



The Republic of the Union of Myanmar

The 2014 Myanmar Population and Housing Census

THEMATIC REPORT ON POPULATION DYNAMICS

Census Report Volume 4-E



**Department of Population
Ministry of Labour, Immigration and Population**

With technical assistance from UNFPA



DECEMBER 2016



The 2014 Myanmar Population and Housing Census

THEMATIC REPORT ON POPULATION DYNAMICS

Census Report Volume 4-E

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Ministry of Labour, Immigration and Population**

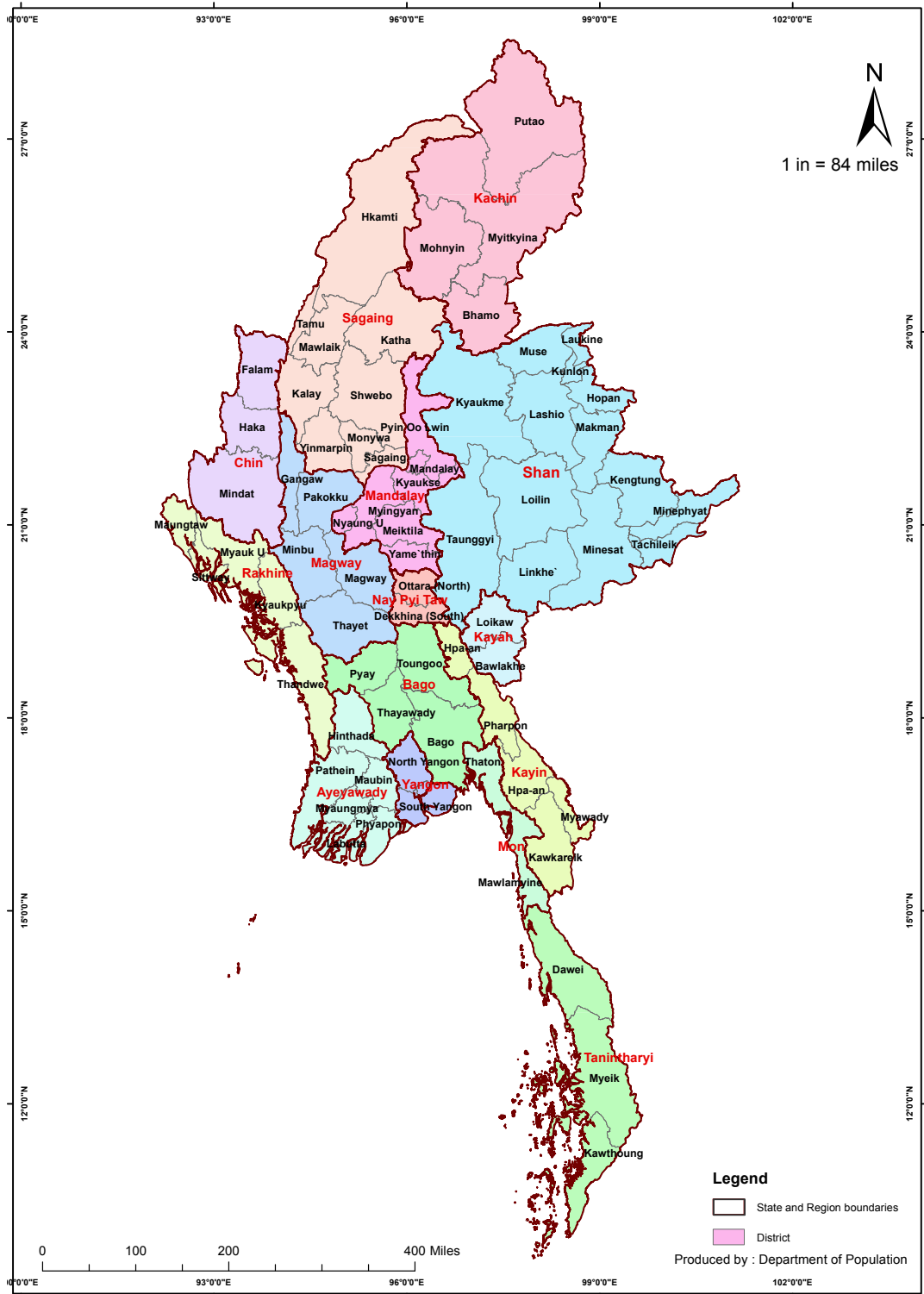
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Figure 1

Map of Myanmar by State/Region and District



Foreword

The 2014 Myanmar Population and Housing Census (2014 Census) was conducted with midnight of 29 March 2014 as the reference point. This is the first Census in 30 years; the last was conducted in 1983. Planning and execution of this Census was spearheaded by the former Ministry of Immigration and Population, now the Ministry of Labour, Immigration and Population, on behalf of the Government, in accordance with the Population and Housing Census Law, 2013. The main objective of the 2014 Census is to provide the Government and other stakeholders with essential information on the population, in regard to demographic, social and economic characteristics, housing conditions and household amenities. By generating such information at all administrative levels, it is also intended to provide a sound basis for evidence-based decision-making, and to evaluate the impact of social and economic policies and programmes in the country.

The results of the 2014 Census have been published so far in a number of volumes. The first was the *Provisional Results* (Census Volume 1), released in August 2014. The Census Main Results were launched in May 2015. These included *The Union Report* (Census Report Volume 2), *Highlights of the Main Results* (Census Report Volume 2-A), and the reports of each of the 15 States and Regions (Census Report Volume 3[A - O]). The reports on *Occupation and Industry* (Census Report Volume 2-B), and *Religion* (Census Report Volume 2-C) were launched in March 2016 and July 2016, respectively.

The current set of the 2014 Census publications comprises thirteen thematic reports and a Census Atlas. They address issues on Fertility and Nuptiality; Mortality; Maternal Mortality; Migration and Urbanization; Population Projections; Population Dynamics; the Elderly; Children and Young People; Education; Labour Force Dynamics; Disability; Gender Dimensions; and Housing Conditions, Amenities and Household Assets. Their preparation involved collaborative efforts with both local and international experts as well as various Government Ministries, Departments and research institutions.

Data capture for the Census was undertaken using scanning technology. The processes were highly integrated, with tight controls to guarantee accuracy of results. To achieve internal consistency and minimize errors, rigorous data editing, cleaning and validation were carried out to facilitate further analysis of the results. The information presented in these reports is therefore based on more cleaned data sets, and the reader should be aware that there may be some small differences from the results published in the earlier set of volumes.

This thematic report presents the findings on population dynamics and its effect on realizing a demographic dividend. The demographic transition has profound consequences for Myanmar's society. The decrease in the relative number of young persons, an increase in the number of older people, and a rise in the economic support ratios, have each affected the structure, type and size of both the population and households. The demographic transition has also changed the position of women, as it gives them an opportunity to play a more active role in the labour market and in community life.

In this report, an analysis was carried out to investigate the possibilities for Myanmar to reap a demographic dividend. It is found that because of Myanmar's slow and fluctuating fertility decline, and the uneven distribution of many demographic indicators between States/Regions and social groups, that Myanmar's age structure is not in an ideal position from

Foreword

which to harness a strong demographic dividend. This is because the old-age dependency will start to rise considerably before the fertility transition is fully completed.

To increase the country's economic performance there is a strong need for innovation and enhanced productivity. Sustainable development policies should be guided by principles of equity, gender equality, poverty alleviation, the sustainable use of natural resources, and by the integration of economic, environmental, and social sectors of development.

On behalf of the Government of Myanmar, I wish to thank the teams at the Department of Population, the United Nations Population Fund (UNFPA) and the authors for their contribution towards the preparation of this thematic report. I would also like to thank our development partners, namely: Australia, Finland, Germany, Italy, Norway, Sweden, Switzerland, and the United Kingdom for their support to undertake the Census, as well as the technical support provided by the United States of America.



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List of Acronyms

ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
CBR	Crude Birth Rate
CDR	Crude Death Rate
ESCAP	Economic and Social Commission for Asia and the Pacific
FICCI	Federation of Indian Chambers of Commerce and Industry
FRHS	Fertility and Reproductive Health Survey
GAD	General Administration Department
GDP	Gross Domestic Product
HDI	Human Development Index
ILO	International Labour Organization
IMR	Infant Mortality Rate
LTR	Life Time Risk (of maternal death)
MDGs	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
MMRate	Maternal Mortality Rate
MMRatio	Maternal Mortality Ratio
NESDB	National Economic and Social Development Board (Thailand)
NTA	National Transfer Accounts
OECD	Organization for Economic Co-operation and Development
PMFD	Proportion of adult female deaths due to maternal causes
RUP	Rural and Urban Projection
SMAM	Singulate Mean Age at Marriage
TFR	Total Fertility Rate
TMFR	Total Marital Fertility Rate
UN	United Nations
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNPD	United Nations Population Division
UNSD	United Nations Statistics Division

Executive Summary

Myanmar continues to progress through socioeconomic and democratic reform. The reforms that were initiated in 2011 have opened the door to profound changes at all levels of society. Population dynamics will be an important parameter in the plans and policies to give direction to Myanmar's further development. The 2014 Myanmar Population and Housing Census is an essential source of information for planning and evidence-based policy. In this report, a description is given of the population dynamics in Myanmar. As no census has been undertaken in over 30 years, many aspects of the demographic situation in the country were unknown. For instance, before the Census it was thought that the country had a population of about 60 million, but the 2014 Census showed that the population (including an estimate for under-enumeration) was 51,486,253 persons, around 8.5 million less than the previous estimate.

In the 1983 census, 35,307,913 persons were recorded¹. Therefore between 1983 and 2014, the population increased by 46 per cent. With an average annual population growth rate of 0.89 per cent between 2003 and 2014, Myanmar is one of the slowest growing countries in Southeast Asia.

During the same period, the number of enumerated conventional households increased from 6,497,632 to 10,877,832, implying a decrease in the average household size from 5.2 to 4.4.

Compared to some other countries in the region that have very low fertility, Myanmar's fertility level is still fairly high. According to the 2014 Census, the total fertility rate (TFR) in Myanmar was 2.5 births per woman. Some States/Regions had far lower fertility than others; Chin State had the highest TFR (5.0 births per woman), which was no less than 3.2 births higher than in Yangon Region. The level of fertility is also influenced by the high proportion of females who remain never married: some 12 per cent of women aged 50-54 have never married. The 2014 Census showed that the marital status of a woman is closely related to her educational attainment. The higher a woman's level of education, the higher the probability of her remaining never married. However, while there is a clear correlation between fertility and women's level of education, education is not the single cause of low fertility in the country, there are other contributing factors. It is important to state that education for women is essential for the future development of Myanmar.

Myanmar has the unfortunate position of being among the countries with the lowest life expectancy at birth (64.7 years), the highest infant mortality (61.8 infant deaths per 1,000 live births) and the highest maternal mortality in Southeast Asia. The Maternal Mortality Ratio (MMRatio) in the country currently stands at 282 maternal deaths per 100,000 live births². The lifetime risk of maternal death is 7.3 per 1,000 women, which means that one in every 137 women dies as a result of pregnancy or childbirth. Maternal mortality is the most preventable of all causes of death for women and is determined by the social and economic

¹ This figure includes an estimated population of 1,183,005 persons for those areas that were not enumerated in certain States of Myanmar.

² Maternal mortality is difficult to measure, especially based on 2014 Census data. The MMRatio was estimated after applying adjustment factors to compensate for the under-reporting of maternal deaths. Therefore, the maternal mortality ratio of 282 per 100,000 live births should be interpreted as an indicative estimate. The WHO, in collaboration with UNICEF, UNFPA, the World Bank and the UN Population Division, estimated the MMR, using different methods, to be 200 maternal deaths per 100,000 live births. Confidence intervals of the WHO study indicated that the 2014 Census estimate was not significantly different from the inter-agency estimate.

Executive Summary

status of the mother. A noteworthy aspect of Myanmar's mortality is the large difference in life expectancy between males and females. Life expectancy is 60.2 years for males and 69.3 years for females.

Over the years, Myanmar has remained a predominantly rural society. At the time of the Census, 29.6 per cent of its population was living in urban areas. Around half of the Myanmar urban population live in three large agglomerations, Yangon, Mandalay and Nay Pyi Taw: 5.21 million persons live in Yangon, 1.22 million in Mandalay and 1.16 million in Nay Pyi Taw³. Internal migration is quite high in Myanmar: the 2014 Census observed that 19.3 per cent of the population were lifetime migrants; of these, about two-thirds migrated between Districts, and one-third between States/Regions. A total of 3,359,342 persons (7 per cent of the population) moved between States/Regions, Districts and Townships during the five years prior to the 2014 Census. Demographically, Chin State stands out in various ways. Among all States/Regions it has the highest level of lifetime outmigration (equivalent to 167.7 per 1,000 current residents). States/Regions that attract most internal migrants are Yangon, Nay Pyi Taw and Kachin.

Myanmar has become a major labour supplier to other countries in Southeast Asia. The Census counted 2.02 million former household members who were living abroad. The total number of international migrants from Myanmar is, however, higher as it includes persons who are not former members of households reported in the Census. Through backward projection methods, the current study estimates that in 2014, a total of 4.25 million persons who were born in Myanmar were living abroad at the time of the Census. International migration is clearly dominated by men. The sex ratio among such migrants is 156.3 men per 100 women.

The fact that men dominate international migration, and that life expectancy for women is considerably higher than for men, results in a low overall sex ratio of 93.0. Internally, Myanmar shows a very diverse pattern of sex ratios: as reported in the Census the overall sex ratios varied between 108.6 in Kachin and 86.3 in Magway. Differences in the sex composition of the population further increase with age. Due to the large discrepancy between male and female age-specific mortality rates, many more women than men are present at older ages. Because of changes in Myanmar's fertility, mortality and migration patterns, important changes in the age structure of the population have taken place between 1973 and 2014. The proportion of young people (0-14 years) has decreased from 41.5 per cent in 1973 to 38.6 per cent in 1983 and to 28.6 per cent in 2014. At the same time, the population has gradually grown older. Between 1983 and 2014, the median age of the population increased from 20.2 to 27.1 years, but the proportion of persons aged 65 and over is still fairly low (5.8 per cent in 2014). An important aspect of the change in Myanmar's age composition is that the percentage of the population in the active age groups (15-64 years) has increased substantially; from 57.5 per cent in 1983 to 65.6 per cent in 2014. The 2014 Census showed a large variety in age structures between the country's States and Regions. The total dependency ratios varied between 41.1 in Yangon to 81.0 in Chin State. Consequently, in Chin State 100 persons in the economically active age groups have to support almost twice the number of persons in the dependent age groups as in Yangon. Other States/Regions were somewhere in between these two values.

³For Nay Pyi Taw, the population is based on the number of people in the Nay Pyi Taw Union Territory.

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An analysis of past birth and mortality rates shows that the demographic transition in Myanmar has not yet ended. To see how the demographic transition will play out in the future, the study made use of a population projection.

The demographic transition has profound consequences for Myanmar's society. The decrease in the relative number of young persons, an increase in the number of older people, and a rise in the economic support ratios, have each affected the type and size of households. Based on the relationship of each person to the head of the household, the type of household was determined. Nuclear households with a husband, wife and children constitute the largest group of households; out of a total of 10,877,832 enumerated households in the country, there were 4,532,001 such households (41.7 per cent). The second largest group consists of extended households (3,613,242 households, or 31.2 per cent of all households). The number of single person households was quite small and comprised just 4.6 per cent of all households. More households are headed by men (8,296,535, or 76.3 per cent of all households) than by women.

The demographic transition has also changed the position of women, as it gives them an opportunity to play a more active role in the labour market and in community life. In Myanmar, female education has improved impressively over the last three decades. Inequality no longer exists between young males and females in terms of illiteracy. In fact, more females than males now hold higher diplomas.

The labour force participation of women has increased significantly since 1983, but the Census still reported more men than women at the managerial level: 80,484 compared with 49,037. However, due to their higher educational attainment, women dominate the occupational group of professionals. Out of a group of almost half a million professionals, more than two-thirds (354,593) were women.

Because of the ageing of the population, the position of older people within society requires special attention. Due to their age, older persons are more prone to physical and mental issues. The 2014 Census showed that the prevalence of moderate and severe disability increased gradually up to age 50, after which it increased exponentially. The traditional system, where older people reside with their children or other family members, still seems to be in place in Myanmar. However, as no other data are available it is not possible to determine whether the system is eroding or not. After age 65, many old persons stay economically active; however, there is some evidence that the labour force participation rate among older people is decreasing.

The changes in the age composition of a population, caused by the demographic transition, interact with the life cycle of production and consumption. Persons in the active age groups produce more than they consume, while the dependent age groups, consisting of children and older persons, consume more than they produce. A relative increase in the number of active persons in a country can therefore lead to a window of opportunity for rapid economic growth; this is referred to as the "demographic dividend". For a country to harness this demographic dividend, it has to take measures in the fields of family planning, public health, education, governance, and economic and labour market planning.

Executive Summary

In the current study, an analysis was carried out to investigate the possibilities for Myanmar to reap a demographic dividend. It was found that because of Myanmar's slow fertility decline, together with the unsteadiness of the decline and the uneven distribution between States/Regions and social groups, that Myanmar's age structure is not in an ideal position from which to harness a strong demographic dividend. This is because old-age dependency will start to rise considerably before the fertility transition is fully completed.

The population projections showed that the economic support ratio in Myanmar will remain almost constant between 2015 and 2050. However, because of the demographic momentum up until 2050, many more young people will enter the labour market than old people will leave. In 2020, some 265,000 new jobs will be needed, a further 188,000 in 2035 and 57,000 in 2050. A demographic dividend can only be attained if the Myanmar economy is able to create a sufficient number of jobs to keep the employment rates at least at the same level as they are now. As so many people are leaving the country and the female participation rate in the labour force is low, many more jobs than this minimum need to be created. Migrants and women can play a crucial role in economic growth and in harnessing a demographic dividend. As migrants often draw from the unemployed, their departure leads to a decrease in the proportion of the group of economically dependent. If properly used for savings and investment, their remittances may be an important input for economic growth. By making full use of the potential of female participants in the labour market, Myanmar can even generate its own "gender dividend".

The country is in a position to tap from its rich natural resources, cultural heritage, fertile land and its strategic location between the two largest countries in the world, China and India. To increase the country's economic performance there is a strong need for innovation and enhanced productivity. Sustainable development policies should be guided by principles of equity, gender equality, poverty alleviation, the intelligent use of natural resources, and by the integration of economic, environmental, and social aspects of development.

Chapter 1. Introduction

The size and structure of a country's population is moulded through changes in its economic, social and technological development. Starting almost 300 years ago, a worldwide modernization process, called the industrial revolution, changed human society forever and had a profound effect on every pillar of society. The industrial revolution changed the size and composition of Western populations as it triggered dramatic changes in levels of fertility, mortality and migration; the three components of population dynamics. The global demographic transition started in Europe at the end of the eighteenth century with a decline in mortality. Initially, falling mortality resulted in rapid population growth. In Europe, it took almost a full century for fertility to begin to decrease after the onset of the mortality decline. Therefore, most European countries experienced a long and slow demographic transition. It took most of these countries more than 150 years to move from a demographic system with high levels of mortality and fertility to a system of low levels of mortality and fertility.

In most developing countries, the demographic transition started only during the second half of the 20th century. The main difference between European countries, that started their transition early, and developing countries lies in: (a) the faster pace of decline of mortality and fertility in developing countries, (b) the fact that pre-transition vital rates were considerably higher in developing countries, and (c) the far higher population growth rates of developing countries during the transition (Reher, 2011, p 13). Currently, every country in the world has started its demographic transition. Rapid progress in medical science and contraceptive methods after World War II allowed for fast decreases in the levels of infant and child mortality, and a rapid rise in life expectancy and of family planning uptake. The introduction of modern contraceptive methods has allowed women and men to control their fertility and to decide freely on the number of children and the timing of their births. People's increased lifespan and their freedom and capability to decide on the number and timing of their children are major accomplishments of human civilization. However, differences in economic conditions, political systems and religious and cultural environments have created a large diversity between countries in the timing and tempo of their transition.

Among developing regions, East Asia had the earliest and most rapid fertility decline, while countries in South Asia and Latin America started later and progressed less rapidly (Lee, 2003 pp 167-190). The least developed countries in the world continue to have the highest fertility and population growth. Many countries in Sub-Saharan Africa, in particular, have continued their patterns of high fertility and growth, and are still in the early stages of their demographic transition. In 2014, the country with the highest total fertility rate was Niger with 6.9 children per woman. Niger has seen its population increase more than six-fold since 1950, and now has a population of 11 million, and will have to be prepared to feed a population of 50 million by 2050 (UNFPA, 2011, p 7).

This report looks into population dynamics in Myanmar. The country has gone through various stages of its demographic transition. Since the 1950s the level of mortality has come down, followed by a drop in fertility starting in the 1960s and 1970s. The changes in mortality and fertility have had a direct effect on the size and composition of the current population. The 2014 Census provided a perfect opportunity to better understand the current population situation and dynamics over time.

Chapter 1. Introduction

Because no census had been undertaken for over 30 years, many estimates existed about the size and composition of Myanmar's population. In 2013, in an article in *Population and Development Review*, Spoorenberg concluded that the official estimate of Myanmar's population (59.8 million) was far too high (Spoorenberg, 2013, pp 309-324). This population size would have implied recent annual growth rates almost equal to those observed between the censuses of 1973 and 1983 (2.02 per cent). He based his argument on the analysis of household surveys held in the country, which pointed to a significant decline in fertility. The figures obtained in the 2014 Census proved that he was right. It showed that Myanmar's total population (including an estimate of the population that was not counted) was 51,486,253 (Department of Population, 2015, p 12). This was around 10 million less than the last available official population estimate before the Census (October, 2012), when it was estimated that the population of Myanmar had reached 61 million (Spoorenberg, 2015, p 1). The lack of census data for more than 30 years makes it hard to retrace demographic developments. Some aspects of the country's demographics, such as household type and composition, have barely been investigated.

Myanmar's population dynamics have to be seen against the backdrop of its economic and social development. Myanmar scores low for most of the social indicators. Nationwide, about 25 per cent of the population lives below the poverty line. Poverty is higher in rural (29 per cent) than in urban areas (15 per cent) and large regional differences exist. Chin State has the highest poverty incidence (73 per cent), followed by Kachin (44 per cent). There are signs that, over the years, poverty has decreased. According to the 2009/2010 Integrated Household Living Conditions Survey in Myanmar, the level of poverty fell by about 6 percentage points between 2005 and 2010 (UNDP, 2011, p 12).

Since 2011, the Government has embarked on a path of economic, social and political change. These ambitious plans have resulted in a much stronger economic performance during the past few years. Carried by the trust in the political reforms and new openness of the country, the economy benefitted from increasing flows of foreign investment and a surge in tourism (Asian Development Bank, 2016). According to the World Bank, the economy of Myanmar grew at 8.5 per cent in real terms in the fiscal year 2014-2015, but growth in the GDP is projected to decelerate in 2015-2016 to 6.5 per cent due to the floods of 2015 and slowing investments (World Bank, 2016a).

This report describes the current demographic situation and places existing trends in their historical context. It draws on: information from the censuses of 1973 and 1983; demographic and household surveys held during the intercensal periods; and on a population projection that was made for the period 1983-2014. In a number of instances, it also examines expected future developments. This report was prepared before the official 2014 Census-based projections were made. Therefore, provisional population projections were used that were prepared by the Census Project Office. The methodology and assumptions used in these projections are described in detail in Appendix 1 of this report, and may differ slightly from those adopted for the 2014 Census Thematic Report on Population Projections.

Chapter 1. Introduction

The demographic transition in a country causes many changes at all levels of society. This report focuses on the four demographic consequences of the transition in Myanmar:

- (a) Changes in the age structure of the population⁴, that is, the relative growth of the active age groups (15-64 years), the ageing process and the decrease in the proportion of young people.
- (b) Changes in the size and composition of families and households.
- (c) The changing role of women caused by the decline in fertility.
- (d) The position of a growing group of older people in society.

Most consideration is given to the first two consequences, as the latter two are the subject of separate 2014 Census Thematic Reports.

Not only does economic and social development have an effect on demographic variables, but the demographic transition in turn plays an important role in the pace and impact of economic development. A decline in fertility ultimately results in fewer numbers of births each year. Consequently, the size of the younger age groups becomes smaller and the young age dependency ratios decline. The smaller population of young dependents, together with a larger active population, creates possibilities for higher economic productivity and a rise in personal income and savings. In addition, lower dependency ratios can lead to savings in Government expenditure on basic needs, such as health care and education. This can create a window of opportunity for the country to capitalize on the released resources for development and economic growth. Harnessing the benefits of the favourable age composition for higher economic productivity and rising personal incomes is called the “demographic dividend”. A demographic dividend could be very important for Myanmar, as it would help lift some of the country’s population out of poverty and deprivation. To investigate the demographic dividend, population projections will be used to look at the (modelled) future development of Myanmar’s age composition.

⁴ The quality of age reporting in the Census was examined and is presented in Appendix 2.

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2.1 Current population situation

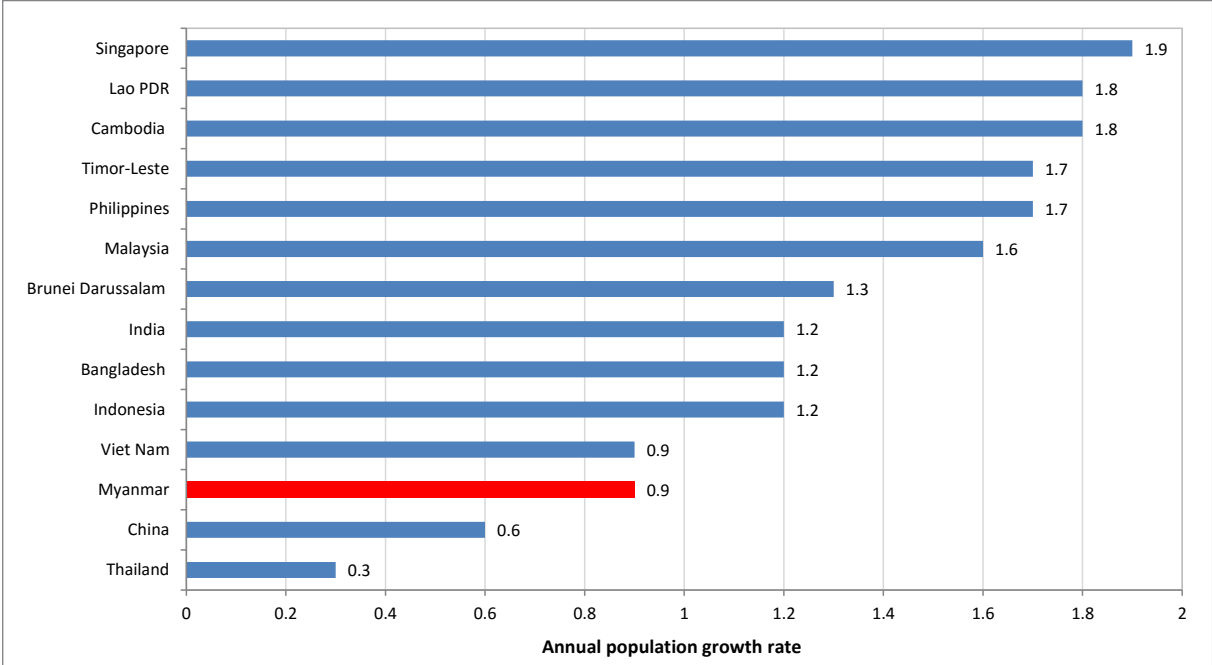
The 2014 Myanmar Population and Housing Census adopted a de facto methodology where, with some exceptions, individuals were enumerated at the place they were present on the night of 29 March 2014 (Census Night). The field operation was completed in almost all areas of the country within 12 days of the start of enumeration, with the total enumerated population estimated to be 50,279,900.

Some populations in three areas of the country were not enumerated. This included an estimate of 1,090,000 persons residing in Rakhine State, 69,800 persons living in Kayin State, and 46,600 persons living in Kachin State (see Department of Population, 2015 for the reasons that these populations were not enumerated). In total, therefore, it is estimated that 1,206,400 persons were not enumerated in the Census. The estimated total population of Myanmar on Census Night, both enumerated and non-enumerated, was 51,486,253. It is worth noting that in Rakhine State an estimated 34 per cent of the population were not enumerated. Consequently, data for Rakhine State, as well as for several Districts and Townships within the State, are incomplete, and represent only part of the population.

According to the 1983 Census, the total population was 35,307,913, including an estimated 1,183,005 people in areas that were not enumerated (Immigration and Manpower Department, 1986). Between the 1983 and the 2014 Census, the population increased by 45.8 per cent. In the 2014 Census, 10,877,832 conventional households were counted. Compared to 6,497,632 in 1983, this is an increase of 67.4 per cent. The fact that the number of households has increased at a faster pace than the population has resulted in a decrease in the average household size. In 1983, the average household size was 5.2 persons, but by 2014 this dropped to 4.4 persons.

The population grew at an average annual rate of 0.89 per cent between 2003 and 2014 (Department of Population, 2015). This makes Myanmar a country with one of the lowest annual growth rates in Southeast Asia (see Figure 2.1.). In the chart, Myanmar's neighbouring countries - China, India and Bangladesh - though not belonging to the Southeast Asian region are also included for comparison. Of the countries shown, only China, which until recently had a one child policy, and Thailand have lower growth rates than Myanmar (0.6 per cent and 0.3 per cent, respectively). It was estimated through population projection techniques that Myanmar grew by 1.41 per cent per annum during the period 1983-1993, and by 1.38 per cent per annum during the 1993-2003 period (Department of Population, 2015, p 13).

Figure 2.1
Annual population growth rates of selected Asian countries, 2014



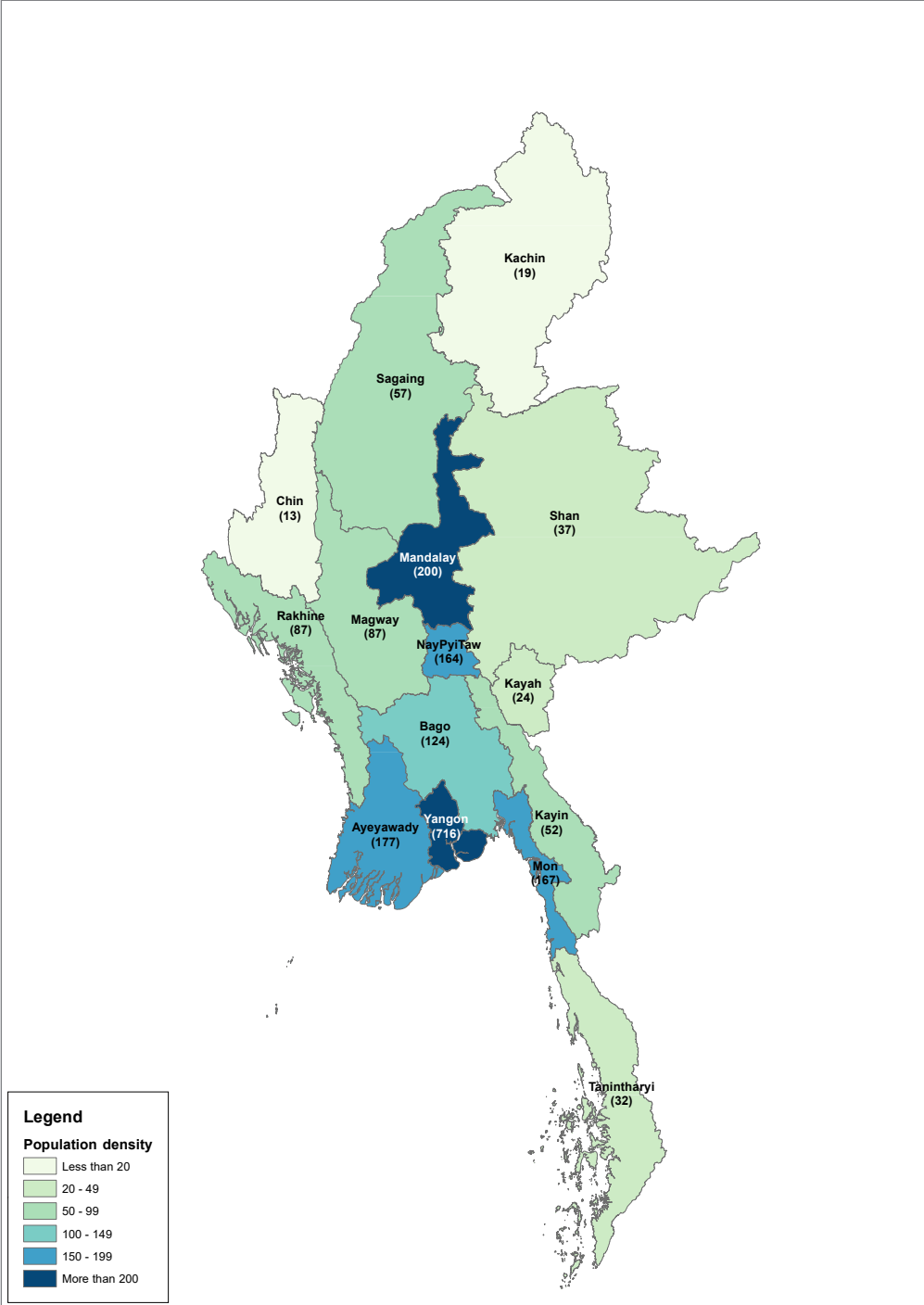
Source: ESCAP, 2014.

Because of the increase in the number of people, the population density increased from 52 persons per square kilometre (sq. km) in 1986, to 76 persons per sq. km in 2014. Population densities vary considerably between States/Regions. The most densely populated State/Region is Yangon with 716 persons per sq. km, followed by Mandalay Region (200 persons per sq. km, see Figure 2.2). The least densely populated States/Regions are Chin (13 persons per sq. km) and Kachin (19 persons per sq. km) (Department of Population 2015, p 17).

In 1983, 8,466,292 persons were living in urban areas in Myanmar compared with 25,658,616 persons living in rural areas⁵. At that time, 24.8 per cent of the population was living in urban areas, which was only slightly higher than the 23.6 per cent reported in 1973. Since 1983, the urban population has increased to 29.6 per cent in 2014. This shows that Myanmar remains a predominantly rural society. In 1983, Yangon Region was the third largest State/Region in the country in terms of its population size, behind Mandalay and Ayeyawady Regions. By 2014, Yangon had established itself as the most populous State/Region in the Union, with 7,360,703 residents. This was aided mostly by migration from various parts of the country and the establishment of Nay Pyi Taw as a Union Territory, which significantly reduced the size of Mandalay Region. The least populated State/Region in 2014 was Kayah with a population of only 286,627, which is about 25 times smaller than Yangon’s population.

⁵Note that the total of both areas does not add up to the total of 35,307,913. This is because the figures here reflect only the enumerated population, without the adjustments for the population that was not enumerated.

Figure 2.2
Population density by State/Region, Myanmar, 2014 Census



To better understand the changes that have taken place in Myanmar’s population, it is important to analyse the three components of demographic change namely, fertility, mortality, and migration. Over the years, each of these components has gone through some important changes. The remainder of this section will discuss the trends and patterns in each of these three demographic components.

2.1.1 Fertility

One of the thematic reports of the 2014 Census is dedicated to the analysis of fertility. The characteristics of fertility described in this section are based largely on that report (Department of Population, 2016a). In the 2014 Census, there were 906,493 births reported in the 12 months prior to the enumeration, which implies a crude birth rate (CBR) of 18.9 births per 1,000 persons in the population (Department of Population, 2015, p 35). Fertility questions were only asked of ever-married women. In the fertility analysis, it was assumed that never married women did not have children. In Myanmar's cultural context, it would be considered inappropriate to ask fertility questions of unmarried women. As fertility outside marriage is very limited, it may be expected that only a very small bias was introduced through this restriction.

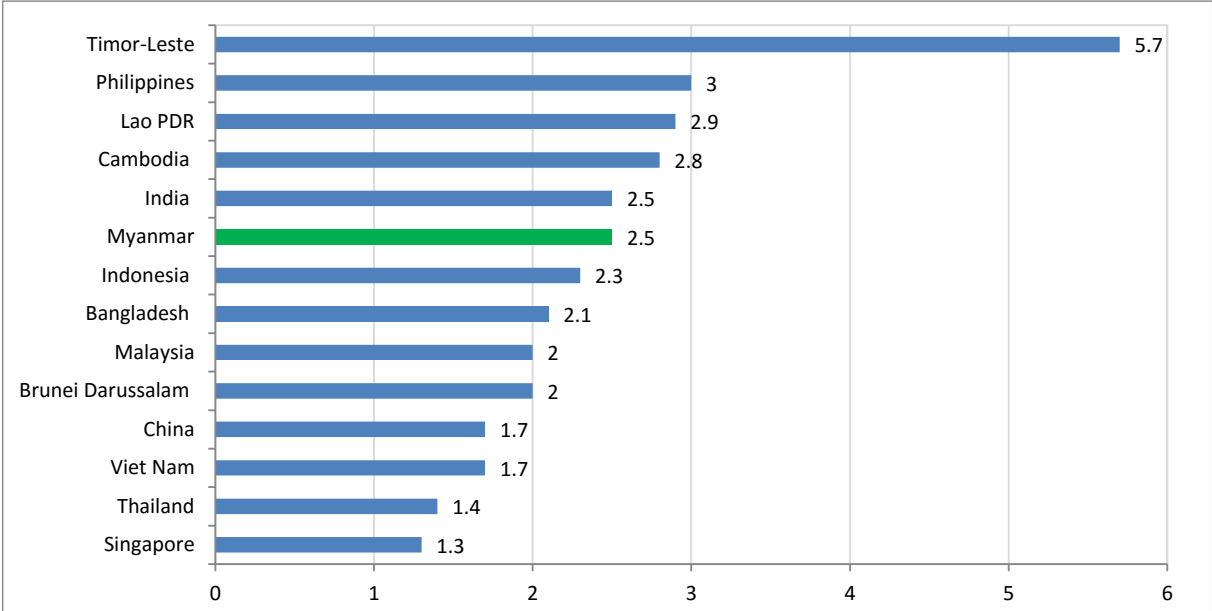
In the 2014 Census Thematic Report on Fertility and Nuptiality, indirect estimation techniques were used to calculate the exact number of births, because answers to the question: "How many births did this woman have during the last 12 months?" often provide an undercount of children born in the last year. The authors of the fertility report came up with an adjusted number of births of 993,294. This would imply a CBR of 19.8 per 1,000 population. Based on the adjusted data on recent live births to ever-married women aged 15 years and older, they estimated that the Total Fertility Rate (TFR) currently stands at 2.5 children per woman.

Compared to other countries in the Southeast Asia region, Myanmar's TFR is still fairly high (ESCAP, 2014)⁶. Only Cambodia, Lao PDR, the Philippines and Timor-Leste have higher fertility. The countries with the lowest fertility in the region are Singapore (TFR: 1.3) and Thailand (TFR: 1.4). Both countries have much lower fertility than China (1.7), which, as noted above had, until recently, a strict one-child policy (Figure 2.3).

⁶ All TFRs were extracted from ESCAP, except the TFR for Myanmar, which was calculated with data from the 2014 Census.

Figure 2.3

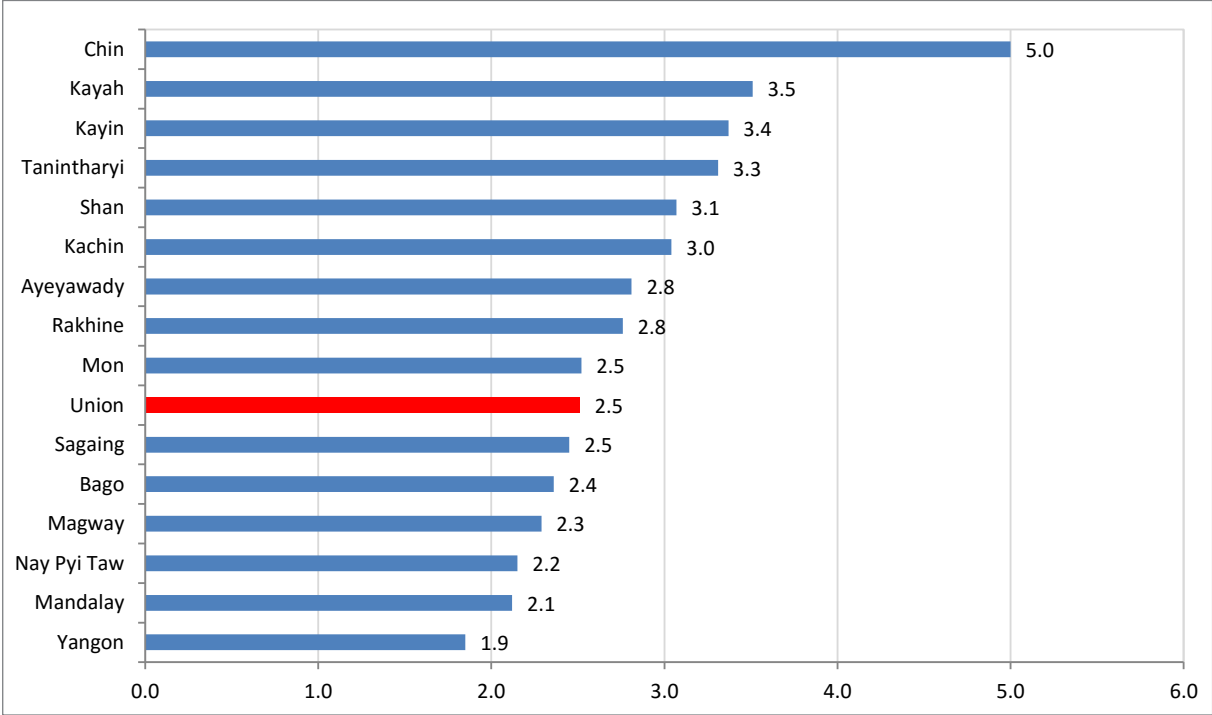
Total fertility rates, Southeast Asian and neighbouring countries, 2014



Source: ESCAP, 2014, except for Myanmar, which was derived from the 2014 Census data.

Figure 2.4

Total fertility rates by State/Region, Myanmar, 2014 Census



Chapter 2. Population dynamics

Within Myanmar, fertility is considerably higher in rural areas (2.8 children per woman) than in urban areas (1.9 children per woman). Note that fertility in urban areas has dropped below replacement level.

Large differences in fertility rates exist between States/Regions as depicted in Figure 2.4. Chin State has by far the highest TFR (5.0 children per woman), which is 1.5 children per woman higher than Kayah State (TFR: 3.5), which ranks second, and no less than 3.2 children per woman higher than Yangon Region, which has the lowest fertility in Myanmar. In addition to Chin, five other States/Regions have a TFR higher than 3.0: Kayah, Kayin, Tanintharyi, Shan and Kachin.

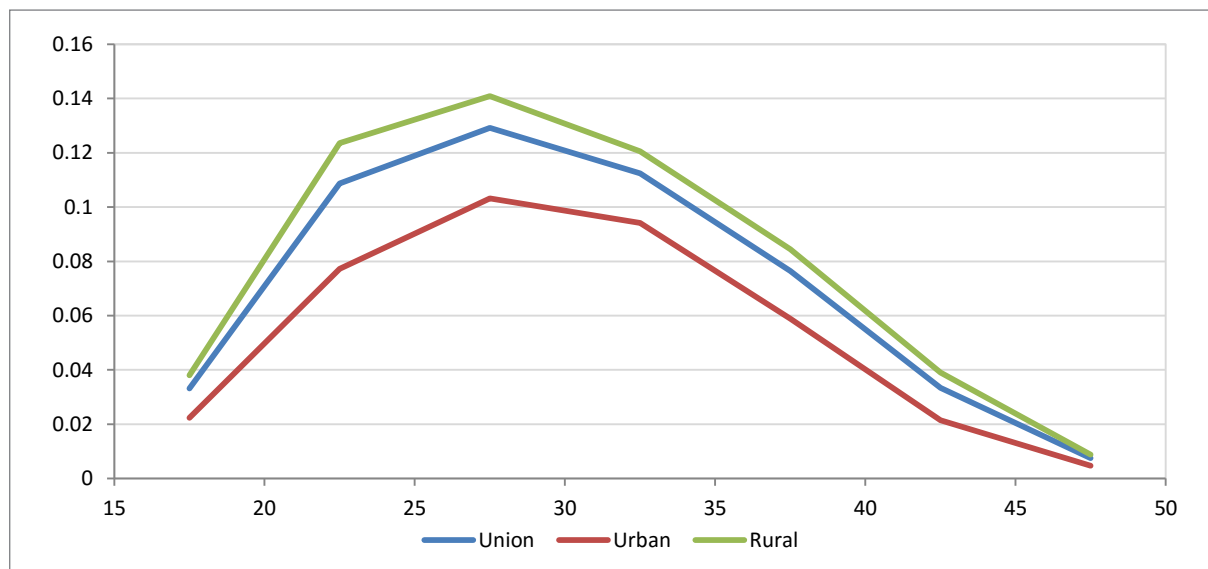
Figure 2.5 shows the age pattern of fertility at the Union level, and for urban and rural areas. Although the level of fertility in rural areas is much higher than in urban areas, little difference exists in the age pattern of fertility. Fertility in both areas is highest between the ages of 25 and 30. In the Census, 48,299 live births were recorded to 2,219,179 women in the 15-19 age group, within the 12 months prior to the Census. The adolescent fertility rate was estimated as 33 per 1,000 women aged 15-19. Adolescent fertility rates for urban and rural areas were 22 and 38 per 1,000, respectively⁷.

Due to the high proportion of women who are never married in Myanmar, it was prudent to estimate marital fertility rates to see how different they were to overall fertility rates. The estimates show that the level of marital fertility is quite high at 5.0 compared to 2.5 for overall fertility. Chin State again has the highest level with a TMFR of 9.2 children per married woman, compared with Yangon Region with the lowest level at 4.0 children per married woman.

⁷ Note that the age-specific fertility rates in Figure 2.5 for the age group 15-19 are slightly different from the adolescent fertility rate. This is because Figure 2.5 is based on the indirect estimation of fertility and the adolescent fertility rate is based on actual observations in the Census. Adolescent fertility rates based on indirect estimation are not very reliable. It was therefore decided not to change the values in the graph because the age-specific fertility rates depicted would not add up to the TFR.

Figure 2.5

Age-specific fertility rates, Union, urban and rural areas, 2014 Census



At the time of the 1983 census, overall fertility was still high, with a national TFR of 4.7 children per woman. During the 1980s, fertility dropped rapidly to a level of 2.9 children per woman by 1991 (Immigration and Manpower Department, 1995). The 1997, 2001 and 2007 Fertility and Reproductive Health Surveys indicated adjusted TFRs of 2.7, 2.4 and 2.0 children per woman, respectively (Department of Population, 2009). This means that from the late 1990s through to the 2014 Census, fertility remained almost constant.

Between 1973 and 2014, the mean age at first marriage increased from 21.3 to 22.4 years in 1983 and to 23.6 years in 2014, at an annual rate of 0.14 years per year. Surveys held during the intercensal period indicated higher mean ages at marriage. The authors of the 2014 Census Thematic Report on Fertility and Nuptiality concluded that, ‘the mean ages of marriage given by the four surveys are biased high’, probably because of the selective omission of never married women in the surveys (Department of Population, 2016a).

Another interesting aspect of marriage behaviour in Myanmar, with a direct effect on the level of fertility, is the high level of females who remain never married; 12.4 per cent of women at age 50 have never been married. The rise in the proportion of women never marrying started after the 1960s. At that time, the proportion never married at age 50 had been more or less constant since the 1920s, at a level of 6 per cent (Department of Population, 2016a).

There is a close relationship between never married women in Myanmar and their educational attainment. Figure 2.6 shows that a large proportion of women aged 35 or older with higher education are never married: a third of women in this age group who had graduated from a university were never married at the time of the Census. Although the percentage of never married male graduates (15.2 per cent) was also higher than in other educational categories, a much smaller percentage of highly educated men than women have remained never married. Women with a post-graduate diploma (MA or PhD) had an even smaller probability

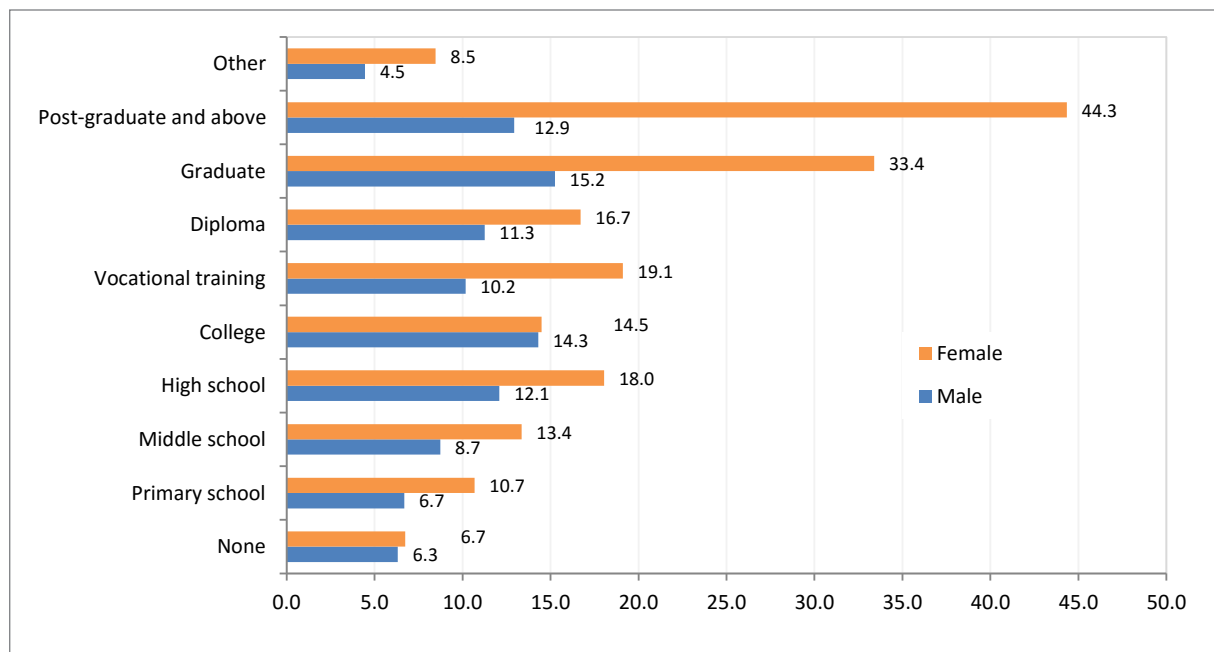
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of being married (44.3 per cent were never married) than women with a graduate diploma. A comparison with men with a post-graduate diploma shows that these women were more than three times more likely to be never married.

Figure 2.6 shows that the higher the educational attainment of a woman, the lower her chances are of being married. Only 6.7 per cent of women aged 35 and over with no education were never married, compared with 10.7 per cent with only primary education, 13.4 per cent with middle school attainment, and 18.0 per cent of women who had completed high school. It may well be that this increase can be explained by a cohort effect, that is, women with no education or primary education may belong to older cohorts who were at a marriageable age at a time when levels of never married women were much lower. The link between never married women and education, and perhaps with other explanatory and intervening factors, is not clear. More in-depth research is therefore needed.

Figure 2.6

Percentage of persons aged 35 and over, who are never married by sex, by level of educational attainment, 2014 Census



2.1.2 Mortality

Two separate thematic reports from the 2014 Census have been produced to study mortality in Myanmar: the first describing overall levels and patterns of mortality (Department of Population, 2016b) and the second specifically focusing on maternal mortality (Department of Population, 2016c). This overview draws from both reports and other censuses and surveys conducted since 1983.

Life expectancy at birth

Myanmar stands out against other countries in Southeast Asia and neighbouring countries with its low life expectancy (Figure 2.7). Currently, a person born in Myanmar can expect to live 64.7 years, if the current mortality conditions were to prevail throughout his/her life. Life expectancy is 60.2 years for males and 69.3 years for females. This is about five years lower than the average in the whole of the Southeast Asian region. A woman, born in Myanmar, lives 15.6 years less than a woman in Singapore, the country with the highest life expectancy in the region. The differences are even larger for males; Myanmar men have a life expectancy of almost 20 years less than men in Singapore, and their life expectancy is almost five years lower than Indian men, who have the second lowest life expectancy in the region (65.0 years).

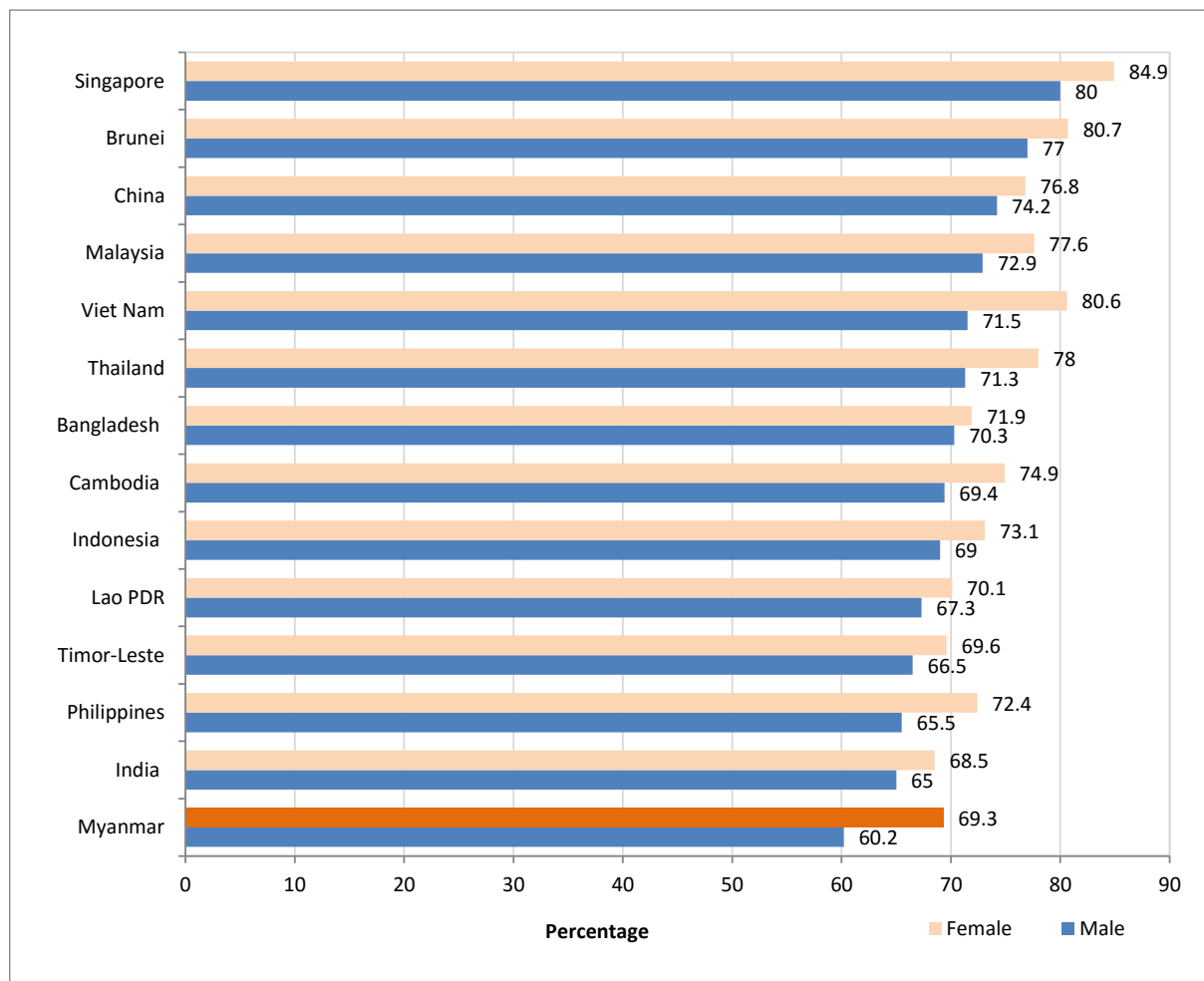
Within Myanmar, the difference in mortality between sexes is very large; women on average live 9.1 years longer than men. Only in Viet Nam is the difference between life expectancy for men and women the same as in Myanmar. This particularly low male life expectancy is a cause for serious concern and should be further investigated. At the moment, men in Myanmar, together with men in Afghanistan, have the lowest life expectancy in Asia. Men in Afghanistan, who live in a country that for many years has been devastated by war, with a dysfunctional health system and regular natural disasters, have a life expectancy of 60.1 years, just a few months lower than men in Myanmar.

Life expectancy of both sexes in urban areas is about a year higher than in rural areas (65.2 compared with 64.7 years). The difference between both areas of residence is small for males (59.7 in urban areas compared with 60.7 in rural areas). For females, the difference is slightly higher; 71.0 in urban areas compared with 68.8 in rural areas. Quite large differences exist between States/Regions. Nay Pyi Taw has the highest life expectancy (67.7 years – both sexes) and Chin has the lowest (60.5), a difference of more than seven years⁸.

⁸ A full analysis of State/Region differences is given in the 2014 Census Thematic Report on Mortality (Department of Population 2016b).

Figure 2.7

Life expectancy at birth (in years) by sex, Southeast Asian and neighbouring countries, 2014



Source: ESCAP, 2014, except for Myanmar, which was derived from the 2014 Census data.

Under-five mortality

In September 2000, world leaders met at the United Nations Headquarters in New York for the United Nations Millennium Declaration. The outcome of this meeting was the Millennium Development Goals (MDGs), a set of eight time-bound anti-poverty targets that countries pledged to achieve by 2015.

Millennium Development Goal 4 (MDG 4, Target 5) was to reduce the under-five mortality rate by two-thirds, between 1990 and 2015. Although MDG 4 has not been achieved worldwide, significant progress has been made. Under-five mortality rates dropped by more than half, from 90 to 43 deaths per 1,000 live births, between 1990 and 2015 (United Nations, undated).

Although Myanmar made significant progress, it was unable to reach MDG 4. In 1989, the under-five mortality rate was around 125 per 1,000 live births, and in January 2012, it stood at 71.8, which was still a long way from a two-thirds reduction. Note that the mortality rates do

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not refer to 1990 and 2015. For 1990 no estimate is available, and therefore the 2014 Census Thematic Report on Mortality used indirect estimation techniques, which give mortality rates at various points in time prior to the Census, the latest being 2012 (Department of Population, 2016b). Under-five mortality estimates (per 1,000 live births) for earlier years, based on the 2014 Census, were:

- January 2012: 72
- June 2010: 77
- June 2008: 86
- January 2006: 96
- April 2003: 108
- August 1999: 118

Given the rapid decline in under-five mortality between January 2006 and January 2012, it is possible that by January 2015 under-five mortality could have further decreased to a level of around 60 per 1,000 live births, which would mean that Myanmar would be on a par with the global trend, and may have halved its under-five mortality rate between 1990 and 2015.

There are large differences in under-five mortality between boys and girls. Boys have a 31 per cent higher mortality rate before age five than girls; 81.3 compared with 62.0 per 1,000 live births. Worldwide, the median ratio of male-to-female under-five mortality per 1,000 live births was 121 during the 2000s; and the median ratio for Eastern and Southeast Asia was 117 per 1,000 live births (United Nations, 2011). The corresponding value of 131 for Myanmar shows that under-five mortality among boys is much higher than in the region and globally. Moreover, the difference in mortality between boys and girls has widened during the last 15 years. This finding is consistent with results from earlier surveys. As the reason for the higher mortality among male children is unclear, the 2014 Census Thematic Report on Mortality notes that this subject requires further research.

Infant mortality

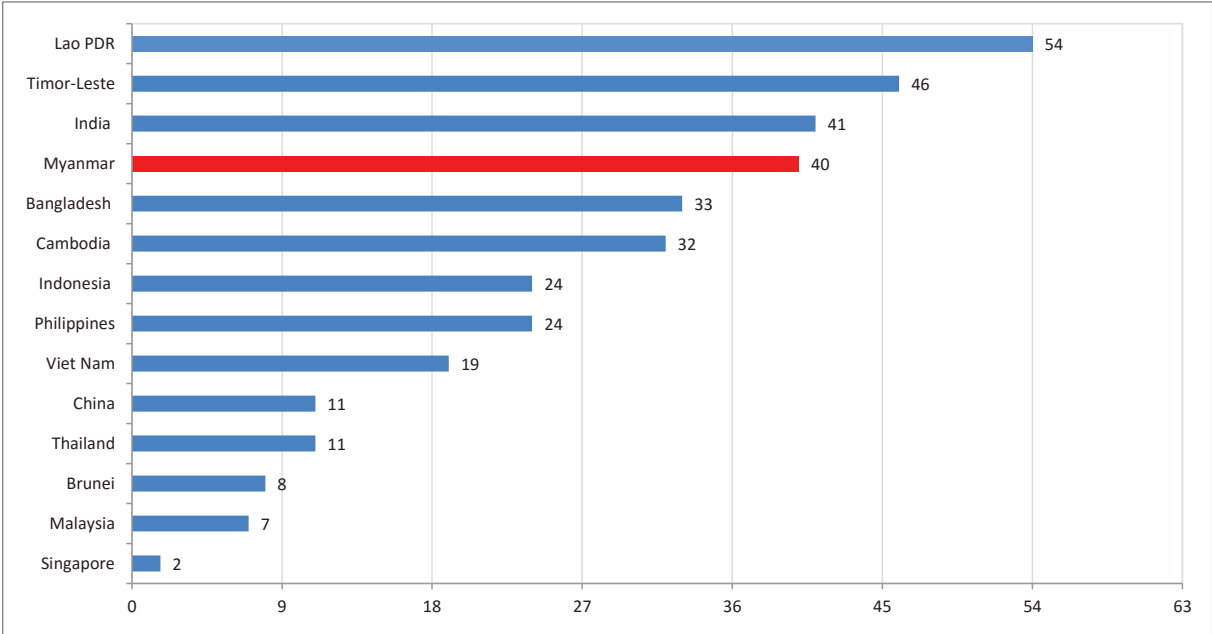
Following the under-five mortality rate, the infant mortality rate (IMR) was the second of three indicators to measure progress in the achievement of MDG 4; the third being the proportion of one year old children immunized against measles. Based on indirect estimation techniques applied to the 2014 Census data, the IMR was estimated to be 61.8 per 1,000 live births (this estimate refers to January 2012). Over the years, infant mortality has declined rapidly. The 2014 Census Thematic Report on Mortality observes a two-step decline of the IMR; one starting by the mid-1980s, and the other accelerating during recent years.

Despite the progress made, Myanmar still has one of the highest infant mortality rates within the Southeast Asian region. Figure 2.8 clearly shows how much higher the country's IMR is compared to the Southeast Asian region and neighbouring countries. The countries with higher infant mortality rates than Myanmar are Lao PDR, Timor-Leste and India. In fact, according to the UN ESCAP population data sheet 2014, Myanmar is the country with the third highest infant mortality among all Asian countries; only Afghanistan (64.8) and Pakistan (63.2) have higher levels of infant mortality.

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The IMR in Myanmar follows the same trend as under-five mortality, that is, much higher mortality rates for males than for females. The IMR estimated for January 2012 was 69.9 per 1,000 live births for boys and 53.6 per 1,000 for girls. The boy-to-girl ratio for the IMR was about the same as the ratio for under-five mortality; 1.30 compared with 1.31. Infant mortality was also found to be considerably higher in rural than in urban areas, 67.2 compared with 41.0. Again, large differences exist between States/Regions within Myanmar. Mon and Ayeyawady are the States/Regions with the most diverse pattern of infant mortality. The IMR was more than twice as high in Ayeyawady (86.2 per 1,000 live births) than it was in Mon (41.9).

Figure 2.8
Infant mortality rate (per 1,000 live births), Southeast Asian and neighbouring countries, 2014



Source: UNSCAP 2013. <http://www.unescap.org/stat/data/statdb/DataExplorer.aspx>. Data for Myanmar in this table is also from ESCAP, this has been maintained for the purpose of comparison.

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Maternal mortality

Quantifying the loss of life through maternal mortality is an important means to monitor progress in the improvement of maternal health, the fifth Millennium Development Goal. Four indicators are used to measure maternal mortality: the Maternal Mortality Ratio (MMRatio), the Maternal Mortality Rate (MMRate), the proportion of adult female deaths due to maternal causes (PMFD) and the Lifetime Risk of Maternal Death (LTR). These indicators are defined as follows:

- The MMRatio indicates the number of maternal deaths per 100,000 live births.
- The MMRate is the number of maternal deaths per 1,000 women aged 15-49.
- The PMFD is the proportion of adult female deaths due to maternal causes.
- The LTR reflects the chances of a woman dying from maternal causes over the course of her 35-year reproductive lifespan.

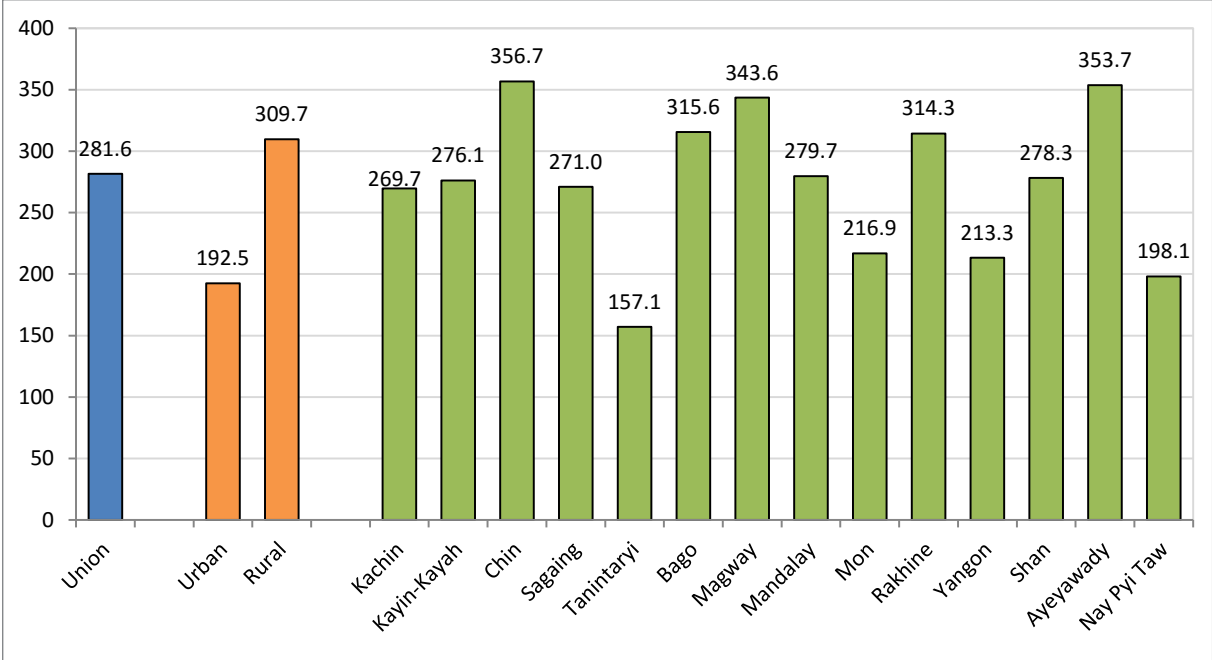
The 2014 Census Thematic Report on Maternal Mortality found; that the MMRatio was 282 maternal deaths per 100,000 live births; that the MMRate was 21 per 100,000 women of reproductive age; and that 10 per cent of all female deaths were attributed to maternal causes (PMFD) during the reproductive ages (15-49 years), (see Department of Population, 2016c).

The LTR can be estimated in various ways (see Wilmoth, 2007). In the 2014 Census Thematic Report on Maternal Mortality (Department of Population, 2016c), the LTR was estimated as 7.3⁹. This means 7.3 women for every 1,000 women at age 15 are likely to die from pregnancy related causes. In other words, a woman's (at age 15) chance of dying because of pregnancy or childbirth related aspects is 0.0073 or rather 1 in every 137 women. As a rather grim comparison, the LTR is 1 in 4,700 in developed countries (WHO et al, 2012 p 54).

Of all maternal deaths reported in the Census, 29.1 per cent occurred during pregnancy, 32.4 per cent during delivery, and 38.5 per cent within a period of six weeks after childbirth. Maternal mortality is considerably higher in rural than in urban areas. In rural areas, the MMRatio stands at 310 maternal deaths per 100,000 live births against 193 in urban areas. The State/Region with the highest MMRatio is Chin (357), closely followed by Ayeyawady (354) and Magway (343.6). Women face the lowest risk of maternal mortality in Tanintharyi (157), which is considerably better than the urban zones of Yangon (213), Mandalay (280) or Nay Pyi Taw (198), (see Figure 2.9).

⁹Another way to estimate the LTR is by using the following formula: $LTR = MMRatio * TFR$. Using this formula, the LTR equals 7.1 per 1,000 (i.e. $282/100,000 * 2.51 * 1,000$). This estimate comes very close to the estimate presented in the Census Thematic Report on Maternal Mortality.

Figure 2.9
Maternal mortality ratio by State/Region*, 2014 Census

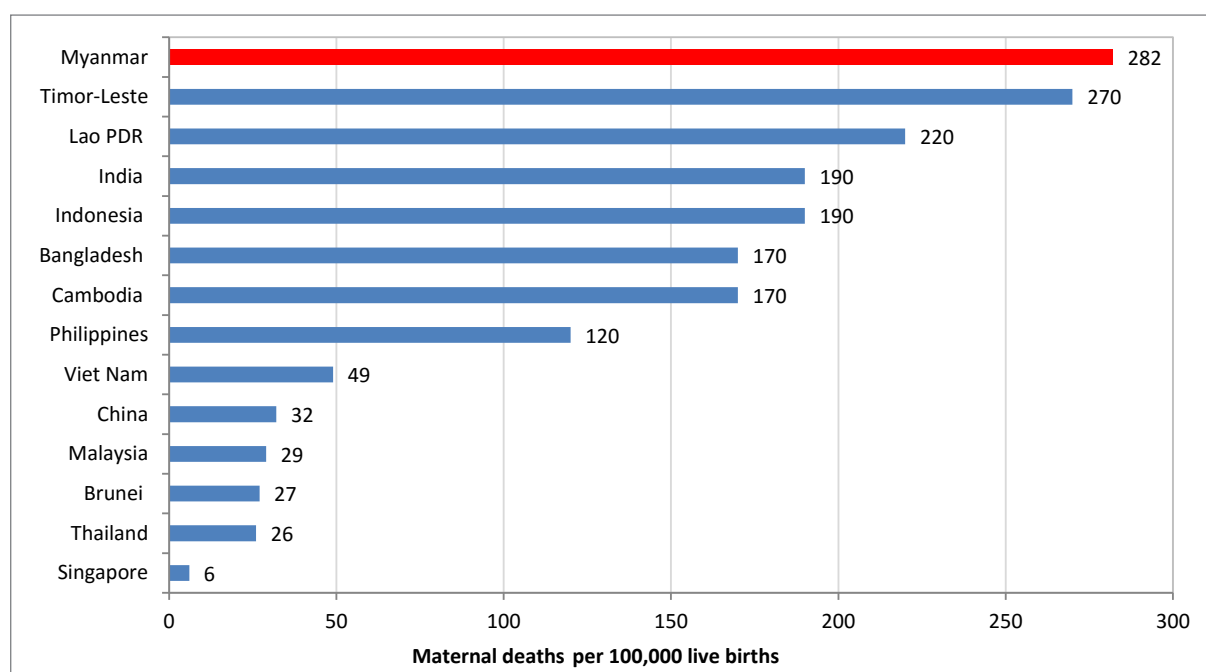


* Due to its small population and, therefore, its small number of recorded maternal deaths, and to maintain confidentiality of respondents, the data for Kayah has been merged with that of Kayin. Other factors that made it appropriate to merge data from Kayah with Kayin were fertility levels and other indicators. The ratio generated applies to both states.

The comparison of the MMRatio with neighbouring and other countries in Southeast Asia is similar to the earlier assessments of life expectancy and infant mortality, that is, Myanmar shows the highest values of all countries in the region (Figure 2.10.). The country with the second highest MMRatio is Timor-Leste with 270 maternal deaths per 100,000 live births.

Figure 2.10

Maternal mortality ratios, Southeast Asia and neighbouring countries, 2014



Source: ESCAP, 2014, except for Myanmar, which was derived from the 2014 Census data.

Maternal mortality is the most preventable of all causes of death and is closely linked to the social and economic status of the mother:

A woman's chance of dying or becoming disabled during pregnancy and childbirth is closely connected to her social and economic status, the norms and values of her culture, and the geographic remoteness of her home. Generally speaking, the poorer and more marginalized a woman is, the greater her risk of death. In fact, maternal mortality rates reflect disparities between wealthy and poor countries more than any other measure of health. (UNFPA, 2012a).

Even within the Southeast Asian region the discrepancy in maternal mortality (between the richer and poorer countries) is striking. Singapore has the lowest maternal mortality with an MMRatio of only 6 per 100,000 live births, a staggering 47 times lower than Myanmar's. Neighbouring Thailand has an MMRatio of 26 per 100,000 live births.

2.1.3 Migration

Migrants, both internal and international, play an important role in harnessing economic growth, as they provide the manpower, knowledge and skills to meet the demands of labour markets. International migrants also contribute to the development of the economy of their home country by sending remittances to family members that stay behind. The World Bank estimated that in 2014, international migrants remitted a total of 583 billion US dollars to their

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home countries, a growth of 33 billion compared to 2013 (World Bank, 2015). About 70 per cent of these remittances flowed to developing countries, and as a whole, remittances were about 2.5 times higher than the total official development assistance in the world (Docquier and Machado, 2015).

Three aspects of migration are important for population dynamics within a country; urbanization, internal migration and international migration. All three phenomena have a direct effect on the size, age composition and distribution of persons living in a country. This section summarizes the key results of the 2014 Census Thematic Report on Migration and Urbanization (Department of Population, 2016d).

Urbanization

Urbanization in this report is taken to mean the process by which a growing number of people become concentrated in cities or urban areas. The increase of the population in urban centres is caused by three factors: (1) migration (either from rural areas or from abroad); (2) a natural increase (the difference between births and deaths); and (3) administrative rearrangements of urban-rural States/Regions.

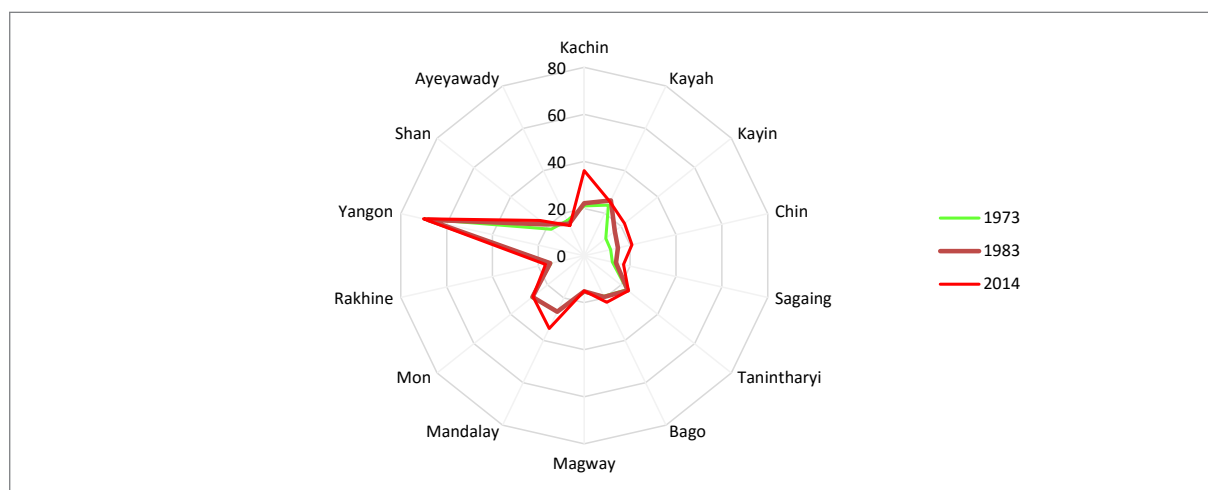
Myanmar has the second lowest degree of urbanization among all Southeast Asian countries. Only Cambodia, with about 20 per cent of its population living in urban areas, ranks below Myanmar. But caution should be given to such international comparisons arising from the definitional differences between countries. Out of 50,279,900 persons enumerated in the 2014 Census, 14,877,943 (29.6 per cent) were living in urban areas. This proportion has modestly increased since the 1983 Census when it was 24.8 per cent. About half of the Myanmar urban population lives in just three agglomerations: Yangon (5.21 million), Mandalay (1.22 million) and the new capital Nay Pyi Taw (1.16 million)¹⁰. With its population of over five million, a disproportionately larger size than the other two, Yangon is the principal city of the country. Yangon Region comprises 35 per cent of all urban dwellers in the country.

The degree of urbanization differs considerably between States/Regions. Figure 2.11 illustrates the growth of urban areas between 1973 and 2014. Nay Pyi Taw is included as part of Mandalay Region, as it did not exist at the time of the 1973 and 1983 censuses. Yangon is the Region with the highest degree of urbanization; 70 per cent of its population lives in urban areas. Despite not containing any of the three largest cities, Kachin is the State with the second highest proportion of people living in urban areas (36.1 per cent), closely followed by Mandalay (including Nay Pyi Taw) with 34.4 per cent. Both States/Regions also experienced the highest growth in the degree of urbanization during the 1983 to 2014 intercensal period. Kachin's urban population grew by 14 per cent, and Mandalay's by 8 per cent over the period of 31 years. Yangon Region's urban population increased only marginally from 68.2 to 70.1 per cent, but it already had a very high degree of urbanization.

¹⁰ Nay Pyi Taw cannot be considered as an agglomeration in the same way as Yangon or Mandalay. For Nay Pyi Taw, the population recorded was based on the number of people in the Nay Pyi Taw Union Territory.

Figure 2.11

Percentage of urban population by State/Region, 1973, 1983 and 2014 censuses



Even with the moderate growth of urban centres during the intercensal period, Myanmar remains a predominantly rural society. As urban centres are hubs for industrial production and economic growth, it can be expected that, given the recent opening up of the country and the rapid economic growth, urbanization will pick up and urban centres will start growing in population more rapidly all over the country.

Internal migration

In the 2014 Census, internal migration was defined as movement between Townships. Internal migration can either be looked at as “lifetime migration”, that is, the flow of persons whose Township of residence at the time of the Census differed from the Township of their birth, or as “recent migration”, which was defined as a change in Township of usual residence during the five years prior to the Census. (Those migrants whose Township of birth or previous usual residence was the same at the time of the Census – so called “return migrants” – were therefore not identified).

Lifetime internal migration in Myanmar is quite high. In total, 19.3 per cent of the Myanmar population living in conventional households were reported as lifetime migrants in the Census (of whom 52.7 per cent were female). This is more or less the same level as that of other countries in the region, such as Thailand and Malaysia. The Census observed that of all lifetime internal migrants, 29.1 per cent had moved between Townships within the same District, 21.5 per cent between Districts within the same State/Region, and almost half (49.4 per cent) had moved between States/Regions. Internal migration is dominated by movement between specific areas; some Districts and States/Regions are typical areas of origin, and some are typical destination areas.

Figure 2.12 shows the States/Regions with their net internal lifetime migration rates by sex. The State with the highest degree of lifetime outmigration is Chin, with a net migration rate of -167.7 per 1,000 population for both sexes (-175.5 per 1,000 females and -158.9 per 1,000 males). The majority of migrants from Chin State moved to bordering Sagaing or Yangon. Other States/Regions that lost many of their inhabitants to internal migration were

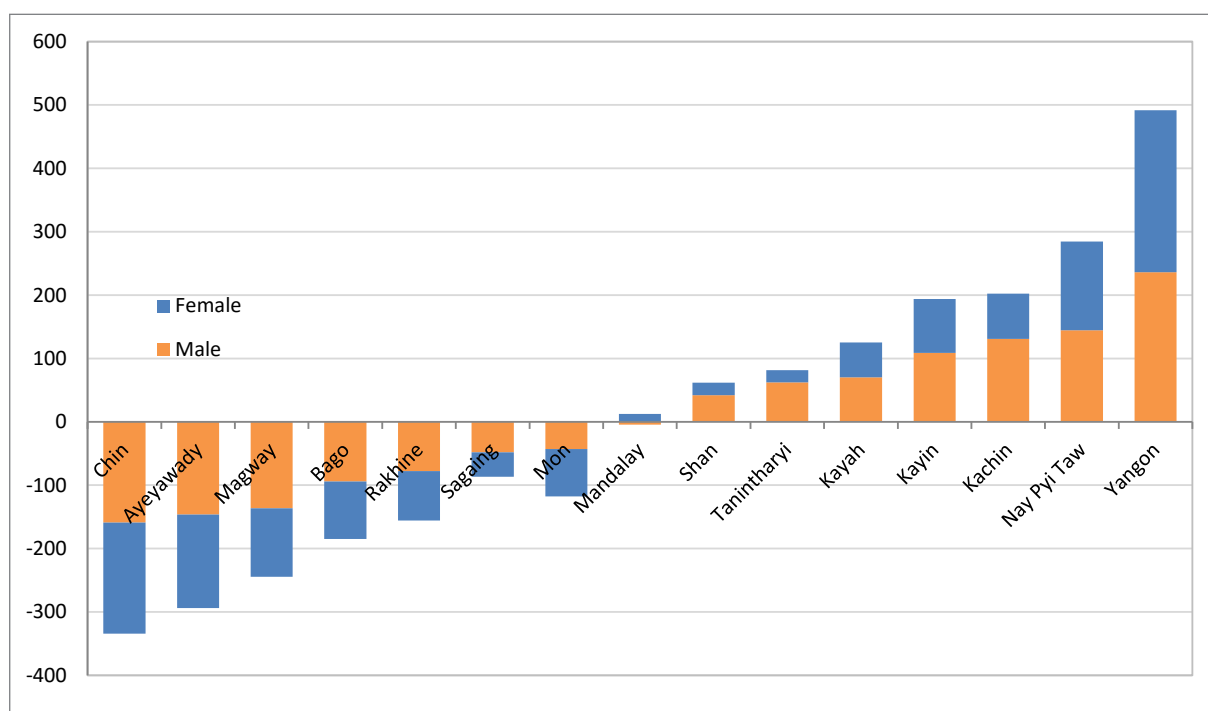
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Ayeyawady and Magway. Both had net internal lifetime outmigration rates well above 120 per 1,000 population. Yangon, being the industrial and commercial heart of the Union, attracted most lifetime migrants from all other States/Regions. Net migration rates for movement into Yangon from other States/Regions were 246.3 per 1,000 population for both sexes (236.2 per 1,000 males and 255.3 per 1,000 females).

It should not come as a surprise that Nay Pyi Taw Union Territory had very high in-migration. The new capital has attracted many civil servants and providers of many services. Net internal migration rates for Nay Pyi Taw were 144.7 per 1,000 males and 139.7 per 1,000 females. However, while some States/Regions had quite similar net migration rates for males and females, others had clear sex differences. Kachin, for example, had a net internal migration rate of 130.8 for males and 71.6 for females, while in Tanintharyi the rates were 62.2 and 19.3, respectively. In Mon and Chin the net lifetime migration rates for females were higher than for males.

Figure 2.12.

Net internal lifetime migration rates (per 1,000)* by sex, by State/Region, 2014 Census



* Per 1,000 population enumerated in conventional households in the 2014 Census.

Source: Department of Population, 2016d.

The Census reported a broadly similar pattern of recent migration. In total, 3,359,342 persons (just 7.0 per cent of the population) migrated during the five years prior to the Census, of whom 52.1 per cent were female. The Census observed that of the recent internal migrants, 26.5 per cent had moved between Townships within the same District, 18.5 per cent between Districts within the same State/Region, and over a half (55.0 per cent) had moved between States/Regions. A number of Districts are real attraction points for recent migrants. The

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Census reported that North Yangon was the most important destination for recent internal migration. Out of the 20 most significant internal migration flows between Districts, 12 included one of the 4 Districts of North Yangon and 19 out of the 20 included Yangon (Table 2.1). North Yangon is one of the centres of industrial development and attracts many workers to its factories. Ayeyawady Region, which is situated adjacent to Yangon Region, lost most migrants to the more prosperous Yangon. There are also other industrial zones outside Yangon that attract manufacturing workers. Mandalay has four industrial zones, Ayeyawady has three, Bago and Magway have two each, and Mon, Sagaing, Shan and Tanintharyi have one each, but not one of these made it as a destination in the top 20 District-to-District flows, with the exception of migration from Myingyan to Mandalay.

In many developing countries, rural-to-urban migration is the norm and forms an important part of the urbanization process. For one reason or another, Myanmar is not following this general pattern. For all internal migration, urban to urban flows accounted for 47 per cent of lifetime migration, while rural to rural migration accounted for 29 per cent. Only 9.5 per cent of all internal lifetime migration comprised rural-to-urban flows.

Table 2.1

Top 20 District-to-District flows for recent migrants, 2014 Census

Rank	District-to-District flow	Size
1	West Yangon to East Yangon	56,601
2	Phayapon to North Yangon	51,086
3	West Yangon to North Yangon	43,044
4	Hinthada to North Yangon	35,311
5	Maubin to North Yangon	33,369
6	Labutta to North Yangon	29,796
7	Thayawady to North Yangon	29,362
8	North Yangon to East Yangon	28,368
9	Pathein to North Yangon	27,852
10	East Yangon to West Yangon	26,257
11	East Yangon to North Yangon	25,652
12	Phayapon to East Yangon	24,891
13	South Yangon to North Yangon	24,660
14	Myingyan to Mandalay	24,500
15	Myaungnya to North Yangon	21,694
16	Bago to East Yangon	20,807
17	Bago to North Yangon	18,663
18	North Yangon to West Yangon	17,519
19	Magway to North Yangon	16,231
20	Pathein to East Yangon	14,835

Figure 2.13
Migration questions in the main 2014 Census questionnaire

Serial Number	FOR ALL MEMBERS OF THE HOUSEHOLD										AGE 5 AND ABOVE			AGE 10 AND ABOVE		
	IDENTITY CARD	Place of Birth		MIGRATION		Place of Usual Residence		Place of Previous Usual Residence		EDUCATION	LABOUR FORCE					
10. Type of identity card	11. Township	12. Township	13. Township	14. Township	15. Duration in place of usual residence (in years)	16. Reason for movement to this township (usual residence)	17. Township	18. Township	19. Can (Name) read and write in any language?	20. Is (Name) currently attending previously attended school/college?	21. What is the highest education grade/level (Name) completed?	22. What was (Name's) activity status during the last 12 months? (April 2013 - March 2014)				
1	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	Yes No	0 1 2 3 4 5 6 7 8 9	0 0 1 11 12 13 14 15 16 17 18 19	0 1 2 3 4 5 6 7 8 9				
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3	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	Yes No	0 1 2 3 4 5 6 7 8 9	0 0 1 11 12 13 14 15 16 17 18 19	0 1 2 3 4 5 6 7 8 9				
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7	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	Yes No	0 1 2 3 4 5 6 7 8 9	0 0 1 11 12 13 14 15 16 17 18 19	0 1 2 3 4 5 6 7 8 9				
8	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	Yes No	0 1 2 3 4 5 6 7 8 9	0 0 1 11 12 13 14 15 16 17 18 19	0 1 2 3 4 5 6 7 8 9				

International migration

According to the Census, Myanmar is definitely not a destination country for international migrants. Only 23,577 persons, who had their last place of residence outside of Myanmar, were enumerated as residents in Myanmar during the 2014 Census. This represents less than 0.05 per cent of the resident population. Of all immigrants to Myanmar, 55 per cent reported their previous country of residence as Thailand, and 15 per cent had migrated from China. Some 11.5 per cent of these immigrants carried a foreign passport or had a Foreign Registration Card at the time of the Census.

However, over the years Myanmar has become an important supplier of economic migrants to other countries within Southeast Asia. In the 2014 Census, a series of questions was asked about former household members who were living abroad at the time of the Census. As well as the name of the person, the relationship to the head of the household, age, sex, year of departure and the country of residence were asked.

These questions can only give a broad indication of the number of former household members who live abroad because firstly, international migrants are only reported if the household to which they belonged still exists. In many cases, entire households may have migrated. Secondly, respondents may have had reasons not to report the migration of former household members, particularly, if these members had left as undocumented migrants. It can therefore be expected that the reported numbers are a serious undercount of the true numbers of emigrants.

Based on these questions, the Census indicated that 2.02 million former members of Myanmar households were reported as living abroad; this represents the equivalent of 4 per cent of

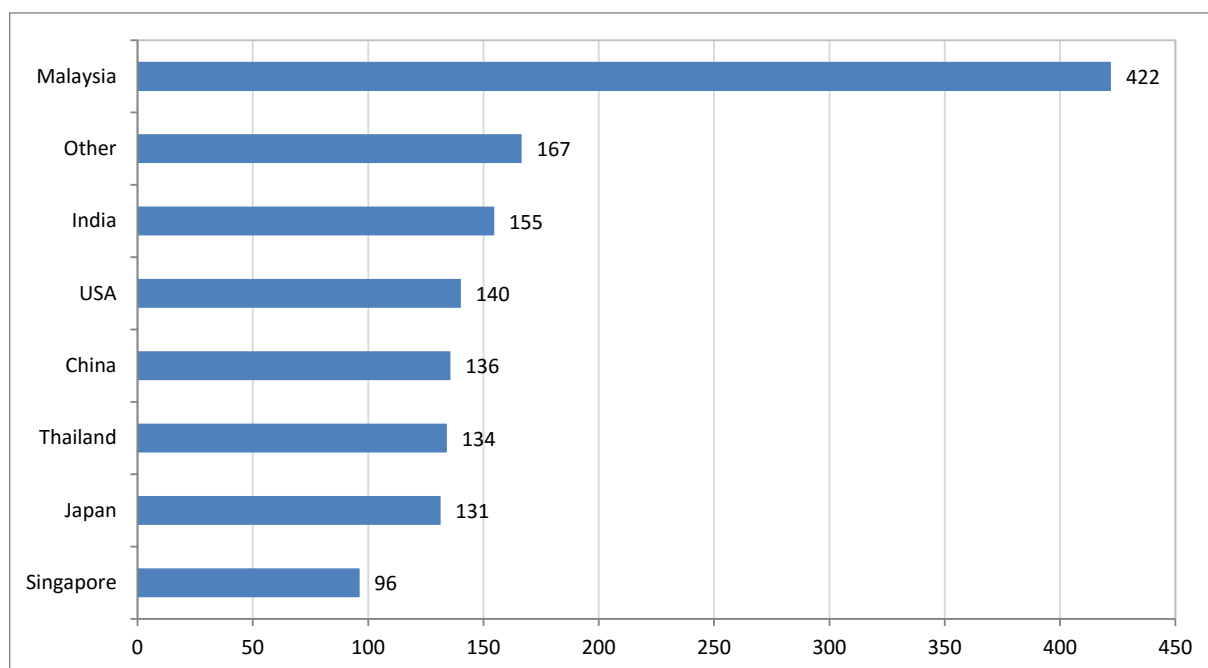
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the resident population. The majority of international migrants (1,418,472) were reported as living in neighbouring Thailand, while 303,996 were in Malaysia. None of the other countries specifically listed in the question of “Country of Residence” had more than 100,000 reported persons. Over the years, many more men than women were reported as having left the country; 1,233,168 men against 788,742 women, implying a sex ratio of 156.3. For all countries of destination, the sex ratio is well above 100, with the exception of Singapore where 96.3 male to 100 female migrants were reported (Figure 2.14). For a few years now, Singapore has attracted many Myanmar women to work as household workers.

As reported in the Census, the majority of emigration took place from Districts and States/Regions that are close to the Thai and Chinese borders (Mon, Kayin, Shan and Tanintharyi). These States/Regions accounted for about a half of recent male emigrants (those who were reported to have moved in the five-year period prior to the Census) and two-thirds of female migrants (Figure 2.15). It can be assumed that fewer risks are involved in such migration because of the proximity of the destination, with lower costs involved, and because of the familiarity with the region on the other side of the border, where people of the same ethnic origin live. In contrast to male international migrants who come from a larger number of more widely dispersed Districts, female migrants predominantly come from a small number of Districts in the lower central and southern areas of Myanmar.

Figure 2.14

Sex ratios (males per 100 females) of lifetime international emigrants by country of residence, 2014 Census



Source: Department of Population, 2016d.

Figure 2.15

Number of recent emigrants by sex, by State/Region of reporting household, 2014 Census

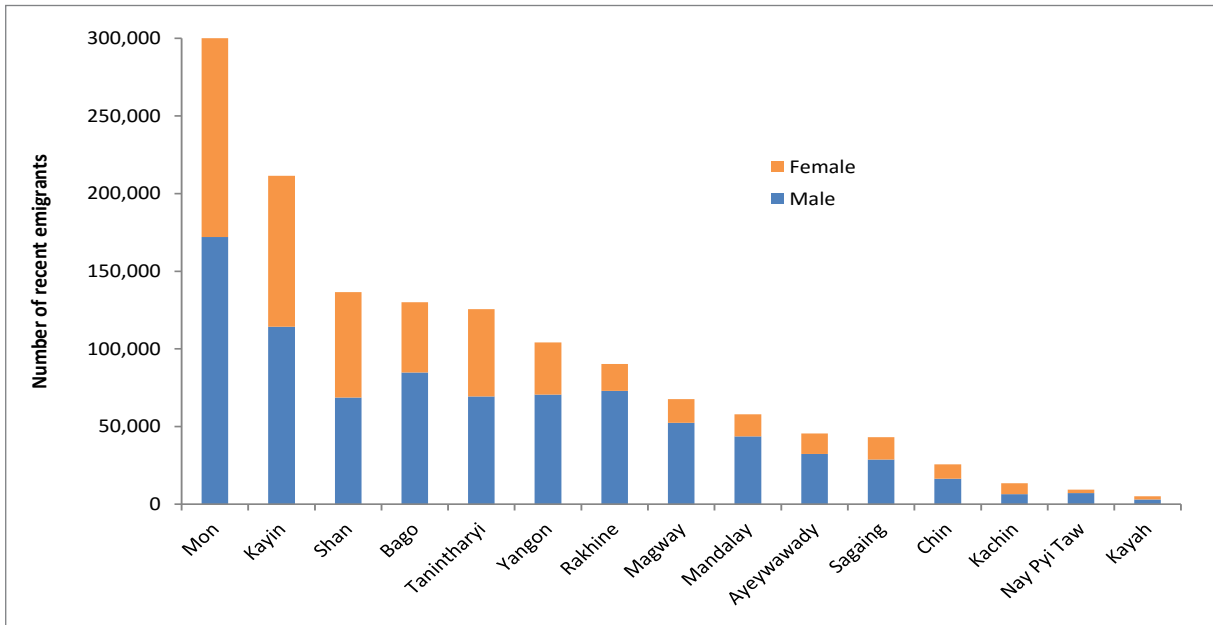
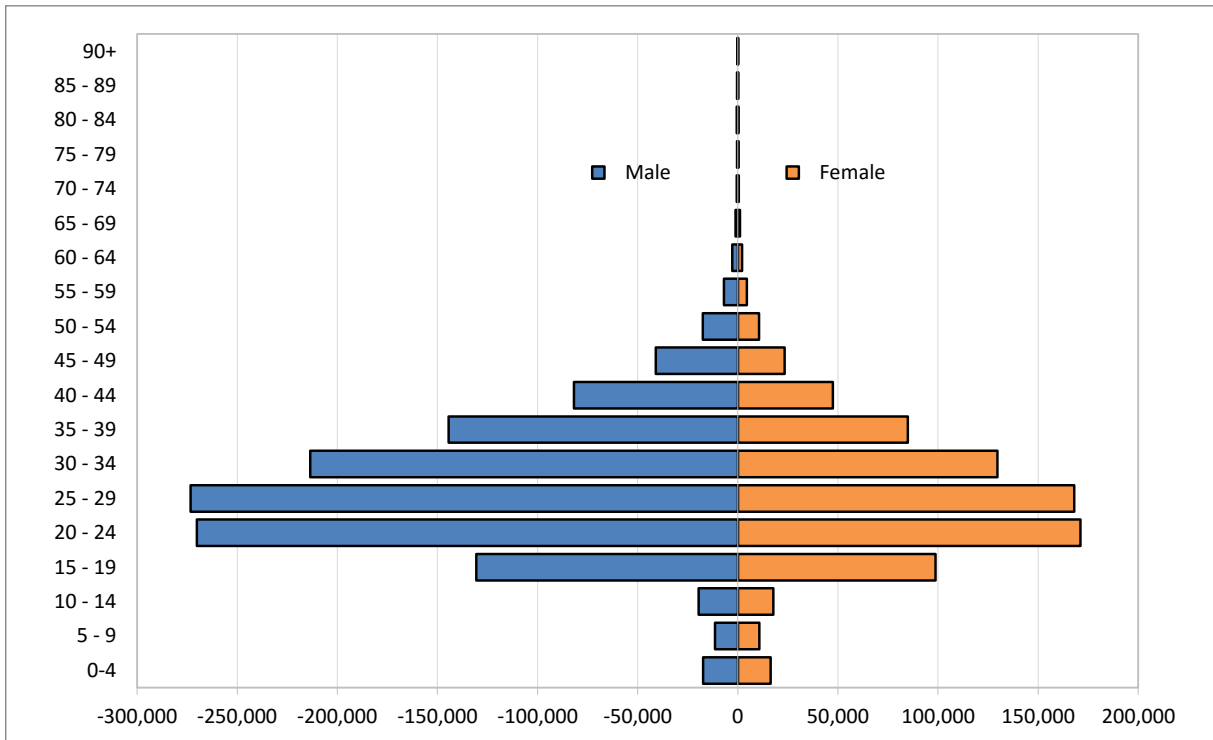


Figure 2.16

Former household members living abroad by age, by sex, 2014 Census



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International migrants from Myanmar are typically young. Figure 2.16 depicts the sex-age pyramid for migrants who left Myanmar at any time before the Census. Very few children were reported as being among those who have moved out of the country. The largest group of emigrants were aged between 20 and 30. Migration of persons aged 50 or over is very limited; only 2.4 per cent of Myanmar emigrants were above 50 at the time of the Census and very few were older than 65. Note that there may be an undercount and possibly a bias, as older people who emigrated some time ago were less likely to have been recorded in the Census.

The 2014 Census Thematic Report on Migration and Urbanization indicates that the figure of 2.02 million persons from Myanmar residing abroad can only be taken as a broad indication of the real number, as the count was based on the reporting of former household members residing abroad by current household members; this figure will, therefore, represent a serious under-estimation. To make a more accurate estimate of the number of Myanmar persons living abroad, projection techniques were used. The 2014 Census Thematic Reports on Fertility and Nuptiality and Mortality (Department of Population, 2016a and Department of Population, 2016b) provide an overview of the course of fertility and mortality between 1983 and 2014. These estimates were used in a population projection, starting with the 1983 population, to calculate the implied 2014 population. In this projection model it was assumed that no migration took place.

The outcome of the projection can be considered as an estimate of what the population of Myanmar would have been in 2014, if no migration had taken place. The population projection resulted in a total estimated population of 55.7 million. The difference of this estimated population with the Census population (51.4 million) is 4.2 million. The number of immigrants in Myanmar is quite small. Only 23,577 persons who had been living abroad in the five year period before the Census were counted. Therefore, it can be assumed that 4.25 million persons would be a better estimate for the number of persons from Myanmar living abroad. Obviously, because of the broad assumptions made, this estimate is no more than an indication of the true number of Myanmar citizens living abroad.

2.2 Sex ratios

In the 2014 Myanmar Population and Housing census, 50,279,900 persons were counted in enumerated areas: 24,228,714 males and 26,051,186 females, resulting in an overall sex ratio (defined as the number of males in a given population per 100 females) of 93.0. At the time of the 2014 Census, the sex ratio in rural areas was slightly higher than in urban areas: 93.6 compared with 91.6. Compared to the 1983 population census, the sex ratio has come down significantly. At that time, 98.6 men were present for every 100 women (Immigration and Manpower Department, 1986, pp 1-14).

2.2.1 Sex ratio at birth

In human populations all over the world more boys than girls are born. The sex ratio at birth normally varies between 104 and 107. Any value higher than 107 is an indication of prenatal

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sex selection in favour of males. A number of countries in Asia have very high sex ratios at birth, as a result of prenatal sex screening and sex selective abortions. For instance, in China in 2011 the sex ratio at birth was 117.8, reaching values as high as 128.7 in Anhui Province and 125.6 in Fujian Province. In India, the sex ratio at birth nationally was 110.5 during the 2008-2010 period, with high regional differences. In the State of Punjab, 120.3 male births per 100 female births were observed (UNFPA, 2012b, p 20). In addition, in Viet Nam there has been a rise in the sex ratio at birth with a value of 111.2 observed in the whole country and 116.2 in the Red River Delta area (Guilmoto, 2009). According to the 2014 Census, the sex ratio of children born in the 12 months before the Census was 103.8, which falls within the normal range.

2.2.2 Sex ratio by State/Region

Sex ratios vary considerably between Myanmar's States/Regions. Table 2.2 shows sex ratios for Myanmar's population for each State/Region from the data collected in the Census for three broad age groups: 0-14, 15-64 and 65 and over. Sex ratios for all ages ranged from 108.6 in Kachin to 86.3 in Magway. Sex differentials among internal and international migrants most probably play a role in determining the differences in the number of males compared with the number of females in each State/Region. Sex ratios for the age group 0-14 were above 100 in all States/Regions, meaning that boys generally outnumbered girls in the young age group. The sex ratio for this age group was 102.7 nationwide, but a clear difference existed between urban areas where the sex ratio was 105.1, and rural areas where it was 102.0. It is not clear what exactly causes this differential between rural and urban areas.

With the exception of Kachin, the Census showed that all States/Regions had much lower adult sex ratios than at age 0-14. With a few exceptions, sex ratios were well below 100 in most urban and rural areas between the ages of 15-64. In Kachin State, the very high adult sex ratio (114.7) and the large difference between rural and urban areas (121.9 compared with 103.2, respectively) is striking. Significant differences between rural and urban sex ratios can also be found in several other States and Regions, though none is as large as Kachin. These differences are closely related to levels of migration in and out of the State/Region.

Table 2.2

Sex ratios by broad age group, by State/Region, by urban/rural area, 2014 Census

State/Region	Urban/Rural	0 - 14 yrs	15 - 64 yrs	65+ yrs	Total
Kachin	Urban	103.4	103.2	62.4	101.0
	Rural	103.3	121.9	65.7	113.2
	Total	103.4	114.7	64.4	108.6
Kayah	Urban	102.5	97.0	71.1	97.1
	Rural	103.1	100.7	79.7	100.8
	Total	103.0	99.7	76.9	99.9
Kayin	Urban	104.7	97.9	69.8	98.4
	Rural	103.2	93.2	80.6	96.1
	Total	103.4	94.3	78.5	96.6
Chin	Urban	100.9	84.6	85.0	89.7
	Rural	101.6	86.9	86.6	92.8
	Total	101.5	86.4	86.2	92.1

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State/Region	Urban/Rural	0 - 14 yrs	15 - 64 yrs	65+ yrs	Total
Sagaing	Urban	104.6	86.9	64.4	89.5
	Rural	101.3	87.3	66.2	89.6
	Total	101.8	87.2	65.9	89.6
Tanintharyi	Urban	104.2	94.5	65.0	95.1
	Rural	102.8	100.6	80.1	100.2
	Total	103.1	98.9	75.7	99.0
Bago	Urban	104.7	84.9	64.3	87.7
	Rural	102.3	89.9	73.8	92.3
	Total	102.7	88.7	71.3	91.2
Magway	Urban	103.2	82.7	60.9	85.3
	Rural	100.4	83.2	68.2	86.4
	Total	100.8	83.1	67.0	86.3
Mandalay	Urban	107.1	91.5	64.6	93.1
	Rural	101.9	86.6	67.2	89.1
	Total	103.5	88.3	66.4	90.5
Mon	Urban	105.9	89.1	68.4	91.6
	Rural	103.5	88.7	82.2	92.9
	Total	104.1	88.8	77.8	92.5
Rakhine	Urban	104.4	86.2	64.8	89.0
	Rural	102.4	84.3	77.5	89.3
	Total	102.7	84.7	75.3	89.2
Yangon	Urban	104.5	87.7	69.6	89.8
	Rural	103.5	93.9	76.1	95.6
	Total	104.1	89.4	71.1	91.5
Shan	Urban	107.4	97.6	68.7	98.4
	Rural	101.2	101.2	82.5	100.4
	Total	102.5	100.2	78.5	99.9
Ayeyawady	Urban	104.3	87.7	67.5	89.7
	Rural	101.8	94.2	81.2	95.7
	Total	102.1	93.2	78.7	94.8
Nay Pyi Taw	Urban	104.6	94.3	63.6	95.2
	Rural	102.8	93.8	66.6	94.8
	Total	103.3	94.0	65.8	95.0
Union	Urban	105.1	89.7	66.9	91.6
	Rural	102.0	91.7	73.8	93.6
	Total	102.7	91.1	71.6	93.0

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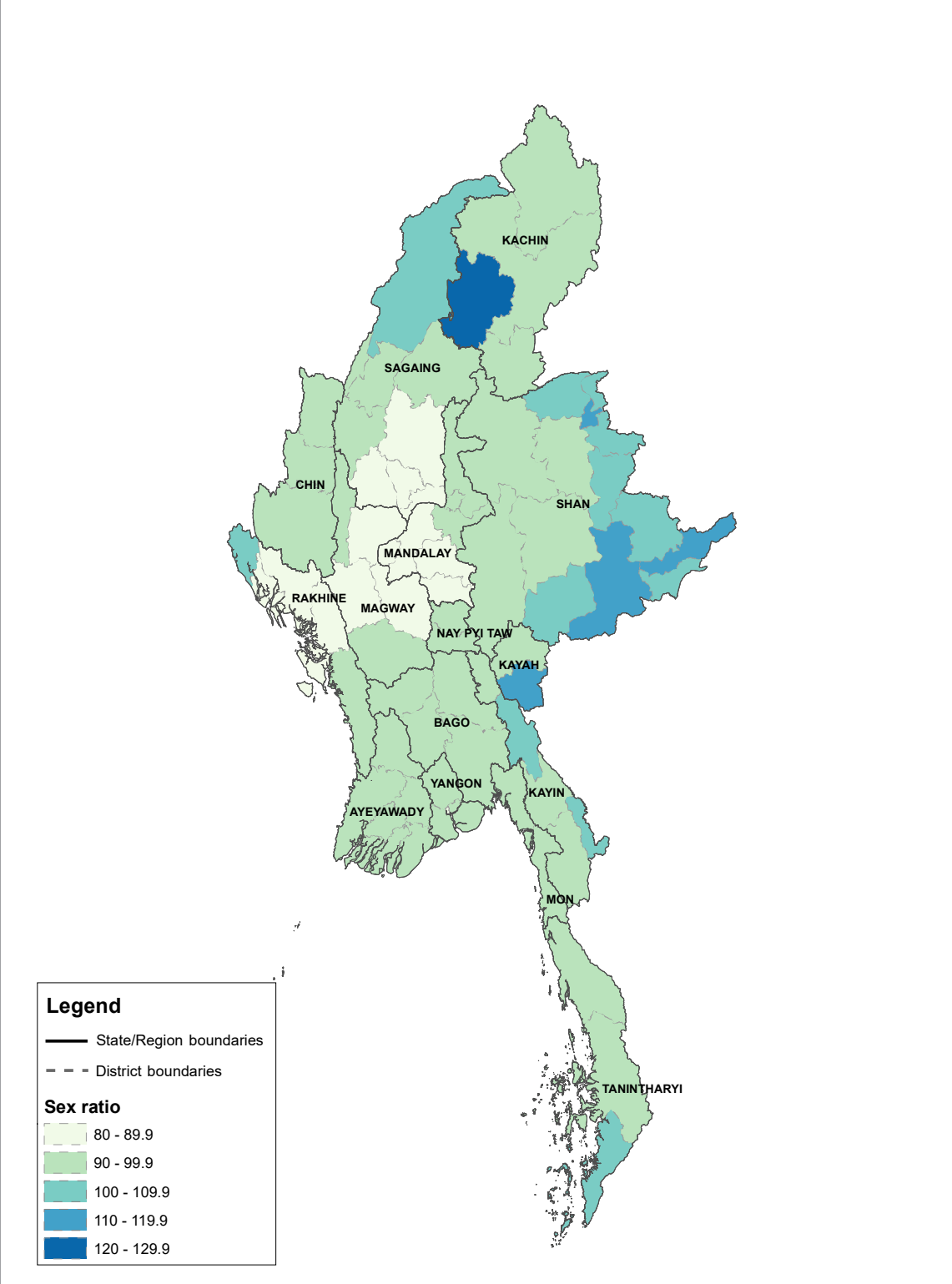
Figure 2.17 shows a map of the sex ratios per District for all ages (For a reference map of Myanmar showing the State/Region and District names see Figure 1). As can be seen, Districts in Kachin State generally do not stand out in terms of the value of the sex ratios, except in Mohnyin District, where 375,822 men and 297,786 women were enumerated giving a sex ratio of 126.2. This high ratio is caused by the extremely high sex ratio (180.7) in Phakant Township, a well-known jade mining area which attracts large groups of (male) miners. Figure 2.17 also shows that some border Districts have high sex ratios. Many of these Districts have experienced high female migration across the Chinese and Thai borders. The 2014 Census Thematic Report on Migration and Urbanization indicated, in particular, that those States/Regions that are close to the border with Thailand (Mon, Kayin, Shan and Tanintharyi) are former homes to approximately half of male emigrants and two-thirds of female emigrants. Districts where female migration is concentrated typically show higher male to female sex ratios.

Due to the high differences in life expectancy between males and females, sex ratios among persons aged 65 and over were very low. The ratio between older men and women was 2:3 in all urban areas and 3:4 in all rural areas. Significant differences in the sex ratio for those aged 65 and over can be observed in all States and Regions, with Kachin totalling a low of 64.4 compared with a high of 86.2 in Chin State. It is not clear what exactly causes this large difference between States/Regions.

2.2.3 Age-specific sex ratios

If men and women were subject to identical age-specific probabilities of death and in- and outmigration, the sex ratios for each age category would remain constant and would be equal to the sex ratio at birth. Of course, in no existing human population is this the case. In the absence of migration, in most populations women start to outnumber men after the age of 20, because of higher male mortality during infancy and due to a range of causes including motor vehicle accidents, violence, suicide and lifestyle-related diseases (cardiovascular diseases, malignant neoplasms, etc.).

Figure 2.17
Sex ratios by District, 2014 Census



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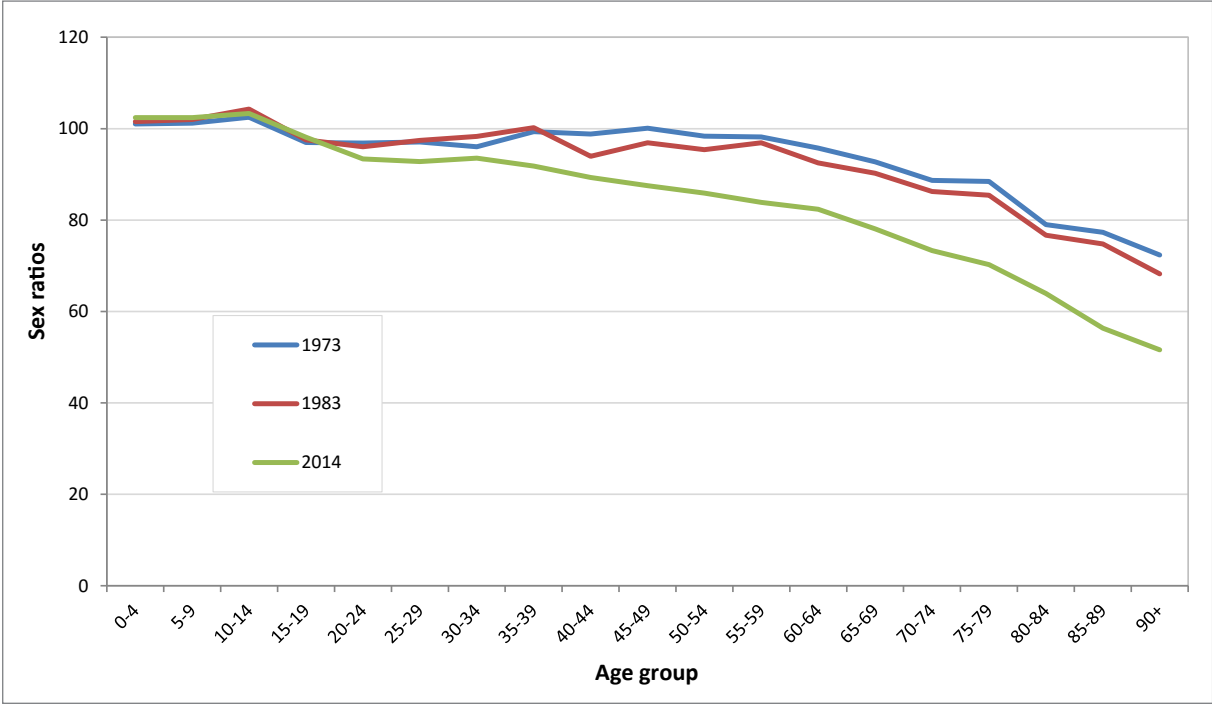
Table 2.3 presents the age-specific sex ratios from the 1973, 1983 and 2014 censuses. The values are illustrated in Figure 2.18. The 1973 and 1983 censuses show broadly similar patterns, though after age 40, sex ratios were slightly lower in 1983 than in 1973. However, between 1983 and 2014 age-specific sex ratios have changed considerably. After age 20, sex ratios were consistently lower in 2014 than in 1983. In the age group 25-29, there were almost five fewer men present for every hundred women than in 1983 (92.8 compared with 97.4). Differences in the sex composition of the population further increased with age. For instance, for the age group 50-54, some 85.9 men were recorded per 100 women in 2014 compared to 95.4 in 1983; and in the age group 70-74, the respective ratios were 73.3 (2014) and 86.2 (1983). The low sex ratios are a consequence of male dominated international migration and of lower male life expectancy. As migration is a phenomenon that started to develop well after 1983, it may explain the lower age-specific sex ratios in 2014 compared with 1983.

Table 2.3

Age-specific sex ratios, 1973, 1983, 2014 censuses

Age group	1973	1983	2014
0-4	101.0	101.5	102.4
5-9	101.2	102.0	102.4
10-14	102.5	104.3	103.3
15-19	97.0	97.5	98.1
20-24	96.8	96.1	93.4
25-29	97.1	97.4	92.8
30-34	96.0	98.3	93.6
35-39	99.3	100.2	91.8
40-44	98.8	93.9	89.3
45-49	100.1	96.9	87.5
50-54	98.3	95.4	85.9
55-59	98.2	96.9	83.9
60-64	95.7	92.5	82.3
65-69	92.7	90.2	78.0
70-74	88.7	86.2	73.3
75-79	88.4	85.5	70.3
80-84	79.0	76.7	63.9
85-89	77.3	74.7	56.4
90+	72.4	68.2	51.6
UNION	98.9	98.6	93.0

Figure 2.18
Age-specific sex ratios, 1973, 1983, 2014 censuses



2.3. Age structure

2.3.1 Age structure indicators

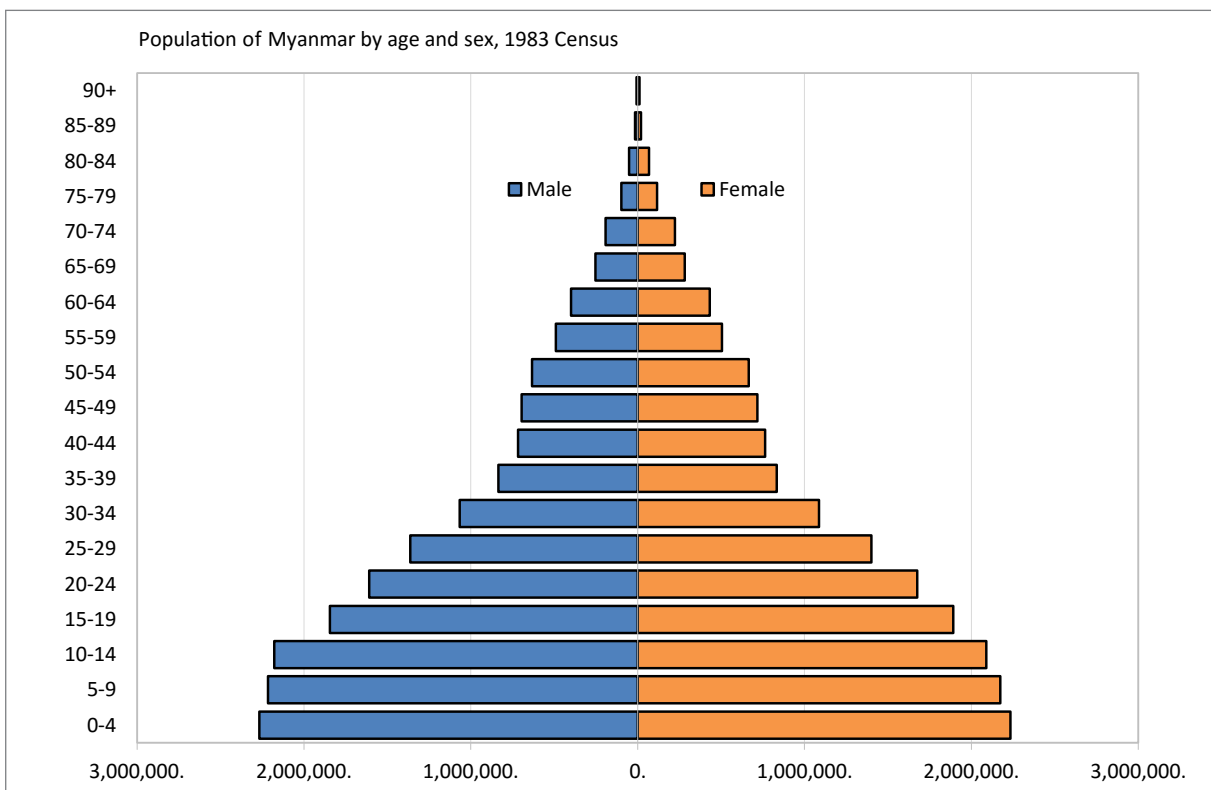
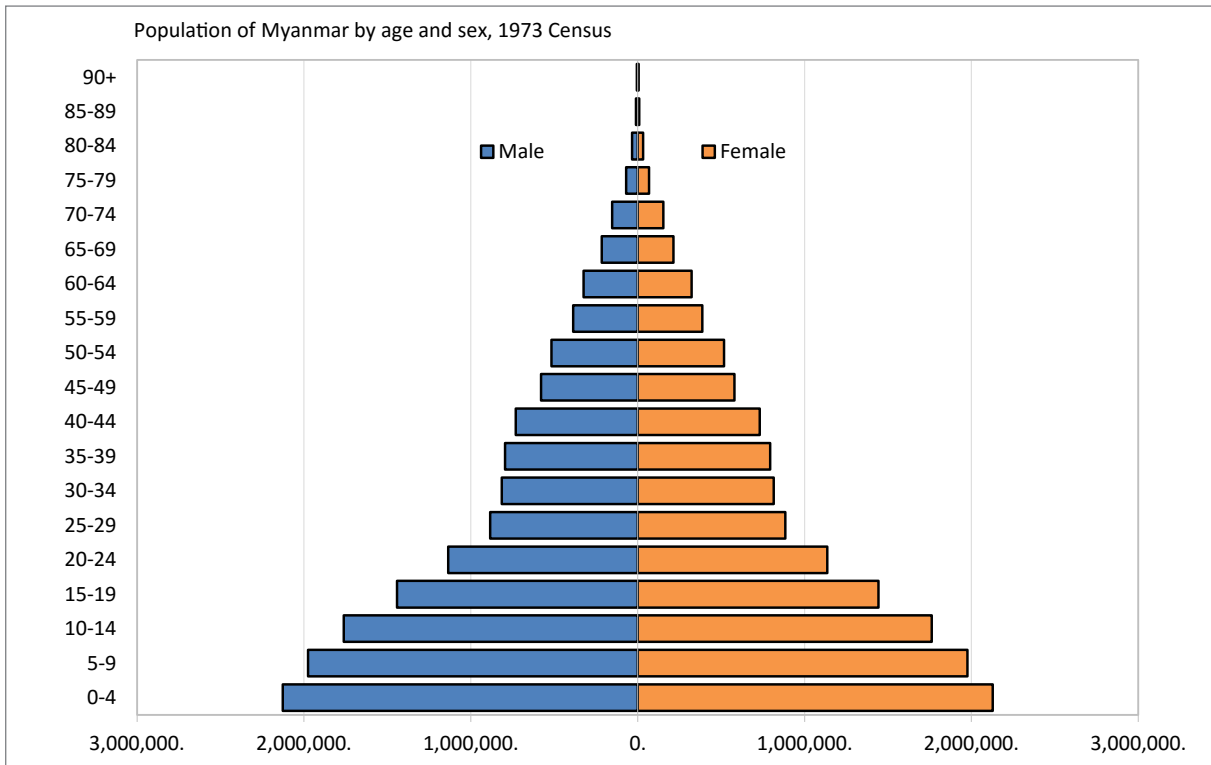
In this section, the characteristics of Myanmar’s current age structure are examined. The most popular way to visualize changes in age structure is through population pyramids. Figure 2.19 depicts the population pyramids for the censuses of 1973, 1983 and 2014.

Myanmar’s current population age composition is determined by the decrease in the level of fertility and mortality since World War II. In addition, internal and international migration trends have helped to shape the size and age structure of the population. In Table 2.4 the population by sex and five-year age groups for the last three censuses (1973, 1983 and 2014) are presented¹¹. In addition, Table 2.5 shows a set of age indicators for all three censuses. Some of the indicators are calculated for males and females separately.

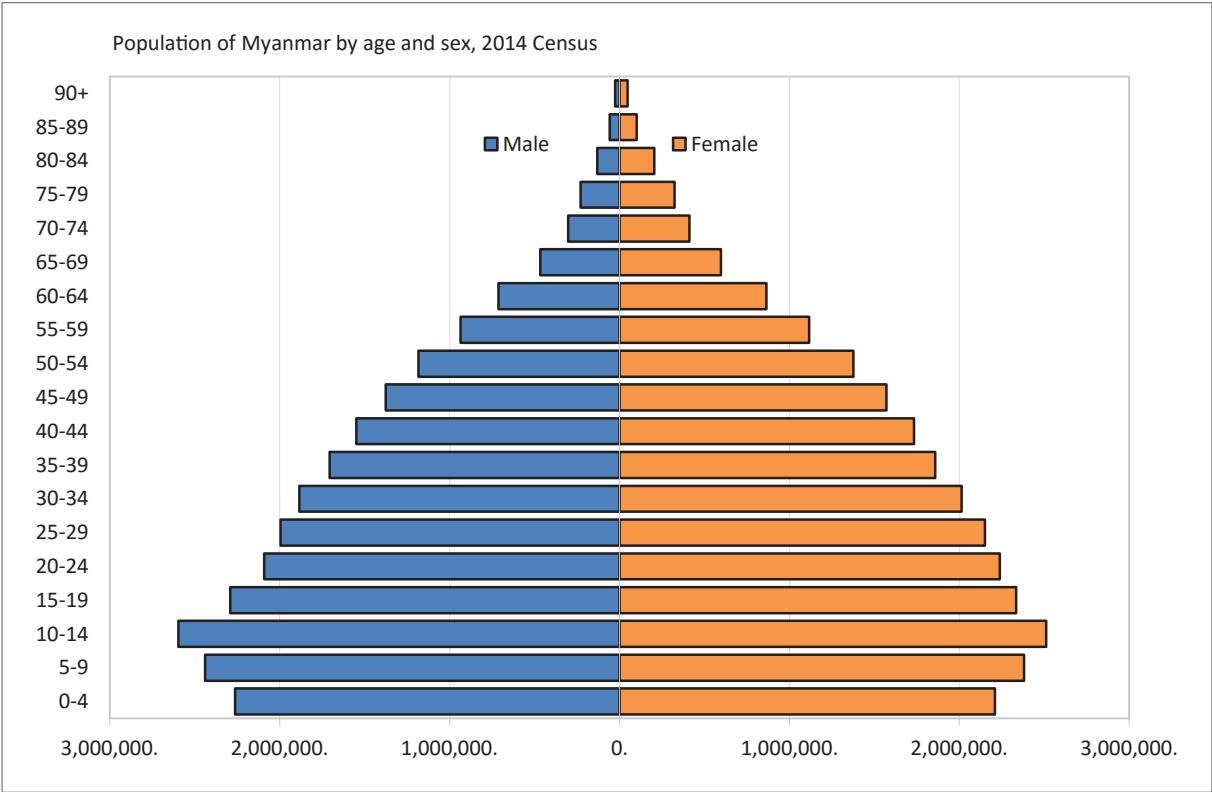
¹¹ The authors considered including relative age structures from some surveys, which were undertaken between the censuses, to complete the trends in age and sex composition. However, some of these sample populations showed rather erratic age patterns, which led to the decision not to include them in the analysis as it would likely lead to more confusion than a better understanding.

Figure 2.19

Population pyramids, 1973, 1983 and 2014 censuses



Chapter 2. Population dynamics



Chapter 2. Population dynamics

Table 2.4

Enumerated population by sex, by five-year age group, 1973, 1983 and 2014 censuses

	1973			1983			2014		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
UNION	28,084,513	13,962,774	14,121,739	34,124,908	16,939,593	17,185,315	50,279,900	24,228,714	26,051,186
0-4	4,234,177	2,127,734	2,106,443	4,501,934	2,267,826	2,234,108	4,472,130	2,262,783	2,209,347
5-9	3,928,501	1,975,913	1,952,588	4,389,041	2,216,323	2,172,718	4,819,077	2,438,372	2,380,705
10-14	3,481,162	1,761,969	1,719,193	4,268,670	2,178,956	2,089,714	5,108,362	2,595,749	2,512,613
15-19	2,930,986	1,442,923	1,488,063	3,735,435	1,844,414	1,891,021	4,625,989	2,290,998	2,334,991
20-24	2,308,487	1,135,581	1,172,906	3,286,324	1,610,144	1,676,180	4,331,069	2,091,525	2,239,544
25-29	1,795,550	884,403	911,147	2,763,545	1,363,835	1,399,710	4,146,134	1,995,465	2,150,669
30-34	1,664,751	815,471	849,280	2,152,965	1,067,173	1,085,792	3,898,861	1,884,549	2,014,312
35-39	1,594,730	794,586	800,144	1,668,631	835,177	833,454	3,563,480	1,705,630	1,857,850
40-44	1,470,252	730,791	739,461	1,479,520	716,619	762,901	3,283,073	1,548,942	1,734,131
45-49	1,159,092	579,833	579,259	1,413,759	695,833	717,926	2,946,148	1,375,041	1,571,107
50-54	1,043,704	517,465	526,239	1,299,152	634,222	664,930	2,559,232	1,182,341	1,376,891
55-59	781,531	387,127	394,404	995,400	489,815	505,585	2,051,937	935,979	1,115,958
60-64	661,958	323,737	338,221	830,334	398,942	431,392	1,576,845	712,040	864,805
65-69	446,147	214,634	231,513	535,481	253,962	281,519	1,064,493	466,618	597,875
70-74	327,217	153,791	173,426	416,223	192,715	223,508	713,170	301,679	411,491
75-79	146,774	68,884	77,890	214,808	98,978	115,830	553,298	228,315	324,983
80-84	74,818	33,019	41,799	120,466	52,281	68,185	335,576	130,875	204,701
85-89	21,972	9,580	12,392	35,851	15,334	20,517	158,069	56,979	101,090
90+	12,704	5,333	7,371	17,369	7,044	10,325	72,957	24,834	48,123

Table 2.5

Enumerated population by broad age groups and age indicators, 1973, 1983 and 2014 censuses

	1973			1983			2014		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Absolute number of persons in age groups									
0-14	11,643,840	5,865,616	5,778,224	13,159,645	6,663,105	6,496,540	14,399,569	7,296,904	7,102,665
15-64	15,411,041	7,611,917	7,799,124	19,625,065	9,656,174	9,968,891	32,982,768	15,722,510	17,260,258
65+	1,029,632	485,241	544,391	1,340,198	620,314	719,884	2,897,563	1,209,300	1,688,263
85+	34,676	14,913	19,763	53,220	22,378	30,842	231,026	81,813	149,213
Total	28,084,513	13,962,774	14,121,739	34,124,908	16,939,593	17,185,315	50,279,900	24,228,714	26,051,186
Relative number of persons in age groups									
0-14	41.5	42.0	40.9	38.6	39.3	37.8	28.6	30.1	27.3
15-64	54.9	54.5	55.2	57.5	57.0	58.0	65.6	64.9	66.3
65+	3.7	3.5	3.9	3.9	3.7	4.2	5.8	5.0	6.5
85+	0.1	0.1	0.1	0.2	0.1	0.2	0.5	0.3	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Age structure indicators									
Ageing index	8.8			10.2			20.1		
Child dependency ratio	75.6			67.1			43.7		
Old-age dependency ratio	6.7			6.8			8.8		
Support ratio	54.9			57.5			65.6		
Percentage population <15	41.5	42.0	40.9	38.6	39.3	37.8	28.6	30.1	27.3
Percentage population >= 65	3.7	3.5	3.9	3.9	3.7	4.2	5.8	5.0	6.5
Average yearly growth tot. pop.				1.9	1.9	2.0	1.3	1.2	1.3
Average yearly growth pop. 10-14				1.2	1.3	1.2	0.3	0.3	0.3
Average yearly growth pop. 15-64				2.4	2.4	2.5	1.7	1.6	1.8
Average yearly growth pop. 65+				2.6	2.5	2.8	2.5	2.2	2.7
Average yearly growth pop. 85+				4.3	4.1	4.5	4.7	4.2	5.1
Total dependency ratio	82.2			73.9			52.4		
Potential support ratio	15.0			14.6			11.4		
Parent support ratio	444.4			368.8			142.8		

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The following age indicators are presented in Table 2.5:

- Absolute number of persons in the age groups 0-14, 15-64, 65 and over, and 85 years and over by sex.
- Percentage of persons in these same age groups by sex. Note that the four percentages do not add up to 100 per cent, as the categories 65 and over and 85 and over are not mutually exclusive. The total is, therefore, calculated as the sum of the first three age categories.
- Ageing index indicates the number of persons aged 65 and over per 100 persons aged under 15.
- Child dependency ratio gives the number of persons aged under 15 per 100 persons in the economically active age group aged 15-64.
- Old-age dependency ratio is the ratio of older dependents (people aged 65 and over) per 100 persons of working age (those aged 15-64).
- Economic support ratio indicates the percentage among all persons in the population belonging to the working age population (15-64 years).
- Percentage <15 is the number of persons aged under 15 per 100 of the total population.
- Percentage ≥ 65 is the number of persons aged 65 and over per 100 of the total population.
- Average annual growth of the total population is the rate of growth per year from one census to the next (1973 to 1983, and 1983 to 2014), expressed as a percentage.¹²
- Average annual growth of age groups 10-14, 15-64, 65 and over, and 85 and over is the rate of growth per year from one census to the next (1973 to 1983, and 1983 to 2014), expressed as a percentage for each of the indicated age groups.
- Total dependency ratio relates to the number of persons in the dependent age groups, that is, children (aged 0-14) and older persons (aged 65 and over), to the working age population (aged 15-64). It is expressed in terms of per 100 persons in the working age group. The total dependency ratio is equal to the sum of the child dependency ratio and the old-age dependency ratio.
- Potential support ratio is the number of persons aged 15-64 per person aged 65 and over.
- Parent support ratio is the number of persons aged 85 and over per 100 persons aged 50-64.

These indicators summarize the changes that have taken place in the population over the last 41 years. Chapter 4 goes deeper into the potential effect of these demographic changes on social and economic development.

Based on the set of indicators some important trends and characteristics of Myanmar's current age structure can be deduced. Firstly, it is clear that since 1973 the proportion of children has decreased significantly (see Figure 2.20 below). In 1973, some 41.5 per cent of the population was below the age of 15 (42.0 per cent males and 40.9 per cent females). In 1983, the proportion had gone down to 38.6 per cent (39.3 per cent males and 37.8 per cent females). Since 1983, the proportion of children has further decreased to 28.6 per cent. This means that over a period of 31 years, on average, about every three years the proportion of children has decreased by 1.2 percentage points.

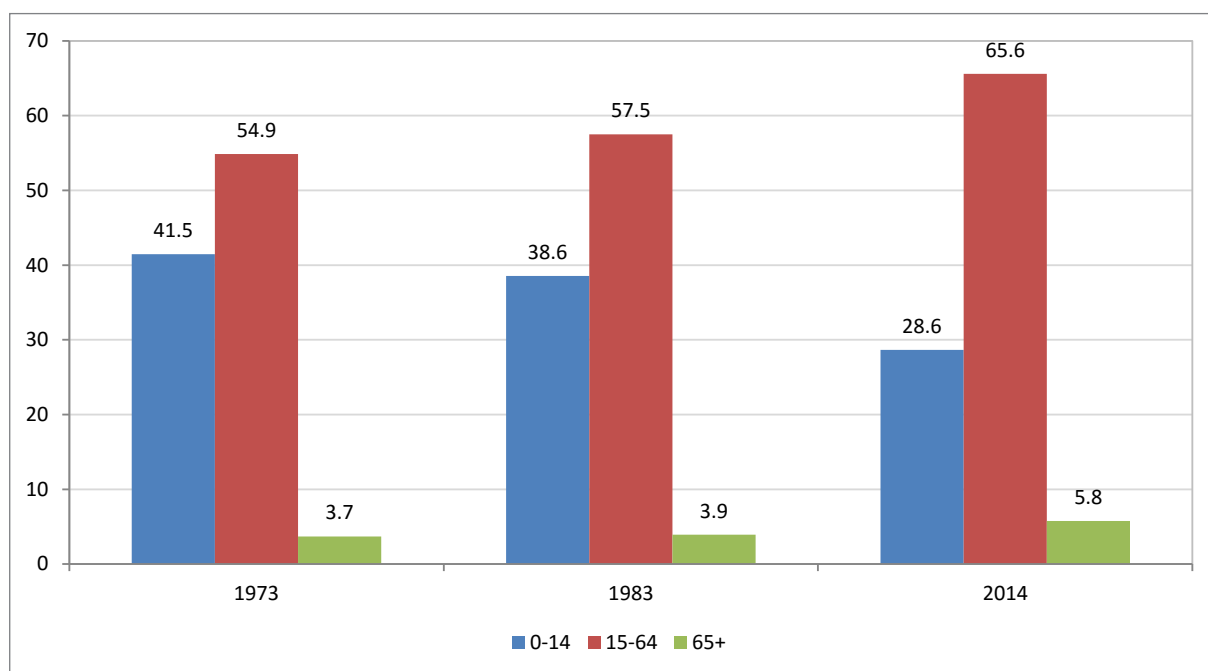
¹² The calculation of the annual growth rate is discussed in Preston, Heuveline and Guillot (2001), p.9.

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Secondly, with the reduction in fertility, the age profile of the population has gradually started to grow older during the period 1973-2014. In 1973, some 3.7 per cent of the population was aged 65 and over. Between 1973 and 1983, this percentage remained almost unchanged, but had increased to a level of 5.8 per cent by 2014. Between 1983 and 2014, the median age of the population increased from 20.2 to 27.1. The combination of the declining percentage of children aged 0-14, together with a rise in the older population is reflected in Myanmar's rapidly increasing ageing index. In 1973, the index was 8.8 and rose only slightly to 10.2 in 1983. Since then the ageing index has almost doubled, indicating that in 2014 twice as many older persons (aged 65 and over) were present per 100 young persons (aged under 15) than in 1983.

Figure 2.20

Percentage of population by broad age groups, 1973, 1983 and 2014 censuses



Thirdly, because of this proportional decrease in the child population, the proportion of population in the active age group (15-64 years) has increased substantially, especially during the last intercensal period. In 1983, 57.5 per cent of the population was 15-64 years of age, but by 2014 this had increased to 65.6 per cent.

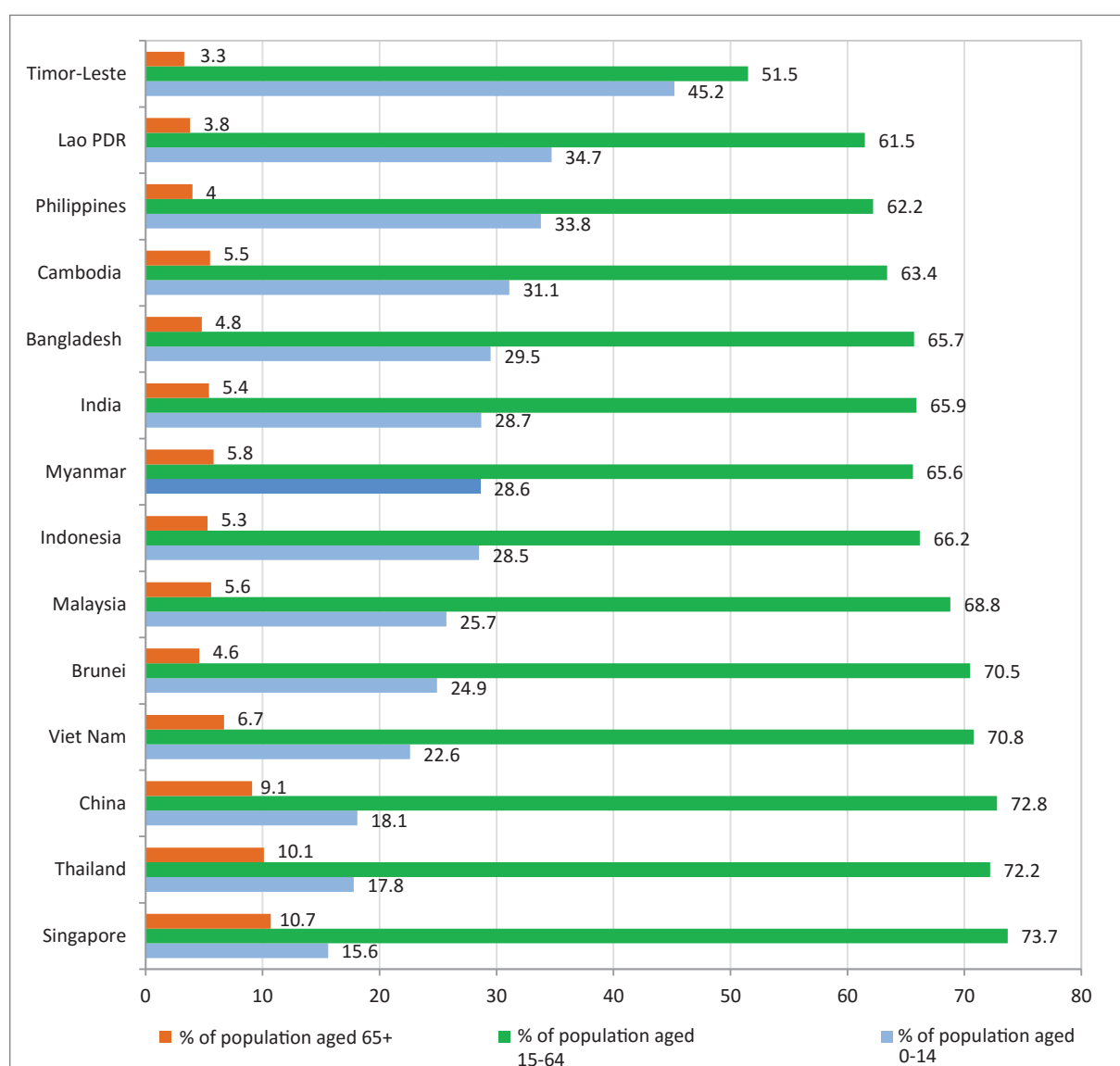
Compared to other countries in the region, Myanmar scores somewhere in the middle in terms of its proportion of children, older people and working age population. Figure 2.21 shows the percentages of the population in the age groups 0-14, 15-64 and 65 and over for countries in the Southeast Asian region and for Myanmar's other neighbouring countries (ESCAP, 2014). Within the region, Timor-Leste has the youngest age structure, with 45.2 per cent of its population below the age of 15 and only 3.3 per cent over 64. Singapore has the oldest population in the region, with 10.7 per cent of its population in the older age groups and only 15.6 per cent under 15. Although Singapore is ageing rapidly, it still has the highest proportion of its population in the working age group.

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The characteristics of Myanmar's population age structure may be described through various dependency ratios. Dependency indicators are more than a mere description of the ratio between two broad age groups. They relate to the number of persons in a population that are prone to depend on the help and support of others, that is, those who are, in terms of their age, in a position to provide assistance. As such, age dependency indicators quantify the demographic basis for inter-generational support.

Figure 2.21

Percentage of population by broad age groups, Southeast Asia and other neighbouring countries, 2014



Source: ESCAP, 2014, except for Myanmar, which was derived from the 2014 Census data.

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Figure 2.22 shows how the decrease in child dependency has driven down the total dependency ratio. A strong reduction in the child dependency ratio from 75.6 in 1973 to 43.7 in 2014, combined with only a slight increase in the old-age dependency ratio from 6.7 to 8.8, caused the total dependency ratio to drop from 82.2 in 1973 to 73.9 in 1983 to 52.5 in 2014. Note that since 1973 the decline in overall dependency has been almost linear.

Only small differences in the old-age dependency ratios exist between urban and rural areas (8.5 compared with 8.9). However, child dependency and total dependency show large differences between both areas of residence. The child dependency ratio in urban areas in the country is 34.4, while it is 47.9 in rural areas. Consequently, the total dependency ratios are also quite different: 43.0 in urban and 56.8 in rural areas. In 1983, these values were 72 and 85, respectively, which shows the dependency ratio has dropped but that the difference between both areas has remained constant at around 13 points (Immigration and Manpower Department, 1986, pp 1-14).

Figure 2.22

Dependency ratios, 1973, 1983 and 2014 censuses

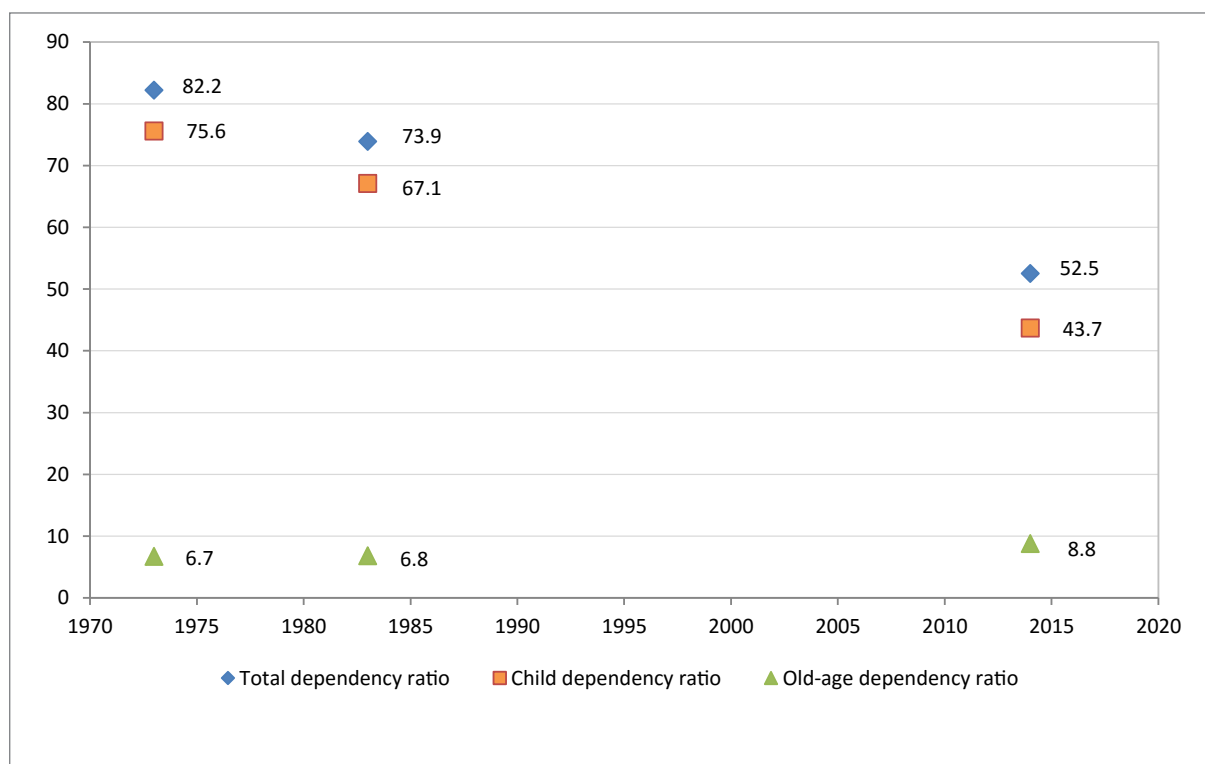
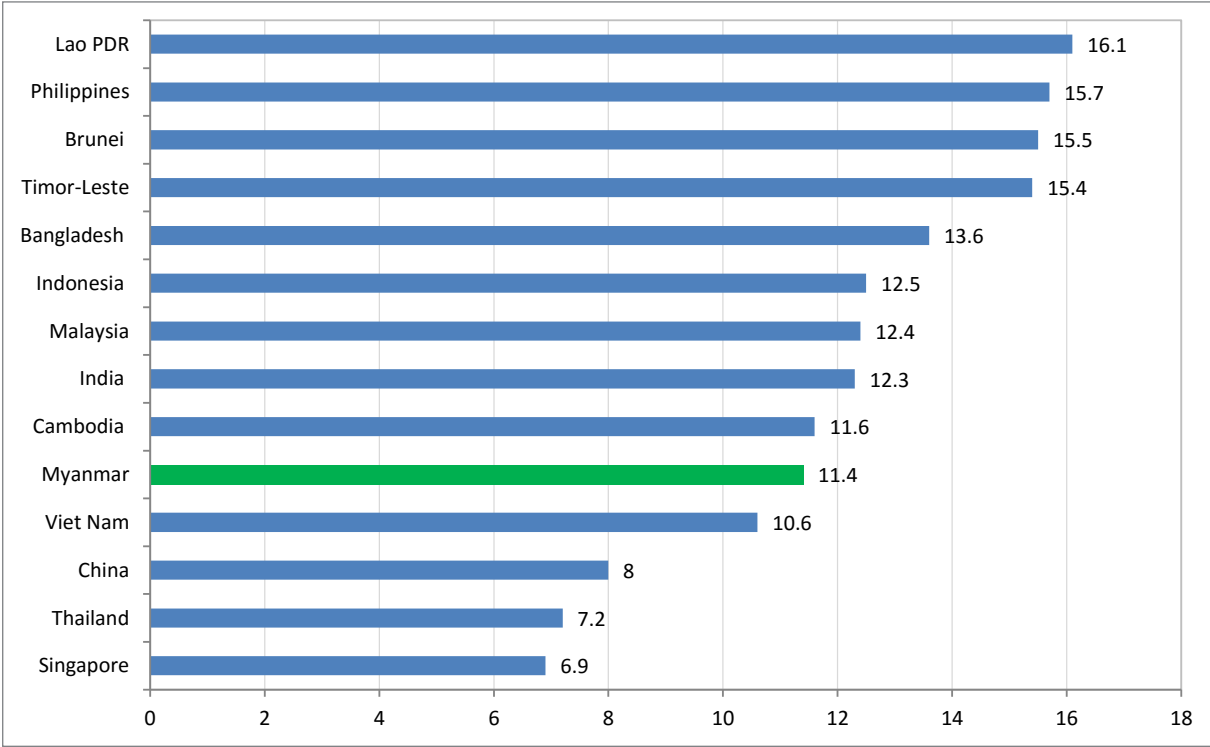


Figure 2.23
Potential support ratio, Southeast Asian and neighbouring countries, 2014



Source: World Statistics (undated). For Myanmar, Department of Population, 2015, Table A5.

An important indicator of the population age structure is the economic support ratio, as it gives the percentage of all persons in the population, belonging to the working age population. In 1973, the ratio was 54.9 per cent. After that it increased to 57.5 per cent in 1983 and to 65.6 per cent in 2014, which means that almost two-thirds of the total population is currently in the active age group. Because of its current age structure, it can be expected that in a number of years the Myanmar population will continue to age more rapidly.

To show the current situation, compared to other countries in the region, Figure 2.23 shows the potential support ratios for countries in Southeast Asia and neighbouring countries. The lower the value of the potential support ratio, the more pressure there is on one working age adult to care for the elderly. Singapore and Thailand have the lowest potential support ratios with 6.9 and 7.2 persons respectively in the working age group for each person aged 65 and over. Although the differences with other countries are relatively small, Myanmar has a rather low score of 11.4. This shows that compared to some other countries in the region, Myanmar has already had to deal with a more substantial proportion of older people.

2.3.2 Urban/rural differences in age structure

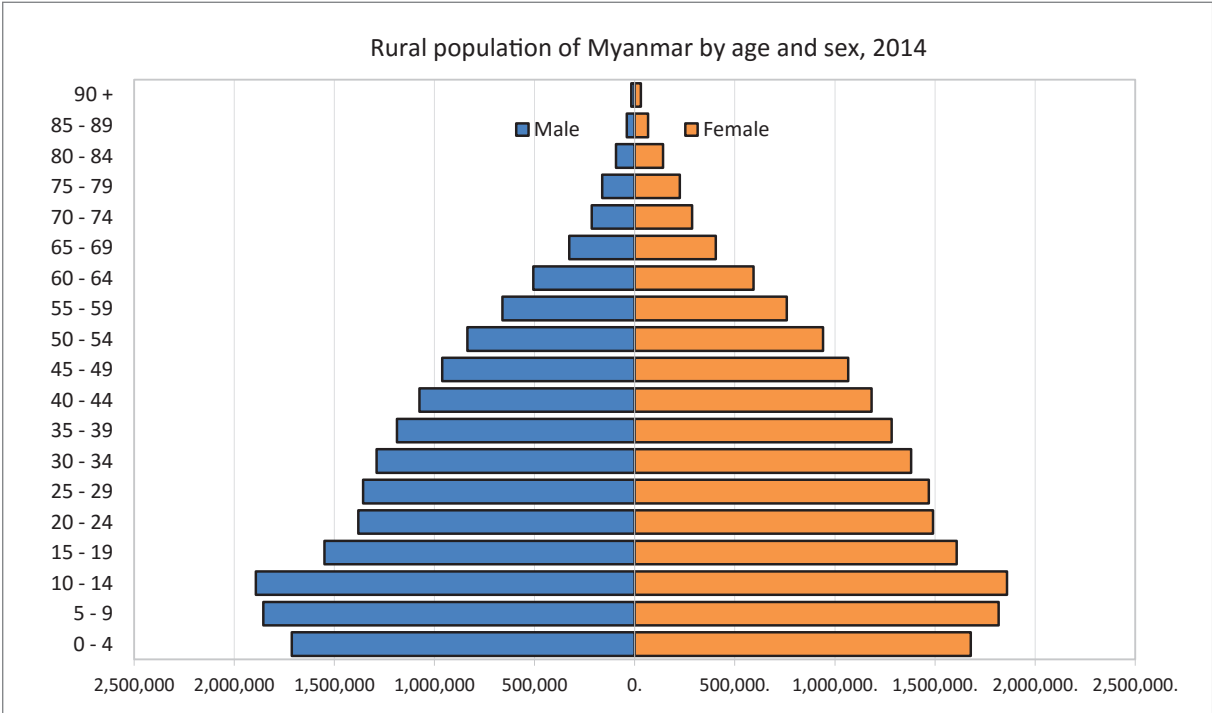
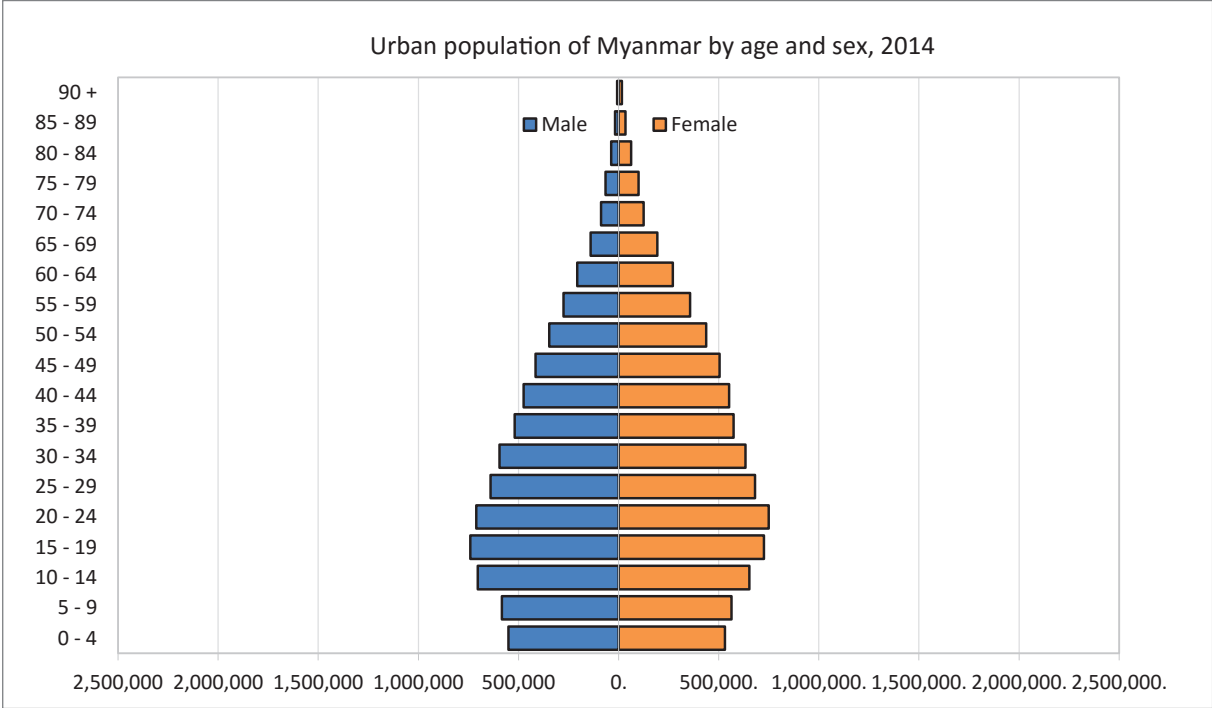
Large differences in age structure exist between urban and rural areas. Figure 2.24 shows population pyramids for both areas. For the sake of comparability of the absolute number of persons in each age group, the same scale for both pyramids is used. The urban population clearly shows the effect of fertility decline in the last 20 years with a narrow base and a more or less triangular shape at ages 15 and over. The sheer size of the rural pyramid shows that Myanmar remains a country with a predominantly rural population.

Not only the size, but the shape of the rural population pyramid illustrates the differences with the urban population profile. There is also a narrowing base due to fertility decline, but here there is a much smaller number of people in the age group 15-19 (3,158,869) compared with those aged 10-14 (3,752,570), a difference of over half a million. Also, the age group 20-24 has fewer persons than might be expected from a traditional pyramid shape. As there is no reason to suspect a large undercount nationally (nor high mortality) of persons aged 15-24, only large scale international¹³ migration from rural areas among young males and females could be the reason for this distinctive age pattern.

The difference in age structure between rural and urban areas is clearly reflected in Table 2.6, which presents the same set of age indicators as Table 2.5 for urban and rural areas. Because of its much younger population, the total dependency ratio in rural areas is much higher (56.8) than in urban areas (43.0). The child dependency ratio is 47.9 in rural areas as opposed to 34.4 in urban areas.

¹³ As shown earlier, internal migration between rural and urban areas is quite limited and is unlikely to have had a profound effect on the age structure

Figure 2.24
Population pyramids, urban and rural areas, 2014 Census



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Table 2.6

Enumerated population by broad age groups and age indicators, urban/rural areas, 2014 Census

	Total			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Absolute number of persons in age group									
0-14	14,399,569	7,296,904	7,102,665	3,583,796	1,836,199	1,747,597	10,815,773	5,460,705	5,355,068
15-64	32,982,768	15,722,510	17,260,258	10,406,599	4,922,116	5,484,483	22,576,169	10,800,394	11,775,775
65+	2,897,563	1,209,300	1,688,263	887,548	355,909	531,639	2,010,015	853,391	1,156,624
85+	231,026	81,813	149,213	75,749	24,991	50,758	155,277	56,822	98,455
Total	50,279,900	24,228,714	26,051,186	14,877,943	7,114,224	7,763,719	35,401,957	17,114,490	18,287,467
Relative number of persons in age group									
0-14	28.6	30.1	27.3	24.1	25.8	22.5	30.6	31.9	29.3
15-64	65.6	64.9	66.3	69.9	69.2	70.6	63.8	63.1	64.4
65+	5.8	5.0	6.5	6.0	5.0	6.8	5.7	5.0	6.3
85+	0.5	0.3	0.6	0.5	0.4	0.7	0.4	0.3	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Age structure indicators									
Ageing index	20.1			24.8			18.6		
Child dependency ratio	43.7			34.4			47.9		
Old-age dependency ratio	8.8			8.5			8.9		
Support ratio	65.6			69.9			63.8		
Percentage population <15	28.6	30.1	27.3	24.1	25.8	22.5	30.6	31.9	29.3
Percentage population >= 65	5.8	5.0	6.5	6.0	5.0	6.8	5.7	5.0	6.3
Total dependency ratio	52.4			43.0			56.8		
Potential support ratio	11.4			11.7			11.2		
Parent support ratio	142.8			137.4			145.4		

2.3.3 Regional differences in age structure

Because of dissimilar regional patterns in fertility, mortality and internal and international migration, large differences are present in the population structures of Myanmar's States/Regions, Districts and Townships¹⁴. To illustrate the diversity in the age composition of regional populations, total dependency ratios are presented in the map at Figure 2.25.

Dependency ratios vary between a level of just 41.1 in Yangon to 81.0 in Chin State. This means that in Chin State 100 persons in the active age groups support almost twice the number of persons in the dependent age groups as in Yangon. The heavily urbanized regions of Yangon, Mandalay and Nay Pyi Taw all had dependency ratios below 50, while Rakhine, Kayah, Kayin, and Mon States and Tanintharyi Region all had high dependencies with values between 60 and 70.

An even more diverse pattern emerges when looking at dependency ratios at the Township level. In many Townships, dependency ratios are distorted by high levels of in- and outmigration. Lanmadaw Township (West Yangon District, Yangon Region) has the lowest total dependency ratio (24.5) while Tonzang Township in Falam District (Chin State) has the highest (93.0). The map at Figure 2.26 shows a patchwork of different levels of dependency ratios between Townships across the country. Many of the Townships with high dependency levels are situated close to Myanmar's international borders. As many persons in the active age groups move away from these areas to work in other States and other countries, a disproportionate number of children and older people are left behind, increasing the level of dependency for the remaining residents.

The maps at Figure 2.27 illustrate that for the other age indicators large regional differences exist. The very high child dependency ratio in Chin State (72.3) is more than twice as high as in Yangon (33.1). Some 40 per cent of the population in Chin State were, at the time of the Census, younger than 15, compared with 23.4 per cent in Yangon. The fact that Chin State had the youngest population in the country is closely related to the very high levels of lifetime outmigration and fertility. As noted earlier, Chin State had a net migration rate of -167.7, the highest level in Myanmar. Most migrants from Chin State have moved to Sagaing Region and to Yangon Region (Department of Population, 2016d). As noted before, Chin State had by far the highest fertility, as recorded in the Census, with a TFR of 5.00. The second highest fertility was in Kayah State, where women on average gave birth to 3.51 children, that is, 1.5 children less than in Chin. Yangon, with its low dependency ratio had a TFR of 1.85, well below replacement level.

¹⁴ For general reference, a table showing age dependency indicators at the State/Region, District and Township levels is included in Appendix 3. For each of the nine indicators presented, thematic geographical maps were prepared at the State/Region, District and Township levels. Only a few of these maps are included in this report. Additional maps can be obtained, on request, in digital format from the Department of Population, Ministry of Labour, Immigration and Population.

Figure 2.25

Total dependency ratio by State/Region, 2014 Census

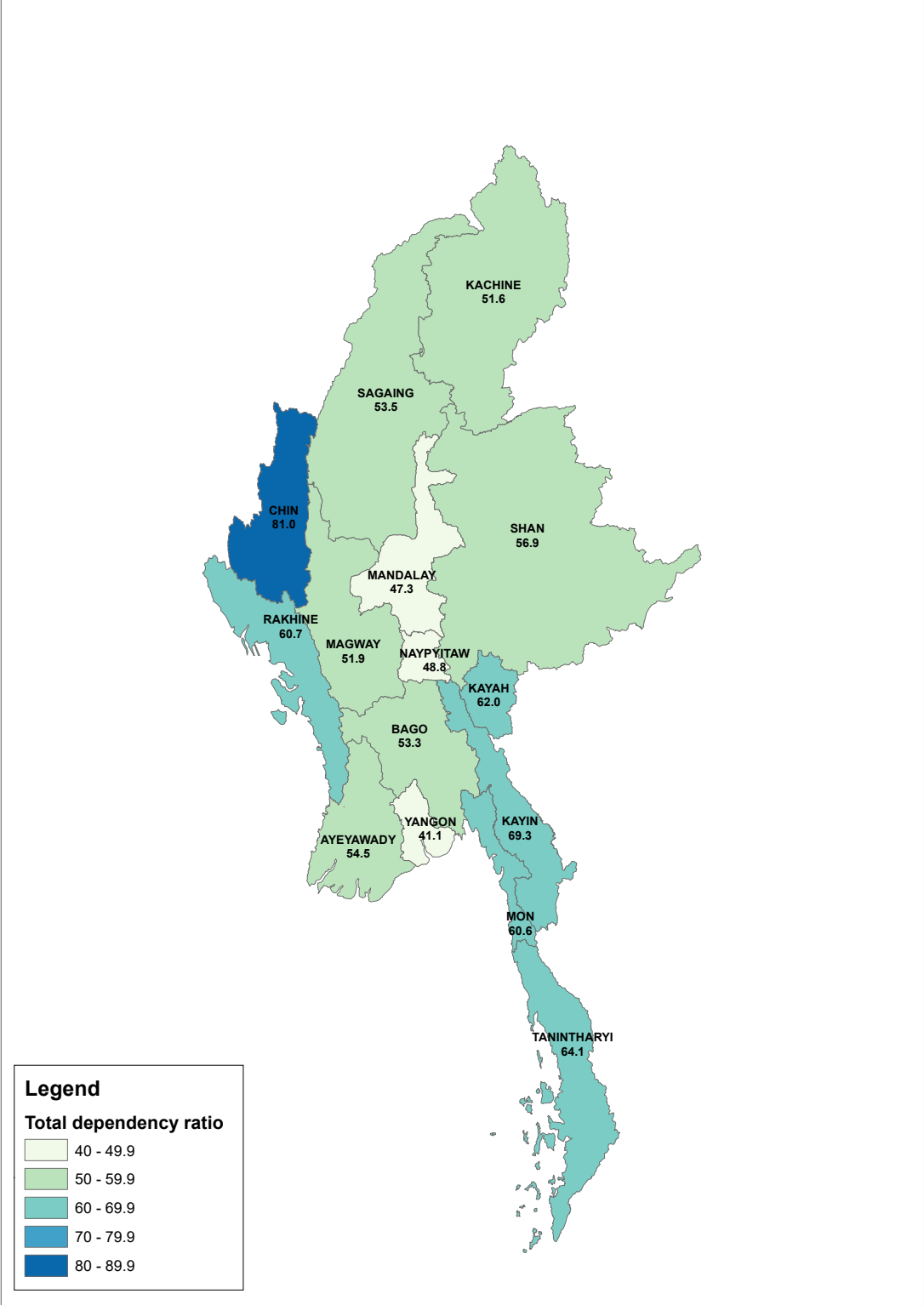


Figure 2.26
Total dependency ratio by Township, 2014 Census

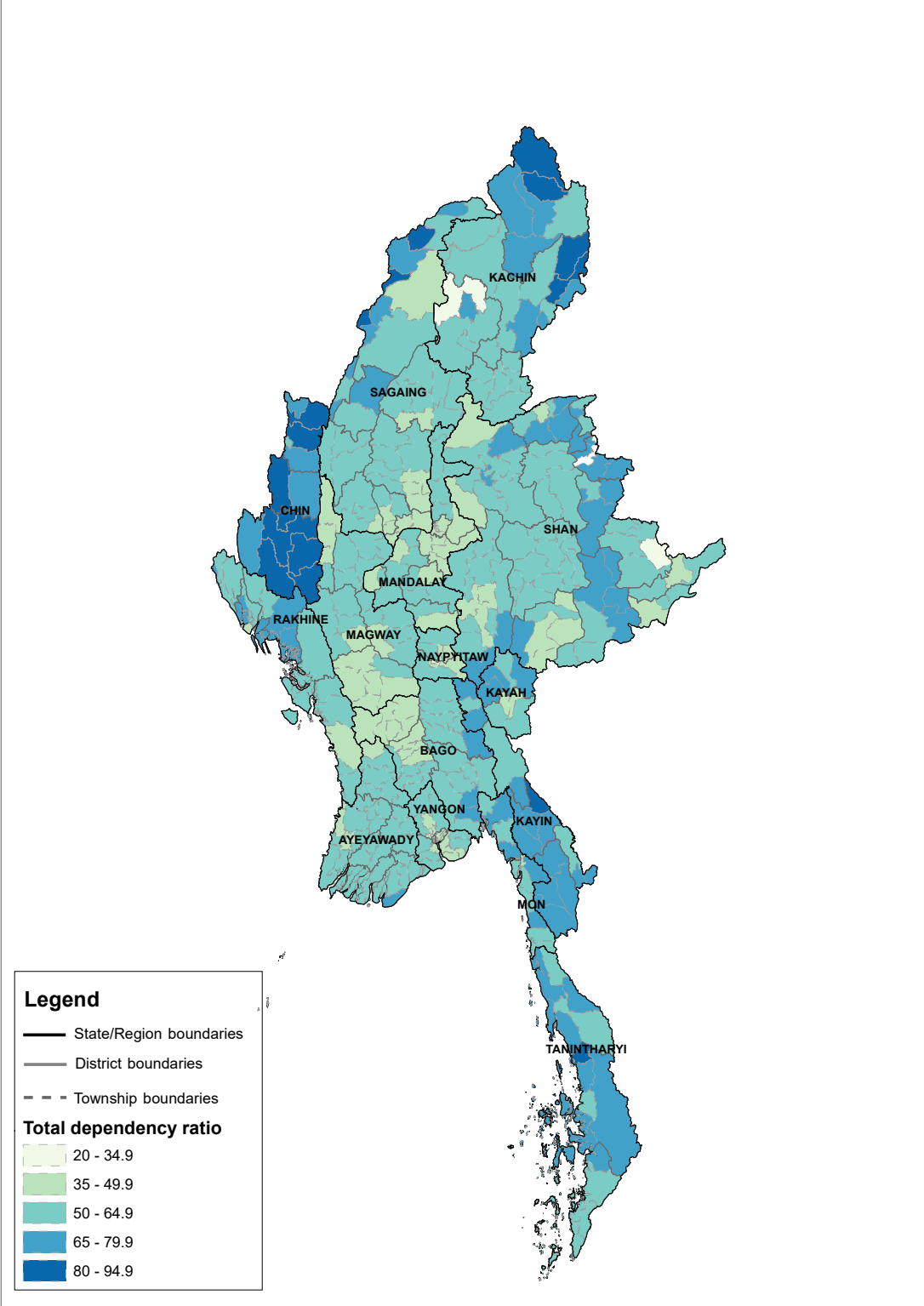
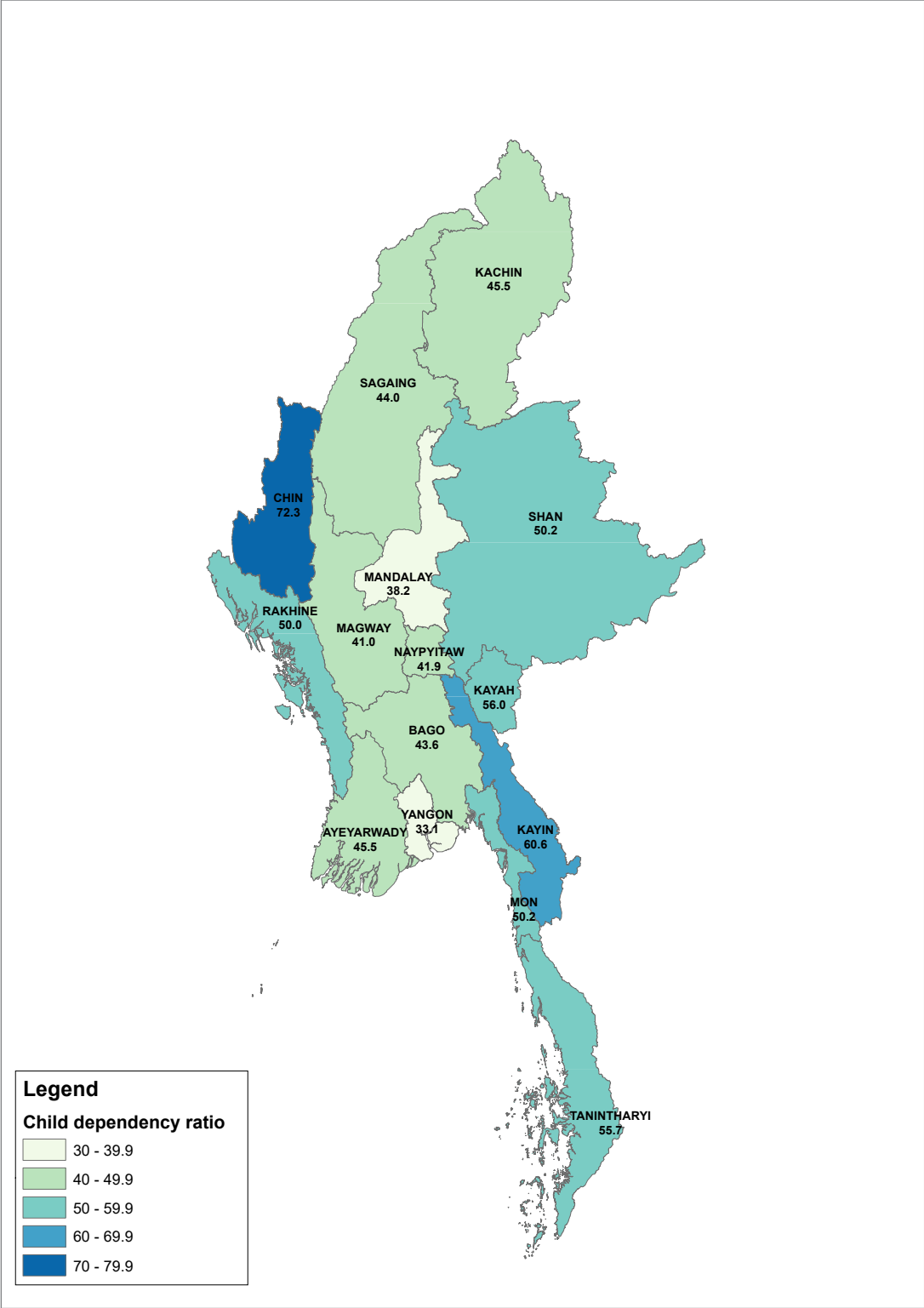


Figure 2.27

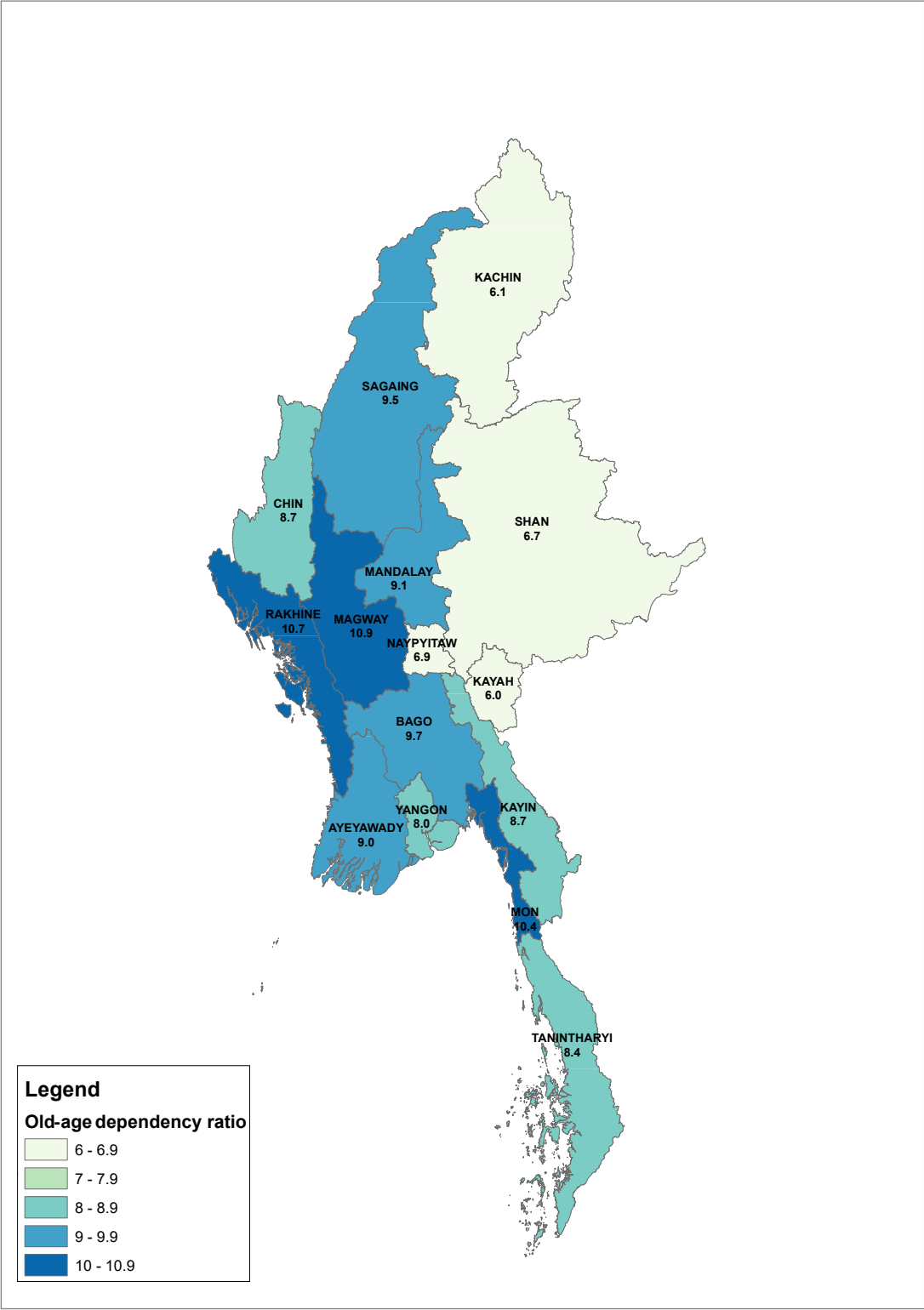
Age dependency indicators by State/Region, 2014 Census

(a) Child dependency ratio



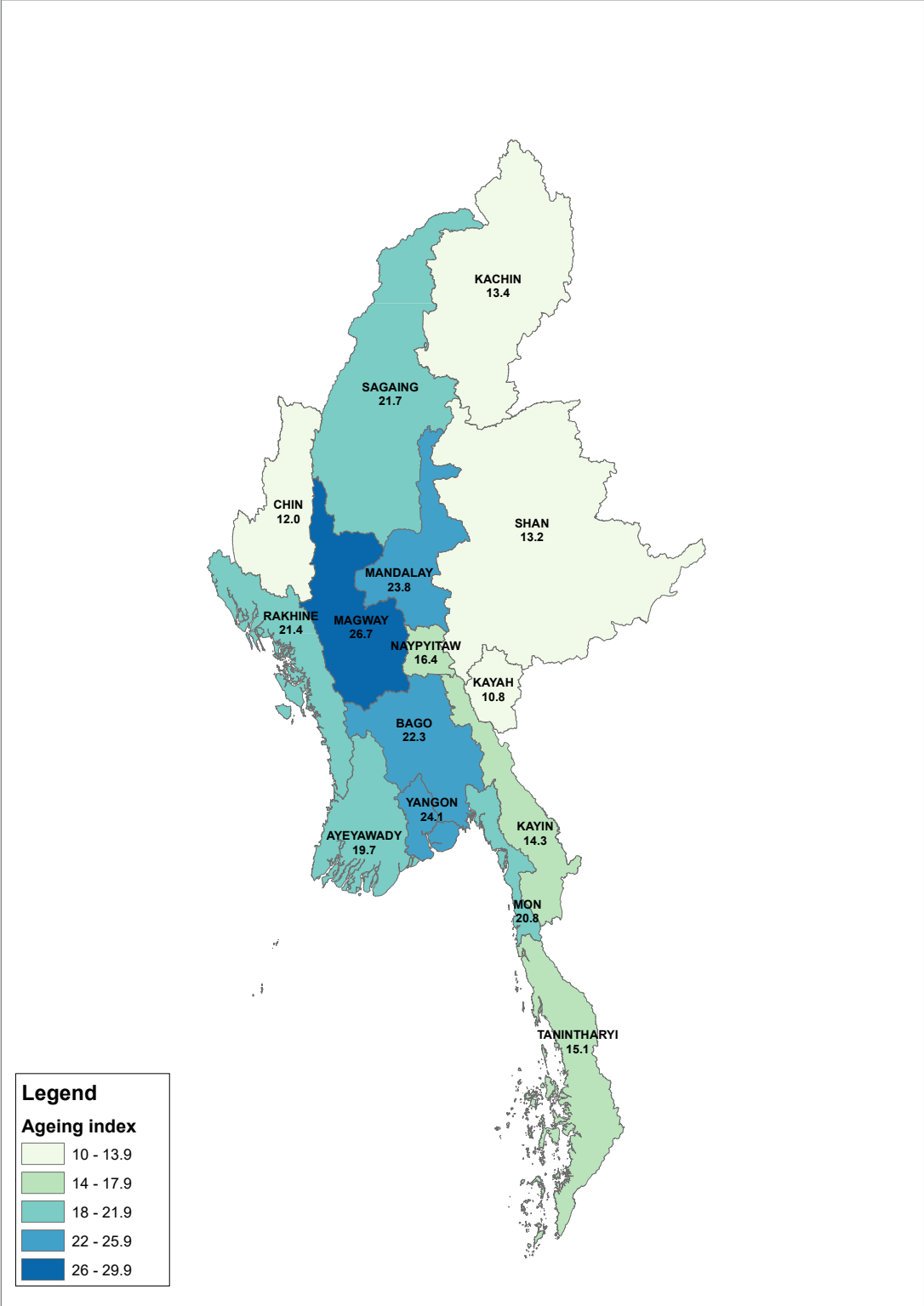
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(b) Old-age dependency ratio



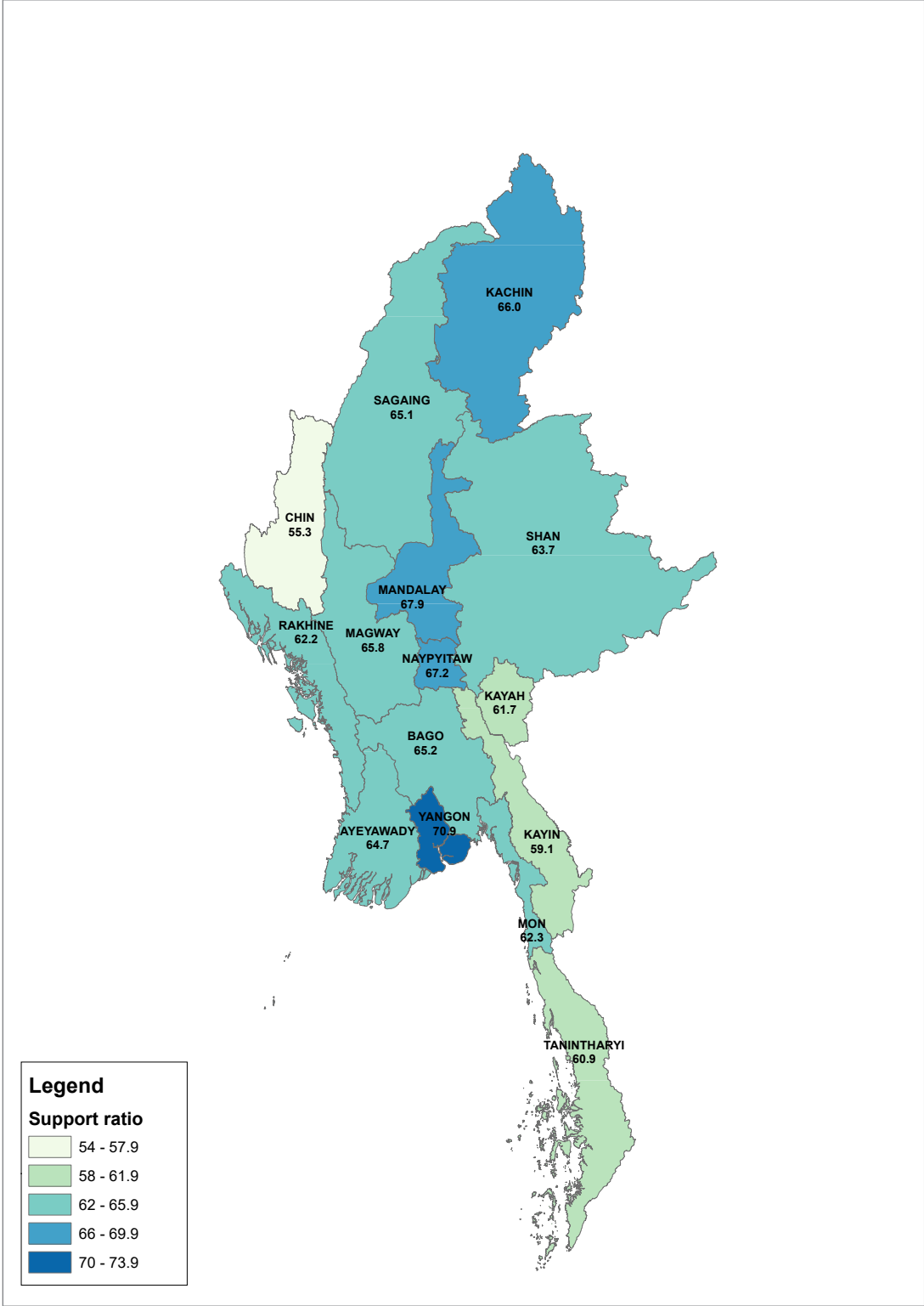
Chapter 2. Population dynamics

(c) Ageing index



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(d) Support ratio



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At the time of the Census, Kayin with 35.8 per cent of its population below the age of 15, ranked second as the State/Region with the youngest population in the Union. Ageing of the population was most rapid in Rakhine, Magway and Mon, with each having more than 10 per cent of their population aged 65 and over. Consequently, these three areas have the least favourable potential support ratio (the number of persons in the active age groups who have to support one person 65 years or over) with levels below 10. However, in the case of Rakhine, for the reason noted earlier, some caution is necessary, as a significant proportion of the population of the State was not enumerated.

The percentage of the population in the active age groups (as expressed in the economic support ratio) has a direct link with the potential for rapid economic development (see Chapter 4). Yangon Region, which attracts many young workers from other areas, has a clear advantage with more than 70 per cent of its population in the economically active age groups. Other States and Regions with a favourable age structure for economic growth are Nay Pyi Taw (67.2), Mandalay (67.9) and Kachin (66.0). Chin State, with its young age structure, has the lowest economic support ratio; only 55.3 per cent of its population is in the active age groups.

The large differences in age support ratios may suggest that some States/Regions are in a much better position for rapid economic development than others, which could result in further socioeconomic inequality between States/Regions within the country in the future. In the case of Myanmar, however, migration is an important factor to be considered, since it has an effect on both age structure and economic development. Migrants who leave to work abroad or in another State/Region lower the economic support ratio within their home State/Region, but at the same time they might be contributing to its economic development by sending remittances back home.

Chapter 3 Demographic transition in Myanmar

3.1 Historic overview

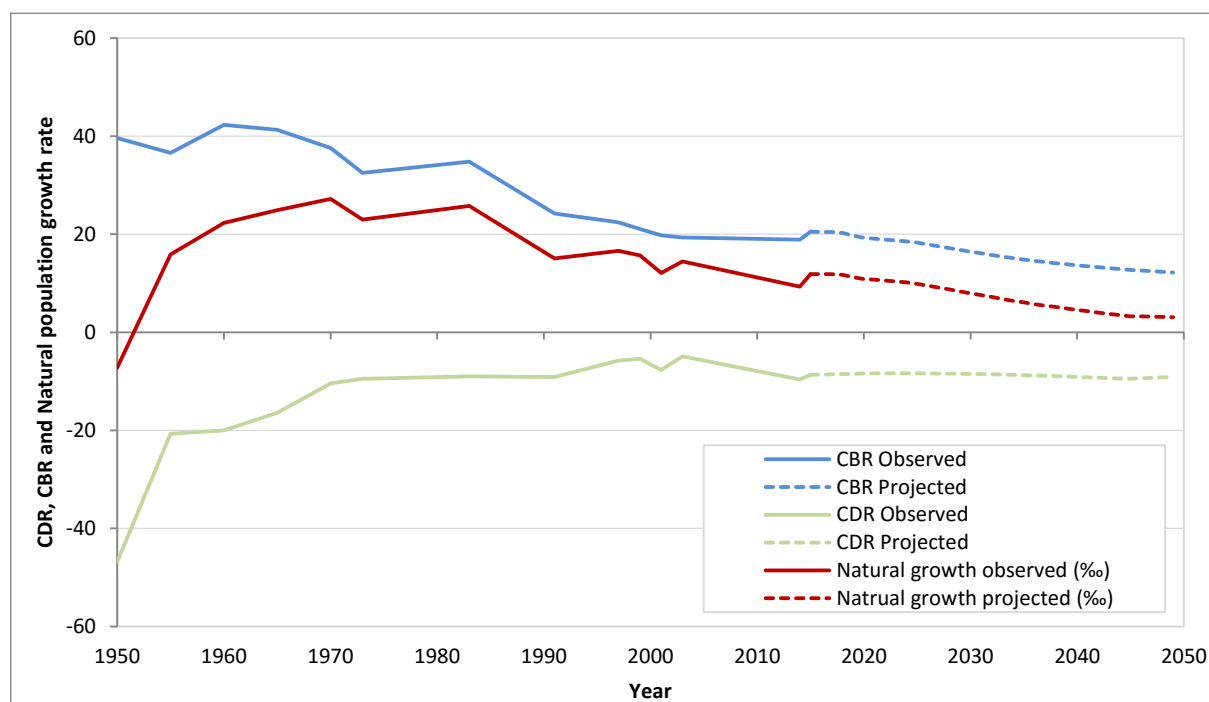
After the devastation of World War II, which caused the loss of an estimated 250,000 Myanmar lives (World War II Database), and the unstable years around the time of the country's independence, mortality levels were very high at the end of the 1940s. The crude death rate (CDR) stood at 31.9 per 1,000 population in 1948, and 48.4 per 1,000 in 1949. Divide and rule tactics of the colonial era, changing occupations during WWII, and the assassination of Myanmar's national leader General Aung San and his comrades, left the country destabilized. Because of these events, at the end of the 1940s, the crude death rate was higher than the crude birth rate, which resulted in negative population growth.

Although these figures are based on incomplete data from vital registration that did not cover the entire country, they are indicative of the levels of mortality and fertility at that time, and show that the country was still in a pre-demographic transitional phase. Figure 3.1 shows the demographic transition of Myanmar since the late 1940s and projected up to 2050 (Nyan Myint, 1990). At the beginning of the 1950s, a very rapid mortality decline took place. In just five years, the crude death rate dropped from a high level of 46.8 per 1,000 in 1950 to less than half this level (20.7 per 1,000) by 1955.

The decline in mortality shows that at that time the demographic transition in Myanmar had started. Initially, the drop in mortality was not accompanied by a decrease in fertility. Throughout the 1950s and the beginning of the 1960s fertility remained at a high level. This resulted in elevated levels of natural growth. At that time, the growth hovered around 2.5 per cent per annum. During the mid-sixties, the fertility rate started to drop, but as mortality continued to decline until 1970, the growth rate remained high.

Figure 3.1

Demographic transition in Myanmar 1948-2050



After 1970, the crude death rate remained more or less at the same level up to 2014. In the 1980s and 1990s, the birth rate came down further, but after 2000 it remained almost at the same level. The annual natural growth rate according to the 2014 Census figures was 9.3 per cent. This shows that currently the demographic transition in Myanmar has not been completed and that it has even somewhat stalled.

It is interesting to know how Myanmar’s demographic transition will further play out in the future. In Figure 3.1, the historic data are linked to the crude birth and death rates obtained from the population projections (see Chapter 1). If the assumptions made in the projections were to be realized, then by around 2050 the demographic transition will have ended. By that time, the natural growth rate will be almost zero.

3.2 Consequences of the demographic transition

In a special supplement to Population and Development Review in 2011, Lee and Reher (2011), determine four changes caused by the demographic transition in a country, that have long lasting effects on society:

- (a) Long-term reductions in mortality and fertility result in changes in the age structure of a population. The initial stage of fertility decline leads to a reduction in the youngest age groups and a growth of the active population. This increase in the active population may lead to a demographic dividend if correct decisions are made and opportunities seized. Many countries in Asia have benefited from this

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demographic dividend to speed up their economic development. Further in time, the decline in fertility leads to a reduction in the active age population and a rise in the number of older persons. The pace at which the ageing of the population takes place is dependent on the speed of the fertility decline and the ultimate level of total fertility.

- (b) The decrease in fertility has a direct effect on kin groups and household composition. Through the demographic transition, family and household size diminishes and direct kin (parents and grandparents) come to play a more important role in family life, while more distant kin's (aunts, cousins) roles diminish.
- (c) As women have fewer children the time they have to spend on childcare significantly decreases. This provides women with a host of opportunities to change their role within the family and in society. The fertility decline frees women to play a more active role in the labour market and in community life.
- (d) Today, people live longer than ever before. This increased life expectancy expands the years people live after their economically active life. Although the extension of life is one of the major achievements of modern times, the growing group of older persons creates a number of challenges for society, including among others: care and health support for ailing and/or persons living with disabilities; financial support for retired persons; extending the active years of experienced workers; and maintaining the health of senior persons.

The following subsections concentrate on these four consequences of the demographic transition discussed above.

3.2.1 Changes in the age structure of the population

Decrease of younger population

In section 2.3, this report focused on the age structure of the Myanmar population. Here the emphasis will be more on future developments starting from the current situation.

Population projections allow for the investigation of the trend of the decreasing proportion of people aged below 15 years. If the subsequent growth of the population is consistent with the assumptions made in the projections, the percentage of the population aged 0-14 will follow a course depicted in Figure 3.2. In the 2014 Census, persons aged 0-14 constituted 28.6 per cent of the population. This was a sharp decrease from 1983 (38.6 per cent) and 1973 (41.5 per cent). The observed data, together with the population projection, show an almost perfect linear decrease in the percentage of the population below age 15 between 1973 and 2050. By 2030, about one in four persons will be below age 15; by 2040 this will be 22.5 per cent and by 2050, just 18.5 per cent.

The decrease in the percentage aged 0-14 in Myanmar closely follows the projected pattern of the Southeast Asian region between 2015 and 2050 (UNPD, 2015). For all countries in the region, considerable declines are predicted in the proportion of young people (Figure 3.3). However, large variations will continue to exist between countries. In the future, Thailand, China and Singapore will have the smallest proportion of their population below age 15; it is expected that in 2050 all three countries will have less than 15 per cent of their population

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in this age group. Timor-Leste stands out with the youngest population; in 2015, some 42.4 per cent of its population was aged under 15, and by 2050, about a third of its population is still projected to be in this youngest age group. Myanmar is situated somewhere in the middle among the group of countries and will follow a course which comes closest to India and Indonesia.

A decline in fertility does not immediately lead to a fall in the absolute number of births. The momentum in the female population's age distribution, caused by past levels of high fertility, results in an increasing number of births for some years, even if fertility comes down to a level below replacement. At the time of the 1983 Census, the TFR in Myanmar was 4.7 children per woman (Immigration and Manpower Department, 1986, p 1-37), compared with 2.5 in the 2014 Census (Department of Population, 2016a).

The 2014 Census showed that the effect of the population momentum on the number of births had already run its course and that over the years the number of children born per year had decreased. In the 1983 Census, 1,174,835 live births were recorded in the 12 months prior to the Census (Immigration and Manpower Department, 1986, p 2-209), compared with 993,294 in 2014 (Department of Population, 2016a, p 200). The population projections show that the trend in the declining number of births will continue at least up until 2050. Figure 3.4 shows the projected number of male and female births from 2015 to 2050.

Figure 3.2.
Percentage of the population aged 0-14, 1973-2050

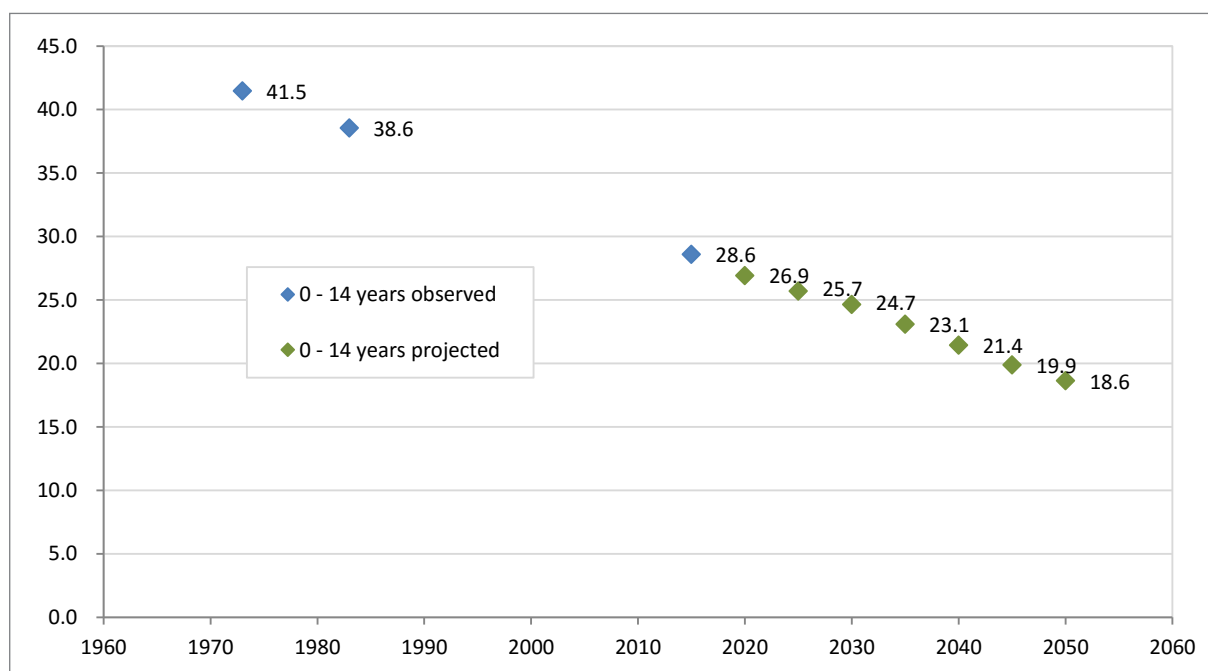


Figure 3.3
 Percentage of population aged 0-14 in Southeast Asian and neighbouring countries, 2015-2050

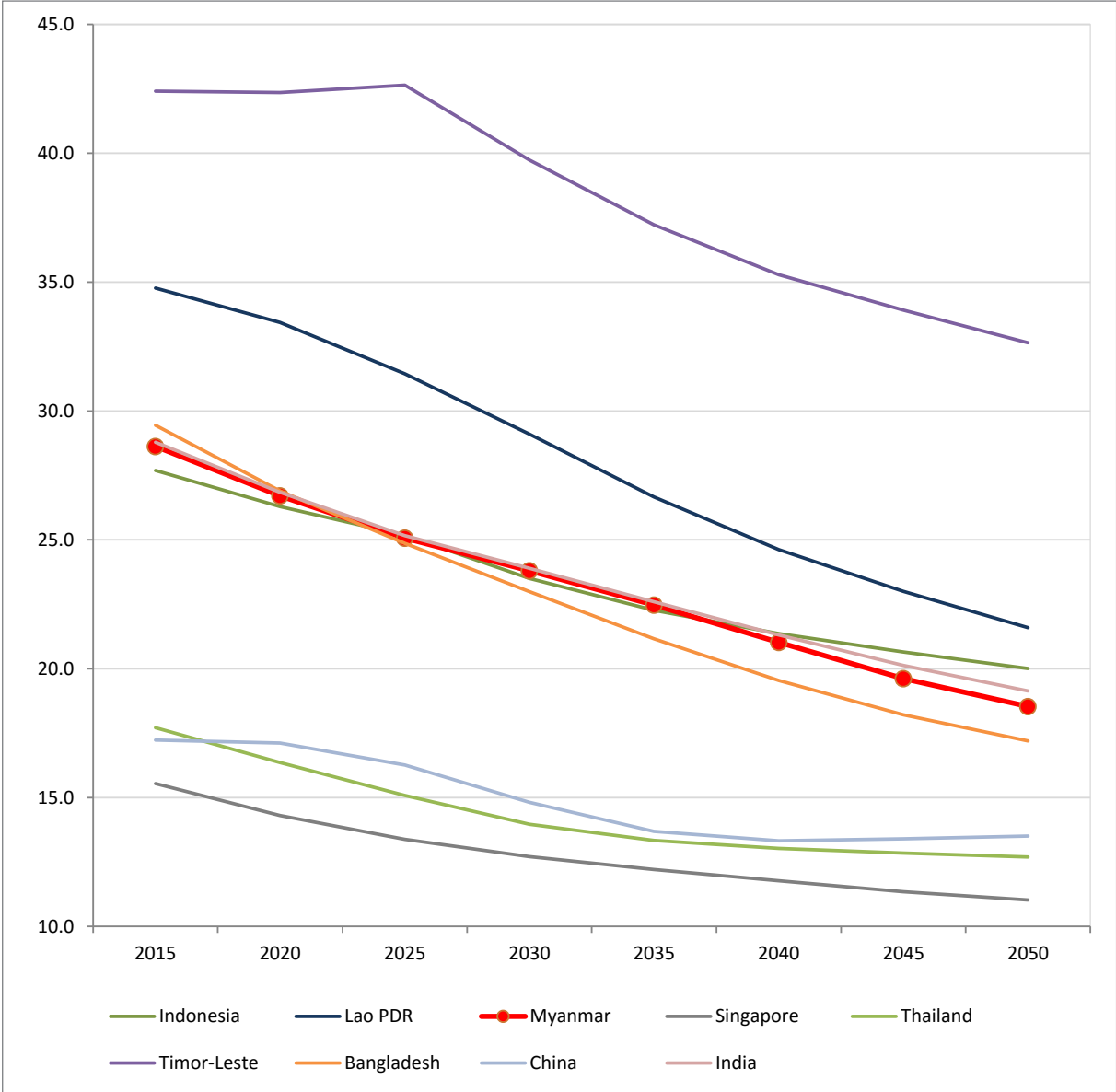
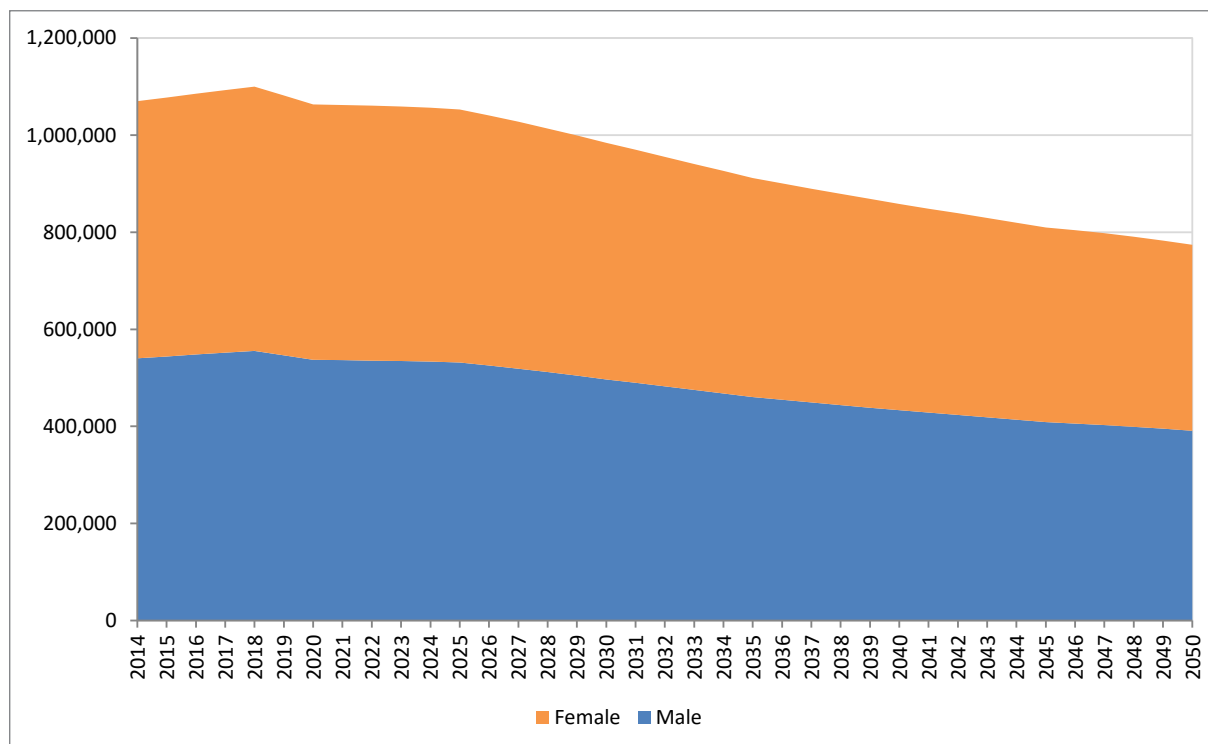


Figure 3.4

Projected number of births by sex, 2015-2050



In 2015, 1,026,000 births were projected. This number drops to fractionally under a million by 2022, and further decreases to 947,000 by 2030, 830,000 by 2040 and 775,000 by 2050. The decrease in the number of births may have a beneficial effect on the availability of antenatal care, birth attendance and maternal and child health care. It may allow for a quantity/quality trade-off, which allows each mother and newborn child to obtain a larger investment in health. With a level of 62 and 72 per 1,000 live births, infant mortality and under-five mortality are still high in Myanmar compared to other countries in the region (Department of Population, 2016b).

The economic growth of Myanmar during the last few years provides an opportunity for further investments in maternal and child health care. The current demographic developments, with an expected yearly decrease in the number of births, would help to increase the efficiency of additional investments in maternal and child health care programmes.

Ageing

Any long-term decline in the levels of fertility leads to permanent changes in the age composition of the population. Initially, the fertility transition affects the number of young people and raises the relative importance of the active age groups. Nonetheless, over time, low fertility levels reduce the growth rate of the active population and result in a rising number of persons in the old-age groups. The ageing of the population is the inevitable consequence of the fertility transition.

As indicated in section 3.2.1, the Myanmar population gradually started to grow older during

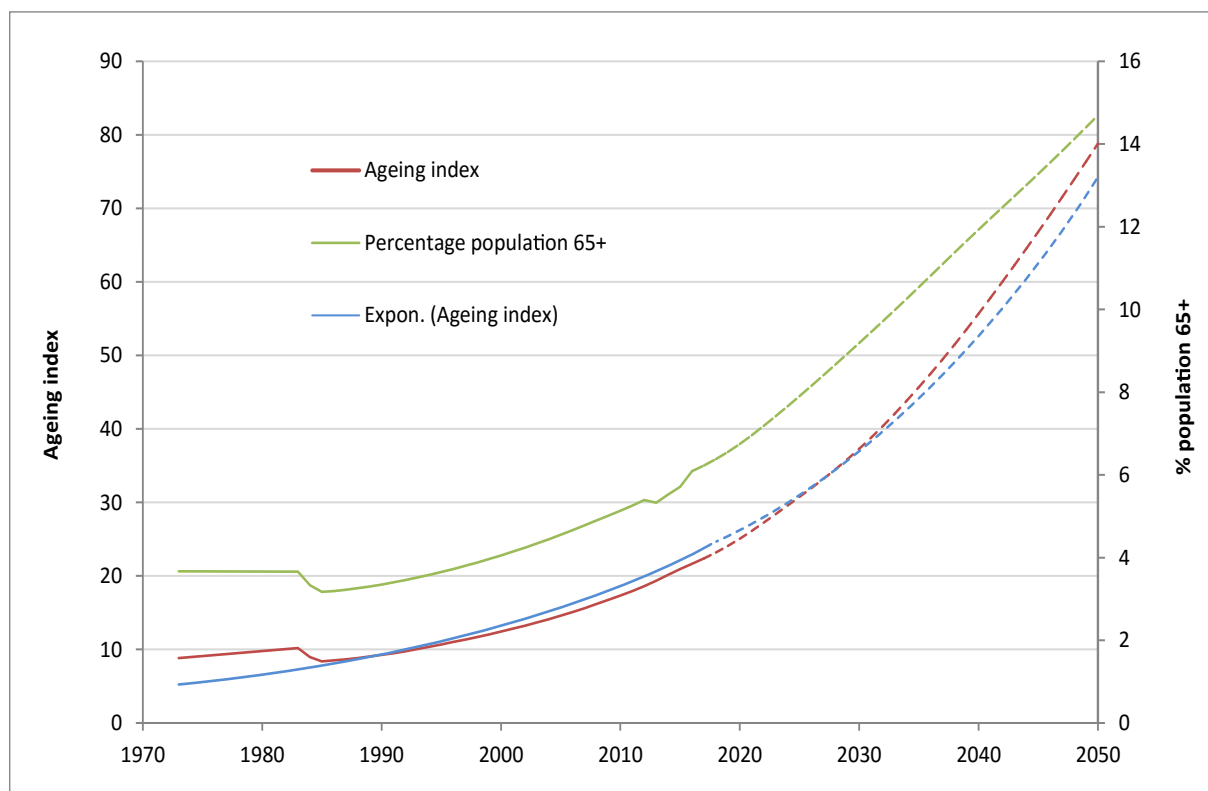
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the period 1973-2014, and currently 5.8 per cent of the population is aged 65 or over. The population projections provide an indication of how the ageing of the population will play out in the future. They show that, over time, the number of persons aged 65 and over will start to increase more rapidly. In the 2014 Census, some 566,602 persons aged 80 and over were counted. By 2050, if the projection assumptions are realized, this age group will number more than 2.4 million persons, among whom almost 1.6 million will be women.

The percentage of the population aged 65 and over is shown in Figure 3.5 for the period 1973 to 2050. The trend line in the graph shows that the relative proportion of older people is increasing significantly. In the coming years, the pace of the percentage growth of older persons will pick up. Between 2015 and 2020, the percentage is projected to increase from 5.7 to 6.7 per cent, and during the period 2045-2050 to increase further from 13.3 to 14.7 per cent. It can be expected that after 2050 the growth will be even faster.

The shift from a younger to an older population is also clearly illustrated by the increase in the ageing index (Figure 3.5). In 1973, the ageing index stood at 8.8 persons aged 65 and over per 100 persons under 15. By the time of the 2014 Census, the ageing index had more than doubled to 20.1. According to the projections, over the next 35 years the index will increase exponentially and end up at 78.8 in 2050. The effect of the rapid ageing of the population in the future is most visible during the period 2045-2050, during which the index is projected to rise from 66.8 to 78.8.

Figure 3.5
Percentage of population aged 65 and over and ageing index, 1973-2050



3.2.2 Household composition

The demographic transition has changed the size and composition of households in Myanmar. Unfortunately, currently very little is known about people's living arrangements and the composition of households. The censuses of 1973 and 1983 produced no detailed analysis on household composition. Consequently, no detailed analysis on changes in household composition over time can be carried out. In this section, only changes in household size over time and a brief description of the types of households will be presented.

Size of household

According to the definitions adopted for the 2014 Census, a household, “refers to one or more persons who usually share their living quarters (single quarter or compound) and share their meals.” In common usage it might be said that a household consists of: “All persons living and eating together or eating from the same cooking pot. They may be residing in several structures within a compound as in rural areas... A household might be a family, a group of unrelated people living together, or a single person living alone. In some cases one family living in the same dwelling might be considered as two households.” (Department of Population, 2014, p 4).

At the time of the Census, 47,929,999 persons were enumerated in 10,877,832 conventional households, and 2,349,901 persons in institutions. Compared to the 1983 Census, in which the number of persons in households and the number of households were 35,307,913 and 6,497,632 respectively, the number of households has increased by 67.4 per cent, or 1.7 per cent on a yearly basis. The average size of a household in Myanmar was 4.4 in 2014. Little difference exists between the average household size in rural and urban areas, where, respectively, there were 4.4 and 4.5 persons per household. Since 1983 households have become smaller; in 1983, the average size of a household was 5.2 for the whole country, with no difference between rural and urban areas (Immigration and Manpower Department, 1986, p 1-18). Household size in 1983 was slightly higher than in the 1973 Census (5.0).

Figure 3.6 shows the percentage of persons living in conventional households by household size in 1973, 1983 and 2014. The graph clearly shows that the relative number of households with one to five persons has increased since 1983. Differences are most noticeable in households with three and four persons, which have increased between 1983 and 2014 from 13.7 and 16.0 per cent to 19.9 and 21.3 per cent, respectively. Households with seven persons or more have decreased from 27.6 per cent to 14.3 per cent of all households.

The average household size is quite different across Myanmar's States and Regions. Figure 3.7 shows the average household size by State/Region and for the Union at the time of the 2014 Census. Household size is one person higher in the two States with the biggest household size (Kachin and Chin, both with 5.1 persons per household) than in the three Regions with the lowest average household size (Nay Pyi Taw, Ayeyawady and Magway with 4.1 persons per household).

Many countries in Asia have seen the size of households go down because of decreasing fertility. For instance, in the 2011 Census in Bangladesh, households had the same average

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size as Myanmar in 2014, some 4.4 persons per household compared to 4.8 in 2001 and 5.5 in 1991. Figure 3.8 shows household sizes in a selected number of Asian countries. Within Asia, a large variation exists in the average household size, ranging from an average of 7.3 persons in Afghanistan to 2.4 in Japan. Other countries with large average household sizes are Pakistan and the Maldives, both with 6.5 persons per household. Household size in Myanmar is above average in the region and noticeably bigger than in neighbouring Thailand, where the average household size, observed in the 2010 Census, was 3.2 persons per household (National Statistical Office, Thailand, 2011).

Figure 3.6

Percentage of persons in conventional households by household size, 1973, 1983, and 2014 censuses

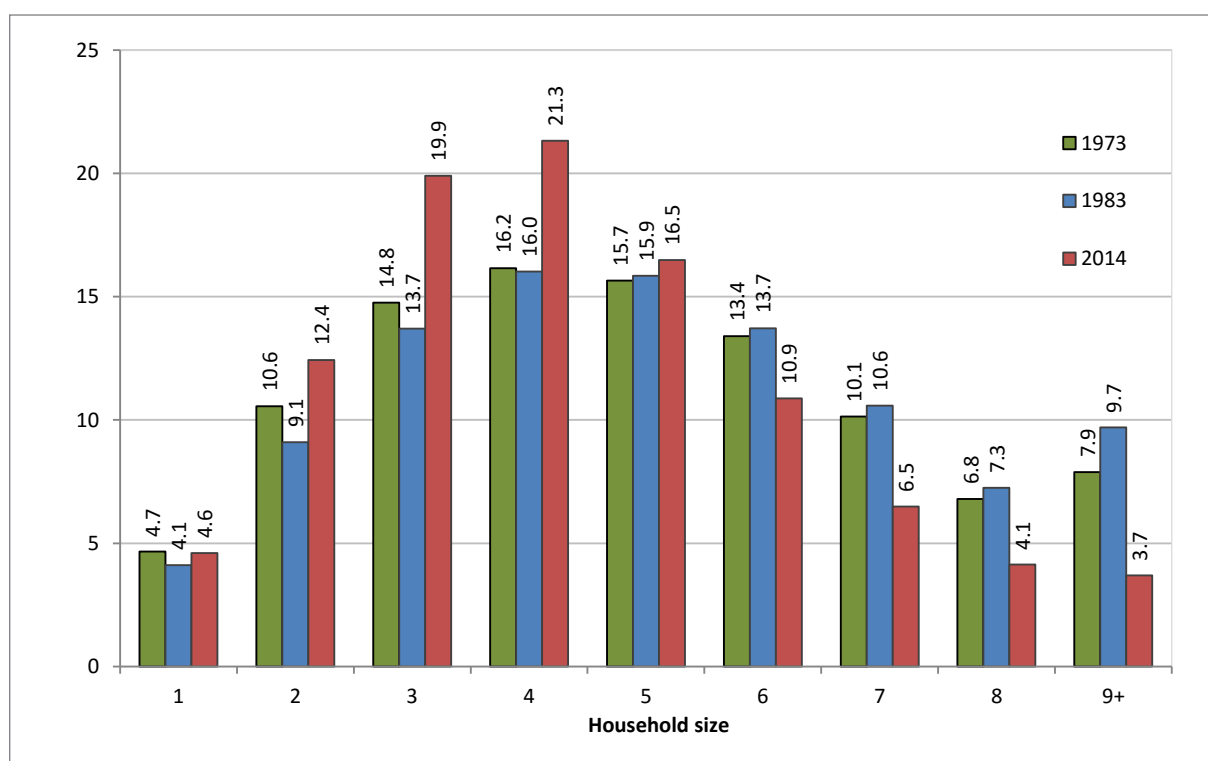


Figure 3.7

Average household size by State/Region, 2014 Census

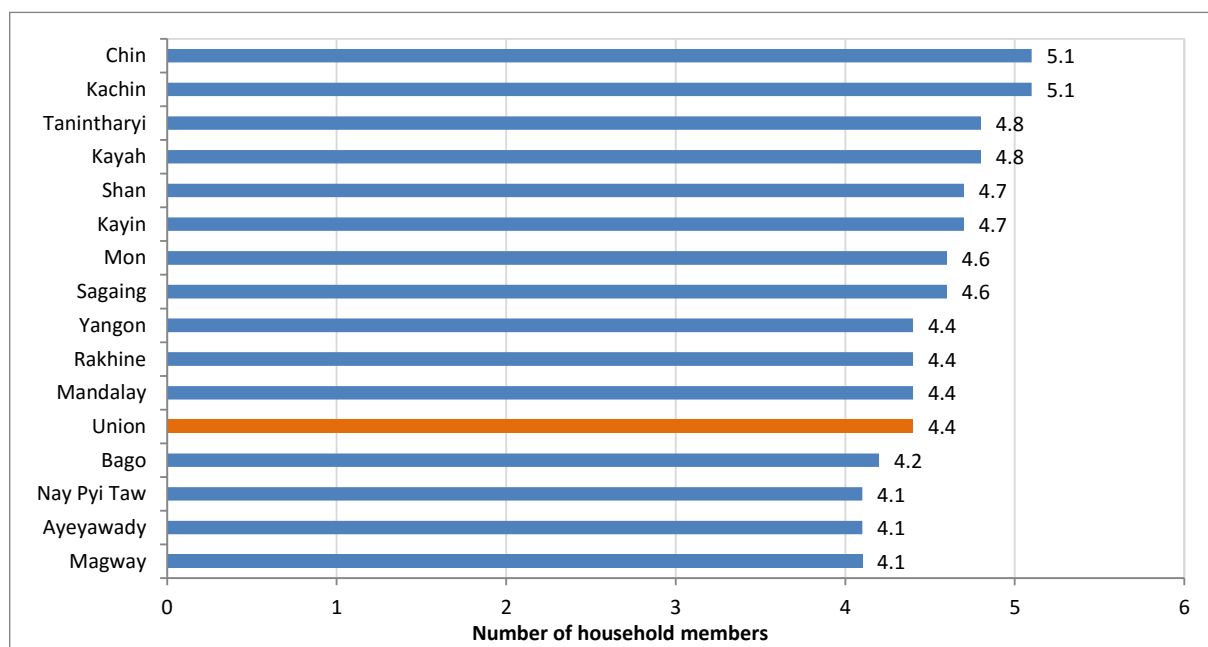
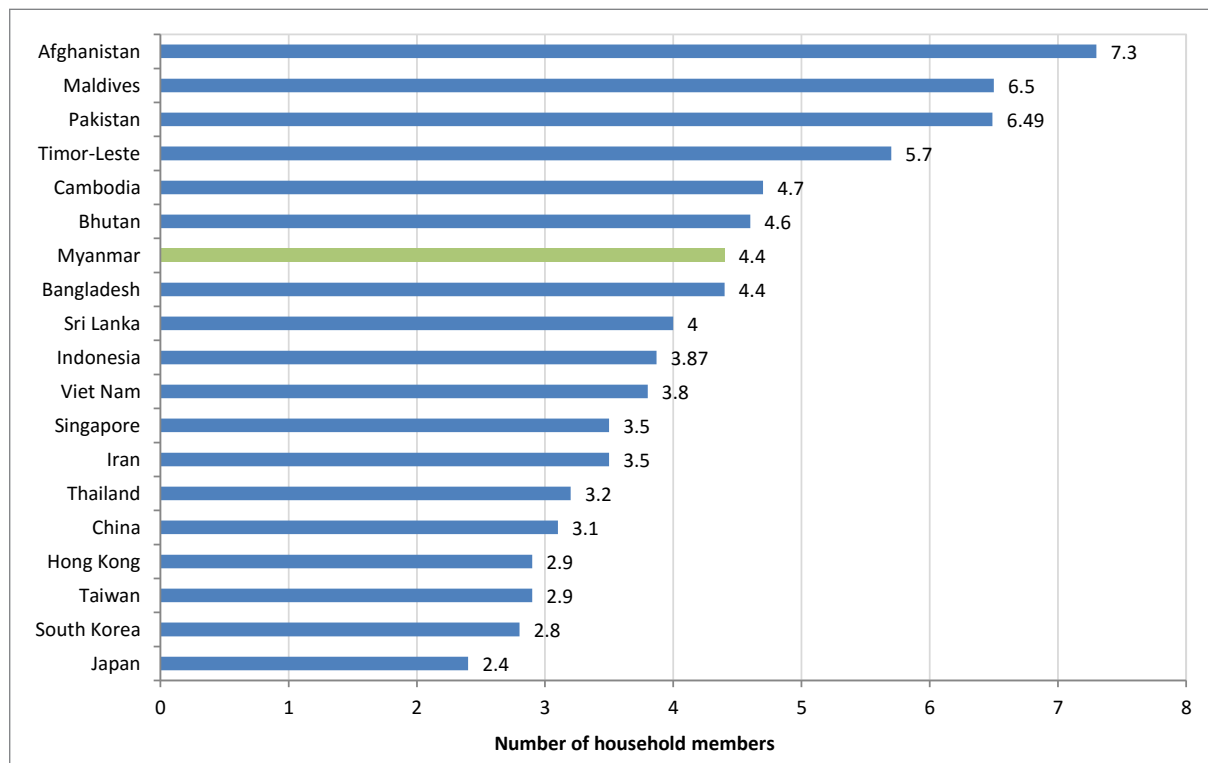


Figure 3.8

Household size in selected Asian countries*



*Source: Esteve and Liu (undated). Data refer to the period 2010-2013, with the exception of Viet Nam, the Maldives, Laos and Afghanistan that refer to the period 2005-2009. The figure for Myanmar refers to the 2014 Census. The figure for Timor-Leste refers to the 2010 census. It should be noted that comparisons of household size between different countries may be affected, to some extent, by the large difference in the reference period, 2005-2013.

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Type of household

Based on the relationship of each person to the head of household it is possible to determine the type of household. For instance, if the spouse of the head was present at the time of the Census together with one or more children, and there were no persons with any other relationship to the head, then the type of household was classified as a “married couple with children.”

With the available information on relationship to the head of household, it was possible to classify the following types of household:

- One person household
- Nuclear household
 - Married couple without children
 - Married couple with children
 - Lone father with children
 - Lone mother with children
- Extended household
- Composite household
- Unknown

In this analysis, a “nuclear” household is defined as a household that consists entirely of a single family. In the analysis, no difference was made as to whether or not any child was, or had been, married. If, for example, a child of the head of household had previously married, left home and then returned home (without spouse or children) and re-joined the household, he/she was considered as part of the family nucleus. No distinction was made between biological and adopted children.

An “extended” household is defined as a non-nuclear household consisting of persons who are all related through blood, marriage or adoption. A “composite” household is defined as a household where at least one household member is not related to one or more other members of the household. Households with inconsistent or missing information for one or more members on the relationship to the head were classified as “unknown”. In total, only for 0.6 per cent of households was there insufficient information available to determine the type of household (see figure 3.9).

The 2014 Census was conducted on a de facto basis, that is, persons were enumerated at the place where they spent Census Night. Consequently, the types of household presented are also on a de facto basis. Tables on household type describe the situation as observed during the enumeration. In some cases, the household type may be different from the usual (or de jure) situation.

Figure 3.9

Percentage of households by type of household, urban and rural areas, 2014 Census

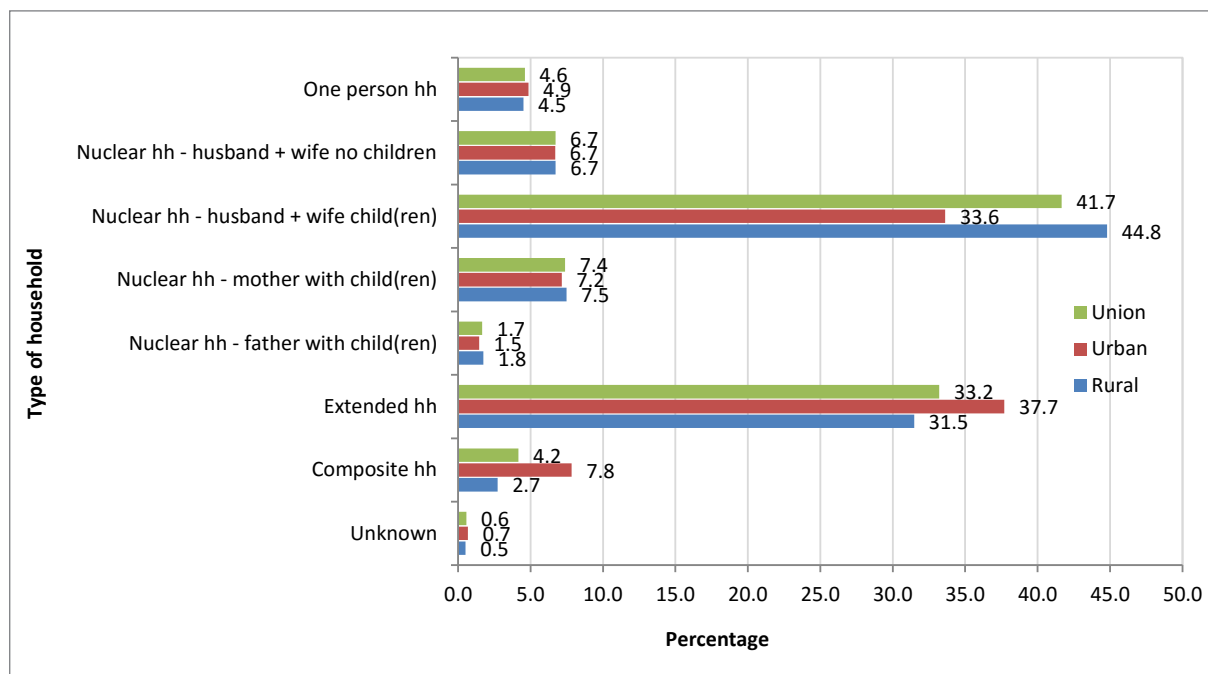


Figure 3.9 presents the percentage of households by type for the whole country and for urban and rural areas. Out of 10,877,832 enumerated households in the country, 4,532,001 (41.7 per cent) were nuclear households with a husband, wife and children. Extended households were the second largest group with 3,613,242 households, (33.2 per cent of all households). Together these two types of households made up three quarters of all households in Myanmar. Nuclear households with husband, wife and children were more common in rural areas (44.8 per cent) than in urban areas (33.6 per cent), as might be expected, but conversely, there were more extended households in urban areas than in rural areas (37.7 per cent compared with 31.5 per cent).

Nuclear households with a lone husband or wife constituted 6.7 per cent of all households and there was no difference observed between urban and rural areas. Throughout Asia, lone mothers with children are an especially vulnerable group; many face poverty and deprivation. In Myanmar, nuclear households with a lone mother and children constituted 7.4 per cent of all households. Little difference existed between the relative frequency of such households in rural and urban areas. Lone father households were, as would be expected, less common, comprising only 1.7 per cent of all households. Persons living on their own, without other related or non-family members, made up only 4.6 per cent of all households.

3.2.3 The changing role of women in society

Women’s position in society affects the level of fertility (and mortality) and has a direct impact on the course of the demographic transition. The variety of paths through which women’s autonomy, education and economic dependency influences reproductive behaviour, and affects the desire for children, is well documented in the demographic literature (see

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for instance Cosio-Zavala, undated). Improvements in women's position in society are key factors in demographic change. These changes come about through adaptations of their childbearing and child caring behaviour.

In this section, the other side of the coin is examined, that is, the implications of the demographic transition on women's lives and the effect changes in population dynamics have had on women's lives over the last decades. Within the context of this report, only a few basic aspects of the complex inter-relationship between gender, development and demographic change can be highlighted. A more profound analysis of the position of women in Myanmar society will be provided in a separate thematic report on gender.

A decline in fertility implies that women will spend a much smaller part of their (longer) lives performing childbearing and childrearing tasks, allowing them to become involved in other activities, such as education and employment. Lee (2003, p 167) states that: "In 1800, women spent about 70 per cent of their adult years bearing and rearing young children, but that fraction has decreased in many parts of the world to only about 14 per cent, due to lower fertility and longer life." In many countries, the increase in age at marriage has also facilitated women's entry into both higher education and the labour market. The age at marriage in Myanmar, as observed in the 2014 Census, showed a rather unexpected feature. During the period 1973 to 2007, the singulate mean age at marriage (SMAM) for women increased from 21.3 to 26.2 years. However, since then the SMAM has fallen to 23.6 years (Department of Population, 2016a).

Many aspects of women's lives may improve with a reduction in fertility, but some effects may not be so positive. The reduction in fertility may lead to a higher participation of women in the labour market, but there is no guarantee that the nature and quality of women's work (and its pay) will be equal to that of men.

In addition, a decline in fertility may be beneficial for women in the active age groups, but could have a negative effect on younger girls and older women (McNay, 2003). If mothers work outside the dwelling, older girls' education may suffer when the responsibility for younger brothers and sisters is devolved to them. The position of older women may be jeopardized because fewer of their children may be available to take care of them if they are at work during the day.

Table 3.1 and Figure 3.10 present the age- and sex-specific labour force participation rates based on the 1973, 1983 and 2014 censuses. In 1973, the TFR still stood at 5.65 children per woman and dropped to 4.73 children per woman in 1983. It fell even further to 2.51 according to the 2014 Census. The graph illustrates a number of interesting aspects of the participation of women in Myanmar's labour force.

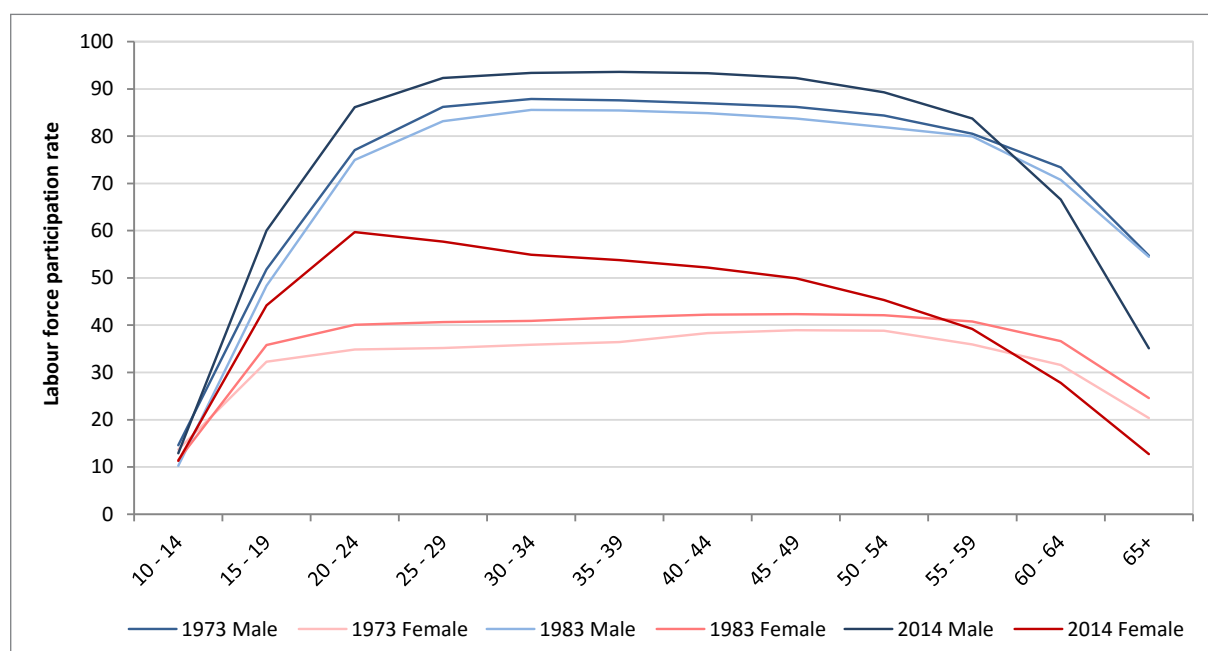
Table 3.1

Labour force participation rates by age, by sex, 1973, 1983 and 2014 censuses

Age group	Labour force participation rate (%)					
	1973		1983		2014	
	Male	Female	Male	Female	Male	Female
10 - 14	14.6	13.7	10.2	11.5	12.9	11.3
15 - 19	51.8	32.2	48.3	35.8	60.0	44.2
20 - 24	77.0	34.8	75.0	40.1	86.1	59.7
25 - 29	86.2	35.2	83.2	40.6	92.3	57.7
30 - 34	87.9	35.9	85.6	40.9	93.4	54.9
35 - 39	87.6	36.4	85.5	41.6	93.6	53.8
40 - 44	87.0	38.3	84.9	42.2	93.3	52.2
45 - 49	86.2	38.9	83.8	42.3	92.3	49.9
50 - 54	84.4	38.8	81.9	42.1	89.3	45.3
55 - 59	80.5	36.0	79.9	40.8	83.7	39.2
60 - 64	73.4	31.6	70.8	36.6	66.6	27.8
65+	54.7	20.3	54.4	24.6	35.1	12.7

Figure 3.10

Labour force participation rates by age, by sex, 1973, 1983 and 2014 censuses



A first observation is that child labour for girls, as for boys, is still problematically high: 11.3 per cent of girls and 12.9 per cent of boys in the age group 10-14 years were already in the labour force in 2014. More than half a million working children (543,040) aged 10-14 were reported as employed in the 2014 Census. Compared to 31 years ago, little or no progress seems to have been made in the reduction of child labour in the country. Secondly, the age-specific labour force participation rates for women were still significantly lower than for men. In 2014, the female labour force participation rate for ages 15-64 was 50.5 per cent,

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compared to 85.2 per cent for males in the same age groups (Department of Population, 2015, p29). Compared to 1983, when the rate for women in this active age group was 39.9 per cent (Immigration and Manpower Department, 1985), their participation appears to have increased considerably.

The increase in female participation is most noticeable between the ages 20 to 44. The female participation rate is highest among women aged 20-24, almost 60 per cent of whom were economically active. It is important to note that for both males and females fewer people, proportionately, were economically active after age 65 than in the previous census. In 1983, some 54.4 per cent of men and 24.6 per cent of women were still economically active after the age of 64. In 2014, these percentages had decreased to 35.1 per cent and 12.7 per cent, respectively. The percentage of older women was about half of the percentage in 1983. However, a number of women were still working at an advanced age: 12.1 per cent aged 70-75 and 7.9 per cent aged 75-80 were still economically active.

In 2014, the unemployment rates for men and women were considerably higher than in 1983 and 1973 (see Table 3.2 and Figure 3.11). It is somewhat surprising that in 2014 unemployment rates were highest in the age group 10-14: some 14.1 per cent of boys and 10.5 per cent of girls (totalling 77,282 children) were actively looking for work. More generally, at the younger ages (below 25 years) unemployment was high with little difference between males and females. The unemployment rate was much lower at age 30 and over, and did not rise above 3 per cent for any of these age groups. Unemployment rates for males and females follow somewhat the same course and show no evidence that access of women to the labour market is more difficult than for males.

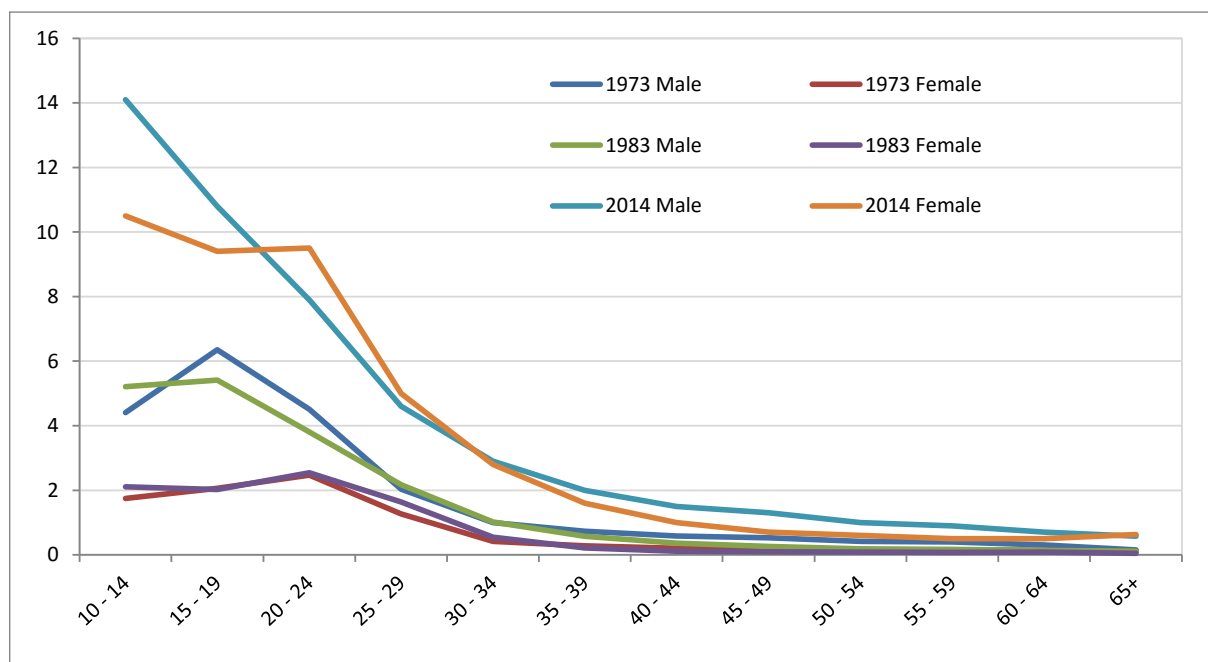
Table 3.2

Unemployment rates by age, by sex, 1973, 1983 and 2014 censuses

Age group	Unemployment rate (%)					
	1973		1983		2014	
	Male	Female	Male	Female	Male	Female
10 - 14	4.4	1.7	5.2	2.1	14.1	10.5
15 - 19	6.4	2.1	5.4	2.0	10.8	9.4
20 - 24	4.5	2.5	3.8	2.5	7.9	9.5
25 - 29	2.0	1.3	2.2	1.6	4.6	5.0
30 - 34	1.0	0.4	1.0	0.5	2.9	2.8
35 - 39	0.7	0.3	0.6	0.2	2.0	1.6
40 - 44	0.6	0.2	0.4	0.1	1.5	1.0
45 - 49	0.5	0.2	0.3	0.1	1.3	0.7
50 - 54	0.4	0.1	0.2	0.1	1.0	0.6
55 - 59	0.4	0.2	0.2	0.1	0.9	0.5
60 - 64	0.3	0.1	0.1	0.1	0.7	0.5
65+	0.2	0.1	0.1	0.0	0.6	0.6

Figure 3.11

Unemployment rates by age, by sex, 1973, 1983 and 2014 censuses



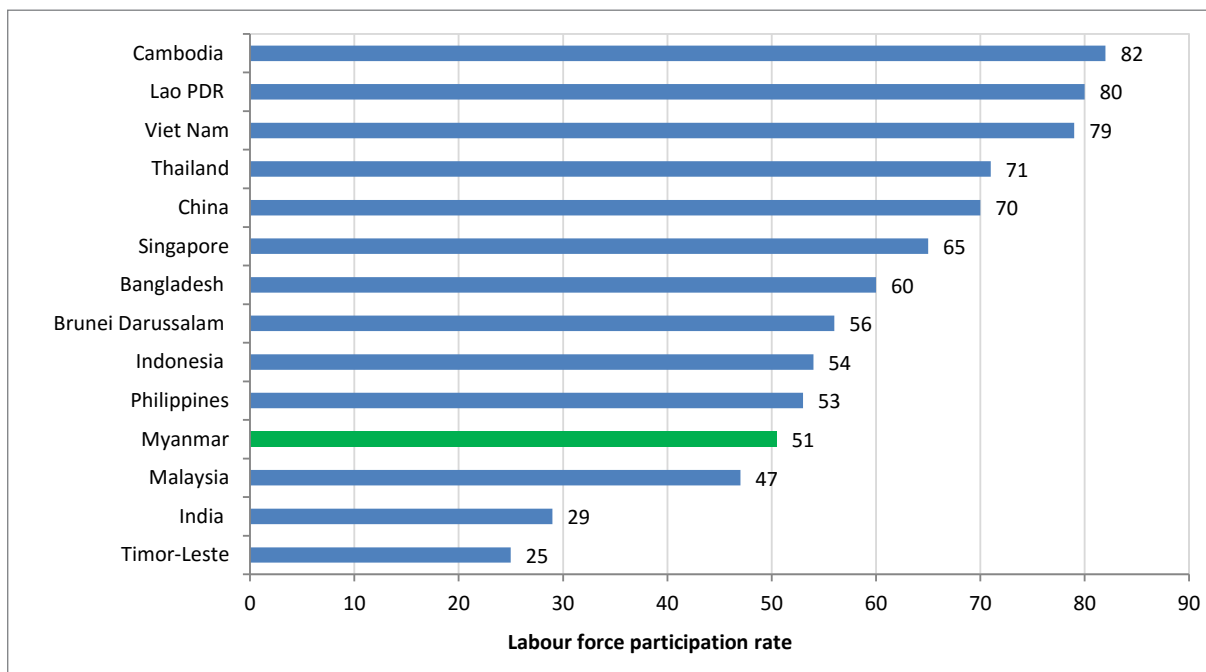
Compared to other countries in the region, Myanmar scored quite low with its female labour participation rate of 50.5 per cent. Figure 3.12 shows modelled International Labour Organization estimates for the period 2010-2014 derived from the World Bank indicator database (World Bank 2016b). Only Malaysia, India and Timor-Leste have lower levels of participation of women in the labour force than Myanmar. The highest participation of women was reported in Cambodia, Lao PDR and Viet Nam, where about four out of five women are active in the labour force. The relatively low participation of Myanmar women means that the country has the potential to tap into the huge resource of females for its future economic development.

To quantify the link between the decline in fertility and labour force participation of women, the participation rates of all females aged 10 and over for each State/Region were plotted against the TFRs in the same State/Region. Figure 3.13 shows the scatter plot of both indicators. A linear regression was fitted with the participation rate as the dependent and the TFR as the explanatory variable. The coefficient of determination (R^2) equals 0.728, which means that, statistically, 72.8 per cent of the variation in the female participation rates between States/Regions in Myanmar can be explained by the variation in TFR.

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Figure 3.12

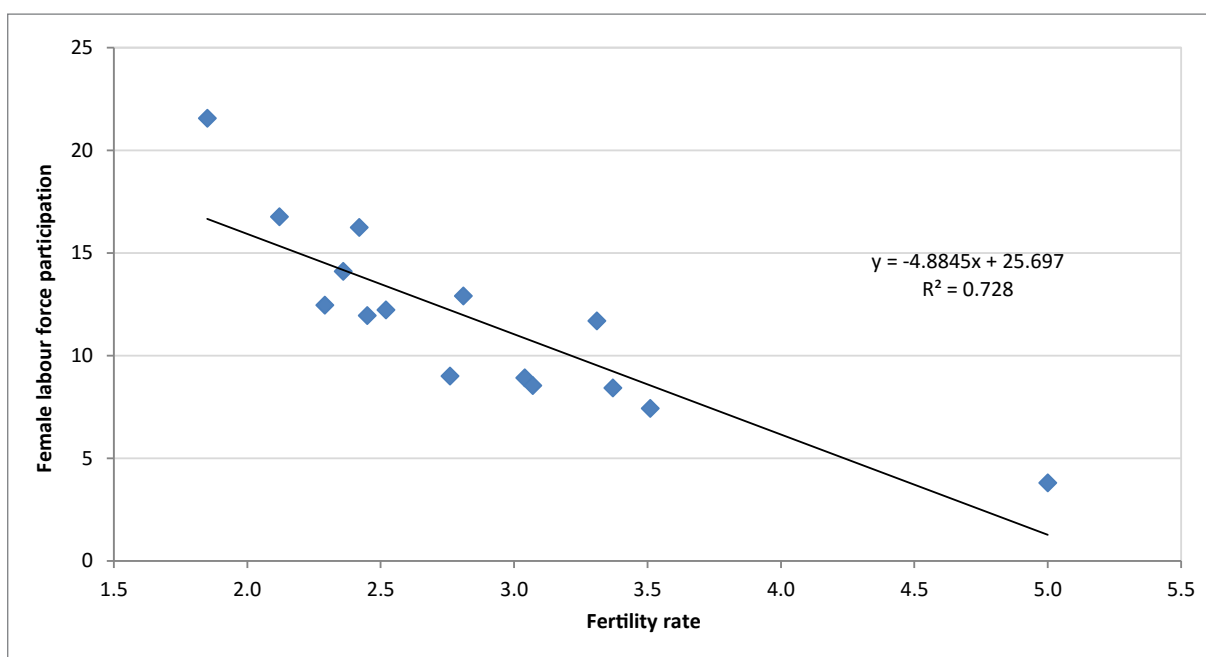
Female labour force participation rates for ages 15-64, selected Asian countries, 2010-2014



Source: World Bank, 2016b, except for Myanmar, which was derived from the 2014 Census data.

Figure 3.13

Female labour force participation rate by total fertility rate for States/Regions, 2014 Census

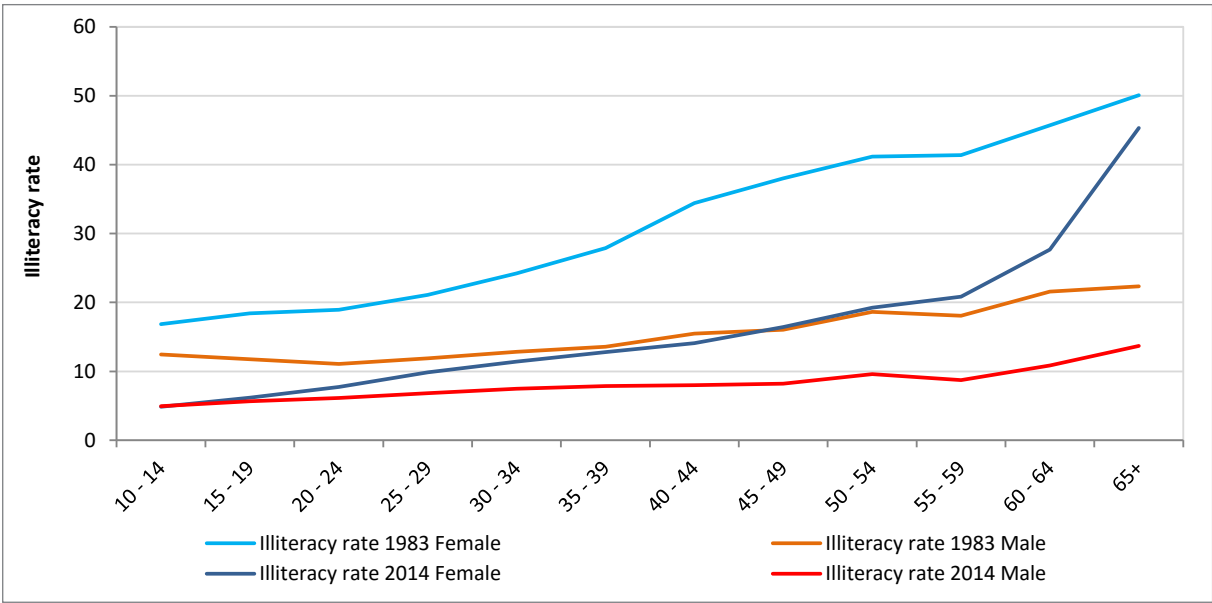


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The relationship between TFRs and female participation is negative, that is, the lower the total fertility rate in a State/Region, the higher its female labour force participation rate. The slope of the regression (-4.8845) indicates that for each drop in the level of TFR in a State/Region by one child, the participation of women in the labour force increases by about 5 per cent. However, care should be taken in over-interpreting the findings in Figure 3.13. The figure is merely an indication of the link between female participation in the labour force and fertility. Other intervening differences between States/Regions may be at play and therefore, the relationship between groups does not necessarily hold for individuals¹⁵.

The Census results clearly show that a woman’s level of education has a tremendous effect on fertility. The largest difference in reported fertility was between women with no education (3.9 children per woman) and women with primary education (2.7 children per woman). The second largest difference was between women with high school education (1.9 children per woman) and women with more than high school education (1.2 children per woman). Female education has gone through some impressive changes during the last decades. The Census reported a literacy level of 92.6 per cent for males and 86.9 for females (Department of Population, 2015, p 24). Figure 3.14 shows the age-specific illiteracy rates by sex, according to the 1983 and 2014 censuses. Compared to the 1983 census, levels of illiteracy, for both males and females, have reduced for all age groups. Illiteracy among females remains higher than among males. However, the differences between both sexes are much smaller in 2014 than they were in 1983, and no greater difference is present between boys and girls in the age group 10-14 years. In that age group, illiteracy among boys is 4.8 per cent and 4.9 per cent among girls. Past inequalities in educational opportunities between the sexes were reflected in the 2014 Census, as the difference between illiteracy rates for males and females clearly increased with age.

Figure 3.14
Illiteracy rates by age, by sex, 1983 and 2014 censuses



¹⁵ The misunderstanding that the relationship between variables for groups also holds for individuals is called the “ecological fallacy”. The interested reader is referred to a paper by Freedman (1999).

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A striking feature of the results from the 2014 Census on educational attainment in Myanmar is the high performance of women compared with men at higher educational levels. Out of the 3,226,966 persons that reported their highest level of education as university/college, 1,826,895 (56.6 per cent) were women. Among the 134,585 persons with a postgraduate qualification (MA or PhD), 86,544 (64.3 per cent) were women. Figure 3.15 shows that the difference between the number of males and females with higher education is highest at the younger age groups. However, despite the high ratio of women-to-men among the highly educated, the group with a high education still only forms a very small proportion of the population.

Figure 3.16 shows educational attainment by sex. Some 7.0 per cent of females and 5.0 per cent of males aged five and over had attained graduate level, but only 0.4 per cent of women and 0.2 per cent of men had obtained a post-graduate qualification. The vast majority of both men and women had attained a level of education no higher than middle school. Despite their better position in the higher education categories, women still have higher percentages than men in the lowest categories: some 16.2 per cent with no education, compared with 12.0 per cent for men, and 44.1 per cent with primary education compared with 39.9 per cent for men.

Figure 3.15

Absolute number of males and females with higher education, 2014 Census

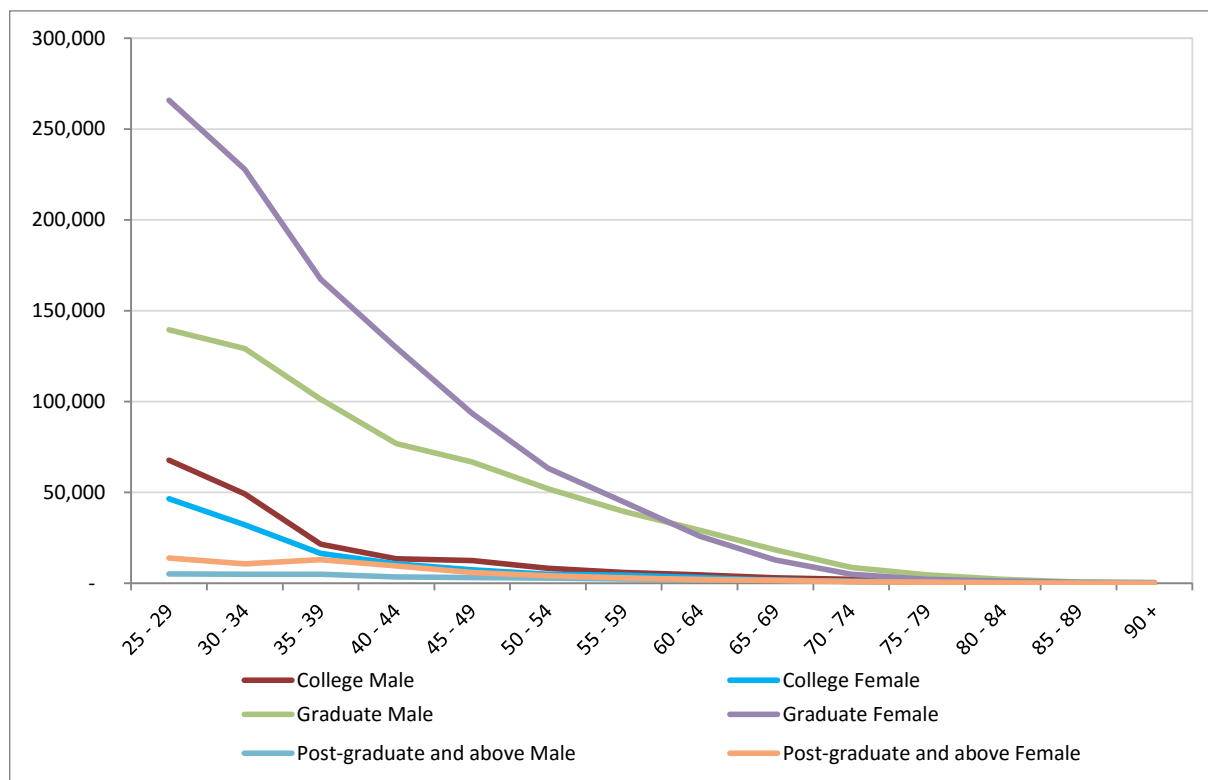


Figure 3.16

Percentage of persons aged five and over by level of educational attainment by sex, 2014 Census

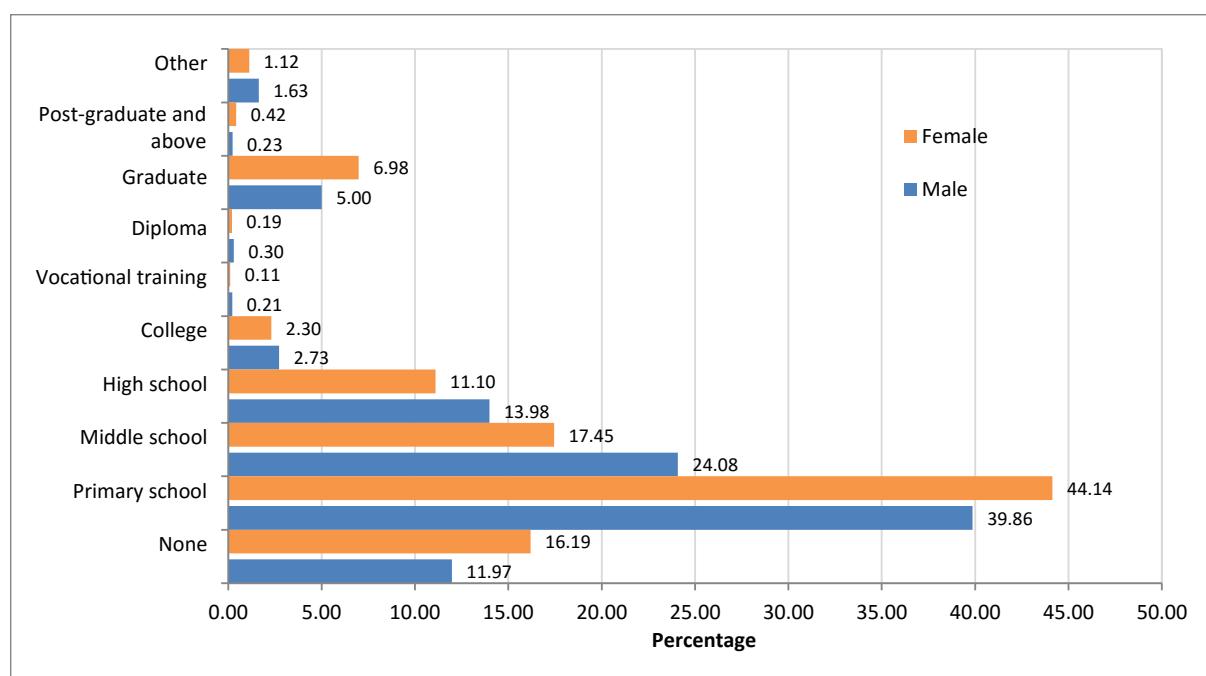


Table 3.3

Number of persons by occupational group* by sex, 2014 Census

Occupational category	Total	Male	Female	Sex ratio
Total persons in occupational categories	22,205,543	13,273,811	8,931,732	148.6
Managers	129,085	80,048	49,037	163.2
Professionals	492,631	138,038	354,593	38.9
Technicians and Associate Professionals	382,515	248,859	133,656	186.2
Clerical Support Workers	465,147	239,523	225,624	106.2
Services and Sales Workers	2,681,732	1,143,377	1,538,355	74.3
Skilled Agricultural Forestry and Fishery Workers	9,064,240	5,822,635	3,241,605	179.6
Craft and Related Trades Workers	2,468,486	1,583,152	885,334	178.8
Plant and Machine Operators and Assemblers	787,703	711,812	75,891	937.9
Elementary Occupations	3,446,280	2,169,666	1,276,614	170.0
Not stated	2,287,724	1,136,701	1,151,023	86.2

* The classification of occupational groups includes a “Not stated” category as data were not imputed if no response was given to the question on occupation.

To date, the much larger proportion of women with higher education, compared to men, has not translated into a higher proportion of women in managerial jobs. Table 3.3 shows the number of males and females, and the sex ratio, by broad occupational group. Among the 129,085 persons who were classified in the Census as managers, only 49,037 were women. This shows that for every 100 female managers, 163.2 male managers were recorded.

The table also shows that other occupational groups are even more male dominated: the sex ratio among “Plant and Machine Operators and Assemblers”, for example, was 937.9.

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However, a consequence of the fact that many more women than men have a higher educational qualification is illustrated in the large number of women who were classified as “professionals”. Almost half a million persons were recorded as professionals, out of which more than 350,000 (almost three quarters) were women. The sex ratio within this group was 38.9 and revealed the prominent role that women occupy in the development of the country. The only other occupational group in which more women than men were employed was as “service and sales workers”, where the sex ratio was 74.3 men for every 100 women.

3.2.4 The position of older people within a changing society

Another consequence of the demographic transition is a higher proportion of the population in the older age group (defined as 65 and over) because of increased longevity. In addition to a higher proportion, each person on average will also live many more years after age 64 than before. Older persons are more vulnerable because of three reasons: (a) poorer health status; (b) declining cognitive ability; and (c) a need for greater social support (Kim and Geistfeld, 2008). Physical conditions related to older age make it more difficult for the elderly to perform daily routine activities and to lead an independent life without external support. Typically, at older ages more people suffer from physical disabilities than at younger ages. The 2014 Census Thematic Report on Disability (Department of Population, 2017) shows that the prevalence of moderate and severe disability increases slowly up to age 50 and thereafter increases significantly.

The cognitive ability of older persons diminishes because of declining memory and worsening mental abilities. The 2014 Census recorded that 16.5 per cent of persons aged 75 and over were reported as having problems remembering or concentrating. Among persons in the 85 to 89 age group, this was 21.6 per cent, and among those 90 and over it was 29.1 per cent. Because of physical problems (seeing, hearing, movement, remembering) and certain psychological conditions (such as coping with the loss of a spouse or other close relatives, and failing memory), older people may suffer from social isolation, loneliness, grief and stress. The 2014 Census showed that 34.2 per cent of men and 66.0 per cent of women aged 75 and over, were widowed and thus had experienced the death of their spouse. Many more will have lost siblings and close family and friends.

Two previous studies by the Department of Population have been dedicated to the living conditions of older persons in Myanmar (Soe, 2012, and Department of Population, 2005). Both were based on existing survey and census material (1973 and 1983). Another important source on the living conditions of older persons is provided by the 2012 Survey of Older Persons (Knodel, 2013).

In her study, Soe emphasizes Buddhist cultural values in the care of the older population:

The values of respect for seniority and filial piety are highly cherished in Myanmar. By virtue of the culture as well as religion, the young are taught to show respect to their elders. Ideally, senior citizens in Myanmar are regarded highly and hold a special place in the family and in society. Older persons are treated with respect and act as a good example for others... To abandon the elderly is considered immoral.

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There is a good chance that, despite this favourable cultural environment, the traditional role of children to care for ageing parents may come under pressure because of the modernization process. Changing values; urbanization and industrialization; a smaller number of children to share the load; a growing number of nuclear households; the dispersion of children because of internal and international migration; and higher labour participation of women are all aspects that may contribute to the erosion of care for the elderly in the near future.

Household type in which older people live

It is important to know in what type of household older persons live, especially those in the very old-age groups who need special care. In Western countries, there is a trend for older persons to reside in old people's homes or other institutional households. Table 3.4 examines the extent to which people aged 65 years and over live in institutional households. It shows, for example, that whereas only 2,709 persons were enumerated in old people's homes, religious centres housed the largest number of elderly residents (67,669), the majority being Buddhist monks and nuns. A total of 3,645 old persons were present in hospital on Census Night and were thus enumerated there rather than at their usual place of residence.

Table 3.4

Number of persons aged 65 and over enumerated in institutional households, and the homeless, by age, 2014 Census

Total	Hotel/Guest house	Old people's home	Religious centre	Boarding school/ College/University	Hospital	Camp/Hostel for workers	Homeless
65 - 69	1,227	264	22,393	291	1,233	574	5,152
70 - 74	576	600	16,534	137	889	284	2,249
75 - 79	246	746	14,484	87	759	168	1,373
80 - 84	127	621	8,546	56	452	104	816
85 - 89	53	309	3,933	34	218	56	407
90 +	27	169	1,779	11	94	91	235
Total	2,256	2,709	67,669	616	3,645	1,277	10,232

Homeless people are among those who are the most difficult to enumerate, and are often under-represented in a census. In 2014, some 10,232 persons aged 65 and over were recorded (by special teams of enumerators) as being homeless on Census Night. Of these, 642 were aged 85 and over.

Table 3.5 provides information on the number of households with people aged 65 and over, and 85 and over, living in conventional households by household type, and the number of people per household in these age groups. Out of a total of 10,877,832 households, 2,275,699 (20.9 per cent) had at least one person aged 65 or older and 215,964 (2.0 per cent) had a person aged 85 and over. Some 141,373 persons aged 65 and over lived on their own in a one person household, 11,078 of whom were aged 85 and over. Most older persons, however, live in an extended household, that is, with other family members. Some 1,435,783 extended households had at least one person aged 65 and over, of which 151,162 included a person aged 85 and over, representing 39.7 and 4.2 per cent, respectively, of all extended households. There are many more extended households than all other household types combined with older persons: some 1,435,783 compared with 821,510 of all other types of households. The table shows that the traditional system in which the elderly live with their children or other family members still seems to be the norm.

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Table 3.5.

Number of conventional households containing older persons (aged 65 and over and 85 and over) by number of older persons in the household, 2014 Census

	Household type												
	All households		One person		Nuclear Households			Extended			Composite		Unknown
			Couple only	Couple with children	Sole mother	Sole father							
Total households	10,877,832	501,088	731,646	4,532,001	804,010	181,608	3,613,242	452,644	61,593				
Household with persons aged 65 and over	2,275,699	141,373	126,830	218,499	163,037	54,554	1,435,783	117,217	18,406				
Percentage	20.9	28.2	17.3	4.8	20.3	30.0	39.7	25.9	29.9				
Households with:													
All households without a person aged 65 and over	8,602,133	359,715	604,816	4,313,502	640,973	127,054	2,177,459	335,427	43,187				
1 person aged 65 and over	1,764,968	141,373	58,719	121,420	161,009	54,092	1,126,149	87,700	14,506				
2 persons aged 65 and over	490,981	-	68,111	96,925	1,932	443	294,346	25,785	3,439				
3 or more persons aged 65 and over	19,750	-	-	154	96	19	15,288	3,732	461				
Household with persons aged 85 and over	215,964	11,078	5,462	9,457	16,344	5,977	151,162	14,504	1,980				
Percentage	2.0	2.2	0.7	0.2	2.0	3.3	4.2	3.2	3.2				
Households with:													
All households without a person aged 65 and over	10,661,868	490,010	726,184	4,522,544	787,666	175,631	3,462,080	438,140	59,613				
1 person aged 85 and over	208,463	11,078	4,527	8,328	16,344	5,977	146,410	13,885	1,914				
2 or more persons aged 85 and over	7,501	-	935	1,129	-	-	4,752	619	66				

Economic activity of older persons

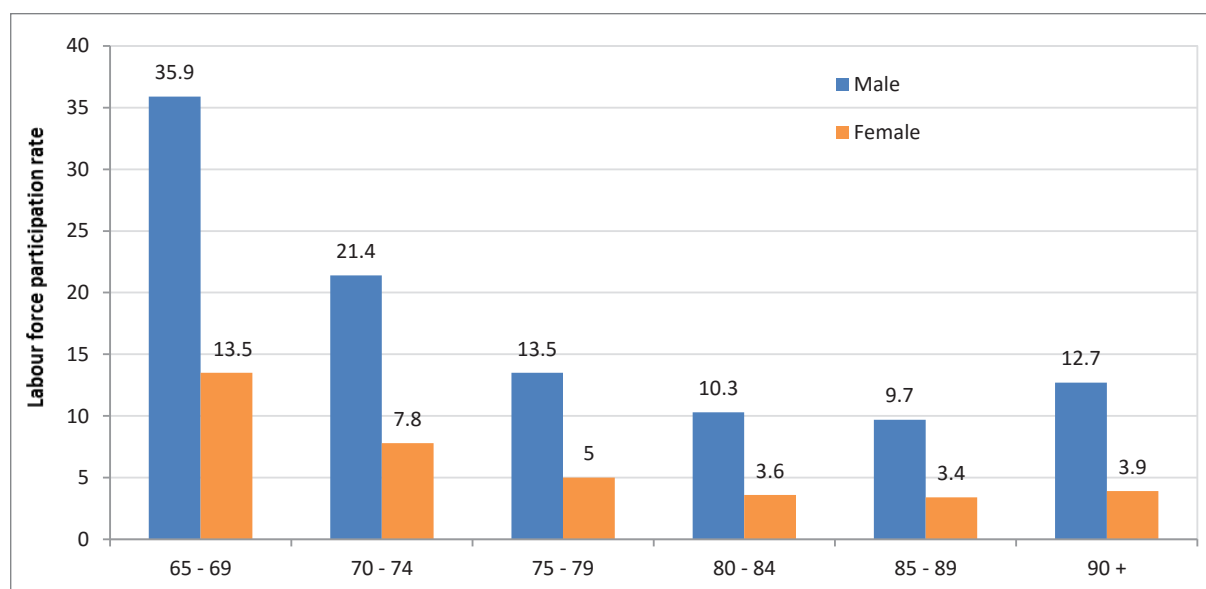
An important indicator of the well-being of older persons is their economic activity. In most cases, it is a sign of poverty and deprivation if persons at an advanced age still have to work. The economically active population consists of those who are employed and those who are unemployed. In the study on ageing transition, Soe (2012) showed that, based on the 2007 Fertility and Reproductive Health Survey (FRHS), many persons in Myanmar remain economically active up to a high age. Between the ages of 65 and 69, some 62.5 per cent of males and 31.5 per cent of females were still in the labour force; even among those aged 80 and over 14.7 per cent of males and 8.2 per cent of females were economically active.

According to the 2012 Survey of Older Persons in Myanmar, 49 per cent of men aged 65-69 and 28 per cent of women in this age group were still working. The 2014 Census confirmed that many older people in Myanmar continue working. However, the Census recorded levels that were significantly lower than those reported in the 2007 FRHS and the 2012 Survey of Older Persons in Myanmar. However, different definitions and questions used in each of the studies may have contributed to this discrepancy.

As might be expected, the labour force participation was, for older people, highest in the age group 65-69, with 35.9 per cent of men and 13.5 per cent of women still active. Even at age 80 and over, around 10 per cent of men were still active; at these oldest age groups, few women were still economically active (3.6 per cent).

Figure 3.17

Labour force participation rates of persons aged 65 and over by age group, by sex, 2014 Census

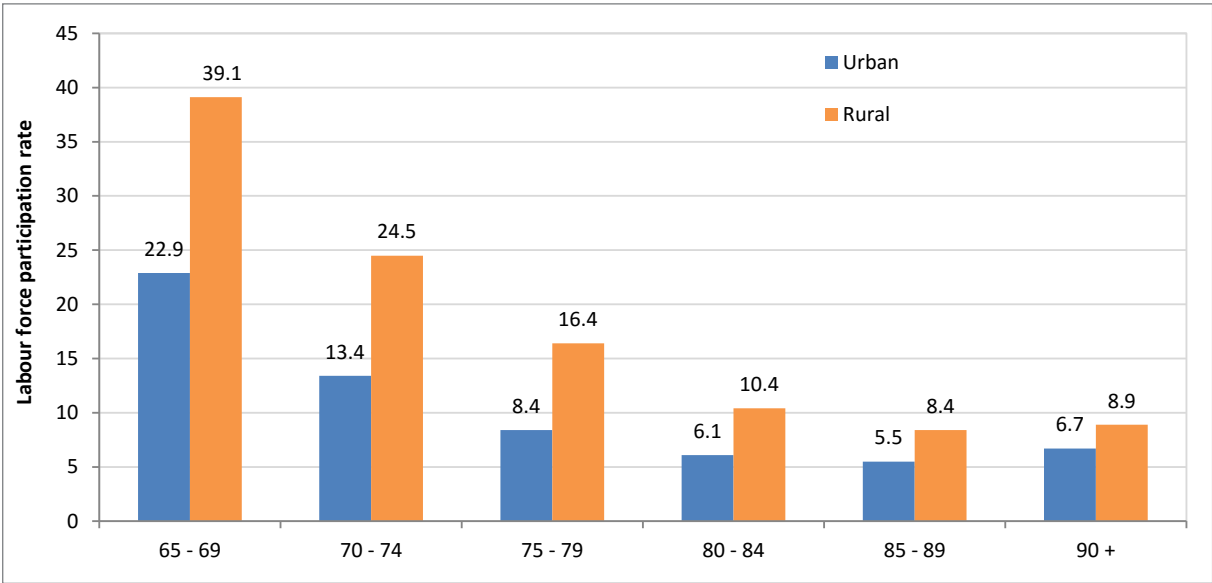


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Older people in rural areas remain economically active for much longer than those in urban areas (Figure 3.18). This finding confirms the results by Soe, but again, rates observed were lower than in the 2007 FRHS. According to the Census, 39.1 per cent of persons in rural areas were still active in the age group 65-69, while this figure was 22.9 per cent in urban areas. The 2007 FRHS found that 52.8 per cent in rural areas and 27.0 per cent in urban areas were still economically active in this age group.

The trend may be the result of improved economic conditions, which make it no longer necessary for older people to continue working. However, again the definition of economic activity in the 1983 and 2014 censuses was somewhat different. While the 2014 Census looked at usual economic activities during the 12 months prior to Census Night, the 1983 census considered those who were working during a specified period of 14 days. This may also have influenced the results. To get a clearer picture of the patterns observed, more substantive research is needed on this topic.

Figure 3.18
Labour force participation rates of persons aged 65 and over by age group, urban and rural areas, 2014 Census



Chapter 4. Demographic dividend

In some ways, the demographic dividend has become the 'Holy Grail' for economic planning in developing countries. Based on the success of the "Asian Tigers"¹⁶ to harness a demographic dividend, many countries in Asia now look into the possibilities of reaping their own dividend. It is often seen as a unique way to lift the country out of poverty and to spur economic development. Shekhar Aiyar and Ashoka Mody (2011) state that the demographic dividend could annually add around 2 per cent to India's per capita GDP growth over the next 20 years. Various countries have published both scientific and policy papers on the effects of the demographic dividend for their national economy and social sectors (see for example reports by EY/FICCI, 2014, and EU/UNFPA, 2015). For instance, bringing together a panel of national and international experts, Thailand executed an extensive study on population changes and their implications for policy and planning. In addition, Bangladesh recently came out with its own report to look into the consequences of the demographic transition (UNFPA, 2015).

This chapter looks deeper into the demographic dividend and describes how the demographic dividend could influence Myanmar's economic growth.

4.1. What is the Demographic Dividend?

The demographic transition has a direct effect on the age-structure of a population. The changes in the age structure are generated by differences in cohort flows, that is, age-specific birth rates experienced by women in specific age groups result in different sizes of annual birth cohorts. A decline in fertility may not immediately lead to fewer births, because of the population growth momentum, but ultimately leads to less children.

Changes in the age structure of a population, generated by age- and period-specific fertility, mortality and migration interact with the life cycle of production and consumption (Mason, 2005). In general, adults in the working age groups produce more than they consume, while the dependent age groups, consisting of children and older persons, consume more than they produce. Therefore, if a country has a high concentration of persons in the working age groups, compared to its dependent population, it will, all other things being equal, have higher levels of per capita income than a country with a high proportion of persons in the dependent age groups.

The accelerated growth in a country's economy caused by the change in the age structure of its population is referred to as the "demographic dividend". Currently, in scientific literature two different demographic dividends are identified.

The first demographic dividend is a direct result of the relative growth of the active population. Countries with high economic support ratios can use their favourable age structure to generate high levels of per capita income. Living standards increase because the concentration of the population in the active age groups is able to support higher levels of consumption. However, the demographic dividend does not come automatically. In order to translate the favourable demographic conditions into economic gains, governments have to

¹⁶ The Four Asian Tigers is a term used in reference to the highly free-market and developed economies of Hong Kong, Singapore, South Korea, and Taiwan. These nations and areas were notable for maintaining exceptionally high GDP growth rates (in excess of 7 per cent a year) and rapid industrialization between the early 1960s and 1990s.

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create the right policy environment and invest in key sectors of the economy. These critical areas of intervention (see Bloom et al, 2003) are:

- Public health: economic productivity is closely related to the health of workers. Also, the health of children, especially in terms of nutrition, is important for the development of a highly skilled labour force.
- Family planning: long-term, sustained fertility decline is the driving force for the demographic dividend. Family planning programmes allow couples to have the number of children they desire and to decide on the timing of births. To be successful, family planning must be available for all persons, including youth and vulnerable population groups.
- Education: education systems must be in line with the demands of a changing labour market to create the human capital needed for economic development. Education has to reach all groups within society and has to be of a high quality to cater for a demanding labour market.
- Economic and labour market policies: evidence-based policies have to be developed to maximize the benefits from the demographic dividend through sound investment strategies, the development of necessary infrastructures and the creation of new, productive jobs.

The favourable age structure, with a high proportion of persons in the active age groups, should be seen as a unique window of opportunity. A country can only reap the demographic dividend if it makes the right social and economic investments and follows strict policies to promote economic development. Depending on their economic and social policies, some countries have been able to take more advantage of their favourable demographic situation than others. The educational level of the population, the status of women, the efficiency of the government, the type of economy, labour productivity and the size of the labour force are all contributing (or inhibiting) factors to harness the demographic dividend.

Low dependency ratios provide an opportunity for rapid economic development, but also carry a risk. The growing number of young people entering the working age groups requires the creation of a large number of jobs. Failing to provide adequate job opportunities to, often well-educated, young people may lead to frustration, political unrest and higher crime rates. The protest movements of young persons in countries of the Middle East and North Africa in 2010, commonly known as the Arab Spring, are a clear example of how governments have had to pay the price for not being able to provide jobs and economic opportunities for an ever-growing group of young adults (Mulderig, 2013).

The demographic dividend is closely related to the length and intensity of the demographic transition. The first demographic dividend is limited in time and usually carries on for just a few decades. The dividend ends the moment the population starts ageing and the proportion of the active population decreases. An important principle is that the more rapid the fertility decline, the larger the potential demographic dividend, but the shorter it lasts. Stated as a metaphor: “The window opens wider, but closes sooner.”

A second demographic dividend can take place for those countries that have already

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experienced a successful first demographic dividend. The more advanced stages of the demographic transition cause the population in the working age groups to grow less rapidly than the dependent population. Mason and Kinugasa (2005) argue that the ageing of a population does not necessarily have a negative effect on economic growth. They state that given the right economic policies, population ageing may lead to even stronger economic growth and prosperity.

The impact of such a second demographic dividend may be even bigger than the first and may last indefinitely. This second demographic dividend is achieved through savings and the accumulation of physical capital by people during their working ages. People prepare for a comfortable old age. The prospects of a longer life are a motivation to accumulate savings to be used for old age support. These savings make them less dependent on the active population. Another important factor is the investment made by parents for their children's education and health, which reinforces the next generation's labour productivity. The fertility transition allows parents to provide more resources for the education of each child.

Some important factors that may play a role in the realization of the demographic dividend warrant emphasis. The first is the position of women in the labour force. Next to the increase of the number of persons in the active age categories, the increasing labour force participation of women is important in order to obtain a demographic dividend. As demonstrated in this report, lower fertility rates are related to higher female participation in the workforce. This increase in labour supply in turn generates higher economic growth. Moreover, female education increases the labour productivity of women, strengthens the labour force and is conducive to economic growth.

Secondly, many of the macroeconomic studies on the demographic dividend focus on the effect at the national level. Results obtained from such studies describe a sort of average impact of age structure on economic development. The reality within a country is more complex. Different groups within society go through the demographic transition at different rates (Eloundou-Enyegue, 2013, p 5). For instance, higher educated groups often lead the way in fertility decline, and large regional differences may exist. The report noted earlier that Chin State had a TFR of 3.1 children higher than Yangon, which had the lowest fertility (see Figure 2.4). The large differential in fertility (and mortality and migration) between various socioeconomic groups and States/Regions results in large differences in age structure, which in turn means that the demographic dividend may play out differently among various sectors of the population. This implies that, within the country, pockets of high economic growth may develop, but that certain groups and States/Regions may well, at the same time, lag behind. As such, an imbalanced demographic transition can easily increase economic inequality within the country.

Thirdly, if a demographic dividend is attained during a time of low dependency ratios, the generated savings have to be invested, both by households and by the government, in productive economic development. At the national level, other priorities may exist, such as the repayment of debts or expenses of national security. These and other non-productive expenses can strongly diminish the growth effect generated by the demographic dividend. At the household level other priorities (conspicuous consumption, personal debt) and changes

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in the household, such as death and divorce, may prevent investments for the education of children (Eloundou-Enyegue, 2013, p 5).

Fourthly, the initial conditions during which the demographic dividend starts are another important factor that determines its impact. A country, which already has attained a certain level of economic development, a strong industrialized basis, a well-educated population and some degree of capital accumulation, obviously has a better chance to reap the benefits of its demographic dividend than a country that has to start at a much lower level. Another important aspect is the state of the economy at the moment the transformations take place. If the demographic dividend takes place during a period of global economic recession, its impact will be significantly less.

As the success of harnessing a demographic dividend depends on a favourable policy environment, good governance and the efficient and accountable use of public resources are crucial throughout the process. Priorities in government spending have to be placed on those sectors that are contributing to the demographic dividend. Governance should be directed to remove bottlenecks that hinder economic growth, such as poor infrastructure, corruption and inefficient bureaucracy.

4.2. Methodology

Eloundou-Enyegue's paper (2005, p 6) provides a step-by-step description of the process of a demographic dividend. He distinguishes five different stages in the whole process. Figure 4.1 depicts the steps to achieve a demographic dividend.

Figure 4.1

Steps to harness a demographic dividend



The different steps to achieve a demographic dividend are:

- (1) A “fertility decline” - as part of the demographic transition in a country - forms the first step towards a demographic dividend. The decrease in fertility triggers changes in the age-structure of the population. The pace of the fertility decline is important, and according to Eloundou-Enyegue has to be, ‘swift, irreversible and broad-based’ to result in a dividend. “If a transition is slow, old-age dependency might rise before the fertility transition is completed, and this counteracts the decline in young age-dependency.”
- (2) “Low age dependency” is essential to create the conditions for a demographic dividend, but can only be achieved if the decline in fertility is accompanied by low levels of adult mortality. Another important aspect is the occurrence of migration of persons in the active age groups. Large-scale emigration has a dampening effect on low dependency ratios.

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- (3) “Economic dependency” is closely connected to age dependency, but in practice, both are quite different. Only if everybody, both males and females, in the age group 15-64 are working and everybody aged under 15 and 65 and over are dependent, would the economic dependency be equal to the age dependency. In Myanmar, this is certainly not the case. As shown in this report, participation rates are quite high for persons aged 10-14 and 65 and over, while the participation of women in the labour force is still quite low.
- (4) Years of “low economic dependency” can generate a significant rise in per capita income, even if age-specific income levels and levels of employment remain constant. Given the right economic climate and the lack of other competing demands, the higher per capita income can mobilize resources for “savings and investment.”
- (5) The final step in the process of a demographic dividend is determined purely by economic behaviour in terms of savings and investments, and guided by policies to convert savings and investment into “economic growth.”

The current analysis of the demographic dividend in Myanmar will follow these steps, but will only focus on steps one to four of the process. In addition, only the link between demographic changes and the first demographic dividend is, in the main, studied. A possible second demographic dividend is clearly a number of years away, and currently no solid information is available to study its effect. Whenever the term demographic dividend is mentioned in the rest of this report, it therefore refers to the “first” demographic dividend, unless otherwise stated.

The current analysis should be seen as a first step into understanding the demographic dividend in Myanmar. The analysis looks predominantly into demographic aspects of the demographic dividend. No in-depth analysis of Myanmar’s economic conditions has been undertaken. This would fall outside the scope of a census thematic analysis. A full analysis would require a multi-disciplinary team consisting of demographers, economists, environmentalists, policy analysts, and health and education specialists. Because of the importance of the demographic dividend for the development of Myanmar, it would be useful if, in the near future, such a study were to be organized, in order to get a more comprehensive understanding of the process and raise awareness to stimulate action and policy development.

After an overview of the fertility transition and a comparison with other countries in the region, age dependency was examined. To provide a more detailed picture of the changes in age dependencies that have taken place, and that are going to take place, two population projections are used. Information on the age composition of the population between 1983 and 2014, the year of the last two censuses, is very scarce. Based on different surveys held during the intercensal period and the analysis of the last two censuses, a relatively clear picture exists of the levels of fertility and mortality at various points in time. To make an estimate of the age dependencies between 1983 and 2014, a population projection was prepared that was based on the 1983 population and on observed fertility and mortality in the years up to 2014.

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The report has already referred to the population projection that was used to look at future changes in Myanmar's age structure. In this chapter, this population projection (2014-2050) has again been used. The combination of both projections (1983-2014 and 2014-2050) provides a general picture of the beginning, the duration, and the depth, of low age-dependency between 1983 and 2050. The analysis aims to show the net effect of changes in age structure on economic outcome. Therefore, in the model, to look at future changes, a number of parameters have been kept constant (such as unemployment and labour productivity). Keeping these parameters constant up until 2050 is not realistic, but it was done solely to show the net effect of age structure, without the interference of other intervening factors.

Table 4.1 shows the total population by sex and three broad age groups (0-14, 15-64 and 65 and over) and the total population for the entire projected period (1983-2050). Although population projections were made by one-year periods, the table is restricted to five-year intervals. Based on a number of age indicators, the evolution of age dependency is investigated over time, from 1983 until 2050. As noted above, age dependency and economic dependency are not identical. Therefore, in the third step of the analysis the dependent and the active populations are not defined by fixed age intervals (0-14, 15-64 and 65 and over), as in step two, but by observed and projected number of persons working and persons not working.

Although by definition unemployed persons belong to the group of economically active persons (United Nations Statistics Division, 2008), in this case they were considered as economically inactive, as they do not make a direct contribution to the production of economic goods and services (although it is equally recognized that such unemployed people can readily contribute in the future). To estimate economic dependency ratios, a model was built in which age- and sex-specific employment ratios (that is, the number of males/females employed in a particular age interval divided by the number of males/females in that age interval) could be linked to the projected number of persons in the years 2015-2050. Note that no economic dependency ratios were calculated for the period 1983-2014, as no employment rates were available for the intercensal years.

The study of how low economic dependency can generate a significant rise in per capita income (step four) requires age-specific information on levels of consumption and income. These data were not readily available and had to be gathered specifically for this purpose. To study the economic flows between persons of different ages and generations the system of National Transfer Accounts (NTAs) was developed. The United Nations Population Division (2013, p 25) notes that:

National Transfer Accounts provide an accounting of economic flows to and from residents of a country classified by their age. The accounts are comprehensive in that all economic flows that arise as a consequence of the production of goods and services during the year are incorporated into the accounts.

However, in the case of Myanmar, an analysis based on the NTAs was not possible as no data on age-specific consumption and income are available.

Chapter 4. Demographic dividend

Table 4.1

Projected population (thousands) by sex and broad age groups, 1983-2050

Age group	1983			1985			1990		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
0-14	13,241	6,672	6,569	13,492	6,797	6,695	13,924	7,010	6,914
15-64	20,057	9,900	10,157	21,020	10,363	10,658	23,333	11,452	11,880
65+	1,081	512	569	1,130	529	601	1,289	589	700
85+	245	109	136	248	109	139	261	111	150
Total	34,379	17,083	17,296	35,642	17,689	17,953	38,545	19,051	19,494
Relative number of persons in age groups									
0-14	38.5	39.1	38.0	37.9	38.4	37.3	36.1	36.8	35.5
15-64	58.3	58.0	58.7	59.0	58.6	59.4	60.5	60.1	60.9
65+	3.1	3.0	3.3	3.2	3.0	3.3	3.3	3.1	3.6
Age group	1995			2000			2005		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
0-14	14,110	7,095	7,015	14,334	7,201	7,132	14,511	7,296	7,215
15-64	25,623	12,520	13,103	27,847	13,561	14,286	29,874	14,501	15,373
65+	1,505	674	831	1,781	784	997	2,117	920	1,197
85+	286	118	168	329	131	198	394	152	242
Total	41,238	20,288	20,949	43,962	21,547	22,415	46,503	22,718	23,785
Relative number of persons in age groups									
0-14	34.2	35.0	33.5	32.6	33.4	31.8	31.2	32.1	30.3
15-64	62.1	61.7	62.5	63.3	62.9	63.7	64.2	63.8	64.6
65+	3.6	3.3	4.0	4.1	3.6	4.4	4.6	4.1	5.0
Age group	2010			2015			2020		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
0-14	14,477	7,283	7,194	14,981	7,567	7,414	14,833	7,465	7,369
15-64	31,887	15,446	16,441	34,464	16,452	18,012	36,544	17,444	19,100
65+	2,509	1,080	1,429	3,133	1,307	1,826	3,713	1,522	2,191
85+	487	183	304	592	219	373	690	245	445
Total	48,873	23,808	25,065	52,578	25,326	27,252	55,090	26,431	28,659
Relative number of persons in age groups									
0-14	29.6	30.6	28.7	28.5	29.9	27.2	26.9	28.2	25.7
15-64	65.2	64.9	65.6	65.5	65.0	66.1	66.3	66.0	66.6
65+	5.1	4.5	5.7	6.0	5.2	6.7	6.7	5.8	7.6
Age group	2025			2030			2035		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
0-14	14,766	7,414	7,352	14,707	7,386	7,321	14,171	7,133	7,038
15-64	38,159	18,247	19,912	39,462	18,921	20,541	40,753	19,603	21,150
65+	4,540	1,844	2,697	5,480	2,212	3,269	6,471	2,604	3,866
85+	826	288	538	1,006	347	659	1,252	430	822
Total	57,466	27,505	29,961	59,650	28,519	31,131	61,395	29,341	32,054
Relative number of persons in age groups									
0-14	25.7	27.0	24.5	24.7	25.9	23.5	23.1	24.3	22.0
15-64	66.4	66.3	66.5	66.2	66.3	66.0	66.4	66.8	66.0
65+	7.9	6.7	9.0	9.2	7.8	10.5	10.5	8.9	12.1

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Age group	2040			2045			2050		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
0-14	13,433	6,772	6,661	12,622	6,370	6,252	11,956	6,035	5,920
15-64	41,753	20,160	21,594	42,454	20,568	21,886	42,743	20,778	21,965
65+	7,476	3,011	4,465	8,431	3,408	5,024	9,423	3,798	5,624
85+	1,599	549	1,050	1,983	681	1,302	2,421	827	1,594
Total	62,662	29,943	32,720	63,507	30,346	33,162	64,121	30,612	33,510
Relative number of persons in age groups									
0-14	21.4	22.6	20.4	19.9	21.0	18.9	18.6	19.7	17.7
15-64	66.6	67.3	66.0	66.8	67.8	66.0	66.7	67.9	65.5
65+	11.9	10.1	13.6	13.3	11.2	15.1	14.7	12.4	16.8

For this report, a preliminary attempt was made to estimate the effect of changes in the age composition of the population on overall income levels. As noted above, in Myanmar, there is no detailed information on income levels of households. Therefore, a model was used to describe the age-specific distribution of income of individual persons. Studies have shown that the age-specific distribution of income follows a more or less “normal distribution”¹⁷. For instance, in the NTA Bulletin (2012, p 3), the authors investigate whether lower-income countries can attain a first demographic dividend. To do so they compare per capita age-specific labour income and consumption patterns, and explore their effect in combination with the economic support ratio. To make international comparisons, they first expressed labour income at each age relative to the average labour income of persons in each country in the age group 30-49, a person’s prime earning years. For each specific five-year age group the average was then computed of the ratios at each age across countries in each income group. This resulted in a distribution of the ratio of per capita labour income to average labour income in the age group 30-49 for high, lower and upper middle-income countries¹⁸.

In order to make an estimate of the changes in labour income for the period 2014-2050, and to measure the possible effect of changing age-structures, a labour income relative distribution based on the Gaussian curve was created. This normal distribution was tailored in such a way as to represent, as close as possible, the reported distribution in the NTA Bulletin. The normal distribution was constructed with mean (age) 42.5 and standard deviation 15. Figure 4.2 shows the normal distribution used to model labour income. A mean of 42.5 was taken, as this is more or less the age at which people earn most. The standard deviation was taken to have an appropriate spread of the distribution, coming as close as possible to the reported distribution in the NTA Bulletin. Then, a labour income index of 1,000 was applied to the age group 40-45, and index levels of the other age groups were calculated on the basis of the normal distribution. Table 4.2 presents these index levels by age group. In the analysis, all working persons aged 75 and over were assumed to receive the same labour income.

To make a full assessment of economic growth through savings and investment, it is necessary to bring in age-specific patterns of consumption as well, because savings are determined by patterns of income and consumption. Unfortunately, it is not as easy to create an age-

¹⁷ The normal distribution, also called the “Gaussian curve, is the most important and most widely used distribution in statistics. The normal distributions are bell shaped and symmetric around their mean.

¹⁸ Other studies also found the same bell shaped distribution of labour income (see, for example Prskawetz and Sambt, 2014; United Nations Population Division, 2013, p4).

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specific model for consumption as it is for income. Firstly, the pattern is more erratic and not a simple statistical distribution, and secondly, more diversity in the relative distribution of age-specific consumption exists between countries than with labour income. Therefore, the pattern of consumption was not analysed, and this report is restricted only to a broad analysis of changes in overall labour income generated by changing age composition.

Figure 4.2

Normal distribution of modelled age-specific labour income

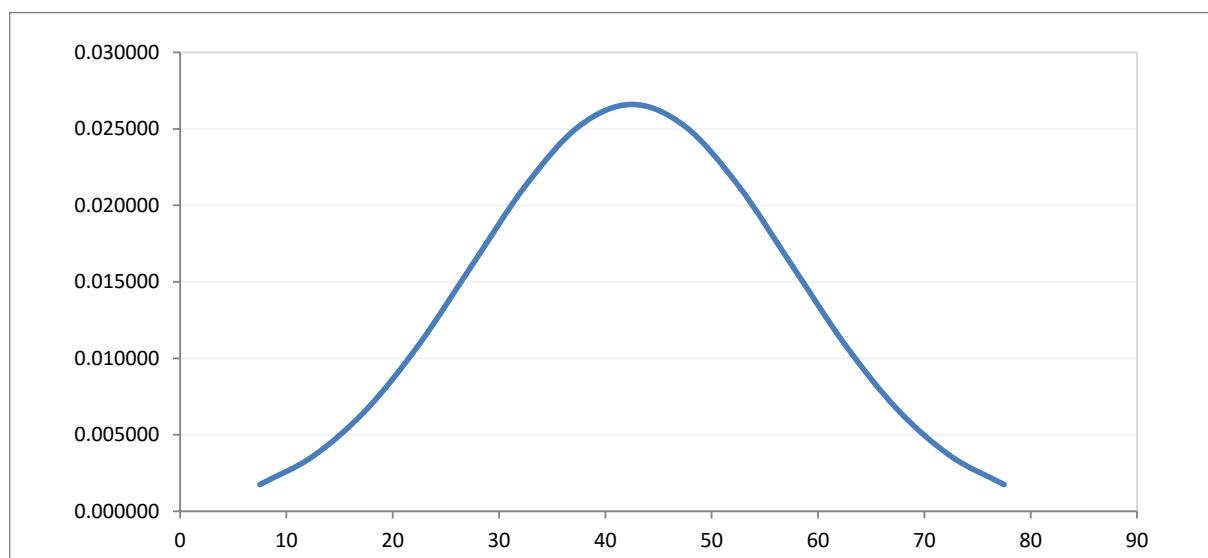


Table 4.2

Modelled age-specific labour income using the normal distribution (Index = 1,000 for age group 40-44)

Age	Normal distribution	Age specific index labour income
5 - 9	0.001748	65.7
10 - 14	0.003599	135.3
15 - 19	0.006632	249.4
20 - 24	0.010934	411.1
25 - 29	0.016131	606.5
30 - 34	0.021297	800.7
35 - 39	0.025159	946.0
40 - 44	0.026596	1000.0
45 - 49	0.025159	946.0
50 - 54	0.021297	800.7
55 - 59	0.016131	606.5
60 - 64	0.010934	411.1
65 - 69	0.006632	249.4
70 - 74	0.003599	135.3
75 +	0.001748	65.7
Mean age	42.5	
SD age	15.0	

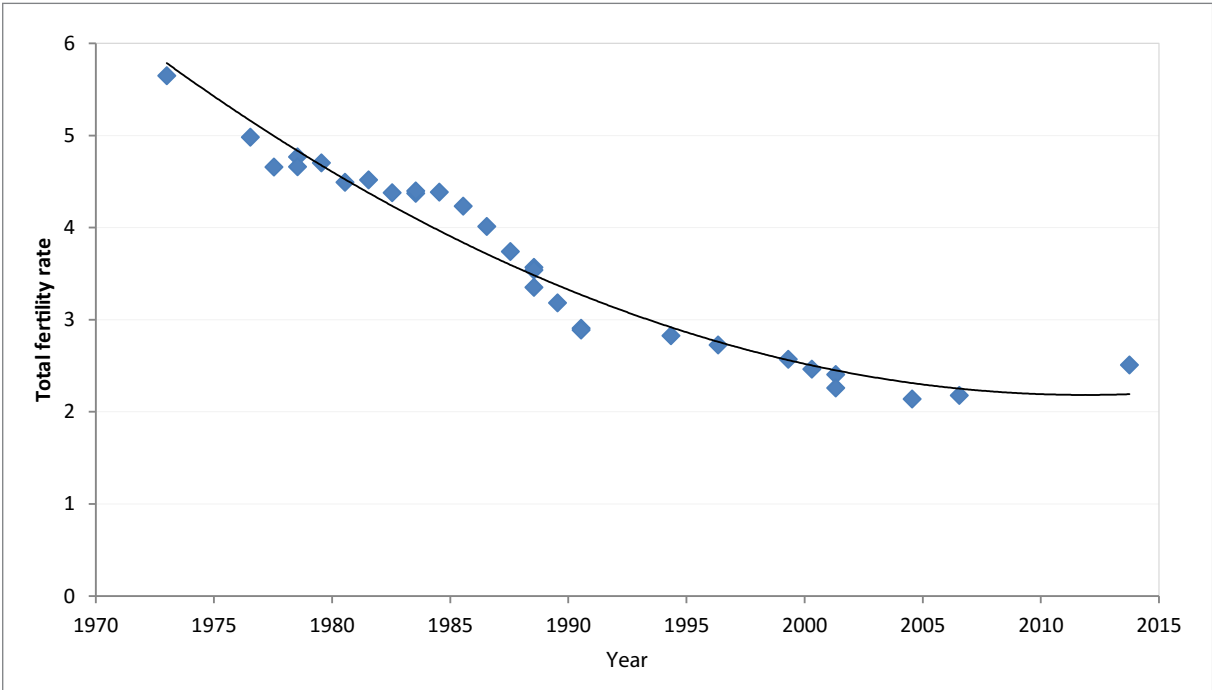
4.3. The demographic dividend in Myanmar

4.3.1 Fertility decline

Eloundou-Enyegue (2013, p 5) indicated that in order for the fertility transition to result in a demographic dividend, it should be ‘swift, irreversible and broad-based’. In a slow transition, that is, with TFRs reducing over a long period, the child dependency ratio reduces slowly as well, and ageing may increase the old-age dependency ratio before the fertility transition has ended. This would seriously hamper the possibilities of a demographic dividend, simply because the window of opportunity would never fully open. An irreversible transition means that fertility would reduce consistently, and not in an irregular manner. An irregular transition results in differing sizes of the younger cohorts and causes fluctuating dependency ratios. In the worst case, this could temporarily close the window of opportunity and open it again later. Finally, a broad-based fertility transition means that the transition takes place without large differences between socioeconomic groups or States/Regions. A transition of just a portion of society would mainly serve those who are already better off and would create more economic inequality.

Trends in fertility have already been discussed in the section on the demographic transition (3.2). Therefore, in this section only the decline in fertility over the years and its importance for the demographic dividend will be discussed. The question as to whether or not Myanmar’s fertility transition will be ‘swift, irreversible and broad-based’ will be examined.

Figure 4.3
Total fertility rates, 1976-2014



Source: Thematic Report on Fertility and Nuptiality (2016a), Table 3.1 Total fertility estimates from multiple sources, 1976-2014, p 18.

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Figure 4.3 shows the course of the total fertility rate between 1976 and 2014. These data are based on Table 3.1 in the 2014 Census Thematic Report on Fertility and Nuptiality (Department of Population, 2016a), where all the TFRs from multiple sources over the years are collected.

It is evident that the decrease in the levels of fertility in Myanmar has not been swift compared with other Asian countries. Table 4.3 shows a number of countries in Asia by the number of years it took for their TFR to decline from 5.5 to 2.2. This table was taken from the study on the impact of demographic change in Thailand (NESDB and UNFPA 2011). The table shows highly differential durations of reaching a TFR of 2.2. Singapore and Iran both only needed 15 years to complete their fertility transition. Thailand, China and South Korea also followed a very rapid course to achieve replacement level fertility. Each of these countries has continued their fertility decline to levels well below replacement. Some other countries in the region were much slower in their fertility decline: Sri Lanka needed 37 years, Japan 42 and Indonesia 41. Myanmar definitely belongs to the group of countries with a slow fertility transition. In 1979, the TFR was 5.04 and, at the time of the 2014 Census, with a TFR of 2.5 children per woman, still above the 2.2 level. This means that over the last 30 years fertility in Myanmar has continued to be well above replacement level.

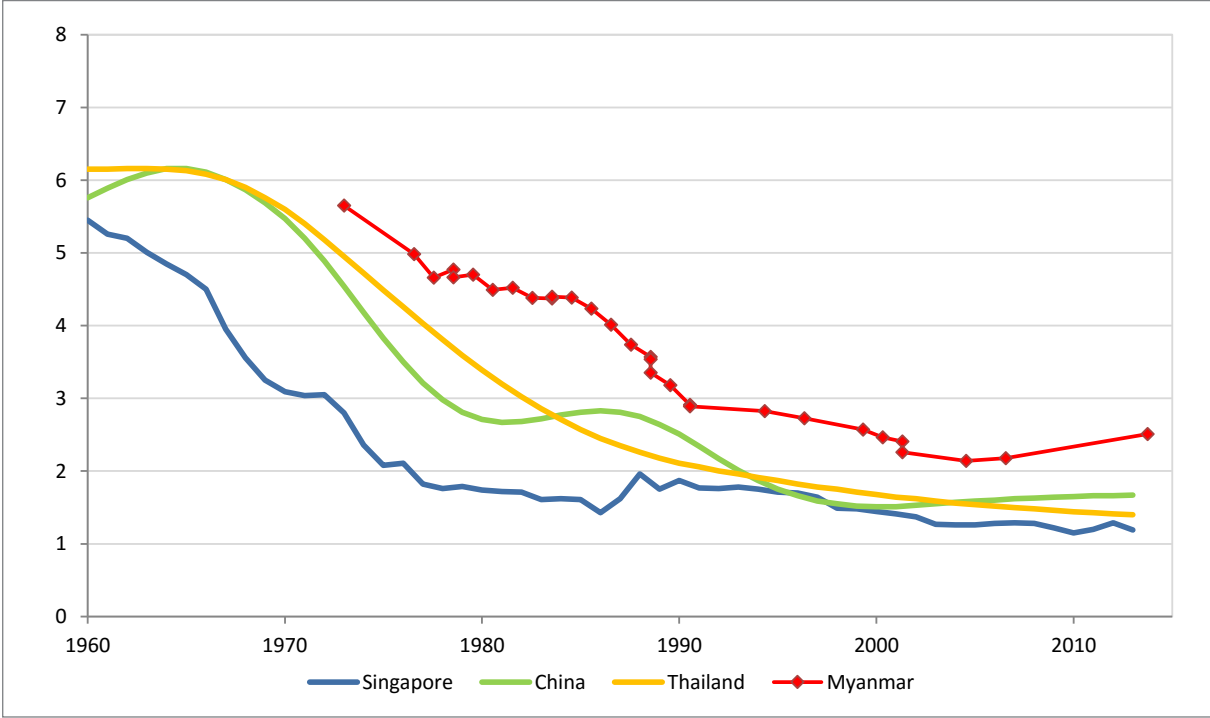
To have a clearer understanding of the pace of Myanmar's fertility transition, Figure 4.4 shows the rate of decline in the TFR over the last 50 years for a selection of Asian countries. For ease of comparison, fast and slow decline countries are shown separately in subheadings (a) and (b).

Table 4.3

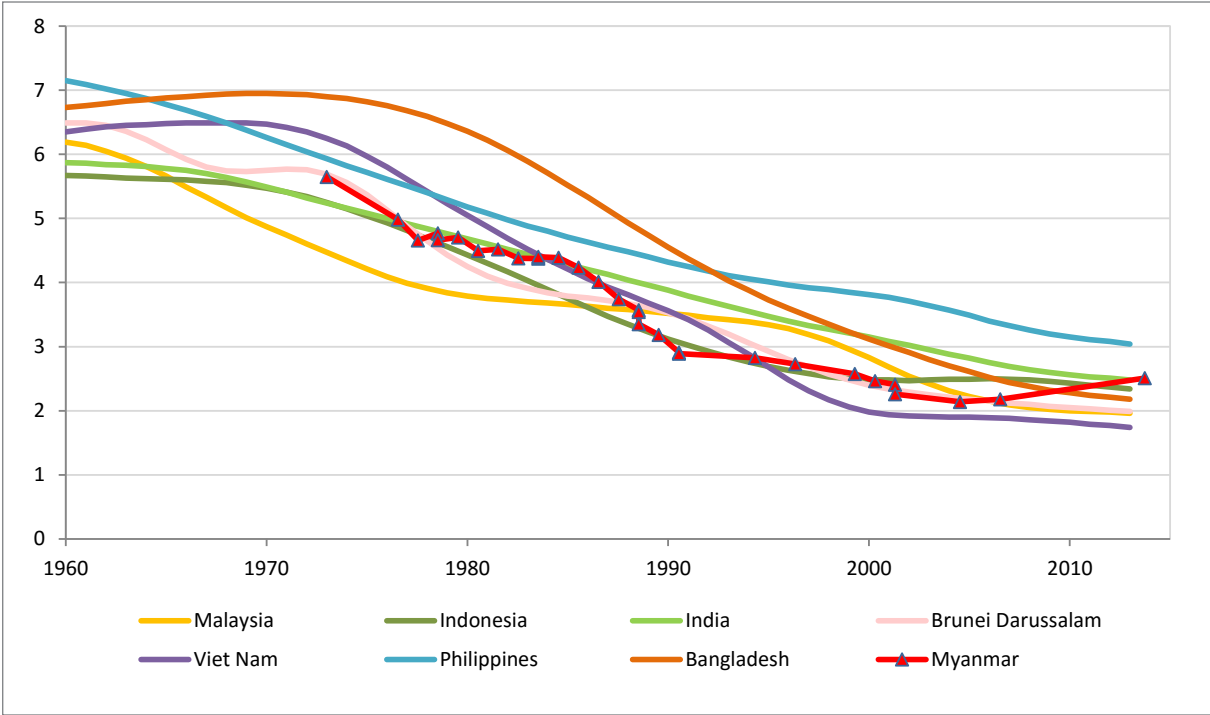
Number of years for TFR to decline from 5.5 to 2.2, selected Asian countries

Country	Period	Approximate years
Singapore	1960-1975	15
Iran	1986-2001	15
Thailand	1970-1990	20
South Korea	1963-1984	21
China	1969-1990	21
Viet Nam	1979-2005	26
Sri Lanka	1960-1997	37
Indonesia	1966-2007	41
Japan	1915-1957	42

Figure 4.4
Fertility decline in selected Southeast Asian and neighbouring countries
(a) Rapid decline



(b) Slow decline



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The graphs show that Myanmar belongs more to the group of countries with a slower decline in fertility. In 1973, the year with the first reliable estimates of Myanmar's level of fertility, the TFR was still higher than in China, Thailand and Singapore. After a period of rapid decline between 1980 and 1990, the decline somewhat stalled, and after 2000 no further reduction took place.

The third condition stated by Eloundou-Enyegue is that the fertility decline should be broad based. The analysis in the 2014 Census Thematic Report on Fertility and Nuptiality (Department of Population, 2016a) shows that large differences exist between socioeconomic groups within Myanmar. Women with a high school or higher completed level of education had fertility below replacement level (TFR 1.88 for high school and 1.18 for above high school), while women with no schooling had a fertility level of 3.94, and women with primary school education had a TFR of 2.68. That report shows that large differences exist between States/Regions in Myanmar varying from a TFR of 1.85 in Yangon to 5.00 in Chin. The high disparities between States/Regions, and the differential in the TFR across educational attainment levels carry the risk that a possible demographic dividend will not have the same impact for everyone in the country. This would lead to increased inequality within the country and could lead to a dual economy, with a highly skilled manufacturing sector, and another with low productivity subsistence agriculture.

4.3.2 Low age dependency

Changes in age structure of the population, based on the 1973, 1983 and 2014 censuses have already been discussed in section 3.2.1, where it was shown that the economic support ratio had increased from 54.9 in 1973, to 57.5 in 1983 and to 65.6 in 2014. During the same period, the total dependency ratio decreased from 82.2 in 1973 to 73.9 in 1983 and to 52.4 in 2014. At the time of the 2014 Census, the percentages of the population aged under 15 and 65 and over, were 28.6 per cent and 5.8 per cent, respectively. These indicators show that Myanmar has been in a situation of low-dependency for some time. The United Nations considers 30 per cent for the under-15 population and 15 per cent for the 65 and over population, as the upper thresholds for low dependency (Eloundou-Enyegue, 2013, p 5).

To better understand the low age dependency in Myanmar, a more detailed picture is necessary. This picture was drawn by projecting the population: (a) from 2015 until 2050, and (b) from 1983 until 2014, by using the observed trends in fertility and mortality and specific migration assumptions to end up with more or less the same population size and structure as observed in the 2014 Census. The projection between 1983 and 2014 was necessary because no reliable data on age composition were available for the 31 year intercensal period. The assumptions made in these projections were discussed in Chapter 1.

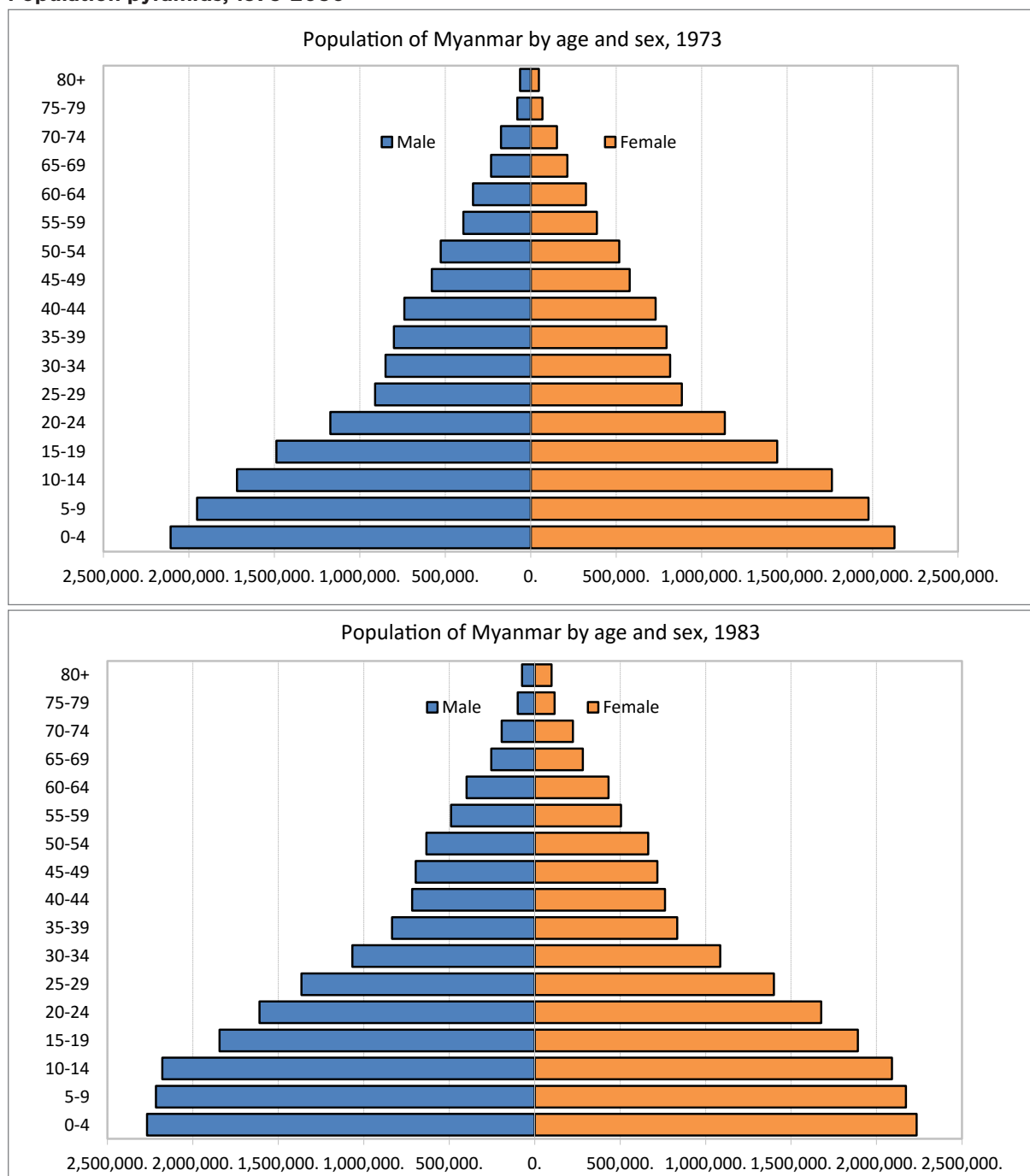
The age pyramids in Figure 4.5 demonstrate clearly how Myanmar's age composition changed between 1973 and 2014, and how it is projected to change in the coming 35 years. In 1973 and 1983, the population structure no longer had a typical "pyramid" shape, but was more like a "pagoda", with a large base, concave sides and a relatively much narrower top. Over the years, the number of children has decreased and the bulk of the population has spread into the active age groups. The main question now is whether the current age composition of the population is a window of opportunity to reap a demographic dividend in the near future.

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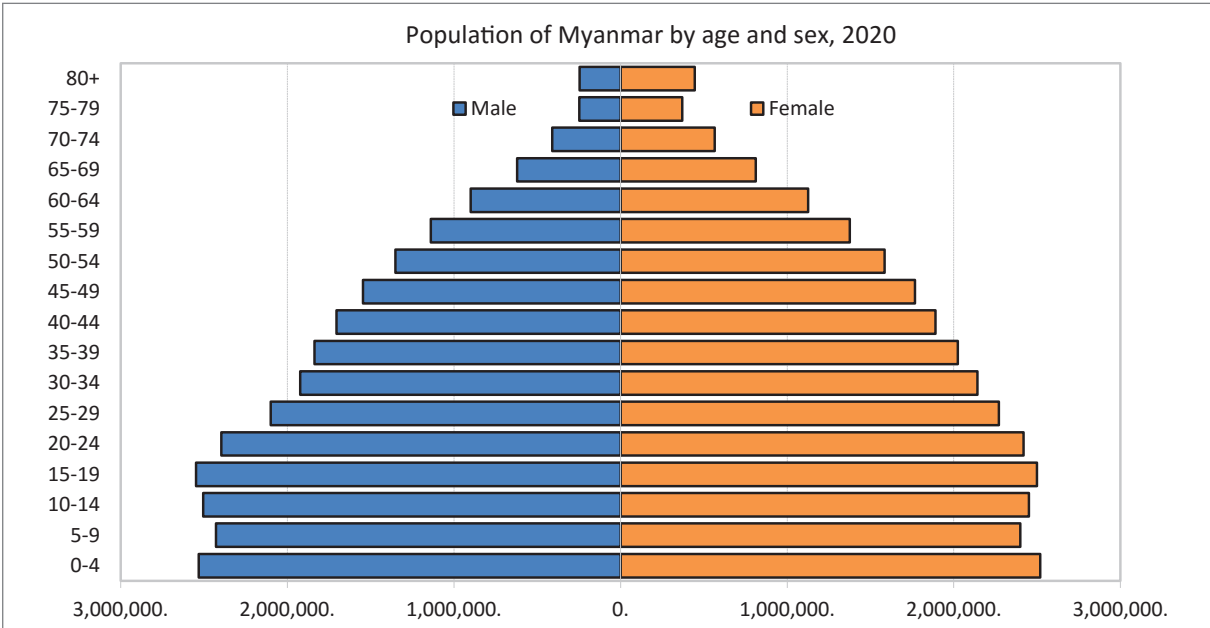
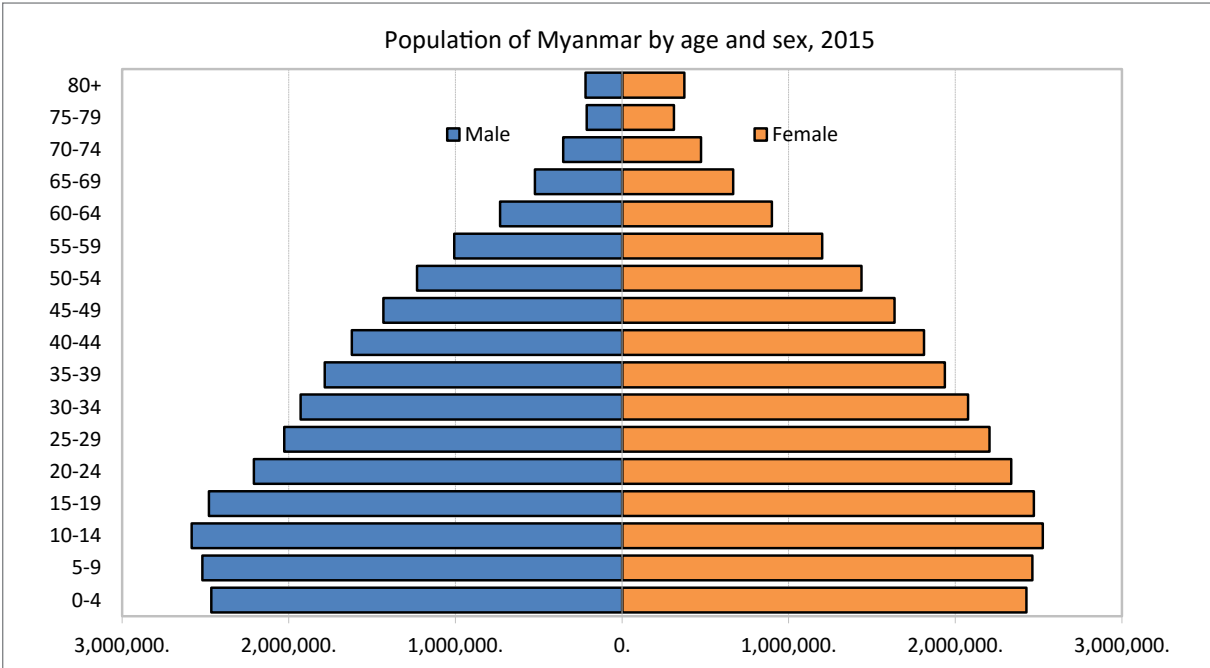
The demographic window of opportunity for a dividend falls within the period during which the working age population is growing, while the size of the younger population is relatively decreasing, and the size of the older population is still small. The demographic dividend can be harnessed if the working age population grows more rapidly relative to the total population. The more rapid the growth of the active population is relative to the total population, the more likely a country is to realize the effects of a demographic dividend.

Figure 4.5

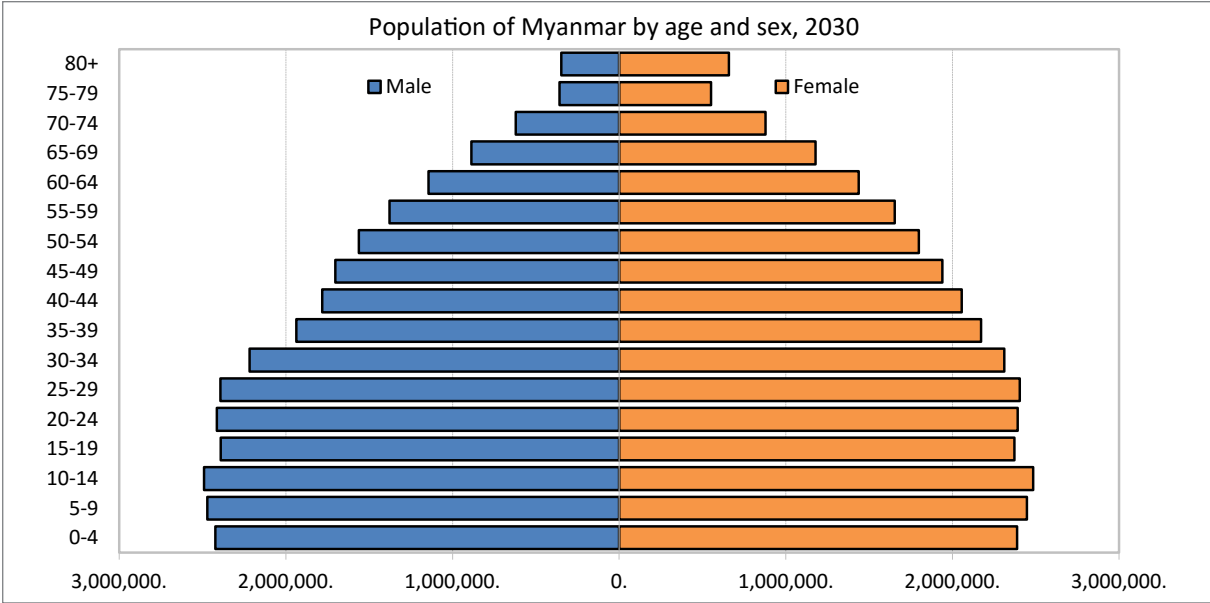
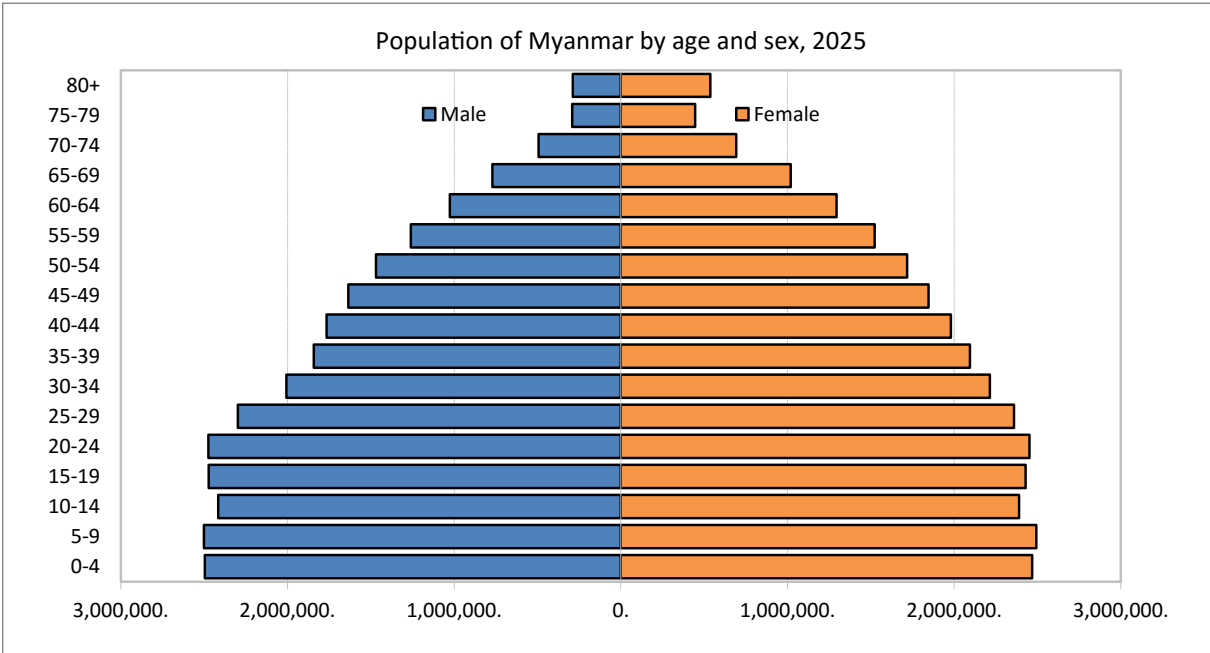
Population pyramids, 1973-2050



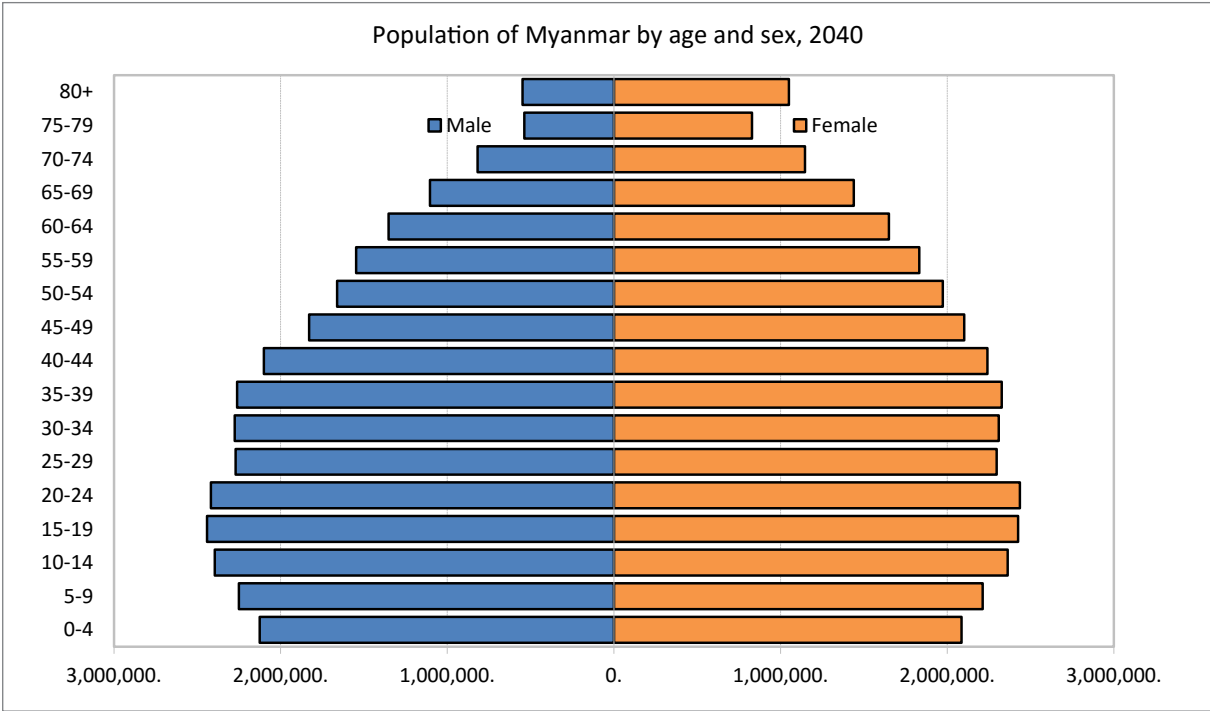
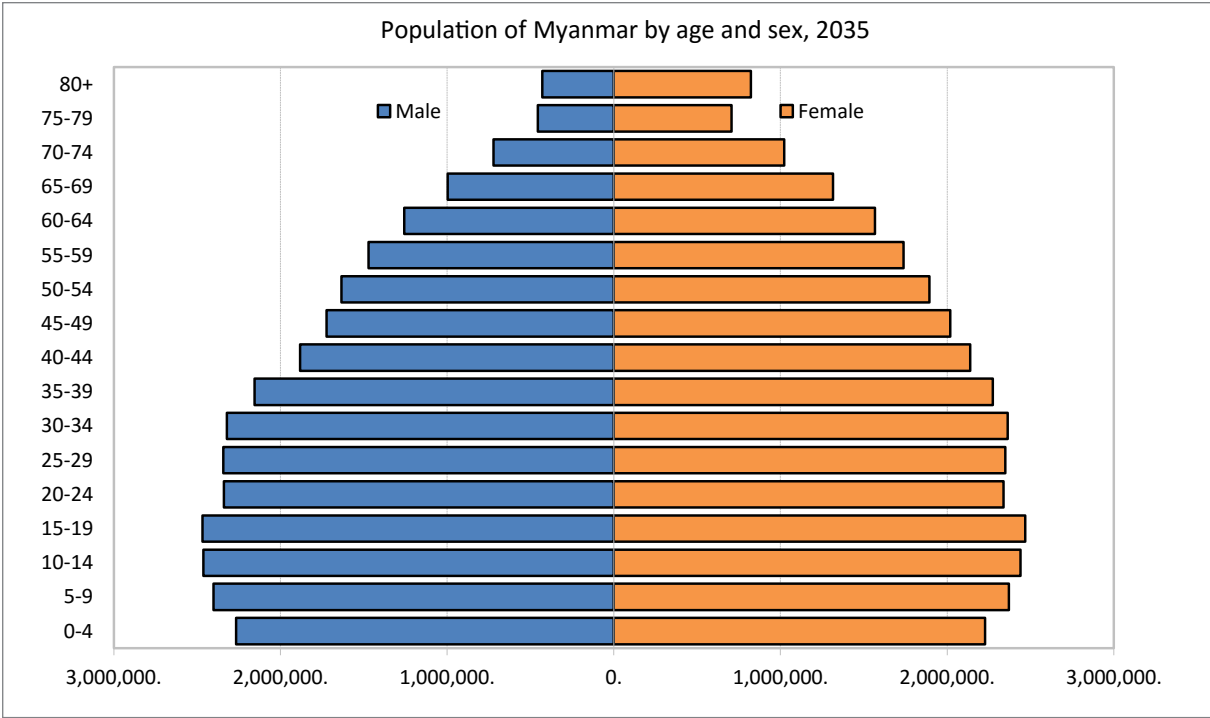
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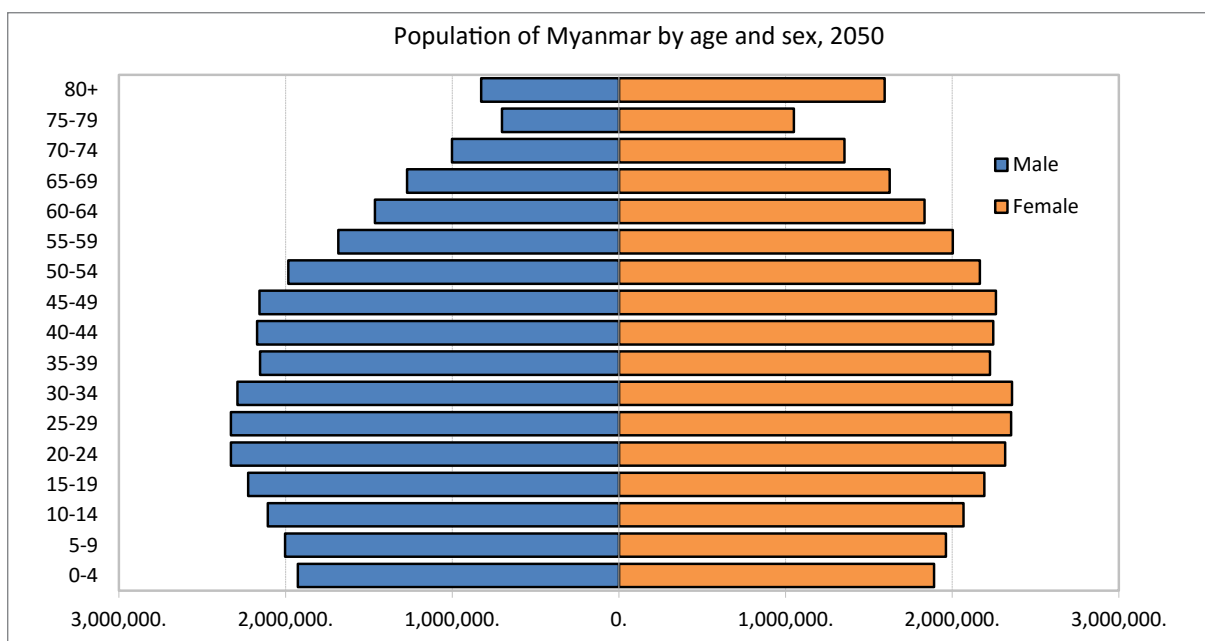
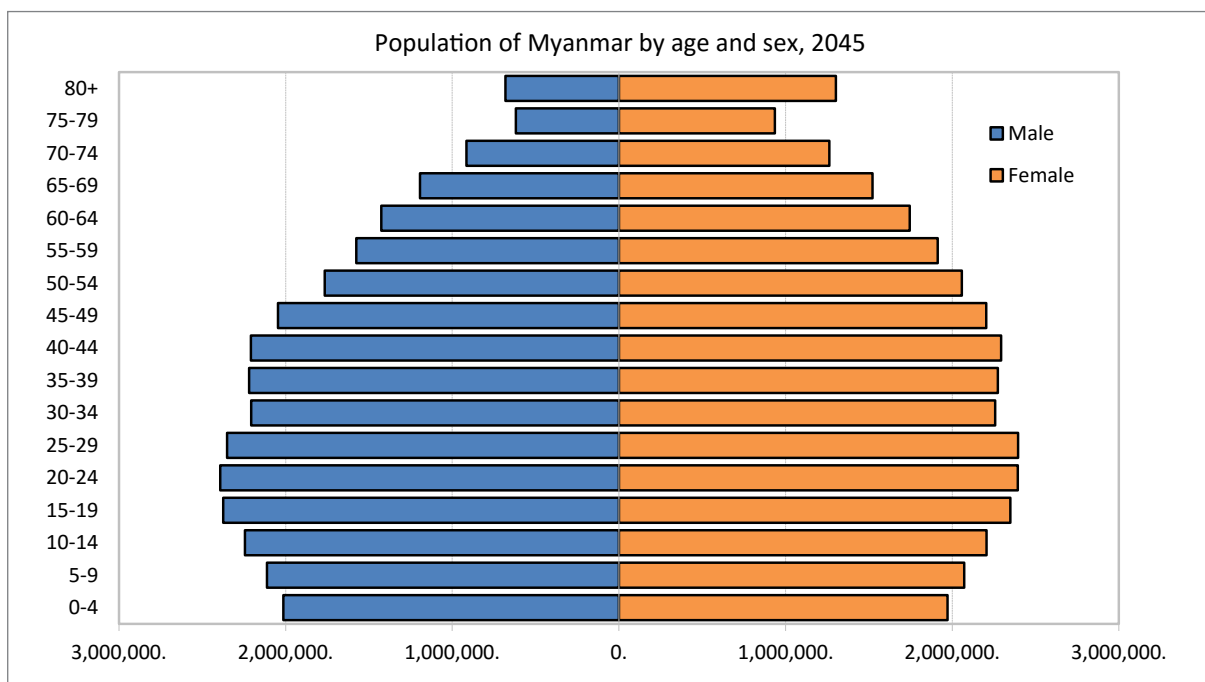


Figure 4.6 plots the annual growth of the working age population (15-64) relative to the total population and shows a higher growth at least for the past 30 years (and, considering the differential in the mid-1980s, probably for even longer before that). In 1985, the growth of the economically active population was 2.3 per cent per annum, while the total population growth was 1.8 per cent per annum. Over the years, there has been a steady decrease in the growth rate of both the active population and the total population. The difference in growth remained at a level of around 0.5 percentage points from 1985 until 1997 and then decreased to around 0.3 percentage points up until the time of the Census. This difference is projected to be maintained until 2018. Then, after 2018, the difference between the growth rates is projected to become very small, and in 2023, become more or less zero.

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From 2031 onwards the yearly growth rate of the active population rises again above that of the total population, but the difference remains small. By the end year of the projection (2050) both the active population and the total population reach zero growth. Strictly speaking, an (almost) equal growth of the active and total population means that the window of opportunity for a demographic dividend closes. This would mean that in Myanmar in 2023 the window would close until 2031, and that afterwards it would only slightly open again.

Figure 4.6

Percentage annual growth of the working age and the total population, 1983-2050

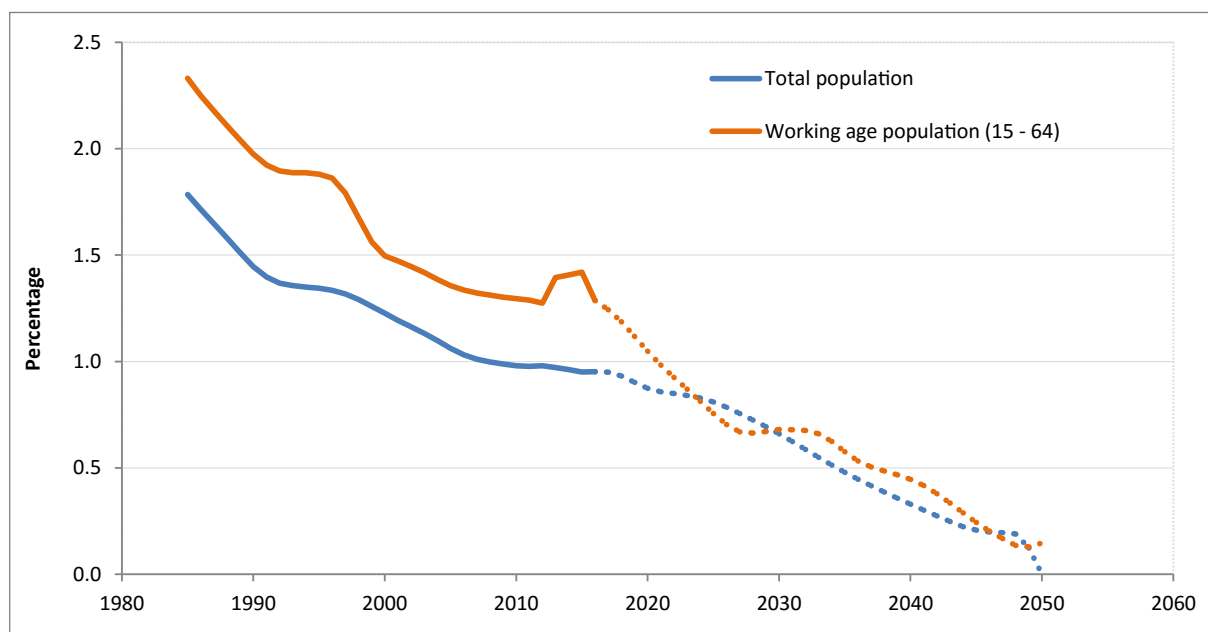
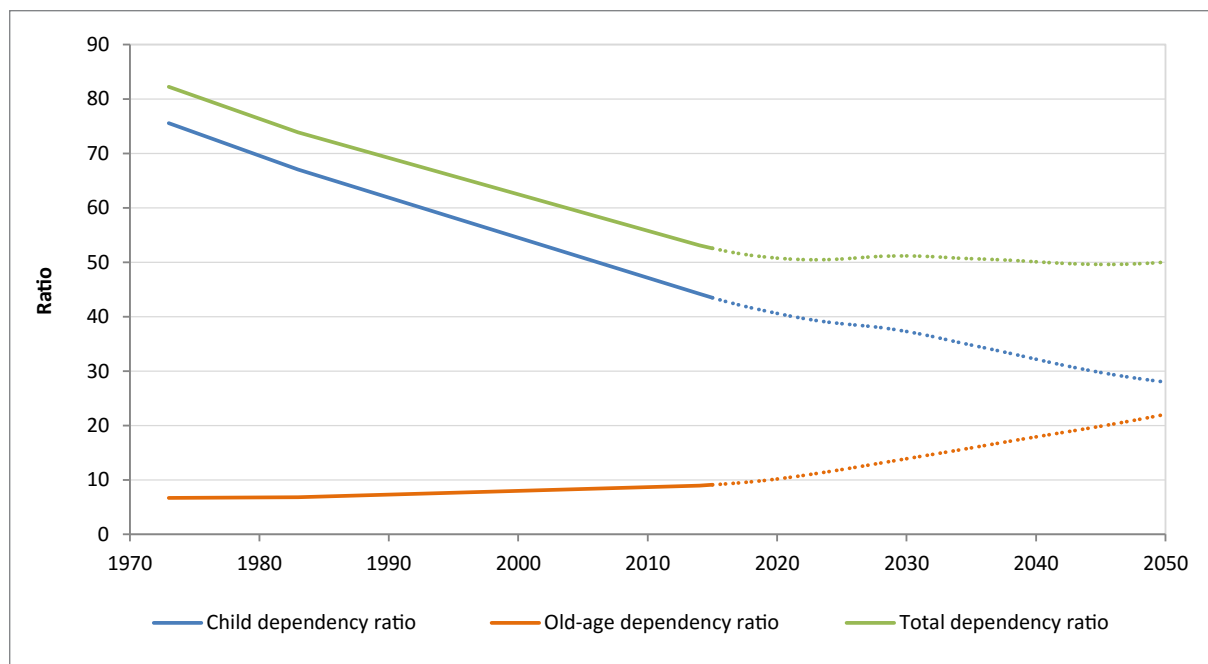


Figure 4.7

Child, old-age and total dependency ratios, 1973-2050



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Figure 4.7 shows the actual and projected dependency ratios for Myanmar for the period 1973-2050 for the child (under 15), old-age (65 and over) and total population. Between 1973 and 2014, the child dependency ratios showed a rapid, linear decline from 75.6 persons aged under 15 per 100 persons in the active population to 43.7. The population projections show that this decline is likely to continue up until 2050.

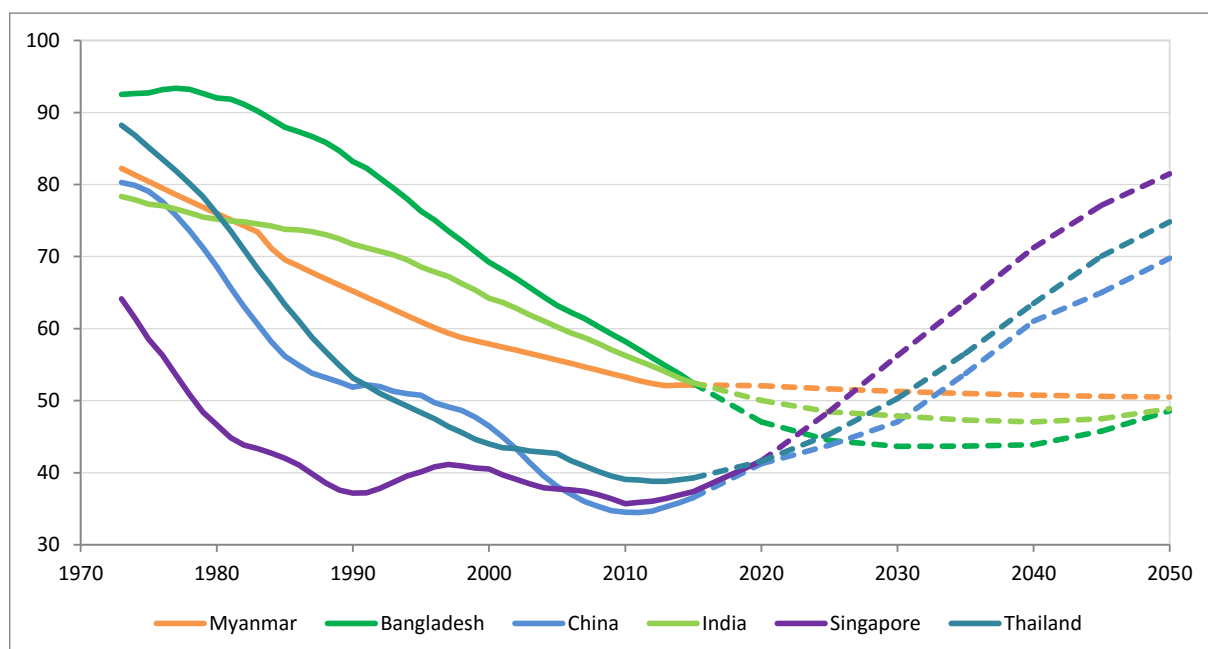
The old-age dependency ratio remained at a low level between 1973 and 2014, rising slowly from 6.7 persons aged 65 and over per 100 persons in the active age group, to 8.8. However, after 2020 the old-age dependency ratio is projected to start to increase more rapidly and will have more than doubled by 2050. At the start of section 4.2 it was noted that: “If a transition is slow, old-age dependency might rise before the fertility transition is completed, and this counteracts the decline in young age-dependency.” Figure 4.7 shows that it is very likely that this is exactly what is going to take place in Myanmar. Because the fertility transition has been slow, the old-age dependency ratio will start to increase and will counteract the decline in child dependency. Because the child and old dependency ratios cancel each other out, the total dependency ratio is expected to remain almost at a constant level between 2020 and 2050. Though not shown in Figure 4.7, it can also be expected that after 2050, with the further increase in the size of the older population, the total dependency ratio will start rising.

Some of Myanmar’s neighbouring countries and other countries in Southeast Asia have experienced very rapid fertility transitions while others have been slow. These different transitions create unique patterns of age dependency. Figure 4.8 shows total dependency ratios for some selected countries, three with a rapid fertility decline (Thailand, Singapore, China) and three with a slow decline (Myanmar, India and Bangladesh). Data up to 2014 are based on observed or estimated information, but thereafter, are projections. The comparison between these countries provides a great deal of information about the possibilities for a demographic dividend in Myanmar.

The graph shows that Myanmar, in contrast with the other countries, never drops below a level of 50 dependent persons per 100 persons in the active age group. The three countries with a fast fertility transition have all, at different points in time, dropped below 40, with China even reaching a level below 35. All three countries have used these very low dependencies to promote economic development through the demographic dividend. However, for all three, at around 2020, the favourable demographic conditions will end, and rapid ageing of the population will set in. The fact that Myanmar never reaches such very low dependency ratios throughout the projected period means that the depth of the demographic dividend is considerably shallower than in Thailand, China or Singapore. In other words, it implies that the economic effect of the demographic transition is smaller than in the other three countries.

Figure 4.8

Total dependency ratios, selected Asian countries, 1973-2050



Source: World Statistics (undated).

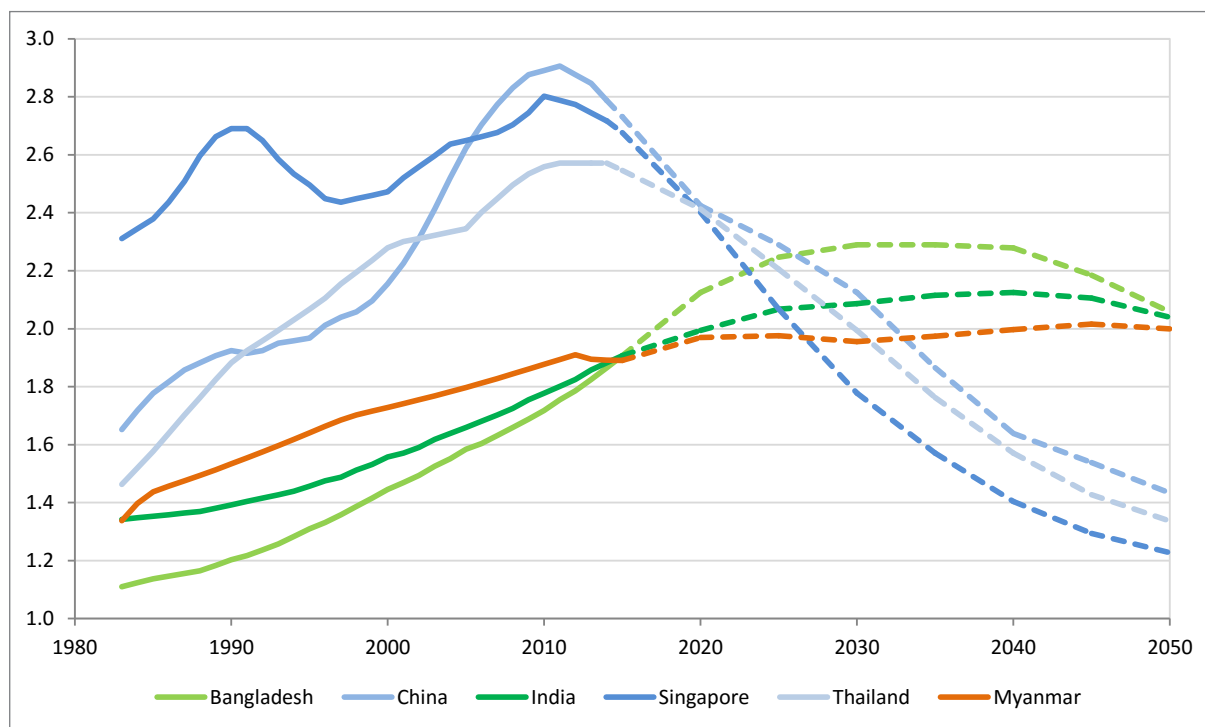
Figure 4.9 provides another way to look at age dependency within the population. In the graph, the ratios of persons in the working age groups relative to the dependent age groups are plotted for the same countries as before. Again, a similar pattern emerges, that is, the relatively high level of active persons per dependent person for China, Singapore and Thailand is evident. Each of the three countries had, at least for some time, more than 2.5 persons in the active age group per dependent.

The lower ratio for Myanmar (and to some extent India and Bangladesh) indicates that the possible dividend is indeed considerably smaller than in the high ratio countries. As the smaller-sized young and old age groups placed less costs on society in China, Singapore and Thailand, and as the larger proportion of their working age population could more easily increase per capita output, these countries were in a much better position to reap the fruits of the demographic dividend. However, in the future Myanmar (and, again, India and Bangladesh) will have a much more favourable age structure than China, Thailand and Singapore, which may give them the chance to, at least partially, catch up.

The growth of Myanmar's GDP was estimated to be 7.7 per cent during the fiscal year 2014 (Asian Development Bank, 2016). Although no specific government programme is set up to produce a dividend, it is possible that the current rapid economic growth, which was instigated by the government's ambitious structural reform programme, was partially underpinned by the country's decreasing dependency ratios.

Figure 4.9

Ratio of persons of working age to dependent persons, selected Asian countries, 1983-2050



Source: World Statistics (undated).

4.3.3 Economic dependency

The use of age dependency ratios is only a crude way to measure economic support and economic dependency. It is based on only three broad age groups and does not capture the differences in economic activity within each group. Persons in the dependent age groups (0-14, and 65 and over) may be economically active, while persons in the active age group (15-64) may not be economically active. Therefore, it is unreliable to conflate age dependency with economic dependency.

To calculate the economic dependency, males and females between the ages of 15 and 79 were weighted by their age-specific employment ratios, that is, the ratio of the employed to the total population in each five year age-group between 2014 and 2050. Note that employment ratios were used rather than the participation rates. The latter would include unemployed persons, who do not make an active contribution to economic growth.

Employed persons can be considered as producers of economic wealth, while non-employed persons (unemployed and inactive) could be seen as consumers of economic wealth. To capture the net effect of demographic change on economic dependency, the employment ratios (number employed/total population) observed in the 2014 Census (Table 4.4.) were assumed throughout the period 2015 to 2050. Of course, this assumption is not realistic, but it was made to show the net effect of changes in the age structure on future economic dependency. The analysis was restricted to the period 2015-2050 as no period-specific information is available on employment for the intercensal period 1983-2014.

Table 4.4.

Age-specific employment ratios by sex, 2014 Census

Age group	Employment rates	
	Male	Female
10 - 14	11.1	10.1
15 - 19	53.6	40.1
20 - 24	79.3	54.0
25 - 29	88.1	54.8
30 - 34	90.7	53.4
35 - 39	91.7	52.9
40 - 44	91.8	51.7
45 - 49	91.1	49.5
50 - 54	88.4	45.0
55 - 59	83.0	39.0
60 - 64	66.2	27.7
65 - 69	51.5	20.0
70 - 74	33.4	12.0
75 - 79	22.4	7.9
80+	14.2	5.0

To keep employment ratios (employed/total population) at the same levels as in 2014, the absolute numbers of people in the labour force will have to continue to increase drastically, because of the larger number of young people that will enter the labour market compared to the smaller number of older workers that are projected to leave the labour market (either through retirement or death) during the period 2015-2050. Thus, the economy will have to create, each year, a large number of new jobs. Figure 4.10 shows the projected absolute number of jobs that would have to be created on a yearly basis to keep employment ratios at the 2014 level.

In 2016, about 287,000 new jobs would have to be created to accommodate new entrants into the labour market. However, over the years, the demand for new jobs will diminish, as both fewer young people enter the labour market and older people leave. For instance, in 2020 about 265,000 new jobs would have to be created and 234,000 in 2025. By 2050, only 57,000 new jobs would need to be created.

Between 2015 and 2050, 6.58 million new jobs in total will have to be created, just to keep the age-specific employment ratios at the current level. This will be a serious challenge for the Myanmar government and the country's private sector. The estimated need for 6.58 million new jobs only takes new entrants from the younger age groups into account. However, it can be expected that, because of their changing role, more women will start to demand their proper place in the labour market. At the moment, labour force participation of women is still low. Any increase in the participation of women in the labour market will require even more additional jobs.

Figure 4.10

Number of jobs that would need to be created to keep age-specific employment ratios at the same level, 2015-2050

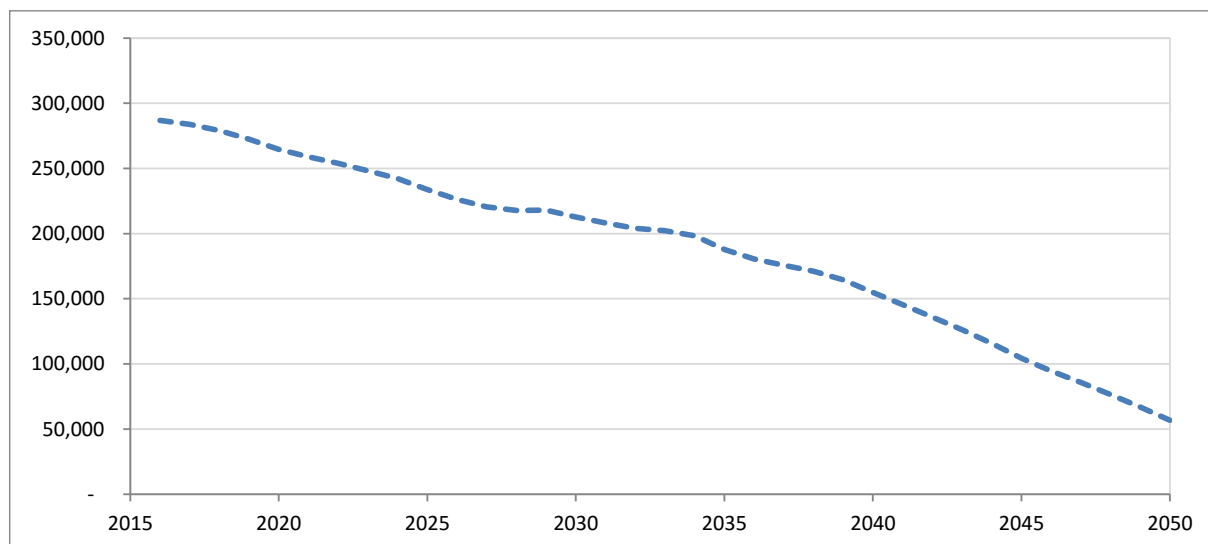


Table 4.5 summarizes the indicators of economic dependency for the period 2015-2050. The first important indicator from this table is the growth of the employed and non-employed (inactive plus unemployed) population. A consistent stronger growth of the employed population compared to the non-employed (dependent) population opens the door for a demographic dividend.

Figure 4.11 shows that throughout the projection period the annual growth rates of the employed population are expected to be larger than the growth rates of the non-employed population, and larger than the total population growth rates. This implies that the conditions to reap a demographic dividend are present. However, the differences between both growth rates are quite small. The maximum differences between the growth of the employed and non-employed are 0.5 percentage points in 2015 and 0.4 in 2016. For the rest of the years, the differences in growth rates are consistently under 0.4 percentage points and often much smaller.

This confirms the conclusions made earlier that the possible demographic dividend in Myanmar does not have much depth. Only a small decrease in the employment rates in the coming years would completely take away the possible reaping of a dividend. Figure 4.12 shows that the economic support ratios, defined as the number of employed persons divided by the total population, are projected to remain almost constant throughout the 2015-2050 period, with a small growth from 44.5 to 46.7 over the 35-year period. Any drop in employment ratios would trigger the support ratio to decline and the economic dependency ratios to increase.

Chapter 4. Demographic dividend

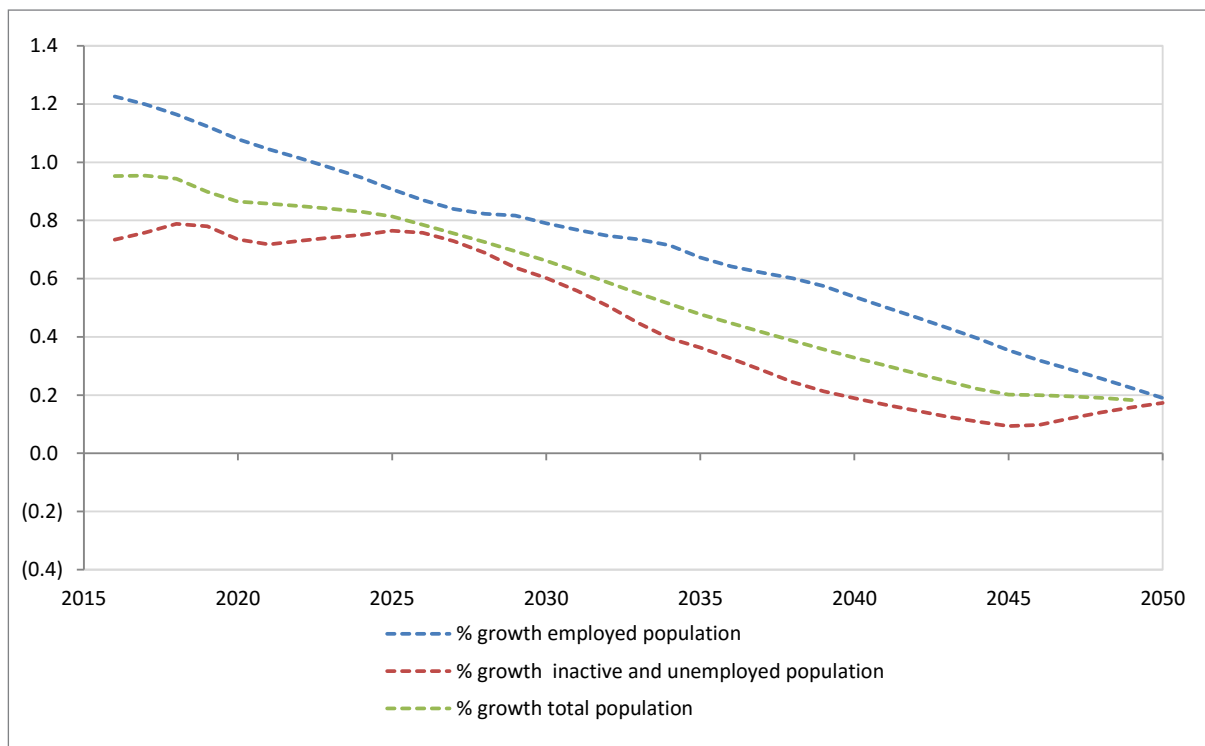
Table 4.5

Indicators of economic dependency, 2015-2050

	2015	2020	2025	2030	2035	2040	2045	2050
Total employed	23,400,854	24,787,809	26,024,803	27,120,060	28,120,627	28,967,530	29,595,587	29,975,949
Total inactive + unemployed	29,177,368	30,302,054	31,441,123	32,529,698	33,274,398	33,694,951	33,911,681	34,145,375
Absolute growth employed population	-	264,713	233,814	212,694	187,852	154,974	104,477	56,774
Absolute growth inactive and unemployed population	-	221,124	238,481	194,695	120,279	63,780	31,656	58,910
Support ratio (employed/total pop.)	44.5	45.0	45.3	45.5	45.8	46.2	46.6	46.7
% growth employed population	-	1.1	0.9	0.8	0.7	0.5	0.4	0.2
% growth inactive and unemployed population	-	0.7	0.8	0.6	0.4	0.2	0.1	0.2
% growth total population	1.0	0.9	0.8	0.7	0.5	0.3	0.2	-
Difference growth employed - inactive	-	0.3	0.1	0.2	0.3	0.3	0.3	0.0
Dependency ratio (inactive+unemployed)/employed	124.7	122.2	120.8	119.9	118.3	116.3	114.6	113.9
Sex ratio employed population	154.5	155.3	156.8	158.5	160.3	162.1	164.1	166.1
Sex ratio inactive and unemployed population	61.6	59.9	58.6	57.6	56.6	55.5	54.5	53.5

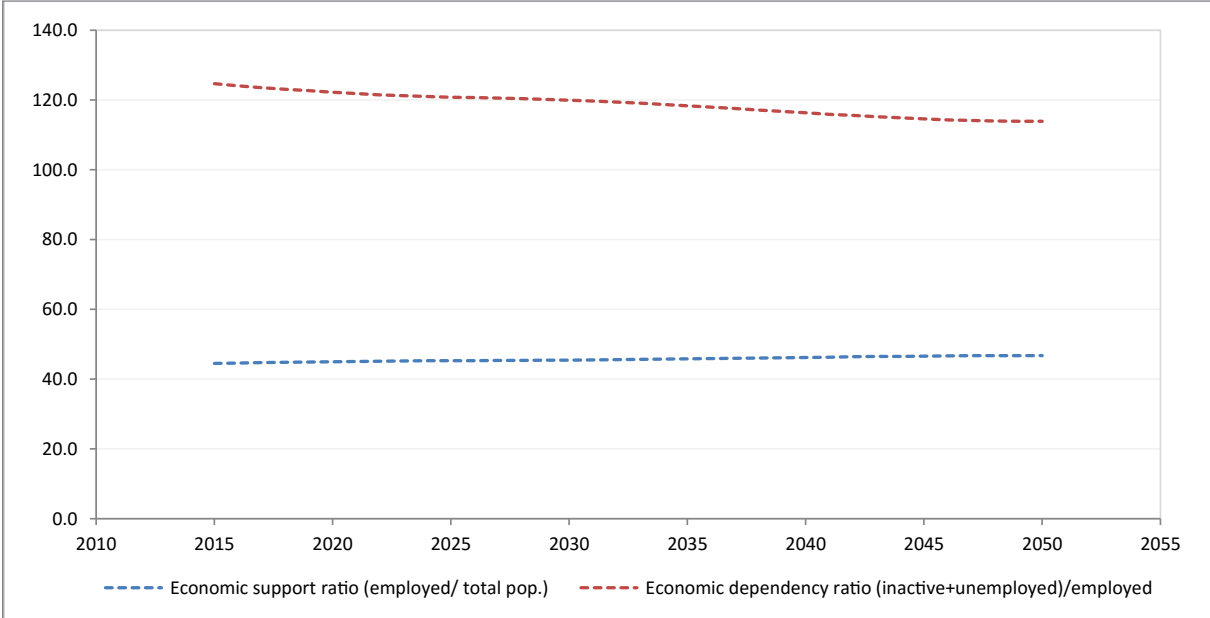
Figure 4.11

Growth rates of employed, non-employed and total population, 2015-2050



There is reason to believe that in recent years the labour market has not been able to absorb the large number of new young entrants in to the labour market. Compared to 1983, unemployment rates are much higher for young males and females (see Table 3.2). The fact that the country saw many of its young people find employment abroad is a clear sign of the limited absorption capacity of the home labour market. Unless a large number of jobs are created in the coming years, unemployment will dramatically rise, solely due to the demographics, and more young persons will be forced to try their luck abroad. If the number of new jobs cannot keep up with the growing number of economic dependents then the demographic dividend can easily turn into a demographic burden. Whether the current population situation will yield a dividend or will become a heavy burden depends on the right measures and policies to increase the employment opportunities of young people and women.

Figure 4.12
Economic support and economic dependency ratios, 2015-2050



It is appropriate, now, to bring migration into the equation. As Myanmar is confronted with large international outmigration flows, it is important to know how these flows will facilitate or hinder a demographic dividend, and how a demographic dividend may influence migration. The possible effect of a demographic dividend on migration levels is discussed by Fargues (2011, p 602). He argues that it can have two possible impacts, depending on the employment situation. In the case of a successful dividend, with full employment, the demographic change that caused the dividend would indirectly, through improved economic conditions, also diminish the principal cause of emigration (poverty) and would reduce the level of outmigration. He notes: “However, if young people arrive in labour markets that are characterized by high unemployment and low wages in a context of bad governance, the youth bulge will bring no demographic dividend and will produce the opposite effect to migration.”

In Myanmar, as an increasing number of young people entered a weak labour market, many were forced to find employment abroad. It can be expected that, if Myanmar cannot harness its demographic dividend, even more young people will migrate for this purpose. The ageing workforce in Thailand and China will create a large demand for labour. The danger exists that if Myanmar is not able to create lucrative job opportunities for its growing group of new entrants into the labour market, the country will merely become a regional supply centre of cheap labour.

Little research has been undertaken on the effect of international migration on the demographic dividend in outmigrating countries. International migration can affect the demographic dividend in various ways. Most often migrants are pushed by a poor labour market situation at home and pulled by more favourable conditions abroad. If migrants keep close ties with their families at home, their remittances may be a source for economic

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growth and may support the demographic dividend through investments in human capital, productive activities and capital formation.

In their analysis of the relationship between the flow of remittances and poverty alleviation and economic growth in 24 developing Asia-Pacific countries, Katshushi et al (2012, p 29) conclude that, indeed, such migrant remittances in Asia have been beneficial to economic growth and have contributed to poverty alleviation. The authors, however, warn that the volatility of remittances may jeopardize the stability and durability of economic growth. The success of the use of remittances for economic development depends highly on the success of governments to 'harvest' remittances sent from abroad. For instance, South Korean contract workers overseas are required to send at least 80 per cent of their remittances home through the Korean banking system (Hugo, 2006, p 7).

International migration has an effect on the age composition of a country and its dependency ratios. As migrants predominantly belong to the economically active age groups, their absence has a negative effect on the economic support ratio and increases the dependency ratios. However, the economic support ratio and dependency ratio may show an opposite effect. If migrants leave their home country because they are unable to find a job, their departure will increase the economic support ratio and decrease economic dependency. These changes in economic dependency, together with the influx of remittances, could have a positive effect on the country's attempt to harness a demographic dividend. However, much depends on the professional qualities of the migrants. If migrants are highly educated, their departure will decrease the human capital of the country, which is much needed for economic development.

Unfortunately, no adequate data are available on Myanmar to enable an investigation of the relationship between the large-scale migration of workers and the possible demographic dividend. To quantify the possible effect of migration on the age composition and the economic support ratio, a small test was carried out. If the estimate of 4.25 million Myanmar emigrants, assumed in section 2.1.3 to be living abroad, is accepted, and if these migrants were to have the age structure of the population residing abroad in the 2014 Census, then the total dependency ratio would decline from 52.4 to 47.3, if no migration had taken place.

The economic support ratio would increase from 65.6 to 67.9. If all the 4.25 million migrants were still to be in the population and all be either unemployed or inactive, then the economic dependency ratio in 2014 would have been 162.2 non-working persons per 100 working persons instead of 124.7. The economic support ratio would drop from 44.5 to 38.1 per cent of persons working in the total population. Obviously, these assumptions are not realistic but the results show the possible impact of Myanmar's international migration flows on age and economic dependency.

4.3.4 Age composition and income level

To estimate the effect of the projected changes in the age composition on labour income between 2014 and 2050, the modelled age-specific labour income indices using the normal distribution (see Table 4.2.) were applied to the projected age distribution of the number of

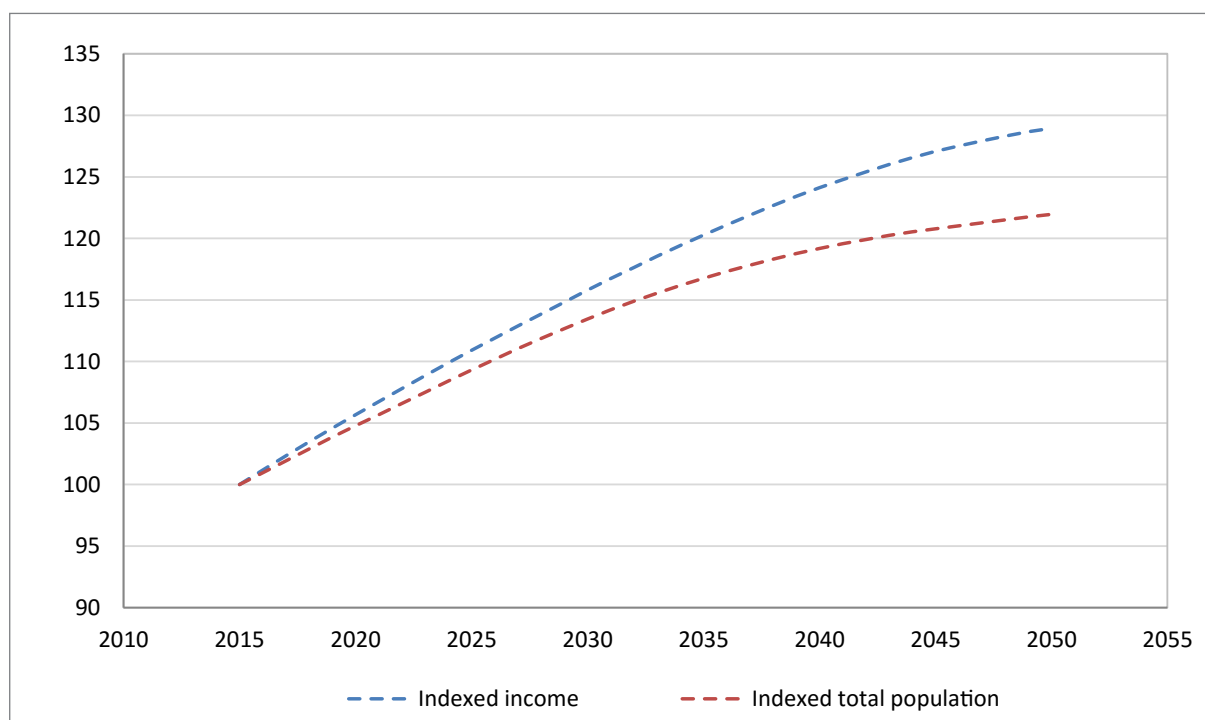
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persons employed. It should be remembered that income levels for those aged 40-44 years were set to 1,000; other age groups' salary levels were set as a fraction of this amount. The fraction was determined by their position on the normal distribution. Figure 4.13 shows the projected evolution of income for the total employed population between 2015 and 2050. The total income was indexed at 100 for 2015, and it was assumed that age and sex-specific employment ratios, and individual income levels, would remain at the 2014 level throughout the period. Although this assumption is obviously not very realistic, it was adopted to show the net effect of the changes in age composition.

The graph shows clearly that the overall level of labour income will rise, due to the combination of population growth and changing age composition. The more people move into age categories with higher employment ratios and with higher income levels, the faster the overall labour income level increases. If the country's total labour income in 2015 is taken to be 100, by 2050, it would increase to 128.9, just because of the higher number of persons in employed positions and persons moving into age groups for whom income is higher. In terms of per capita income, the gains would be much more modest. In the graph, the percentage growth of the population is also plotted. Between 2015 and 2050, the projected population increases by 22.0 per cent. This means that per capita labour income between 2015 and 2050 would rise by 5.7 per cent just through changes in the age composition of the population alone.

Figure 4.13

Projected evolution of labour income and total population, 2015-2050



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In itself, an increase of 5.7 per cent over a period of 35 years is only a very modest change. This underscores the finding that the demographic dividend in Myanmar does not have much depth, because of the slow decline in levels of fertility. If the Government can increase the age-specific employment ratios through the right economic and social policies, then more important gains can be made.

Chapter 5. Opportunities and challenges

5.1. Window of opportunity: Conclusions

From the analysis in section 4.3, the following conclusions can be drawn about the changes in Myanmar's population structures and the possibilities this creates for a demographic dividend in Myanmar:

- Compared to some of the other countries in the region that have harvested the fruits of a favourable age composition and obtained impressive demographic dividends, Myanmar's fertility transition has not been favourable enough to result in a beneficial age structure in order to harness a high demographic dividend. Three characteristics of Myanmar's fertility decline have hampered the development of ideal conditions for a strong demographic dividend: (a) the decline was (and still is) slow; (b) there has not been a steady downward trend, and after 2000, the decline stalled; and (c) the decline has been unevenly spread across social groups and regional areas within the country, which could lead to more inequality.
- The conditions that can lead to a first demographic dividend are generated by the demographic transition. The demographic transition started in Myanmar during the 1950s with a drop in mortality rates. When fertility started to drop, it led to an increase in the proportion of persons in the active age groups. The demographic window of opportunity created by this growing working age population, relative to the total population, has been open for at least 30 years. During the period 1973-2014, the total dependency ratio dropped from 82.2 to 52.5, a decline of almost 30 persons in the dependent age groups per 100 persons in the active age groups.
- The fact that the crude birth rate reacted rather slowly to the decline, created a population situation that is different from those countries in the region that have benefitted from a demographic dividend. Because of the slow fertility decline, the old-age dependency in Myanmar will start to rise considerably before the fertility transition is fully completed, and will stop the decline in the total dependency ratio. This will most probably happen around 2020. From then on, until about 2050 the projections show that the total dependency ratio will remain almost constant at a level of around 50.
- The end of the window of opportunity can be defined as the moment when the economic support ratio starts to decline. This will probably happen soon after 2050. According to the population projections, the total dependency ratio will more or less remain the same between 2020 and 2050. The lowest level of the total dependency ratio will be significantly higher than in China, Thailand and Singapore; countries that have already benefited from their demographic dividend. This means that the strength of the first demographic dividend, that is, the possible impact of a favourable age structure on economic growth, will be considerably less than in these countries.
- The countries in East and Southeast Asia that have benefitted from a demographic dividend, have reached a stage where their populations have started to age rapidly. Bangladesh, that still has to reap its demographic dividend, will see its total dependency increase well before 2050. Although Myanmar will not have the luxury of having 2.5 to 3.0 active persons for each dependent, such as China or Singapore, it will have a stable situation with two active persons per dependent for the next 30 years. This stability is caused by the fact that the decline in the proportion of

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young people will counteract the increase in the proportion of the older population. However, the changes in the relative size of each group mean that different types of investments need to be made: the young need investments in education and health, while older citizens need investments in elderly care, and retirement income.

- Because of continuing population growth, even with more or less constant economic support ratios, throughout the period 2015-2050, the number of new entrants into the labour market will be higher than the number of persons who leave it. Just to keep the current employment ratios at a constant level, a large number of jobs will have to be created. The number of these new jobs, however, will gradually decrease over time. In 2020, some 264,713 new jobs will be needed against 187,852 in 2035 and 56,774 in 2050. The projection showed that a demographic dividend can only be achieved if employment ratios are kept at least at the same level. Any decrease in employment ratios will lead to lower economic support ratios and will take away any chance of a demographic dividend.
- As well as young entrants into the labour market, two population groups can, for different reasons, play an important role in harnessing a demographic dividend in Myanmar: women and international migrants. With a labour force participation of 50.5 per cent in the age group 15-64, not to mention their higher education levels among younger generations, the capacity of women to contribute to the country's economic growth has been under-utilized. For Myanmar to benefit from its current favourable age composition and to reap the demographic dividend, it is essential to increase the labour force participation rate of women. It is unclear how many Myanmar inhabitants live abroad at the moment. The Census recorded 2.02 million former household residents living abroad, but the estimate of the total number of Myanmar citizens living abroad in the current report, based on population projection techniques, was 4.25 million persons. International emigrants can play a key role in obtaining a demographic dividend. As they most often draw from the unemployed, their departure leads to a decrease in the proportion of the group of economically dependent. If properly used for savings and investment, the remittances sent by migrants may be an important input for economic growth.
- The degree to which a second dividend can be generated remains an open question for the moment. Currently, the elderly population is still very much dependent on the assistance of their children on a day to day basis. With low levels of fertility, ageing of the population and the increase in life expectancy, the support burden placed on family members will only increase. This will also increase the burden placed on the government to provide care for the elderly. The second dividend will be determined largely by the way elderly persons are supported in the future. The chance for Myanmar to reap a second demographic dividend will depend on how the active population can accumulate assets and have savings by the time they retire. Government policies to assist middle-aged workers to save for their retirement, individually or through pension funds, will help generate the conditions for a second demographic dividend.

5.2 Demographic dividend or demographic burden

Myanmar has a number of assets that provide impressive opportunities for development and rapid economic growth. It is blessed with fertile land that makes high yield agricultural production possible; it has lots of natural beauty and cultural heritage to turn the country into a prime tourist destination; it possesses abundant biotic and abiotic natural resources; and can rely on a young labour force that wants to move the development of the country forward.

The country's favourable current age composition still holds the opportunity for higher productivity and economic growth. However, if mismanaged, this opportunity can easily turn into a "demographic burden." If the country is unable to generate each year at least a number of jobs equal to the new entrants into the labour market, then the number of economic dependents will increase and, all other things being equal, unemployment rates will rise, income per capita will drop, savings and investments will diminish and economic growth will be jeopardized. Consequently, poverty levels will increase and the country will have to deal with a growing group of disillusioned, unemployed young people who are unable to find their proper place in the labour market.

For many, the only option would be to find work abroad or live a marginal existence. In his assessment of why Pakistan had not yet reaped its demographic dividend, Amjad (2013, p 41) stated the importance of the dividend: "The demographic dividend must be viewed as an 'opportunity' which, if realized, could lead to higher productivity and economic growth. But the same dividend could also turn into a 'demographic disaster' if the large numbers of young people entering the labour market are not productively employed."

This current report shows that since the 1970s, and probably even earlier, the growth rate of Myanmar's active population (aged 15-64) was faster than the growth rate of the dependent population. For many years no advantage has been taken of this favourable demographic situation to generate a demographic dividend. In 2011, the Government started a programme that includes economic, political and governance reforms. These reforms include: the removal of economic distortions (floating the currency, new fiscal rules for personal income tax, and reduction of consumption tax); the liberalization of the telecommunication sector; the development of a competitive private sector; encouraging direct foreign investments; a review of the financial sector; the promotion of access to finance; and job creation (World Bank, 2016a).

In addition to these economic reforms, the country is in a process of democratization and creating more internal and international transparency. Over the last few years, these measures have generated significant levels of economic growth. According to the Asian Development Bank, Myanmar's GDP increased at a rate of 8.3 per cent in the fiscal year 2014-15 (Asian Development Bank 2016). Unfortunately, it is not possible to determine to what extent the country's favourable age structure had an impact on this growth.

Currently, there is no specific policy in place to utilize the favourable age composition of the population to harness a demographic dividend. To reap the benefits of the demographic

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opportunity, a series of measures are needed, in addition to the current economic reform policies. If these measures are not taken in time, Myanmar's efforts to reap the demographic dividend may well become a typical case of 'too little, too late'.

Although the potential demographic dividend for Myanmar does not have as much depth as some of its neighbouring countries, the demographic dividend still holds the potential to support a period of high economic growth. As the period of low dependency ratios is stretched over a much longer time period, than is the case in those countries with strong dividends, there is still time to take the necessary measures. In fact, it can be argued that Myanmar's disadvantage of having a demographic dividend with less depth, may be outweighed by the fact that its dividend is stretched over a much longer time period. There is a good chance that if Myanmar had experienced a rapid decline in its dependency ratios, followed by a much earlier ageing of the population, the country would not have been ready to address this situation, and this would have led to massive youth unemployment and an increase in poverty.

Some of the measures to be taken to reap the demographic dividend are long term, and do not take effect overnight. Bloom et al (2003, p xiii) indicate that for a country to benefit from a demographic dividend, specific measures are needed in the following policy areas: family planning, public health, education and economic policies that promote labour market flexibility and openness to trade and savings. All four policy areas are intertwined and each one needs attention to generate economic growth. Below, each of these policy areas and their significance for Myanmar are summarized.

5.2.1 Family planning

Both at the family and the societal level, family planning programmes fulfil important needs. At the household level, family planning allows women/couples to have the number of children they desire and to plan the spacing of their children. At the societal level, family planning reduces the level of fertility, opens the window of opportunity for the demographic dividend, and leads to direct cost savings in different sectors. Moreland and Talbird (2006, p 57) have calculated benefit cost ratios by comparing the investments in family planning programmes with the cost savings from five Millennium Development Goals. According to their analysis, the greatest cost savings were in education and maternal health.

Knowledge of contraception is almost universal in Myanmar. Among all women, who were married at the time of the 2007 Fertility and Reproductive Health Survey, 97 per cent knew of at least one method of contraception (Department of Population, 2009, p 78). The contraceptive prevalence rate among ever-married women aged 15-49 was 41 per cent. Some 38 per cent were using a modern method and 3 per cent a traditional method. Contraceptive prevalence was higher in urban areas than in rural areas (52.9 per cent compared with 36.5 per cent). In 2009, the Myanmar MICS looked into the prevalence of contraceptive use. Compared to 2007, contraceptive use among ever-married women aged 15-49 had increased to 46 per cent (Ministry of National Planning et al, 2011, p 36). Use of contraception increased quite rapidly in rural areas where prevalence was found to be 43.7 per cent. Prevalence in urban areas was slightly lower in 2009 (51.3 per cent) than in 2007.

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The unmet need for family planning¹⁹ was still 17.7 per cent in the 2007 Survey. Of all women married at the time of the survey, 6.8 per cent did not use contraception because of a lack of knowledge and 13.7 per cent did not do so because they were opposed to using contraception (Department of Population, 2009). No information on unmet need was provided in the MICS report.

For many years after independence, the Myanmar Government considered the country to be under-populated. Consequently, it maintained a pronatalist position, although, “this stance has been manifested less by active pronatalist measures than by the absence of antinatalist ones.” (Department of Population, undated). However, at the International Conference on Population and Development in Cairo, the Myanmar Government indicated that rapid population growth was an obstacle to social and economic development. Up to now, Myanmar has not been able to adopt a National Population Policy. Although a draft policy plan was developed in 1992, it has never been approved.

According to the 2015 Demographic and Health Survey, contraceptive use is 52.2 per cent among currently married women, with 51.3 per cent using a modern method and 1 per cent using a traditional method. Birth spacing services in Myanmar are provided by both public and private sectors. Oral contraceptives, condoms and intrauterine devices (IUDs) are provided by the public sector at subsidized rates in 132 of the country’s 330 townships (UNFPA Myanmar, 2010, page 103). In the same report, UNFPA made a number of recommendations to improve reproductive health programmes in the country.

Improvements in the country’s family planning programme would lead to a decrease in the unmet need for contraception, estimated at 16.2 per cent in 2015, and would help bring down total fertility. This is essential to create a stronger demographic dividend.

5.2.2 Public health

Public health is, in many ways, connected to the demographic dividend. Bloom et al (2003, p 70) recognize five general health policy areas that should be given priority to take advantage of a demographic dividend:

- (1) Measures have to be taken to ensure the health of infants. Couples will only decide to limit the number of children if they know that their children have an optimal chance of survival. Fewer children lead, in turn, to the opportunity to invest more in the education of each child.
- (2) Priority should be given to the health of women: reproductive health services (including family planning) are conducive to achieving the desired number of children. Equally, women are the guardians of family health; their knowledge of health improves the health of the family.

¹⁹ In the 2007 Fertility and Reproductive Health Survey, unmet need was defined as, “...including all women of reproductive age who are married, and thus presumed to be sexually active, and who either do not want any more children or who wish to space the birth of their next child for at least two years but are not using any contraceptive method.”

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- (3) To optimize children's educational achievements, they have to be healthy and well nourished. Hungry and diseased children are unable to function well in school.
- (4) A proportion of the prosperity that an enlarged workforce produces has to be channelled by the Government into programmes to maintain and improve its health.
- (5) Health policies should include groups that are vulnerable to social exclusion. Without these public health interventions, these groups may be excluded from contributing to the demographic transition and the country's economic growth.

In Myanmar, work needs to be undertaken in the field of public health to improve the health of the population and to prepare the population for a successful demographic dividend. In terms of infant and child health, the present report shows that Myanmar has the highest infant and child mortality compared to all other countries in the region. Many other infant and child health indicators show poor results. Nearly a quarter of all children under five (22.6 per cent) were classified as 'moderately underweight', while 5.6 per cent were 'severely underweight' (Ministry of National planning and Economic Development, 2011, p ii). In addition more than 35 per cent of all children younger than five, were 'moderately stunted' and 12.7 per cent were 'severely stunted'; some 7.9 per cent were 'moderately wasted' or too thin for their height, and 2.1 per cent 'were severely wasted'. The nutritional level of children was found to be closely related to the educational attainment of their mother.

In terms of maternal health, the 2009/2010 MICS indicates that 70.6 per cent of births are assisted by a skilled birth attendant and only 36.2 per cent take place in a health institution. Earlier in this report (in section 2.1.2), it was noted that Myanmar has the highest level of maternal mortality in the region, 282 maternal deaths per 100,000 live births. Affluent Singapore has a maternal mortality ratio that is no less than 47 times lower than Myanmar's. Neighbouring Thailand has an MMRatio of 26 per 100,000 live births. A noteworthy aspect of Myanmar's mortality is the large difference in life expectancy between males and females: 60.2 years for males and 69.3 years for females.

5.2.3 Education

To build a productive workforce, investments at all levels of education are needed. Improvements in education are inter-generational and do not provide immediate results in the labour market. It is important that a country adapts its educational policies to the needs of the labour market. These needs may change over time. At the beginning of the period of the demographic dividend, the labour force may need training for low skilled labour, while at more advanced stages it may require more complex and specialized skills (Gribble and Bremner, 2012, p 4). While the training for low skilled labour may be provided to the adult working age population, specialized education has to be part of a multi-year curriculum in educational institutions.

The results of the 2014 Census show that educational attainment is still quite low: 63.8 per cent of the population aged 25 and over had either only completed primary school or had no education at all; 6.9 per cent had attended university/college and 0.4 per cent had a post graduate qualification. Literacy stands at 89.5 per cent for persons aged 15 and over. Literacy

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is higher among males (92.6 per cent) than among females (86.9 per cent).

Currently, according to the 2014 Myanmar Business Survey (Abe and Molnar, 2014, p 9), a shortage of skills is a serious obstacle for business operations. Almost 60 per cent of all businesses that participated in the survey reported that skill shortage was a major problem. Although a lack of adequate skills was mentioned in all sectors, some subsectors scored higher than average: post and telecommunications; electrical machinery manufacturing; air transport; motor vehicle manufacturing; petroleum product manufacturing; supply of electricity, gas and water; computer related activities; and mining of metal ores and chemical products manufacturing. All these technical sectors require highly specialized personnel.

The OECD Multi-dimensional Review of Myanmar pointed out the weakness of the education system to provide the necessary skills for the job market:

Taking fast, growing, emerging and already industrialised economies as benchmarks indicates that Myanmar has not yet fully accumulated the set of skills which may be demanded in the years ahead. Stronger focus on vocational training and a higher proportion of tertiary graduates in education and health is essential. Overall, spending on education at all levels has to be boosted to address the challenges ahead. (OECD, 2013, p 127).

Problems related to the education system are limited access to education for poor and minority families, the lack of upgrading staff and curricula, and poor management, policies and laws (Japan International Cooperation Agency et al, 2013, p 10).

To overcome these shortcomings, the Government has prioritized the development and modernization of the education system. The budget for education nearly doubled between the fiscal years of 2011/2012 and 2012/2013. However, compared to other countries in the region, Myanmar's share of GDP spent on education (1.43 per cent) (Japan International Cooperation Agency et al, 2013, p 4) is still much lower than in other Southeast Asian countries. For instance, in 2010, the Lao People's Democratic Republic spent 2.77 per cent of its GDP on education; in Thailand in 2012, it was 4.93 per cent (World Statistics, undated). In a study on the education sector in Myanmar, supported by the Japan International Cooperation Agency, an overview was made of critical issues for the education sector. The evaluation focused on access to proper schooling, the quality of the education and the management of the educational sector, and recommendations for education reform.

5.2.4 Economic policies

The keystone of harnessing a demographic dividend lies in the use of the right economic and financial policies to turn the larger, healthier, and better educated group of young people into a highly productive workforce. Measures have to be taken to enhance productivity, promote a flexible labour force and increase investments. In order to create a climate of stable growth, development policies should be sustainable, guaranteeing proper management of natural resources, and equitable, that is, addressing economic and social dimensions of inequality between sexes, regions and different groups within society. It lies outside the scope of this

Chapter 5. Opportunities and challenges

thematic report to go into economic policies that Myanmar needs to implement to reap its demographic dividend. However, two aspects that are closely related to demographic developments need some attention: (a) international migration, and (b) the position of women in the labour market.

(a) The 2014 Census reported that 2.02 million former household members were residing abroad. This report has suggested that probably as many as 4.25 million Myanmar international migrants now live in other countries. To harvest the benefits from the demographic dividend, economic measures should be taken to optimize the contribution of the country's emigrants. Although the negative aspects of international migration should not be ignored, remittances from such migrants can be used to stimulate economic growth through investments in physical and human capital and to help reduce poverty. Remittances sent from abroad have a multiplying effect on the local economies (Taylor, 2006, p 18). Remittances may create an income-multiplying effect for migrants' households of origin when the money is used for investments in capital, both physical and human. Emigrant remittances are mostly spent locally, which allows local businesses to thrive. Emigrants may also help the Governments' efforts to improve health and education. For instance, in the Philippines it was observed that a 10 per cent increase in household income through such remittances resulted in a proportional increase in school enrolment among children aged 17 to 21 (Hugo, 2006, p 7).

Policy interventions can help emigrants to optimally remit money home and can create incentives for both migrant (and other) households to invest. Hugo suggests a number of measures to be taken by policymakers to boost the input of remittances for development:

- Incorporate the use of remittances at the regional planning level, including the poorest areas that receive remittances.
- Understand and improve the channels through which remittances are transferred. Remittances often pass through informal channels, involving high costs and risks.
- Invest in physical infrastructure, especially transport and electricity, to assist communities with high numbers of emigrants to invest in lucrative economic ventures.
- Include recipients of remittances in regional planning as potential investors and engines of economic progress.
- Promote financial literacy: raise awareness of the benefits of savings and investments and advise recipients on how to remit money safely and efficiently.

(b) Women make up more than half of the active population, but only account for about 39 per cent of the employed population. The participation rate for women aged 15-64 is only 50.5 per cent. Over the years the participation of women in the labour force has increased. Women play a predominant role as professionals; 2.6 times more women than men work as professionals, a group that forms the backbone of the knowledge economy. Several aspects related to the position of women in society play an important role in the realization of a demographic dividend. Firstly, gender equity is critical to achieve a fertility transition, as it allows women to have full access to family planning. Secondly, in order for women to play an equal role in the labour market, equal educational opportunities at all levels are necessary. Thirdly, to promote self-employment, women should be given equal access to credit and land rights (Gribble and Bremner, 2012, p 5).

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Women have to be recognized as a critical factor in the development process; especially in Myanmar, where the Census reported more highly educated women than men. According to a study by Deloitte (Pellegrino et al, 2011), the increase in employment rates for women has accounted for half of the increase in Europe's employment rate and a quarter of its annual economic growth. In Latin America, the poverty levels in 2007 would have been 40 per cent instead of 26 per cent without the income provided by female spouses (Pagés and Piras, 2010). In Myanmar, a further rise in the employment of women would lead to a considerable increase in the economic support ratio, thus resulting in a dramatic rise in per capita income. As such, the country would create a "gender dividend" for itself on top of the demographic dividend already mentioned.

Chapter 6. Conclusion

Myanmar is at an important junction in its social and economic development. Because of its slow and uneven fertility decline and the large number of years since the onset of the demographic transition, the country cannot expect to gain the same benefits from a demographic dividend as some other countries in the region. However, because of the slow demographic transition, economic support ratios will stay at relatively low levels for an extended period. This means that the demographic window of opportunity for Myanmar's development will stay open for a longer time than in these other countries.

With the right policies in the fields of family planning, public health, education and economics the country can still harness the benefits of a demographic dividend. By making full use of its potential of female participation in the labour process, Myanmar can even generate its own gender dividend. The country is in a position to tap from its rich natural resources, cultural heritage, fertile land and its strategic location between the two largest populated countries in the world.

To lead the country on a path of long lasting, sustainable development, strategies should be developed that are guided by principles of equity, gender equality, poverty alleviation, the intelligent use of natural resources and by the integration of economic, environmental, and social policies. The specifics of these economic and social policies lie beyond the scope of this report.

It is recommended that a multidisciplinary team of economists, demographers, social scientists, environmentalists and health specialists come together to look at all aspects of how to generate rapid economic development for the people of Myanmar, making full use of the country's favourable demographic situation and other comparative strengths. Their findings could then be used to develop effective planning for the country's sustainable economic future.

References

Abe, Masato and Margit Molnar (2014). Myanmar Business Survey 2014: Survey Results. OECD and ESCAP.

Amjad R. (2013). Why has Pakistan not reaped its Demographic Dividend? In: Zeba Sathar, Rabbi Royan, John Bongaarts, Capturing the demographic dividend in Pakistan. Population Council, New York.

Asian Development Bank (2016a). Myanmar: Economy. Website: <http://www.adb.org/countries/myanmar/economy> For other sources of information see: Asian Development Bank (2016b).

Asian Development Outlook 2015: Financing Asia's Future Growth. Website: <http://www.adb.org/publications/asian-development-outlook-2015-financing-asias-future-growth> and Asian Development Bank (2016c).

Asian Development Outlook 2015 Update: Enabling Women, Energizing Asia. Website: <http://www.adb.org/publications/asian-development-outlook-2015-update-enabling-women-energizing-asia>

Bloom D E, Canning, D and Sevilla, J (2003). The demographic dividend: a new perspective on the economic consequences of population change. RAND Corporation, Pittsburgh.

Cosio-Zavala, Maria E (undated). Examining changes in the status of women and gender as predictors of fertility change issues in intermediate-fertility countries. Website: <http://www.un.org/esa/population/publications/completingfertility/RevisedCosio-Zavalapaper.PDF>

Department of Population (undated). Demographic Transition in Myanmar.

Department of Population (2003), Fertility and Reproductive Health Survey 2001, Country Report. Ministry of Immigration and Population, Yangon, Myanmar.

Department of Population (2005). The Elderly Population in Myanmar: Trends, Living Conditions, Characteristics and Prospects. Ministry of Immigration and Population, Yangon, Myanmar.

Department of Population (2009). Country Report on 2007 Fertility and Reproductive Health Survey. Ministry of Immigration and Population, Nay Pyi Taw, Myanmar.

Department of Population (2014). 2014 Population and Housing Census of Myanmar, Field Instructions Manual for Enumerators and Supervisors. Ministry of Immigration and Population, Nay Pyi Taw, Myanmar.

Department of Population (2015), The 2014 Myanmar Population and Housing Census: The Union Report. Census Report Volume 2. Ministry of Immigration and Population, Nay Pyi Taw, Myanmar.

References

Department of Population (2016a). The 2014 Population and Housing Census of Myanmar, Thematic Report on Fertility and Nuptiality. Ministry of Labour Immigration and Population, Nay Pyi Taw, Myanmar.

Department of Population (2016b). The 2014 Myanmar Population and Housing Census, Thematic Report on Mortality. Ministry of Labour, Immigration and Population, Nay Pyi Taw, Myanmar.

Department of Population (2016c). The 2014 Myanmar Population and Housing Census, Thematic Report on Maternal Mortality. Ministry of Labour, Immigration and Population, Nay Pyi Taw, Myanmar.

Department of Population (2016d). The 2014 Myanmar Population and Housing Census, Thematic Report on Migration and Urbanization. Ministry of Labour, Immigration and Population, Nay Pyi Taw, Myanmar.

Department of Population (2017). The 2014 Myanmar Population and Housing Census, Thematic Report on Disability. Ministry of Labour, Immigration and Population, Nay Pyi Taw, Myanmar.

Department of Population (2017). The 2014 Myanmar Population and Housing Census, Thematic Report on Population Projections, 2014-2050. Ministry of Labour, Immigration and Population, Nay Pyi Taw, Myanmar.

Docquier F and Machado J (2015). Remittance and migration prospects for the 21st century. Fondation pour les études et recherches sur le développement international, Working Paper 133, August 2015, Development Policies Series.

ESCAP (2014). Population and Development Indicators for Asia and the Pacific, 2014. Population Data Sheet.

Esteve A and Chia Liu (undated). Families in Asia: A Cross-National Comparison of Intergenerational Co-residence. Website: http://blog.soton.ac.uk/intergen/files/2014/01/Esteve_Liu_Families-in-Asia_IUSSP_Cyberseminar.pdf

Eloundou-Enyegue P M (2013). Harnessing a Demographic Dividend: Challenges and Opportunities in High and Intermediate Fertility Countries. UN Population Division Expert Paper, No. 2013/7. United Nations, New York.

Kim, Eun-Jin and Geistfeld, L (2008). What makes older adults vulnerable to exploitation or abuse? The Forum for Family and Consumer Studies. NC State University. Website: <https://ncsu.edu/ffci/publications/2008/v13-n1-2008-spring/Kim-Geistfeld.php>

EY - FICCI (2014). Reaping India's promised demographic dividend – industry in driving seat.

References

Fargues P (2011). International Migration and the Demographic Transition: A Two-Way Interaction. In: International Migration Review, Volume 45 Number 3, Fall 2011, pp 588–614.

Freedman, D A (1999). Ecological Inference and the Ecological Fallacy. Prepared for the International Encyclopaedia of the Social and Behavioral Sciences, Technical Report No. 549, Berkeley, California.

Guilmoto C Z (2009). Recent Change in the Sex Ratio at Birth in Vietnam: A Review of Evidence. Hanoi.

Gribble J and Bremner J (2012). The Challenge of attaining the Demographic Dividend. Population Reference Bureau, Policy Brief, September 2012.

Hajnal J (1953). Age at Marriage and Proportions Marrying, in: Population Studies, vol. 7, no.2 (Nov. 1953).

Hayes G and Jones G (2015). The Impact of the Demographic Transition on Socioeconomic Development in Bangladesh: Future Prospects and Implications for Public Policy. European Union and UNFPA, Dhaka.

Hugo G (2006). Sending money home to Asia. In: id21 insights, No. 60. p 7.

Immigration and Manpower Department (1986). 1983 Population Census. Ministry of Home and Religious Affairs. Rangoon.

Immigration and Manpower Department (1995). Population Changes and Fertility Survey 1991. Ministry of Immigration and Population, Yangon.

Japan International Cooperation Agency, Padeco Co, Ltd, IC Net Limited (2013). Data Collection Survey on Education Sector in Myanmar: Final Report. February 2013.

Katshushi S Imai, Raghav Gaiha, Abdilahi Ali and Nidhi Kaicket (2012). Remittances, growth and poverty: new evidence from Asian countries. Occasional Papers. Knowledge for Development effectiveness. International Fund for Agricultural Development (IFAD).

Knodel J (2013). The Situation of Older Persons in Myanmar: Results from the 2012 Survey of Older Persons. HelpAge International Myanmar Country Office.

Lee R (2003). The Demographic Transition: Three Centuries of Demographic Change. In: Journal of Economic Perspectives, Volume 17, Number 4, Fall 2003, pp 167-190.

Lee R D and Reher D S (2011). Introduction: The Landscape of Demographic Transition and Its Aftermath. In: Ronald D Lee and David S Reher, (editors), Demographic transition and its consequences, a supplement to Population and Development Review, Volume 37, 2011.

Mason A (2005). Demographic Transition and Demographic Dividends in Developed and

References

Developing Countries. NIA, R01-AG025488-01, p.82. Office of the National Economic and Social Development Board.

Mason A and Kinugasa T (2005). East Asian Economic Development: Two Demographic Dividends. East-West Center Working Papers, No. 83, June 2005.

McNay K (2003). Women's changing roles in the context of the demographic transition. Background paper prepared for the Education for All Global Monitoring Report 2003/4. Gender and Education for All: The Leap to Equality, UNESCO.

Ministry of National Planning and Economic Development, Ministry of Health, UNICEF and United Nations Children's Fund (2011). Myanmar Multiple Indicator Cluster Survey 2009 - 2010.

Ministry of National Planning and Economic Development, SIDA, UNICEF and UNDP (2011). Integrated Household Living Conditions Survey in Myanmar: Poverty Profile. UNDP Yangon, Myanmar.

Moreland S. and Talbird S (2006). Achieving the Millennium Development Goals: The Contribution of Fulfilling the Unmet Need for Family Planning. U.S. Agency for International Development, Washington, DC.

Mulderig M C (2013). An Uncertain Future: Youth Frustration and the Arab Spring. The Pardee Papers, No. 16, April 2013, The Frederick S. Pardee Center for the Study of the Longer-Range Future, Boston University.

Myers R J (1940). Errors and Bias in the Reporting of Ages in Census Data. In: Actuarial Society of America. Transactions, Vol XLI, 1940.

National Statistical Office Thailand (2011). The 2010 Population and Housing Census: Executive Summary. Bangkok.

National Transfer Accounts (2013). Lower-Income Countries and the Demographic Dividend. NTA Bulletin No. 5, December 2012.

NESDB and UNFPA (2011). Impact of Demographic Change in Thailand.

Nyan Myint (1990). Recent Levels and Trends of Fertility and Mortality in Myanmar. In: Asia-Pacific Population Journal, Vol. 6, p.5.

OECD (2013). Multi-dimensional Review of Myanmar: Volume 1. Initial Assessment. OECD Development Pathways, OECD Publishing.

Website: <http://dx.doi.org/10.1787/9789264202085-en>

Pagés C and Piras C (2010). The Gender Dividend Capitalizing on Women's Work. IDB, New York.

References

Pellegrino G, D'Amato S and Weisberg A (2011). The gender dividend: making the business case for investing in women. Deloitte Touche Tohmats.

Preston S H, Heuveline P and Guillot M (2001). Demography. Measuring and Modeling Population Processes. Wiley-Blackwell, Oxford.

Prskawetz A and Sambt J (2014). Economic support ratios and the demographic dividend in Europe. In: Demographic Research, Volume 30, Article 34, Pages 963-1010, Published 1 April 2014. Website: <http://www.demographic-research.org/volumes/vol30/34/>

Reher D S (2011). Economic and Social Implications of the Demographic Transition. In: Ronald D Lee and David S Reher, (editors), Demographic transition and its consequences, a supplement to Population and Development Review, Volume 37, 2011.

Mody, Ashoka and Aiyar, Shekhar (2011). The Demographic Dividend: Evidence from the Indian States. IMF Working Paper, WP/11/38. International Monetary Fund.

Taylor J E (2006). International Migration and Economic Development. International Symposium On International Migration and Development, UN Department of Economic and Social Affairs, Population Division, United Nations Secretariat, Turin, Italy, 28-30 June 2006.

Soe, Khaing, (2012). Ageing Transition in Myanmar.

Spoorenberg T (2013). Demographic Changes in Myanmar since 1983: An Examination of Official Data. In: Population and Development Review, 39(2), The Population Council, Inc.

Spoorenberg T (2015). Premier recensement en Birmanie depuis plus de 30 ans: une révision drastique des chiffres de population officiels. In: Population & Sociétés, 527, Institut national d'études démographiques.

UN Department of Economic and Social Affairs, Population Division (2013). National Transfer Accounts Manual: Measuring and Analysing the Generational Economy. United Nations, New York, p.25.

UN Department of Economic and Social Affairs, Population Division (2011). Sex Differentials in Childhood Mortality. ST/ESA/SER.A/314. United Nations, New York.

UN Department of Economic and Social Affairs, Population Division, (2015). World Population Prospects: The 2015 Revision. File POP/9-1: Percentage total population (both sexes combined) by broad age group, major area, region and country, 1950-2100. Estimates, 1950-2015. POP/DB/WPP/Rev.2015/POP/F09-1.

UN Department of Economic and Social Affairs, Statistics Division (2008). Principles and Recommendations for Population and Housing Censuses, Revision 2. Statistical papers Series, M No. 67/Rev.2, United Nations, New York.

References

UNDP (2014). Human Development Report 2014. Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience. United Nations, New York.

UNESCO (2011). World Data on Education. 7th edition, 2010/11. Myanmar.

UNFPA Myanmar (2010). Report on Situational Analysis of Population and Development, Reproductive Health and Gender in Myanmar. UNFPA, Yangon.

UNFPA (2011). Population Dynamics in the Least Developed Countries: Challenges and Opportunities for Development and Poverty Reduction. United Nations, New York.

UNFPA (2012a). Rich Mother, Poor Mother: The Social Determinants of Maternal Death And Disability. Website: <http://www.unfpa.org/sites/default/files/resource-pdf/EN-SRH%20fact%20sheet-Poormother.pdf>

UNFPA (2012b). Sex Imbalances at Birth: Current trends, consequences and policy implications. UNFPA Asia and the Pacific Regional Office, Bangkok.

UNFPA (2015). The Impact of the Demographic Transition on Socioeconomic Development in Bangladesh: Future Prospects and Implications for Public Policy. United Nations Population Fund, Bangladesh Country Office.

United Nations (undated). Millennium development goals and beyond 2015. Website: <http://www.un.org/millenniumgoals/childhealth.shtml>

United Nations (1955). Manual II: Methods of appraisal of quality of basic data for population estimates. United Nations Population Studies No. 23. New York.

United Nations (1970). Manual VI: Methods of Measuring Internal Migration. Manuals on methods of Estimating population. Population Studies, No. 47. New York.

United Nations (1989). Projection methods for integrating population variables into development planning. Module One: Conceptual issues and methods for preparing demographic projections. ST/ESA/SER.R/90. New York.

US Census Bureau (2013). The Rural - Urban Projection (RUP) Program. A User's Guide. Revised July 2013 (Original: November 1994).

Wilmoth J (2007). The lifetime risk of maternal mortality: concept and measurement. In: Bulletin of the World Health Organization, 2009; 87:256-262. Published online at WHO Website: <http://www.who.int/bulletin/volumes/87/4/07-048280/en/>

Win Tint (1991). Population Projections for Myanmar, 1983 - 2013. In: Asia-Pacific Population Journal, Vol. 6, No. 2.

References

World Bank (2016b). Labor force participation rate, female (% of female population ages 15-64) (modeled ILO estimate). Website: <http://data.worldbank.org/indicator/SL.TLF.ACTI.FE.ZS>

World Health Organization, UNICEF, UNFPA and The World Bank (2012), Trends in Maternal Mortality: 1990-2010.

World Statistics (undated). Website: <http://www.world-statistics.org/index-res.php?code=SE.XPD.TOTL.GD.ZS?name=Government%20expenditure%20on%20education,%20total%20%28%%20of%20GDP%29#top-result>

World War II Database (undated). Website: <http://ww2db.com/country/Burma>

Other sources consulted

Bloom D E, Canning D and Finley J E (2010). Population Aging and Economic Growth in Asia. In: Takatoshi Ito and Andrew K. Rose (eds.): The Economic Consequences of Demographic Change in East Asia. The University of Chicago Press, Chicago and London.

Institute of Policy Studies of Sri Lanka and UNFPA (2014). Investing in the demographic dividend: successes, challenges and way forward for Sri Lanka. IPS/UNFPA.

Klasen S, Tobias Lechtenfeld and Felix Povel (2011). What about the women? Female headship, poverty and vulnerability in Thailand and Vietnam. OECD. Website: <https://www.oecd.org/dev/pgd/46982877.pdf>

O'Sullivan J N (2013). Revisiting demographic transition: correlation and causation in the rate of development and fertility decline. Paper presented at the 27th IUSSP International Population Conference, 26-31 August 2013, Busan, Korea.

UNFPA (2014). Methodological Guidelines for the Gender Analysis of National Population and Housing Census Data. Technical Division of the United Nations Population Fund. Website: <http://www.unfpa.org/sites/default/files/pub-pdf/141006-UNFPA-GenderManual2014-02-SCREEN.pdf>

UNFPA (undated). Replacement level fertility. Website: http://papp.iussp.org/sessions/papp103_s08/PAPP103_s08_030_010.html

Glossary of terms and definitions

Active: (See *Economically active*).

Ageing index: is the ratio of the number of persons aged 65 and older to every 100 persons aged under 15.

Age-specific fertility rate (ASFR): measures the annual number of births to women of a specified age or age group per 1,000 women in that age group. Unless otherwise specified, the reference period for the age-specific fertility rates is the calendar year.

Age-specific mortality rates (ASMR): is the total number of deaths of persons of a specified age or age group in a specified geographic area, divided by the mid-period population of the same age or age group in the geographic area (for a specified time period).

Average household size: is the average number of persons enumerated per conventional household in any geographical area.

Child dependency ratio: is the number of children aged under 15 per 100 persons in the active population, aged 15-64.

Coefficient of determination (R²): is a measure of the proportion of variance of a predicted outcome. With a value of 0 to 1, the **coefficient of determination** is calculated as the square of the correlation **coefficient** (R) between the sample and predicted data.

Composite household: is defined as a household where at least one household member is not related to one or more other members of the household.

Contraceptive prevalence: is the percentage of women who are currently using, or whose sexual partner is currently using, at least one method of contraception, regardless of the method used. It is usually reported for married or in-union women aged 15 to 49.

Conventional household: includes one or more persons who are either related or unrelated and share living quarters (single quarter or compound) and meals. The household members would usually eat food prepared from the same cooking pot. In most cases, there would be one person acknowledged by the household members as the head of the household.

Correlation coefficient (R): is a number between +1 and -1 calculated so as to represent the linear interdependence of two variables or sets of data.

Crude birth rate (CBR): is the number of births that occur in a particular year per 1,000 persons.

Crude death rate (CDR): is the number of deaths in a particular year per 1,000 persons.

De facto census: enumerates persons at the place where they spend the Census Night. The census enumeration could, alternatively, be carried out using a de jure approach where persons are enumerated at their usual or legal place of residence. The 2014 Census in Myanmar was conducted on the de facto approach.

Glossary of terms and definitions

Demographic dividend: is the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working age population (15-64 years) is larger than the non-working age share of the population (UNFPA definition).

Demographic transition: is the transition from high birth and death rates to low birth and death rates in a country. The demographic transition coincides with changes from a pre-industrial to an industrialized economic system in the country.

Dependency ratio: shows the proportion of dependents per 100 working age population. Three different measures can be calculated: **total dependency ratio** (the sum of those aged under 15 plus those aged 65 and over per 100 aged 15-64), **child dependency ratio** (those aged under 15 per 100 aged 15-64), and **old-age dependency ratio** (those aged 65 and over, per 100 aged 15-64).

Disability: is a situation where a person is at a greater risk than the general population of experiencing restrictions in performing routine activities (including activities of daily life) or participating in roles (such as work) if no supportive measures are offered. The disabilities covered in the 2014 Census included:

- (a) **Walking difficulties** (use of wheel chairs or crutches, limping, problems climbing steps)
- (b) **Seeing difficulties** (low vision, blind)
- (c) **Hearing difficulties** (partially or completely deaf)
- (d) **Mental/intellectual difficulties** (slow learning development making it hard to compete with counterparts at school, or other mental health conditions).

Economically active: refers to the status of those persons who are **Employed** or **Unemployed** at the Census date. The report sometimes refers to these persons simply as '**active**', but they are also commonly referred to as the '**labour force**'.

Economic support ratio: indicates the percentage of all persons in the population that are in the working age population (15-64 years).

Educational attainment: is the highest grade/standard/diploma/degree completed in the education system of the country where the education was received. It covers both public and private institutions accredited by the government.

Emigrant (or outmigrant): is a migrant who has moved out of an area.

Employed: refers to those persons who did any work during the time of the week before the Census date or worked for more than six months in the 12 months before the Census date for pay or profit, such as a wage, salary, allowance, business profit, etc. Also included in this category were persons working in family businesses, on a farm, in a store, in a private hospital etc., even though they were not paid any wages.

Glossary of terms and definitions

Employment rate: (See **Employment ratio**).

Employment (to population) ratio: generally, a statistical ratio that measures the proportion of the country's working age population (aged 15-64) that is employed. This is sometimes referred to as the 'employment rate'. The International Labour Organization (ILO) states that a person is considered employed if they have worked at least one hour in 'gainful' employment in the most recent week. In this report employment ratios were calculated for each age group. As the concept of 'usual' employment was adopted in the 2014 Census rather than 'current' employment, the employment ratio refers to the percentage of each age group in usual employment.

Extended household: is a non-nuclear household consisting of persons who are all related through blood, marriage or adoption.

Fertility: measures the average number of live births per woman, according to their age and marital status. In the 2014 Census all ever-married women aged 15 years and over were asked for information relating to all their live births.

Gender dividend: works in a similar fashion to the demographic dividend. Engaging more women in the labour force enlarges the active labour force. This can have a similar effect on economic output as a growth in the labour force through changes in age structure, and contribute to faster economic growth.

Head of (conventional) household: is the household member who makes key decisions and is recognized as head of the household by others. The head of household may be male or female. The person is not necessarily mainly responsible for the livelihood of the household. In the 2014 Census, if the head of household was not present on Census Night, the next most responsible member was reported as the de facto head.

Household size: is the number of people enumerated in a conventional household who were present on Census Night. This is not necessarily the number of household members usually resident in the household.

Human Development Index (HDI): is a single indicator that serves as a reference for social and economic development. The index is based on the level of life expectancy, level of schooling and Gross National Income (GNI) of a country. The HDI places a minimum and a maximum for each development dimension, called goalposts, and then makes a list of countries showing where each individual country stands in relation to these goalposts, expressed as a value between 0 and 1.

Infant mortality rate: is the ratio of deaths under one year of age to the number of live births of the same year. This rate is generally expressed per 1,000 live births.

In-migrant (or immigrant): is a migrant who has moved into an area.

Glossary of terms and definitions

Institutional household: is a unit where a group of people are living together other than in a conventional household. Examples include: old-people's homes, orphanages, hospitals, boarding schools, hotels, hostels and guest houses, institutions for persons with disabilities, prisons, monasteries, convents, military and police barracks, and camps for workers.

Internal migration: is movement involving a change of usual residence between Townships.

International migration: is movement involving a change of country of usual residence.

Labour force: is a general term to mean those persons who were collectively '**Employed**' or '**Unemployed**' at the time of the Census. The report sometime refers to such persons as '**Economically active**'.

Labour force participation rate: is the ratio between the number of people in the labour force in a particular age group and the overall size of the total population in the same age group. This is an important indicator as it represents the proportion of the population that is economically active.

Life expectancy at birth: is the average number of years that a newborn baby is expected to live if the mortality conditions of the year corresponding to the life table remain constant.

Lifetime migration: is the flow of persons whose Township of residence at the Census differs from his/her Township at birth. 'Lifetime migrants' are sometimes referred to as 'ever-migrants'.

Lifetime risk of maternal death (LTR): is the chance of a woman dying from maternal causes over the course of her 35-year reproductive life span. It is calculated as 35 multiplied by the maternal mortality rate.

Literacy: is the ability to read and write in one or more languages with reasonable understanding.

Live birth: is one where the infant shows one or more of the following signs of life immediately after birth: crying or similar sounds, movement of the limbs or any other parts of the body and/or any other tangible signs of life. The 2014 Census was concerned only with children born alive. Information was also collected on the most recent live birth to ever-married female respondents.

Marital status: is the status of the enumerated person in relation to the institution of marriage. The marital status was classified as: single/never married, married, widowed, divorced/separated and renounced.

Maternal death: is the death of a woman while pregnant or within 42 days of the termination of pregnancy, irrespective of the duration of the pregnancy, from any cause related to, or aggravated by, the pregnancy or its management, but not including those from accidental or incidental causes.

Glossary of terms and definitions

Maternal mortality ratio (MMRatio): is the number of maternal deaths per 100,000 live births.

Maternal mortality rate (MMRate): is the number of maternal deaths per 1,000 women aged 15-49 years.

Median age: is the age at which exactly half the population is younger and half is older than that age.

Migration: a migration is defined, generally, as a move from one 'migration-defining area' to another (or a move of some specified minimum distance) that was made during a given migration interval and that involved a change of residence. A migrant is a person who has changed his usual place of residence from one migration-defining area to another (or who moved some specified minimum distance) at least once during the migration interval. In the context of the Myanmar Census the 'migration-defining area' is, for internal migrants, the Township.

Myers' index: is conceptually similar to Whipple's index, except that the index considers the preference (or avoidance) of ages ending in each of the digits 0 to 9 in deriving an overall age accuracy score.

National Transfer Accounts (NTAs): provide an accounting of economic flows to and from residents of a country classified by their age. The accounts are comprehensive in that all economic flows that arise as a consequence of the production of goods and services during the year are incorporated into the accounts.

Not in labour force/inactive: are persons who had no work and did not make any active efforts to find a job during the six months before the Census date, or were unable to work. This included full time students, household workers, elderly people, etc.

Nuclear household: is defined as a household that consists entirely of a single family.

Old-age dependency ratio: is the ratio of older dependents - people aged 65 and over - per 100 persons aged 15-64.

Outmigrant (or emigrant): is a migrant who has moved out of an area.

Parent support ratio: is the number of persons aged 85 and over per one hundred persons aged 50-64.

Population density: relates to the number of persons in a given administrative area to the land surface of the area, expressed in square kilometres (km²). Areas covered by water are excluded from the calculation.

Population pyramid: is a graphical representation of the age distribution of a population by means of a histogram showing the population by age and sex, and so named because prior to the demographic transition it had a pyramidal shape.

Glossary of terms and definitions

Potential support ratio: is the number of persons aged 15-64 per person aged 65 and over.

Proportion of adult female deaths due to maternal causes (PMFD): is the proportion of adult female deaths due to maternal causes.

Recent migration: is a migration between Townships during the five years before the Census.

Relationship to the head of household: household members were defined by their relationship to the head of household classified by: spouse, son/daughter, son/daughter in law, grandchild/great grandchild, parent/parent in law, grandparent, other relative, adopted child, and non-relative.

Replacement fertility rates: are those fertility rates that, under the current mortality conditions, ensure that newborn girls will bear, on average, 2.05 children during their lifetime, assuming a male to female sex ratio at birth of 1.05.

Running means (or moving averages): is a smoothing technique in which data points are replaced by the average of the original value and adjacent values. Running means are used to smooth out fluctuations caused by short-term variations or small errors.

Rural area: is an area classified by the Department of General Administration (GAD) as a village tract. Generally such areas have a low population density and a land use which is predominantly agricultural.

Sex ratio: is the number of males for every 100 females in a population.

Sex ratios at birth: is the number of male births per 100 female births.

Singulate mean age at marriage (SMAM): is the average length of never married life for those who subsequently marry before age 50 and is calculated from the proportions never married in five-year age groups from a census or survey. The method was proposed by Hajjnal (1953).

Stunting: is a measure of height-for-age linear growth. Children whose height-for-age is more than two standard deviations below the median of the reference population are considered short for their age and are classified as 'moderately or severely stunted'. Those whose height-for-age is more than three standard deviations below the median are classified as 'severely stunted'.

Total dependency ratio: relates to the number of persons in the dependent age groups (that is children aged under 15) and older persons (65 and over), to the working age population (aged 15-64). It is expressed as per 100 persons in the working age group. The total dependency ratio is equal to the sum of the child dependency ratio and the old-age dependency ratio.

Glossary of terms and definitions

Total fertility rate (TFR): is the average number of children that a woman would give birth to if all women lived to the end of their childbearing years and bore children according to the current schedule of age-specific fertility rates.

Total marital fertility rate: is the total number of children a woman aged 20-49 would have, who married at age 20 and remained married and stayed alive until age 50. The TMFR20 is calculated as five times the sum of the age-specific marital fertility rates from ages 20-24 to 45-49.

Under-five mortality rate: is the ratio of deaths between birth and exactly five years of age expressed per 1,000 births.

Unemployed: refers to those persons who had no work but were able to work and were actually seeking a job during the reference period, or at the time of the Census enumeration.

Unemployment rate: is the percentage of the total labour force that was unemployed but actively seeking employment and willing to work. These are people who were without work, looking for jobs and available for work.

Urban area: is an area classified by the General Administration Department (GAD) as a ward. Generally such areas have an increased density of building structures, population and better infrastructural development.

Urbanization: is taken to mean, in this report, the process of transition from a rural to a more urban society, with an increasing proportion of a population residing in settlements designated as 'urban'.

Wasting: children whose weight-for-height is more than two standard deviations below the median of the reference population are classified as 'moderately or severely wasted', while those who fall more than three standard deviations below the median are classified as 'severely wasted'.

Whipple's index: is calculated by adding the number of all persons in the age range 23-62, who have reported their age as ending in 0 and 5, and dividing this sum by the total population aged 23-62, and multiplying this result by 5. The result is expressed as a percentage which ranges between 100 (indicating no preference for age reporting ending in 0 and 5) and 500 (all persons report their age ending in 0 and 5). A full explanation of Whipple's index is given in United Nations (1955).

Working age population: are those persons aged 15-64 years.

Appendices

Appendix 1. Assumptions used for making the population projections

A1.1 Population projection 2014-2050

A cohort component projection was used to project the 2014 Census population to the year 2050. Before the projection was conducted, some data handling was performed. First, the data were shifted from 29 March (enumeration date) to 1 October 2014, as projections are needed at the mid-point of each fiscal year. The Government's fiscal year runs from 1 April to 31 March. Trends in fertility, mortality and migration were used to move the data to the new base date of 1 October 2014.

The basic feature of a cohort component projection method is to undertake and project age-specific and sex-specific populations. These were determined by the census population at the beginning of the projection period, and the age-specific fertility, mortality, and migration rates used²⁰. The projection was performed for five-year age groups by single year periods. The projections were made for the Union population only; no State/Region projections were made for this report. Such projections are, however, presented in a separate 2014 Census Thematic Report on Population Projections (Department of Population, 2017). The Rural and Urban Projection (RUP) Program of the US Census Bureau was used to undertake the projections (US Census Bureau, 2013), using the assumptions for fertility, mortality and migration. Since projections for this report were made earlier than the thematic report on Population Projections, the assumptions and actual numbers may be slightly different, but the general trend is the same.

The fertility assumption was that the TFR would drop from 2.51 children per woman in 2014 to 1.66 in 2050. The decline in fertility is indicated in Table A1.1. Age-specific fertility rates for the period 2014-2050 are presented in the table at quinary intervals only, though linear interpolations of the fertility rates were made by the RUP projection software for each intervening year of the projection.

In the projection model it was assumed that life expectancy would increase between 2014 and 2050 from a level of 60.2 to 72.1 years for males and from 69.3 to 77.5 years for females. Table A1.2 presents the values of the life expectancy for the intervening period at quinary intervals. The age-specific mortality rates for the years 2014 and 2050 are given in Table A1.3. Annual mortality rates for the intervening years were imputed using a linear interpolation by the RUP projection software.

²⁰ For details of the cohort component method see, for example, United Nations (1989, Chapter II).

Appendix 1. Assumptions used for making the population projections

Table A1.1

Fertility rate assumptions for the projection 2014-2050

Age group	2014	2015	2018	2020	2025	2030	2035	2040	2045	2050
	Total fertility rate									
15-49	2.51	2.51	2.51	2.39	2.30	2.11	1.95	1.83	1.72	1.66
	Age-specific fertility rate									
15-19	0.0333	0.0333	0.0333	0.0299	0.0273	0.0220	0.0175	0.0141	0.0110	0.0093
20-24	0.1089	0.1089	0.1089	0.1081	0.1075	0.1062	0.1051	0.1042	0.1035	0.1030
25-29	0.1295	0.1295	0.1295	0.1292	0.1289	0.1284	0.1280	0.1277	0.1274	0.1272
30-34	0.1126	0.1127	0.1127	0.1066	0.1021	0.0925	0.0845	0.0785	0.0729	0.0699
35-39	0.0767	0.0767	0.0767	0.0686	0.0626	0.0498	0.0390	0.0320	0.0236	0.0195
40-44	0.0335	0.0335	0.0335	0.0291	0.0258	0.0188	0.0129	0.0085	0.0045	0.0023
45-49	0.0075	0.0075	0.0075	0.0066	0.0058	0.0043	0.0030	0.0020	0.0012	0.0007

Table A1.2

Life expectancy assumptions for the projection 2014-2050

	2014	2015	2020	2025	2030	2035	2040	2045	2050
Males	60.17	61.57	63.87	65.87	67.37	68.87	70.07	71.05	72.07
Females	68.94	69.55	71.05	72.25	73.45	74.45	75.45	76.45	77.45

Table A1.3

Assumed age-specific mortality rates for the projection 2014-2050

Age group	2014		2050	
	Males	Females	Males	Females
Under 1	0.0700	0.0601	0.0342	0.0318
1 - 4	0.0028	0.0025	0.0009	0.0008
5 - 9	0.0007	0.0005	0.0003	0.0002
10 - 14	0.0006	0.0004	0.0002	0.0001
15 - 19	0.0012	0.0006	0.0005	0.0002
20 - 24	0.0018	0.0009	0.0007	0.0003
25 - 29	0.0023	0.0012	0.0010	0.0004
30 - 34	0.0029	0.0016	0.0012	0.0006
35 - 39	0.0039	0.0021	0.0017	0.0009
40 - 44	0.0054	0.0030	0.0026	0.0014
45 - 49	0.0077	0.0044	0.0041	0.0022
50 - 54	0.0112	0.0063	0.0066	0.0035
55 - 59	0.0169	0.0098	0.0108	0.0057
60 - 64	0.0255	0.0153	0.0174	0.0094
65 - 69	0.0384	0.0256	0.0271	0.0167
70 - 74	0.0566	0.0304	0.0415	0.0269
75 - 79	0.0820	0.0594	0.0628	0.0415
80 - 84	0.1190	0.0929	0.0966	0.0703
85 and over	0.1924	0.1687	0.1723	0.1469

Appendix 1. Assumptions used for making the population projections

By far the most difficult projection assumptions to make relate to international migration, especially in a country such as Myanmar, where a considerable number of persons have left to find work abroad. It is uncertain how many will follow their example in the future and for how long emigrants will stay abroad. The population projection assumes that yearly net international migration will be a constant -125,000 over the period 2014 to 2029, and, thereafter reduce to -80,000 for the rest of the projection period. The net numbers of migrants by sex are shown in Table A1.4. The number of age-specific net migrants in each five-year age group that were used in the projections are presented in Table A1.5 for two different periods, 2014-2029 and 2030-2050.

Table A1.4

Assumed numbers of net international migrants by sex, for the projection 2014-2050

Sex	Annual net international migration	
	2014-2029	2030-2050
Males	-74,510	-48,791
Females	-47,074	-31,207
Both sexes	-125,043	-79,998

Table A1.5

Assumed annual numbers of net international migrants by sex, by age, for the projection 2014-2050

Age group	Annual net migrants			
	2014-2029		2030-2050	
	Males	Females	Males	Females
Under 1	-1,070	-1,108	-685	-651
1-4	-705	-666	-451	-426
5-9	-1,207	-1,094	-772	-700
10-14	-8,074	-6,109	-5,167	-3,910
15-19	-16,699	-10,578	-10,687	-6,770
20-24	-16,899	-10,392	-10,815	-6,651
25-29	-13,199	-8,014	-8,448	-5,129
30-34	-8,925	-5,247	-5,712	-3,358
35-39	-5,061	-2,936	-3,239	-1,879
40-44	-2,533	-1,450	-1,621	-928
45-49	-1,077	-656	-689	-420
50-54	-432	-284	-276	-181
55-59	-168	-137	-107	-88
60-64	-67	-70	-43	-45
65-69	-67	-32	-21	-23
70-74	-32	-22	-13	-14
75 and over	-70	-53	-45	-34
Total	-74,510	-47,074	-48,791	-31,207

Appendix 1. Assumptions used for making the population projections

A1.2 Population projection 1983-2014

To provide comparable information for the preceding period 1983-2014, a second population projection was made. The assumptions on fertility and mortality stayed as close as possible to the values observed in the thematic reports on fertility (Department of Population, 2016a) and mortality (Department of Population, 2016b) for the years for which actual data were available. These were values that were recorded in the surveys carried out during that period. Migration levels were then applied in such a way that the resulting projected population for 2014 came as close as possible to the observed 2014 Census population. The same cohort component projection method and software were used as for the 2014-2050 projections. The fertility, mortality and migration assumptions used in the projection are presented in the Tables A1.6 through to A1.10.

In the case of mortality the effect, in 2008, of Cyclone Nargis was taken in to account where an estimated 125,000 people died; these deaths were proportionately spread across the ages. In the case of migration, zero migrants were assumed from 1983 to 1990, then a constant value of negative net migration (-125,043) was assumed from 1991 to 2013, based on the migration pattern from the 2014 Census.

Table A1.6

Fertility rate assumptions for the projection 1983-2014

Age group	1983	1990	1996	2001	2006	2014
Total fertility rate						
15-49	4.06	3.58	3.36	2.99	2.67	2.51
Age-specific fertility rate						
15 - 19	0.0365	0.0355	0.0350	0.0343	0.0336	0.0333
20 - 24	0.1593	0.1437	0.1366	0.1245	0.1141	0.1089
25 - 29	0.1953	0.1749	0.1656	0.1499	0.1363	0.1295
30 - 34	0.1805	0.1595	0.1499	0.1337	0.1197	0.1126
35 - 39	0.1470	0.1253	0.1153	0.0985	0.0839	0.0767
40 - 44	0.0754	0.0624	0.0565	0.0465	0.0378	0.0335
45 - 49	0.0179	0.0147	0.0132	0.0107	0.0086	0.0075

Table A1.7

Life expectancy assumptions for the projection 1983-2014

	1983	1985	1990	1995	2000	2005	2010	2014
Males		53.95	55.22	56.77	58.56	60.47	62.36	63.90
Females		58.68	59.98	61.40	63.51	65.66	67.92	69.90

Appendix 1. Assumptions used for making the population projections

Table A1.8

Assumed age-specific mortality rates for the projection 1983-2014

Age	Age-specific mortality rate			
	1983		2013	
	Males	Females	Males	Females
Under 1	0.1292	0.1129	0.0700	0.0601
1- 4	0.0075	0.0078	0.0028	0.0025
5- 9	0.0018	0.0016	0.0007	0.0005
10-14	0.0014	0.0012	0.0006	0.0004
15-19	0.0025	0.0020	0.0012	0.0006
20-24	0.0038	0.0029	0.0018	0.0009
25-29	0.0048	0.0036	0.0023	0.0012
30-34	0.0062	0.0044	0.0029	0.0016
35-39	0.0077	0.0054	0.0039	0.0021
40-44	0.0101	0.0067	0.0054	0.0030
45-49	0.0133	0.0087	0.0077	0.0044
50-54	0.0178	0.0166	0.0112	0.0063
55-59	0.0249	0.0169	0.0169	0.0098
60-64	0.0355	0.0249	0.0255	0.0153
65-69	0.0515	0.0389	0.0384	0.0256
70-74	0.0736	0.0573	0.0566	0.0304
75-79	0.1026	0.0841	0.0820	0.0594
80-84	0.1416	0.1215	0.1190	0.0929
85 and over	0.2124	0.1956	0.1924	0.1687

Table A1.9

Assumed numbers of net international migrants by sex for the projection 1983-2014

Sex	Annual net international migration	
	1983-1990	1991-2014
Males	0	-76,285
Females	0	-48,758
Both sexes	0	-125,043

Appendix 1. Assumptions used for making the population projections

Table A1.10

Assumed annual numbers of net international migrants by sex, by age, for the projection 1983-2014

Age	Annual net migrants			
	1983-1990		1991-2014	
	Males	Females	Males	Females
Under 1	0	0	-1,070	-1,018
1-4	0	0	-705	-666
5-9	0	0	-1,207	-1,094
10-14	0	0	-8,074	-6,109
15-19	0	0	-16,699	-10,578
20-24	0	0	-16,899	-10,392
25-29	0	0	-13,199	-8,014
30-34	0	0	-8,925	-5,247
35-39	0	0	-5,061	-2,936
40-44	0	0	-2,533	-1,450
45-49	0	0	-1,077	-656
50-54	0	0	-432	-284
55-59	0	0	-168	-137
60-64	0	0	-67	-70
65-69	0	0	-67	-32
70-74	0	0	-32	-22
75 and over	0	0	-70	-53
Total	0	0	-76,285	-48,758

Appendix 2. Quality of age reporting

In censuses, age is a crucial variable against which most other characteristics of the population are classified. Together with sex, it is the most important indicator when analysing the demographic changes of a population. Unfortunately, in developing countries, age is also one of the more difficult characteristics on which to collect accurate information, and poses serious problems in data editing. A common problem encountered in age reporting in censuses is the inability of respondents to recall their exact age, resulting in the rounding of the age during the interview - either by the respondent or the enumerator - to the closest number ending in zero or five. This may lead to age heaping, once the collected data are tabulated. Another error that can affect the reported age distribution of the population is the systematic omission of persons with certain demographic characteristics, particularly infants and older women.

5. Completed Age
If age greater than or equal to 98, write "98". If less than one write "00".

In Years

<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

To assess the quality of information from the 2014 Myanmar Census, it is essential to first examine the reliability and accuracy of the data on age and sex. In the Census, age information was collected through a direct question (shown here) on completed age on the Census Night for all persons who spent the Census Night in the household where enumeration took place. No information was collected on the date of birth of the respondent. However, enumerators were instructed to follow up with a question on the date of birth as a consistency check on the reported age. During training, enumerators received detailed directions on how to estimate a person's age if the respondent did not know. In such cases, enumerators were asked to refer to any relevant official documents the person had (such as a religious certificate, a birth registration certificate or an identity card). If a person's age could not be deduced from such documents or through related information collected from other members of the household, the enumerator was instructed to use a Calendar of Events, which listed the dates of major events in the history of Myanmar. Finally, it was stressed that: "Any estimate of age, however rough, is better than don't know. Do the best you can to report ages accurately" (Department of Population, 2014, p 26).

During the data editing stage, the Census team at the Department of Population opted for minimal imputation and correction of age. In the event that the reported age was out of range or missing, a value was imputed through a hot deck procedure²¹, based on the relationship to the head of household and sex. If the age of the head himself/herself was considered too low, it was imputed based on his/her spouse's age.

A2.1 Single year of age pyramid

The first, and general, way to look at the data quality of age and sex is by graphing the population age structure, as reported, in a population pyramid by single years of age. Figure A2.1 depicts such a pyramid and shows, indeed, that in the Census age heaping was present at ages ending in 0 and 5. Heaping started at age 20 and continued systematically thereafter

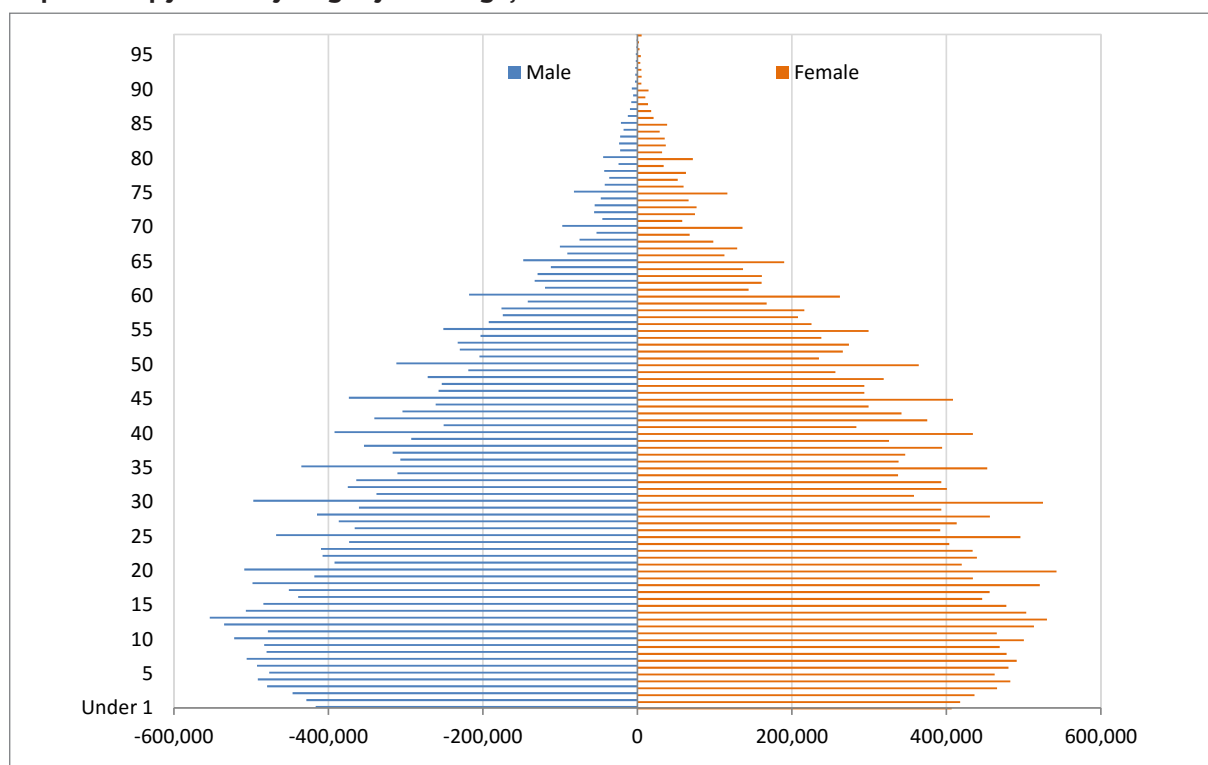
²¹ In a hot deck imputation, information obtained from previous records with similar characteristics is used to replace the missing or inconsistent values. The information about previous records is updated continuously when the program progresses through the data set. In this way other values are imputed. For a discussion of hot (and cold) deck imputation the reader is referred to UNSD (2008), Department of Economic and Social Affairs Statistics Division (2008), Principles and Recommendations for Population and Housing Censuses, Revision 2, ST/ESA/STAT/SER.M/67/Rev.2, New York.

Appendix 2. Quality of age reporting

among all age groups. There also seems to be some heaping at age 18, the age of majority in Myanmar. Another noticeable characteristic is the apparent drop in the number of very young children. A total of 823,378 children below the age of one were counted compared with 974,187 children aged four: some 150,809 (or 18.3 per cent) more. The number of children aged three (945,240) is also much higher (14.8 per cent) than the number of enumerated infants.

Figure A2.1

Population pyramid by single year of age, 2014 Census



Source: Table A-5 in Department of Population (2015, p 89).

It is very unlikely that a such a drastic fertility decline could be responsible for the smaller number of infants, as there is evidence that, on the contrary, a slight increase in the levels of fertility has occurred in recent years²². It might be expected that the number of infants would be even higher than those in the age cohorts one to four.

Furthermore, the Census asked women the date, sex and survival status of their last born child. A total of 906,493 children were reported as being born during the previous 12 months before the Census. Out of this number, 39,271 were reported to have died, leaving 867,222 survivors (Department of Population, 2015, Table F-2, p 200). The figure of 867,222 is considerably higher (by nearly 44,000) than the 823,378 children aged under one enumerated. This suggests that, indeed, infants were under-enumerated in the Census. It is unlikely that the difference is caused by migration, as infants normally would not migrate independently from

²² The 2014 Census Thematic Report on Fertility and Nuptiality (Department of Population, 2016a) indicates that during the period 2005 - 2015 the TFR increased from 2.0 to 2.5. This rise in fertility was caused by a decrease in the age at marriage from 2007-2014, Population and Housing Census of Myanmar, mimeo, p.24.

Appendix 2. Quality of age reporting

their mothers. No significant difference between the under-enumeration of girls and boys was noted, as the sex ratio for the under one age group was 102.4.

A2.2. Whipple's index

For many years, demographers have relied on a series of indices to show the preferences or dislikes for ages ending in certain digits. Whipple's index represents a continuous scale where a value below 105 - a deviation of less than 5 per cent from 'perfect' - is a sign that the age distribution is highly accurate, 105 - 110 that it is relatively accurate, 110 - 125 that it is of reasonable quality, 125 - 175 that it is inaccurate, and above 175 that it is very inaccurate. In Table A2.1, Whipple's index is shown for males, females and both sexes for the 2014 Census. The values for the Whipple index are 124.0 for males, 122.6 for females and 123.3 for both sexes. These results indicate that heaping is definitely present and that the age distribution is on the borderline between being reasonable and inaccurate. However, compared to the 1983 census, age reporting has significantly improved. At that time, the Whipple's indices were respectively 142, 144 and 143 for males, females and both sexes (Win Tint, 1991, p 25).

Table A2.1

Whipple's index, age distribution

	Male	Female	Total
Pop 23 - 62	11,881,439	13,225,667	25,107,106
Pop 25.30.35..	2,946,822	3,242,518	6,189,340
Pop 25... X 100	294,682,200	324,251,800	618,934,000
Whipple's index	124	122.6	123.3

A2.3 Myers' index

One of the shortcomings of Whipple's index is that it only measures the preference for ages ending in 0 and 5. A more sophisticated measure was proposed by Myers, which shows the relative incidence of each of the ten digits from 0 to 9. In a normal population more people are present in ages ending in 1 than, for instance, ending in 9 (that is, more persons are present with age 81 than with 89, more with age 71 than with 79, etc.) To avoid this problem, Myers proposed to compute a 'blended' population in which each of the ten digits would have 10 per cent of the total blended population, if no digit preference was present.

Appendix 2. Quality of age reporting

Figure A2.2

Myers' index, digit preference 0-9 by sex

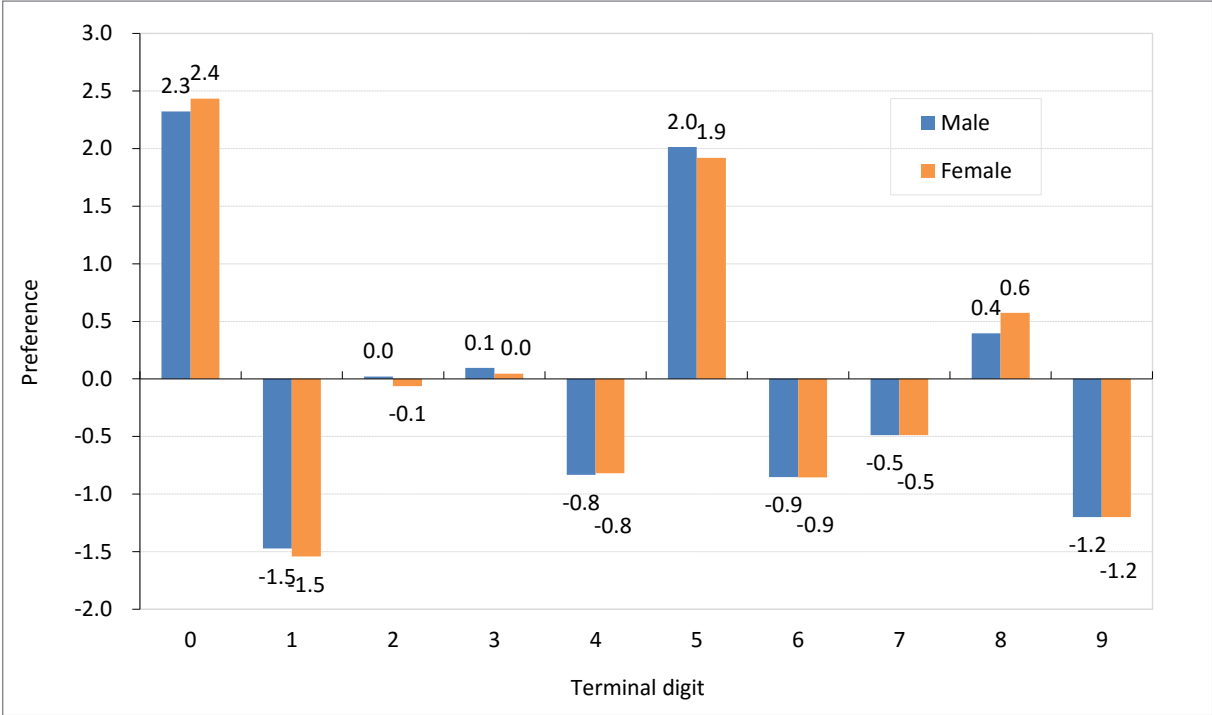


Figure A2.2 presents a graphical representation of the preferred digits by males and females. The figures at the top of each bar indicate the deviation from the expected 10 per cent. Reported ages ending in 0 count for 12.3 per cent of males and 12.4 per cent of females, being, respectively, 2.3 and 2.4 points higher than the expected 10 per cent. For ages ending in 5 these percentages are 12.0 and 11.9, respectively. Both results are a clear indication of age preference. The graph indicates that there is a shift from ages 1, 4, 6 and 9 to digits 0 and 5.

A2.4 Adjustments

In this report, adjustments for age-heaping and under-enumeration at specific ages, especially under five years, were undertaken to generate population projections. The estimation of fertility and mortality rates was based on indirect demographic techniques and modelling. The rest of the analyses in this report is based on the collected census data on age and sex.

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
UNION	43.7	8.8	52.4	20.1	11.4	65.6	28.6	5.8
KACHIN	45.5	6.1	51.6	13.4	16.5	66.0	30.0	4.0
KACHIN Urban	42.1	6.6	48.7	15.7	15.1	67.3	28.3	4.4
KACHIN Rural	47.4	5.8	53.2	12.2	17.3	65.3	31.0	3.8
MYITKYINA	49.9	6.7	56.6	13.5	14.8	63.8	31.9	4.3
Myitkyina	45.2	7.1	52.3	15.8	14.0	65.7	29.7	4.7
Waingmaw	57.4	7.7	65.1	13.5	12.9	60.5	34.8	4.7
Ingyanyan	56.2	3.7	59.9	6.6	27.1	62.5	35.2	2.3
Tanaing	48.9	4.1	53.0	8.3	24.6	65.4	32.0	2.7
Chiphwe	77.4	6.3	83.7	8.1	16.0	54.4	42.1	3.4
Hsotlaw	83.6	8.6	92.2	10.3	11.7	52.0	43.5	4.5
Hsinbo (ST)	53.3	5.1	58.4	9.6	19.6	63.1	33.6	3.2
Hsadone (ST)	62.1	6.5	68.6	10.5	15.3	59.3	36.8	3.9
Kanpaikti (ST)	51.3	5	56.3	9.7	20.1	64.0	32.8	3.2
Shinbwayyan (ST)	51	3.5	54.5	6.9	28.6	64.7	33.0	2.3
Panwa (ST)	71.3	5.4	76.7	7.5	18.7	56.6	40.4	3.0
MOHNYIN	38.1	4.8	42.9	12.6	20.9	70.0	26.7	3.4
Mohnyin	49.3	7.5	56.8	15.3	13.2	63.8	31.4	4.8
Mogaung	52.8	8.2	61.0	15.5	12.2	62.1	32.8	5.1
Phakant	26	1.9	27.9	7.3	52.8	78.2	20.3	1.5
Hopin (ST)	48.9	8.4	57.3	17.1	12.0	63.6	31.1	5.3
Kamine (ST)	61.6	7.9	69.5	12.8	12.7	59.0	36.4	4.7
BHAMO	49.5	7.2	56.7	14.6	13.8	63.8	31.6	4.6
Bhamo	46.9	7.3	54.2	15.5	13.7	64.8	30.4	4.7
Shwegu	51	6.4	57.4	12.5	15.7	63.6	32.4	4.0
Momaik	52.7	9.5	62.2	18.0	10.6	61.7	32.5	5.8
Mansi	50.9	7	57.9	13.8	14.3	63.3	32.2	4.4
Myohla (ST)	57.1	4.6	61.7	8.0	21.8	61.9	35.3	2.8
Lwe'ge' (ST)	46.5	7.8	54.3	16.9	12.8	64.8	30.1	5.1
Dotphoneyan (ST)	50.4	6.8	57.2	13.5	14.7	63.6	32.1	4.3

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing Index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
PUTAO	66	8.4	74.4	12.7	11.9	57.3	37.8	4.8
Putao	67.8	8.5	76.3	12.5	11.8	56.7	38.5	4.8
Sumprabum	63.7	7	70.7	11.1	14.2	58.6	37.3	4.1
Machanbaw	70.4	8.9	79.3	12.6	11.3	55.8	39.3	4.9
Khaunglanphoo	51.5	6.8	58.3	13.2	14.8	63.2	32.5	4.3
Naungmoon	70.4	10.6	81.0	15.0	9.5	55.2	38.9	5.8
Pannandin (ST)	79.1	10.9	90.0	13.8	9.2	52.6	41.6	5.7
KAYAH	56.0	6.0	62.0	10.8	16.6	61.9	34.5	3.7
KAYAH Urban	41.9	7.0	48.9	16.8	14.3	67.2	28.1	4.7
KAYAH Rural	61.3	5.7	67.0	9.3	17.6	59.9	36.7	3.4
LOIKAW	57.3	6.4	63.7	11.2	15.6	61.1	35.0	3.9
Loikaw	49.2	6.5	55.7	13.1	15.5	64.2	31.6	4.1
Dimawso	66.6	6.2	72.8	9.3	16.2	57.9	38.5	3.6
Phruso	69.9	6.8	76.7	9.7	14.7	56.6	39.6	3.8
Shardaw	65.4	6.8	72.2	10.3	14.8	58.1	38.0	3.9
BAWLAKHE	48.9	4.1	53.0	8.3	24.7	65.4	32.0	2.6
Bawlakhe	42.7	4.2	46.9	9.8	23.9	68.1	29.1	2.9
Parsaung	50.1	4.0	54.1	7.9	25.1	64.9	32.5	2.6
Meisi	54.7	3.6	58.3	6.6	27.5	63.2	34.5	2.3
Ywathit (ST)	44.0	5.3	49.3	12.0	18.9	67.0	29.5	3.5
KAYIN	60.6	8.7	69.3	14.3	11.5	59.1	35.8	5.1
KAYIN Urban	45.7	6.7	52.4	14.6	14.9	65.6	30.0	4.4
KAYIN Rural	65.4	9.3	74.7	14.2	10.7	57.2	37.4	5.3
HPA-AN	63.0	10.0	73.0	15.9	10.0	57.8	36.4	5.8
Hpa-an	59.1	10.7	69.8	18.2	9.3	58.9	34.8	6.3
Hlaingbwe	68.4	10.8	79.2	15.7	9.3	55.8	38.2	6.0
Thandaunggyi	56.3	6.2	62.5	11.0	16.2	61.5	34.6	3.8
Paingkyon (ST)	69.1	10.6	79.7	15.3	9.5	55.6	38.5	5.9
ShanYwathit (ST)	75.9	6.3	82.2	8.3	15.9	54.9	41.7	3.4
Leiktho (ST)	69.3	5.4	74.7	7.8	18.4	57.2	39.7	3.1
Bawgali (ST)	61.7	7.9	69.6	12.9	12.6	59.0	36.4	4.7

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
PHARPON	60.7	6.1	66.8	10.1	16.3	59.9	36.4	3.7
Pharpon	54.3	5.5	59.8	10.1	18.3	62.6	34.0	3.4
Kamamaung (ST)	65.4	6.6	72.0	10.1	15.1	58.1	38.0	3.8
MYAWADY	51.7	4.4	56.1	8.5	22.8	64.1	33.1	2.8
Myawady	50.7	4.4	55.1	8.8	22.5	64.5	32.7	2.9
Sugali (ST)	66.0	3.9	69.9	5.9	25.8	58.9	38.8	2.3
Wawlaymyaing (ST)	66.5	3.5	70.0	5.2	28.8	58.8	39.1	2.0
KAWKAREIK	61.0	8.7	69.7	14.3	11.5	58.9	35.9	5.1
Kawkareik	60.3	10.6	70.9	17.6	9.4	58.5	35.3	6.2
Kyarinseikkayi	57.5	9.0	66.5	15.6	11.2	60.1	34.5	5.4
Payarhonzu (ST)	60.7	5.5	66.2	9.1	18.2	60.2	36.5	3.3
Kyaidon (ST)	70.9	6.1	77.0	8.7	16.3	56.5	40.1	3.5
CHIN	72.3	8.7	81.0	12.0	11.6	55.3	40.0	4.8
CHIN Urban	53.5	9.0	62.5	16.7	11.2	61.6	32.9	5.5
CHIN Rural	78.0	8.6	86.6	11.0	11.7	53.6	41.8	4.6
HAKHA	65.8	10.2	76.0	15.5	9.8	56.8	37.4	5.8
Hakha	58.5	10.0	68.5	17.1	10.0	59.3	34.7	6.0
Thantlang	73.3	10.3	83.6	14.1	9.7	54.4	39.9	5.6
FALAM	72.3	7.7	80.0	10.6	13.0	55.6	40.2	4.3
Falam	65.1	9.6	74.7	14.7	10.4	57.2	37.3	5.5
Tedim	73.7	7.3	81.0	9.9	13.7	55.2	40.7	4.0
Tonzaung	86.0	7.0	93.0	8.1	14.3	51.8	44.6	3.6
Rihkhual (ST)	59.6	4.7	64.3	7.9	21.2	60.8	36.3	2.9
Cikha (ST)	72.4	6.4	78.8	8.8	15.7	55.9	40.5	3.6
MINDAT	75.5	8.7	84.2	11.5	11.5	54.3	41.0	4.7
Mindat	80.9	9.1	90.0	11.3	11.0	52.6	42.6	4.8
Matupi	70.7	11.5	82.2	16.3	8.7	54.9	38.8	6.3
Kanpalet	83.4	7.8	91.2	9.4	12.8	52.3	43.6	4.1
Paletwa	69.7	7.5	77.2	10.7	13.4	56.4	39.3	4.2
Reazu (ST)	76.9	11.3	88.2	14.6	8.9	53.1	40.9	6.0
Sami (ST)	81.2	6.9	88.1	8.5	14.5	53.2	43.2	3.7

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing Index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
SAGAING	44.0	9.5	53.5	21.7	10.5	65.1	28.7	6.2
SAGAING Urban	37.8	9.0	46.8	23.9	11.1	68.1	25.7	6.1
SAGAING Rural	45.3	9.6	54.9	21.3	10.4	64.5	29.3	6.2
SAGAING	35.0	12.0	47.0	34.4	8.3	68.0	23.8	8.2
Sagaing	35.5	11.6	47.1	32.5	8.7	68.0	24.1	7.9
Myinmu	33.4	12.7	46.1	38.0	7.9	68.4	22.9	8.7
Myaung	35.1	12.7	47.8	36.3	7.9	67.7	23.7	8.6
SHWEBO	41.8	10.8	52.6	25.9	9.3	65.6	27.4	7.1
Shwebo	34.6	10.6	45.2	30.6	9.5	68.9	23.8	7.3
Khin U	39.2	10.6	49.8	27.1	9.4	66.8	26.1	7.1
Wetlet	36.2	12.6	48.8	34.8	7.9	67.2	24.3	8.5
Kambalu	45.8	8.4	54.2	18.3	12.0	64.9	29.7	5.4
Kyunhla	44.1	7.8	51.9	17.6	12.9	65.8	29.1	5.1
Ye U	44.5	13.6	58.1	30.5	7.4	63.3	28.2	8.6
Depayin	46.0	12.2	58.2	26.5	8.2	63.2	29.1	7.7
Tasei	48.2	12.8	61.0	26.5	7.8	62.1	29.9	7.9
Kyaukmyaung (ST)	39.5	8.4	47.9	21.1	12.0	67.6	26.7	5.6
MONYWA	36.4	10.9	47.3	30.0	9.2	67.9	24.7	7.4
Monywa	33.9	9.6	43.5	28.4	10.4	69.7	23.6	6.7
Butalin	42.9	13.2	56.1	30.9	7.6	64.0	27.5	8.5
Ayartaw	38.1	11.9	50.0	31.3	8.4	66.7	25.4	7.9
Chaung Oo	35.6	11.6	47.2	32.5	8.6	67.9	24.2	7.9
KATHA	48.7	7.5	56.2	15.4	13.3	64.0	31.2	4.8
Katha	52.4	6.7	59.1	12.7	15.0	62.9	32.9	4.2
Indaw	52.5	8.7	61.2	16.5	11.5	62.0	32.6	5.4
Tigyaing	46.3	7.0	53.3	15.1	14.3	65.3	30.2	4.6
Banmauk	53.8	6.0	59.8	11.2	16.6	62.6	33.7	3.8
Kawlin	39.3	8.4	47.7	21.3	11.9	67.7	26.6	5.7
Wuntho	46.6	8.0	54.6	17.1	12.5	64.7	30.1	5.2
Pinlebu	51.7	8.3	60.0	16.0	12.1	62.5	32.3	5.2

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
KALAY	47.3	7.6	54.9	16.1	13.1	64.5	30.6	4.9
Kalay	47.9	7.5	55.4	15.7	13.3	64.3	30.8	4.8
Kalewa	44.3	7.3	51.6	16.6	13.6	66.0	29.2	4.8
Mingin	47.1	8.1	55.2	17.2	12.3	64.4	30.3	5.2
TAMU	58.0	6.3	64.3	10.9	15.9	60.9	35.3	3.8
Tamu	51.1	6.1	57.2	11.9	16.5	63.6	32.5	3.9
Myothit (ST)	66.4	5.3	71.7	8.0	18.8	58.2	38.7	3.1
Khampat (ST)	66.0	7.2	73.2	10.8	14.0	57.8	38.1	4.1
MAWLAIK	58.2	8.4	66.6	14.4	11.9	60.0	34.9	5.0
Mawlaik	50.8	8.2	59.0	16.2	12.2	62.9	31.9	5.2
Phaungpyin	61.8	8.5	70.3	13.7	11.8	58.7	36.3	5.0
HKAMTI	58.5	5.2	63.7	8.9	19.2	61.1	35.8	3.2
Hkamti	43.5	3.9	47.4	8.9	25.8	67.8	29.5	2.6
Homalin	55.6	4.9	60.5	8.9	20.2	62.3	34.6	3.1
Leshi	71.1	5.5	76.6	7.7	18.2	56.6	40.3	3.1
Lahe	73.3	6.4	79.7	8.7	15.6	55.6	40.8	3.6
Nanyun	55.2	3.6	58.8	6.6	27.6	63.0	34.7	2.3
Mobaingluk (ST)	66.1	6.0	72.1	9.1	16.6	58.1	38.4	3.5
Sonemara (ST)	73.3	8.6	81.9	11.8	11.6	54.9	40.3	4.8
Htanparkway (ST)	78.6	11.2	89.8	14.3	8.9	52.7	41.4	5.9
Pansaung (ST)	72.5	6.1	78.6	8.4	16.4	56.0	40.6	3.4
Donhee (ST)	82.3	7.3	89.6	8.9	13.7	52.8	43.4	3.8
YINMARPIN	42.2	10.7	52.9	25.2	9.4	65.4	27.6	7.0
Yinmarpin	41.3	10.2	51.5	24.7	9.8	66.0	27.3	6.8
Salingyi	37.8	11.1	48.9	29.2	9.0	67.2	25.4	7.4
Palae	43.6	11.3	54.9	25.9	8.9	64.6	28.2	7.3
Kani	45.7	10.0	55.7	22.0	10.0	64.2	29.3	6.4

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
TANINTHARYI	55.7	8.4	64.1	15.1	11.9	60.9	33.9	5.1
TANINTHARYI Urban	43.3	8.8	52.1	20.3	11.4	65.8	28.5	5.8
TANINTHARYI Rural	60.0	8.2	68.2	13.7	12.1	59.4	35.7	4.9
DAWEI	53.6	11.6	65.2	21.6	8.6	60.5	32.5	7.0
Dawei	40.7	10.8	51.5	26.5	9.3	66.0	26.9	7.1
Lounglon	59.2	14.1	73.3	23.8	7.1	57.7	34.1	8.1
Thayetchaung	59.2	13.9	73.1	23.5	7.2	57.8	34.2	8.0
Yebyu	57.6	9.9	67.5	17.2	10.1	59.7	34.4	5.9
Myitta (ST)	64.2	6.3	70.5	9.8	15.9	58.7	37.6	3.7
Kaleinaung (ST)	52.0	5.8	57.8	11.1	17.3	63.4	33.0	3.7
MYEIK	57.6	7.2	64.8	12.6	13.8	60.7	35.0	4.4
Myeik	49.7	7.7	57.4	15.5	13.0	63.5	31.6	4.9
Kyunsu	64.7	5.4	70.1	8.3	18.6	58.8	38.0	3.2
Palaw	60.7	9.4	70.1	15.5	10.6	58.8	35.7	5.5
Tanintharyi	61.6	6.2	67.8	10.0	16.2	59.6	36.7	3.7
Palauk (ST)	72.1	10.1	82.2	14.0	9.9	54.9	39.6	5.5
KAWTHOUNG	54.3	5.0	59.3	9.1	20.2	62.8	34.1	3.1
Kawthoung	51.6	6.0	57.6	11.7	16.6	63.4	32.7	3.8
Bokepyin	60.6	4.2	64.8	6.9	24.1	60.7	36.8	2.5
Khamaukkyi (ST)	48.7	2.9	51.6	5.9	34.7	66.0	32.1	1.9
Pyigyimandaing (ST)	63.0	4.5	67.5	7.2	22.1	59.7	37.6	2.7
Karathuri (ST)	56.1	3.2	59.3	5.7	31.5	62.8	35.2	2.0

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
BAGO	43.6	9.7	53.3	22.3	10.3	65.2	28.4	6.3
BAGO Urban	36.9	10.6	47.5	28.9	9.4	67.8	25.0	7.2
BAGO Rural	45.6	9.4	55.0	20.7	10.6	64.5	29.4	6.1
BAGO	50.7	8.5	59.2	16.9	11.7	62.8	31.8	5.4
Bago	43.7	8.4	52.1	19.3	11.9	65.7	28.7	5.5
Tanatpin	59.7	9.0	68.7	15.0	11.1	59.3	35.4	5.3
Kawa	55.3	9.2	64.5	16.6	10.9	60.8	33.6	5.6
Waw	58.1	9.1	67.2	15.8	10.9	59.8	34.7	5.5
Nyaunglebin	47.1	9.3	56.4	19.7	10.8	64.0	30.1	5.9
Kyauktaga	53.1	7.7	60.8	14.5	13.0	62.2	33.0	4.8
Daik U	49.3	8.5	57.8	17.2	11.8	63.4	31.3	5.4
Shwegyin	56.1	7.1	63.2	12.7	14.0	61.3	34.4	4.4
TOUNGOO	49.1	9.0	58.1	18.3	11.2	63.3	31.0	5.7
Toungoo	42.0	9.2	51.2	21.8	10.9	66.2	27.8	6.1
Yaedashe	47.3	8.2	55.5	17.3	12.2	64.3	30.4	5.3
Kyaukkyi	61.8	8.9	70.7	14.4	11.2	58.6	36.2	5.2
Pyu	50.6	9.3	59.9	18.3	10.8	62.5	31.7	5.8
Oatwin	49.6	9.2	58.8	18.5	10.9	63.0	31.2	5.8
Htantapin	53.5	9.1	62.6	17.1	10.9	61.5	32.9	5.6
PYAY	30.8	10.9	41.7	35.4	9.2	70.5	21.8	7.7
Pyay	29.4	9.8	39.2	33.2	10.2	71.9	21.1	7.0
Paukkhaung	34.4	8.8	43.2	25.6	11.4	69.8	24.0	6.1
Padaung	32.6	11.1	43.7	34.1	9.0	69.6	22.7	7.7
Paunde	30.7	11.8	42.5	38.2	8.5	70.2	21.6	8.2
Thegon	28.4	12.7	41.1	44.6	7.9	70.9	20.1	9.0
Shwedaung	30.8	12.4	43.2	40.3	8.0	69.8	21.5	8.7

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing Index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
THAYAWADY	38.5	11.2	49.7	29.0	8.9	66.8	25.7	7.5
Thayawady	44.3	10.8	55.1	24.4	9.2	64.5	28.6	7.0
Letpadan	46.3	10.8	57.1	23.2	9.3	63.7	29.5	6.9
Minhla	39.6	10.8	50.4	27.3	9.2	66.5	26.3	7.2
Okpo	38.3	10.4	48.7	27.2	9.6	67.3	25.7	7.0
Zigon	32.4	12.4	44.8	38.2	8.1	69.1	22.4	8.5
Nattalin	31.8	11.5	43.3	36.0	8.7	69.8	22.2	8.0
Monyo	40.1	12.0	52.1	29.9	8.3	65.7	26.4	7.9
Gyobingauk	32.0	11.4	43.4	35.7	8.7	69.7	22.3	8.0
MAGWAY	41.0	10.9	51.9	26.7	9.2	65.8	27.0	7.2
MAGWAY Urban	34.6	10.8	45.4	31.2	9.3	68.8	23.8	7.4
MAGWAY Rural	42.2	10.9	53.1	26.0	9.1	65.3	27.5	7.1
MAGWAY	42.6	11.2	53.8	26.4	8.9	65.0	27.7	7.3
Magway	38.2	9.9	48.1	26.0	10.1	67.5	25.8	6.7
Yenangyoung	42.4	12.8	55.2	30.2	7.8	64.5	27.3	8.2
Chauk	40.6	12.0	52.6	29.5	8.3	65.5	26.6	7.9
Taungdwingyi	42.0	10.3	52.3	24.4	9.7	65.7	27.6	6.7
Myothit	49.8	11.0	60.8	22.0	9.1	62.2	31.0	6.8
Natmauk	46.8	13.0	59.8	27.8	7.7	62.6	29.3	8.1
MINBU	40.6	10.1	50.7	24.8	9.9	66.4	27.0	6.7
Minbu	38.9	9.5	48.4	24.5	10.5	67.4	26.2	6.4
Pwint Phyu	40.3	9.8	50.1	24.4	10.2	66.6	26.8	6.6
Ngape	46.5	10.1	56.6	21.7	9.9	63.9	29.7	6.4
Salin	40.4	10.5	50.9	25.9	9.5	66.3	26.8	6.9
Saytottara	43.4	10.8	54.2	24.8	9.3	64.9	28.1	7.0
THAYET	35.4	10.3	45.7	29.1	9.7	68.6	24.3	7.1
Thayet	31.9	10.8	42.7	34.0	9.2	70.1	22.3	7.6
Minhla	34.1	8.3	42.4	24.2	12.1	70.2	24.0	5.8
Mindon	32.7	16.0	48.7	48.8	6.3	67.2	22.0	10.7
Kamma	31.5	12.2	43.7	38.6	8.2	69.6	21.9	8.5
Aunglan	37.5	9.4	46.9	25.2	10.6	68.1	25.5	6.4
Sinpaungwe`	40.1	10.1	50.2	25.3	9.9	66.6	26.7	6.8

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
PAKOKKU	44.6	11.5	56.1	25.8	8.7	64.0	28.6	7.4
Pakokku	40.2	11.5	51.7	28.7	8.7	65.9	26.5	7.6
Yesagyo	42.8	12.0	54.8	28.1	8.3	64.6	27.6	7.8
Myaing	45.6	12.6	58.2	27.7	7.9	63.2	28.8	8.0
Pauk	51.7	10.2	61.9	19.8	9.8	61.7	31.9	6.3
Seikphyu	47.9	10.0	57.9	20.9	10.0	63.4	30.3	6.3
GANGAW	36.8	11.3	48.1	30.7	8.8	67.5	24.9	7.6
Gangaw	38.4	9.2	47.6	24.1	10.8	67.7	26.0	6.3
Htilin	34.4	15.4	49.8	44.7	6.5	66.8	23.0	10.3
Saw	38.7	11.6	50.3	29.9	8.6	66.6	25.7	7.7
Kyaukhtu (ST)	32.2	13.4	45.6	41.7	7.4	68.7	22.1	9.2
MANDALAY	38.2	9.1	47.3	23.8	11.0	67.9	25.9	6.2
MANDALAY Urban	32.4	7.8	40.2	24.0	12.9	71.4	23.1	5.5
MANDALAY Rural	41.6	9.8	51.4	23.7	10.2	66.0	27.5	6.5
MANDALAY	32.8	6.9	39.7	21.0	14.5	71.6	23.5	4.9
Aungmyetharzan	29.6	7.5	37.1	25.4	13.3	72.9	21.6	5.5
Chanayetharzan	23.6	7.6	31.2	32.0	13.2	76.2	18.0	5.8
Mahaaungmye	28.1	6.6	34.7	23.4	15.2	74.2	20.9	4.9
Chanmyatharzi	33.3	6.6	39.9	19.7	15.2	71.5	23.8	4.7
Pyigyidagun	36.8	5.7	42.5	15.4	17.7	70.2	25.9	4.0
Amarapura	36.4	7.9	44.3	21.6	12.7	69.3	25.2	5.5
Patheingyi	41.3	6.5	47.8	15.8	15.3	67.6	28.0	4.4
PYIN OO LWIN	42.5	7.1	49.6	16.6	14.2	66.9	28.4	4.7
Pyin Oo Lwin	34.9	6.4	41.3	18.5	15.5	70.7	24.7	4.6
Madaya	43.4	8.1	51.5	18.7	12.4	66.0	28.6	5.3
Sinku	43.7	7.6	51.3	17.5	13.1	66.1	28.9	5.0
Mogok	44.4	8.0	52.4	17.9	12.6	65.6	29.2	5.2
Thabeikkyin	50.6	4.9	55.5	9.7	20.4	64.3	32.5	3.1
Tagaung (ST)	51.2	5.1	56.3	9.9	19.7	64.0	32.8	3.2

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing Index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
KYAUKSE	38.9	8.6	47.5	22.2	11.6	67.8	26.4	5.8
Kyaukse	39.2	7.5	46.7	19.0	13.4	68.2	26.7	5.1
Singaing	36.4	8.4	44.8	23.2	11.8	69.0	25.1	5.8
Myitthar	40.8	8.6	49.4	21.0	11.7	66.9	27.3	5.7
Tada U	38.3	11.1	49.4	29.1	9.0	66.9	25.6	7.4
MYINGYAN	40.3	12.4	52.7	30.7	8.1	65.5	26.4	8.1
Myingyan	36.6	11.5	48.1	31.4	8.7	67.5	24.7	7.8
Taungtha	44.4	12.4	56.8	28.0	8.1	63.8	28.3	7.9
Natogyi	38.5	12.5	51.0	32.4	8.0	66.3	25.5	8.3
Kyaukpadaung	42.7	12.6	55.3	29.5	7.9	64.4	27.5	8.1
Ngazun	39.4	13.6	53.0	34.4	7.4	65.4	25.8	8.9
NYAUNG U	37.2	11.0	48.2	29.7	9.1	67.4	25.1	7.4
Nyaung U	36.2	10.9	47.1	30.1	9.2	68.0	24.6	7.4
Ngathayauk (ST)	42.4	11.7	54.1	27.7	8.5	64.9	27.5	7.6
YAME` THIN	40.6	10.2	50.8	25.2	9.8	66.3	26.9	6.8
Yame`thin	38.9	9.5	48.4	24.5	10.5	67.4	26.2	6.4
Pyawbwe	42.4	11.0	53.4	25.9	9.1	65.2	27.6	7.2
MEIKILA	40.4	11.3	51.7	28.0	8.8	65.9	26.6	7.5
Meikila	40.5	11.2	51.7	27.7	8.9	65.9	26.7	7.4
Mahlaing	42.0	14.0	56.0	33.4	7.1	64.1	26.9	9.0
Thazi	44.4	9.7	54.1	21.9	10.3	64.9	28.8	6.3
Wundwin	36.1	11.3	47.4	31.4	8.8	67.8	24.5	7.7
MON	50.2	10.4	60.6	20.8	9.6	62.3	31.2	6.5
MON Urban	40.4	10.7	51.1	26.4	9.4	66.2	26.7	7.1
MON Rural	54.3	10.3	64.6	19.0	9.7	60.7	33.0	6.3
MAWLAMYINE	47.6	11.0	58.6	23.2	9.1	63.0	30.0	6.9
Mawlamyine	38.5	10.4	48.9	26.9	9.7	67.2	25.9	7.0
Kyaikemaraw	60.2	10.8	71.0	18.0	9.2	58.5	35.2	6.3
Chaungzon	49.1	13.7	62.8	27.9	7.3	61.4	30.2	8.4
Thanbyuzayat	48.2	10.6	58.8	22.0	9.4	63.0	30.4	6.7
Mudon	43.8	12.7	56.5	28.9	7.9	63.9	28.0	8.1
Ye	48.0	8.4	56.4	17.6	11.8	63.9	30.7	5.4
Lamine (ST)	57.6	12.0	69.6	20.9	8.3	58.9	34.0	7.1
Khawzar (ST)	50.6	10.1	60.7	20.0	9.9	62.2	31.5	6.3

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
THATON	54.2	9.5	63.7	17.6	10.5	61.1	33.1	5.8
Thaton	55.0	9.7	64.7	17.6	10.4	60.7	33.4	5.9
Paung	55.2	10.8	66.0	19.5	9.3	60.3	33.2	6.5
Kyaikto	50.9	7.8	58.7	15.3	12.9	63.0	32.1	4.9
Bilin	55.7	9.7	65.4	17.4	10.3	60.5	33.7	5.9
RAKHINE	50.0	10.7	60.7	21.4	9.3	62.2	31.1	6.7
RAKHINE Urban	39.3	9.9	49.2	25.2	10.1	67.0	26.3	6.6
RAKHINE Rural	52.4	10.9	63.3	20.8	9.2	61.2	32.1	6.7
SITTWE	52.3	9.1	61.4	17.4	11.0	61.9	32.4	5.6
Sittwe	39.8	7.9	47.7	19.9	12.6	67.7	27.0	5.4
Ponnagyun	55.0	9.6	64.6	17.5	10.4	60.7	33.4	5.8
Pauktaw	59.2	8.2	67.4	13.9	12.1	59.7	35.4	4.9
Yathedaung	58.9	11.5	70.4	19.5	8.7	58.7	34.6	6.7
MYAUK U	55.2	9.5	64.7	17.2	10.5	60.7	33.5	5.8
Myauk U	52.8	9.2	62.0	17.5	10.8	61.7	32.6	5.7
Kyauktaw	53.0	10.3	63.3	19.5	9.7	61.2	32.5	6.3
Minbya	57.0	9.0	66.0	15.8	11.1	60.2	34.3	5.4
Myebon	59.0	9.4	68.4	15.9	10.7	59.4	35.0	5.6
MAUNGTAW	53.7	6.1	59.8	11.3	16.5	62.6	33.6	3.8
Maungtaw	49.9	6.0	55.9	11.9	16.8	64.2	32.0	3.8
Buthidaung	55.9	6.2	62.1	11.1	16.2	61.7	34.5	3.8
Taungpyoletwe (ST)	67.3	5.1	72.4	7.6	19.5	58.0	39.0	3.0
KYAUKPYU	47.9	13.9	61.8	28.9	7.2	61.8	29.6	8.6
Kyaukpyu	48.9	12.7	61.6	25.9	7.9	61.9	30.3	7.8
Mannaung	35.8	22.6	58.4	63.2	4.4	63.1	22.6	14.3
Yanbye	46.0	16.5	62.5	35.9	6.1	61.5	28.3	10.2
An	54.1	9.0	63.1	16.7	11.1	61.3	33.2	5.5

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
THANDWE	39.5	12.7	52.2	32.1	7.9	65.7	25.9	8.3
Thandwe	34.5	12.9	47.4	37.4	7.7	67.8	23.4	8.8
Taungup	43.5	11.7	55.2	26.9	8.5	64.4	28.0	7.5
Gwa	37.4	13.5	50.9	36.0	7.4	66.3	24.8	8.9
Maei (ST)	50.9	10.9	61.8	21.3	9.2	61.8	31.5	6.7
Kyeintali (ST)	33.4	17.3	50.7	51.9	5.8	66.4	22.1	11.5
YANGON	33.1	8.0	41.1	24.1	12.6	70.9	23.4	5.6
YANGON Urban	29.6	8.4	38.0	28.3	11.9	72.5	21.5	6.1
YANGON Rural	41.8	6.9	48.7	16.5	14.5	67.3	28.1	4.6
NORTH YANGON	36.1	6.6	42.7	18.4	15.1	70.1	25.3	4.6
Insein	29.3	8.0	37.3	27.3	12.5	72.9	21.3	5.8
Mingaladon	32.2	6.8	39.0	21.0	14.8	72.0	23.2	4.9
Himawby	40.0	7.4	47.4	18.5	13.5	67.8	27.1	5.0
Hlegu	43.5	7.2	50.7	16.6	13.9	66.3	28.9	4.8
Taikkyi	43.6	9.0	52.6	20.7	11.1	65.5	28.6	5.9
Htantabin	45.2	7.2	52.4	16.0	13.8	65.6	29.6	4.8
Shwepyitha	35.5	6.8	42.3	19.3	14.6	70.3	24.9	4.8
Hlinethaya	32.9	4.4	37.3	13.3	22.8	72.8	24.0	3.2
EAST YANGON	29.5	8.8	38.3	29.8	11.3	72.3	21.4	6.4
Thingangyun	27.5	9.6	37.1	35.0	10.4	72.9	20.0	7.0
Yankin	24.2	11.0	35.2	45.6	9.1	74.0	17.9	8.2
South Okkalapa	24.3	10.4	34.7	42.7	9.6	74.3	18.0	7.7
North Okkalapa	28.8	8.6	37.4	29.9	11.6	72.8	21.0	6.3
Thakayta	27.5	8.7	36.2	31.5	11.5	73.4	20.2	6.4
Dawbon	32.7	7.3	40.0	22.2	13.8	71.4	23.4	5.2
Tamway	23.3	9.9	33.2	42.6	10.1	75.1	17.5	7.5
Pazuntaung	22.5	11.0	33.5	48.6	9.1	74.9	16.9	8.2
Botahtaung	23.0	9.6	32.6	41.7	10.4	75.4	17.3	7.2
Dagon Myothit (South)	35.4	6.9	42.3	19.4	14.5	70.3	24.9	4.8
Dagon Myothit (North)	29.1	12.6	41.7	43.2	8.0	70.6	20.5	8.9
Dagon Myothit (East)	35.1	7.6	42.7	21.6	13.2	70.1	24.6	5.3
Dagon Myothit (Seikkan)	37.1	5.5	42.6	14.8	18.2	70.1	26.0	3.9
Mingala Taungnyunt	27.5	8.8	36.3	31.9	11.4	73.4	20.2	6.4

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
SOUTH YANGON	41.8	7.9	49.7	18.8	12.7	66.8	27.9	5.2
Thanlyin	37.4	7.6	45.0	20.2	13.2	69.0	25.8	5.2
Kyauktan	37.2	7.8	45.0	20.9	12.9	69.0	25.7	5.4
Thongwa	41.5	9.0	50.5	21.8	11.1	66.4	27.6	6.0
Khayan	43.4	9.4	52.8	21.7	10.6	65.5	28.4	6.2
Twantay	45.7	7.2	52.9	15.6	14.0	65.4	29.9	4.7
Kawhmu	45.0	8.0	53.0	17.9	12.4	65.3	29.4	5.3
Kungyangon	44.4	8.5	52.9	19.1	11.8	65.4	29.0	5.6
Dala	43.3	6.4	49.7	14.8	15.6	66.8	28.9	4.3
Seikkyi/ Khanaungto	45.4	6.3	51.7	14.0	15.8	65.9	29.9	4.2
Cocogyun	23.4	2.3	25.7	9.7	44.1	79.6	18.6	1.8
Tada (ST)	37.1	8.9	46.0	24.0	11.2	68.5	25.4	6.1
WEST YANGON	22.4	9.4	31.8	42.0	10.6	75.9	17.0	7.1
Kyauktada	18.8	12.4	31.2	65.8	8.1	76.2	14.4	9.5
Pabedan	24.2	11.4	35.6	47.3	8.7	73.7	17.8	8.4
Lanmadaw	14.7	9.8	24.5	66.8	10.2	80.3	11.8	7.9
Latha	13.7	11.7	25.4	85.4	8.6	79.8	10.9	9.3
Ahlon	21.2	9.3	30.5	43.9	10.8	76.6	16.2	7.1
Kyimyindine	30.8	8.3	39.1	27.0	12.0	71.9	22.1	6.0
Sangyoung	19.5	10.6	30.1	54.3	9.5	76.9	15.0	8.1
Hline	22.9	9.1	32.0	39.9	10.9	75.7	17.3	6.9
Kamayut	18.0	8.7	26.7	48.3	11.5	79.0	14.2	6.9
Mayangon	25.8	8.4	34.2	32.5	11.9	74.5	19.2	6.2
Dagon	21.8	9.4	31.2	42.9	10.7	76.2	16.6	7.1
Bahan	20.0	10.2	30.2	51.2	9.8	76.8	15.4	7.9
Seikkan	24.1	4.8	28.9	20.0	20.7	77.5	18.7	3.8

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
SHAN	50.2	6.7	56.9	13.2	15.0	63.7	32.0	4.2
SHAN Urban	39.8	7.2	47.0	18.1	13.9	68.0	27.1	4.9
SHAN Rural	53.8	6.5	60.3	12.0	15.5	62.4	33.6	4.0
TAUNGGYI	47.3	6.3	53.6	13.2	16.0	65.1	30.8	4.1
Taunggyi	40.6	6.8	47.4	16.8	14.7	67.9	27.5	4.6
Nyaungshwe	41.3	7.0	48.3	17.1	14.2	67.4	27.8	4.7
Hopon	51.9	5.4	57.3	10.4	18.5	63.6	33.0	3.4
Hsihseng	60.2	5.1	65.3	8.5	19.5	60.5	36.4	3.1
Kalaw	44.1	5.8	49.9	13.1	17.3	66.7	29.4	3.9
Pindaya	48.1	7.2	55.3	15.0	13.8	64.4	31.0	4.7
Ywarrngan	49.4	7.9	57.3	16.0	12.7	63.6	31.4	5.0
Yatsauk	48.2	5.2	53.4	10.7	19.4	65.2	31.4	3.4
Pinlaung	47.4	6.6	54.0	13.8	15.3	65.0	30.8	4.3
Phekon	63.9	5.0	68.9	7.8	20.2	59.2	37.8	2.9
Kyauktalongyi (ST)	48.1	6.5	54.6	13.6	15.3	64.7	31.1	4.2
Indaw (ST)	49.1	5.2	54.3	10.5	19.3	64.8	31.8	3.4
Naungtayar (ST)	49.2	6.5	55.7	13.2	15.4	64.2	31.6	4.2
LOLIN	51.6	6.5	58.1	12.6	15.4	63.3	32.6	4.1
Loilin	55.5	6.9	62.4	12.4	14.6	61.6	34.2	4.2
Le`char	45.0	6.6	51.6	14.7	15.1	66.0	29.7	4.4
Nanhsam (South)	51.2	5.1	56.3	9.9	19.7	64.0	32.8	3.2
Kunhing	42.7	8.2	50.9	19.3	12.1	66.3	28.3	5.5
Kehsi	54.4	6.3	60.7	11.6	15.8	62.2	33.9	3.9
Mongkai	52.5	8.3	60.8	15.9	12.0	62.2	32.6	5.2
Mineshu	51.3	6.3	57.6	12.2	16.0	63.5	32.6	4.0
Panglong (ST)	56.9	7.3	64.2	12.9	13.6	60.9	34.7	4.5
Kholan (ST)	49.7	5.9	55.6	11.9	16.9	64.2	31.9	3.8
Karli (ST)	44.3	5.8	50.1	13.1	17.2	66.6	29.5	3.9
Minenaung (ST)	56.1	6.9	63.0	12.3	14.4	61.3	34.4	4.2
Minesan (Monsan) (ST)	50.6	3.6	54.2	7.2	27.4	64.8	32.8	2.4

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing Index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
LINKHE`	44.0	7.8	51.8	17.7	12.8	65.9	29.0	5.1
Linkhe`	31.9	11.5	43.4	36.0	8.7	69.8	22.2	8.0
Mone`	50.5	8.4	58.9	16.6	11.9	62.9	31.8	5.3
Maukme`	60.1	6.0	66.1	10.0	16.6	60.2	36.2	3.6
Minepan	38.3	6.6	44.9	17.3	15.1	69.0	26.4	4.6
Homane (ST)	43.5	4.1	47.6	9.3	24.6	67.8	29.5	2.8
Kengtaung (ST)	36.6	5.0	41.6	13.7	19.9	70.6	25.9	3.5
LASHIO	50.4	7.1	57.5	14.1	14.1	63.5	32.0	4.5
Lashio	47.2	7.5	54.7	15.8	13.4	64.7	30.5	4.8
Theinni	51.4	7.9	59.3	15.4	12.6	62.7	32.3	5.0
Mineye`	48.8	5.9	54.7	12.0	17.0	64.7	31.5	3.8
Tantyan	57.1	6.5	63.6	11.4	15.3	61.1	34.9	4.0
MUSE	50.6	7.1	57.7	14.0	14.1	63.4	32.1	4.5
MuSe	36.6	4.7	41.3	12.8	21.3	70.8	25.9	3.3
Namkham	48.7	8.1	56.8	16.7	12.3	63.8	31.1	5.2
Kukai	63.1	7.8	70.9	12.3	12.9	58.5	36.9	4.6
Monekoe (ST)	57.7	8.8	66.5	15.3	11.3	60.1	34.6	5.3
Manhero/ ManKyo (ST)	34.3	9.8	44.1	28.7	10.2	69.4	23.8	6.8
Pansai (Kyukok) (ST)	49.6	8.5	58.1	17.2	11.7	63.2	31.4	5.4
Tamoenye (ST)	63.5	7.7	71.2	12.0	13.1	58.4	37.1	4.5
KYAUKME	47.2	7.0	54.2	14.8	14.3	64.9	30.6	4.5
Kyaukme	45.4	8.1	53.5	17.8	12.4	65.1	29.6	5.3
Naung Khio	43.0	6.3	49.3	14.7	15.8	67.0	28.8	4.2
Hsipaw	45.2	5.8	51.0	12.9	17.2	66.2	29.9	3.9
Namtu	52.3	8.2	60.5	15.6	12.3	62.3	32.6	5.1
Namsan (North)	53.2	7.9	61.1	14.8	12.7	62.1	33.0	4.9
Momeik	46.1	7.5	53.6	16.2	13.4	65.1	30.0	4.9
Mabane	43.2	6.0	49.2	13.8	16.8	67.1	28.9	4.0
Manton	64.6	6.7	71.3	10.4	14.8	58.3	37.7	3.9
Minengaw (ST)	56.5	9.5	66.0	16.7	10.6	60.3	34.1	5.7
Minelon (ST)	51.3	8.0	59.3	15.6	12.5	62.8	32.2	5.0

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing Index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
KUNLON	66.3	7.9	74.2	12.0	12.6	57.4	38.0	4.6
Kunlon	66.3	7.9	74.2	12.0	12.6	57.4	38.0	4.6
LAUKINE	55.9	6.6	62.5	11.8	15.1	61.5	34.4	4.1
Laukine	52.7	6.0	58.7	11.3	16.8	63.0	33.2	3.8
Kongyan	69.5	7.8	77.3	11.2	12.9	56.4	39.2	4.4
Chinshwehaw (ST)	45.6	5.2	50.8	11.5	19.1	66.3	30.2	3.5
Mawhtike (ST)	53.4	7.9	61.3	14.7	12.7	62.0	33.1	4.9
HOPAN	66.3	7.6	73.9	11.5	13.2	57.5	38.1	4.4
Hopan	58.3	7.1	65.4	12.2	14.1	60.5	35.3	4.3
Minemaw	67.6	8.0	75.6	11.8	12.6	57.0	38.5	4.5
Panwine	70.1	7.6	77.7	10.8	13.2	56.3	39.5	4.3
Panlon (ST)	65.7	8.4	74.1	12.8	11.9	57.4	37.7	4.8
MAKMAN	62.4	6.0	68.4	9.6	16.8	59.4	37.0	3.5
Makman	73.7	5.1	78.8	6.9	19.6	55.9	41.2	2.9
PanSan (Pankham)	54.4	4.7	59.1	8.6	21.5	62.9	34.2	2.9
Naphang	68.3	7.4	75.7	10.8	13.6	56.9	38.9	4.2
ManKan (ST)	65.8	10.1	75.9	15.3	9.9	56.8	37.4	5.7
KENG TUNG	47.9	7.1	55.0	14.9	14.1	64.5	30.9	4.6
Kengtung	50.5	8.5	59.0	16.8	11.8	62.9	31.8	5.3
Minekat	56.9	6.0	62.9	10.6	16.6	61.4	34.9	3.7
Mineyan	47.3	8.0	55.3	16.9	12.5	64.4	30.5	5.1
Minelar	27.3	4.0	31.3	14.6	25.0	76.1	20.8	3.0
MinePauk (ST)	52.6	5.9	58.5	11.1	17.1	63.1	33.2	3.7
MINESAT	62.6	5.1	67.7	8.1	19.6	59.6	37.3	3.0
Minesat	67.6	5.1	72.7	7.5	19.7	57.9	39.2	2.9
Minepyin	61.5	6.5	68.0	10.6	15.4	59.5	36.6	3.9
Minetung	54.3	4.2	58.5	7.8	23.6	63.1	34.3	2.7
Minekoke (ST)	75.8	3.9	79.7	5.2	25.5	55.6	42.2	2.2
Tontar (ST)	70.6	5.7	76.3	8.1	17.5	56.7	40.0	3.2
Ponparkyih (ST)	51.9	4.4	56.3	8.5	22.7	64.0	33.2	2.8
Monehta (ST)	62.2	2.3	64.5	3.6	44.1	60.8	37.8	1.4

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
TACHILEIK	41.1	6.2	47.3	15.0	16.2	67.9	27.9	4.2
Tachileik	40.0	5.7	45.7	14.3	17.5	68.6	27.4	3.9
Talay (ST)	47.8	9.5	57.3	19.9	10.5	63.6	30.4	6.1
Kenglat (ST)	46.9	7.1	54.0	15.1	14.1	64.9	30.4	4.6
MINEPHYAT	44.8	7.4	52.2	16.4	13.6	65.7	29.4	4.8
Minephyat	56.1	6.8	62.9	12.0	14.8	61.4	34.4	4.1
Mineyaung	33.7	9.4	43.1	28.0	10.6	69.9	23.5	6.6
Mineyu (ST)	44.8	6.5	51.3	14.6	15.3	66.1	29.6	4.3
AYEAWADY	45.5	9.0	54.5	19.7	11.1	64.7	29.4	5.8
AYEAWADY Urban	34.9	10.4	45.3	30.0	9.6	68.8	24.0	7.2
AYEAWADY Rural	47.4	8.7	56.1	18.4	11.5	64.1	30.3	5.6
PATHEIN	43.5	8.6	52.1	19.8	11.6	65.7	28.6	5.7
Kangyidaunt	46.0	7.1	53.1	15.4	14.2	65.3	30.1	4.6
Kyaungon	43.3	8.9	52.2	20.5	11.3	65.7	28.4	5.8
Kyonpyaw	45.4	9.9	55.3	21.7	10.1	64.4	29.3	6.4
Ngaputaw	53.3	7.2	60.5	13.6	13.8	62.3	33.2	4.5
Pathein	35.8	8.2	44.0	23.0	12.1	69.4	24.9	5.7
Yekyi	41.3	10.9	52.2	26.3	9.2	65.7	27.2	7.1
Thapaung	48.4	8.0	56.4	16.5	12.5	63.9	31.0	5.1
Ngayokaung (ST)	42.0	11.5	53.5	27.3	8.7	65.2	27.3	7.5
Hainggyikyun (ST)	41.0	9.0	50.0	22.1	11.1	66.6	27.3	6.0
Shwethaungyan (ST)	39.9	6.5	46.4	16.2	15.5	68.3	27.3	4.4
Ngwehsaung (ST)	43.9	6.9	50.8	15.7	14.5	66.3	29.1	4.6
Ngathaingchaung (ST)	42.3	10.5	52.8	24.9	9.5	65.4	27.7	6.9
PHYAPON	50.9	7.3	58.2	14.3	13.8	63.2	32.2	4.6
Kyaiklatt	49.3	8.3	57.6	16.9	12.0	63.4	31.3	5.3
Daydaye	48.5	7.8	56.3	16.0	12.9	64.0	31.0	5.0
Phyapon	46.7	7.5	54.2	16.0	13.4	64.9	30.3	4.9
Bogale	52.0	6.9	58.9	13.3	14.5	62.9	32.7	4.3
Ahmar (ST)	60.9	5.3	66.2	8.7	18.9	60.2	36.6	3.2

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing Index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
MAUBIN	45.7	9.4	55.1	20.5	10.7	64.5	29.5	6.0
Nyaungdon	44.9	9.3	54.2	20.8	10.7	64.8	29.1	6.1
Danubyu	42.2	11.1	53.3	26.3	9.0	65.2	27.5	7.2
Pantanaw	45.5	8.7	54.2	19.2	11.5	64.8	29.5	5.7
Maubin	48.6	8.9	57.5	18.3	11.2	63.5	30.9	5.7
MYAUNGMYA	47.5	8.3	55.8	17.4	12.1	64.2	30.5	5.3
Myaungmya	47.3	7.9	55.2	16.7	12.7	64.4	30.5	5.1
Wakema	47.3	8.6	55.9	18.3	11.6	64.1	30.3	5.5
Einme	48.0	8.2	56.2	17.1	12.2	64.0	30.7	5.3
LABUTTA	49.8	7.0	56.8	14.1	14.3	63.8	31.7	4.5
Mawlamyinegyun	47.7	7.9	55.6	16.6	12.6	64.3	30.6	5.1
Labutta	49.7	6.5	56.2	13.2	15.3	64.0	31.8	4.2
Pyinsalu (ST)	57.6	4.7	62.3	8.1	21.5	61.6	35.5	2.9
HINTHADA	39.8	12.2	52.0	30.6	8.2	65.8	26.2	8.0
Kyangin	31.1	11.7	42.8	37.6	8.5	70.0	21.8	8.2
Zalun	43.9	11.8	55.7	27.0	8.4	64.2	28.2	7.6
Myanaung	38.2	12.7	50.9	33.1	7.9	66.3	25.3	8.4
Laymyethna	43.4	10.9	54.3	25.2	9.2	64.8	28.1	7.1
Hinthada	39.8	11.8	51.6	29.7	8.5	66.0	26.2	7.8
Ingapu	40.9	13.3	54.2	32.5	7.5	64.9	26.5	8.6
NAY PYI TAW (COUNCIL)	41.9	6.9	48.8	16.4	14.6	67.2	28.2	4.6
NAY PYI TAW Urban	33.1	5.4	38.5	16.2	18.6	72.2	23.9	3.9
NAY PYI TAW Rural	46.6	7.6	54.2	16.4	13.1	64.8	30.2	5.0
OTTARA (NORTH)	42.9	6.8	49.7	15.8	14.7	66.8	28.7	4.5
Tatkon	41.8	8.6	50.4	20.6	11.6	66.5	27.8	5.7
Zeyarthiri	42.7	5.3	48.0	12.4	19.0	67.6	28.8	3.6
Ottarathiri	44.7	5.3	50.0	11.9	18.9	66.7	29.8	3.5
Pobbathiri	44.0	5.9	49.9	13.4	16.9	66.7	29.4	3.9

Appendix 3. Key age dependency indicators by Union, State/Region, urban and rural areas, District and Township, 2014 Census

State/Region, District/Township	Child dependency ratio	Old-age dependency ratio	Total dependency ratio	Ageing index	Potential support ratio	Support ratio	Percentage of population below age 15	Percentage of population above age 65
DEKKHINA (SOUTH)	41.1	6.9	48.0	16.8	14.5	67.6	27.8	4.7
Pyinmana	41.6	7.8	49.4	18.9	12.7	66.9	27.8	5.3
Lewe	48.3	8.3	56.6	17.1	12.1	63.9	30.8	5.3
Zabuthiri	26.5	3.7	30.2	14.0	27.0	76.8	20.3	2.8
Dekkinathiri	37.6	4.4	42.0	11.7	22.8	70.4	26.5	3.1

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