabled; or those certified as being unable to support them are eligible for the program.

**Social security for elderly and disabled:** Various discounts such as treatment in a sanatorium, rent, fuel wood and coal, public transport etc, are provided to very poor elderly, war veterans and high level state award retirees. Also, a number of concessions and discounts are available to disabled people. These include discounts for rent, fuel wood and coal, hearing appliances, some transport costs, wheelchairs etc.

**Assistance and conditional cash benefits for people in need of social welfare assistance.** This assistance is intended to cover people who are physically incapable of caring for themselves or who are very poor. The state nursing home service provides permanent and full care service. The care provided includes

<sup>31</sup> Annex to Government Resolution No. 156 dated 27 May 2009

accommodation, meals, clothing, medical and cultural services for elderly, disabled, children in difficult circumstances, and triplets/simultaneously born children. In addition, disabled children receive general and professional education. There are 9 residential care centers in Mongolia for elderly and people with disabilities who have nobody take care of them.

Expenditure and beneficiaries of the social welfare services for elderly are summarized in Table 2.16. All categories of social welfare expenditure have been increasing since 2004. As of 2010, 56,700 people were covered by the social welfare pension and expenditure totaled 27.6 billion togrog. Thus, total expenditure increased by nearly 4 times, even though the number of beneficiaries only increased by 26 percent. Clearly the average payment per beneficiary has been increasing rapidly. In the case of social security for elderly, expenditure increased from 2.4 billion togrogs in 2004 to 8.4

billion togrogs in 2010, a 350 percent increase.

Social security expenditure for the disabled was 1.2 billion togrogs in 2004 and increased to 3.4 billion togrogs (2.8 times) in 2008 and 4.8 billion togrogs (4 times) in 2009 and 5.3 billion togrogs (4.4 times) in 2010. The number of beneficiaries under this programme has declined from 122,300 to 108,200 between 2004 and 2010. Thus the amount received per person has increased significantly.

Expenditure for assistance and conditional cash benefits for people in need of social welfare assistance was 3.2 billion togrogs in 2008 and the number of beneficiaries was 20,300. Expenditure reached 4.3 billion togrogs in 2010, a 35 percent increase. Over the same period the number of beneficiaries increased by 67 percent. In the case of this programme, the average payment per beneficiary has been declining.

**Table 2.16: Social Welfare Expenditure for the elderly (MNT) and number of beneficiaries ('000 persons), 2004-2010**

Programme	2004		2008		2009		2010	
	Persons	Expenditure	Persons	Expenditure	Persons	Expenditure	Persons	Expenditure
Social Welfare Pension	43.6	7,067.8	51.2	22,520.2	55.3	25,025.2	56.7	27,641.1
Social Security for Elderly	122.3	2,443.3	166.6	6,214.8	107.8	6,508.3	108.2	8,401.1
Social Security for Disabled	27.9	1,224.7	61.0	3,364.2	37.4	4,810.2	35.9	5,306.2
Assistance and conditional cash benefits for people in need of social welfare assistance	-	-	20.3	3,190.9	33.9	4,481.5	33.9	4,315.0

Source: Ministry of Social Welfare and Labour, Facts and Figures, 2011

With the exception of the conditional cash benefits (a programme that does not necessarily target the elderly), welfare expenditure on the elderly has been increasing at a much faster rate than the population of elderly. It is also the case that the rate of inflation has been very high over the same period so in real terms average payments per person may not have increased.<sup>32</sup>

### **The social insurance pension**

The social insurance pension is a contributory scheme for persons who have been in employment. Over 60 percent of pensioners receive the minimum pension which, by law, must be equal to 75 percent of the *minimum* wage. As of 2009, 140,000 persons received the minimum pension of 81,000 togrogs per month and 44,000 received the minimum proportional pension of 54,000 togrogs per month.

In terms of coverage, public and private sector employees and the self-employed, including herders, are subject to different pension schemes, and the fund is managed on an aggregate basis. The pension system currently operates on a pay-as-you-go basis. Each year's contribution income is used to finance benefit payments due during the year. It is estimated that the scheme has an annual deficit of about \$37.7 million and is expected to balloon in the near future with the growth of benefit payments exceeding that of the collected pension premiums<sup>33</sup>.

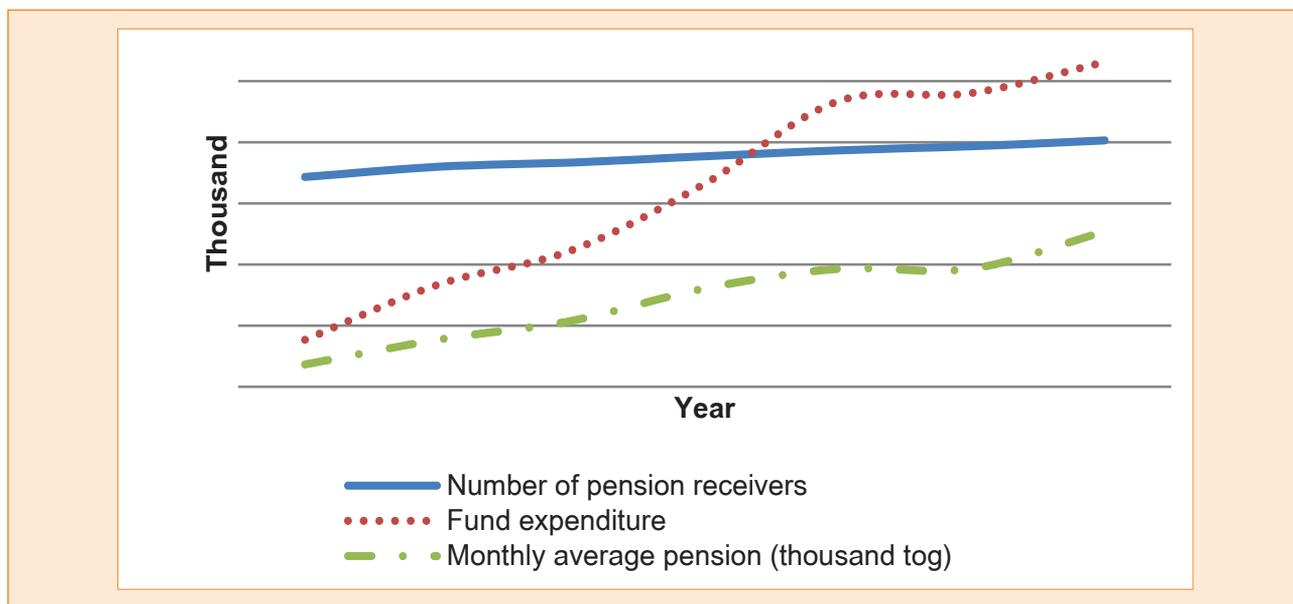
Legislation adopted in 1999 specifies the computation of pensions. For workers born after 1960, the amount that each individual contributes toward their pension is accumulated in his or her own retirement account. Upon retirement the individual will receive a monthly pension equivalent to the balance in his account divided by his life expectancy at the time of his retirement. The contributions for each year under the new system are not accumulated and invested but instead used to finance the same year's benefit payments.

Figure 2.19 shows the number of elderly persons who receive a pension from the Social Insurance Fund, the average monthly pension and total fund expenditure. The number of pensioners has increased from 171,600 in 2000 to 201,600 in 2010. The average monthly pension has also been increasing over time—from 18,200 togrogs in 2000 to 126,900 togrogs in 2010—an average annual increase of 19.4 percent per year. On the other hand, the number of pensioners has been increasing at the much slower rate of 1.6 percent per year. As with the Social Welfare pension, the average monthly payments would need to be discounted by the inflation rate to determine if there had been a real increase.

<sup>32</sup> The expenditure data would need to be discounted by the inflation rate to provide a true picture.

<sup>33</sup> ADB, Social Protection Project's Brief, Enhancing Mongolia's Pension System

**Figure 2.19: Number of elderly population, who receive pension from Social Insurance Fund, monthly average pension and fund expenditure**

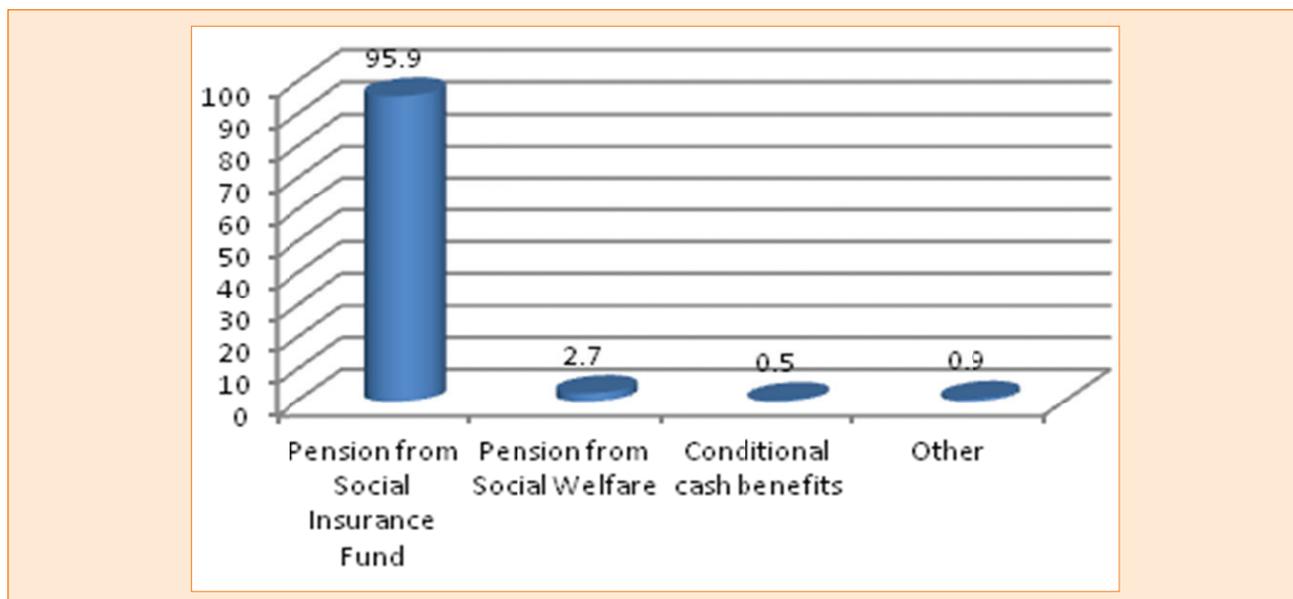


Source: MSWL, 2011

Figure 2.20 shows that the Social Insurance Fund pension is by far the largest income source for older persons and the other welfare programmes make a very small contribution. About 96 percent of the

elderly reported that the Social Pension was their main source of income. The elderly also received some money from herding or remittances sent by their children.

**Figure 2.20: Income source of older persons**



Source: Gerontology Center, 2009 Study on Older person's health and social situation

### Economic activity of the elderly

The 2010 census reported that only 8 percent of elderly people are economically active (Table 2.17). The labour force participation rate (LFPR) of the elderly is somewhat higher in rural than

urban areas as rural residents have the opportunity to be engaged in agriculture—especially in livestock husbandry. In general, the LFPR of the elderly has been declining over the past decade, but has increased slightly among urban males.

**Table 2.17: Labor force participation rate for elderly, by residence**

Work status		Urban			Rural			Total		
		Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes
Labor force participation rate	2000	11.8	3.2	7.0	24.0	13.5	18.2	17.7	8.30	12.3
	2010	13.1	4.8	8.4	19.3	7.8	11.2	13.1	4.8	8.4
Percentage of older population economically inactive	2000	88.2	96.8	93.0	76.0	86.1	81.8	82.3	92.0	87.7
	2010	86.9	95.2	91.6	80.7	92.2	88.8	86.9	95.2	91.6

Source: NSO, 2010 census

### The role of population

The rate of growth in the elderly population has fluctuated considerably over the past two decades. During the 1990s there was little change in the 60 and over population due to low and even negative growth. After 2000 growth has resumed to about 2 percent per year, as a result of improving life expectancy in older ages. It cannot be argued that the growth of the elderly placed a significant amount of “pressure” on family, society and economy over the past two decades, but that situation is about to change. The increase in the (nominal) welfare and social insurance expenditure over the past decade results mostly from government policies to improve the living conditions of the elderly and partly from the high rate of inflation since the mining “boom” got underway. Given that these social welfare expenditures, as well as

the social insurance pension, are funded from current government revenue or from annual contributions by workers, the maintenance of these schemes is highly dependent on government revenues, which are closely related to export income. The social insurance pension has a large “unfunded” liability, which must be made up by government contributions. As the population ages in the coming decades, the pressure on government revenues will increase significantly.

### Conclusions and policy implications

Population trends over the past several decades in Mongolia have been erratic and unstable. Mongolia’s demographic transition has taken place in the context of turbulent political and economic conditions. The rise in fertility during the 1970s resulted from state policies to increase the future industrial labour

force; the dramatic decline in fertility during the 1990s, as well as the urban-rural flow of migrants resulted from the collapse of the socialist economy and the loss of economic support from the Soviet Union. The increase in fertility after 2005 was probably caused by a combination of government incentives, the changing age structure, and the re-building of the economy along “free market” lines. From 2005 onwards, families became more confident in the future and revised their fertility expectations upwards.

This chapter has attempted to determine the impact of population patterns and trends over the past two decades on socioeconomic development in Mongolia—as evidenced by selected socioeconomic indicators. The following conclusions can be drawn.

- **Labour force and human resources.** Despite fluctuations in the rate of growth in the working age population, the number of working age persons has steadily increased, particularly in the younger age groups. While employment has increased, the economically *inactive* population has increased by much more. Part of this increase reflects an increase in the population enrolled in educational institutions, but part reflects withdrawal from the labour force. The rate of open unemployment has remained static while the “disguised” (or “structural”) unemployment rate has increased. In sum, the increasing population of labour force age has not been successfully absorbed into productive work. It is unlikely that a lower rate of population growth

would have changed this outcome significantly; but it is almost certain that a higher rate of growth would have resulted in a worse situation than at present.

- **Economic growth and national income.** Because of the exceptionally high rate of economic growth over the past decade, the impact of population growth on per capita income has been extremely small. Total output has increased at an average rate of 10.6 percent over the 2000-2010 decade, while population has increased at an average annual rate of 1.1 percent. Clearly economic output is outstripping the population growth rate by a considerable margin. However, continued increases in per capita income require the maintenance of a high level of mineral exports and high international prices for minerals.
- **Poverty and human development.** Just as a high rate of economic growth has not increased the supply of jobs relative to the growth in the labour force population, neither has it made significant in-roads on poverty levels. Rural poverty is higher than urban and this has stimulated rural-urban migration—confirming that people move from places of low economic opportunity to places of high economic opportunity. At the same time, some indicators of human development have been improving, despite the persistence of poverty. The impact of population on poverty is most likely occurring at the micro-level of households and families and may not be evident at higher scales.
- **Basic social services, including health and housing.** The transition

to a mixed public-private system of health care appears to have been successful. The ratio of medical doctors to population has remained stable, although the nurse to population ratio has dropped and the total number of pediatricians has declined by about 60 percent. Nevertheless, health status has improved suggesting that health delivery has kept pace with population growth. The situation may be different if Ulaanbaatar is treated separately.

- **Population redistribution and Urbanization.** Rural-urban migration and the growing centralization of population in Ulaanbaatar is one of the key population trends in Mongolia. The reversal of internal migration from urban-rural to rural-urban reflects the changing economic conditions associated with economic reform. High levels of rural poverty are a significant driver of rural-urban migration. The fact that urban poverty rates are lower than rural suggests that rural-urban migration is a poverty-reduction strategy for rural families. However, urbanization is accompanied by a deteriorating urban environment, including air, water and soil pollution. Furthermore, the urban housing market has not kept pace with demand, inflating housing costs and forcing rural-urban migrants to live in ger districts, with negative consequences for the environment.
- **The social protection of the elderly.** The 60 and over population barely increased during the 1990s and the rate of growth became negative in the mid-1990s in the midst of the economic crisis. Growth resumed toward the end of the 1990s and

reached 2 percent in the 2005-10 period. Over the past 20 years, government has established a range of social security programmes to address the welfare of the elderly. While total expenditure as well as average income from these arrangements has been increasing, it is likely that average benefits have been eroded by inflation. So long as government revenue is increasing, the welfare of the elderly can be assured; however, the expected increase in the elderly population over the next two decades will place heavy pressure on social protection programmes for the elderly.

In short, the population-development picture in Mongolia over the past two decades or so has been a mixed one. Some trends have been favourable, others less so. The absorption of the growing labour force into productive employment has not been a complete success and has fallen well short of what is required. The expansion of technical and vocational training has relieved pressure on the job market, but there are limits to how long young people can be kept in schools and colleges. The problem of "structural" unemployment is not improving. Rural-urban migration is providing a poverty relief-valve but is also contributing to a deteriorating urban environment.

Taking a counter-factual perspective (what *would* have happened if the population growth rate *had been* higher), it can be argued that population pressure on services such as health and education would have been greater and conditions would have developed that would be less favourable to socioeconomic development than they presently are. For example,

higher fertility would have led to a higher child dependency ratio, thus reducing the advantages of the “demographic bonus”. Fewer young people would have had the opportunity to obtain higher or technical education and the economically inactive population would most likely have been larger.

It is also possible that poverty rates would have been higher had the population growth rate been significantly higher. This is because it is implausible that more rapid population growth, especially in rural areas, would have *stimulated* economic development. The primary causes of poverty in Mongolia are economic, including the low value-added in the rural agricultural-herding economy, the limited size of the manufacturing sector, labor market imbalances (including “structural” unemployment), high inflation resulting from an economy dominated by the export of raw materials and the importation of foodstuffs and other goods. Demographic factors mainly exacerbate the problems of poverty and unemployment, making them more challenging to solve.

It is important to acknowledge that fertility did not come down during the 1990s of its own accord or under pressure from the state but rather was a reflection of decisions made by couples and families to limit or delay child-bearing under conditions of economic crisis. While the rapid fertility transition in Mongolia appears superficially to be “normal”, i.e., to follow the patterns observed in other developing countries as Thailand, South Korea, Malaysia and Viet Nam during their fertility transitions, such comparisons are misleading. In the latter countries fertility decline occurred under conditions of growing affluence and expanding opportunities. In Mongolia, the primary stimulus to fertility decline was economic collapse and growing unemployment and poverty—or more precisely the potential for a family to decline into poverty had they not taken the decision to curtail child-bearing. This is an important factor to consider when evaluating whether fertility in Mongolia is likely to once again fall below replacement level in the absence of government incentives. This topic will be taken up in the following two chapters.





# Future Population Prospects And Policy Implications

Previous chapters have described Mongolia's past population trends, particularly from 1950 onwards, and explained some of the demographic and socio-economic causes and consequences of these trends. We have also identified a number of demographic issues that have implications for development and public policy. The purpose of this chapter is to adopt a forward-looking perspective and assess the possible future course of population patterns and trends, starting from the existing demographic and socio-economic situation. The primary task of the chapter is to evaluate the likelihood of different population "scenarios" occurring in the future and to assess their implications for development and public policy. When considering possible futures, the policy perspective is rather different than when one reviews past trends. If a certain population characteristic or trend is fixed and unable to be changed (such as the current age and sex composition of the population) then the only option for policy is to find ways to adapt to the consequences in order to enhance the positive aspects and minimize the negative. As has been mentioned, this type of policy is known as "population-

responsive" policy. On the other hand, some population variables may be subject to change by the application of social policies. Examples include internal migration patterns, mortality and fertility rates. Policies aimed at changing the direction of present or future trends are known as "population influencing" policies.

Whether "population influencing" policies are required depends on whether the expected evolution of future trends is consistent with the development goals of the country or in the broad public interest. This chapter will use the tools of population projections to determine the most likely the future trends and the analytical framework employed in previous chapters to assess the likely impact of various scenarios on socioeconomic variables.

### Population Projections

A *population projection* is a statistical exercise that estimates the future size of the population under specified assumptions about changes in population growth or its determinants (mortality, fertility and migration). The most

frequently used projection method is the “component” method, which involves an independent projection of mortality, fertility and net migration. Each age-sex group of the population is aged through time by applying mortality and net migration rates, and by adding new members using fertility rates.

The starting population used in a projection is normally the population enumerated in the most recent census. After each census, new population projections are conducted and are in use until the results of the next census are available. This is the practice that the National Statistical Office of Mongolia (NSO) has followed. The projections presented in this chapter are those prepared by the NSO based on the 2010 Census population.

### **Projection assumptions**

Details of the projection methodology and the assumptions about future trends in mortality, fertility and migration that the projections are based on may be found in the NSO’s report on population projections.<sup>34</sup> Table 3.1 provides a summary of the assumptions used in each of the three “scenarios”. The only difference between the scenarios is the fertility rate (TFR). The same mortality and migration rates are employed in each scenario. The designations “high”, “medium” and “low” refer to effects of the fertility assumptions only. Note that these are relative terms; “high” is only high because it is higher than medium

and low is lower than medium. These terms do not refer to any historical standard as to what constitutes “high” fertility and what constitutes “low” fertility. However, the “high” fertility assumption will result in a faster rate of population growth and a larger future population than the other scenarios.

### **Fertility assumptions**

Scenario “high” essentially assumes that the present level of fertility (the TFR was reported as 2.6 in 2011) would continue through to 2015 after which it would decline slightly to 2.5 and remain at that level until 2035-40. In effect this is a “constant” fertility assumption.

Scenario “medium” assumes a lower TFR (2.5 in the 2010-2015 period) with a gradual decline to 2.2 in 2035-40.

Scenario “low” has a lower starting point again in the initial 5-year period (TFR=2.4) with a decline to a TFR of 1.9 in the 2035-40 period.

<sup>34</sup> The projections report remained unpublished at the time this report was prepared. See Annex A for reference tables. Further information can be obtained from the National Statistical Office of Mongolia.

**Table 3.1: Projection assumptions (average annual rates per 5-year period) NSO projections**

Scenario	Components	2010-15	2015-20	2020-25	2025-30	2030-35	2035-40
"High"	Fertility (TFR)	2.58	2.54	2.53	2.52	2.51	2.49
	Male life expectancy	65.2	66.4	67.7	68.8	69.9	70.9
	Female life expectancy	75.1	76.8	77.9	78.7	79.2	79.5
	Male net migration	4,375	4,239	4,105	3,974	3,844	3,717
	Female net migration	3,210	3,113	3,015	2,918	2,833	2,730
	Total net migration	7,585	7,352	7,120	6,892	6,677	6,447
"Medium"	Fertility (TFR)	2.48	2.41	2.35	2.29	2.23	2.19
	Male life expectancy	65.2	66.4	67.7	68.8	69.9	70.9
	Female life expectancy	75.1	76.8	77.9	78.7	79.2	79.5
	Male net migration	4,375	4,239	4,105	3,974	3,844	3,717
	Female net migration	3,210	3,113	3,015	2,918	2,833	2,730
	Total net migration	7,585	7,352	7,120	6,892	6,677	6,447
"Low"	Fertility (TFR)	2.40	2.28	2.16	2.06	1.95	1.89
	Male life expectancy	65.2	66.4	67.7	68.8	69.9	70.9
	Female life expectancy	75.1	76.8	77.9	78.7	79.2	79.5
	Male net migration	4,375	4,239	4,105	3,974	3,844	3,717
	Female net migration	3,210	3,113	3,015	2,918	2,833	2,730
	Total net migration	7,585	7,352	7,120	6,892	6,677	6,447

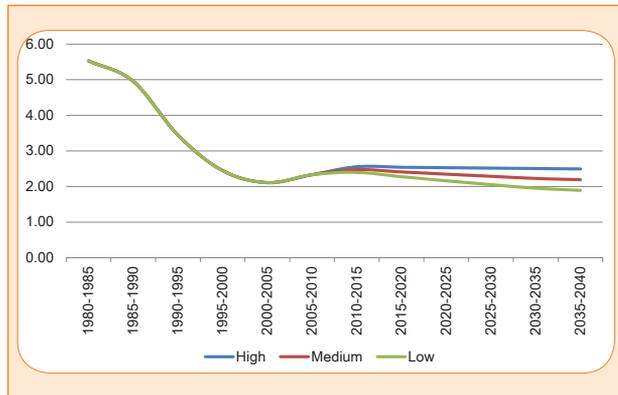
Source: NSO

The differences between the fertility assumptions in each scenario are apparent from Figure 3.1, which also shows the observed TFR trend since 1980-85. The main point of difference is that under the "low" scenario, the TFR would fall below the replacement level around 2027, essentially returning fertility to the low level of 2005 (TFR=1.9). The "medium" scenario assumes an on-going, slow decline in fertility but the TFR remains above the "replacement" level through to the end of the projection. None of the projections assumes rising fertility.

### Mortality assumptions

Each scenario uses the same mortality assumptions, namely: female life expectancy at birth is assumed to increase from 75 years in 2010-15 to 79.5 years by 2035-40. Male life expectancy at birth would increase from 65 years in 2010-15 to 71 years by 2035-40. Note that the gap between male and female life expectancy decreases only slightly from 9.9 years to 8.6 years over the projection period.

**Figure 3.1: Fertility assumptions**



Source: NSO

### Migration assumptions

The projections assume that there would be net *immigration* throughout the projection period but different levels for males and females and a gradual decline in the total number of migrants through time. In the first five years net immigration would total 7,585 per year, declining to 6,447 in the final five years. Generally, female net immigration is assumed to be about 40 percent of the total. The age distribution of migration is explained in the NSO's projections report. Even though net migration is positive in every year of the projection, some age groups have a migration loss while others have a migration gain. The assumption of net immigration appears to be based on the opinion that many Mongolian citizens presently working or studying abroad will return and that Mongolia will continue to import labour from abroad due to the expansion of the mining industry. There is no scenario that assumes net *emigration*.

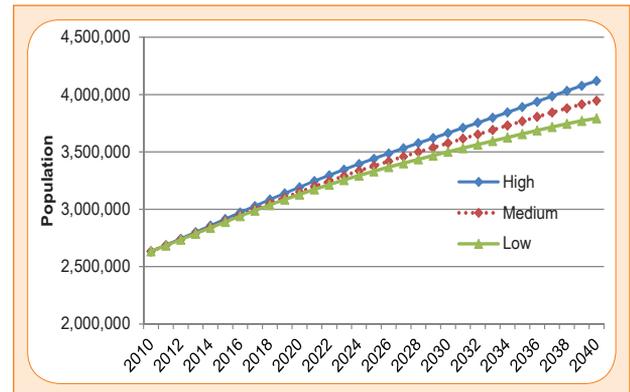
### Projection results

#### Total population

Detailed results of the projections are

shown in Annex Table A3.1. An indication of the future population growth trends that would result from each of these scenarios is shown in Figure 3.2.

**Figure 3.2: Projected population growth under three fertility scenarios 2010-2040**



Source: NSO

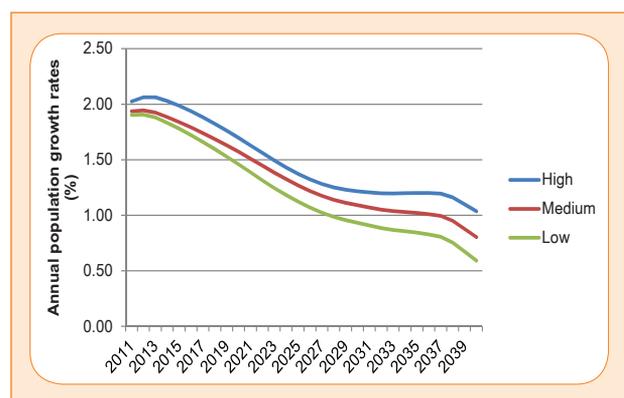
The first point to note is that each scenario shows continuous population increase through to 2040. Secondly, up to 2020 the difference between the scenarios is very small. Each projection shows the population reaching 3 million around 2017. The projections differ slightly in terms of when the population might reach 4 million. Under the High scenario, the population would reach 4 million by 2038 but under the Medium projection this would not occur until 2040, just two years later. Under the Low projection the 4 million mark would not be reached until after 2040 or perhaps not at all. By the end of the projection period in 2040, the difference between the scenarios widens, but not by very much. The High projection is higher than the Medium by 173,000 or about 4.4 percent. The Medium projection is higher than the Low projection by 153,300 or 4.0 percent. The gap between

the Low and the High projection is 326,200, or 8.6 percent.

One implication of these projections is that Mongolia's population will certainly increase for the foreseeable future-or at least for the next three decades. This assumes, of course, that fertility does not fall below replacement before 2025. A return to sub-replacement fertility prior to 2025 would result in the population reaching less than 3.8 million by 2040. Longer-term projections beyond 2040 would be required to determine if the population would ever reach 4 million if fertility declined to sub-replacement in the near future.

What are the implications of these scenarios for population growth? As indicated in Figure 3.3, all three scenarios would result in a steady and significant decline in the rate of population growth. Under any of these scenarios, a return to a population growth rate of 2.0 percent or above (the benchmark for "rapid" population growth) is not likely to occur.

**Figure 3.3: Population growth rates under three fertility scenarios 2010-2040**



Source: NSO Projections

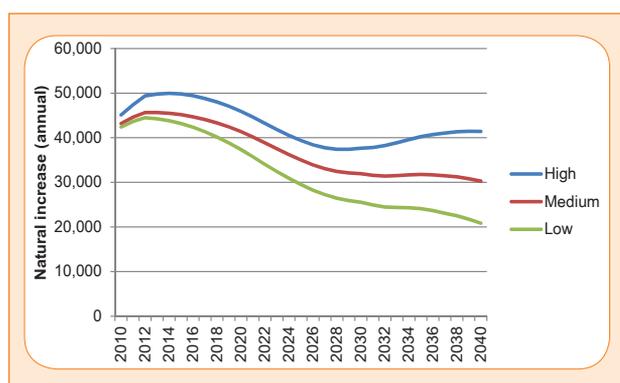
Under the Low and Medium scenarios, the population growth rate would eventually drop below 1.0 percent per year; the main difference is when this would occur. Under the Low scenario the growth rate would reach 1.0 percent in 2027-15 years from now-while under the Medium scenario this rate would not occur until 2037, 10 years later. The High scenario does not result in the growth rate dropping to 1.0 percent within the projection period; but by 2040 the rate of growth would be just above 1.0 percent (1.04, to be exact).

The implications of these trends will be discussed further below and in the next chapter. At this point it is necessary only to observe that the population growth rate can be expected to drop to below its long-term average of 1.5 percent (see Chapter 1) somewhere between 2019 and 2022. Annual growth above 1.5 percent would require that the TFR rise above the rate projected in the High fertility scenario (around 2.5). The NSO projections do not consider the possibility of the TFR rising above 2.5.

All projection scenarios imply a decline in the annual population increment (excluding the effect of immigration). Under the High scenario, annual population increase drops from a high point of about 50,000 in 2014 to a low point of 37,400 in 2028 but increases again to above 40,000 by 2037 (Figure 3.4). The other scenarios show continuous decline in natural increase without any subsequent increase. The likely reason for the rise in the annual increment under the High scenario is the different age structure, relative to the other scenarios,

that arises from a somewhat higher level of fertility during the first decade of the projections. This has the effect of increasing the number of women in the childbearing age range, which eventually translates into more births, even though the TFR is stable.

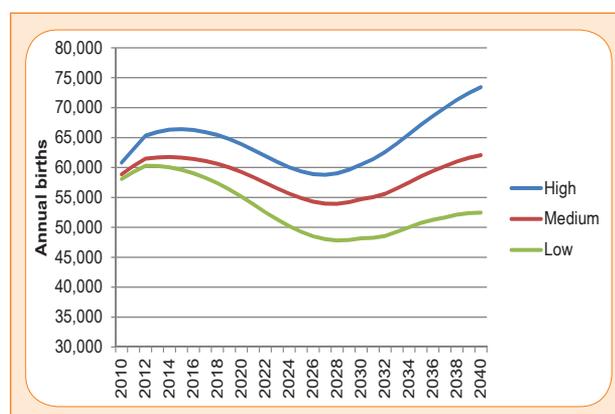
**Figure 3.4: Projected natural increase (births-deaths) under three fertility scenarios**



Source: NSO Projections

The impact of age structure on growth becomes more apparent when only births are considered, as in Figure 3.5. Under all the projection scenarios, the number of births rises and falls and rises again over the projection period in a series of “waves”. These fluctuations are not caused by variations in fertility rates because every projection shows either stable fertility (High scenario) or a rather slow pace of decline (Medium and Low). The reason why natural increase is expected to fall in all scenarios other than the “High” one, even though the number of births will increase in all scenarios after 2018 is that the number of deaths will also increase due to the ageing of the population.

**Figure 3.5: Projected annual births under three fertility scenarios**



Source: NSO Projections

### Other projection scenarios

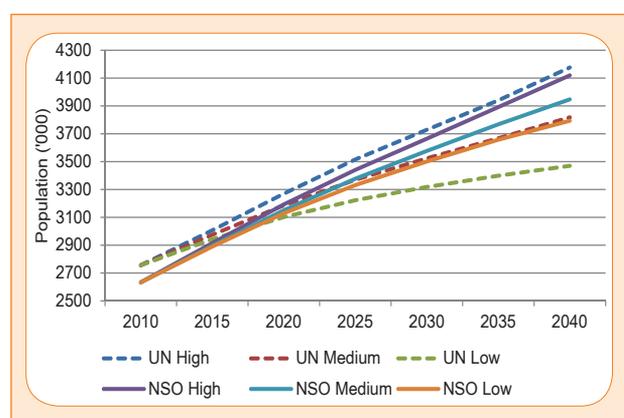
It is useful to compare the NSO projections with those prepared by the United Nations Population Division (Figure 3.6).<sup>35</sup> Such a comparison gives a wider range of possibilities than just one set alone. The projections differ in that the UNDESA projections used an *estimate* of the 2010 base population whereas the NSO projections used the 2010 Census figures. The difference between the base populations is not very large and can be ignored. However, the two sets of projections use somewhat different assumptions. While UNDESA’s “high” projection is similar to NSO’s, its “low” projection is lower than NSO’s. This is because UNDESA included a low fertility scenario among its projections. NSO’s Low scenario is closer to UNDESA’s “medium” projection, while the NSO’s Medium projection is quite a bit higher than UNDESA’s. It is important to note that although UNDESA employed similar assumptions about future mortality trends

<sup>35</sup> UNDESA (2011) World Population Prospects, 2010 Revision

to NSO, its migration assumptions were very different. UNDESA assumed net out-migration while NSO assumed net Immigration. However, the effects of net emigration in UNDESA's high projection are offset by higher fertility assumptions.

UNDESA's low projection gives an indication of what would happen to population growth if fertility dropped to below replacement within the next decade and continued to decline gradually over the next 20 years. This projection results in the population reaching 3.5 million in 2040 and remaining at this number for two decades before commencing a very slow decline. However, by 2100 the population would still be around 2.9 million, not far from where it is today. Given official concern about slow population growth, this trajectory represents a "worst case" scenario, but it is not a very probable one.

**Figure 3.6 NSO and UNDESA Projections compared**



Source: UNDESA; NSO

### Most likely fertility trends

The main determinant of the variation between the projection scenarios is the future level of fertility. Given that Mongolia's Total Fertility Rate declined to

below replacement in 2005, it may have been considered likely at that time that Mongolia could be following the direction of such countries as Thailand, Singapore, South Korea and Japan, all of whose fertility rates have remained at sub-replacement levels for many years. As it turned out, fertility in Mongolia began to increase after 2005 and the TFR reached 2.6 in 2011, suggesting that Mongolia is not following the fertility trends of these countries. Rather, Mongolia belongs in another group of countries that have experienced a *rise* in fertility after their TFRs dropped to or below replacement. These countries include Australia, Azerbaijan, Kazakhstan, Iceland and New Zealand.<sup>36</sup>

To assess the most likely trajectory of fertility after 2010, the UN Population Division employed probabilistic statistical techniques based on the experiences of other countries that have had a rise in fertility after reaching replacement or sub-replacement fertility. The result is similar to the NSO's Medium projection up to 2025-30. However the UN's Medium projection shows fertility declining at a slower rate than NSO's after this point.

The NSO and the UN Population Division appear to agree that the most likely scenario for fertility is a slowly declining TFR for the next 20 years. They differ in that the NSO's projection assumes a slightly faster decline in the TFR than the UN's projection (a TFR of 2.2 in the five years 2035-40 compared with the UN's 2.3). The difference is very small. Note that

<sup>36</sup> See UN population projection assumptions (UNDESA 2011)

these expectations are not contingent on government policies or economic conditions but are based on statistical probabilities.

In short, the population of Mongolia can be expected to reach 3 million around 2017, 3.5 million in 2030 and 4 million in 2040. In other words, the population of Mongolia can be expected to grow by about one third over the next 30 years, adding approximately 1.4 million people to the 2010 population.

From the perspective of assessing the likely impact of future population change on development, the NSO's and the UN's Medium projections will produce similar results up to about 2030. The discussion that follows is based on the NSO projections for convenience.

There is a strong current of opinion in the country that given Mongolia's geopolitical situation a larger population is in the national interest, or even necessary for the nation's survival. For example, some commentators believe that a population of 5 million should be a national goal. What are the prospects

of achieving this goal by 2040? From a demographic perspective such a goal is very unlikely to be achieved. Leaving aside mortality and migration, to achieve a population of 5 million by 2040 would require a constant TFR above 3.5 for the next three decades (Table 3.2). This level of fertility is very unlikely in a highly urbanized society where the "opportunity cost" of child-bearing (the income that women have to give up in order to have children) is high and increasing. A TFR above 3.5 is normally only found in societies in which the opportunity cost of child-bearing is low. This implies a rural economy in which women's labour force participation is centred on a family-based mode of production. Given that the level of urbanization in Mongolia has already reached 68 percent, probably less than 30 percent of the population (and quite likely even less than this) is presently living in a situation where the opportunity costs of child-bearing are low enough to result in a TFR of 3.5. Even if such a level of fertility could be achieved in rural areas, the impact on the national fertility rate would be much smaller because the vast majority of the population is living in urban areas.

**Table 3.2: Population projections with different fertility assumptions 2010-2040**

Projection	2010	2020	2030	2040
<b>NSO Fertility scenarios</b>				
High	2,633,312	3,192,856	3,665,017	4,119,723
Medium	2,633,312	3,151,086	3,576,877	3,946,997
Low	2,633,312	3,129,658	3,501,325	3,793,558
<b>Higher TFR assumptions</b>				
3.0	2,633,312	3,291,538	3,882,854	4,518,828
3.5	2,633,312	3,410,298	4,121,581	4,926,098

Source: NSO and author's estimates

Is there a plausible scenario in which government policies could raise the TFR to 3.5 or over and keep it there for the next 3 decades? In the opinion of the authors, no such scenario is feasible. It is possible that a regime of child allowances and subsidies aimed at reducing (or at least offsetting) the opportunity costs of child-bearing would contribute to ensuring that the TFR remains above replacement, and possibly as high as 2.5 (the NSO's "high" fertility scenario); but raising the TFR an average of one full birth per woman above this level is unlikely in an economy and society that is becoming urbanized and in which per capita incomes are rising.

### **Fertility preferences and the "demand" for children?**

The 1998, 2003 and 2008 RH Surveys assessed women's fertility preferences by asking respondents whether they wanted more children than they presently have, what their "ideal" number of children was, and whether their last child was "wanted". When married women were asked in the 2008 survey whether they wanted more children, 52 percent of those who already had two children and 81 percent of those who had three children responded "no". About 11 percent of women with two children and 6 percent with three were "undecided". Considering only those who had decided, 64 percent of women with two children and 87 percent with three did not want another child either soon or later. These data suggest that the majority of women in Mongolia want between two and three children but not more than three.

Another indicator of fertility preferences is women's (and their husband's) stated "ideal" family size. One difficulty with this indicator is that high parity women usually state the number they have had as an ideal, as if to justify the number that they have. Also, the concept of "ideal" is probably interpreted to mean the number they would like under ideal circumstances, not the number they intend to have under actual circumstances. In any case, for all women, the stated ideal was 3.4 children, with urban women stating 3.3 and rural 3.5. Education has only a small effect on the ideal number of children but contrary to what might be expected, women with primary or less education wanted fewer (3.1) children on average than women with more than secondary education (3.5). Ideal family size is therefore somewhat higher than the average number of children women would have if they achieved their preference. Contrary to the perception that men desire more children than women, in the 2008 RHS men's ideal number of children was slightly lower than women's (3.3 compared with 3.4).

The third measure of fertility preferences is the "wanted" fertility rate. This measure is the TFR that would have resulted if all "unwanted" births had been eliminated. A birth is considered wanted if the number of living children is less than the respondent's "ideal" number. Again, this "ideal" is not an objective measure of actual intention. In any case, the "wanted" TFR in 2008 was 3.2 for all women, 3.0 for urban women and 3.6 for rural women. These figures are virtually identical to the *actual* TFRs among these

groups. In other words, there was virtually no difference between the number of children that women were having and the number they wanted to have. Among older and younger women, however, the wanted fertility rate was lower than the actual rate indicating unwanted fertility in these groups.<sup>37</sup> The wanted TFR is higher among rural (3.6) than urban (3.0) women and is the highest in the Western region (3.8).

These data suggest that Mongolian women, and their husbands, do not generally want a large family (four or more children). Ideally they would like three but settle for fewer than three. The recent rise in fertility since 2005, when the TFR reached a low of 1.9, would appear to be due to changed fertility preferences. In other words, women were having more children in 2010 than in 2005 because they wanted more.

To what extent could these preferences have been affected by government incentives? (child payments and bonuses, etc.). The 2008 RH Survey asked women who had given birth over the previous five years if the “child money” programme had influenced their decision to give birth. Overall, 12 percent of women indicated that the child payments had influenced their decision, but the responses varied according to age, region of residence and income. In Ulaanbaatar only 6 percent of women indicated that the availability of child payments influenced their decision

and among higher income women the proportion was only 4 percent. In general, poorer, older and rural women were the most likely to be influenced by child payments even though 95 percent of women received them.<sup>38</sup>

More detailed research would be required to determine the effects of the “child money” payments on parity—that is, whether these payments encouraged women to have a third birth when they would have remained at two in the absence of the payments. Existing survey data do not provide evidence on this. However, the fact that older women were more likely to be influenced by these payments than younger ones suggests that the programme may have encouraged more higher-parity births.

In sum, the survey data on fertility preferences suggest that women are likely to continue having between two and three children on average and that fertility is unlikely to decline once again to below replacement level. The rising fertility preferences between 1998 and 2008 (from 2.7 to 3.2 children) are probably related to improving economic conditions rather than government programmes. However, a further increase to 3.5 or above as the economy improves further and incomes rise is unlikely. This implies that a population of 5 million people is very unlikely to occur before 2040.

### **The role of population “momentum”**

Population *momentum* is the long-range potential for increase (or decline) in a population intrinsic to the different

<sup>37</sup> The RH surveys tend to overstate total fertility by comparison with rates obtained from Registered births. In 2008 the TFR was 2.6 based on registered births and 3.2 based on the RH survey. This may result from an overstatement of the teenage fertility rate (15-19).

<sup>38</sup> 2008 RH report p. 100.

numbers in younger and older cohorts. It is essentially the potential for growth that is inherent within an age structure. Momentum is apparent, for example, when the population in the reproductive age groups is increasing. Even though each female of reproductive age may be having fewer births on average than previously, the total number of births will increase because the number of mothers is increasing. This has been the situation in Mongolia since about 2008. In 2010, 20 percent of the total births in that year can be attributed to the effects of age structure.<sup>39</sup> Estimates of the impact of population momentum in Mongolia suggest that *momentum* alone has the potential to increase the population by 28 percent between 2010 and 2040. In other words, even if fertility had dropped to replacement level in 2010, the population would still grow by 28 percent between 2010 and 2040. Based on momentum alone, the population in 2040 would still reach 3.4 million. Assuming above-replacement fertility (Medium fertility scenario) the population would reach 3.9 million. This implies that more than half of the population growth over the next 30 years would be caused by momentum. Population momentum will ensure that Mongolia's population will continue to grow for the foreseeable future and alarmist concerns that the population will decline in the absence of government programmes to raise fertility are misplaced.

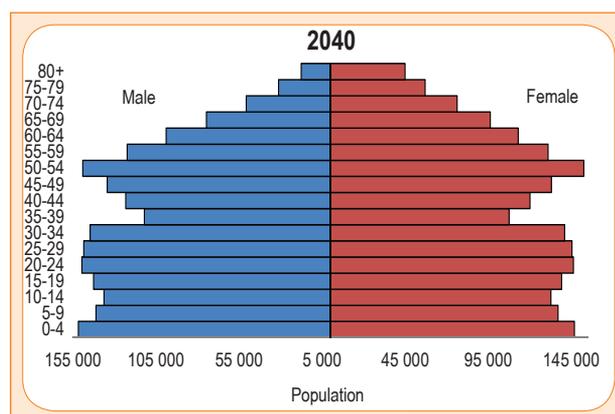
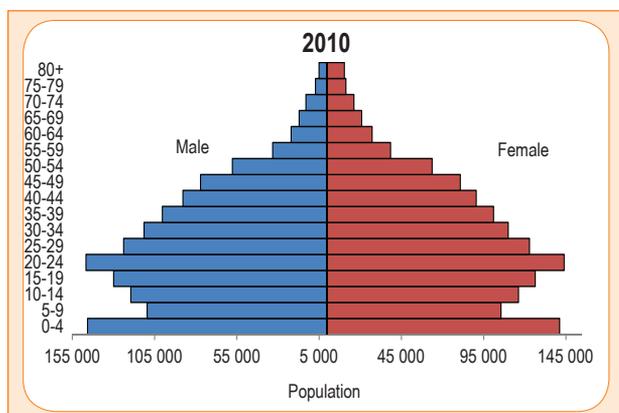
### **The future age structure and its implications**

The projected age structure of Mongolia's population is illustrated in the series of

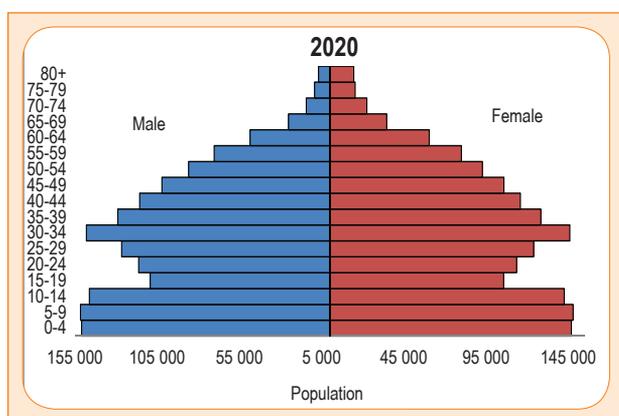
age pyramids below (Figure 3.7). The key feature of the age structure changes that Mongolia will experience over the next three decades is the moving through the age structure of the small birth cohorts of the 15-year period 1990 to 2005, followed by the larger birth cohorts that will subsequently move through the age structure from 2005 through to 2020. The most distinctive feature is the population "deficit" in the ages 5-19 years in 2010 (the birth cohort of 1990-2005). This deficit moves through the age structure as the opposite of a "bulge". The deficit exaggerates the impression of a population "bulge" in the 20-24 age group. This is somewhat misleading, although it is true that this relatively large cohort will be moving through the age structure and by 2040 will reach the late labour force age of 50-54. As this relatively large cohort moves through its adult years, the total number of births will increase. Even though the average number of children will decline somewhat, the larger number of mothers will ensure that the population age structure fills out at the bottom of the pyramid. This is already evident in the 2010 pyramid. The 2020 pyramid shows signs of the "rejuvenation" of the base. By 2030 the smaller cohorts of mothers will produce fewer children again (even if average fertility remains high) so the base of the pyramid will again start to shrink. By 2040 the base will be filling out again as the child-bearing cohort increases.

<sup>39</sup> Authors' estimates based on simulation studies.

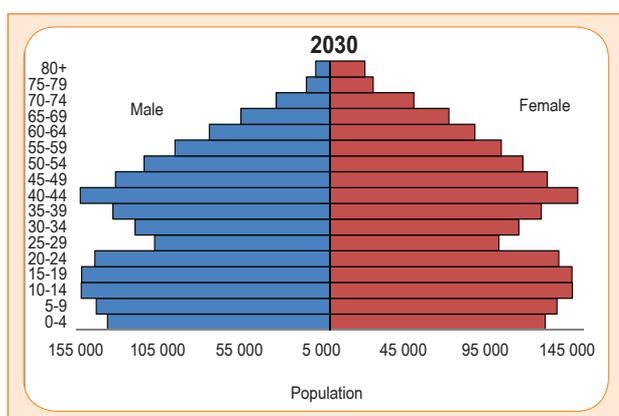
**Figure 3.7: Mongolia's projected age structure 2010-2040 (medium projection)**



Source: NSO Population projections, unpublished data



In the meantime, the age pyramid is filling out in the middle and in the older age groups, indicating an ageing population. Mongolia's age pyramid has not yet reached the "coffin-shape" that populations in the developed countries have attained but the process is underway and the direction is clear. The effects of ageing are particularly apparent in the 2040 age pyramid and most clearly in the female population which is clearly much larger in the 70 and over age groups.



The series of population pyramids reinforce the point raised several times earlier in this report that future population trends in Mongolia will follow a series of "waves" as various age groups increase and decrease through time. These population waves are inevitable and cannot be altered by any feasible population policy.

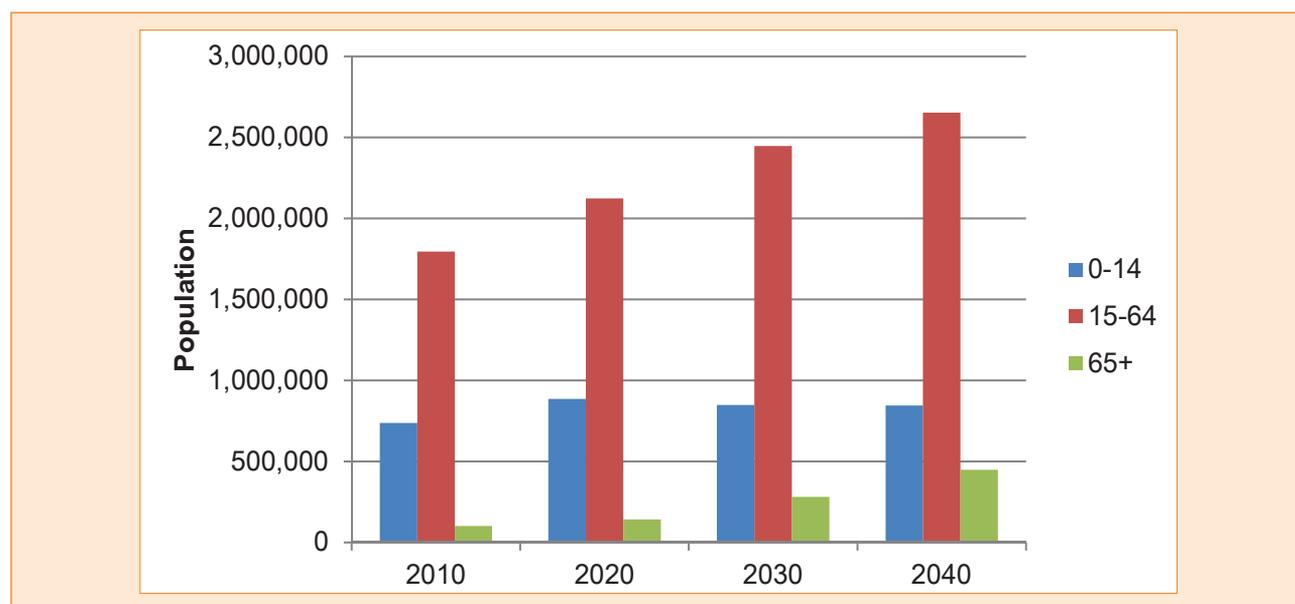
### **The labour force and the dependent population**

Although the population aged 15 and over is used to define the labour force for the purpose of measuring economic activity, in this chapter we employ the standard age range of 15-64 to measure projected

labour force growth. As shown in Figure 3.8, the labour force age group is projected to increase significantly between 2010 and 2040. The actual increase is from 1.8 million in 2010 to 2.7 million in 2040—an increase of about 860,000. This

represents an increase of 47 percent or an average rate of 1.3 percent per year over three decades. Thus, much of the population growth expected in the next three decades will be in the population of labour force age.

**Figure 3.8: Projected population in the three main functional age groups, 2010–2040 (NSO Medium projection)**

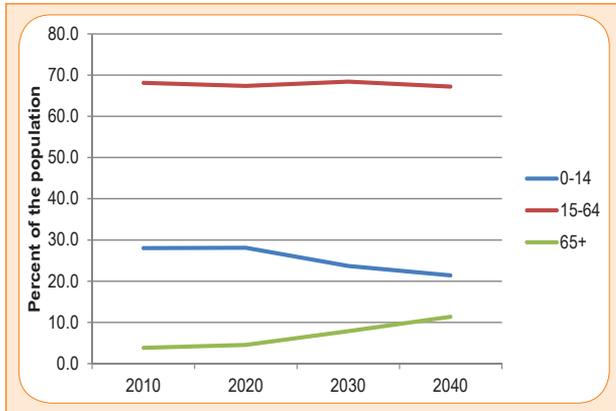


Source: NSO projections

As a proportion of the population, however, the 15-64 age group will remain stable throughout the projection period at around 67-68 percent of the total (Figure 3.9). This obviously implies that other age groups will be growing at a similar rate. Indeed, the dependent age groups (under 15 and 65 and over) are projected to increase at a slightly higher rate than the population of labour force age (1.4 percent compared with 1.3 percent annually) and will remain at around 32 percent of the total population over the next three decades. However, there will

be a proportional shift from “young” to “old” dependents. The under 15 population will decline from 28 percent to 21 percent of the total while the 65 and over population will increase from 4 percent to 11 percent of the population.

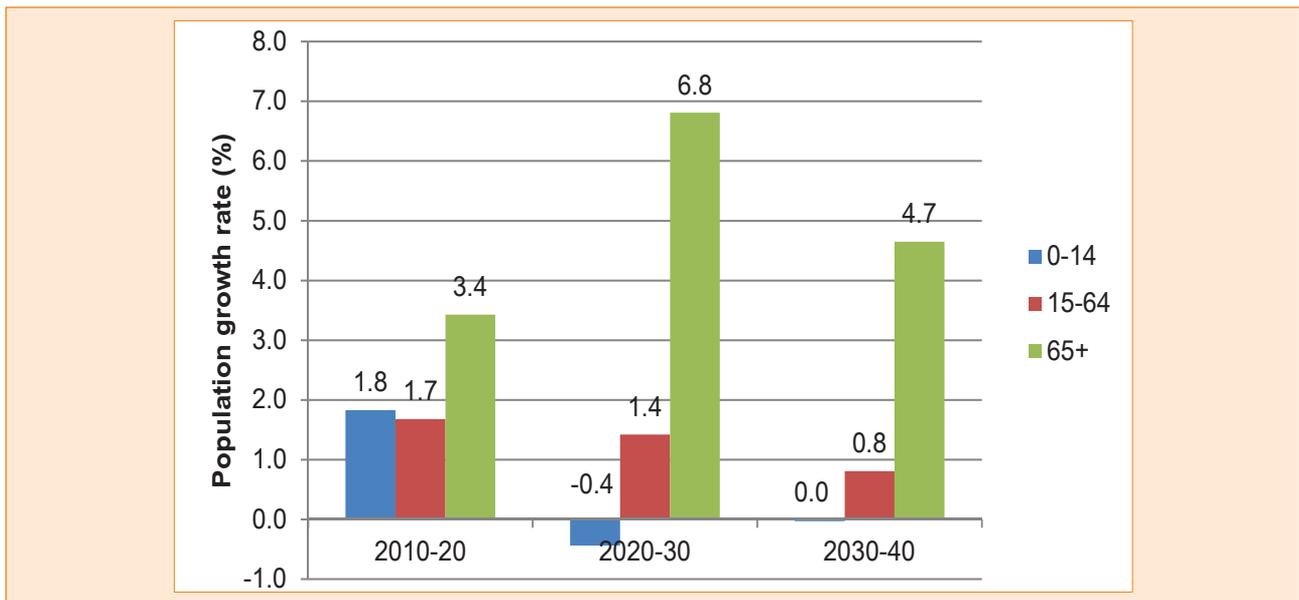
**Figure 3.9: Proportional change in the three main functional age groups, 2010–2040 (medium projection)**



Source: NSO projections

By 2040, Mongolia’s population will still be some distance away from the point where the under 15 and the 65 and over population are of equal size or where the number of elderly exceed the number of young people. Nevertheless, the fastest growing major age group over the next three decades will be the 65 and over, which will increase by three and a half times between 2010 and 2040—an average growth rate of 5 percent per year (Figure 3.10). The rate of growth in the elderly will be particularly high in the 2020-30 decade.

**Figure 3.10: Projected population growth rates in the labour force and dependent age groups**



Source: NSO projections

For social and economic planning purposes, it is important to consider projected growth patterns in a variety of age groups. Table 3.3 gives an indication of how various “functional” population groups will be growing or declining at

various rates over the next three decades as the age composition changes. It is quite clear, however, that the largest increases will occur in the older ages, while the slowest rates of growth will be among children and infants.

**Table 3.3: Percentage of the population in selected age groups 2010 to 2040 (medium projection)**

Age	Descriptive categories	Population				Percentages				% growth 2010-2040
		2010	2020	2030	2040	2010	2020	2030	2040	
0-1	Babies	63,201	58,622	53,709	59,872	2.4	1.9	1.5	1.5	-5.3
0-4	Infants and children	286,946	297,706	267,116	296,291	10.9	9.4	7.5	7.5	3.3
5-6	Pre-school	88,633	120,915	109,701	113,542	3.4	3.8	3.1	2.9	28.1
7-12	Primary school	264,684	288,574	349,953	325,636	10.1	9.2	9.8	8.3	23.0
13-18	Secondary school	298,984	276,594	362,316	331,563	11.4	8.8	10.1	8.4	10.9
19-25	Tertiary education	398,563	319,494	385,572	413,028	15.1	10.1	10.8	10.5	3.6
14-49	Reproductive age	1,601,206	1,478,000	1,915,771	1,940,685	60.8	46.9	53.6	49.2	21.2
20-59	Working age	1,489,117	1,799,119	1,986,150	2,159,756	56.5	57.1	55.5	54.7	45.0
25-35	Young working age, house searching	509,851	599,598	493,845	625,479	19.4	19.0	13.8	15.8	22.7
40-59	Medium working age	529,234	768,030	997,303	1,065,212	20.1	24.4	27.9	27.0	101.3
60-69	Recently retired	87,213	168,520	288,955	382,601	3.3	5.3	8.1	9.7	338.7
70-79	Seniors	47,692	61,505	124,726	215,081	1.8	2.0	3.5	5.4	351.0
80+	Dependent elders	15,441	21,386	29,979	62,519	0.6	0.7	0.8	1.6	304.9
Total		2,633,312	3,151,086	3,576,877	3,946,997	-	-	-	-	49.9

Source: NSO projections

### The demographic "window of opportunity" or demographic "bonus"

The concept of the demographic "window of opportunity" has previously been mentioned. This refers to a period when the Population of labour force age is increasing while the population of "dependents" is stable or falling. The "window" is open the widest when, due to fertility decline, the proportion of the population under 15 is decreasing while the elderly population has yet to increase significantly. This situation is considered conducive to economic development for a range of reasons discussed further in the next chapter. In Mongolia, the rapid decline in fertility between 1990 and 2005, combined with increasing mortality

in older ages, opened the demographic window quite widely. By 2010, the proportion of children under 15 in the population had declined to 28 percent of the population from 41 percent in 1990 while the 65 and over population was only 4.1 percent of the total and had barely changed over the same period.

The NSO Population projection (Medium fertility scenario) confirms that the demographic window of opportunity will remain open in Mongolia for some decades to come. As already shown, the dependent population will remain about 32 percent of the population for the next three decades while the core labour force population (15-64) will remain stable at about 68 percent.

However, the proportional shift from a “young” dependent population to an “old” dependent population which commenced around 2010 means that the demographic bonus is already weakening. The reason for this is that the costs of maintaining elderly people are significantly higher than the costs of maintaining children. Per capita health expenditure increases rapidly over age 65 and the impact on both household and government budgets can be substantial.

However, an ageing population need not be a complete drain on the economy or the rest of the population. Economic demographers distinguish between the “first” demographic bonus and the “second” demographic bonus”. The first occurs when the labour force is growing while the number of dependents is low, thereby increasing the rate of capital accumulation, productive investment and employment. The second demographic bonus occurs when, anticipating retirement, individuals and the state accumulate capital for the purpose of providing pension income for the elderly. The first demographic bonus is transitory, the second demographic bonus is permanent. (Mason)

The financial support of the elderly after their withdrawal from the economically active population can be provided in two ways: (1) family (or social) transfers from those who are still in the labour force either directly or through taxation and redistribution; (2) income earned from accumulated capital either by the individual or by the state on behalf of the individual. The second of these methods can provide an economic boost to an

economy by providing investment capital that may not otherwise be available. Supporting the elderly from current income, whether by family members or the state through taxation does not provide the second demographic bonus. As will be discussed in the next chapter, Mongolia’s social insurance pension scheme, which supports retired workers, is largely funded by current workers through their contributions. The social welfare pension, which is not based on contributions, is financed out of current revenue. Neither of these pension schemes contributes to the second demographic bonus.

### **Population distribution and urbanization**

Chapter 2 described changes in the geographic distribution of the population of Mongolia over the past two decades. The predominant trend in the internal distribution of the population has been one of increasing urbanization, with Ulaanbaatar being the main urban destination. In 2010, 44 percent of the population was living in Ulaanbaatar and 68 percent of the total population was urban. The primary issue now is whether the trend toward ever-increasing urbanization will continue.

Separate population projections have not been carried-out for urban and rural areas. However, projections of the total population of Ulaanbaatar, other urban areas and rural areas were conducted using a “ratio extrapolation” method. These methods can be used where an area containing the population to be projected is part of a larger (*parent*) area for which a projection is available. In this case, the parent area is Mongolia and the smaller

areas are Ulaanbaatar, other urban and rural areas.

The specific ratio extrapolation method used here was the *share-of-growth method*. In this method it is assumed that the smaller area's share of population change in the *parent* area will be the same over the projection horizon as it was during the base period<sup>40</sup>. The observed period of population change was 2000 to 2010. Hence, it is assumed that the trend in the smaller area's share of population change in the parent area will be the

same from 2010 to 2030.

The result of this projection is presented in Table 3.4. Population growth in Ulaanbaatar would be considerable. In 20 years it would more than double: from 1.2 million in 2010 to 2.5 million in 2030. On the other hand, the rural population would decline from 849 to 188 thousand. The population of other urban areas would increase by 44 percent. This increase would be caused mainly by natural population growth and immigration would play a minor role.

**Table 3.4: Population projection Ulaanbaatar, urban areas and rural areas, 2000 to 2030**

Year	Population				Percentage			
	Ulaan-baatar	Urban*	Rural	Total	Ulaan-baatar	Urban*	Rural	Total
2000	760,100	584,416	1,028,984	2,373,500	32.0	24.6	43.4	100.0
2010	1,154,300	643,847	849,438	2,647,585	43.6	24.3	32.1	100.0
2015	1,536,148	697,245	663,310	2,896,623	53.0	24.1	22.9	100.0
2020	1,913,641	752,128	485,435	3,151,086	60.7	23.9	15.4	100.0
2025	2,249,528	800,963	327,164	3,377,503	66.6	23.7	9.7	100.0
2030	2,545,298	843,964	187,798	3,576,877	71.2	23.6	5.3	100.0

\* Excluding Ulaanbaatar

It is important to emphasize that this simulation exercise is based on the assumption that the magnitude and direction of the redistribution observed from 2000 to 2010 would continue from 2010 to 2030. This is not a very realistic assumption as the period 2000-2010 was a period of economic recovery during

which significant return migration from rural to urban areas took place. The circumstances of this period are unlikely to be repeated. Furthermore, it is highly unlikely that Mongolia's population would ever become 94.7 percent urban, as suggested by the results. The simulation serves mainly to highlight how distinctive the 2000-2010 period was and should not be taken as a forecast of what will occur in the future.

<sup>40</sup> M. V. George, S. K. Smith, D. A. Swanson, and J. Tayman, Chapter 21: Population Projections, in J. S. Siegel and D. A. Swanson (ed.) *THE METHOD AND MATERIALS OF DEMOGRAPHY*, Elsevier Academic Press, San Diego, 2004, pp. 561-601.

Nevertheless, the simulation exercise does highlight the impact that the structure of economic opportunity can have on population movement. So long as rural areas are characterized by limited employment opportunities, a high level of poverty, limited access to social services such as education and health (and urban areas offer superior opportunities in these respects) rural-urban migration will continue, despite the hardships encountered by migrants.

A more accurate assessment of the prospects for further rural-urban migration and the possibility of high urban growth, as well as a high degree of urban “primacy”, would require more detailed treatment than these topics have been given in this paper. Specific rural-urban projections would be required based on recent migration patterns rather than the patterns of 2000-2010. Various internal migration scenarios would need to be constructed based on a deeper understanding of regional development prospects and current development plans. The main drivers of rural-urban migration need to be better understood before projections can be made. Finally, the experiences of other developing countries attempting to address the issue of urban primacy need to be examined. In many cases governments have given up trying to re-direct rural urban migration away from the primate city toward smaller growth centres in part because the costs may be high and partly because government incentives are usually insufficient to offset the economies of scale provided by large cities.

## Implications of future trends for development and policy

### Population growth

The population of Mongolia is projected to increase by another 1.4 million between 2010 and 2040. The rate of growth will be above 1.5 percent annually for the next decade but will gradually decline to about 1.0 percent annually by 2040. However, growth will fluctuate due to the uneven age structure. Annual changes should not be taken as indicative of a trend. In terms of the population-development situation, this is a favourable outlook. The overall rate of population growth will be sufficient to provide a mild stimulus to the economy, increasing domestic demand for goods and services while not overwhelming institutional capacity.

Public policy under these circumstances should primarily be “population-responsive” in nature rather than “population influencing”. The pre-existing “demand” for children is sufficient to ensure a TFR between 2 and 3, which would ensure that population growth remains near its long-term average rate of 1.5 percent. There is no need for policies that would stimulate the demand for children. To ensure that women and couples are able to realize their reproductive goals, policies need to reduce the “opportunity costs” of childbearing, by providing good maternal and child health facilities, adequate maternal leave, job-protection and security, and subsidized or free child care facilities. A stable and predictable system of child allowances should be paid to ensure adequate care of children under six years.

Beyond that age, allowances should be targeted toward the needy and vulnerable.

The most effective means of ensuring that couples achieve their desired family size is a strong and growing economy that is providing jobs for new graduates from schools and universities. In the absence of employment growth, young people will delay childbearing, thus reducing the fertility rate in the short-term.

Policy dialogue about population growth should shift from the quantity of people to quality. A high (over 2 percent) population growth rate is not achievable in Mongolia without a higher level of immigration. Increased immigration in the context of high unemployment is not a feasible option other than as a temporary measure to alleviate structural mis-match between labour supply and demand. With population growth relatively low, education strategies should focus on improving the quality of education-from pre-school to tertiary level. A higher skilled labour force is essential if the economy is to develop beyond resource-extraction.

### **Age structure and the demographic bonus**

The age structure of Mongolia's population bears the imprint of the country's unique demographic history. This structure cannot now be changed. Accordingly there are no "population-influencing" policies that could be applied and only "population-responsive" policies are relevant. While the age structure outlook is positive for economic development and growth, the "demographic window of opportunity" is beginning to close due to the increasing

aged dependency ratio. The "window" will remain open for the next three decades but the rapid growth of the elderly population will potentially reduce the supply of public resources for education, training and job creation. To take advantage of the first demographic bonus, policies to create employment through a more diversified economy focused on sectors other than mining are essential. This is no easy task, but various authors have made recommendations for achieving "job rich" growth.<sup>41</sup>

Mongolia is very well-placed to take advantage of the second demographic bonus because of the impending increase in resource revenues. The establishment of an investment fund, the income from which can be employed to support a larger population of old people in the future is a feasible policy option that other countries have implemented. The Government should investigate investment policies of other countries facing an ageing population such as New Zealand and Canada.<sup>42</sup> The creation of superannuation funds can also contribute to the first demographic bonus by providing capital to support Small and Medium Enterprises (SME).

Policies to promote individual savings for retirement should also be promoted. These should go beyond contributions to the social insurance pension plan from wages and salaries to include private savings schemes. In the short run there may need to be tax incentives to encourage retirement savings. It is also

<sup>41</sup> Ronnas (2011)

<sup>42</sup> New Zealand established such a fund some years ago with the stipulation that it will not be drawn upon for 20 years.

feasible that retirement savings.

The age structure shift from a population dominated by young dependents to one in which the proportion of elderly dependents will be growing rapidly will present a major challenge social policy challenge. Physical and human resources will need to be diverted away from the care of children to the care of older people (the implications of ageing are discussed further below).

From an age-structure perspective, a TFR at least above replacement and preferably closer to 2.5 would ensure a reasonable balance between the old and the young. Given the existing “demand” for children this might be achievable without explicitly “pro-natalist” policies. However, population planners should continue to monitor the TFR and conduct further research into the factors that determine family size. A review of the policies employed in other countries that have experienced an increase in fertility should also be conducted.

### **The labour force**

About two-thirds of the expected 1.4 million increase in the population between 2010 and 2040 will be in the working age range of 15-64. If the rate of employment creation remains the same as it has been over the past decade, a significant proportion of this increase will remain economically inactive-either as unemployed, underemployed, students or some form of income recipients. The need for an effective strategy to increase the capacity of the economy to create jobs has already been mentioned. There may also be a need for innovative

strategies that keep youth economically engaged after graduation from school, technical college or university rather than economically inactive income recipients. Creating “opportunities for youth” programmes may help to alleviate social pressure and potential dissatisfaction.

### **Urbanization and population distribution**

Mongolia has been urbanizing at a high rate and most growth has been concentrated in Ulaanbaatar. The simulation exercise reported above shows that a continuation of recent rates of rural-urban migration and urban growth, especially in Ulaanbaatar, is implausible as it would result in the emptying out of the countryside and a population 94 percent urban. This will not happen, but the direction of the trend raises a number of serious issues. The main drivers of rural-urban migration are the low value-added per worker in the rural economy, on the “push” side, and the higher value-added in the urban economy on the “pull” side. Although urban living conditions may be poor, proximity to services such as health and education, and the prospect of a wage job tend to overshadow the negative aspects of movement as many migrants view these conditions as temporary. Parents in migrant families are normally prepared to suffer for the sake of their children’s future prospects.

This report has noted that urbanization is not the main problem but urban “primacy”. Ulaanbaatar’s infrastructure was not sufficient to absorb such rapid urban growth. The consequences have included deteriorating environmental quality and the spread of ger districts

with inadequate social services. However, the economics of “agglomeration” tend to encourage concentration of population and economic activity in very large cities.

The prospect of decentralizing urban growth to regional centres or aimag cities clearly need to be reviewed. Efforts of some developing countries (e.g., Thailand) in this direction have not been very successful, but this does not mean that the redirection of urban growth could not be attempted in Mongolia. It would need to be linked to an economically viable regional development strategy. If regional development requires large state subsidies beyond the provision of infrastructure to be successful then it may be better to invest in resolving the problems of Ulaanbaatar.

### **Social Services**

As noted, Mongolia’s population will grow by another 1.4 million people over the next three decades. It follows that there will be a continuous, although not extreme, demographic pressure on social services. To cater for an additional 1.4 million people will require increased resources, both human and material, and probably greater efficiency in the delivery of services. However, possibly more important than the overall growth in the demand for goods and services is the changing pattern of demand caused by the changing age structure.

As was evident from the data shown in Table 3.3 various functional age groups will experience variations in growth in the future. For example, the *secondary school population* will decline from 298,984

to 276,594 between 2010 and 2020, increases again to 362,316 in 2030 and declines again in 2040 to 331,563. These fluctuations can be observed in most age groups and are the result of previous changes in the age composition caused mainly by fertility decline and population momentum. Education planners will need to take account of these fluctuations in planning for the number of school places.

Given the slow growth projected among children and young adults, it is likely that the education and health systems will be able to absorb the increase in demand coming from these age groups. As noted in chapter 2, when the level of population pressures on education and health were higher the system performed relatively well as suggested by the *Human Development Index* previously cited. In the next few decades, demand will increase at a slower rate, therefore, population growth will be absorbed with less investment. Attention should be given to improving the quality of education.

A much faster rate of increase will occur in the *medium working age population* (40-59 years), which is projected to almost double between 2010 and 2040. This is a key age group in relation to the *second demographic dividend*. Subject to security of employment and adequate rewards for seniority, this is the age group that will be most strongly motivated to save for retirement. If there are appropriate incentives to save and invest, national income will rise. The policy implication is that suitable vehicles for retirement saving should be made available to facilitate the accumulation of

assets by this age group.

The one service sector that faces a daunting challenge in the future is housing, particularly in Ulaanbaatar. Demand for housing exceeds supply leading to inflationary pressure on the cost of housing. This results in unsanitary and crowded living conditions and contributes to poverty. Demand for housing in Ulaanbaatar will not only come from new in-migration but also from population growth in the presently resident population.

### ***The Elderly***

As already noted, the elderly will be the fastest growing age group in Mongolia for the next several decades. The population 60 years and over, will increase from 150,346 in 2010 to 660,201 in 2040—a four-fold increase. Mongolia's ageing trend, as in many developing countries in Asia, will be much more rapid than was experienced in European countries in the course of their demographic transitions. In Holland and the United States, for example, it took 100 years and 70 years, respectively for the 65 and older population to increase from around 5 percent to 12 percent of the population. Mongolia will experience a similar trend in only 30 years. Thus, Mongolia is aging at more than double the speed of the United States and three times the speed of Holland and other European countries.

Particularly important is that ageing will be more rapid among the female than the male population. Larger numbers and proportions of elderly women than men arise because of the significantly higher survival rates of females at every age. In

2010 the sex ratio<sup>43</sup> for the population 60 years and over was 75.1 and in 2040 it is expected to be 70.6. For the population 80 years and over it will decline from 49.1 to 39.3. Elderly women are usually more disadvantaged than their male counterparts mainly because they face longer periods of widowhood, a large proportion live alone with lower income and have lower likelihood of getting retirement benefits.

The key issue with ageing is whether the social security system has the capacity to ensure that the elderly can be maintained above the poverty level and receive the health care that they need. While Mongolia has developed a social welfare pension, like most social pensions in Asia it is relatively small and does not allow for independent living. With rapid ageing, the costs of providing even a meager pension will escalate in terms of the proportion of the national budget and GDP. Health costs will also rise dramatically over the next few decades. Health services will need to be re-oriented toward gerontology and disability. Arrangements to ensure active ageing and the participation of the elderly in the social and cultural life of the country will need to be put in place with the support of NGOs and Civil Society. Care facilities for the very infirm and "oldest old" will also be required and caregivers trained accordingly. The "population-responsive" policies to address ageing will be among the most challenging that Mongolia will have to face in the coming years.

<sup>43</sup> The sex ratio is the quotient between the male and female population times 100. A sex ratio of 100 indicates the same number of men and women; a sex ratio under 100 indicates a majority of women and one over 100 a majority of men.

## Conclusions

Based on moderate assumptions about fertility trends, Mongolia's population will increase to 3.0 million by 2017, 3.5 million by 2028 and 4.0 million by 2040. Over this period, 1.4 million people will be added to the population and the growth rate will average 1.3 percent per year. The population will increase by approximately 50 percent over the next three decades. This rate of growth must be considered quite favourable for socio-economic development in that it provides a stimulus to economic growth while not placing extreme pressure on resources and institutions. The qualification to this statement is that this would be the case if population growth were distributed evenly across the country. In fact population growth is concentrated in Ulaanbaatar where population growth was 4.2 percent annually during the 2000-2010 period. If this rate of growth were to continue, Ulaanbaatar's population would double in 17 years to 2.3 million. A further doubling of Ulaanbaatar's population would place extreme pressure on human and physical resources.

Although the current (2004-15) population policy targeted a national population growth rate of 1.8 percent,<sup>44</sup> this would not be achievable unless the Total Fertility Rate increased to 4 children per woman on average or if there was a significant increase in immigration. But immigration by non-Mongolian nationals on a scale sufficient to increase the rate of population growth is not politically feasible. Similarly, it is not feasible to increase the TFR to 4 or even 3.5. The preferred family size as expressed by

Mongolian women and their husbands is between two and three children with some indication that 3 would be preferred if circumstances were ideal. Thus, the "small family norm" is firmly established in Mongolia and is unlikely to change given the level of urbanization and the pace of economic development.

Concerns expressed when the TFR declined to below replacement in 2005 that Mongolia was entering a long period of sub-replacement fertility and slow or even negative population growth, appear to have been exaggerated. A more likely explanation is that economic conditions were so uncertain during the transition period that many couples limited or delayed childbearing until economic conditions stabilized and improved. The rapid increase in per capita income fueled by economic growth of well over 10 percent per year after 2000 had the effect of restoring confidence and couples adjusted their fertility preferences upwards as a response. There are grounds for supposing that fertility will remain well above replacement level for the foreseeable future, although probably not as high as three children per woman. Even if the TFR had remained low, "population momentum" would have ensured a positive rate of growth.

Population projections suggest that Mongolia's population will more than likely reach 4.0 million by about 2040 but whether it will reach 5.0 million is much less certain. To reach 5.0 million would require that the TFR remain at or above 3.5 for the next three decades. This does not appear likely. Nor is it likely that government incentives could increase the

<sup>44</sup> Mongolia National Population Policy 2004.

TFR to this level. Evidence suggests that only poor, older and rural women are influenced by “child money” programmes. This suggests that there may be a trade-off between quantity and quality. While more children may be born, they will be born into poorer and more crowded households to higher-parity mothers.

Although Mongolia will experience another three decades of population growth, that growth will not be steady but erratic. Yearly population increase will fluctuate due to the uneven age structure. The number of births will fluctuate annually and different age groups will grow at different rates through time. This will occur regardless of the fertility rate, although higher fertility will result in even larger fluctuations.

Future population growth will be concentrated in two age groups—the 15-64 (the labour force) and the 65 and over (the elderly). The young population aged 0-14 will barely increase. The labour force population will increase by 860,000 over the next three decades, placing additional pressure on the labour market at a time when the unemployment rate is already high. The most rapid increase in the working age population will be in the 2010-20 decade when the rate will reach 1.7 percent per year. But most rapid rate of growth will occur in the 65 and over population, which will increase by an average of 5 percent per year for the foreseeable future.

Although the labour force will grow in absolute numbers, it will remain constant as a proportion of the total population. Given that the proportion of children will remain stable while the elderly proportion increases, the pressure on the

working age population will grow. This pressure will be that much greater on the population in employment because the unemployed will not be contributing to taxes and is likely to be drawing social security assistance away from the elderly.

This chapter has discussed a number of policy challenges arising from the expected future course of population change in Mongolia. These challenges are primarily “population-responsive”; that is, they refer to ways in which social and economic policy will need to respond to demographic trends that are more or less inevitable. However, some of these challenges are of a “population-influencing” nature. The two types of challenges can be summarized as follows:

### Population-responsive policy challenges

- **Population ageing.** Mongolia is about to enter a period of rapid aging. The elderly will be the fastest growing age group in coming years. The population is ageing much faster than the presently developed countries did during their demographic transition, although not as fast as several other Asian countries (e.g., Japan, South Korea, Taiwan). Although Mongolia has constructed a social security system to address ageing, it is not clear that it is fiscally sustainable. It is largely based on a system of social transfers which, having once become established, will be under constant political pressure to increase benefits which can only come from government revenues. It is important to review the system in its entirety and assess its long-term viability. The role of the “second demographic bonus” in ensuring long-term economic growth

needs to be considered. Ageing also has serious implications for health care and living arrangements.

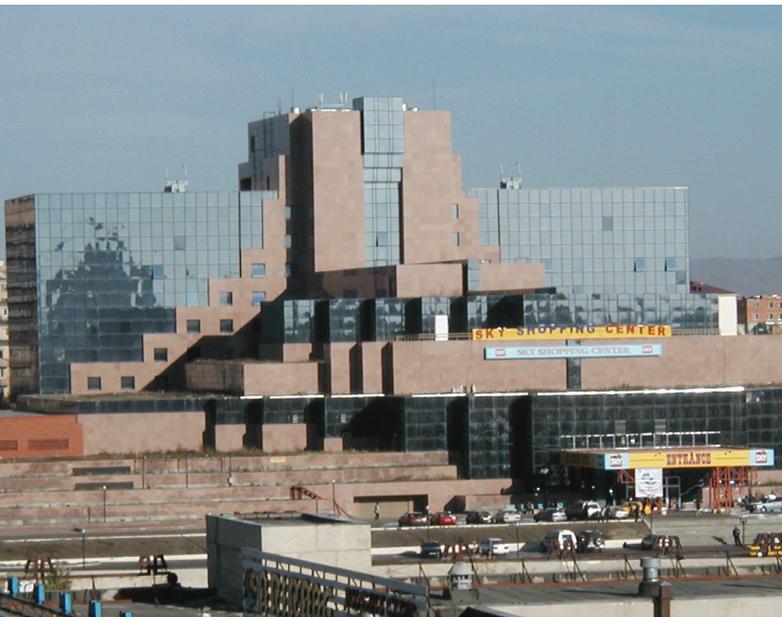
- **Labour force absorption and employment creation.** The population of labour force age will increase by almost 900,000 over the next three decades. Creating an economic structure that creates sufficient employment for new labour force entrants, while also absorbing the nearly 285,600 people who are presently either unemployed or have stopped looking for work, means that about 1.1 million jobs will need to be created over 30 years. Given the slow rate of job creation over the past decade, this is a formidable challenge. It is important to consider the implications of growing unemployment on social stability and social integration. It may be necessary to implement programmes that engage youth in pre-employment or work for welfare programmes to ensure that alienated youth do not become a political liability.
- **Responding to age "waves".** Social planners in health and education need to be made aware of the population waves that are built into the age structure and are not caused by variations in birth or death rates. Various age cohorts will fluctuate through time resulting in short-term changes in the demand for services. These changes will have implications for budgeting and service provision. Planners may need training in the use of population projections.
- **Population growth.** Mongolia's population will continue growing for the foreseeable future. Although the rate of growth will be moderate, service provision will still need to take

growth into account—particularly in terms of its rural-urban distribution.

- **Urban growth, urbanization and urban primacy.** Urbanization presents major challenges in maintaining services and developing new infrastructure, particularly housing and transportation.

### Population influencing challenges

- **Spatial redistribution and rural-urban migration.** The Constitution of Mongolia protects freedom of movement, thus only indirect policies are available to the Government. This report has noted that most Aimag populations peaked in 2000 or earlier and have since started to decline. In some Aimags this decline is not sufficient to reduce the population by much; in other cases populations have dropped below their level of 30 years ago. These variations need further research before policy responses can be formulated. It would also be useful to review research on how other countries have addressed the issue of urban primacy.
- **Maintaining fertility above replacement.** This report has argued that the demand for children is sufficient to maintain above-replacement fertility for the foreseeable future. It has also been recommended that the TFR and age-specific fertility rates be monitored to detect shifts in child-bearing. This is because there is no guarantee that fertility will not fall to or below replacement level again. It is therefore important that the Government consider contingency options. For this purpose the policy responses of other countries in a similar situation should be studied.



### Conclusions And Recommendations

Previous chapters have described Mongolia's past population trends as well as the likely future trends based on population projections. Throughout the report, an effort has been made to identify the impact of demographic trends on socioeconomic development and to suggest areas where policy interventions may be required. In the introduction to this report, the importance of national context was highlighted and the analysis contained in the previous chapters has confirmed this. Mongolia's demographic evolution has, in some respects, followed general patterns observable in many developing countries; on the other hand, Mongolia's demographic history is characterized by a number of unique features that set it apart from other countries-whether developed or developing. The primary challenge for policy-making is to accurately identify what is general or typical in Mongolia's demographic evolution and what is unique or particular to Mongolia's demographic history and current population situation. Until this is done it is not possible to formulate appropriate policies and programmes.

The objective of this final chapter is to summarize the key conclusions of previous chapters and to recommend policy responses for consideration by government and other interested parties.

#### **Issue 1: Population and development interactions**

The primary aim of this report was to demonstrate the impact of population on Mongolia's development. This was the focus of chapters one and two. However, sections of these chapters were in fact demonstrating that the relationship between population and development is a reciprocal one. While population patterns have affected Mongolia's development, development has also affected population patterns. This discovery is entirely to be expected, although often overlooked. In Mongolia's case, the transition from one type of economic system to another during the 1990s and well into the first decade of this century was accompanied by an economic crisis that had important demographic consequences. Some of these consequences-such as the decline in fertility to below replacement level-are temporary; others are permanent. Among

the latter are the age structure and the role of Ulaanbaatar as the dominant urban centre in the country. Although the age structure will continue to evolve and in-migration to Ulaanbaatar will eventually decline, the imprint of these trends will remain for a long time.

The rapid decline in fertility that accompanied Mongolia's economic and political transformation was in large part a function of economic collapse and cannot be compared with the more orderly fertility transition observed in many other countries that was related to (and also contributed to) growing economic prosperity. Similarly, the large flows of migrants from urban to rural areas and back again are not a reflection of the urban transition that can be expected to occur in the course of economic development and modernization. These patterns have their origin in economic crisis and recovery and must be seen as primarily historical. Demographic-economic models and explanatory frameworks are not designed to capture such unique historical events. Nor are such frameworks designed to take political factors into account. Mongolia's evolution from a command economy to a market-based one was also simultaneously a transformation in the political culture of the country—most obviously the reduction of the role of the state in social and economic affairs. This trend also has implications for population patterns.

Chapter three has shown that Mongolia's population will most likely increase by another 1.4 million people before possibly stabilizing or beginning a period of slow growth. Consider the different

implications of an increase in population of this magnitude (about 53 percent above the current population) in Mongolia and in Thailand. According to the UN's "low" projection, Thailand's population is expected to grow by a similar amount (1.3 million) people before stabilizing after 2030. However, this increase would constitute only 1.8 percent of Thailand's 2010 population. Thailand's 1.3 million population increase will be of little economic or social significance, whereas Mongolia's 1.4 million population increase over the next three decades will be of major significance for the country. This comparison is intended only to highlight the need to place population facts in the right context.

### **Is there an optimal fertility path or population growth rate for Mongolia?**

Public discourse and some official commentary on the issue of population in Mongolia appears to support the view that it is in Mongolia's national interest to have rapidly growing population. The National Population Policy specified a growth rate target of 1.8 percent annually. The National Development Strategy expresses the view that the slow rate of population growth is an impediment to economic growth and development. These views suggest that there is an optimal rate of population growth for Mongolia. From an economic-demographic perspective, the optimal rate of population growth is that rate of growth that maximizes the well-being and quality of life of Mongolians—whether measured by GDP per capita or some other measure of welfare (HDI, for example). The evidence in this report suggests that a population growth rate of 2 percent per year or above is not

achievable without either a much higher fertility rate (3.5 children per woman) than the UN or the NSO has projected or a higher rate of net immigration than is assumed in the NSO's population projections. Thus, an average rate of growth much above the projected rate of 1.3 percent per year does not appear very likely. Even if all the Mongolian citizens reported as living abroad returned home, the population growth rate would increase by only 0.1 percent. An annual growth rate of 1.3 percent would normally be considered quite consistent with economic development and growth: it provides a moderate stimulus to the economy, ensuring the growth of domestic demand for goods and services, while placing manageable demographic pressure on institutions.

Furthermore, the evidence in this report suggests that Mongolia's economy has not fully absorbed past population increases, particularly the increasing labour force. Unemployment and poverty are persisting at high levels, even with a relatively slow rate of population growth. It is also likely that a higher rate of population growth would translate into more in-migration into Ulaanbaatar where the growth rate is already excessively high. A comprehensive review of the obstacles to economic growth in Mongolia by the World Bank (Ianchovichina and Gooptu 2011) does not include slow population growth as a development constraint. Similarly, the detailed and complex analysis of Mongolia's competitiveness in global markets by the Economic Policy and Competitiveness Research Center (IMD and EPCRC, 2012) does not mention slow population growth

as one of the 40 main weaknesses in the Mongolian economy. In fact, population ageing is cited as a positive factor.<sup>45</sup> Thus, popular perceptions and technical analysis are at odds with one another.

#### **Policy response:**

- **Establishment of a population research unit** in the Ministry of Population Development and Social Protection to monitor the evolving relationship between population patterns and trends and socioeconomic development. Many of the issues discussed in this report require more detailed policy-oriented research and analysis, including urbanization and migration, the determinants of fertility levels and trends, the analysis and exploration of population projections (including the development of alternative scenarios). The unit should have its own in-house research capability but would also commission research from outside bodies, such as the universities and private consultants. The research would be policy-oriented, which implies that it would need to go beyond the merely descriptive level of census and survey reports employing multi-variate research techniques aimed at determining causes.
- **Improve the quality of policy dialogue.** Through the Research Unit, and other means, the Ministry would seek to improve the quality of policy dialogue on population issue. Seminars, meetings and briefings aimed at disseminating research findings would

<sup>45</sup> What is implied is that ageing is not yet sufficient to create a significant burden on the working age population. As this report has noted, this favourable situation will not last much longer.

lead to a more informed public as well as key opinion leaders.

- **Promote and support the integration of population into development planning.** Planning and decision-making across a range of sectors, including labour, health, and social welfare requires evidence-based interventions using appropriate research findings.
- **Review and revision of the current nation population policy.** The 2004 population policy is now out of date as it employed information from the 2000 census. With the release of the 2010 census results and a new set of population projections available, the policy needs to be brought up to date. There also needs to be a review of the implementation of the previous policy to determine its strengths and weaknesses.

## Issue 2: The fertility transition in Mongolia

Past fertility trends and their likely future course have been discussed in some detail in this report. The key issue was whether the decline to a TFR of 1.9 in 2005 signaled that Mongolia was heading for a long period of sub-replacement fertility, as has occurred elsewhere in Asia (and in Europe), or whether this low level of fertility was a result of the economic crisis and therefore only temporary. The hypothesis put forward in this report is that sub-replacement fertility in Mongolia was a temporary response to economic circumstances and will not be permanent. While we stress that this is a *hypothesis*, there is much supporting evidence for it. Most importantly there is the fact that the TFR has risen to 2.6 in 2011.

The rise in fertility after dropping below replacement sets Mongolia apart from those other countries in Asia that did not experience a rise and have had below replacement for many years (Singapore, Thailand, South Korea, Japan). Secondly, the UN's statistical models suggest that Mongolia's TFR will remain above replacement for several decades to come and that Mongolia has more in common with countries that have experienced an increase in fertility after reaching replacement level (including neighbouring Kazakhstan) than with countries with permanent sub-replacement fertility. Finally there is the fact that Mongolian women's fertility preferences and expectations have risen from around two children a decade ago to over three in 2008. This contrasts with Thailand where fertility preferences remain around two children per woman.

Mongolia is not now an "ultra-low fertility" country. Whether it becomes an ultra-low fertility country in the future is an open question, but the evidence in this report suggests that it will not for the next few decades-providing the social and economic circumstances are conducive. While the authors of this report have assessed that the "medium" fertility projection is the most likely (assuming a decline in the TFR from 2.5 to 2.2 by 2040) it is possible to argue that the constant or "high" projection (TFR stable at 2.5) would be consistent with the national interest. The justification for this would be to offset the impact of ageing, not necessarily to increase the population growth rate or to achieve a larger population.

In this respect, Mongolia is in a very different situation to other Asian

countries whose government are considering ways to increase fertility or have already implemented such programmes. Thailand and Singapore, for example, are attempting to raise the TFR above replacement after many years of sub-replacement fertility. Mongolia, by contrast, is potentially seeking to maintain the TFR at its current level: to ensure that it does not decline further. On the face of it, this should be an easier task to achieve. In any case, the policy response in both situations would be similar.

### Policy response:

The following measures would contribute to the maintenance of fertility above replacement in the medium-term:<sup>46</sup>

- **A stable path of economic growth** and macroeconomic stability that provides families with the confidence that their circumstances will continue to improve and that they can adequately raise children; the availability of jobs and housing are key aspects that contribute to confidence.
- **High quality maternal and child health services**, including reproductive health services that assist mothers to plan births and raise healthy children;
- **Paid maternity leave** at least up the ILO's minimum standard of 14 weeks and to be paid at the rate of two-thirds the woman's previous earnings; Longer leave may be required if present arrangements already meet this standard;
- **Paid paternity leave** to assist men to play a role in child-bearing;
- **Subsidized or fully-paid childcare** to ensure that women are able to

return to the labour force without jeopardizing their career prospects;

- **Flexible working hours** to allow mothers to combine work and childcare and to take childcare leave when necessary;
- **Child allowances** should be paid but the programme should be maintained for sufficient period of time to allow its effects to be assessed. The scheme should be predictable, stable and monitored.

The last of these measures is proposed despite the evidence presented in this report that "child money" programmes may achieve a marginal increase in the quantity of children at the expense of the quality of children. Because of this possibility, there should be:

- **A thorough review of the child allowance scheme** to assess its impact on both fertility and the welfare of children and families. This review should include studies of similar child allowance and "baby bonus" schemes in Europe, Australia, New Zealand, Singapore and South Korea. The principal goal of policy should be to offset at least some of the "opportunity costs" of childbearing for women and to strengthen family life. The Population Research Unit in the Ministry would conduct or commission this review.

### Issue 3: The mortality transition

Mongolia's mortality transition is well advanced but still has some distance to go. The gap between male and female life expectancy is wide, with females living 8 years longer than males on average. The principal reason is high adult male mortality related to non-

<sup>46</sup> Some of these measures have been taken from proposals put forward for Thailand. See UNFPA (2012, p.128-29).

communicable disease (NCD). The causes of NCDs are well known (cigarette smoking, high dietary fat intake, alcohol consumption and lack of physical exercise). These causes can be addressed through public health programmes focused on life-style changes.

#### **Policy response:**

- **Strengthened public health programme to address NCDs**, particularly in relation to (but not restricted to) male lifestyle factors. Prevention programmes aimed at health diets to combat obesity and its consequences.
- **Stronger regulations covering salt and sugar content** of food and the use of tobacco.

#### **Issue 4: Age structure and the demographic bonus**

This report has noted that neither the first nor the second “demographic bonus” are providing a boost to economic growth in Mongolia. While the relationship between the working and dependent age groups is positive, and the “window of opportunity” is still open, the expected benefits of the first bonus are not being realized. This is evident in the on-going high levels of unemployment, underemployment and poverty. While employment has increased over the last decade, many more persons have withdrawn from the labour force. The insufficient rate of labour absorption is, of course, an economic problem in the first instance not simply a demographic one. But the rate of increase in the core working age group (15-64) averaged 2.5 percent over the 2000-2010 decade, so considerable demographic pressure was being applied to the labour market. As

this report has also noted, there is both an excess and a shortage of labour in Mongolia. The problem of insufficient labour absorption is in part a problem of insufficient skills for the available work.

In the case of the second demographic bonus, the social insurance pension and the social welfare pension are being paid from current contributions or government revenues, respectively. To date, no superannuation or pension fund has been established that could shift the costs of pension support from social transfers to asset wealth.

#### **Policy response:**

- **Remove the obstacles to employment growth.** This implies the implementation of a “job-rich” development programme, as proposed by various agencies and professional observers.
- **Match training programmes to labour needs.** This may require better human resources planning so that the supply of and the demand for labour can be harmonized;
- **Assess the need for work-welfare programmes** to engage young unemployed and underemployed people in order to maintain their work and employability skills and to avoid long-term unemployment. Such programmes would engage recent graduates in part to avoid youth alienation and dissatisfaction.
- **Investigate the feasibility of establishing a superannuation fund to support pensions in the long-term.** Several countries facing ageing populations have established such funds in recent years. Mining revenues

and royalties can contribute to the fund while investments in SME by the fund would help create employment.

### **Issue 5: The urban transition and spatial distribution of population**

Mongolia has developed a high-level of urban "primacy", with 44 percent of the population living in Ulaanbaatar and a high rate of population growth in the capital due to rural-urban migration. Ulaanbaatar's infrastructure has been under strain to cope with city growth, creating environmental health problems and housing shortages. Mongolia is not unique in this respect as many developing countries have developed similar levels of urban primacy. Rural-urban migration is driven by factors operating at the rural end ("push" factors) and factors operating at the urban end ("pull" factors). Low income, high poverty, insecurity and poor employment prospects are the key push factors in rural areas; lower poverty, superior access to education, better prospects for employment, and family connections are among the key pull factors operating at the urban end.

Historically, Mongolia has not developed a hierarchy of medium sized towns and cities that might provide alternative destinations for rural-urban migrants. As in other countries, the economies of scale provided by large cities of 1 million or more tend to attract businesses to locate where the ancillary services and suppliers that they need are also located. So long as the economics of "agglomeration" (the clustering of industries and services together) favour Ulaanbaatar, rural-urban migration will continue to drive

population growth in the capital. Re-directing migration to other, mainly much smaller towns, is very difficult to achieve. Government investment or other inducements designed to attract industries and migrants to locate outside the capital city may be very costly because they would need to be sufficient to overcome the benefits of the economics of scale. This is hard to achieve where transportation services such as road, railways and airports are poorly developed outside the capital. It may be less costly to expand the capacity of Ulaanbaatar to absorb population than to create alternative locations for urban growth.

This does not preclude the formulation of a regional development strategy that aims to draw population away from Ulaanbaatar; but this would need to be based on detailed research on the locational economics of urbanization. In the short-run the most useful policy approach would be to review the evidence from international experience. Certainly the strategies that were applied in the 1980s to re-direct growth to economic "growth poles" were not successful and very expensive. There may be more scope for "export zones" close to transportation links, but the success of these depends on whether industry is prepared to relocate there.

The possibility of rural depopulation also needs to be addressed. It may be that some rural areas will continue to lose population. This is a normal result of industrialization and urbanization; but nomadic pastoralism is an important part of Mongolia's customs and traditions and therefore efforts need to be made to sustain this form of life.

### Policy response:

- **Review of international experience in re-directing urban growth away from primate cities.** New research conducted over the past decade on city growth in developing countries should provide some “lessons learned” for Mongolia. The main objective is to avoid making costly mistakes by introducing ineffective policies. A review of this nature would be commissioned by the Ministry of Economic development.
- **Formulation of a regional development strategy.** The difficulties of re-directing urban growth should not prevent the formulation of a regional development strategy that would also address the issue of rural depopulation. The strategy would identify urban areas outside Ulaanbaatar with the potential to attract industry and migrants. The strategy could also consider ways to ensure the survival of nomadic animal husbandry or to strengthen the rural economy by other means. There may be scope for a more sedentary mode of pastoralism using more intensive methods.

### Issue 6: Ageing and social security

The population projections reported in this paper show that the elderly population (60 and over) has entered a period of rapid growth beginning in 2010. The 65 and over population is projected to increase by 5 percent per year on average-faster than any other age group over the next three decades. Within this age group it can be expected that the oldest-old (80 years and over) will also be increasing rapidly, especially the female

population. The implications of this increase are quite profound-ranging from the provision of social pensions to the issue of elder-care and gerontology.

Mongolia developed a “National Strategy for Population Ageing” in 2009, and most of the issues that require to be addressed are contained in the strategy. However, the population projections on which the strategy was based are now out-of-date. It is important that the new population projections are incorporated into the National Strategy for Population Ageing, and that the policy is reviewed on the basis of those projections as well as other considerations. The central issue is the sustainability of the social welfare and social insurance pension systems. If these pensions are to be adjusted on the basis of the consumer price index (protecting pensioners from the effects of inflation) then new estimates of the costs of the current pension system will need to be made. The issue of a establishing a superannuation fund has already been addressed; but even if such a fund is established, it will be several decades before it will be possible to draw on earnings from the fund to cover the costs of pensions, so the pressure on the state budget will increase in the short- and medium term. It is therefore very important that the projected costs are known.

There may also be some merit in conducting a review of the 2009 National Strategy for Population Ageing. The Strategy document proposes that there be an evaluation in 3-4 years. Thus, an evaluation of the policy is now due. Plans should be put in place for an evaluation to be conducted in 2013.

### Policy response:

- **Update the projections of the elderly population** based on the 2012 projections conducted by the NSO.
- **Re-estimate the future costs of the social welfare and social insurance pensions** based on the new population projections and the Government's pledge to maintain the value of these pensions by indexing them to the rate of inflation.
- **Conduct an evaluation of the implementation of the 2009 National Strategy for Population Aging.** Based on the results of the evaluation, revise or update the strategy to ensure that the welfare of the elderly is protected to the extent possible.

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## ANNEX TABLES

**Table A1.1: Crude deaths rates (deaths per 1,000 population) in regions and selected countries, 1950-55 to 2005-10**

Region or country	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-00	2000-05	2005-10
World	19	17	16	13	12	11	10	10	9	9	9	8
More developed regions	10	10	9	9	9	9	10	10	10	10	10	10
Less developed regions	23	20	19	14	13	11	10	10	9	9	8	8
Least developed regions	27	25	23	21	22	19	17	16	15	14	12	11
China	22	21	21	11	8	7	7	7	7	7	7	7
Dem. Rep. of Korea	12	11	9	8	6	5	5	5	6	10	9	10
Japan	9	8	7	7	7	6	6	6	7	8	8	9
Mongolia	21	21	18	16	14	13	12	11	10	8	7	7
Rep. of Korea	16	15	13	10	8	7	6	6	5	5	5	5
Kazakhstan	14	13	11	10	9	9	8	8	9	12	11	11
Kyrgyzstan	16	15	13	11	10	10	9	8	8	8	7	8
Tajikistan	12	13	13	11	9	9	8	7	9	8	7	6
Turkmenistan	16	16	14	12	10	10	9	8	9	8	8	8
Uzbekistan	15	14	12	10	9	9	8	7	7	7	6	7

Source: <http://esa.un.org/unpd/wpp/index.htm> (consulted on 14/4/2012)

**Table A1.2a, b, c: Life expectancy at birth, by sex, in regions and selected countries, 1950-55 to 2005-10**

<b>MALES</b>												
Region or country	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-00	2000-05	2005-10
World	46.7	48.5	49.4	55.1	56.6	58.7	59.9	61.5	62.2	63.1	64.3	65.7
More developed regions	63.4	65.4	66.6	67.1	67.6	68.3	69.1	70.3	70.2	71.0	71.9	73.4
Less developed regions	41.9	43.9	44.8	52.0	54.0	56.6	58.0	59.7	60.8	61.7	62.9	64.2
Least developed regions	36.5	38.7	40.6	42.6	40.3	45.9	47.8	49.2	49.7	51.6	53.7	55.9
China	44.5	44.5	42.0	59.2	63.0	64.8	66.2	67.4	68.4	69.3	70.0	71.1
Dem. Rep. of Korea	48.5	52.4	54.8	57.6	60.8	63.5	65.4	67.0	66.1	60.0	64.2	64.8
Japan	60.4	64.1	65.5	68.7	70.5	72.6	74.1	75.5	76.3	77.1	78.3	79.3
Mongolia	41.8	44.1	49.1	52.1	54.6	55.0	55.4	57.7	58.0	59.5	60.8	63.4
Rep. of Korea	46.0	49.0	52.3	55.8	59.5	60.9	63.2	66.2	68.7	71.1	73.8	76.5
Kazakhstan	50.2	52.2	54.2	56.3	57.8	58.8	60.4	62.4	60.5	57.5	59.1	60.2
Kyrgyzstan	48.8	50.9	53.0	55.2	56.8	58.0	59.6	62.0		62.0	62.7	62.7
Tajikistan	50.8	52.8	54.8	56.9	58.4	59.5	60.2	61.0	58.6	59.3	60.9	63.3
Turkmenistan	47.9	49.9	52.0	54.0	55.5	56.6	58.1	59.3	58.9	59.7	60.4	60.6
Uzbekistan	52.4	54.4	56.5	58.5	60.0	61.1	62.6	64.0	63.0	63.6	64.1	64.3
<b>FEMALES</b>												
Region or country	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-00	2000-05	2005-10
World	48.7	51.0	53.1	57.8	60.4	62.6	64.3	65.8	66.6	67.5	68.7	70.1
More developed regions	68.4	70.9	72.7	73.7	74.6	75.7	76.6	77.5	78.0	78.5	79.3	80.4
Less developed regions	42.7	45.1	47.4	53.2	56.5	59.1	61.1	62.8	63.9	64.9	66.2	67.8
Least developed regions	38.0	40.2	42.2	44.2	44.0	47.7	49.7	51.2	51.9	53.5	55.5	57.9

China	44.6	45.6	46.4	59.5	66.1	67.8	69.2	70.5	71.6	72.5	73.4	74.5
Dem. Rep. of Korea	51.5	55.5	58.1	61.7	66.4	69.9	71.8	73.3	73.5	67.1	71.5	71.8
Japan	63.9	68.5	71.5	73.9	75.8	77.9	79.6	81.3	82.4	83.7	85.2	86.1
Mongolia	45.2	48.7	53.2	56.5	59.1	59.6	60.1	62.4	63.9	64.4	68.6	71.5
Rep. of Korea	49.9	53.5	57.6	62.1	67.1	69.2	71.8	74.6	77.0	78.7	80.8	83.3
Kazakhstan	60.6	62.6	64.7	66.7	68.2	69.3	70.9	72.1	70.3	68.9	70.4	71.5
Kyrgyzstan	57.3	59.4	61.5	63.7	65.3	66.5	68.1	69.8	70.1	70.0	70.6	71.0
Tajikistan	55.7	57.7	59.7	61.7	63.2	64.2	65.3	66.2	65.9	66.9	68.6	69.9
Turkmenistan	55.1	57.1	59.1	61.2	62.7	63.7	65.3	66.3	66.6	67.5	68.2	68.9
Uzbekistan	59.5	61.5	63.5	65.5	67.1	68.1	69.6	70.5	69.4	70.0	70.4	70.7
<b>BOTH SEXES</b>												
Region or country	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-00	2000-05	2005-10
World	47.7	49.8	51.2	56.5	58.5	60.7	62.1	63.6	64.4	65.2	66.4	67.9
More developed regions	65.9	68.2	69.7	70.5	71.2	72.1	72.9	74.0	74.1	74.8	75.6	76.9
Less developed regions	42.3	44.5	46.1	52.6	55.2	57.8	59.5	61.2	62.3	63.3	64.5	66.0
Least developed regions	37.2	39.4	41.4	43.4	42.1	46.8	48.7	50.2	50.8	52.5	54.6	56.9
China	44.6	45.0	44.0	59.4	64.6	66.3	67.7	68.9	69.9	70.8	71.6	72.7
Dem. Rep. of Korea	50.0	54.0	56.5	59.7	63.6	66.7	68.6	70.2	70.2	63.7	68.0	68.4
Japan	62.2	66.3	69.0	71.3	73.1	75.3	77.0	78.5	79.5	80.5	81.8	82.7
Mongolia	43.5	46.4	51.1	54.3	56.8	57.2	57.7	60.0	60.8	61.9	64.5	65.3
Rep. of Korea	47.9	51.2	54.9	58.8	63.2	65.0	67.4	70.4	72.9	74.9	77.4	80.0
Kazakhstan	55.0	57.2	59.4	61.5	63.1	64.2	65.8	67.4	65.5	63.0	64.6	65.8
Kyrgyzstan	52.9	55.1	57.3	59.5	61.2	62.3	64.0	66.0	66.2	65.9	66.6	66.7
Tajikistan	53.1	55.2	57.3	59.3	60.9	61.9	62.8	63.6	62.2	62.9	64.4	66.4
Turkmenistan	51.3	53.4	55.5	57.6	59.1	60.2	61.7	62.8	62.7	63.6	64.2	64.7
Uzbekistan	55.8	57.9	60.0	62.1	63.6	64.7	66.2	67.3	66.2	66.8	67.2	67.4

Source: <http://esa.un.org/unpd/wpp/index.htm> (consulted on 14/4/2012)

**Table A1.3: Infant mortality rates in regions and selected countries, 1950-55 to 2005-10 (infant deaths per 1,000 infant birth)**

Region or country	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-00	2000-05	2005-10
World	133	122	114	94	86	80	71	64	60	56	51	46
More developed regions	60	43	33	26	22	18	15	13	11	9	7	6
Less developed regions	151	140	130	105	96	89	79	71	66	62	56	50
Least developed regions	192	176	164	152	150	136	125	116	109	100	89	80
China	122	118	121	63	47	42	38	34	30	27	25	22
Dem. Rep. of Korea	91	76	67	56	44	35	30	26	24	55	28	27
Japan	50	37	26	16	12	9	7	5	4	4	3	3
Mongolia	183	165	135	119	107	104	102	92	67	55	44	36
Rep. of Korea	138	114	90	64	38	33	25	15	10	7	5	4
Kazakhstan	110	102	93	85	77	69	60	52	51	43	32	27
Kyrgyzstan	140	130	120	110	100	90	80	70	60	48	40	36
Tajikistan	160	151	142	133	125	116	107	98	88	80	63	56
Turkmenistan	150	140	130	120	111	101	91	81	75	61	52	50
Uzbekistan	125	115	105	94	84	78	71	65	59	55	50	49

Source: <http://esa.un.org/unpd/wpp/index.htm> (consulted on 14/4/2012)

**Table A1.4: Under-five mortality rates in regions and selected countries, 1980-85 to 2005-10**

Region or country	1980-85	1985-90	1990-95	1995-00	2000-05	2005-10
World	105	94	88	82	73	66
More developed regions	18	16	13	11	9	8
Less developed regions	117	104	97	90	81	72
Least developed regions	201	184	175	160	141	125
China	57	47	40	34	29	26
Dem. Rep. of Korea	42	36	55	83	36	35
Japan	9	7	6	5	4	4
Mongolia	155	136	91	73	55	44
Rep. of Korea	32	20	13	9	7	5
Kazakhstan	73	63	61	54	38	33
Kyrgyzstan	97	85	72	58	49	46
Tajikistan	142	129	114	104	82	73
Turkmenistan	116	104	96	78	66	64
Uzbekistan	86	78	71	66	60	59

Source: <http://esa.un.org/unpd/wpp/index.htm> (consulted on 14/4/2012)

**Table A1.5: Crude births rates (births per 1,000 population) in regions and selected countries, 1950-55 to 2005-10**

Region or country	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-00	2000-05	2005-10
World	37	35	35	34	31	28	28	27	24	22	21	20
More developed regions	22	21	20	17	16	15	14	14	12	11	11	11
Less developed regions	44	42	41	40	37	33	32	31	28	25	23	22
Least developed regions	48	48	47	47	47	46	45	44	42	39	37	34
China	42	36	36	38	31	22	21	23	19	16	13	13
Dem. Rep. of Korea	24	36	33	37	30	19	22	20	21	20	16	15
Japan	24	18	17	18	19	15	13	11	10	9	9	9
Mongolia	40	43	48	45	43	40	38	37	28	22	19	23
Rep. of Korea	36	45	40	33	30	23	20	15	16	14	10	10
Kazakhstan	33	34	33	26	26	25	25	25	21	16	17	21
Kyrgyzstan	36	38	38	32	31	30	33	33	29	24	21	24
Tajikistan	45	46	48	41	40	37	39	40	37	33	29	28
Turkmenistan	43	43	45	38	37	35	35	36	33	24	23	22
Uzbekistan	42	46	45	39	35	35	36	36	33	26	22	22

Source: <http://esa.un.org/unpd/wpp/index.htm> (consulted on 14/4/2012)

**Table A1.6: Total fertility rates (children per woman) in regions and selected countries, 1950-55 to 2005-10**

Region or country	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-00	2000-05	2005-10
World	4.95	4.89	4.91	4.85	4.45	3.84	3.59	3.39	3.04	2.79	2.62	2.52
More developed regions	2.81	2.78	2.66	2.36	2.16	1.93	1.85	1.81	1.66	1.56	1.58	1.66
Less developed regions	6.07	5.49	5.97	5.94	5.37	4.54	4.16	3.85	3.39	3.06	2.82	2.68
Least developed regions	6.54	6.60	6.68	6.73	6.71	5.58	6.45	6.15	5.74	5.31	4.85	4.41
China	6.11	5.48	5.61	5.94	4.77	2.93	2.61	2.63	2.01	1.80	1.70	1.64
Dem. Rep. of Korea	2.70	3.80	3.41	4.09	3.72	2.58	2.93	2.54	2.40	2.20	2.05	2.05
Japan	3.00	2.16	1.99	2.02	2.13	1.83	1.75	1.66	1.48	1.37	1.30	1.32
Mongolia	5.60	6.30	7.50	7.50	7.50	6.65	5.75	4.90	3.30	2.50	2.10	2.50
Rep. of Korea	5.05	6.33	5.63	4.71	4.28	2.92	2.33	1.60	1.70	1.51	1.22	1.29
Kazakhstan	4.41	4.56	4.43	3.67	3.46	3.06	2.96	3.03	2.55	2.00	2.01	2.54
Kyrgyzstan	4.51	4.83	5.39	5.01	4.73	4.05	4.10	4.02	3.61	2.99	2.50	2.70
Tajikistan	6.00	6.20	6.30	6.72	6.83	5.90	5.54	5.41	4.88	4.29	3.81	3.45
Turkmenistan	6.00	6.02	6.75	6.34	6.19	5.32	4.79	4.55	4.03	3.03	2.76	2.50
Uzbekistan	5.97	6.50	6.80	6.60	6.30	5.58	4.73	4.40	3.88	3.05	2.55	2.46

Source: <http://esa.un.org/unpd/wpp/index.htm>(consulted on 14/4/2012)

**Table A 1.7: Annual in-migration, out-migration and net migration by sex according to regions and capital city, 2000 to 2010**

Year	West			Khangai			Central			East			Ulaanbaatar		
	total	male	female	total	male	female	total	male	female	total	male	female	total	male	female
<b>In-Migration</b>															
2010	6,151	3,125	3,026	12,122	6,014	6,108	25,012	14,468	10,544	3,935	2,082	1,853	55,940	26,840	29,100
2009	4,541	2,212	2,329	8,358	4,099	4,259	14,772	7,629	7,143	3,004	1,594	1,410	32,871	15,311	17,560
2008	4,174	2,044	2,130	7,614	3,731	3,883	12,233	6,153	6,080	2,786	1,430	1,356	30,113	14,294	15,819
2007	3,444	1,732	1,712	6,567	3,298	3,269	9,865	4,996	4,869	2,219	1,195	1,024	27,454	12,741	14,713
2006	2,905	1,569	1,336	5,658	2,851	2,807	8,124	4,117	4,007	2,031	1,083	948	26,521	12,606	13,915
2005	2,914	1,862	1,052	5,558	3,368	2,190	7,932	4,785	3,147	2,202	1,427	775	24,312	12,105	12,207
2004	2,674	1,460	1,214	5,771	3,011	2,760	7,577	3,902	3,675	1,726	990	736	33,750	15,898	17,852
2003	1,805	1,118	687	4,637	2,532	2,105	6,022	3,127	2,895	1,371	833	538	27,232	12,770	14,462
2002	1,698	1,024	674	4,647	2,502	2,145	6,270	3,225	3,045	1,174	688	486	28,197	13,427	14,770
2001	1,413	941	472	3,880	2,165	1,715	4,317	2,304	2,013	836	536	300	19,997	9,380	10,617
2000	1,919	1,219	700	7,108	3,727	3,381	9,136	4,754	4,382	1,488	851	637	48,769	23,391	25,378
<b>Out-migration</b>															
2010	20,051	9,979	10,072	27,960	13,550	14,410	24,021	12,198	11,823	10,430	5,246	5,184	20,698	11,556	9,142
2009	13,649	6,736	6,913	15,676	7,215	8,461	14,704	7,208	7,496	6,612	3,236	3,376	12,905	6,450	6,455
2008	11,871	5,829	6,042	13,771	6,479	7,292	13,503	6,675	6,828	6,270	3,121	3,149	11,505	5,548	5,957
2007	10,103	4,995	5,108	12,235	5,652	6,583	12,375	6,008	6,367	5,477	2,730	2,747	9,359	4,577	4,782
2006	8,685	4,378	4,307	11,368	5,370	5,998	11,761	5,916	5,845	5,165	2,604	2,561	8,260	3,958	4,302
2005	8,242	4,418	3,824	10,323	5,297	5,026	11,128	6,148	4,980	4,992	2,808	2,184	8,233	4,876	3,357
2004	11,146	5,560	5,586	14,109	6,676	7,433	13,597	6,675	6,922	5,919	3,055	2,864	6,727	3,295	3,432
2003	9,703	4,838	4,865	11,389	5,379	6,010	10,836	5,495	5,341	4,611	2,365	2,246	4,528	2,303	2,225
2002	11,932	6,009	5,923	11,248	5,420	5,828	10,318	5,134	5,184	4,549	2,326	2,223	3,939	1,977	1,962
2001	8,509	4,325	4,184	7,833	3,782	4,051	7,704	3,837	3,867	3,427	1,768	1,659	2,970	1,614	1,356
2000	19,197	9,559	9,638	18,203	8,876	9,327	18,538	9,251	9,287	7,636	3,745	3,891	4,846	2,511	2,335

Net Migration															
2010	-13,900	-6,854	-7,046	-15,838	-7,536	-8,302	991	2,270	-1,279	-6,495	-3,164	-3,331	35,242	15,284	19,958
2009	-9,108	-4,524	-4,584	-7,318	-3,116	-4,202	68	421	-353	-3,608	-1,642	-1,966	19,966	8,861	11,105
2008	-7,697	-3,785	-3,912	-6,157	-2,748	-3,409	-1,270	-522	-748	-3,484	-1,691	-1,793	18,608	8,746	9,862
2007	-6,659	-3,263	-3,396	-5,668	-2,354	-3,314	-2,510	-1,012	-1,498	-3,258	-1,535	-1,723	18,095	8,164	9,931
2006	-5,780	-2,809	-2,971	-5,710	-2,519	-3,191	-3,637	-1,799	-1,838	-3,134	-1,521	-1,613	18,261	8,648	9,613
2005	-5,328	-2,556	-2,772	-4,765	-1,929	-2,836	-3,196	-1,363	-1,833	-2,790	-1,381	-1,409	16,079	7,229	8,850
2004	-8,472	-4,100	-4,372	-8,338	-3,665	-4,673	-6,020	-2,773	-3,247	-4,193	-2,065	-2,128	27,023	12,603	14,420
2003	-7,898	-3,720	-4,178	-6,752	-2,847	-3,905	-4,814	-2,368	-2,446	-3,240	-1,532	-1,708	22,704	10,467	12,237
2002	-10,234	-4,985	-5,249	-6,601	-2,918	-3,683	-4,048	-1,909	-2,139	-3,375	-1,638	-1,737	24,258	11,450	12,808
2001	-7,096	-3,384	-3,712	-3,953	-1,617	-2,336	-3,387	-1,533	-1,854	-2,591	-1,232	-1,359	17,027	7,766	9,261
2000	-17,278	-8,340	-8,938	-11,095	-5,149	-5,946	-9,402	-4,497	-4,905	-6,148	-2,894	-3,254	43,923	20,880	23,043

Source: National Statistical Office, unpublished statistics

Table A1.8: In-migration, out-migration and net migration for the decade 2000–2010, by sex and age

Age group	West		Khangai		Central		East		Ulaanbaatar						
	total	male	female	total	male	female	total	male	female	total	male	female			
<b>In-migration</b>															
0-4	1,142	566	576	3,219	1,669	1,550	5,572	2,848	2,724	1,240	632	608	8,598	4,337	4,261
5-9	1,179	598	581	3,820	1,897	1,923	6,851	3,451	3,400	1,150	598	552	14,298	7,284	7,014
10-14	1,067	516	551	4,747	2,324	2,423	8,025	4,097	3,928	1,083	547	536	24,797	12,469	12,328
15-19	2,200	978	1,222	5,878	2,932	2,946	10,111	5,269	4,842	1,442	779	663	55,638	25,712	29,926
20-24	9,336	5,143	4,193	14,220	7,630	6,590	18,712	10,283	8,429	5,067	2,930	2,137	78,456	36,819	41,637
25-29	9,377	5,503	3,874	14,364	8,088	6,276	18,412	9,982	8,430	5,282	3,188	2,094	47,678	22,579	25,099
30-34	4,459	2,475	1,984	8,480	4,318	4,162	12,986	7,018	5,968	3,017	1,673	1,344	33,064	16,316	16,748
35-39	1,885	909	976	5,328	2,621	2,707	9,078	4,924	4,154	1,544	762	782	24,334	12,001	12,333
40-44	1,215	649	566	3,914	1,989	1,925	6,974	3,892	3,082	1,065	576	489	19,001	9,230	9,771
45-49	756	431	325	2,742	1,419	1,323	5,245	2,891	2,354	722	411	311	15,435	7,415	8,020
50-54	420	261	159	1,768	893	875	3,583	1,983	1,600	498	285	213	11,767	5,406	6,361
55-59	215	114	101	1,056	525	531	1,961	1,056	905	264	146	118	7,014	3,067	3,947
60-64	136	63	73	682	299	383	1,305	672	633	146	75	71	5,027	2,062	2,965
65-69	93	41	52	577	250	327	924	439	485	94	48	46	3,876	1,692	2,184
70-74	73	29	44	513	233	280	756	356	400	76	31	45	2,837	1,239	1,598
75-79	45	17	28	342	127	215	425	179	246	49	19	30	1,788	631	1,157
80+	40	13	27	270	84	186	340	120	220	33	9	24	1,548	504	1,044
Total	33638	18306	15332	71920	37298	34622	111260	59460	51800	22772	12709	10063	355156	168763	186393
<b>Out-migration</b>															
0-4	3,265	1,653	1,612	4,795	2,428	2,367	4,492	2,251	2,241	1,720	844	876	5,499	2,876	2,623
5-9	6,013	3,019	2,994	6,914	3,445	3,469	6,829	3,533	3,296	2,794	1,438	1,356	4,748	2,393	2,355
10-14	10,555	5,298	5,257	10,846	5,448	5,398	10,538	5,329	5,209	4,180	2,084	2,096	3,600	1,794	1,806
15-19	18,438	8,939	9,499	23,477	10,672	12,805	20,258	9,474	10,784	9,081	4,278	4,803	4,015	2,307	1,708
20-24	26,909	13,760	13,149	33,104	15,424	17,680	30,690	15,417	15,273	14,784	7,810	6,974	20,304	10,394	9,910
25-29	18,479	9,826	8,653	20,402	9,776	10,626	22,792	12,063	10,729	10,668	6,023	4,645	22,772	11,652	11,120
30-34	12,740	6,589	6,151	14,515	7,370	7,145	15,317	8,055	7,262	6,506	3,369	3,137	12,928	6,417	6,511
35-39	9,408	4,735	4,673	10,739	5,392	5,347	10,827	5,506	5,321	4,082	1,977	2,105	7,113	3,607	3,506

40-44	7,587	3,850	3,737	8,529	4,231	4,298	8,180	4,098	4,082	3,176	1,530	1,646	4,697	2,627	2,070	
45-49	5,873	2,880	2,993	6,675	3,329	3,346	6,391	3,184	3,207	2,626	1,290	1,336	3,335	1,884	1,451	
50-54	4,571	2,168	2,403	4,847	2,252	2,595	4,470	2,199	2,271	2,107	1,004	1,103	2,041	1,205	836	
55-59	2,910	1,311	1,599	2,810	1,289	1,521	2,458	1,161	1,297	1,196	519	677	1,136	628	508	
60-64	2,115	878	1,237	2,068	883	1,185	1,676	730	946	759	317	442	678	363	315	
65-69	1,636	721	915	1,649	677	972	1,319	606	713	543	239	304	417	227	190	
70-74	1,294	577	717	1,265	564	701	1,008	456	552	361	134	227	327	157	170	
75-79	704	251	453	797	299	498	680	266	414	276	79	197	192	78	114	
80+	591	171	420	683	217	466	560	217	343	229	69	160	168	56	112	
Total	133088	66626	66462	154115	73696	80419	148485	74545	73940	65088	33004	32084	93970	48665	45305	
<b>Net Migration</b>																
0-4	-2,123	-1,087	-1,036	-1,576	-759	-817	1,080	597	483	-480	-212	-268	3,099	1,461	1,638	
5-9	-4,834	-2,421	-2,413	-3,094	-1,548	-1,546	22	-82	104	-1,644	-840	-804	9,550	4,891	4,659	
10-14	-9,488	-4,782	-4,706	-6,099	-3,124	-2,975	-2,513	-1,232	-1,281	-3,097	-1,537	-1,560	21,197	10,675	10,522	
15-19	-16,238	-7,961	-8,277	-17,599	-7,740	-9,859	-10,147	-4,205	-5,942	-7,639	-3,499	-4,140	51,623	23,405	28,218	
20-24	-17,573	-8,617	-8,956	-18,884	-7,794	-11,090	-11,978	-5,134	-6,844	-9,717	-4,880	-4,837	58,152	26,425	31,727	
25-29	-9,102	-4,323	-4,779	-6,038	-1,688	-4,350	-4,380	-2,081	-2,299	-5,386	-2,835	-2,551	24,906	10,927	13,979	
30-34	-8,281	-4,114	-4,167	-6,035	-3,052	-2,983	-2,331	-1,037	-1,294	-3,489	-1,696	-1,793	20,136	9,899	10,237	
35-39	-7,523	-3,826	-3,697	-5,411	-2,771	-2,640	-1,749	-582	-1,167	-2,538	-1,215	-1,323	17,221	8,394	8,827	
40-44	-6,372	-3,201	-3,171	-4,615	-2,242	-2,373	-1,206	-206	-1,000	-2,111	-954	-1,157	14,304	6,603	7,701	
45-49	-5,117	-2,449	-2,668	-3,933	-1,910	-2,023	-1,146	-293	-853	-1,904	-879	-1,025	12,100	5,531	6,569	
50-54	-4,151	-1,907	-2,244	-3,079	-1,359	-1,720	-887	-216	-671	-1,609	-719	-890	9,726	4,201	5,525	
55-59	-2,695	-1,197	-1,498	-1,754	-764	-990	-497	-105	-392	-932	-373	-559	5,878	2,439	3,439	
60-64	-1,979	-815	-1,164	-1,386	-584	-802	-371	-58	-313	-613	-242	-371	4,349	1,699	2,650	
65-69	-1,543	-680	-863	-1,072	-427	-645	-395	-167	-228	-449	-191	-258	3,459	1,465	1,994	
70-74	-1,221	-548	-673	-752	-331	-421	-252	-100	-152	-285	-103	-182	2,510	1,082	1,428	
75-79	-659	-234	-425	-455	-172	-283	-255	-87	-168	-227	-60	-167	1,596	553	1,043	
80+	-551	-158	-393	-413	-133	-280	-220	-97	-123	-196	-60	-136	1,380	448	932	
Total	-99,450	-48,320	-51,130	-82,195	-36,398	-45,797	-37,225	-15,085	-22,140	-42,316	-20,295	-22,021	261,186	120,098	141,088	

Source: National Statistical Office, unpublished statistics

Table A2.1: Employment by sectors (2000–2010)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total employment (thous. people)	809.0	832.3	870.8	962.5	950.5	968.2	1009.9	1024.1	1041.7	1006.3	911.7
Agriculture, forestry, fishing & hunting	48.6%	48.3%	44.9%	41.8%	40.2%	39.9%	38.8%	37.7%	36.2%	34.7%	26.4%
Mining & quarrying	2.3%	2.4%	2.7%	3.4%	3.5%	4.1%	4.1%	4.3%	4.5%	3.5%	5.4%
Manufacturing	6.7%	6.7%	6.4%	5.9%	6.0%	4.7%	4.7%	4.7%	4.6%	6.2%	7.0%
Electricity, gas, steam and air conditioning supply	2.2%	2.1%	2.3%	2.5%	2.5%	2.9%	3.0%	3.0%	2.9%	0.9%	1.6%
Water supply; sewerage, waste management and remediation activities										0.6%	0.7%
Construction	2.9%	2.5%	2.9%	3.8%	4.1%	5.1%	5.6%	5.9%	6.4%	4.9%	6.4%
Wholesale & retail trade, repair of motor vehicles and motorcycles	10.4%	10.8%	12.0%	14.0%	14.1%	14.7%	15.9%	15.8%	16.3%	15.9%	12.8%
Transportation and storage	4.2%	4.2%	4.5%	4.3%	4.4%	4.4%	3.1%	3.2%	3.4%	6.8%	5.8%
Accommodation and food service activities	1.6%	2.0%	2.4%	2.5%	3.0%	3.0%	3.1%	3.2%	3.3%	2.3%	3.1%
Information, communication							1.0%	1.1%	1.0%	1.0%	1.5%
Financial and insurance	0.8%	0.9%	1.1%	1.4%	1.7%	1.7%	1.7%	1.7%	1.9%	1.2%	1.7%
Real estate activities	0.9%	0.8%	1.3%	1.0%	1.2%	0.9%	1.2%	1.4%	1.2%	<0.02%	0.8%
Professional, scientific and technical activities										1.1%	1.2%
Administrative and support service activities										0.9%	1.3%
Public administration and defense; compulsory social insurance	4.3%	4.9%	5.0%	4.8%	4.9%	4.8%	4.6%	4.7%	4.9%	5.6%	8.2%
Education	6.7%	6.6%	6.8%	6.0%	6.1%	6.1%	6.1%	6.3%	6.4%	7.4%	8.7%
Human health and social work activities	4.1%	4.0%	4.0%	4.0%	4.1%	4.1%	3.9%	3.9%	4.1%	3.5%	3.9%
Arts, entertainment and recreation	3.6%	3.2%	3.2%	4.0%	3.6%	2.8%				0.7%	0.9%
Other service activities	0.5%	0.5%	0.6%	0.7%	0.6%	0.9%	2.3%	1.9%	1.9%	2.2%	2.1%
Activities of households as employers							0.7%	0.7%	0.7%	0.2%	0.1%
Activities of extraterritorial organizations and bodies							0.4%	0.4%	0.4%	0.2%	0.3%

**Table A3.1: Population projection basic results of according to three fertility scenarios, 2010 to 2040**

Years	High fertility scenario				Medium fertility scenario				Low fertility scenario						
	Population	Growth	Births	Deaths	Net migrants	Population	Growth	Births	Deaths	Net migrants	Population	Growth	Births	Deaths	Net migrants
2010	2,633,312	60,802	15,680	7,590	2,633,312	58,860	15,680	7,590	2,633,312	58,089	15,680	7,590			
2011	2,687,155	2.02	63,095	15,712	7,590	2,684,801	1.94	60,275	15,656	7,590	2,683,930	1.90	59,284	15,635	7,590
2012	2,743,133	2.06	65,307	15,915	7,590	2,737,520	1.95	61,472	15,834	7,590	2,735,586	1.91	60,289	15,806	7,590
2013	2,800,295	2.06	65,937	16,139	7,543	2,790,729	1.93	61,686	16,039	7,543	2,787,522	1.88	60,262	16,006	7,543
2014	2,857,687	2.03	66,312	16,364	7,495	2,843,816	1.88	61,743	16,254	7,495	2,839,081	1.83	60,037	16,214	7,495
2015	2,915,044	1.99	66,417	16,591	7,447	2,896,623	1.84	61,655	16,474	7,447	2,890,060	1.78	59,620	16,428	7,447
2016	2,972,092	1.94	66,275	16,852	7,399	2,948,987	1.79	61,434	16,732	7,399	2,940,256	1.72	59,031	16,679	7,399
2017	3,028,579	1.88	65,919	17,121	7,352	3,000,752	1.74	61,076	17,001	7,352	2,989,479	1.66	58,282	16,940	7,352
2018	3,084,319	1.82	65,421	17,397	7,305	3,051,786	1.69	60,613	17,279	7,305	3,037,562	1.60	57,375	17,209	7,305
2019	3,139,139	1.76	64,735	17,684	7,259	3,101,950	1.63	59,998	17,569	7,259	3,084,340	1.53	56,314	17,490	7,259
2020	3,192,856	1.70	63,890	17,980	7,213	3,151,086	1.57	59,239	17,868	7,213	3,129,658	1.46	55,122	17,781	7,213
2021	3,245,304	1.63	62,933	18,327	7,167	3,199,038	1.51	58,374	18,219	7,167	3,173,376	1.39	53,840	18,124	7,167
2022	3,296,359	1.56	61,916	18,699	7,120	3,245,683	1.45	57,442	18,593	7,120	3,215,388	1.32	52,511	18,490	7,120
2023	3,345,977	1.49	60,917	19,093	7,075	3,290,961	1.39	56,503	18,990	7,075	3,255,707	1.25	51,306	18,882	7,075
2024	3,394,197	1.43	60,025	19,512	7,029	3,334,878	1.33	55,628	19,411	7,029	3,294,419	1.18	50,195	19,299	7,029
2025	3,441,144	1.37	59,326	19,956	6,983	3,377,503	1.27	54,879	19,857	6,983	3,331,628	1.12	49,250	19,741	6,983
2026	3,486,997	1.32	58,877	20,463	6,937	3,418,935	1.22	54,284	20,363	6,937	3,367,464	1.07	48,489	20,244	6,937
2027	3,531,996	1.28	58,764	21,009	6,892	3,459,336	1.18	53,960	20,906	6,892	3,402,115	1.02	48,016	20,787	6,892
2028	3,576,458	1.25	59,025	21,595	6,847	3,498,959	1.14	53,942	21,489	6,847	3,435,819	0.99	47,807	21,367	6,847

2029	3,620,710	1.23	59,643	22,218	6,802	3,538,068	1.11	54,223	22,108	6,802	3,468,819	0.96	47,895	21,983	6,802
2030	3,665,017	1.22	60,508	22,875	6,757	3,576,877	1.09	54,702	22,759	6,757	3,501,325	0.93	48,173	22,632	6,757
2031	3,709,470	1.21	61,393	23,589	6,712	3,615,372	1.07	55,043	23,465	6,712	3,533,295	0.91	48,265	23,335	6,712
2032	3,754,191	1.20	62,599	24,341	6,667	3,653,556	1.05	55,616	24,207	6,667	3,564,687	0.89	48,548	24,074	6,667
2033	3,799,405	1.20	64,021	25,140	6,623	3,691,662	1.04	56,509	24,997	6,623	3,595,762	0.87	49,245	24,861	6,623
2034	3,845,235	1.20	65,576	25,998	6,579	3,729,850	1.03	57,507	25,845	6,579	3,626,701	0.86	49,996	25,706	6,579
2035	3,891,702	1.20	67,153	26,910	6,535	3,768,128	1.02	58,529	26,749	6,535	3,657,458	0.84	50,716	26,605	6,535
2036	3,938,689	1.20	68,603	27,899	6,491	3,806,375	1.01	59,416	27,728	6,491	3,687,865	0.83	51,257	27,581	6,491
2037	3,986,036	1.20	69,978	28,926	6,447	3,844,422	1.00	60,214	28,748	6,447	3,717,704	0.81	51,657	28,594	6,447
2038	4,032,602	1.16	71,305	29,970	4,298	3,881,142	0.95	61,013	29,784	4,298	3,745,859	0.75	52,129	29,624	4,298
2039	4,077,215	1.10	72,448	31,005	2,149	3,915,385	0.88	61,621	30,810	2,149	3,771,203	0.67	52,384	30,647	2,149
2040	4,119,723	1.04	73,435	32,012	0	3,946,997	0.80	62,075	31,810	0	3,793,558	0.59	52,466	31,641	0

**Table A3.2: Population projections by age and sex, medium fertility, 2010 to 2040**

AGES	2010			2020			2030			2040		
	Both sexes	Male	Female									
Total	2,633,312	1,306,904	1,326,408	3,151,086	1,556,524	1,594,562	3,576,877	1,756,096	1,820,781	3,946,997	1,928,682	2,018,315
0-4	286,946	145,728	141,218	297,706	150,973	146,733	267,116	135,595	131,521	298,464	151,734	146,730
5-9	215,052	109,525	105,527	299,441	151,650	147,791	281,156	142,472	138,684	278,016	141,138	136,878
10-14	235,592	119,419	116,173	288,574	146,233	142,341	299,637	151,660	147,977	268,992	136,354	132,638
15-19	256,259	129,858	126,401	214,835	109,301	105,534	299,158	151,349	147,809	281,569	142,541	139,028
20-24	290,612	146,679	143,933	229,684	116,286	113,398	283,092	143,307	139,785	295,764	149,584	146,180
25-29	246,651	123,821	122,830	250,477	126,666	123,811	210,177	106,903	103,274	293,818	148,494	145,324
30-34	221,325	111,374	109,951	293,839	148,069	145,770	234,173	118,746	115,427	285,469	144,599	140,870
35-39	201,295	100,277	101,018	257,089	128,930	128,159	261,405	132,335	129,070	219,493	112,041	107,452
40-44	178,303	87,798	90,505	231,432	115,645	115,787	303,545	152,213	151,332	243,216	123,210	120,006
45-49	157,903	77,059	80,844	207,886	102,129	105,757	263,523	130,787	132,736	267,215	134,387	132,828
50-54	121,426	57,697	63,729	178,518	85,869	92,649	231,146	113,304	117,842	301,501	149,105	152,396
55-59	71,602	33,205	38,397	150,194	70,359	79,835	199,089	94,417	104,672	253,281	122,344	130,937
60-64	49,187	21,987	27,200	108,893	48,516	60,377	162,042	73,451	88,591	211,851	98,911	112,940
65-69	38,026	17,169	20,857	59,627	25,167	34,460	126,913	54,180	72,733	170,750	74,644	96,106
70-74	29,175	13,011	16,164	36,836	14,417	22,419	83,978	32,642	51,336	126,947	50,735	76,212
75-79	18,517	7,213	11,304	24,669	9,352	15,317	40,748	14,191	26,557	88,132	31,225	56,907
80+	15,441	5,084	10,357	21,386	6,962	14,424	29,979	8,544	21,435	62,519	17,636	44,883







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