The Republic of the Union of Myanmar

The 2014 Myanmar Population and Housing Census

THEMATIC REPORT ON MORTALITY

Census Report Volume 4-B

Department of Population
Ministry of Labour, Immigration and Population

With technical assistance from UNFPA

SEPTEMBER 2016

Revised second edition, February 2017.

The 2014 Myanmar Population and Housing Census

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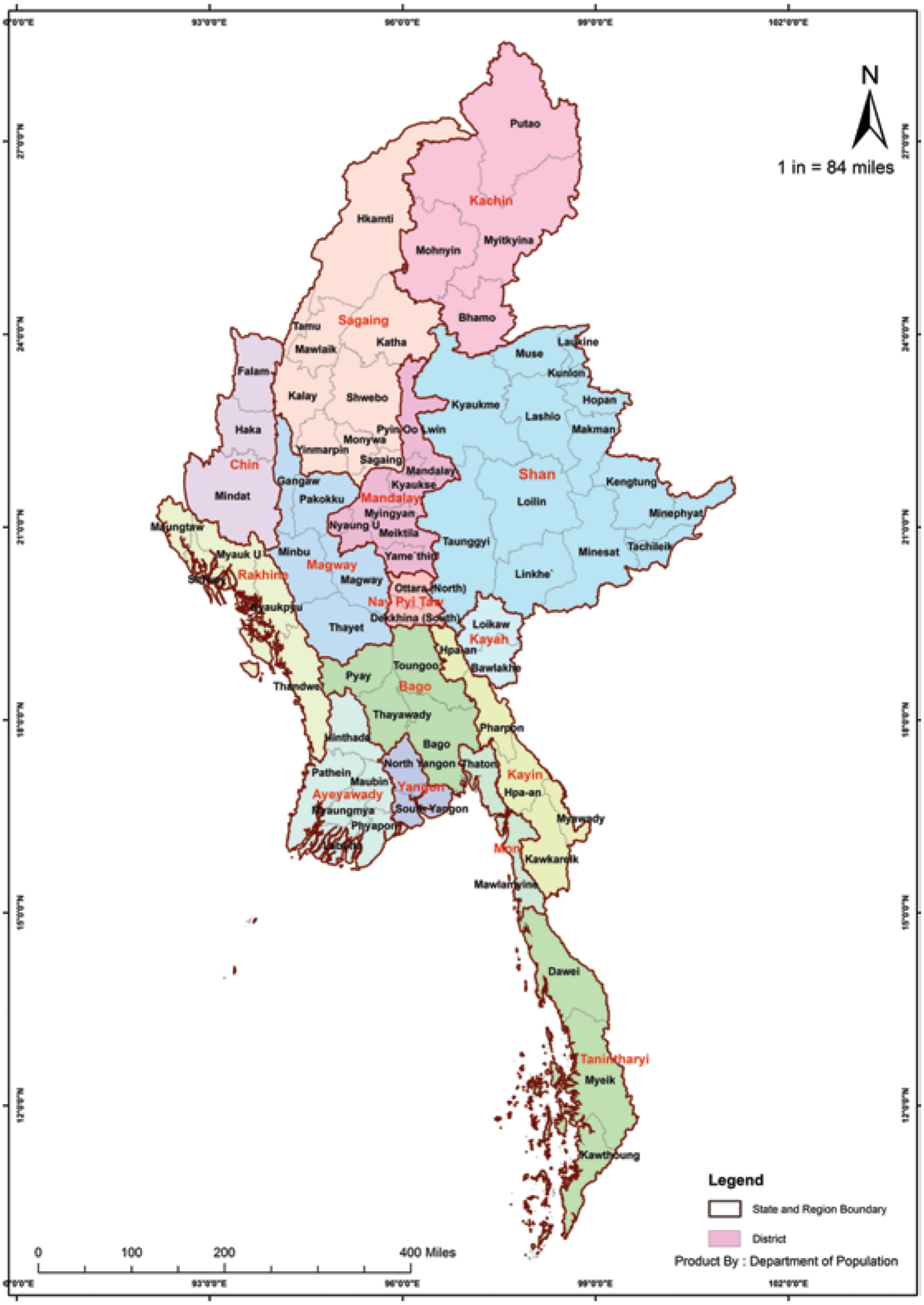
SEPTEMBER 2016

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 was 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 information at all administrative levels, it was 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 Report 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 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 comprise 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 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. In such instances, the data in the thematic reports should be preferred.

This thematic report presents the status of mortality based on the 2014 Census. The analysis shows that Myanmar has recorded declines in childhood mortality in the last three decades, but mortality rates in the country are still high compared with other countries in the ASEAN region. The decline in mortality rates could be attributed to programmes implemented by the ministry responsible for health. The declines are, however, not evenly distributed across the country. States and Regions such as Ayeyawady, Magway, and Chin, among others, still exhibit high levels of mortality both for children and adults. Life expectancy at birth has increased significantly both for males and females at the Union level, however again there are wide disparities at the subnational levels. There are some States and Regions especially Mon, Yangon and Nay Pyi Taw that have low early-age mortality rates as well as high life expectancy, but in Mon State other development indicators do not support this scenario. In addition, the wide variation in mortality rates between male and female children is a matter that requires further investigation. There is a need for specialized mortality surveys in such States and Regions to validate findings from the Census.

On behalf of the Government of Myanmar, I wish to thank the teams at the Department of Population, the United Nations Populations Fund (UNFPA) and the authors for their contribution towards the preparation of these thematic reports. 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

ASEAN	Association of Southeast Asian Nations
ASFR	Age-Specific Fertility Rate
BGBE	Brass Growth Balance Equation
CDR	Crude Death Rate
CEB	Children Ever Born
GDP	Gross Domestic Product
GFR	General Fertility Rate
ICPD	International Conference on Population and Development
IMR	Infant Mortality Rate
LTR	Lifetime Risk of Maternal Death
MDGs	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
MMRate	Maternal Mortality Rate
MMRatio	Maternal Mortality Ratio
PMFD	Proportion of adult female deaths due to maternal causes
PPP	Purchasing Power Parity
SAB	Skilled Attendants at Birth
SDGs	Sustainable Development Goals
TFR	Total Fertility Rate
U5MR	Under-Five Mortality Rate
UN	United Nations
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNPD	United Nations Population Division
UNSD	United Nations Statistics Division
WB	World Bank
WHO	World Health Organization

Executive Summary

The main objectives of this thematic report are to estimate early-age and adult mortality using data from the 2014 Population and Housing Census, and to conduct analyses describing and explaining mortality levels and trends within the socioeconomic context of Myanmar, using appropriate concepts and taking relevant policy issues into consideration.

The vital registration system is not well developed in Myanmar. This situation is common in developing countries and a census is a major alternative source of mortality data in such contexts. Different census data are used to measure early-age and adult mortality. In the 2014 Census, early-age mortality was measured from the responses to two simple retrospective questions on childbearing addressed to ever-married women aged 15 and over. These questions referred to how many live children they had ever given birth to, and how many had died (or survived). Adult mortality was measured by using a question on the number of household members who had died during the 12 months preceding the Census.

According to the 2014 Census, infant and child mortality, which comprises under-five mortality, was high compared to other countries in the region. Previous estimates indicated a rapid decline during the 1960s and 1970s, with a substantial deceleration starting in the early 1980s. The decline has accelerated again during recent years.

An important issue revealed by the data is that substantial differences between sexes were observed in under-five mortality. The probability of dying among males is almost one third higher than that of females. Male infant mortality rates are universally higher than female rates. Biological factors are usually considered responsible for this differential. Nevertheless, child mortality sex differentials tend to disappear or even reverse in most countries. In Myanmar, sex differentials continue to be higher among males during child mortality. This is not easy to explain with census data alone, or even with household survey data. This topic can only be analysed by an in-depth qualitative study.

Adult mortality was found to be high; relatively much higher than under-five mortality. The main reason for this is the particularly high level of male adult mortality. It is probable that these sex differences could be caused by behavioural factors, in particular, the prevalence of unsafe and risky life styles among males. An important related finding is that, contrary to experiences in most countries, male mortality rates in urban areas were higher than in rural areas. However, female mortality rates were lower in urban than in rural areas. Studies that go beyond the interpretation of the 2014 Census data would be necessary to explain these patterns.

In order to better understand under-five mortality levels and patterns, a differential analysis was conducted. Several variables were considered as differentials of under-five mortality rates. All variables selected showed different effects on under-five mortality rates. The most important variable was women's parity: the higher the number of children already born, the lower the probability of survival of the child. In spite of a low level of fertility in Myanmar, there is still scope to improve infant and child mortality through a decline in fertility. An important decline, especially in infant mortality, would be achieved if women gave birth to fewer children; studies have shown that the fertility rate is directly related to early-age mortality. The other differentials suggest that substantial reductions of under-five mortality could be achieved by improving the standard of living of the population.

A spatial analysis of early-age mortality was conducted. This analysis was conducted using Townships as the unit of analysis, and the proportion of children who had died among those ever born to women aged 20-34 as a mortality indicator. Although substantial variations were found, clusters of Townships with similar mortality rates were revealed. There are two clear clusters of Townships with medium-high and high early-age mortality. The first follows the Ayeyawady River, starting in the north-eastern part of the country and descending south to the delta. The second cluster is in the north-central part of the country and descends towards the first cluster. There are also smaller clusters of low early-age mortality in border areas. The Census does not, however, provide information to show the cause of this spatial distribution of early-age mortality, and an analysis of this type goes beyond the purpose of this thematic report. It would be important, however, to use this information to conduct a study that includes environmental and geopolitical characteristics of the States/Regions.

Twelve variables relating to the characteristics of the population in the Townships were identified. These variables were closely associated with early-age mortality. All the correlations were found to be statistically significant, although the magnitude of some was low.

The only two variables that were found to closely affect early-age mortality were the degree of development or under-development of Townships, and household composition. The other variable was an indicator of fertility. A more equal distribution of early-age mortality rates (and a subsequent overall decline) should be based not on a vertical expansion of health care but in improving the living conditions of the population, in making health care widely accessible, and in better understanding the family role in health care. This last indicator deserves more attention in future studies. In areas where large families prevail, children's survival probabilities appear to be higher than in places where household extension is limited. In the analysis of mortality differentials, indicators of household extension were also related to under-five mortality. It is important to get a better understanding of the mechanism through which this variable improves survival probabilities.

These results suggest the need for health policies based on the expansion of conventional health services and infrastructure that reach more marginalized populations, especially those living in hard-to reach areas. Policies directed to further reduce fertility may also have an important impact on under-five mortality. These results also call for unconventional propositions such as considering household composition in the formulation of health policies, as well as the importance of interventions that aim to change behaviours for the adoption of more healthy lifestyles, especially among males.

Chapter 1. Introduction

In Western Europe, the United States of America and Canada substantial and sustained mortality declines began during the middle of the 19th century, and accelerated continuously until the 1950s. In the 1960s and 1970s, the pace of mortality decline slowed down considerably. Mortality decline in Eastern and Southern Europe began later; between the 1920s and the 1950s. In the developing countries, mortality decline began even later. Some progress took place in a few countries before World War II, but during the three post-war decades mortality levels declined substantially in most of the then Third World countries (UN, 1973; Preston, 1980; Weeks, 2002; Masuy-Stroobant, 2006; Anson and Luy, 2014).

The most remarkable advances were made in the reduction of under-five mortality, measured by the probability of dying between birth and age five, and usually expressed as the number of deaths per 1,000 live births. In spite of this decline, under-five mortality in some parts of the world is still far from reaching levels similar to those observed in the developed countries. For example, between 2010 and 2015 under-five mortality in the developed countries was 6 deaths per 1,000 live births, while in the developing countries it was 54 deaths per 1,000 live births (UNPD, 2015). Gwatkin (1980), in his paper, highlighted the deceleration of under-five mortality decline in several developing countries and raised the question of whether the era of unprecedented rapid mortality declines in these countries is ending. However, a more recent paper (You et al, 2015) shows that under-five mortality rates have continued to decline, especially in East Asia, the Pacific, Latin America and the Caribbean. Nevertheless, the paper concluded that in spite of significant improvements in reducing under-five mortality, more efforts are needed to continue improving child survival in the years to come.

The unprecedented mortality decline experienced by many developing countries just after World War II was mainly the result of the increased availability of health technology. Large-scale programmes for the control of infectious diseases (cholera, measles, smallpox, tuberculosis, yellow fever, etc.), primarily through vaccines, began to be implemented in many developing countries from the late 1940s onwards. The inability of developing countries to reach mortality levels close to those observed in developed countries may be the result of: an inadequate diet and food insecurity; lack of proper sanitation; poor housing; limited knowledge of personal hygiene; harmful traditional health practices; lack of portable water; and also the consequences of the incapacity of health services and programmes to reach the entire population.

Conventional medical interventions, programmes of disease control and the availability of modern health services have reduced mortality substantially in many countries. However, further declines will, largely, only be possible by making the provision of health services far-reaching; and by improving the living standards of large proportions of the population who live in an environment in which major diseases flourish, such as diarrhoea and infections of the respiratory system. Technological medical interventions have not been enough.

In general, mortality indicators point to overall high mortality levels in Myanmar. Table 1.1 shows selected mortality indicators for Myanmar and global areas and regions. Life expectancy at birth is the most frequently used mortality indicator. Its value is four years lower than the average in the developing countries and more than five years lower than the average in the Southeast Asia region.

Table 1.1

Mortality indicators, Myanmar (2014 Census), global areas and regions

Mortality indicator*	Myanmar**	Southeast Asia***	Developing countries***	Developed countries***	World***
Crude death rate	9.6	6.9	7.4	10.0	7.8
Life expectancy at birth	64.7	70.3	68.8	78.3	70.5
Male	60.2	67.5	66.9	75.1	68.3
Female	69.3	73.2	70.7	81.5	72.7
Infant mortality rate	62	24	39	5	36
Under-five mortality rate	72	30	54	6	50

*These indicators are:

- Crude death rate (CDR) is the number of deaths that take place in a given year divided by the population in the middle of that year. It is usually multiplied by 1,000.
- 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.
- Infant mortality rate (IMR) is the probability of death from birth to age 1.
- Under-five mortality rate (U5MR) is the probability of death from birth to age 5.

Sources:

** The source for Myanmar indicators is the 2014 Census.

*** UN Population Division 2015: http://esa.un.org/unpd/wpp/Download/Standard/Mortality/

Infant mortality in Myanmar, which is one of the most relevant indicators of the health status of the population, is more than two times higher than that observed in Southeast Asia, and almost two times higher than that in the developing countries. During the past century, and especially during the past and present decades, mortality in Myanmar, as shown in this report, has declined substantially. However, as illustrated in Table 1.1, there is much room for improvement, not only through programmes for disease control and access to health services, but also by reducing poverty and improving the living standards of vast sectors of the population.

The 2013 Human Development Index (HDI) ranked Myanmar 150 out of 187 countries with an index value of 0.524. This index varies from 0.337 (Niger) to 0.944 (Norway). The value for East Asia and the Pacific is 0.707 (UNDP, 2014). It is unlikely that mortality in Myanmar, and in particular under-five mortality, can be significantly reduced unless socioeconomic development experiences a substantial and sustained advance.

The main objectives of this report are to estimate early-age and adult mortality using data from the 2014 Census, and to conduct basic analyses to describe and explain mortality levels and trends within the socioeconomic context of the country, using appropriate concepts and taking relevant policy issues into consideration.

It is important to point out that censuses are a useful source of mortality data since they are often the only source that provides total statistical coverage, from the highest level (Union) to the most local areas, in this case Townships. A census can, therefore, make it possible to study all mortality levels and patterns by demographic and socioeconomic groups. The

2014 Census is the only source of mortality data in Myanmar that allows for a particularly satisfactory policy-oriented analysis. In fact, the spatial analysis of mortality that is conducted in this report provides valuable information for the design of policies aimed at reducing mortality, in particular, early-age mortality.

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.

The analysis in this report covers only the enumerated population. It is worth noting that in Rakhine State an estimated 34 per cent of the population were not enumerated as members of some communities were not counted because they were not allowed to self-identify using a name that was not recognized by the Government. The Government made the decision in the interest of security and to avoid the possibility of violence occurring due to inter-communal tension. Consequently, data for Rakhine State, as well as for several Districts and Townships within it, are incomplete, and only represent about two-thirds of the estimated population.

However, basic analyses conducted here indicate that the under-enumeration of certain population groups has only had a limited effect on the measurement of mortality indicators included in this report.

Chapter 2. Early-age mortality

Under-five mortality rates are a leading indicator of the level of child health and overall development in countries. Worldwide, child deaths are falling, but not quickly enough. The global under-five mortality rate has declined by a little more than half, dropping from 91 to 43 deaths per 1,000 live births between 1990 and 2015. However, the current rate of progress was well short of the Millennium Development Goal (MDG) target of a two-thirds reduction by 2015[1]. Under-five mortality remains the focus of the post-2015 MDG agenda, particularly in the newly adopted Sustainable Development Goals (see UN, 2015)[2]. In Myanmar, between 1981 and 2012, under-five mortality declined by 41 per cent. This figure, which is discussed later in this report, suggests that child survival should receive substantial attention in future health and social policies, and programmes.

Under-five mortality is usually desegregated into infant mortality, which refers to deaths of children between birth and their first birthday, and child mortality, which are deaths between age one and age five. In quantitative terms, infant mortality is the number of infants that die under age one per 1,000 live births in a given year. Child mortality is the number of children that die between one and four years of age per 1,000 live births (Population Reference Bureau, 2011). These three measures are considered as indicators of a conceptual term; early-age mortality. This more generic term is sometimes used interchangeably with under-five mortality.

The vital registration system is not well developed in Myanmar. This situation is common in most developing countries, and thus alternative sources of mortality data have to be used. When this is the case, there are two main approaches to estimate mortality. The first approach is to use demographic surveys with questions that attempt to reconstruct "full birth histories"[3]. In many cases it is considered that the quality of the information on infant mortality collected through these types of questions is good enough to be used without any further adjustment.

The second approach, called "summary birth histories", uses census or survey data based on retrospective reporting of childbearing (number of children ever born and number of children surviving). Using sophisticated demographic techniques, called "indirect methods", it is possible to transform these data into reliable infant and child mortality rates (or probabilities of dying). In these methods the age of the woman is used as an indicator of the age of the children and their exposure time to the risk of dying, and employs models to estimate mortality indicators for periods in the past.

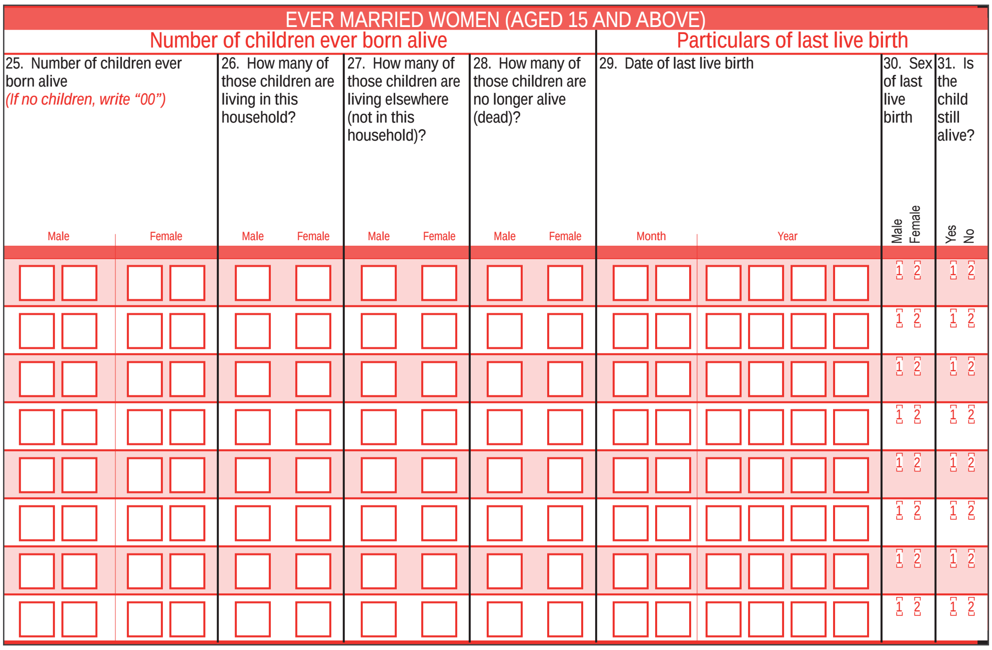
[1] In September 2000, world leaders met at the United Nations Headquarters in New York for the United Nations Millennium Declaration. The main outcome of this meeting was the Millennium Development Goals (MDGs), a document containing a set of eight time-bound anti-poverty targets which countries pledged to achieve by 2015. One of these goals, the fourth, was to reduce under-five mortality by two-thirds by 2015.
[2] The target in this new development agenda is to end preventable deaths of newborns and children aged under five, reduce neonatal mortality to 12 per 1,000 live births, and reduce under-five mortality to 25 per 1,000 live births by 2030.
[3] In the full birth history, women are asked for the date of birth of each of their children, whether the children are still alive and, if not, their age at death.

The problem is that the two approaches usually give dissimilar results. Typically, full birth histories, based on data collected by demographic surveys, under-estimate early-age mortality while the approach based on indirect methods tends to over-estimate it (see, for example Popoff and Judson (2004)). This issue is discussed in this report, where results from different sources are analysed.

Many censuses include questions to estimate early-age mortality in an indirect way. These are simple retrospective questions on childbearing addressed to all women aged 15 years and over (all ever-married women in the case of the 2014 Myanmar Census). These questions refer to how many live children they have ever given birth to, and how many have died (or survived). The 2014 Census included these questions. The respective data were used to compile statistics on the proportion of children ever born who had died, by the age of their mother. As noted above, these data were transformed, through indirect methods, into infant and child mortality rates.

Figure 2.1

Mortality questions in the 2014 Census



Appendix A contains tables with data on the numbers of children ever born and not surviving by sex and age of women. The information is provided at the Union level, State/Region level and for urban and rural areas.

The most frequently used indirect methods are the Brass-type techniques. William Brass, a British demographer, was the first to develop the procedure for converting the proportion who had died among children ever born, as reported by women (by age groups), into estimates of the probability of dying before attaining certain exact childhood ages (UN, 1983). Afterwards, improved versions were developed. The two main variants are the Trussell and the Palloni-Heligman techniques. Both variants make use of model life tables. The Trussell technique uses the Coale-Demeny Regional Model Life Tables (West, North, East, and South), and the Palloni-Heligman technique employs the United Nations Model Life Tables for Developing Countries (Latin American, Chilean, South Asian, Far East and General)[4].

For the analysis of under-five mortality in this thematic report, the demographic software QFIVE from the demographic package MORTPAK (Version 4.3) was used to estimate infant and child mortality (UNPD, 2013). Because the methods make use of model life tables, it was necessary to establish which model was the most appropriate for the mortality pattern of Myanmar.

The difference between infant and child mortality is one of the most important criteria to consider when selecting the model life table to be used to estimate under-five mortality with a Brass-type technique. The available evidence suggests that for Myanmar, the most suitable model to be used for indirectly estimating under-five mortality is the Chilean Model from the United Nations Life Tables. This model is characterized by a very large difference between infant and child mortality, the former being much larger than the latter. In other words, the under-one component of the early-age mortality rate is very high compared to the one to four-year component. A complete justification for the use of the Chilean Model for estimating early-age mortality indicators is presented in Appendix B.

Table 2.1 shows the results of the early-age, infant and child mortality rates based on the 2014 Census and estimated using the Palloni-Heligman equations and the Chilean Model from the United Nations Model Life Tables. The method estimates mortality rates for several years from 1999 to 2012[5]. Note that unless otherwise indicated, the source for all tables and figures is the 2014 Census.

[4] Model life tables are sets of life tables based on the generalization of empirical relationships derived from a group of observed life tables. The Coale-Demeny Regional Model Life Tables and the United Nations Life Tables for Developing Countries are the two main systems of model life tables. These systems are based on empirical life tables that have been developed on the principle of narrowing the selection of a life table to those considered realistic on the basis of examination of mortality levels and patterns calculated for actual populations. These systems cover a wide variety of mortality experiences, so that one may be more appropriate than another for a particular country. Each system has "families" of life tables. The families in the Coale-Demeny system are: East, West, North and South, and the families in the United Nations system are: Latin American, Chilean, South Asian, Far East and General (UN, 1983).

[5] The method also provides estimates for the year 2013, but they are usually ignored because they are not reliable. They are based on the experience of the youngest women (aged 15-19) and are highly erratic and frequently show higher mortality than the general trend (although it may be lower in some cases). The second most recent point (age 20-24) may also be out of line regarding the overall trend (Statistical Institute for Asia and the Pacific, 1994). The main source of this pattern is likely to be that children of women aged 15-19 are subject to higher mortality risks. Possible reasons are age itself (physiological immaturity) and also the higher mortality of first births which predominate in this age group. However, more important than age and birth order appears to be the economic and social disadvantages of women that become mothers early in their reproductive years. In fact, unfavorable socioeconomic conditions of mother's are related with higher probabilities of children dying during infancy. The disproportionate presence of vulnerable women among the 15-19 age group usually results in a strong bias towards over-estimation of mortality during the recent past in this method. This error may extend into the next age group (20-24) affecting the second most recent estimate. The main reasons are that the parity may still be low and mortality easily biased by the proportion of births which occurred when the mother was a teenager. They may also be a result of age heaping at age 20, and general age exaggeration where teenage mothers are declared to be older and are, consequently, placed in the 20-24 age group. By the 25-29 estimates the error is diluted by the prevalence of children born when their mothers were over age 20. There have been several attempts to adjust the mortality rates estimated from the women's age group 20-24. Nevertheless, in the case of Myanmar, infant and under-five mortality corresponding to children of women aged 20-24 are not out of line and, therefore, the respective rates are not over-estimated as in many countries. This is quite clear in Figures 2.2 and 2.3. For this reason, mortality indicators corresponding to women in the age group 20-24 were included in the analysis without any adjustment.

Table 2.1

Infant, child, and under-five mortality rates, 2014 Census

Year	Early-Age Mortality Rate		
	Infant	Child	Under-five
January 2012	61.8	10.0	71.8
June 2010	65.6	11.2	76.8
June 2008	72.7	13.2	85.9
January 2006	80.6	15.7	96.3
April 2003	89.4	18.6	108.0
August 1999	96.6	21.0	117.6

The estimates obtained with this method appear in Table 2.1 as a time series. However, in reality they are not. The estimate corresponding to each year is produced entirely from the data corresponding to the child survival experience of a particular age group of women. For example, the estimate corresponding to January 2012 is produced from the data on children ever born and children surviving among women aged 20-24 at the time of the Census; that corresponding to June 2010 are produced from the data on children ever born and surviving among women aged 25-29 at the time of the Census. The set of points does not strictly represent a time series, but the experience of the respective age group of women at an estimated date. The assumption underlying this is that mortality of children is related solely to the women´s age. In spite of this limitation, the method produces a set of data that can be interpreted as a time series, bearing in mind, however, that it is not and that some characteristics of the trend may be the result of methodological biases.

Other assumptions in the Brass-type methods are that mortality decline has been linear: that the same mortality pattern has been maintained throughout the period under consideration, and that fertility has been constant. All these assumptions are usually relaxed in most countries where the method is utilized, but the technique is, however, quite robust. Changes in mortality patterns and a moderate fertility decline are not very important. Gradually falling fertility will bias the method towards a slight over-estimation of mortality. This is not a serious problem because it usually counteracts latent tendencies for under-estimation (see Statistical Institute for Asia and the Pacific, 1994).

The most recent estimate of under-five mortality corresponds to 2012 and, according to Table 2.1, it is 71.8 deaths per 1,000 live births. For the same date, infant mortality is 61.8 deaths per 1,000 live births and child mortality is 10.0 deaths per 1,000 children surviving between age one and five. As mentioned above, during recent years early-age mortality has experienced a decline in Myanmar: infant mortality declined by 36.0 per cent between 1999 and 2012 from 96.6 to 61.8 deaths per 1,000 live births; child mortality declined by 52.4 per cent from 21.0 to 10.0 deaths per 1,000 children surviving between age one and five; and under-five mortality declined by 38.9 per cent from 117.6 to 71.8 deaths per 1,000 live births in the same period. The values and trends presented in Table 2.1 seem plausible and consistent and, therefore, are unlikely to be affected by the relaxation of the assumptions of the method. However, it is important to compare these estimates with data from other sources, not only for methodological reasons, but also because of substantive considerations.

Table 2.2 shows the seven sources of estimates of early-age mortality indicators available for Myanmar; these sources comprise two censuses[6] and five household surveys. The early-age mortality rates that come from surveys are direct estimates that are computed from full birth histories, while those coming from censuses are indirect estimates calculated from information on children ever born and children who have died. The values correspond to the most recent estimate calculated from the respective data collection exercises. The values for under-five mortality show a clear declining trend, except for the Multiple Indicator Cluster Survey (MICS) estimates that indicate an abrupt decline during the second half of the last decade. Infant mortality shows an increase during the second half of the 1990s and, again, the MICS indicates a substantial decline.

Table 2.2

Infant and under-five mortality estimates according to different sources

Sources of under-five mortality data*	Estimate period	Infant mortality Rate	Under-five mortality Rate
2014 Census	2012	61.8	71.8
Multiple Indicator Cluster Survey 2009-2010 (MICS)	2005/06-2009/10	37.5	46.1
2007 Fertility and Reproductive Health Survey (FRHS)	2001-2006	68.3	76.7
2001 Fertility and Reproductive Health Survey (FRHS)	1996-2000	80.4	95.2
1997 Fertility and Reproductive Health Survey (FRHS)	1992-1996	74.6	105.7
1991 Population Changes and Fertility Survey (PCFS)	1986-1990	102.9	146.9
1983 Census	1981	100.0	122.2

* Complete information on the sources are shown in the Reference section.

A much better pattern of infant and under-five mortality trends is illustrated in Table 2.3 and Figures 2.2 and 2.3. As is the case in Table 2.2, rates that are derived from surveys are direct estimates, while those which come from censuses are indirect estimations. The years used in Table 2.3 are the mid-year of these three-year periods. The data from MICS was not included in this analysis because the data looks unrealistically low compared with both the 2007 FRHS and the 2014 Census.

The data presented in Figures 2.2 and 2.3 show a general declining trend in both infant and under-five mortality. Several trend lines were evaluated and a third degree polynomial was the one that best fitted the set of points in the scatter gram in both cases. The evaluation was based on the value of the coefficient of determination[7]. The trend lines, equations and the values of the coefficients are shown in the graphs. The trends, in both infant and under-five mortality, indicate a rapid decline, a clear deceleration which starts by the mid-1980s, and a further decline that has accelerated over recent years.

[6] Early-age mortality indicators were estimated from the 1983 census using the same Brass-type method which is applied to the 2014 Census data.
[7] This coefficient indicates the degree of fitness of a set of points to an equation line. A coefficient of 1.0 indicates a perfect fit.

It is important to remember that infant and under-five mortality estimates frequently differ between censuses and surveys. As mentioned earlier in this report, surveys usually use full birth histories which tend to under-estimate infant and under-five mortality, while censuses use indirect methods which tend to slightly over-estimate infant and under-five mortality. This is likely to be the situation here. Nevertheless, regardless of the apparent discrepancies, the data in Figures 2.2 and 2.3 indicate a clear trend, which is quite a valuable result. Trend lines are probably not precise, but they seem to describe an approximate general trend accurate enough to be used in other analyses such as population projections. The unexpected decline of infant and under-five mortality rates from the mid-1980s up to recent years needs to be confirmed through further research, hopefully in the immediate future. In this regard, it is important to mention the papers by Gwatkin (1980), who discusses a deceleration of mortality decline in the developing countries in the 1980s, and by You et al (2015) who analyse the more recent decline[8].

[8] It is important to mention the recently published inter-agency estimates of under-five mortality conducted by UNICEF, WHO, The World Bank and the United Nations (2015). This is a remarkable effort to measure infant and under-five mortality in most countries in the World. The purpose of this project is to measure and project under-five and infant mortality to evaluate progress of the 2015 Millennium Development Goals and the newly adopted Sustainable Development Goals (UN, 2015). In most countries, several available sources were used and sophisticated methods applied in order to establish past trends, present levels and future trends in under-five, infant, and neonatal mortality. In the case of Myanmar, censuses, surveys and vital registration systems were used for the estimates. For 2012, under-five mortality was estimated at 55.3 deaths per 1,000 live births and infant mortality at 43.8 deaths per 1,000 live births. These values are much lower than the estimates obtained from the 2014 Census data (see Table 2.1). The purpose here is not to discuss the methodologies or the reliability of the respective sources of data, but to clarify that this report has a different purpose than the inter-agency project. The objective of this report, as indicated in Chapter 1, is to estimate mortality levels with data from the 2014 Census and conduct basic analyses. Other sources were used to obtain some additional information or to complete some analyses, but the emphasis is on the use of the 2014 Census data. The main purpose of the inter-agency report is to estimate early-age mortality for most countries in the world with a common methodology so as to make valid and reliable comparisons as well as to design global policies. They do not always satisfy the information needs of particular countries. In the case of Myanmar, numerous sources were used, including vital registration systems; the Census data was one among many sources. Estimates for the past and present decade, such as MICS and vital statistics, provided low early-age mortality rates and tended to push down the value of the final estimates. It should also be mentioned that for indirect estimations, the West Model from the Coale-Demeny system was used in the case of the inter-agency estimate. The reliability of the inter-agency estimates may raise objections and be subject to discussion; however, this report is not a place for these discussions. What is important is to point out that the emphasis in this report is on the analysis of mortality based on the 2014 Census data.

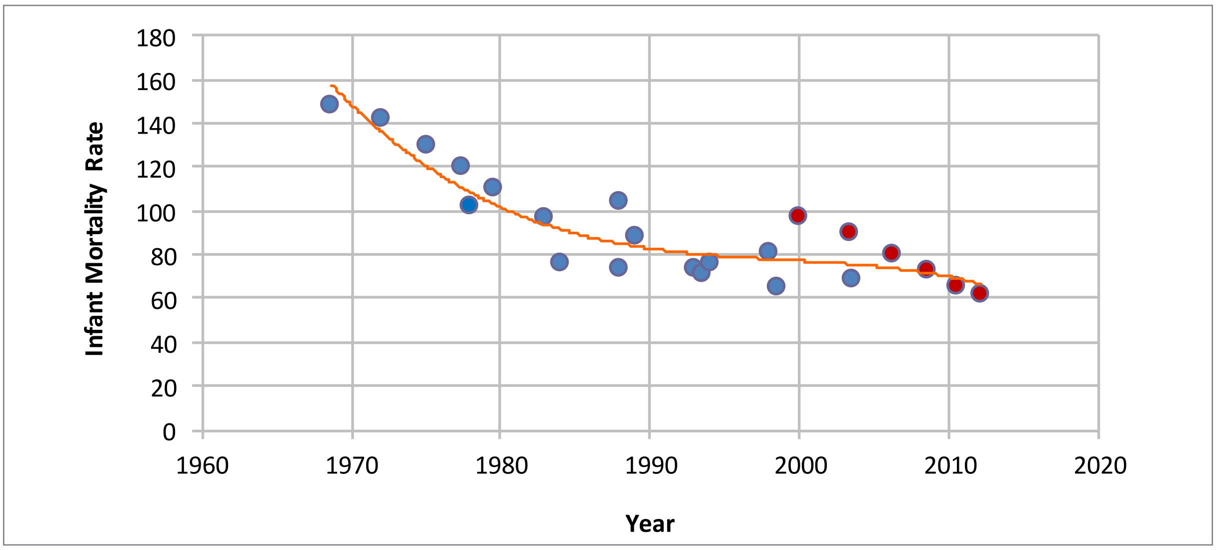
Table 2.3

Infant and under-five mortality trends, 1968 to 2012 from several sources

Source	Year	Infant	Under-5
Census 1983	1968.7	147.6	189.7
Census 1983	1972.1	141.6	180.9
Census 1983	1975.0	128.6	162.1
Census 1983	1977.5	119.3	149.1
1991 PCFS	1978.0	101.6	138.2
Census 1983	1979.5	109.3	135.0
Census 1983	1981.1	100.0	122.2
1991 PCFS	1983.0	96.1	126.5
1997 FRHS	1984.0	74.7	107.4
1991 PCFS	1988.0	102.9	146.9
2001 FRHS	1988.0	73.4	103.2
1997 FRHS	1989.0	87.7	125.0
2001 FRHS	1993.0	73.1	98.9
2007 FRHS	1993.5	70.3	85.7
1997 FRHS	1994.0	74.7	105.8
2001 FRHS	1998.0	80.4	95.6
2007 FRHS	1998.5	63.8	77.1
Census 2014	1999.9	96.7	117.7
Census 2014	2003.3	89.5	108.0
2007 FRHS	2003.5	68.3	76.7
Census 2014	2006.1	80.7	96.3
Census 2014	2008.5	72.7	85.9
Census 2014	2010.5	65.6	76.8
Census 2014	2012.0	61.8	71.8

Figure 2.2

Infant mortality trend



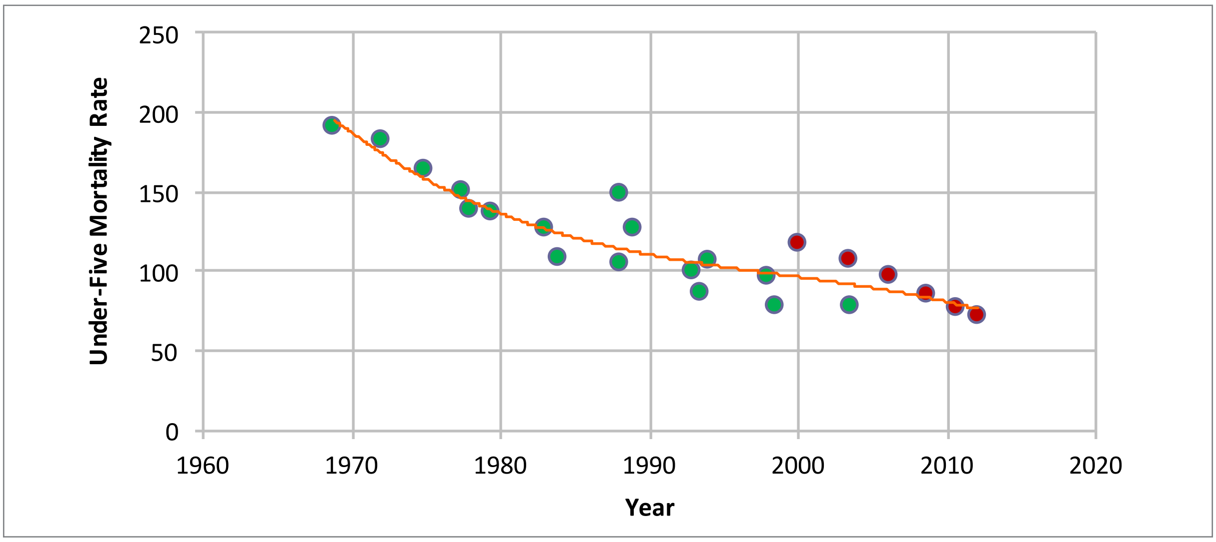
= 2014 Census

y = -0.00245x3 + 14.72x2 - 29,417.3x + 19,601,750.2

R^2 = 0.84

Figure 2.3

Under-five mortality trend



= 2014 Census

y = -0.00245x3 + 14.71x2 - 29,401.5x + 19,584,313.6

R^2 = 0.85

Table 2.4 shows infant, child and under-five mortality by State/Region and urban/rural classification. The data clearly indicates that in rural areas early-age mortality levels are higher than in urban areas. Overall, infant mortality is 41.0 deaths per 1,000 live births in urban areas while in rural areas it is 67.2. Under-five mortality rates are 46.3 and 78.8 per 1,000 live births in urban and rural areas, respectively. Figure 2.4 illustrates these differences, and the map at Figure 2.5 shows the spatial distribution of under-five mortality by State and Region.

There are large disparities in early-age mortality rates between States/Regions. For example, infant mortality varies from 86.2 deaths per 1,000 live births in Ayeyawady to less than half this level, 41.8, in Mon. These two States/Regions also exhibit the largest differences in child and under-five mortality. Child mortality is 17.4 per 1,000 live births aged one to four in Ayeyawady and 5.5 in Mon, while under-five mortality is 103.6 per 1,000 live births in Ayeyawady and 47.3 in Mon.

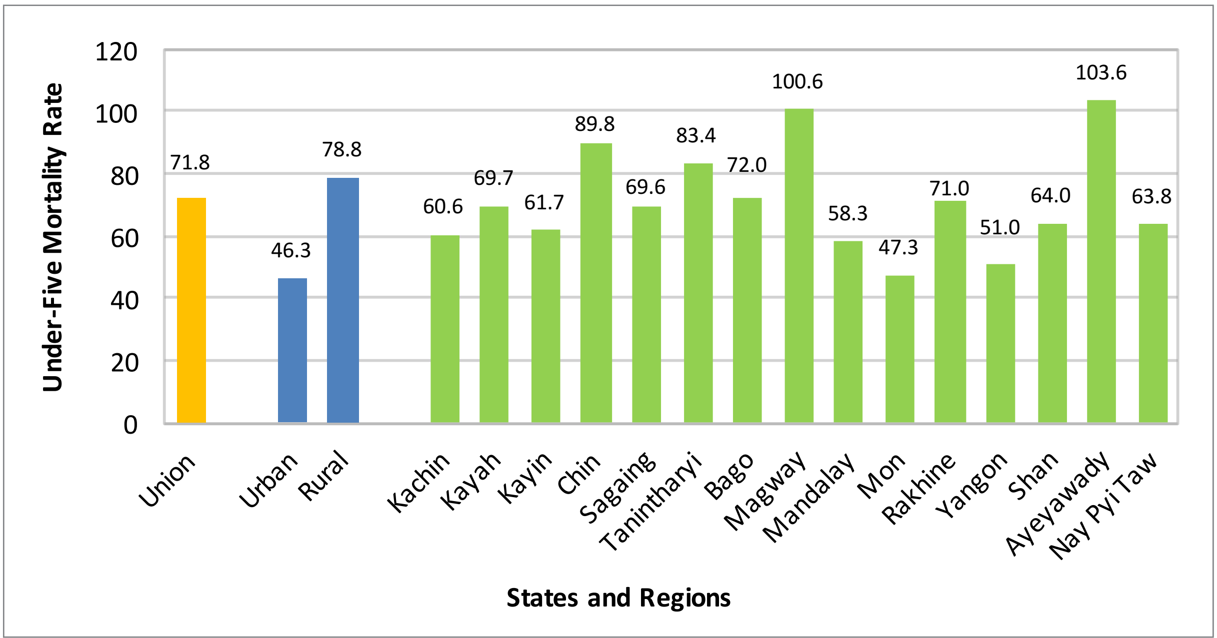
Table 2.4

Infant, child and under-five mortality rates by urban/rural place of residence and State/Region, 2014 Census

Area	Infant mortality Rate	Child mortality Rate	Under-five mortality rate
Union	61.8	10.0	71.8
Urban	41.0	5.3	46.3
Rural	67.2	11.6	78.8
Kachin	52.8	7.8	60.6
Kayah	60.1	9.6	69.7
Kayin	53.6	8.0	61.6
Chin	75.5	14.1	89.6
Sagaing	60.0	9.6	69.6
Tanintharyi	70.8	12.6	83.4
Bago	61.9	10.1	72.0
Magway	83.9	16.7	100.6
Mandalay	50.3	8.1	58.4
Mon	41.9	5.4	47.3
Rakhine	61.1	9.9	71.0
Yangon	44.9	6.1	51.0
Shan	55.5	8.5	64.0
Ayeyawady	86.2	17.4	103.6
Nay Pyi Taw	55.4	8.4	63.8

Figure 2.4

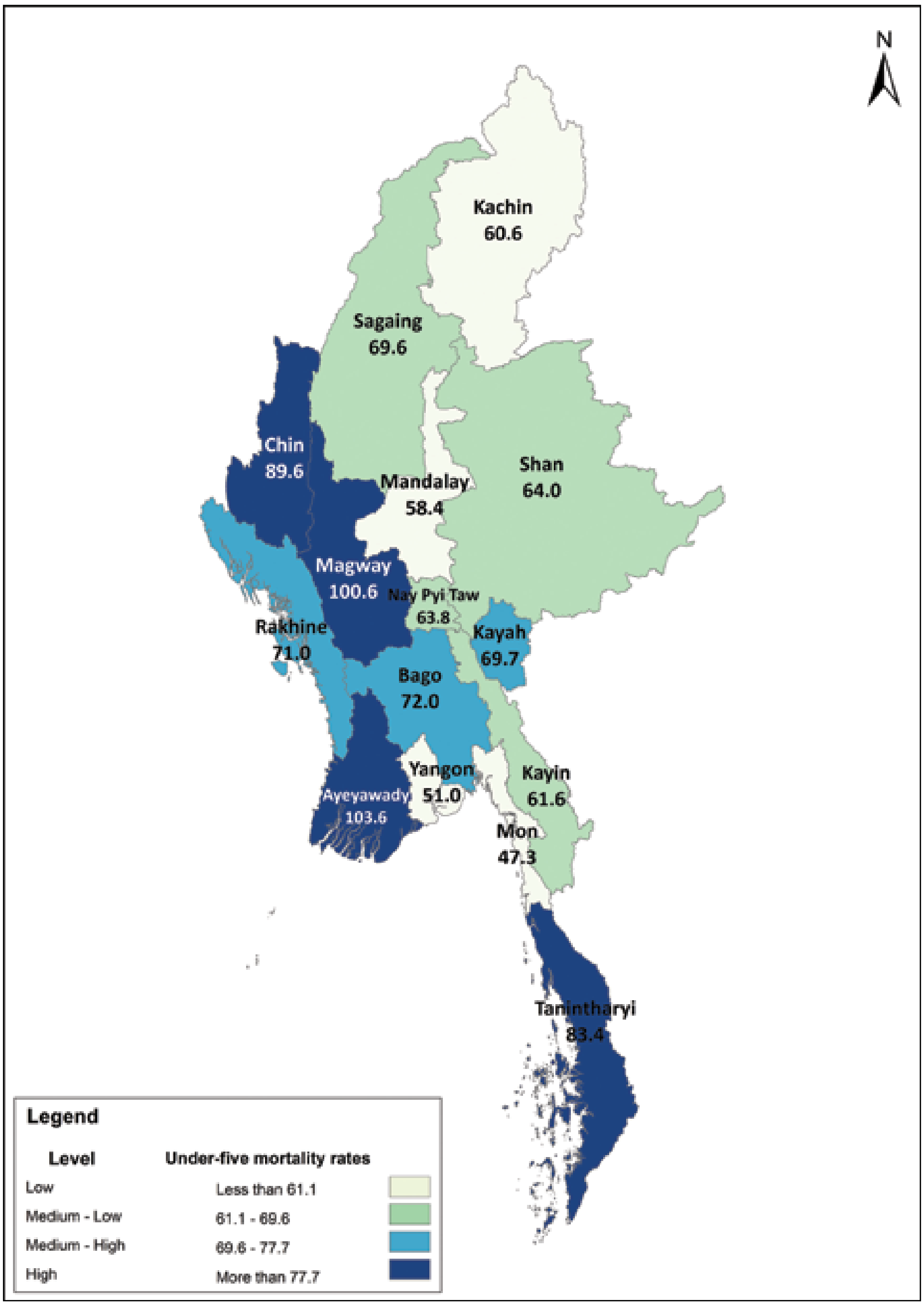
Under-five mortality rates by State/Region, 2014 Census



These variations are likely to be the result of differences in the development of health infrastructures in States/Regions, obstacles to accessing health services, and barriers to benefitting from public health policies and interventions. Other probable factors for the spatial variations are differences in infrastructural development such as improved sources of drinking water, improved sanitation, and communication systems for accessing or transporting food. Particularly important are differences in the socioeconomic characteristics of the population living in these States/Regions, especially women's education. This issue is further examined in Chapter 4.

It is important to remember that some households were not enumerated in parts of Kachin, Kayin, and Rakhine. However, a very basic examination of the data suggests that the effect of the under-enumeration in these areas is negligible. First of all, infant, child and under-five mortality rates are not outside of the possible range. Rates in Rakhine are similar to the Union levels, and in Kachin and Kayin are lower than the Union level, but still within a reasonable range (see Table 2.4).

Figure 2.5
Under-five mortality rates by State/Region, 2014 Census



There are other indicators that suggest that early-age mortality rates in these three States are not particularly affected by the under-enumeration of certain populations. Sex ratios of children ever born, and sex ratios of children who have died are similar to those observed at the Union level and among other States/Regions (see Appendix A). The same can be said about the relative distribution of the female population by reproductive age groups; it is similar to the national distribution and to that observed among other States/Regions.

The relative distribution of the number of children ever born and children who have died by the age of their mothers is also comparable to the national distribution and to the distributions observed among other States/Regions. These relative distributions are not included in this thematic report, but can be easily calculated using the data in Appendix A. Although these indicators measured in Kachin, Kayin and Rakhine are consistent with those measured at the Union level, further analysis is necessary to determine the effects of under-enumeration on early-age mortality levels and trends.

Infant, child and under-five mortality rates at the District level are presented in Appendix C, Table C. Considering that at the District level the small number of reported deaths may result in random variations, a special methodology was used. This methodology is explained in Appendix C.

Finally, it is important to examine early-age mortality indicators by sex shown in Table 2.5 and Figure 2.6. The huge difference in mortality rates by sex is striking. Under-five mortality among boys is about one third higher than that of girls (81.3 compared to 62.0). A similar trend is observed in the cases of infant and child mortality. While both male and female children have experienced declines in early-age mortality levels, girls have always maintained lower mortality levels than boys. It seems that girls have benefitted more from those factors that have reduced mortality (for an analysis of this topic worldwide see Alkema et al, 2014).

It is important to examine the Census data on children ever born and children who have died. Appendix A shows the respective information at the Union level, State/Region level, and in urban and rural areas. Sex ratios are also shown. There are slightly more male than female births, as indicated by the sex ratio of children ever born (around 104 male births per 100 female births). This pattern is observed in most countries. The ratio of children who have died indicates a substantially higher mortality among male children. At the Union level, the sex ratio is about 130 male deaths per 100 female deaths.

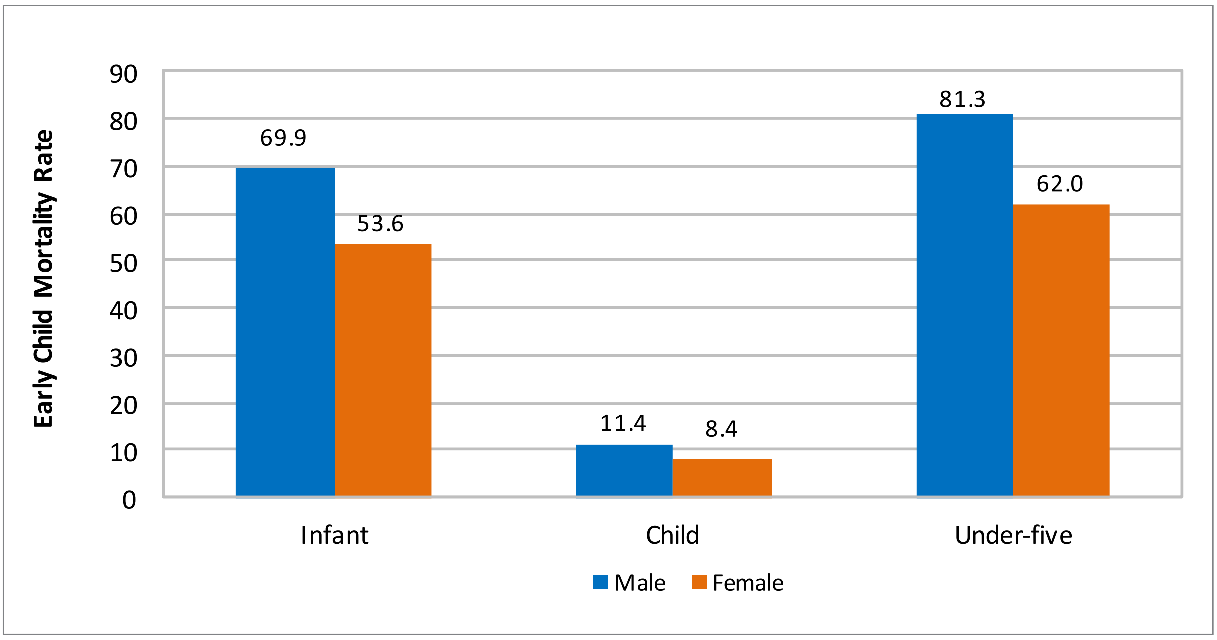
Table 2.5

Infant, child, and under-five mortality by sex, 2014 Census

Year	Infant mortality rate			Child mortality rate			Under-five mortality rate		
	Both sexes	Males	Females	Both sexes	Males	Females	Both sexes	Males	Females
January 2012	61.8	69.9	53.6	10.0	11.4	8.4	71.8	81.3	62.0
June 2010	65.6	73.7	57.5	11.2	12.4	9.6	76.8	86.1	67.1
June 2008	72.7	81.3	64.1	13.2	14.4	11.6	85.9	95.7	75.7
January 2006	80.6	89.7	71.7	15.7	16.7	14.0	96.3	106.4	85.7
April 2003	89.4	98.7	80.4	18.6	19.4	17.1	108.0	118.1	97.5
August 1999	96.6	105.8	87.7	21.0	21.6	19.9	117.6	127.4	107.6

Figure 2.6

Infant, child and under-five mortality rates by sex, 2014 Census*



* Note the Figure illustrates only those data in Table 2.5 that relate to January 2012.

This difference in early-age mortality between males and females is also reported by other sources. According to the 2007 FRHS, under-five mortality among boys for the period 1997-2007 was 24 per cent higher than that corresponding to girls (85.0 compared to 68.8). Information on sex preference is not available, but the 2007 FRHS indicates that boys and girls have the same access to immunization and treatment for diarrhoea. Although weak, this indicator suggests equal parental attention and care to boys and girls.

This striking difference in under-five mortality between boys and girls, and the observed recent trends, requires further research. Census data alone cannot sufficiently provide explanations for the reasons behind these disparities. Future demographic and household surveys should include questions that may help to explain this finding; a qualitative study is probably the most suitable research option in this case.

It is pertinent to suggest here possible hypotheses that may guide further research. First of all, it is important to point out that infant mortality is higher in boys than girls in most parts of the world. This has been explained by sex differences in genetic and biological make-up, with boys being biologically weaker and more susceptible to diseases and premature death (Rowland, 2003). This is a possible explanation of the observed sex differences in infant mortality in Myanmar. The main problem is to explain the sex difference in child mortality. In most countries, child mortality sex differences are very small, or in favour of boys.

However, as indicated above, male mortality in Myanmar is much higher than female mortality at these ages. A possible explanation is that in everyday life male children are allowed, or even encouraged, to have greater mobility within the household and its immediate surroundings.

This greater autonomy to explore their environment implies a number of risks that could be life threatening (falls on uneven terrain or stairs, playing with electric appliances, kitchen accidents, wandering on streets with traffic, etc.). On the other hand, it is likely that young girls are more constrained to remain at home, that they are more controlled and encouraged to do activities that require less mobility and, therefore, experience fewer risks. It is important to point out that this explanation is hypothetical; there is no evidence to support it. The verification of this hypothesis requires a qualitative study.

Chapter 3. Adult mortality and life tables

Until recently, in most international forums and among international health and population agencies, adult mortality in the developing countries received little attention as a public health issue. This picture has changed. The high mortality of adults, especially in the African region, is now acknowledged mainly because of the impact of the HIV/AIDS epidemic. However, it has been recognized that in many developing countries, even among those only affected by HIV/AIDS to a small degree, adult mortality could be very high. Several communicable and non-communicable diseases have been identified as having a major impact on adult mortality; malaria, malnutrition, tuberculosis, drug abuse, and mortality resulting from road traffic accidents (Murray, Yang, and Qiao. 1992).

Adult mortality measurement and analysis usually considers the mortality experience of the population aged 15 and over. Measurement of adult mortality in the developing countries has experienced much less attention than the measurement of infant and child mortality. Part of the problem in determining adult mortality arises from the infrequency of adult deaths relative to the size of the population at risk. However, more important in the developing countries is the lack of a reliable civil registration system that records deaths and the demographic characteristics of the deceased. As a consequence, indirect methods of estimation provide the solution to these measurement challenges (UN, 2002).

The most frequently used methods to estimate adult mortality indirectly make use of census data. These methods are grouped into census survival methods, growth balance methods, the extinct generation's method, and estimates derived from information on the survival of parents and on the survival of the spouse (Timæus, Dorrington and Hill, 2013). These methods, except for the extinct generation's, are used to adjust the data on the number of deaths by age and sex that are collected in censuses using a question on the number of deaths in a household during a fixed period, usually a year. Many censuses include a question to collect such information. Sex and age of the deceased are also recorded. These variables were collected in the 2014 Census of Myanmar. The data obtained from these variables allow for the computing of age-specific mortality rates, which are death rates calculated for specific age groups. These rates can be easily transformed into probabilities of dying at the ages defined by the age group and, in particular, in the indicator of adult mortality, which is the probability of dying between the ages of 15 and 60.

The purpose of estimating adult mortality is to construct life tables. The life table is the most useful demographic tool not only for the study of mortality but also for diverse analytical purposes.

Before moving on to the construction of life tables it is necessary to examine the reliability of mortality data from deaths in a household during a fixed period. Frequently people fail to report a death in a census because of taboos, beliefs, traditions, or emotional reasons. To refer to a recent death may be an emotionally difficult experience. Another problem is that after an adult death a household split may occur and such deaths can remain unreported. These two problems can result in an under-estimation of mortality. However, it may also happen that people confuse a death in a household with a death of a family member living in another household, with the result that the same death is reported more than once. In this case mortality tends to be over-estimated. In addition, errors in the perception of the

12-month period before the census may result in an over- or under-estimation of mortality.

Most of the methods mentioned earlier attempt to solve these over- or under-reporting problems. The methods are usually based on mathematical relationships between the age distribution of deaths and the age distribution of the population. One of these methods, which is easy to apply and conceptually simple, is the Brass Growth Balance Equation (UN, 1983; UN 2002; Dorrington, 2013). It is important to note that this method, as with other similar methods, is used to evaluate adult mortality only, which is usually the population aged 15 and over; however mortality among the population aged 5-9 and 10-14 may also be adjusted using this method. The evaluation of the younger population (those aged under one year and one to four) is calculated using different methods, especially those based on the number of children ever born and surviving (applied in the previous section).

The Brass Growth Balance Equation method (BGBE) relies on comparing age-specific death rates calculated from the number of deaths reported in a census with the death rates implied by the age distribution of the population. This comparison is used to estimate the completeness of the recording of deaths and apply it as an adjustment factor against the reported deaths in the census. This straightforward approach of assessing the completeness of death recording is based on the assumption that the population is "stable". A stable population has constant fertility and mortality over a long period. The result is a constant rate of population growth and a fixed age composition. Even if the total size of the population is changing, the proportionate structure by age remains constant (for details on the BGBE method, see the three publications cited in the previous paragraph).

It is important, however, to refer to the major limitations of this method. Its main shortfall is the assumption of a stable population. A second assumption that affects its usefulness is that the completeness of deaths recorded should be equal for all ages over a minimum age (usually five years). A third assumption is that the population should be closed to migration. Obviously, there is hardly any population that can meet all these assumptions. However, these assumptions are usually relaxed, to some extent, in most analyses of mortality. What is important is a careful examination of the data to be used and the results obtained. The major question is how much relaxing an assumption will affect the results. There are some procedures in the method that help to overcome the rigidities imposed by the assumptions. For example, the calculations can be limited to the population aged 30 and over in order to avoid the effect of emigration (which usually involves the younger population) or the fact that there has been a rapid fertility decline (the older population has a structure more compatible with a stable population). Also, the oldest age group can be excluded if there is evidence of age exaggeration. In the particular case of Myanmar, after a detailed evaluation of the data and assessment of different results, it was decided to use the age group 40-75 to estimate the extent of the completeness of deaths recorded. Because the age-specific rates can be erratic they need to be graduated (smoothed). This was done by using a demographic method that involves the use of model life tables.

The types of Model Life Tables were explained in Chapter 2. While for early-age mortality estimates the most suitable was the Chilean model, for adult mortality the North Model from the Coale-Demeny family was identified as the most appropriate, for both males and females.

The decision to use the Chilean model to estimate the indicators of early-age mortality was based on the patterns observed in the 2001 and 2009 Fertility and Reproductive Health Surveys. In the case of adult mortality, the North Model was identified by using the program COMPAR from the demographic package MORTPAK (UNPD, 2013). This program compares an observed set of age-specific mortality rates with United Nations and Coale-Demeny model life table patterns, and indicates indices of similarity. This program identified the North pattern from the Coale-Demeny models as the closest to the observed adult mortality pattern in Myanmar. Therefore, the North pattern was used to smooth the age-specific mortality rates calculated from the deaths in households in the twelve months prior to the Census and already adjusted for under-enumeration[9].

All the estimates of adult mortality under-enumeration, adjustments and smoothing were undertaken using a special Microsoft Excel spreadsheet that accompanies the UNFPA-IUSSP electronic publication (Moultry et al, 2011). While using this spreadsheet extreme caution was taken regarding the weaknesses of the method, in particular with respect to the relaxation of the assumptions. Several trials were carried out, mainly regarding the age range used to estimate the completeness of deaths recorded. The results were carefully examined.

Table D1 in Appendix D shows the basic Census data on adult mortality and the initial unadjusted age and sex-specific measures. Table D2 shows the percentages of under-enumeration at the Union level, State/Region level and by urban and rural areas, according to sex. The percentage under-enumeration for the Union was 29.7 per cent for males and 37.5 per cent for females. These percentages varied between urban and rural areas and among States/Regions. All age groups were adjusted by the same percentage. An assumption of this method is that misreporting of deaths is the same for all ages over a minimum age. In this case, the minimum age was five years. After adjusting the number of deaths according to these percentages, the data was smoothed using the North Model life table. This operation was repeated for urban and rural areas and for each State/Region. The suitability of the North Model for smoothing the adjusted age-specific mortality rates for urban and rural areas and States/Regions was evaluated in each case. It was found that this pattern (the North Model) was appropriate at the subnational level as well.

Table 3.1 shows the age-sex-specific death rates obtained from the data collected on deaths in households during the 12 months prior to the Census. It also shows the rates adjusted and smoothed with the Brass GBE method. Note that the table does not include the under-five mortality rates. As noted earlier, this method does not provide reliable estimates for the youngest population.

The life table has been one of demography's most important achievements. In simple words, it examines the effect of mortality on populations by measuring the extent to which death diminishes the numbers of an initial fixed population as it advances through age, following the observed age-specific death rates which are assumed to remain constant. It has several functions or "columns", each one referring to a different aspect of the mortality level and

[9] It is important to mention that the pattern established by the number of deaths in households during the 12 months preceding the Census among the population aged less than 1 year and 1 - 5 years corresponds to the North Model. However, the level, as well as the pattern implied by this data is usually unreliable. The situation is different in the case of adult mortality. Although the level is a problem, the pattern is usually reliable (Timæus, Dorrington, and Hill, 2013).

population pattern (a definition for each column is included as a footnote to Table 3.2). Therefore, by examining a life table a complete representation of the mortality situation of a population can be seen[10].

Table 3.1

Age-sex specific mortality rates, unadjusted and adjusted and smoothed by the Growth Balance Equation method, 2014 Census

Age group	Unadjusted		Adjusted and smoothed	
	Male	Female	Male	Female
5 – 9	0.00075	0.00060	0.00097	0.00082
10 – 14	0.00061	0.00048	0.00080	0.00066
15 – 19	0.00114	0.00067	0.00147	0.00092
20 – 24	0.00171	0.00083	0.00222	0.00115
25 – 29	0.00260	0.00099	0.00337	0.00136
30 – 34	0.00394	0.00127	0.00511	0.00175
35 – 39	0.00532	0.00167	0.00690	0.00230
40 – 44	0.00640	0.00218	0.00830	0.00300
45 – 49	0.00766	0.00277	0.00993	0.00381
50 – 54	0.00871	0.00380	0.01290	0.00562
55 – 59	0.01150	0.00541	0.01842	0.00814
60 – 64	0.01535	0.00815	0.02984	0.01352
65 – 69	0.02172	0.01233	0.04857	0.02387
70 – 74	0.03197	0.01955	0.07929	0.04374
75 – 79	0.04736	0.03101	0.12627	0.07944
80+	0.08063	0.06151	0.22035	0.17553

Table 3.2 shows the life tables constructed with the adjusted and graduated age-sex specific death rates. A definition of each of its functions is provided as a footnote to the table. The software used to calculate life tables in this report is LIFTB from the demographic package MORTPAK (UNPD, 2013). The adult age-sex-specific rates refer to the middle of the period of 12 months before the Census; this corresponds exactly to year 2013.7 (September 2013). The most recent estimate of infant and child mortality was for January 2012 (see Table 2.1 in Chapter 2 and Figure 3.1). Therefore, these rates were extrapolated to year 2013.7 (using an exponential function).

[10] It is important to point out that the most common life tables are "period life tables", which are based on death statistics corresponding to a given year. This type of life table, therefore, represents the mortality experience by the age of a population in a particular year; it does not represent the mortality experience of a real cohort. Instead, it assumes a "hypothetical" or "synthetic" cohort that is subject to the age-specific death rates observed in the particular year. It is important to keep in mind, when interpreting a period life table, that they represent hypothetical cohorts and not real ones. For example, a life expectancy at birth of 60.17 years (see Table 3.2, males) means that a man born in 2013-14 is expected to live to 60.17 years if the mortality conditions of that year remain constant in the future. There are also "generation" or "cohort" life tables that are based on the mortality experience of a real cohort (Rowland, 2003). The construction of this latter life table requires mortality data for several decades.

Table 3.2

Life table for Myanmar for the 12-month period prior to the 2014 Census

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Both sexes									
0	0.06164	0.05878	100,000	5,878	95,365	0.93903	6,469,721	64.70	0.21
1	0.00248	0.00985	94,122	927	374,148	0.99024	6,374,356	67.72	1.48
5	0.00090	0.00448	93,195	418	464,931	0.99594	6,000,208	64.38	2.50
10	0.00073	0.00364	92,777	338	463,043	0.99542	5,535,278	59.66	2.50
15	0.00119	0.00591	92,440	546	460,923	0.99299	5,072,235	54.87	2.67
20	0.00164	0.00817	91,893	751	457,691	0.99032	4,611,312	50.18	2.63
25	0.00229	0.01141	91,143	1,040	453,261	0.98616	4,153,621	45.57	2.64
30	0.00333	0.01651	90,103	1,488	446,989	0.98074	3,700,360	41.07	2.63
35	0.00445	0.02202	88,615	1,951	438,379	0.97555	3,253,370	36.71	2.59
40	0.00545	0.02687	86,664	2,329	427,663	0.97053	2,814,991	32.48	2.57
45	0.00661	0.03253	84,335	2,743	415,061	0.96244	2,387,329	28.31	2.59
50	0.00892	0.04368	81,592	3,564	399,470	0.94822	1,972,267	24.17	2.62
55	0.01275	0.06190	78,028	4,830	378,786	0.92151	1,572,797	20.16	2.65
60	0.02077	0.09903	73,198	7,249	349,056	0.87370	1,194,011	16.31	2.66
65	0.03447	0.15942	65,949	10,514	304,970	0.79700	844,956	12.81	2.64
70	0.05839	0.25601	55,435	14,192	243,061	0.68211	539,985	9.74	2.60
75	0.09805	0.39416	41,243	16,257	165,795	0.44162	296,924	7.20	2.51
80	0.19055	...	24,987	24,987	131,129	...	131,129	5.25	5.25
Males									
0	0.07030	0.06671	100,000	6,671	94,892	0.93103	6,017,116	60.17	0.23
1	0.00285	0.01132	93,329	1,056	370,624	0.98868	5,922,224	63.46	1.45
5	0.00097	0.00484	92,273	447	460,246	0.99559	5,551,600	60.17	2.50
10	0.00080	0.00398	91,826	365	458,216	0.99465	5,091,354	55.45	2.50
15	0.00147	0.00734	91,460	671	455,765	0.99088	4,633,138	50.66	2.71
20	0.00222	0.01103	90,789	1,001	451,610	0.98632	4,177,373	46.01	2.67
25	0.00337	0.01674	89,788	1,503	445,432	0.97918	3,725,763	41.50	2.67
30	0.00511	0.02525	88,285	2,229	436,159	0.97035	3,280,331	37.16	2.64
35	0.00690	0.03395	86,055	2,922	423,226	0.96264	2,844,172	33.05	2.59
40	0.00830	0.04066	83,134	3,380	407,417	0.95572	2,420,946	29.12	2.56
45	0.00993	0.04848	79,754	3,866	389,378	0.94523	2,013,529	25.25	2.57
50	0.01290	0.06255	75,887	4,747	368,053	0.92613	1,624,151	21.40	2.60
55	0.01842	0.08825	71,140	6,278	340,863	0.88884	1,256,099	17.66	2.64
60	0.02984	0.13938	64,862	9,041	302,974	0.82515	915,235	14.11	2.64
65	0.04857	0.21750	55,822	12,141	250,000	0.73073	612,261	10.97	2.60
70	0.07929	0.33161	43,681	14,485	182,681	0.60366	362,261	8.29	2.53
75	0.12627	0.47693	29,196	13,924	110,276	0.38592	179,580	6.15	2.44
80	0.22035	...	15,271	15,271	69,304	...	69,304	4.54	4.54

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females									
0	0.05297	0.05082	100,000	5,082	95,947	0.94730	6,933,432	69.33	0.20
1	0.00204	0.00810	94,918	769	377,705	0.99182	6,837,485	72.04	1.44
5	0.00082	0.00411	94,149	387	469,778	0.99629	6,459,780	68.61	2.50
10	0.00066	0.00331	93,762	310	468,035	0.99615	5,990,002	63.89	2.50
15	0.00092	0.00460	93,452	430	466,233	0.99483	5,521,967	59.09	2.61
20	0.00115	0.00572	93,022	532	463,822	0.99377	5,055,734	54.35	2.58
25	0.00136	0.00680	92,490	629	460,931	0.99232	4,591,912	49.65	2.59
30	0.00175	0.00871	91,861	800	457,389	0.98999	4,130,982	44.97	2.61
35	0.00230	0.01145	91,061	1,043	452,810	0.98689	3,673,593	40.34	2.61
40	0.00300	0.01488	90,018	1,339	446,874	0.98332	3,220,783	35.78	2.60
45	0.00381	0.01886	88,679	1,672	439,418	0.97710	2,773,909	31.28	2.62
50	0.00562	0.02773	87,006	2,413	429,353	0.96676	2,334,491	26.83	2.65
55	0.00814	0.03994	84,594	3,379	415,082	0.94875	1,905,137	22.52	2.67
60	0.01352	0.06554	81,215	5,323	393,810	0.91332	1,490,056	18.35	2.70
65	0.02387	0.11311	75,892	8,584	359,673	0.84878	1,096,245	14.44	2.69
70	0.04374	0.19839	67,308	13,353	305,285	0.74143	736,572	10.94	2.66
75	0.07944	0.33327	53,955	17,981	226,349	0.47518	431,286	7.99	2.59
80	0.17553	...	35,973	35,973	204,938	...	204,938	5.70	5.70

Note:

m(x,n) = Age-specific central death rate.

q(x,n) = Probability of dying between exact ages x and x+n (age-specific mortality rate).

l(x) = Number of survivors at age x.

d(x,n) = Number of deaths occurring between ages x and x+n.

L(x,n) = Number of person-years lived between ages x and x+n.

S(x,n) = Survival ratio for persons aged x to x+5 surviving 5 years to ages x+5 to x+10.

T(x) = Number of person-years lived after age x.

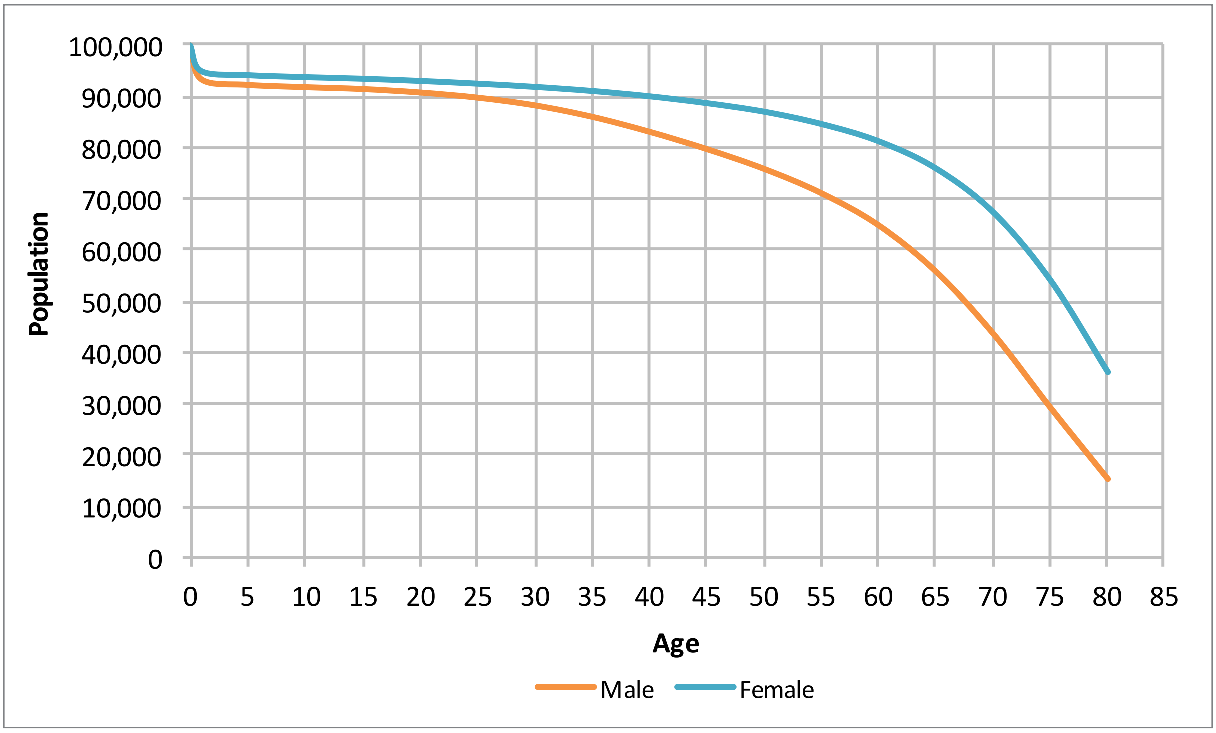
e(x) = Life expectancy at age x.

a(x,n) = Average person-years lived by those who die between ages x and age x+n.

The most important function of the life table is to determine life expectancy, and the most important single value is life expectancy at birth. It was estimated that for the 12-month period prior to the Census, life expectancy at birth for males was 60.2 years, while for females it was 69.3 years. Note that life expectancy at birth declines with age; as people get older, they have fewer years ahead of them. For example, women who are aged 25 are expected to live 49.7 more years, while women aged 45 are expected to live 31.3 more years (if the mortality conditions of 2013 to 2014 remain constant in the future). The exception is between ages 0 (life expectancy at birth) and 1; life expectancy actually rises for those children that reach one year of age. This is a bonus for surviving until their first birthday.

Figure 3.1

Number of survivors [l(x)] by sex in the 12-month period prior to the 2014 Census



Appendix D shows the adjusted and unadjusted life tables. It is interesting to observe them to realize the effect of the adjustments. Table D3 shows the life table computed with the data on the number of deaths in households in the 12 months prior to the Census without adjustments. Table D4 shows the life table computed with infant and child mortality estimated indirectly with data on children ever born and children who have died; mortality for ages over five years is calculated with the unadjusted number of deaths in households during the 12 months prior to the Census. Finally, Table D5 presents a life table computed with adjusted data, that is infant and child mortality is estimated indirectly and adult mortality adjusted and smoothed with the Brass GBE method.

The adjusted life table for Myanmar by sex is shown in Table D5. These three tables suggest the need to adjust adult mortality. In fact, life expectancies were too high when unadjusted data were used (Table D3). An independent indication of the under-estimation of mortality is shown in the unadjusted life table. This is obtained from the life expectancies that correspond to the estimates of under-five mortality according to the indirect estimation method. For males, this life expectancy is 63 years and for females it is 71 years. The life tables constructed with the unadjusted data on deaths in households during the 12 months prior to the Census show a life expectancy of 71 years for males and 80 years for females (Table D3).

Life tables for urban and rural areas and for States/Regions are presented in Appendix E. These life tables were calculated in the same way as the Union level life tables, that is, percentages of under-enumeration (see Table D2) were used to adjust the age-specific mortality rates and the North model was applied to smooth the adjusted distribution.

Table 3.3 shows a summary of life table measures mainly related to the analysis of adult mortality. In addition to life expectancies at selected ages, the table also contains the conventional measure of adult mortality; the probability of dying between ages 15 and 59 years per 1,000 population. This measure is calculated with the life table function q(x,n) (number of survivors at age x; see footnote at Table 3.2). This measure is preferred because it is computed from life table functions and therefore is more precise and more adequate for comparison than a death rate calculated directly with numbers of deaths and population. The ages were selected because 15 to 59 years is the span of the working age population. Any death in this age span means a loss of a potential producer of economic goods and services. Figure 3.2 shows the spatial distribution of this adult mortality indicator for both sexes.

Table 3.3 provides a great deal of information. Compared to other countries in the region, life expectancy at birth is low in Myanmar (see Table 1.1), and male life expectancy is particularly low. A longer life expectancy for females than males is a universal pattern in contemporary society, but in Myanmar the difference is markedly large. For example, in the developing countries life expectancies at birth are 66.9 and 70.7 years for males and females respectively; the difference is 3.8 years. In Southeast Asia, life expectancies are 67.5 and 73.2 years for males and females respectively, that is a 5.7 years difference. In the developed countries life expectancies are 75.1 and 81.5 years for males and females, respectively, showing a 6.4 years difference (UNSD, 2015). But in Myanmar the difference is 9.1 years (60.2 and 69.3 years)[11]. Life expectancy at birth is low in Myanmar compared with averages in the developing countries and in Southeast Asia. However, the greatest difference is in respect to male mortality.

Table 2.5 and Figure 2.6, presented in Chapter 2, show large sex differences in under-five mortality. However, low life expectancy of males is only partly due to these young age differences in mortality. As shown in Table 3.3, life expectancy at other selected ages is also much higher for females than for males. The probability of dying between age 15 and 59 among males is more than twice that of females (290.8 compared to 130.9 per 1,000). In summary, mortality among males is much higher than among females not only at the youngest ages, but throughout their entire lifetime.

[11] This difference is not unheard of. In the Russian Federation life expectancies at birth of 64.2 years for males and 75.6 years for females corresponds to an 11.4 years difference. Another case is Ukraine with life expectancies at birth of 65.7 for males and 75.7 for females; the difference being 10 years (UNPD, 2015).

Table 3.3

Selected life table measures, Union, urban/rural areas and State/Region, 2012

Area	Life expectancy at birth			Life expectancy at age 25			Life expectancy at age 45			Life expectancy at age 65			Probability of dying between ages 15 and 59 (per 1,000 population)		
	Males	Females	Both sexes	Males	Females	Both sexes	Males	Females	Both sexes	Males	Females	Both sexes	Males	Females	Both sexes
Union	60.17	69.33	64.70	41.50	49.65	45.57	25.25	31.28	28.31	10.97	14.44	12.81	290.8	130.9	208.2
Urban	59.70	70.96	65.24	38.69	49.24	43.93	23.26	30.74	27.07	9.78	13.79	11.92	350.8	124.4	233.2
Rural	60.72	68.79	64.73	42.80	49.68	46.27	26.16	31.37	28.81	11.52	14.59	13.15	264.8	134.2	197.5
Kachin	59.36	69.31	64.23	40.08	48.86	44.45	24.78	30.53	27.80	10.84	13.96	12.59	332.3	141.2	236.7
Kayah	59.10	70.22	64.28	40.30	50.50	45.09	24.61	32.12	28.17	10.87	15.28	13.03	330.6	128.8	230.1
Kayin	57.74	66.72	62.08	38.53	46.42	42.38	22.87	28.71	25.76	9.90	12.76	11.39	370.3	183.6	276.0
Chin	57.37	63.49	60.48	40.49	45.59	43.14	25.10	27.99	26.57	11.54	12.82	12.20	339.9	218.9	276.4
Sagaing	60.96	70.43	65.75	42.12	50.65	46.49	25.84	32.08	29.09	11.23	15.03	13.31	276.0	118.1	192.7
Tanintharyi	62.20	68.90	65.53	44.11	49.87	47.02	27.21	31.42	29.38	12.11	14.41	13.35	237.1	123.9	179.5
Bago	60.72	69.75	65.20	42.41	50.03	46.26	25.99	31.69	28.91	11.25	14.70	13.09	268.3	127.0	194.7
Magway	57.08	67.49	62.27	40.74	49.76	45.32	24.63	31.35	28.07	10.61	14.46	12.69	308.0	128.4	213.1
Mandalay	59.68	70.17	64.89	40.16	49.77	44.99	24.24	31.31	27.86	10.42	14.49	12.61	321.2	129.3	220.7
Mon	58.24	69.07	63.50	37.65	47.64	46.35	22.48	29.50	25.95	9.50	13.02	11.31	385.9	153.9	266.8
Rakhine	61.60	69.26	65.47	42.87	49.70	42.54	26.21	31.43	28.85	11.79	14.84	13.37	270.3	140.5	201.3
Yangon	60.53	70.80	65.53	39.83	49.38	44.51	23.75	30.84	27.28	9.88	13.89	11.96	317.7	122.9	216.9
Shan	60.54	69.39	64.75	41.37	49.39	45.20	24.94	31.19	27.96	11.05	14.59	12.85	301.0	141.6	221.9
Ayeyawady	60.18	67.20	63.64	44.06	49.46	46.78	26.94	31.12	29.06	11.72	14.22	13.03	227.8	130.7	178.1
Nay Pyi Taw	63.68	71.56	67.66	44.56	51.51	48.13	27.86	33.12	30.62	12.35	15.87	14.29	222.4	115.1	167.0

Source: Calculated from Table 3.2, Table D5 and Appendix E.

The large sex difference in life expectancy at birth is, therefore, probably the combination of an extremely large sex difference at the youngest ages and also large differences at adult ages. Differences in mortality between boys and girls were discussed in Chapter 2. Adult mortality levels and sex differences are now analysed.

The probability of dying between ages 15 and 59 among males is more than twice that of females in Myanmar. In the developing countries, these probabilities are 188 per 1,000 for males and 133 for females (41 per cent higher for males) and in Southeast Asia they are 214 and 131 respectively (63 per cent higher for males). However, in the developed countries the probabilities are 152 for males and 72 for females, that is, the probability of males dying between these ages is more than two times that of females (UNSD, 2015).

In the developed countries adult mortality is much higher for males than females because of biological factors and behavioural differences (Rogers et al, 2010). In general, smoking tobacco and alcohol abuse are more common among men: men also have more road accidents, engage in more dangerous occupations and are more prone to suicide. In addition, men are more reluctant to have regular health check-ups and tend to delay visits to the doctor when disease symptoms surface. In the developed countries more than half of the excess mortality of males is due to two causes: coronary heart diseases and cancer of the lungs, both of which are closely related to lifestyle (Rowland, 2003)[12].

In the developing countries, although male adult mortality rates are higher than female rates, the difference tends to be much smaller than in the developed countries. One reason appears to be gender inequality (Medalia and Chang, 2011). This may affect females' access to health care services and, therefore, counterbalance their biological and behavioural advantages over males. The position of women in the family and in society may also imply living conditions that reduce their life expectancy[13]. A low educational level may also be an important factor in reducing female life expectancy.

In Myanmar the difference between male and female adult mortality rates is not as high as in the developed countries, but it is much higher than in the developing countries, and also higher than in the Southeast Asia region. Census data does not provide suitable information to analyse this issue. Yet, some hypotheses for further research can be discussed.

The large difference in Myanmar does not seem to be related to socioeconomic development. According to the Human Development Index (UNDP, 2014), Myanmar is ranked 150 among 187 countries in terms of development. During recent decades Myanmar's index value has improved: from 0.328 in 1980 to 0.524 in 2013, but it is still quite low (the range in 2013 was from 0.337 to 0.944). The GDP per capita is only US$ 3,998. Therefore, the large gap between male and female adult mortality is not consistent with the low degree of development of the country.

[12] Research has reported that female hormones provide protection from coronary artery-ischemic heart disease until menopause, resulting in a ten year delay, compared with males, in the onset of heightened deaths from this cause (Rowland, 2003).

[13] Several studies show that women in the paid labour force have longer life expectancies than housewives. This difference operates through several pathways. Women's participation in the paid labour force is an indication of their higher educational level, income and an overall lifestyle conducive to better health, and therefore, lower mortality. An interesting explanation is that, spending time outside the home reduces women's exposure to the harmful indoor air pollution omitted from burning biomass fuel, which contributes to women's excess morbidity and mortality in the developing countries (Murray and Lopez, 2002).

Gender inequality is also a factor that may increase the difference in male and female adult mortality. Again, the large difference observed in adult mortality between sexes in Myanmar does not appear to be the result of a low level of gender inequality. According to the Gender Inequality Index (UNDP, 2014), Myanmar ranked 83rd among 187 countries with an index value of 0.430 (values range from 0.021 to 0.709)[14]. Consequently, the large difference between men and women in adult mortality does not appear to be the result of low gender inequalities.

A possible hypothesis is that all those behavioural factors that explain differences in mortality between males and females in the developed countries are exacerbated in Myanmar. In other words, male behaviours that are associated with high mortality risks seem to be deep-rooted in the Myanmar socio-cultural context, more so than in other countries. Some examples of risky behaviours among males in Myanmar are tobacco and alcohol use, deficient self-health care habits and practices, and poor responses to disease symptoms. Motorcycle and motor vehicle accidents are also high in Myanmar, and most of them involve men. Dangerous occupations are another component of an unsafe way of life. Women have adult mortality levels consistent with the degree of the socioeconomic development of the country, but males, plausibly because of behavioural factors, have a higher than expected mortality level. Once again, this issue deserves a further study. Censuses cannot provide the necessary data. An in-depth study is likely to provide the information to test this hypothesis.

Another important piece of information observed in Table 3.3 is the urban/rural difference. Contrary to what may be expected, life expectancy in urban and in rural areas are quite similar. In most countries mortality rates in urban areas are lower than in rural areas, resulting in life expectancy being higher in urban than in rural areas. In the case of Myanmar, infant, child and under-five mortality rates are lower in urban than in rural areas (see Table 2.4 and Figure 2.4 in Chapter 2). However, adults experience fairly equal life expectancies in urban and rural areas. In fact, according to the life expectancy at different ages shown in Table 3.3, adult mortality appears to be higher in urban than in rural areas. This is particularly the case among males. Differences among women are smaller, almost marginal. Regarding the probability of dying between ages 15 and 59, which is the conventional adult mortality indicator, mortality levels in urban areas are higher than in rural areas for males, but not for females.

In this analysis the male-female differences in mortality levels appears again. Census data provides few possibilities to explore these differences. The only characteristics of deceased persons provided by the Census are age and sex. Probable explanations are likely to be related to differences in lifestyle and in health-seeking behaviour. It is possible that males in rural areas are less likely to adopt unsafe behaviours and have a quieter and more peaceful life style. This description of life in rural areas cannot be evaluated in this thematic report, but it is a hypothesis that is worth pursuing in further research.

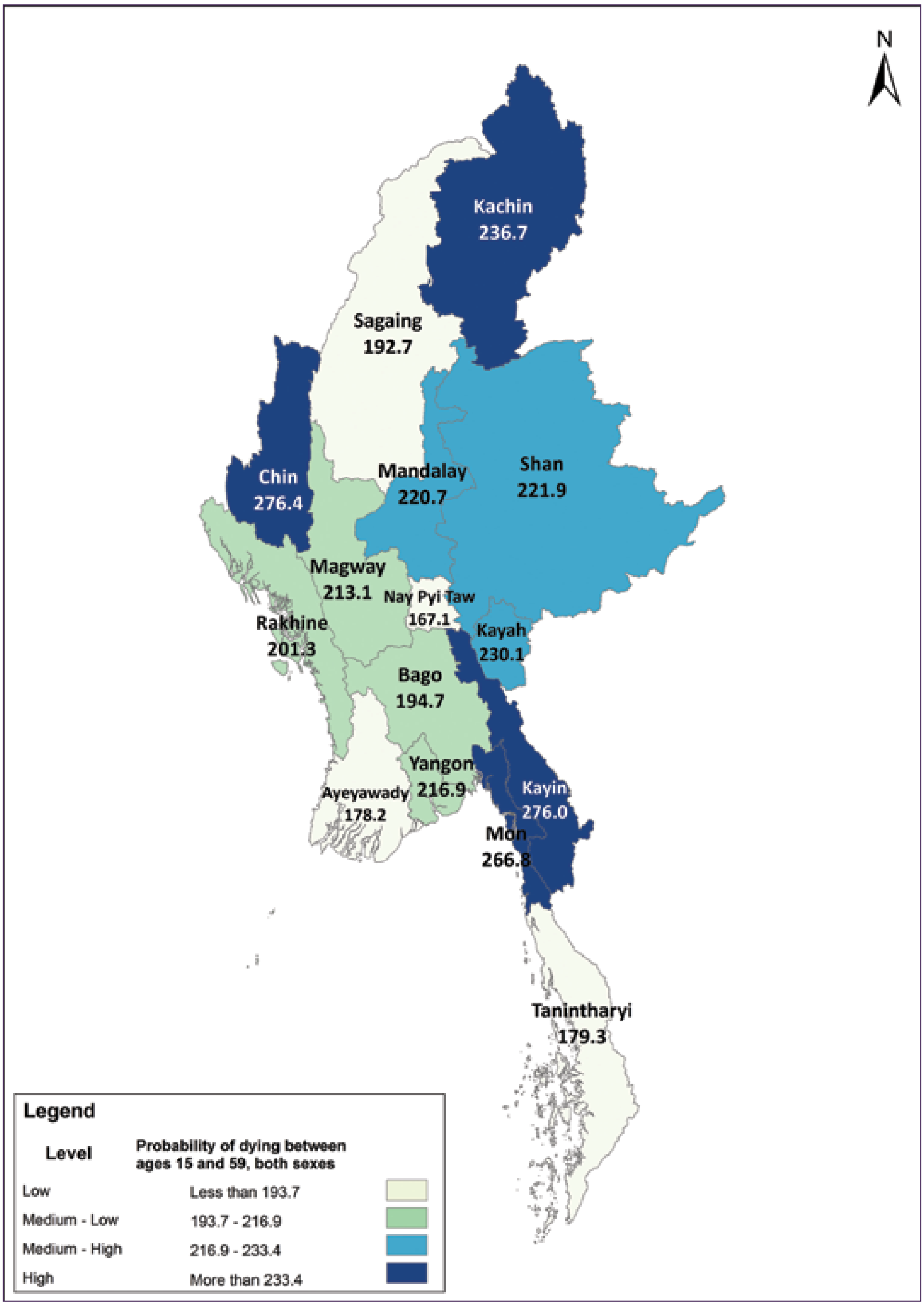
[14] The Gender Inequality Index measures gender inequalities in three important aspects of human development: reproductive health, measured by the maternal mortality ratio and adolescent birth rates; empowerment, measured by the proportion of parliamentary seats occupied by females and proportion of adult females and males aged 25 and over with at least some secondary education; and economic status, expressed as labour market participation and measured by labour force participation rates of the female and male populations aged 15 and over.

There could be a second explanation of these differences, which has to do with the classification of rural and urban areas. It is possible that areas classified as “urban” still have rural characteristics, which may have resulted in this sex pattern of adult mortality. An in-depth study of the Census data would be necessary to clarify this issue, but such an analysis is beyond the scope of this thematic report. However, the 2014 Census Thematic Report on Migration and Urbanization (Department of Population, 2016) includes some analyses on this topic.

Table 3.3 also shows differences between States/Regions. Life expectancy at birth for both sexes ranges from 60.5 years in Chin to 67.7 years in Nay Pyi Taw, a difference of more than seven years. In all States/Regions, female life expectancy at birth is higher than that of males but the differences between the States/Regions range from 6.1 years in Chin to 11.1 in Kayah. Similar patterns can be observed in respect to life expectancy at selected ages. For adult mortality, the lowest probability of dying between the ages of 15 and 59 years is also in Nay Pyi Taw (167.0) while the highest is in Chin (276.4). The pattern at the State/Region level is illustrated in the Map at Figure 3.2.

Figure 3.2

Probability of dying between ages 15 and 59 by State/Region, 2012



As for other analyses, the 2014 Census data contains little information to analyse the differences in adult mortality among States/Regions. Yet, a simple approach would be to analyse the relationships between adult mortality rates and selected characteristics of the States/Regions that can be considered indicators of the development or under-development of the State/Region. Four variables for the States/Regions were considered: percentage of the rural population; percentage of households with electricity; percentage of households with a landline, mobile phone or internet at home; and percentage of households with a motor vehicle. The correlation coefficient between each variable and the probability of dying between ages 15 and 59 were calculated[15]. The values of the coefficients were very low and none of them were statistically significant[16] (the significance levels were 0.04; -0.12; -0.23; and 0.09, respectively). The same recommendation mentioned above can be proposed here: in-depth health surveys and qualitative studies are the most adequate strategies to further analyse an explanation of adult mortality.

In the measurement and analysis of adult mortality it is important to bear in mind the under-enumeration of certain populations in three States: Kachin, Kayin, and Rakhine. There is little doubt that this has had an effect on the measurement of adult mortality in these States; but it is difficult to assess the extent of this effect. As indicated earlier, a complete and accurate assessment would be a major undertaking and this is not possible at this early stage of analysis. However, as in the case of early-age mortality, a simple observation of the data suggests that the effect of the under-enumeration of the population in these three States appears to be negligible. A first indication is that life expectancies at birth and at different ages are within possible ranges. In general, values are similar to those calculated at the Union level. Regarding the indicator of adult mortality, probabilities of dying between the ages of 15 and 59 are lowest in Nay Pyi Taw and highest in Chin and Kayin, but still within a reasonable range (see Table 3.3).

There are other indicators that suggest that early-age mortality indicators in these three States are not significantly affected by under-enumeration. The most important is the percentage under-enumeration of deaths (see Appendix D, Table D2). The percentages in Kayin and Rakhine States are, in general, higher than those observed at the Union level, but still within a reasonable range. Another important indicator of the consistency of adult mortality measures in these three States is the age composition of mortality, adjusted and unadjusted. In both cases the compositions follow the national pattern, which corresponds to the North Model (see life tables in Appendix E). These indicators for Kachin, Kayin, and Rakhine are consistent with those measured at the Union level. However further analyses would be necessary to assess the exact effect of under-enumeration on adult mortality levels.

[15] This coefficient varies between -1.0 and +1.0. A coefficient of -1.0 indicates a perfect inverse linear relationship, that is, too low values of one variable correspond only to high values of the other and vice versa. A coefficient of +1.0 signifies a perfect positive linear relationship, that is, too high values of one variable correspond only to high values of the other and vice versa. A relationship of 0.0 is a sign of an absence of a relationship

[16] Another feature of a correlation coefficient is its “statistical significance”. This concept refers to whether or not a correlation is the result of random factors. This depends on two aspects: the magnitude of the correlation and the sample size or number of cases. A low coefficient might be significant if the number of cases is large, but a comparatively high coefficient might not be significant if the number of cases is small. Statistical significance is tested by using probabilistic distributions that indicate the probability at which a correlation is significant considering its level and number of cases.

Chapter 4. Early-age mortality differentials

In the previous two chapters, sex, urban/rural and State/Region differences in early-age and adult mortality were analysed. Differences, or "differentials", are also present among groups or segments of the population that are shaped by socioeconomic, cultural and demographic diversities. The purpose of this chapter is to analyse some of these differentials. If the population can be meaningfully divided into subgroups, and if the experience of each subgroup in respect to mortality can be measured separately and the results compared, additional information can be generated, which would be useful in the demographic interpretation of mortality.

Only early-age mortality differentials are considered. Infant, child and under-five mortality rates were estimated using the same Census data and methodology previously used (children ever born and deaths of children by age of women using the Palloni-Heligman variant of the Brass method). Significant adult mortality differentials are not possible to study with the 2014 Census data since, as mentioned earlier, only age and sex were captured among the deceased population. Characteristics of the household where the deceased person lived could be examined. The problem, however, is that indirect calculation of adult mortality rates in the groups established by household variables raises its own complications that are difficult, or even impossible to resolve, such as the small number of cases (deaths) in some categories, and issues with the assumptions on which the method is based.

The following variables regarding infant, child and under-five mortality were considered:

(1) characteristics of the mother: mother's literacy status, mother´s educational level attainment, mother`s parity;
(2) household's access to water and sanitation facilities: drinking water in the household, type of toilet in the household;
(3) household amenities: availability of electricity in the household, availability of modern communication devices in the household;
(4) household composition: number of adult women (aged 18 and over) living in the household, number of children (aged less than 10) living in the household; and
(5) socioeconomic status of the household: literacy of the head of the household, and educational level attained by the head of the household.

Table 4.1 presents a summary of the three mortality differentials, while Figure 4.1 illustrates the early-age mortality differentials, in respect to each of these variables.

Table 4.1

Infant, child and under-five mortality differentials for selected variables, 2014 Census

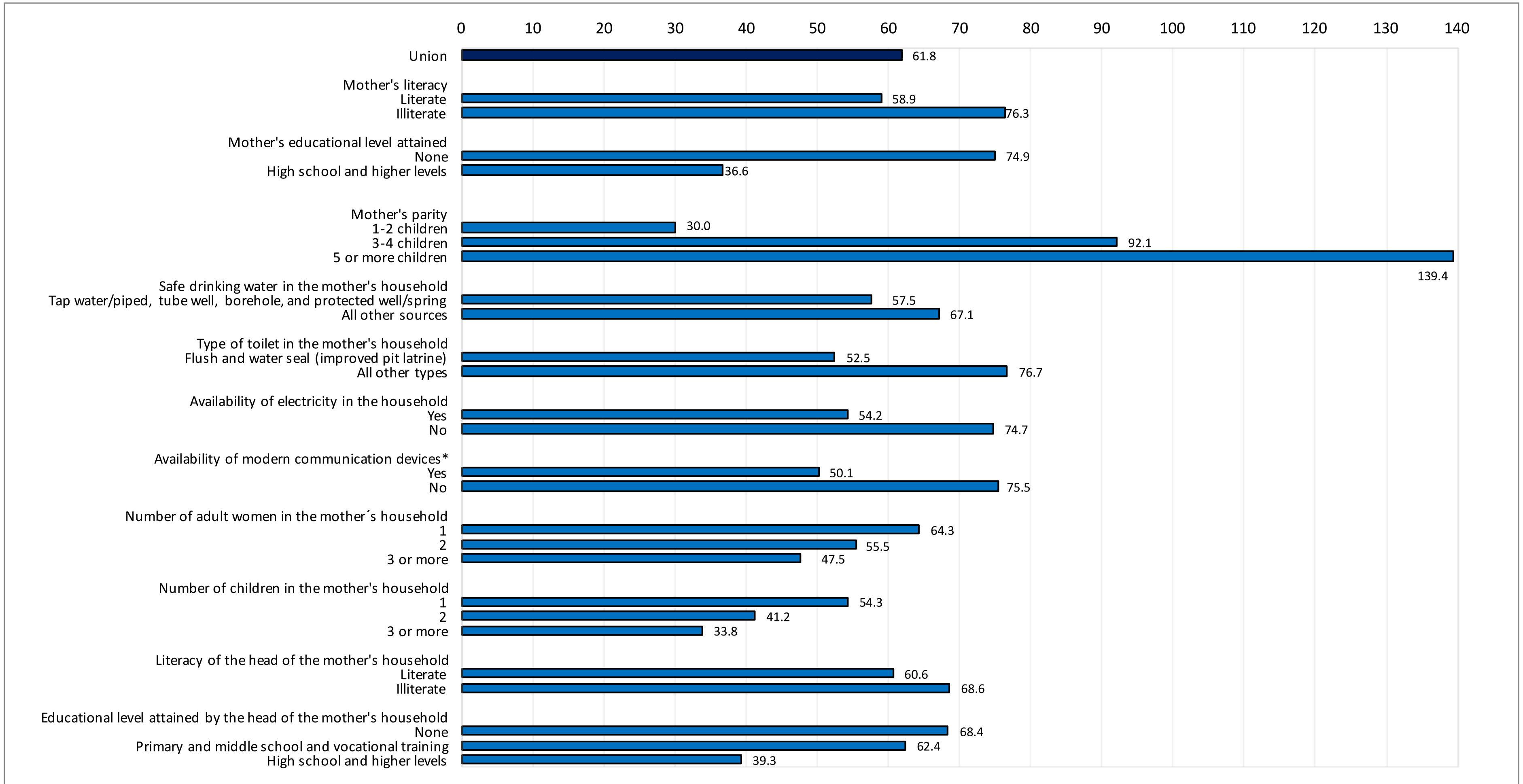
Differentials	Infant mortality	Child mortality	Under-five mortality
Union	61.8	10.0	71.8
Mother's literacy			
Literate	58.9	9.3	68.2
Illiterate	76.3	14.2	90.5
Mother's educational level attained			
None	74.9	13.9	88.8
Primary and middle school and vocational training	62.6	10.2	72.8
High school and higher levels	36.6	4.5	41.1
Mother's parity			
1-2 children	30.0	3.5	33.5
3-4 children	92.1	19.4	111.5
5 or more children	139.4	38.4	177.8
Safe drinking water in the mother's household			
Tap water/piped, tube well, borehole, and protected well/spring	57.5	9.0	66.5
All other sources	67.1	11.5	78.6
Type of toilet in the mother's household			
Flush and water seal (improved pit latrine)	52.5	7.7	60.2
All other types	76.7	14.4	91.1
Availability of electricity in the household			
Yes	54.2	9.9	64.1
No	74.7	16.3	91.0
Availability of modern communication devices*			
Yes	50.1	6.7	56.8
No	75.5	15.0	90.5
Number of adult women in the mother´s household			
1	64.3	10.8	75.1
2	55.5	8.4	63.9
3 or more	47.5	6.7	54.2
Number of children in the mother's household			
1	54.3	8.1	62.4
2	41.2	5.4	46.6
3 or more	33.8	4.1	37.9
Literacy of the head of the mother's household			
Literate	60.6	9.8	70.4
Illiterate	68.6	12.0	80.6
Educational level attained by the head of the mother's household			
None	68.4	11.9	80.3
Primary and middle school and vocational training	62.4	10.2	72.6
High school and higher levels	39.3	5.0	44.3

* Includes landline phone, mobile phone and internet at home.

Source: Calculated from special tabulations from the 2014 Census.

Figure 4.1

Infant mortality rate by selected differentials, 2014 Census



*Includes landline, mobile phone and internet at home.

It is observed that all the variables show important differences in infant, child and under-five mortality in respect to the categories in which these variables fall. The most salient differential is parity, that is, the number of times that a woman has given birth. Children of women with higher parities have higher probabilities of dying in early childhood than children of women with lower parities. The probability of dying before his/her fifth birthday of a child whose mother has given birth five or more times, is more than five times higher than the probability corresponding to a child whose mother has given birth to one or two children. Even the probability of a child dying whose mother has given birth to three or four children is more than three times higher than a child whose mother has given birth to just one or two children. This data clearly shows the effect of fertility on infant and child mortality.

This effect has been systematically demonstrated, especially through examination of data from the Demographic and Health Surveys. These surveys provided sound evidence supporting the proposition that pregnancies that occur too early, too late or too frequently have strong effects on under-five mortality, especially on infant mortality (Hobcraft, 1992; Palloni and Rafalimanana, 1997). Some of the mechanisms underlying this relationship are considered to be maternal depletion, child competition for maternal care, household resources, lactation, and crowding. Their role has not been completely explained, but studies in a number of countries with diverse contexts have shown a strong relationship between a mother's parity (including timing and frequency) and early-age mortality.

Mother's education differentials are as expected. Illiteracy and low education levels of mothers are associated with high mortality of infants and children. For example, children of mothers with no education have more than double the mortality rate than children of mothers with high school or higher education. This is an important differential because it is related to the capacity of women to raise healthy children which is, in turn, the result of their capability to use health facilities and modern medicines; their knowledge of good practices to maintain their own and their children's health; and the rejection of harmful traditional practices related to health and diseases. There are several theoretical frameworks that attempt to explain the causes or determinants of these mortality differentials (see, for example, Masuy-Stroobant, 2006).

Other expected differentials are those related to safe drinking water and type of toilet. These are indicators of both the economic situation of a household and the possible exposure of children to infection. The availability of an improved toilet is somewhat more important than safe water for under-five mortality. The probability of dying for children in households with unimproved toilets is 51 per cent higher than among those children living in households with improved toilets (91.1 compared to 60.2). Children in households with unsafe drinking water have a probability of dying which is only 18 per cent higher than those children in households with safe drinking water (78.6 compared to 66.5).

Much more interesting differentials are those referring to household composition. The number of adult women in the household is an indicator of household complexity and extension. The higher the number of women in a household (higher degree of complexity), the higher the possibilities are for children to survive. In fact, under-five mortality rates for children who live in households with three or more women is 54.2, while for those who live in households with only one woman, the under-five mortality rate is 75.1. It can be proposed, as a hypothetical explanation, that more adult women means more persons are available to take care of, and protect, the child. However, this differential implies a complex and somewhat unexpected relationship. In fact, extended households are usually associated with a traditional family ideology which, in turn, appears to be associated with high fertility levels. If these relationships are true, it follows that parities are likely to be high among women living in extended households. However, as shown above, high parity is directly related to high early-age mortality. Hence, it follows that children of women who live in extended households would likely be high parity children and have less likelihood of survival.

Yet, the data in Table 4.1 shows the opposite: children in households with a large number of women are more likely to survive than children in households with one or two women. The explanation of this differential requires exploring very complex relationships, including other possible intervening variables. The study of these associations goes beyond the scope of this report, but it is worth exploring in the future. Particularly important would be an in-depth analysis of household composition and early-age mortality including interactions with other variables such as fertility, socioeconomic status of the household, level of education of selected members of the household, and mean age of the household. Census data could be particularly suitable for a study of this type. It is important to point out that in spite of being a descriptive and basic analysis, the present results show that household composition is an extremely relevant variable in the analysis of early-age mortality. This is confirmed in some of the following analyses.

The number of children (aged less than 10) in a household was recognized as a differential likely to influence under-five mortality in the same way as parity. More children would result in competition for care and household resources, lactation, and overcrowding. However, the direction of the relationship is the opposite of that expected. The larger the number of children in the household, the better the survival probabilities for children who are under-five. For example, the under-five mortality rate among those who live in households with only one child is 62.4, while for those living in a household with three children or more it is 37.9. The number of children in the household would not be an indicator of fertility, but of household complexity. Large, extended households are likely to have not only a large number of women, but also a larger number of children of different ages that may provide the youngest with a protected and healthy family environment. Again, this result suggests the importance of household composition in early-age mortality and the need to conduct further research in this area.

Availability of electricity in the household and access to communication devices indicate mainly the socioeconomic position of the household. Households in isolated and remote areas probably have limited access to these two facilities because the households may be either poor or located in under-developed areas. When electricity is available, under-five mortality is 64.1, when it is not the rate is 91.0. Similarly, when communication devices are available under-five mortality is 56.8, while when communication facilities are not available, the rate is 90.5.

Finally, education of the head of the household is an indicator of socioeconomic status, and it mainly has the same implications as female education. Households with literate and educated heads are more likely to access health care and modern medicines than households that are headed by persons who are illiterate or have little education. Under-five mortality rates in households headed by persons with high school education and above is 44.3, while in households whose heads have no education the rate is 80.3.

In addition to the expected relationships between under-five mortality and variables such as educational level and household sanitation, this analysis has also shown the significance of fertility and the structure of the household. Fertility, in terms of a mother´s parity, is the most important differentiator of under-five mortality. This result suggests the importance of family planning as a major component of any policy directed at reducing infant and child mortality. Also of relevance is the role of household composition, a result that suggests that not only health interventions are relevant for reducing early-age mortality but that social and cultural factors also play a major role.

Chapter 5. Spatial distribution analysis of under-five mortality

Although under-five mortality indicators were presented by States/Regions in Chapter 2 (Table 2.4), it is interesting to expand the spatial analysis using two approaches. First, the mapping of the level of early-age mortality by Township and, second, a regression analysis between mortality and selected socio-demographic variables measured at the Township level.

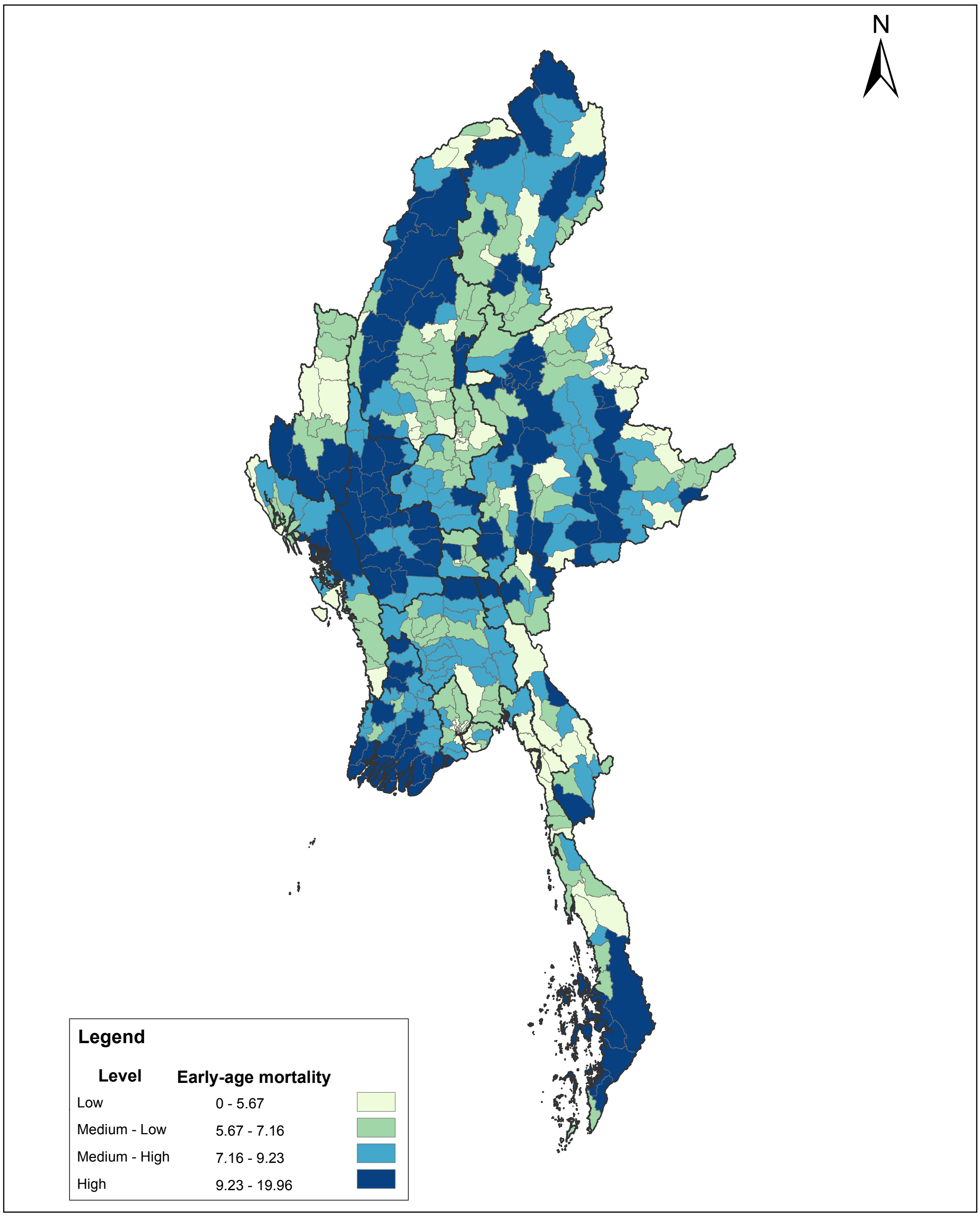
For this analysis, early-age mortality is measured in a direct way. Brass-type methods to estimate infant and child mortality do not produce reliable results for small areas. Therefore, the percentage of children that died among those who were ever born to women aged 20-34 years was used for this analysis as an indicator of early-age mortality. The disaggregation into infant and child mortality is not possible here because the age at which a child died is not known. This is a very crude measure of early-age mortality, but adequate for this type of analysis since it captures relatively well the mortality differences between Townships. It is important to point out that this analysis assumes that the extent of reporting of children ever born and non-surviving is similar in all Townships. This assumption was kept in mind during this analysis. Townships in Districts in the States of Kachin, Kayin and Rakhine in which there was extensive under-enumeration in the Census were not included in this analysis. The impact of this in the results of this exercise is not possible to assess but, considering previous analysis, it seems that it would have a negligible effect.

Figure 5.1 shows the distribution of early-age mortality by Townships. The values of the variable were divided into four quartile groups. These measures divide the variable into four numerically equal groups, each one including 25 per cent of the Townships. It is important to note that there are two clear geographical clusters of Townships with medium-high and high early-age mortality. The first follows the Ayeyawady River, starting in the northern part of the country and descending south to the delta. The second cluster is in the north-central part of the country and descends towards the first cluster. There are also smaller clusters of low early-age mortality in border areas. The Census does not provide information to study this specific spatial distribution of early-age mortality, and an analysis of this type goes beyond the purpose of this thematic report. It would be important, however, to use this information to conduct a study including environmental and geopolitical characteristics of the States/Regions.

While the objective of mapping early-age mortality is to determine where the Townships with the highest and lowest mortality are located, the objective of the regression analysis is to explain "spatial variations" in early-age mortality between the Townships. In statistical terms, this analysis provides the percentage contribution of a set of variables, called independent variables, to the variance of a dependent variable.

Figure 5.1

Early-age mortality* by Township, 2014 Census



* Early-age mortality is defined in this instance as the percentage of children that died among those who were ever born to women aged 20-34.

There are, however, two important clarifications to make. Firstly, regression analysis does not show causal relationships between variables. For example, it is not correct to conclude from a regression analysis that illiteracy of mothers is the cause of early-age mortality. Both variables are related in the sense that high levels of early-age mortality are associated with high levels of illiteracy, but this connection cannot be interpreted as a causal relationship.

Secondly, the results of an aggregate level regression analysis cannot be interpreted as relationships at the individual level. For example, areas with high female illiteracy rates usually exhibit higher early-age mortality rates than areas with lower female illiteracy rates. However, from this relationship it is not possible to conclude that children born to women who are illiterate are more likely to die than children born to women who are literate. This is probably correct, as was demonstrated in the differential analysis (see Table 5.1 and Figure 4.1), but a relationship between two aggregate level variables does not necessarily imply that the relationship also takes place among individuals[17]. It is important, however, to clarify that an aggregate relationship depends on individual relationships and both are linked. Every individual relationship has an aggregate counterpart. However it is important to exercise extreme caution in interpreting results when using correlation and regression at the aggregate level.

Table 5.1 shows the set of independent variables selected for this analysis. It was considered that all these variables may contribute to the explanation of the differences in early-age mortality between Townships. Their possible influence in early-age mortality is quite clear. Some of them were even included in the analysis of differentials. Before conducting the regression analysis it is interesting to examine some of the simple relationships. The correlations between early-age mortality and the set of twelve socio-demographic indicators were calculated[18]. The results are presented in Table 5.1.

[17] The first to call attention to the ecological fallacy was W S Robinson (1950) in a classic paper (see References).

[18] The magnitude of the relationships is measured by the Pearson correlation coefficient. This coefficient varies between -1.0 and +1.0. A coefficient of -1.0 indicates a perfect inverse linear relationship, that is, too low values of one variable correspond only to high values of the other and vice versa. A coefficient of +1.0 signifies a perfect positive linear relationship, that is, too high values of one variable correspond only to high values of the other and vice versa. A relationship of 0.0 is a sign of an absence of a relationship. It is quite infrequent to obtain perfect relationships and a coefficient over ± 0.60 is usually considered as high, one from ± 0.30 to ± 0.59 as medium and one from ± 0.10 to ± 0.29 as low. In general coefficients around ± 0.90 are considered very high and those under ± 0.09 as very low.

Table 5.1

Correlation coefficients between early-age mortality* and selected socio-demographic indicators

Variables	Correlation coefficient	Statistical significance
Child-woman ratio	0.43	0.000
Percentage of the female population that are illiterate	0.11	0.026
Percentage of the female population with primary education and over	-0.13	0.008
Percentage of the population living in urban areas	-0.52	0.000
Mean number of adults per household	-0.52	0.000
Percentage of the population that is not part of the nuclear household	-0.56	0.000
Percentage of the population living in housing units with earth (soil) floors	-0.10	0.036
Percentage of the population with access to electricity	-0.61	0.000
Percentage of the population with access to safe drinking water	-0.38	0.000
Percentage of the population with access to modern communication devices	-0.67	0.000
Percentage of the population with access to motor vehicles	-0.13	0.011
Percentage of the population with access to improved toilets	-0.34	0.000

* Early-age mortality is defined as the percentage of children that died among those who were ever born to women aged 20-34.

Source: Calculated from special tabulations from the 2014 Census.

All the variables are significantly related to the dependent variable, at least with an error smaller than 4 per cent[19]. The magnitude of the relationship, although statistically significant, is low in many cases. According to the magnitude of the coefficients, the most important variables in the explanation of differences in early-age mortality between Townships are: the percentage of the population with access to modern communication devices (-0.67); followed by the percentage of the population with access to electricity (-0.61). The percentage of the population that is not part of the nuclear component of households (-0.56); the mean number of adults per household (-0.52); and the percentage of the population living in urban areas (-0.52) are also variables that exhibit a high correlation with the dependent variable. On the other hand, although statistically significant, some variables are only weakly related: the percentage of the female population that are illiterate (0.11); the percentage of the female population with primary education and over (-0.13); the percentage of housing units with earth (soil) floor (-0.10); and the percentage of the population with access to motor vehicles (-0.13). Note that indicators of the educational level of the female population are weakly related to early-age mortality, when considering that a mother´s education is one of the most ubiquitous determinants of early-age mortality. It is important to remember, however, that this is not an individual level relationship but (as with all the other variables) an indicator that refers to aggregate characteristics.

[19] Another feature of a correlation coefficient is its statistical significance. This concept refers to whether or not a correlation is the result of random factors. It depends on two aspects: the magnitude of the correlation and the sample size or number of cases. A low coefficient might be significant if the number of cases is large, but a comparatively high coefficient might not be significant if the number of cases is small. For example, if two variables have been measured at the region level, a correlation of 0.40 may not be significant if the number of regions is only six. However, if the same two variables are measured at a small area level, and there are 600 small areas, a coefficient of 0.40 will certainly be significant. Statistical significance is tested by using probabilistic distributions that indicate the probability at which a correlation is significant considering its level and number of cases. For example a given correlation may be significant at a 20 per cent level. This means that there is a 20 per cent chance that the coefficient is the result of random factors. Usually, the limit to accept a correlation as significant is 1 per cent or 5 per cent. It is important to point out that if a coefficient is not significant at an acceptable level, no matter its value, it cannot be considered as indicative of a relationship. For this analysis, and for the next one, the program SPSS was used. The outputs of the analyses provide the statistical significance of the coefficients.

Table 5.1 describes the “gross” effects of the variation on each independent variable on the variations of the dependent variable. What is important to analyse is the “net” or “partial” effect of each variable on early-age mortality. For example, it could be that early-age mortality is related to the percentage of the population living in urban areas. However, the reason for this relationship could be the fact that urban areas have better sanitary conditions than rural areas. Therefore, it is expected that the percentage of the population with access to safe drinking water and improved sanitation is related to the percentage of the population living in urban areas. If the effect of these two variables is controlled (or maintained/constant), and the relationship between the percentage urban and early-age mortality disappears, then the effect of this variable is spurious, that is, there is no direct effect of the percentage urban in early-age mortality; its only effect occurs through access to safe drinking water and improved sanitation.

Therefore, what is necessary is to investigate the relationship between one independent variable and the dependent variable after controlling the relationships of other variables in the analysis. In other words, the purpose is to analyse the relative importance of a given independent variable in the explanation of the dependent variable when other variables are introduced as controls. The statistical method to conduct this analysis is “multiple regression.”

It is tempting to introduce all the variables in the regression equation. Nevertheless there are several statistical problems when too many interrelated independent variables are considered. This is not a place to explain these issues, but they may distort the result or, at least, make interpretations very difficult. For this reason it is necessary to eliminate some independent variables, in particular those that do not contribute to the explanation of the dependent variable because their partial correlations are too small or, in other words, their net effect is too small. There are several approaches to do this.

For this analysis a “stepwise regression” strategy was utilized[20]. An initial regression equation is established between one independent variable and the dependent variable. This relationship is the one that has the highest probability of not being caused by random factors (statistically significant). Having established this initial bi-variate regression equation, the method introduces one by one the independent variables not already included in the equation. The selection is done according to the magnitude of the probability that the relationship of the independent with the dependent variable is not caused by random factors. The variable stays if such a probability remains statistically significant. Variables already in the equation are removed if their probability of a non-random relationship with the dependent variable becomes sufficiently low when a new variable is introduced. The process terminates when no more variables are eligible for inclusion or removal. Table 5.2 shows the results of the application of this technique to the variables under analysis.

[20] For all the correlation and regression analysis the statistical package SPSS was utilized (version 22).

Table 5.2

Results of a stepwise regression analysis for early-age mortality* and selected socio-demographic indicators

Variables	Regression coefficients	Standard error	Statistical significance	Change when the variable is entered into the regression equation		
				R	R^2	Standard error
Constant	16.679	1.201	0.000			
Percentage of the population with access to modern communication devices	-0.046	0.009	0.000	0.667	0.445	2.17455
Mean number of adults per household	-2.829	0.420	0.000	0.708	0.501	2.06494
Child-woman ratio	2.186	0.980	0.026	0.713	0.508	2.05347
Percentage of the population with access to electricity	-0.014	0.007	0.041	0.716	0.513	2.04551
All the variables in the equation				0.732	0.535	2.01796

* Early-age mortality is defined as the percentage of children that died among those who were ever born to women aged 20-34.

Source: Calculated from special tabulations from the 2014 Census.

There are four variables that remained in the equation. This means that these variables have significant net or partial effects on the level of early-age mortality in the Townships. The independent variables that are not included in the equation have spurious relationships with early-age mortality, that is, their net effect is not significant. The values presented in Table 5.2 are explained and interpreted below.

The regression coefficients indicate the average change in the mean of the values of the dependent variable if the respective independent variable changes by one unit. For example, if the percentage of the population with access to modern communication devices increases by one unit, that is by 1 per cent, then the average early-age mortality mean will decline by 0.046 per cent (as indicated by the percentage of children of women aged 20-34 who die), after controlling all the other variables. If the mean number of adults per household increases by one unit, that is, by one more adult, early-age mortality will have an average decrease of 2.8 per cent, after controlling all the other variables. The other two coefficients have the same interpretation.

The standard error indicates the average difference between the observed values of the variable and the values obtained by using the equation. It can be said that they are measures of the error in the prediction that would be made if the regression equation is used to forecast early-age mortality. The statistical significance is the probability that the regression coefficient is determined by random factors. As noted in Table 5.2, all of the coefficients have very low probabilities of being randomly caused. The highest correspond to the last variable in the equation, which is 4.1 per cent.

The multiple regression coefficients, symbolized as R, give a more direct interpretation. They indicate the combined effect of all the independent variables on the variations of early-age mortality rates. Its interpretation is the same as the simple correlation coefficient, except that R cannot have negative values. In Table 5.2, the value of R corresponding to the effect of the four variables in the equation is 0.716, which indicates a medium high joint effect of the four variables in the equation. More useful to interpret the results of the analysis is the coefficient of determination, or R^2. Its value, multiplied by 100, indicates the percentage of the variation in early-age mortality among Townships explained by the joint variation of all the independent variables. Thus, the four independent variables explain 51.3 per cent of the variation of early-age mortality among the Townships.

The values of R and R^2 given in Table 5.2 corresponding to the independent variables indicate the contribution of the respective variables to the explanation of the dependent variable. The R corresponding to the first variable that enters into the regression equation (percentage of the population with access to modern communication devices) is 0.667. This value is equal to the Pearson correlation coefficient. When the second variable is entered (mean number of adults per household), the value of R increases to 0.708. The inclusion of the third variable (child-woman ratio) increases R to 0.713 and the fourth and last variable (percentage of the population in households with access to electricity) increases R to 0.716. The same interpretation is valid for R^2. The contribution of each independent variable to the total explanation may seem small, but it is statistically significant and, what is also important, it is a net effect.

As suggested by the analysis of R and R^2, the most important variable in this analysis is the percentage of the population with access to modern communication devices. This variable can be considered as an indicator of the degree of development of Townships, their level of poverty and capacity of food security. It may also be an indicator of Townships' under-development and isolation. This result is not surprising. It is important to recall that this variable was also included in the differential analyses and found to be related to under-five mortality. In other words, this variable affects early-age mortality both at the individual and at the aggregate level.

The second most important variable in the regression analysis is the mean number of adults per household. This variable is an indicator of household complexity or the extension of households which, in turn, is likely to affect the attention that an infant or child receives from their immediate surroundings. Hence, the higher the mean number of adults in households among Townships, the lower the early-age mortality. This relationship is not surprising either. As may be recalled from the differential analysis, the number of women in the household, which is also an indicator of household complexity, was related to under-five mortality. In other words, this result confirms the importance of household composition in the survival of infants and children.

This analysis, however, provides another piece of evidence. The mean number of adults per household and early-age mortality are significantly related even when fertility (measured as child-woman ratio) is controlled. Although these are relationships at the aggregate level, they strongly suggest that fertility does not mediate in the relationship between household composition and early-age mortality. Moreover, this relationship is significant even when some indicators of the levels of development of Townships are controlled (percentage of the population with modern communication devices and percentage of the population with electricity). To offer possible explanations of these intricate relationships implies long and complex tentative accounts that are unlikely to contribute significantly to the purposes of this thematic report. It is important to highlight that this analysis has drawn attention to the importance of household composition in the analysis of early-age mortality in Myanmar.

The child-woman ratio was the third variable entered in the regression equation. This is an indicator of the level of fertility in the Townships. As may be recalled, women's parity, also an indicator of fertility, was the main factor in the early-age mortality differential. Therefore, fertility has an effect on early-age mortality at the individual as well as at the aggregate level. In high fertility Townships there are larger numbers of high parity children who have lower survival probabilities. This results in high early-age mortality.

The last variable entered in the regression equation was the percentage of the population with access to electricity. The effect of this variable on early-age mortality appears to be similar to the availability of communication devices. It indicates both the level of socioeconomic development of the Township and its level of isolation and under-development.

As noted in Table 5.2, the set of four independent variables explain 51.3 per cent of the variation of early-age mortality. Although this is important, there is still a 48.7 per cent non-explained variation, which is, not explained by variables that were considered in this study. Evidently, many variables that are relevant in the explanation of early-age mortality were not considered because data were not collected in the 2014 Census. These other variables might be those that are indicators of availability and access to health services and health infrastructure, the physical environment of Townships, and refined indicators of the degree of development of Townships. If such variables were taken into consideration, the percentage of explanation provided by the variables included here would be satisfactory. The analysis indicates that these variables have an important effect in the variations of early-age mortality between Townships regardless of the fact that other variables could also be more important.

The percentage of illiterate women and of women with only primary or no education was not entered in the regression equation. In addition their simple correlations with early-age mortality are quite weak. The same occurs with variables that are indicators of households' sanitary conditions. Percentages of the population with access to improved toilet facilities and with access to improved drinking water are not in the equation and their simple relationships with early-age mortality are moderate. When analysed as differentials, these two variables were clearly related to under-five mortality. The percentage of the population in housing units with floors made from earth (soil) is also weakly related to early-age mortality; moreover, the relationship is in the opposite direction: the higher the percentage of the population in housing units with earth (soil) floors, the lower the level of early-age mortality. It would be important to analyse the reasons why these variables relate differently at the aggregate and at the individual level. Exploring this issue would demand additional analysis that goes beyond the scope of this thematic report.

Chapter 6. Policy implications

According to the 2014 Census, mortality in Myanmar is high compared with regional and global levels. Therefore, the main implication is the need to expand the provision of health information, services and interventions both spatially and socially. A spatial expansion would mean extending health services to reach the entire population, even those living in the most remote and hard-to-reach areas. A social expansion would consist of increasing health services to reach all social groups regardless of their socioeconomic position, ethnicity, and level of education. However, there are some issues revealed by the analyses that suggest more precise policy implications.

Early-age mortality which comprises infant and child mortality is very high. It declined rapidly during the 1960s and 1970s, but starting in the early 1980s the decline experienced a deceleration. In recent years, a new increase in the pace of decline is taking place. This trend should be confirmed by additional studies and, above all, their determinants should be identified. It is important to undertake further research to understand the factors that affected the slowing of the rapid decline during the 1960s and 1970s, especially for policy purposes.

An important issue is the substantial sex difference that was found in early-age mortality. The probability of mortality among boys is almost one third higher than that of girls. Male infant mortality rates are universally higher than female rates. Biological factors are usually considered responsible for this differential. Nevertheless, in most cases, child mortality sex differentials tend to disappear or even reverse with an increase in age. In Myanmar, sex differentials in mortality continue in the same direction during child mortality. This is not easy to explain with census data, or even with household survey data.

A possible hypothesis is that in Myanmar culture boys are given more freedom to move in and out of the house and immediate surroundings and even encouraged to do so. On the other hand, girls are more restrained, controlled and encouraged to behave more quietly. As a result, boys could be more prone to accidents and more exposed to diseases. If this hypothesis is true, child sex mortality differences are culturally determined. Health policies, therefore, should be directed to modify some parenting practices. However, first of all, research should be conducted in order to verify the proposed hypothesis and identify specific family practices regarding child security and health, as well as understanding the different household health and security environments for boys and girls. Only after an in-depth study can interventions to improve survival probabilities of both male and female children be designed, such as a national campaign to modify some harmful parenting practices, and provide children with a more secure household environment.

It is important to keep in mind that, as indicated above, the spatial and social expansion of the health system is a major undertaking in Myanmar. The Government acknowledges that intensive efforts are required in order to expedite progress towards improving infant and child health (Department of Health, 2014). In addition, as indicated in Chapter 1 in this report, the developing countries have limited possibilities to achieve infant and child mortality rates similar to those prevailing in the developed countries with conventional medical interventions. Substantial declines are possible not only by increasing the provision of health services and ensuring they are far-reaching, but also by improving the standard of living of the population.

Adult mortality is also quite high. As in many developing countries, several diseases such as malaria and tuberculosis have a major impact on adult mortality. Epidemiological studies in Myanmar are noticeably lacking. Census data cannot provide much information on adult mortality except for level and age-sex structure.

As in most countries life expectancy is higher among females. Myanmar is not an exception, but the difference is substantial (9.2 years). This difference is not the result of the previously mentioned sex difference during early years, but a difference prevailing during adult years. A widely used measure of adult mortality is the probability of dying between ages 15 and 59. In Myanmar this probability among males is double that of females. It is also important to consider this differential in urban and rural areas. In urban areas this probability is 2.8 times higher among males than among females, while in rural areas it is 9.7 per cent higher. Male adult mortality (the probability of dying between the ages of 15 and 59) is higher in urban than in rural areas (351 compared to 265). This is contrary to the experience of most countries where mortality in urban areas is lower than in rural areas. Among women, the differential is as expected: higher in rural than in urban areas (134 compared to 124).

As mentioned before, high mortality among males could be related to life style and health care behaviour differences. It is possible that compared to rural males, urban males tend to adopt more unsafe behaviours related to abuse of alcohol, imprudent motor bike driving and poor health seeking behaviour. There is little doubt that medical and health interventions are important and will have an effect on reducing adult mortality, but also campaigns to modify dangerous behaviours may also be relevant. However, it is important to remember that this is just a hypothesis and substantial information should be collected to understand these issues and propose interventions directed to improve male survival probabilities.

Two substantive analyses were conducted on the subject of under-five mortality: an analysis of selected differentials and a spatial multiple regression analysis. Both have important policy implications.

In the differential analysis, several variables were considered as differentiators of under-five mortality rates. All of them demonstrated important mortality differences among the groups that they defined (see Table 4.1 and Figure 4.1). The most important variable was women's parity: the higher the number of children already born, the lower the probability of survival of the child. In spite of having a low level of fertility, there is still scope to improve infant and child mortality through fertility decline in Myanmar. An important decline, especially in infant mortality, would be achieved if women gave birth to fewer children. The other differentials suggest what has already been discussed: substantial reductions of under-five mortality can be achieved by improving the standard of living of the population (see Table 4.1).

The spatial regression analysis provided a result with important policy implications. This analysis was conducted using Townships as a unit of analysis. The dependent variable was the percentage of children who had died among those who were ever born to women aged 20-34.

Firstly, a map was drawn in order to examine the spatial distribution of early-age mortality (see Figure 5.1). Although substantial variations were found among clusters of Townships with similar mortality rates, it is important to identify the origin of these clusters. The type of analysis required for this purpose goes beyond the scope of this thematic report. Besides, additional information would be necessary for a suitable analysis.

Secondly, twelve variables relating to the characteristics of the population in Townships were prepared. These variables were correlated with the early-age mortality indicator (See Table 5.2). All the correlations were found to be statistically significant, although the magnitude of some of the correlation coefficients was low. After examining the correlations, a multiple regression analysis was conducted. After using a stepwise approach to variable entry into the regression equation, only four out of the twelve variables remained in the regression equation. These variables are the percentage of the population with access to modern communication devices, the mean number of adults per household, the child-woman ratio and the percentage of the population with access to electricity. The most important finding in this analysis is that these four variables explained more than half (51.3 per cent) of the variation in the distribution of early-age mortality rates between Townships.

This is a relatively high proportion of explained variation. Interestingly none of the variables can be considered as indicators of health service provision or health service infrastructure. Two of the variables are indicators of the degree of development of Townships, the other indicates the prevalent household composition, and the fourth variable is an indicator of fertility. It is important that a more equal distribution of early-age mortality rates (and a subsequent overall decline) should be based not only on a vertical expansion of health care, but also in improving the living conditions of the population, in making health care widely accessible, and in better understanding the role of the family in health care. This last indicator deserves more attention in future studies. In areas where large families prevail, children´s survival probabilities appear to be higher than in places where household extension is limited. It is important to remember that in the analysis of differentials, indicators of household extension were also related to early-age mortality. It is important to better understand the mechanism through which this variable improves the survival probabilities of children.

The main policy interventions suggested by the results of the analyses presented in this thematic report can be summarized as follows:

(1) Spatial and social expansion of the health care system so it reaches all areas of the country, regardless of location, and all people, regardless of their socioeconomic status.

(2) Promotion of healthy habits, avoidance of dangerous/risky behaviours, and preventive health care.

(3) Continued and intensified family planning programmes in order to avoid early-age and maternal risks of high parities.

(4) The promotion of good practices within families regarding the upbringing of infants and children.

Taking into consideration that policy interventions should be based on solid information on mortality and its possible determinants, it is also important to summarize the main suggestions for further research proposed in this report:

(1) Analysis of sex differentials in early-age mortality: qualitative studies seem to be the most suitable approach to study this subject.

(2) Identification of the main determinants of adult mortality: this includes an analysis of adult mortality sex differentials. Qualitative studies appear to be the most suitable research strategy.

(3) Analysis of the main determinants of the spatial distribution of early-age mortality: a suitable approach would be to build on the analysis conducted in this thematic report, but include additional variables obtained from administrative statistics.

(4) Analysis of the main differentials and covariates of early-age mortality, in particular those indicators of fertility and family composition: this study can be conducted with data from the 2014 Census, ideally using a multi-level approach that uses aggregate as well as individual level variables.

Chapter 7. Conclusions

The main purpose of a census is to know the number of people living in a given territory. However, censuses also collect diverse information on the characteristics of the population and on vital events that take place among the population. Thus, many modern censuses include questions to estimate mortality. Data used to measure early-age mortality and those to measure adult mortality are collected separately. The former are generally collected with questions referring to women on the number of children ever born and children surviving, and the latter with questions on the members of a household who died during a specified period (usually 12 months) prior to the census.

The mortality data provided by a census are, in general, not as complete and reliable as data obtained with a specialized demographic household survey, but census data on mortality has two advantages. Firstly, there are no sampling concerns, which sometimes may result in serious problems of reliability in survey information. The second advantage is that, although census data on mortality may have some non-sampling errors and other issues, there is sizeable knowledge and experience in the evaluation and adjustment of data on deaths by age and sex to address these problems. Demographic indirect methods can be used to obtain and evaluate under-five and adult mortality indicators. These mortality rates are used to construct the most important mortality analysis instrument: the life table.

Nevertheless it is important to acknowledge that using census data to conduct substantive mortality analyses is limited. For example in the case of adult mortality, only information about the age and sex of the deceased person is collected. However, in spite of this limitation it has been possible to carry out some important analyses presented and discussed in this report. It provides relevant findings, but more in-depth studies are required to unravel the reasons for some of the observed findings.

The main results of the analyses conducted in this thematic report are summarized as follows:

(1) Early-age (infant, child and under-five) and adult mortality rates are still high in Myanmar.
(2) There are substantial mortality differentials in early-age mortality.
(3) There is a high level of adult mortality, much higher than that corresponding to early-age mortality.
(4) Large sex differentials in mortality were observed in both the early-age and the adult population.
(5) Male adult mortality rates in urban areas are higher than those in rural areas; but among females the difference is minimal.
(6) Early-age mortality is unevenly distributed in the Union territory, but some clear clusters can be observed: along the Ayeyawady River, in the central part of the country and in some border areas.
(7) Indicators of the standard of living of the population and the isolation of the place of residence of households are important determinants of infant and child mortality; such relationships were found both at the individual and at the aggregate level.
(8) Fertility was found to be related to early-age mortality both at the individual and at the aggregate level.

(9) Indicators of family composition were found to be important determinants of early-age mortality at the individual and aggregate level.

These topics should be given priority in future mortality studies. However, these results, by themselves, have important policy implications. Some results suggest the expansion of conventional health services and infrastructure to reach marginalized populations, especially those living in hard-to-reach and remote areas. Policies directed to further reduce the fertility rate may also have important effects on under-five mortality. These results also call for unconventional propositions such as considering household composition in the formulation of health policies, as well as the importance of interventions that aim to change behaviours towards more healthy lifestyles, especially among males.

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Glossary of terms and definitions

Age-specific death rate (ASDR): The total number of deaths per year per 1,000 population of a given age or age group.

Brass Growth Balance Equation: A method to assess the completeness of deaths recorded in a census from the question on the number of deaths in a household during the 12 months preceding the census. It is based on the mathematical relationship between the age distribution of deaths and the age distribution of the population.

Children ever born (CEB): Refers to the lifetime fertility experience of women 15 years and above. It is the total number of children a woman has given birth to in her lifetime.

Child mortality ($_4q_1$): The probability of a child dying between their first and fifth birthday.

Child mortality rate: The number of children that die between 1 and 4 years of age divided by the number of children alive at age 1, multiplied by 1,000.

Crude death rate (CDR): The number of deaths that take place in a given year divided by the population in the middle of that year. It is usually multiplied by 1,000.

Early-age mortality: This term is used in this report interchangeably with the term *Under-five mortality* (under-five mortality rate) and refers to all those live births that do not live to exact age five. (Components include neonatal, post neonatal, infant and child mortality). However, only infant, child and under-five mortality indicators are presented in this thematic report.

Infant mortality: Deaths of children before attaining exact age 1.

Infant mortality rate: The number of deaths of infants aged under one year per 1,000 live births (and sometimes referred to as the probability of death from birth to age 1).

Life expectancy: The average number of additional years that a person could expect to live if current mortality levels were to continue for the rest of that person's life.

Life expectancy at birth: 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.

Life table: A tabular display of life expectancy and the probability of dying at each age (or age group) for a given population, according to the age-specific death rates prevailing at that time. The life table gives an organized, complete picture of a population's mortality.

Under-five mortality rate (U5MR): This is an approximation of the probability of dying before the age of five. It is the number of children who die before reaching five years of age (numerator), divided by the total number of live births in a given one-year period (denominator), multiplied by 1,000.

Appendices

Appendix A. Ever born and non-surviving children by sex, by age of women: numbers and sex ratios, Union, urban and rural areas, State/Region, 2014 Census

Five-year age groups	Women	Both sexes		Males		Females		Sex ratio (males/females)	
		Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children
Union									
Total	13,410,743	20,785,758	2,120,284	10,612,795	1,194,705	10,172,963	925,579	104.3	129.1
15 - 19	2,219,179	104,817	5,999	52,138	3,392	52,679	2,607	99.0	130.1
20 - 24	2,113,670	862,139	52,254	437,027	29,884	425,112	22,370	102.8	133.6
25 - 29	2,060,713	2,147,125	151,017	1,091,657	85,961	1,055,468	65,056	103.4	132.1
30 - 34	1,956,452	3,388,000	279,451	1,726,453	158,705	1,661,547	120,746	103.9	131.4
35 - 39	1,816,129	4,303,199	413,787	2,196,561	234,125	2,106,638	179,662	104.3	130.3
40 - 44	1,700,639	4,931,992	557,758	2,523,467	313,523	2,408,525	244,235	104.8	128.4
45 - 49	1,543,961	5,048,486	660,018	2,585,492	369,115	2,462,994	290,903	105.0	126.9
Urban areas									
Total	4,154,309	4,876,039	307,514	2,486,775	178,181	2,389,264	129,333	104.1	137.8
15 – 19	660,456	21,403	825	10,533	466	10,870	359	96.9	129.8
20 – 24	674,869	184,348	7,270	93,354	4,183	90,994	3,087	102.6	135.5
25 – 29	632,938	474,283	20,005	241,315	11,615	232,968	8,390	103.6	138.4
30 – 34	604,466	793,525	38,359	404,372	22,160	389,153	16,199	103.9	136.8
35 – 39	554,192	1,005,360	58,365	512,403	33,782	492,957	24,583	103.9	137.4
40 – 44	535,653	1,174,357	80,663	599,690	46,604	574,667	34,059	104.4	136.8
45 – 49	491,735	1,222,763	102,027	625,108	59,371	597,655	42,656	104.6	139.2
Rural areas									
Total	9,256,434	15,909,719	1,812,770	8,126,020	1,016,524	7,783,699	796,246	104.4	127.7
15 – 19	1,558,723	83,414	5,174	41,605	2,926	41,809	2,248	99.5	130.2
20 – 24	1,438,801	677,791	44,984	343,673	25,701	334,118	19,283	102.9	133.3
25 – 29	1,427,775	1,672,842	131,012	50,342	74,346	822,500	56,666	103.4	131.2
30 – 34	1,351,986	2,594,475	241,092	1,322,081	136,545	1,272,394	104,547	103.9	130.6
35 – 39	1,261,937	3,297,839	355,422	1,684,158	200,343	1,613,681	155,079	104.4	129.2
40 – 44	1,164,986	3,757,635	477,095	1,923,777	266,919	1,833,858	210,176	104.9	127.0
45 – 49	1,052,226	3,825,723	557,991	1,960,384	309,744	1,865,339	248,247	105.1	124.8

Appendix A. **Ever born and non-surviving children by sex, by age of women: numbers and sex ratios, Union, urban and rural areas, State/Region, 2014 Census**

Five-year age groups	Women	Both sexes		Males		Females		Sex ratio (males/females)	
		Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children
Kachin									
Total	364,566	643,269	68,952	329,970	38,477	313,299	30,475	105.3	126.3
15 – 19	69,048	3,443	158	1,790	89	1,653	69	108.3	129.0
20 – 24	59,116	28,473	1,455	14,422	810	14,051	645	102.6	125.6
25 – 29	54,932	69,864	4,220	35,846	2,379	34,018	1,841	105.4	129.2
30 – 34	52,375	110,444	8,575	56,316	4,859	54,128	3,716	104.0	130.8
35 – 39	47,007	133,635	12,915	68,403	7,209	65,232	5,706	104.9	126.3
40 – 44	45,006	155,296	19,292	79,898	10,768	75,398	8,524	106.0	126.3
45 – 49	37,082	142,114	22,337	73,295	12,363	68,819	9,974	106.5	124.0
Kayah									
Total	72,267	141,748	14,427	72,573	8,103	69,175	6,324	104.9	128.1
15 – 19	13,381	658	35	338	17	320	18	105.6	94.4
20 – 24	12,221	6,289	367	3,248	210	3,041	157	106.8	133.8
25 – 29	11,365	15,802	1,045	8,002	578	7,800	467	102.6	123.8
30 – 34	10,584	24,779	1,861	12,762	1,054	12,017	807	106.2	130.6
35 – 39	9,164	29,645	2,661	15,087	1,488	14,558	1,173	103.6	126.9
40 – 44	8,370	32,956	3,820	16,916	2,143	16,040	1,677	105.5	127.8
45 - 49	7,182	31,619	4,638	16,220	2,613	15,399	2,025	105.3	129.0
Kayin									
Total	356,505	702,307	71,180	358,349	39,651	343,958	31,529	104.2	125.8
15 - 19	63,392	3,599	164	1,832	96	1,767	68	103.7	141.2
20 - 24	53,554	27,680	1,448	14,105	819	13,575	629	103.9	130.2
25 - 29	49,974	65,595	4,200	33,434	2,439	32,161	1,761	104.0	138.5
30 - 34	50,194	108,847	8,329	55,502	4,719	53,345	3,610	104.0	130.7
35 - 39	47,952	142,017	12,957	72,767	7,292	69,250	5,665	105.1	128.7
40 - 44	48,373	177,414	20,231	90,261	11,149	87,153	9,082	103.6	122.8
45 - 49	43,066	177,155	23,851	90,448	13,137	86,707	10,714	104.3	122.6

Five-year age groups	Women	Both sexes		Males		Females		Sex ratio (males/females)	
		Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children
Chin									
Total	113,577	275,694	33,627	140,543	18,288	135,151	15,339	104.0	119.2
15 - 19	23,678	1,529	95	738	45	791	50	93.3	90.0
20 - 24	18,747	13,718	1,020	6,953	568	6,765	452	102.8	125.7
25 - 29	16,940	32,234	2,749	16,499	1,504	15,735	1,245	104.9	120.8
30 - 34	15,222	46,968	4,535	23,894	2,432	23,074	2,103	103.6	115.6
35 - 39	13,676	56,477	6,265	28,659	3,437	27,818	2,828	103.0	121.5
40 - 44	13,548	65,590	9,105	33,462	4,897	32,128	4,208	104.2	116.4
45 - 49	11,766	59,178	9,858	30,338	5,405	28,840	4,453	105.2	121.4
Sagaing									
Total	1,444,947	2,261,727	250,595	1,152,083	139,550	1,109,644	111,045	103.8	125.7
15 - 19	237,701	10,366	534	5,100	294	5,266	240	96.8	122.5
20 - 24	222,140	85,322	5,003	43,309	2,829	42,013	2,174	103.1	130.1
25 - 29	221,358	222,522	15,517	113,201	8,722	109,321	6,795	103.5	128.4
30 - 34	212,308	358,361	30,160	182,169	16,992	176,192	13,168	103.4	129.0
35 - 39	199,787	468,720	47,192	238,829	26,419	229,891	20,773	103.9	127.2
40 - 44	183,248	540,465	66,849	275,872	37,120	264,593	29,729	104.3	124.9
45 - 49	168,405	575,971	85,340	293,603	47,174	282,368	38,166	104.0	123.6
Tanintharyi									
Total	342,392	652,599	75,198	334,399	41,670	318,200	33,528	105.1	124.3
15 - 19	63,898	3,087	203	1,517	117	1,570	86	96.6	136.0
20 - 24	55,491	27,957	1,945	14,156	1,065	13,801	880	102.6	121.0
25 - 29	51,783	67,447	5,162	34,468	2,908	32,979	2,254	104.5	129.0
30 - 34	48,849	107,763	9,501	55,023	5,252	52,740	4,249	104.3	123.6
35 - 39	43,611	132,200	14,308	67,765	7,908	64,435	6,400	105.2	123.6
40 - 44	41,416	155,524	20,114	79,996	11,146	75,528	8,968	105.9	124.3
45 - 49	37,344	158,621	23,965	81,474	13,274	77,147	10,691	105.6	124.2

Appendix A. Ever born and non-surviving children by sex, by age of women: numbers and sex ratios, Union, urban and rural areas, State/Region, 2014 Census

Five-year age groups	Women	Both sexes		Males		Females		Sex ratio (males/females)	
		Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children
Bago									
Total	1,312,133	2,015,293	195,181	1,029,978	112,776	985,315	82,405	104.5	136.9
15 - 19	212,464	8,094	502	4,000	285	4,094	217	97.7	131.3
20 - 24	198,313	76,211	4,606	38,813	2,746	37,398	1,860	103.8	147.6
25 - 29	197,354	199,329	14,083	101,639	8,225	97,690	5,858	104.0	140.4
30 - 34	189,983	321,931	26,438	164,071	15,328	157,860	11,110	103.9	138.0
35 - 39	183,156	426,768	39,627	217,595	22,974	209,173	16,653	104.0	138.0
40 - 44	171,289	482,221	50,135	246,925	29,006	235,296	21,129	104.9	137.3
45 - 49	159,574	500,739	59,790	256,935	34,212	243,804	25,578	105.4	133.8
Magway									
Total	1,090,638	1,651,038	220,412	842,034	123,880	809,004	96,532	104.1	128.3
15 - 19	160,929	5,876	472	2,867	256	3,009	216	95.3	118.5
20 - 24	160,773	56,491	4,714	28,613	2,728	27,878	1,986	102.6	137.4
25 - 29	168,136	154,840	15,229	78,750	8,695	76,090	6,534	103.5	133.1
30 - 34	165,230	256,694	29,300	130,595	16,623	126,099	12,677	103.6	131.1
35 - 39	157,776	344,726	44,627	175,539	25,015	169,187	19,612	103.8	127.5
40 - 44	145,917	404,111	58,398	206,077	32,858	198,034	25,540	104.1	128.7
45 - 49	131,877	428,300	67,672	219,593	37,705	208,707	29,967	105.2	125.8
Mandalay									
Total	1,730,326	2,341,405	206,267	1,192,097	117,847	1,149,308	88,420	103.7	133.3
15 - 19	272,639	8,707	376	4,326	204	4,381	172	98.7	118.6
20 - 24	273,358	82,753	4,070	41,928	2,388	40,825	1,682	102.7	142.0
25 - 29	266,964	222,148	13,349	112,520	7,585	109,628	5,764	102.6	131.6
30 - 34	253,369	365,755	26,401	185,921	15,154	179,834	11,247	103.4	134.7
35 - 39	238,954	485,232	40,598	247,149	23,237	238,083	17,361	103.8	133.8
40 - 44	221,314	566,511	54,467	289,124	31,113	277,387	23,354	104.2	133.2
45 - 49	203,728	610,299	67,006	311,129	38,166	299,170	28,840	104.0	132.3

Appendix A. **Ever born and non-surviving children by sex, by age of women: numbers and sex ratios, Union, urban and rural areas, State/Region, 2014 Census**

Five-year age groups	Women	Both sexes		Males		Females		Sex ratio (males/females)	
		Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children
Mon									
Total	511,442	809,040	61,748	413,913	34,878	395,127	26,870	104.8	129.8
15 - 19	87,161	3,207	124	1,534	74	1,673	50	91.7	148.0
20 - 24	75,037	27,219	1,096	13,907	630	13,312	466	104.5	135.2
25 - 29	71,740	69,372	3,081	35,224	1,732	34,148	1,349	103.2	128.4
30 - 34	72,299	119,623	6,378	61,123	3,654	58,500	2,724	104.5	134.1
35 - 39	71,294	165,512	10,917	84,659	6,158	80,853	4,759	104.7	129.4
40 - 44	69,536	203,454	17,249	104,278	9,721	99,176	7,528	105.1	129.1
45 - 49	64,375	220,653	22,903	113,188	12,909	107,465	9,994	105.3	129.2
Rakhine									
Total	559,208	997,206	113,042	510,405	62,580	486,801	50,462	104.8	124.0
15 - 19	99,586	5,079	297	2,520	159	2,559	138	98.5	115.2
20 - 24	87,942	43,883	2,622	21,977	1,440	21,906	1,182	100.3	121.8
25 - 29	88,015	109,988	7,649	56,133	4,252	53,855	3,397	104.2	125.2
30 - 34	80,029	164,009	13,592	83,947	7,599	80,062	5,993	104.9	126.8
35 - 39	71,562	199,060	20,383	101,957	11,275	97,103	9,108	105.0	123.8
40 - 44	69,041	235,450	30,486	120,642	16,939	114,808	13,547	105.1	125.0
45 - 49	63,033	239,737	38,013	123,229	20,916	116,508	17,097	105.8	122.3
Yangon									
Total	2,124,560	2,429,849	152,661	1,241,160	89,316	1,188,689	63,345	104.4	141.0
15 - 19	336,217	10,169	393	5,105	221	5,064	172	100.8	128.5
20 - 24	362,399	91,174	3,942	46,181	2,282	44,993	1,660	102.6	137.5
25 - 29	333,799	238,707	11,036	121,623	6,481	117,084	4,555	103.9	142.3
30 - 34	308,738	395,043	20,267	201,718	11,791	193,325	8,476	104.3	139.1
35 - 39	278,378	505,602	29,895	258,355	17,539	247,247	12,356	104.5	141.9
40 - 44	263,904	584,526	39,682	298,969	23,229	285,557	16,453	104.7	141.2
45 - 49	241,125	604,628	47,446	309,209	27,773	295,419	19,673	104.7	141.2

Appendix A. Ever born and non-surviving children by sex, by age of women: numbers and sex ratios, Union, urban and rural areas, State/Region, 2014 Census

Five-year age groups	Women	Both sexes		Males		Females		Sex ratio (males/females)	
		Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children	Children ever born	Non-surviving children
Shan									
Total	1,465,146	2,682,871	284,536	1,364,613	154,990	1,318,258	129,546	103.5	119.6
15 - 19	273,560	24,440	1,345	12,233	785	12,207	560	100.2	140.2
20 - 24	241,981	154,247	8,471	78,054	4,745	76,193	3,726	102.4	127.3
25 - 29	228,198	330,515	21,540	167,016	11,942	163,499	9,598	102.2	124.4
30 - 34	207,305	463,426	37,625	235,168	20,675	228,258	16,950	103.0	122.0
35 - 39	185,376	538,940	54,269	274,081	29,868	264,859	24,401	103.5	122.4
40 - 44	176,999	602,879	76,044	307,645	41,191	295,234	34,853	104.2	118.2
45 - 49	151,727	568,424	85,242	290,416	45,784	278,008	39,458	104.5	116.0
Ayeyawady									
Total	1,615,645	2,714,992	325,790	1,391,236	185,705	1,323,756	140,085	105.1	132.6
15 – 19	258,024	14,338	1,162	7,194	664	7,144	498	100.7	133.3
20 – 24	242,553	119,872	10,365	60,779	5,963	59,093	4,402	102.9	135.5
25 – 29	249,096	296,604	28,641	150,758	16,469	145,846	12,172	103.4	135.3
30 – 34	242,645	465,314	50,180	237,879	28,908	227,435	21,272	104.6	135.9
35 – 39	227,361	579,448	68,087	296,938	38,979	282,510	29,108	105.1	133.9
40 – 44	205,888	619,397	79,911	318,713	45,353	300,684	34,558	106.0	131.2
45 – 49	190,078	620,019	87,444	318,975	49,369	301,044	38,075	106.0	129.7
Nay Pyi Taw									
Total	307,391	466,720	46,668	239,442	26,994	227,278	19,674	105.4	137.2
15 – 19	47,501	2,225	139	1,044	86	1,181	53	88.4	162.3
20 – 24	50,045	20,850	1,130	10,582	661	10,268	469	103.1	140.9
25 – 29	51,059	52,158	3,516	26,544	2,050	25,614	1,466	103.6	139.8
30 – 34	47,322	79,043	6,309	40,365	3,665	38,678	2,644	104.4	138.6
35 – 39	41,075	95,217	9,086	48,778	5,327	46,439	3,759	105.0	141.7
40 – 44	36,790	106,198	11,975	54,689	6,890	51,509	5,085	106.2	135.5
45 – 49	33,599	111,029	14,513	57,440	8,315	53,589	6,198	107.2	134.2

Appendix B. The selection of a model life table to estimate indicators of early-age mortality

The most important piece of evidence for the decision to use the Chilean Model was provided by the three Fertility and Reproductive Health Surveys conducted in the country during the past two decades (Department of Population, 1999 and 2004, and Department of Population and UNFPA, 2009).

The graph presented in Figure B1 facilitates the decision regarding which life table model is more suitable for estimated infant and child mortality rates. This graph shows the relationship between infant mortality (1q0) and child mortality (4q1) according to the nine families of model life tables (see footnote 4 in Chapter 2) and the position of the estimates from the three demographic surveys. These surveys collected data on complete birth histories and, therefore, infant and child mortality are estimated for three quinquennial, covering 15 years preceding the date of the survey. Consequently, each survey makes available three estimates of infant and child mortality. In Figure B1, they are represented as dots with a different colour for each survey. The nine lines represent the nine model life tables, four corresponding to the Coale-Demeny system and five to the United Nations system. The three points that represent the estimates from the 2009 survey lay in the line corresponding to the Chilean Model; one point from the 2001 survey also falls in this line. The other two points from the 2001 Survey lay in different lines: South and West Models. The three points corresponding to the 1997 Survey fall in the West model line.

This data suggests a change in the pattern from the West to the Chilean pattern of infant and child mortality. The gap between infant and child mortality has increased mainly because of a decline in child mortality. As indicated above, the Chilean model is characterized by large differences between infant and child mortality, infant being much larger than child mortality. Table B1 and Figure B2 show that the difference between infant and child mortality has, in fact, increased; they also show that this increase has been caused by a more rapid decline of child mortality. The more rapid declining trend of child mortality in respect to infant mortality is clearly shown by the linear trend lines that are drawn in Figure B2 for the sets of infant and child mortality estimates. Table B1 shows the ratios between infant and child mortality. They also indicate an increase in the gap between the two rates. This change through time in the pattern of infant and child mortality has been documented in several countries undergoing a demographic transition (see Zhao, 2007).

Figure B1

Relation between infant mortality (1q0) and child mortality (4q1) in the nine families of model life tables and estimates from three Fertility and Reproductive Health Surveys (FRHS, 1997, 2001, and 2007)

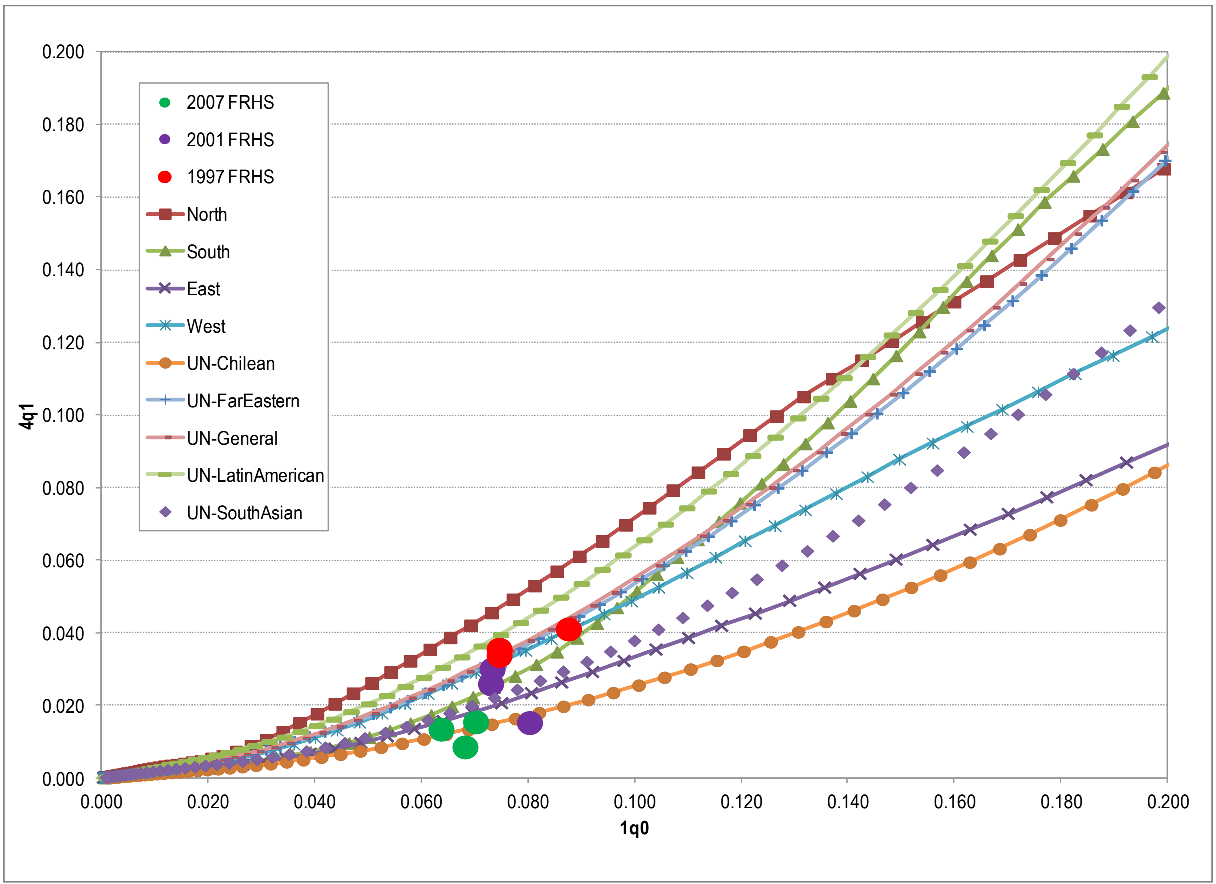


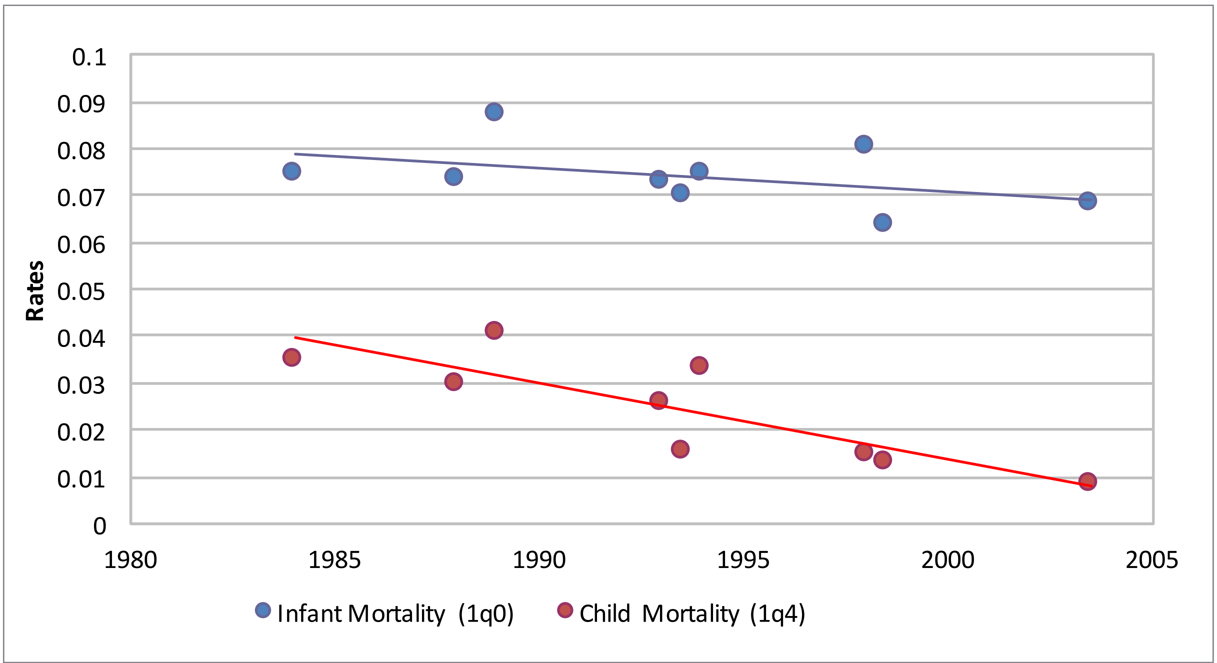
Table B1

Infant and child mortality according to three Fertility and Reproductive Health Surveys (FRHS, 1997, 2001, and 2007)

Source	Quinquenium	Infant mortality (1q0)	Child mortality (1q4)	Ratio
1997 FRHS	1982-1986	0.0747	0.0353	2.1
2001 FRHS	1986-1990	0.0734	0.0299	2.5
1997 FRHS	1987-1991	0.0877	0.0409	2.1
2001 FRHS	1991-1995	0.0731	0.0258	2.8
2007 FRHS	1991-1996	0.0703	0.0153	4.6
1997 FRHS	1992-1996	0.0747	0.0336	2.2
2001 FRHS	1996-2000	0.0804	0.0151	5.3
2007 FRHS	1996-2001	0.0638	0.0133	4.8
2007 FRHS	2001-2006	0.0683	0.0084	8.1

Figure B2

Infant and child mortality according to three Fertility and Reproductive Health Surveys (FRHS, 1997, 2001, and 2007)



It is relevant to draw attention to the fact that the trends in infant and child mortality are somewhat dispersed around the straight lines, shaping only a general trend. However, this trend is clear enough to argue that a true shift has taken place, in this case, a more rapid decline of child than infant mortality resulting in an increasing gap between the two rates.

Other approaches were used to determine the most suitable life table model to estimate early-age mortality. For example, data from the Census question on the number of deaths during the 12 months preceding the Census is available by age and sex, including those aged less than 1 year and 1-5 years, corresponding to infant and child mortality. The data were examined and the North Model from the Coale-Demeny system was found to be the most suitable for the observed data. This model is characterized by high child mortality as compared to infant mortality. Although this data usually have serious problems of under-enumeration it can capture well the age composition of mortality. However, the exception seems to be for the very young ages, especially infants. It is likely that the under-estimation of infant deaths (less than 1 year) is much higher than that affecting older children and adult deaths. One reason is that babies, who died just after birth, or even a couple of months after birth, would be less likely to be reported by their mothers to the enumerator during the census interview. Although there is no evidence to assess the extent of this problem, it suggests that it could possibly lead to the under-reporting of deceased infants. If deaths of children aged 1-5 are less affected by under-reporting, the resulting pattern is consistent with the North Model. However, the low infant mortality rate in respect to the child mortality rate would be the result of under-enumeration of infants. There are several methods to adjust the number of deaths reported in households during the past 12 months, but none of them provide reliable information on under-five mortality (Timæus, Dorrington, and Hill, 2013).

Appendix B. The selection of a model life table to estimate indicators of early-age mortality

There is another source of early-age mortality data that was not included in this analysis. It is the 2009-2010 Multiple Indicator Cluster Survey (Ministry of National Planning, Economic Development, Ministry of Health, and UNICEF, 2011). It was considered that this survey under-estimates infant, child and under-five mortality (see Table B2 below). The rates provided by this survey are too low and far from the estimates provided by the FRHS and the 2014 Census. An evaluation of this survey is out of the scope of this thematic report, but the values of the early-age indicators that it shows are too low to be confidently included in this analysis. In addition, this survey also provides three estimates of infant and child mortality. The respective patterns correspond in two cases to the West Model and in one to the South Model.

When there is no evidence regarding which life table model is more suitable for estimating early-age mortality indicators, or when the evidence is confusing, it is suggested that the West Model of the Coale-Demeny system is used (UN, 1983). The reason is that this model corresponds to the most frequent and general mortality patterns. However, in this case, the evidence available was enough to take a decision regarding the most suitable life table.

Epidemiological characteristics of early-age mortality are also relevant in the selection of the model life table. Therefore, in this particular case it would be important to find out the reasons why child mortality declined more rapidly than infant mortality, so that presently the former is much lower compared to the latter. Three explanations can be proposed. The first is that Government health policies favoured younger children more than infants. The second is a decline in fertility, and in particular an increase in birth spacing. Longer birth intervals may have particularly favoured very young children since they would receive their mother's attention for a longer period of time. The third explanation is that the infant and child mortality trends are the result of methodological problems, such as sample issues. As indicated in Chapter 1, the objectives of this thematic report are somewhat limited and to analyse these explanations is beyond its capacity.

The use of the Chilean model to estimate early-age mortality indicators in a Southeast Asian country may seem a strange choice. The name of the model is given by the region from which the mortality data to construct the model tables was obtained, but it does not mean that its use is restricted to a particular region. A model life table provides an age-sex pattern that can be applied to any country, regardless of the origin of the table (and its name). Only the Chilean Model of the United Nations Life Tables Models exhibits a difference between infant and child mortality large enough to fit the sex differential observed in Myanmar. The East Model from the Coale-Demeny Model Life Tables also exhibits a large difference, but the largest one, corresponding to the Chilean Model is more suitable.

Table B2 shows the estimates of infant, child and under-five mortality according to the nine life table models[21]. There are significant differences according to the model used for the estimate. These differences are not substantial regarding under-five mortality, but are large regarding infant and child mortality. However, in spite of the differences, in all cases the three early-age mortality indicators are high, regardless of the model life table used for the estimation. It is also important to mention that the large sex difference in infant and child mortality resulting from the use of the Chilean Model is consistent with the differences shown by the corresponding estimates from the 2007 and 2001 FRHS.

[21] The software used to compute Table B2 is QFIVE from MORTPAK, Version 4.3 (UNPD, 2013).

Table B2

Indirect estimates of infant, child and under-five mortality rates by sex according to different mortality models, 2014 Census

Age group	United Nations Models (Palloni-Heligman Equations)										Coale-Demeny Model (Trussell Equations)							
	Latin American		Chilean		South Asian		Far East		General		West		North		East		South	
	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)
Both sexes																		
Infant mortality rate (probability of dying between ages 0 and 1): q(1)																		
20 – 24	2012.1	0.05496	2012.0	0.06177	2012.1	0.05575	2012.0	0.05582	2012.1	0.05593	2012.1	0.05730	2012.2	0.05274	2012.1	0.06010	2012.2	0.05869
25 – 29	2010.7	0.05651	2010.5	0.06562	2010.6	0.05775	2010.6	0.05810	2010.7	0.05794	2010.5	0.05826	2010.6	0.05225	2010.4	0.06282	2010.5	0.06151
30 - 34	2008.8	0.06091	2008.5	0.07268	2008.7	0.06287	2008.7	0.06270	2008.7	0.06265	2008.4	0.06256	2008.7	0.05549	2008.3	0.06867	2008.5	0.06721
35 – 39	2006.5	0.06601	2006.1	0.08059	2006.4	0.06871	2006.4	0.06769	2006.4	0.06815	2006.1	0.06709	2006.4	0.05880	2005.9	0.07521	2006.1	0.07402
40 – 44	2003.7	0.07069	2003.3	0.08938	2003.5	0.07552	2003.7	0.07259	2003.7	0.07316	2003.5	0.07244	2003.9	0.06247	2003.2	0.08212	2003.4	0.08028
45 - 49	2000.4	0.07610	1999.9	0.09651	1999.9	0.08158	2000.6	0.07549	2000.4	0.07815	2000.5	0.07572	2001.0	0.06421	1999.9	0.08733	2000.3	0.08537
Child mortality rate (probability of dying between ages 1 and 5): q(1,4)																		
20 – 24	2012.1	0.02336	2012.0	0.01074	2012.1	0.02144	2012.0	0.01988	2012.1	0.02058	2012.1	0.02071	2012.2	0.02787	2012.1	0.01340	2012.2	0.01524
25 – 29	2010.7	0.02447	2010.5	0.01192	2010.6	0.02272	2010.6	0.02126	2010.7	0.02184	2010.5	0.02132	2010.6	0.02746	2010.4	0.01458	2010.5	0.01686
30 - 34	2008.8	0.02775	2008.5	0.01420	2008.7	0.02620	2008.7	0.02416	2008.7	0.02489	2008.4	0.02405	2008.7	0.03018	2008.3	0.01722	2008.5	0.02038
35 – 39	2006.5	0.03176	2006.1	0.01699	2006.4	0.03041	2006.4	0.02750	2006.4	0.02868	2006.1	0.02695	2006.4	0.03297	2005.9	0.02041	2006.1	0.02511
40 – 44	2003.7	0.03562	2003.3	0.02033	2003.5	0.03566	2003.7	0.03094	2003.7	0.03235	2003.5	0.03040	2003.9	0.03610	2003.2	0.02396	2003.4	0.02998
45 - 49	2000.4	0.04030	1999.9	0.02324	1999.9	0.04060	2000.6	0.03306	2000.4	0.03615	2000.5	0.03255	2001.0	0.03759	1999.9	0.02658	2000.3	0.03437
Under-five mortality rate (probability of dying between ages 0 and 5): q(5)																		
20 – 24	2012.1	0.07704	2012.0	0.07185	2012.1	0.07600	2012.0	0.07459	2012.1	0.07536	2012.1	0.07682	2012.2	0.07913	2012.1	0.07269	2012.2	0.07304
25 – 29	2010.7	0.07960	2010.5	0.07676	2010.6	0.07916	2010.6	0.07813	2010.7	0.07851	2010.5	0.07833	2010.6	0.07828	2010.4	0.07649	2010.5	0.07733
30 - 34	2008.8	0.08697	2008.5	0.08585	2008.7	0.08743	2008.7	0.08535	2008.7	0.08599	2008.4	0.08511	2008.7	0.08400	2008.3	0.08471	2008.5	0.08622
35 – 39	2006.5	0.09567	2006.1	0.09620	2006.4	0.09703	2006.4	0.09332	2006.4	0.09487	2006.1	0.09223	2006.4	0.08984	2005.9	0.09409	2006.1	0.09727
40 – 44	2003.7	0.10380	2003.3	0.10789	2003.5	0.10849	2003.7	0.10129	2003.7	0.10315	2003.5	0.10064	2003.9	0.09631	2003.2	0.10412	2003.4	0.10785
45 - 49	2000.4	0.11334	1999.9	0.11751	1999.9	0.11886	2000.6	0.10606	2000.4	0.11148	2000.5	0.10581	2001.0	0.09939	1999.9	0.11159	2000.3	0.11680

Table B2 (Continued) Indirect estimates of infant, child and under-five mortality rates by sex according to different mortality models, 2014 Census

Age group	United Nations Models (Palloni-Heligman Equations)										Coale-Demeny Model (Trussell Equations)							
	Latin American		Chilean		South Asian		Far East		General		West		North		East		South	
	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)
Males																		
Infant mortality rate (probability of dying between ages 0 and 1): q(1)																		
15 -19	2013.1	0.06921	2013.0	0.07596	2013.1	0.06925	2013.0	0.06885	2013.1	0.06900	2013.3	0.07371	2013.3	0.07229	2013.3	0.07380	2013.3	0.07027
20 – 24	2012.1	0.06288	2012.0	0.06994	2012.1	0.06244	2012.0	0.06307	2012.1	0.06383	2012.2	0.06527	2012.2	0.06003	2012.1	0.06836	2012.2	0.06633
25 - 29	2010.7	0.06443	2010.5	0.07373	2010.6	0.06394	2010.6	0.06504	2010.7	0.06585	2010.5	0.06605	2010.6	0.05911	2010.4	0.07111	2010.5	0.06888
30 – 34	2008.8	0.06946	2008.5	0.08131	2008.7	0.06914	2008.7	0.06970	2008.7	0.07120	2008.4	0.07087	2008.7	0.06261	2008.3	0.07745	2008.5	0.07479
35 – 39	2006.5	0.07515	2006.1	0.08961	2006.3	0.07510	2006.4	0.07448	2006.4	0.07733	2006.1	0.07592	2006.4	0.06605	2005.9	0.08446	2006.1	0.08176
40 – 44	2003.7	0.08000	2003.3	0.09863	2003.5	0.08204	2003.7	0.07895	2003.7	0.08258	2003.5	0.08171	2003.9	0.06990	2003.2	0.09190	2003.4	0.08786
45 - 49	2000.3	0.08570	1999.9	0.10576	1999.9	0.08844	2000.6	0.08213	2000.4	0.08801	2000.5	0.08530	2001.0	0.07133	1999.9	0.09715	2000.3	0.09275
Child mortality rate (probability of dying between ages 1 and 5): q(1,4)																		
15 -19	2013.1	0.02935	2013.0	0.01400	2013.1	0.03047	2013.0	0.02680	2013.1	0.02523	2013.3	0.02746	2013.3	0.04092	2013.3	0.01671	2013.3	0.02011
20 – 24	2012.1	0.02520	2012.0	0.01224	2012.1	0.02586	2012.0	0.02331	2012.1	0.02228	2012.2	0.02246	2012.2	0.03099	2012.1	0.01443	2012.2	0.01776
25 - 29	2010.7	0.02620	2010.5	0.01334	2010.6	0.02685	2010.6	0.02448	2010.7	0.02343	2010.5	0.02294	2010.6	0.03028	2010.4	0.01550	2010.5	0.01928
30 – 34	2008.8	0.02952	2008.5	0.01564	2008.7	0.03039	2008.7	0.02733	2008.7	0.02652	2008.4	0.02581	2008.7	0.03308	2008.3	0.01837	2008.5	0.02302
35 – 39	2006.5	0.03344	2006.1	0.01833	2006.3	0.03463	2006.4	0.03038	2006.4	0.03028	2006.1	0.02879	2006.4	0.03585	2005.9	0.02174	2006.1	0.02799
40 – 44	2003.7	0.03692	2003.3	0.02146	2003.5	0.03986	2003.7	0.03333	2003.7	0.03363	2003.5	0.03229	2003.9	0.03895	2003.2	0.02515	2003.4	0.03301
45 - 49	2000.3	0.04122	1999.9	0.02409	1999.9	0.04492	2000.6	0.03551	2000.4	0.03725	2000.5	0.03448	2001.0	0.04013	1999.9	0.02763	2000.3	0.03760
Under-five mortality rate (probability of dying by age 5): q(5)																		
15 -19	2013.1	0.09653	2013.0	0.08889	2013.1	0.09761	2013.0	0.09381	2013.1	0.09249	2013.3	0.09915	2013.3	0.11025	2013.3	0.08927	2013.3	0.08896
20 – 24	2012.1	0.08650	2012.0	0.08132	2012.1	0.08668	2012.0	0.08491	2012.1	0.08469	2012.2	0.08627	2012.2	0.08916	2012.1	0.08181	2012.2	0.08291
25 - 29	2010.7	0.08894	2010.5	0.08609	2010.6	0.08907	2010.6	0.08793	2010.7	0.08773	2010.5	0.08747	2010.6	0.08760	2010.4	0.08551	2010.5	0.08683
30 – 34	2008.8	0.09693	2008.5	0.09568	2008.7	0.09743	2008.7	0.09512	2008.7	0.09583	2008.4	0.09485	2008.7	0.09361	2008.3	0.09440	2008.5	0.09609
35 – 39	2006.5	0.10608	2006.1	0.10630	2006.3	0.10713	2006.4	0.10259	2006.4	0.10527	2006.1	0.10252	2006.4	0.09954	2005.9	0.10437	2006.1	0.10746
40 – 44	2003.7	0.11397	2003.3	0.11798	2003.5	0.11863	2003.7	0.10965	2003.7	0.11343	2003.5	0.11136	2003.9	0.10613	2003.2	0.11475	2003.4	0.11797
45 - 49	2000.3	0.12339	1999.9	0.12730	1999.9	0.12939	2000.6	0.11472	2000.4	0.12198	2000.5	0.11683	2001.0	0.10860	1999.9	0.12210	2000.3	0.12686

Table B2 (Continued) Indirect estimates of infant, child and under-five mortality rates by sex according to different mortality models, 2014 Census

Age group	United Nations Models (Palloni-Heligman Equations)										Coale-Demeny Model (Trussell Equations)							
	Latin American		Chilean		South Asian		Far East		General		West		North		East		South	
	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)	Reference date	q(x)
Females																		
Infant mortality rate (probability of dying between ages 0 and 1): q(1)																		
15 -19	2013.1	0.05236	2013.0	0.05750	2013.1	0.05238	2013.0	0.05215	2013.1	0.05223	2013.2	0.05557	2013.2	0.05445	2013.2	0.05572	2013.3	0.05290
20 – 24	2012.1	0.04726	2012.0	0.05357	2012.0	0.04888	2012.0	0.04859	2012.1	0.04823	2012.1	0.04932	2012.2	0.04547	2012.1	0.05195	2012.2	0.05090
25 – 29	2010.7	0.04893	2010.5	0.05751	2010.6	0.05139	2010.6	0.05121	2010.7	0.05031	2010.5	0.05048	2010.6	0.04544	2010.4	0.05479	2010.5	0.05400
30 – 34	2008.8	0.05290	2008.5	0.06411	2008.7	0.05651	2008.7	0.05578	2008.7	0.05456	2008.4	0.05436	2008.6	0.04844	2008.3	0.06004	2008.5	0.05954
35 – 39	2006.5	0.05757	2006.1	0.07169	2006.4	0.06230	2006.4	0.06100	2006.4	0.05960	2006.1	0.05848	2006.4	0.05169	2005.9	0.06604	2006.1	0.06620
40 – 44	2003.8	0.06215	2003.3	0.08035	2003.5	0.06907	2003.7	0.06635	2003.7	0.06449	2003.5	0.06349	2003.9	0.05524	2003.2	0.07266	2003.4	0.07257
45 – 49	2000.4	0.06735	2000.0	0.08761	1999.9	0.07490	2000.6	0.06924	2000.4	0.06923	2000.5	0.06662	2001.1	0.05731	2000.0	0.07785	2000.3	0.07782
Child mortality rate (probability of dying between ages 1 and 5): q(1,4)																		
15 -19	2013.1	0.02460	2013.0	0.01012	2013.1	0.01908	2013	0.01824	2013.1	0.02075	2013.2	0.02263	2013.2	0.03218	2013.2	0.01334	2013.3	0.01373
20 –24	2012.1	0.02058	2012.0	0.00895	2012.0	0.01703	2012	0.01609	2012.1	0.01802	2012.1	0.01845	2012.2	0.02417	2012.1	0.01166	2012.2	0.01271
25 – 29	2010.7	0.02186	2010.5	0.01012	2010.6	0.01849	2010.6	0.01765	2010.7	0.01942	2010.5	0.01925	2010.6	0.02414	2010.4	0.01288	2010.5	0.01429
30 – 34	2008.8	0.02505	2008.5	0.01232	2008.7	0.02175	2008.7	0.02055	2008.7	0.02242	2008.4	0.02181	2008.6	0.02687	2008.3	0.01552	2008.5	0.01746
35 – 39	2006.5	0.02910	2006.1	0.01508	2006.4	0.02584	2006.4	0.02410	2006.4	0.02621	2006.1	0.02464	2006.4	0.02973	2005.9	0.01872	2006.1	0.02192
40 – 44	2003.8	0.03331	2003.3	0.01857	2003.5	0.03104	2003.7	0.02800	2003.7	0.03016	2003.5	0.02810	2003.9	0.03289	2003.2	0.02228	2003.4	0.02675
45 – 49	2000.4	0.03840	2000.0	0.02177	1999.9	0.03587	2000.6	0.03022	2000.4	0.03421	2000.5	0.03025	2001.1	0.03476	2000.0	0.02514	2000.3	0.03112
Under-five mortality rate (probability of dying by age 5): q(5)																		
15 -19	2013.1	0.07567	2013.0	0.06704	2013.1	0.07046	2013.0	0.06944	2013.1	0.07190	2013.2	0.07695	2013.2	0.08488	2013.2	0.06832	2013.3	0.06590
20 – 24	2012.1	0.06687	2012.0	0.06204	2012.0	0.06508	2012.0	0.06390	2012.1	0.06537	2012.1	0.06686	2012.2	0.06854	2012.1	0.06300	2012.2	0.06296
25 – 29	2010.7	0.06973	2010.5	0.06705	2010.6	0.06892	2010.6	0.06796	2010.7	0.06875	2010.5	0.06875	2010.6	0.06849	2010.4	0.06697	2010.5	0.06751
30 – 34	2008.8	0.07662	2008.5	0.07563	2008.7	0.07703	2008.7	0.07519	2008.7	0.07575	2008.4	0.07499	2008.6	0.07400	2008.3	0.07463	2008.5	0.07597
35 – 39	2006.5	0.08500	2006.1	0.08569	2006.4	0.08653	2006.4	0.08363	2006.4	0.08425	2006.1	0.08168	2006.4	0.07988	2005.9	0.08352	2006.1	0.08667
40 – 44	2003.8	0.09339	2003.3	0.09743	2003.5	0.09796	2003.7	0.09248	2003.7	0.09271	2003.5	0.08980	2003.9	0.08631	2003.2	0.09332	2003.4	0.09738
45 – 49	2000.4	0.10317	2000.0	0.10747	1999.9	0.10808	2000.6	0.09736	2000.4	0.10107	2000.5	0.09486	2001.1	0.09008	2000.0	0.10103	2000.3	0.10651

Appendix C. Infant, child and under-five mortality by Districts

The major problem of using a Brass-type method to estimate early-age mortality in subnational areas, is the size of the number of events, that is, the number of infant deaths. In principle, what this method does is to convert the proportion of children who have died among children ever born, reported by women (by age groups), into estimates of the probability of dying before attaining certain exact childhood ages. Later, improved versions of the Brass-type method were developed, in particular a method for locating the estimates for dates before the Census, which allowed for estimates as a time series, stretching back about 15 years before the Census.

Calculations of the early-age mortality indicators are computed by MORTPAK or any other similar software. The result is early-age mortality indicators at various dates prior to the Census (infant, child, and under-five). Normally data is categorized in seven age groups. This means there will be a series of seven estimates of under-five mortality, each dated somewhere from 1 to 15 years before the Census. However, the time series obtained cannot be taken at face value, but requires interpretation. The most recent point is highly erratic and it is usually ignored. The second point, corresponding to women aged 20-24, or the third point, corresponding to women aged 25-29, is considered to represent the most reliable recent estimate, and it is presented as the main result of the analysis, that is, the under-five mortality rate estimated by the Census. In addition, the mortality rate corresponding to women aged 20-24 or 25-29 is used as a pivot to estimate, via model life tables, the rates corresponding to the other dates (age groups).

The issue is that when this method is used to estimate under-five mortality in small areas, the number of deaths of children of mothers in the age groups 20-24 and 25-29 are usually very small and, therefore, likely to be affected by random factors. For example, annual fluctuations in mortality may have an effect in small population areas. Other elements that have an influence in the results of this method can also be affected by random factors due to the small size of the events (sex ratios, fertility, and migration). For this reason, this method is not recommended for estimating early-age mortality for small areas.

The strategy applied here considers a large number of cases, reducing the random components regarding the number of deaths and other factors that affect the results. This is done by considering the number of deaths of children of women aged 20-34 in the Districts (three age groups).

The method is based on identifying a relationship between the level of mortality in a District and the level in the State/Region where it is situated. The indicator of this mortality level is the proportion of children who have died among those children ever born to women aged 20-34. This proportion corresponds to the mortality difference between the District and its State/Region. The District's mortality rates are obtained by applying (multiplying) this proportion to the infant, child or under-five mortality rate of the State/Region.

The basic principle of this method is that the expected level of mortality for each State/Region as a whole, is the result of the specific levels of each of its Districts in such a way that each one of them would contribute a portion to the mortality level of the State/Region.

Appendix C. Infant, child and under-five mortality by Districts

The procedure to estimate mortality rates in the Districts is as follows:

(1) The procedure starts by calculating, for a given State/Region, the proportion of children who have died over children ever born to women aged 20-34.
(2) This proportion is applied to the number of children born to women aged 20-34 in each District of the State/Region under consideration. This operation gives the expected number of children who have died in each District, which is the number of deaths that would have occurred if the Districts have the same mortality level as the State/Region to which they belong.
(3) The ratio between the numbers of observed children who have died, and the number of expected children gives the factor k, which is an indicator of the difference in mortality between the State/Region and the District.
(4) Factor k is applied to (multiplied by) the infant mortality rate (1q0) estimated with the Brass-type method in the State/Region. This operation gives the 1q0 corresponding to the District.
(5) The same procedure, using the same k factor, is used to estimate child and under-five mortality.

By using a large number of non-surviving children in the estimations, the random factor is substantially reduced. In this case, the number of deaths of children corresponds to three age groups of women and it is large enough to avoid the influence of casual factors. This is the advantage of the method: to reduce fortuitous factors in the results.

Table C

Infant, child and under-five mortality by State/Region and District, 2014 Census

State/Region and District	Early-Age Mortality Rate		
	Infant	Child	Under-five
UNION			
Both Sexes	61.8	10.0	71.8
Males	69.9	11.4	81.3
Females	53.6	8.4	62.0
KACHIN			
Both Sexes	52.8	7.8	60.6
Males	58.2	8.6	66.8
Females	47.3	6.9	54.2
Myitkyina			
Both Sexes	52.8	7.8	60.6
Males	58.1	8.5	66.6
Females	47.4	6.9	54.3
Mohnyin			
Both Sexes	49.9	7.4	57.3
Males	55.3	8.2	63.5
Females	44.5	6.5	51.0
Bhamo			
Both Sexes	51.8	7.7	59.5
Males	57.8	8.5	66.3
Females	45.8	6.7	52.5
Putao			
Both Sexes	69.4	10.2	79.6
Males	74.0	10.9	84.9
Females	64.9	9.5	74.4
KAYAH			
Both Sexes	60.1	9.6	69.7
Males	66.7	10.6	77.3
Females	53.2	8.3	61.5
Loikaw			
Both Sexes	59.4	9.5	68.9
Males	66.2	10.5	76.7
Females	52.4	8.2	60.6
Bawlakhe			
Both Sexes	63.8	10.2	74.0
Males	69.6	11.1	80.7
Females	57.6	9.1	66.7

State/Region and District	Early-Age Mortality Rate		
	Infant	Child	Under-five
KAYIN			
Both Sexes	53.6	8.0	61.6
Males	59.7	8.9	68.6
Females	47.4	7.0	54.4
Hpa-an			
Both Sexes	54.9	8.2	63.1
Males	61.3	9.1	70.4
Females	48.4	7.1	55.5
Pharpon			
Both Sexes	58.7	8.8	67.5
Males	64.0	9.5	73.5
Females	53.3	7.8	61.1
Myawady			
Both Sexes	41.1	6.2	47.3
Males	46.6	7.0	53.6
Females	35.4	5.1	40.5
Kawkareik			
Both Sexes	57.4	8.5	65.9
Males	63.5	9.4	72.9
Females	51.3	7.5	58.8
CHIN			
Both Sexes	75.5	14.1	89.6
Males	83.6	15.0	98.6
Females	67.6	12.6	80.2
Hakha			
Both Sexes	27.5	5.1	32.6
Males	30.4	5.5	35.9
Females	24.6	4.5	29.1
Falam			
Both Sexes	54.3	10.1	64.4
Males	60.2	10.8	71.0
Females	48.5	9.1	57.6
Mindat			
Both Sexes	108.7	20.2	128.9
Males	119.6	21.4	141.0
Females	97.8	18.3	116.1

Table C (Continued) Infant, child and under-five mortality by State/Region and District, 2014 Census

State/Region and District	Early-Age Mortality Rate		
	Infant	Child	Under-five
SAGAING			
Both Sexes	60.0	9.6	69.6
Males	67.1	10.6	77.7
Females	52.8	8.3	61.1
Sagaing (District)			
Both Sexes	41.6	6.7	48.3
Males	47.9	7.6	55.5
Females	35.3	5.5	40.8
Shwebo			
Both Sexes	50.8	8.1	58.9
Males	57.8	9.2	67.0
Females	43.7	6.8	50.6
Monywa			
Both Sexes	47.5	7.6	55.1
Males	52.5	8.3	60.8
Females	42.5	6.7	49.2
Katha			
Both Sexes	70.7	11.3	82.0
Males	78.5	12.5	91.0
Females	62.8	9.8	72.6
Kalay			
Both Sexes	61.2	9.8	71.0
Males	69.3	11.0	80.3
Females	53.0	8.3	61.3
Tamu			
Both Sexes	52.9	8.5	61.4
Males	55.6	8.9	64.5
Females	50.2	7.9	58.1
Mawlaik			
Both Sexes	78.4	12.6	91.0
Males	83.1	13.2	96.3
Females	73.8	11.5	85.3
Hkamti			
Both Sexes	77.8	12.5	90.3
Males	85.5	13.6	99.1
Females	69.9	11.0	80.9
Yinmarpin			
Both Sexes	66.7	10.6	77.3
Males	76.0	12.1	88.1
Females	57.2	9.0	66.2

State/Region and District	Early-Age Mortality Rate		
	Infant	Child	Under-five
TANINTHARYI			
Both Sexes	70.8	12.6	83.4
Males	77.1	13.2	90.3
Females	64.5	11.7	76.2
Dawei			
Both Sexes	51.9	9.2	61.1
Males	55.4	9.6	65.0
Females	48.3	8.8	57.1
Myeik			
Both Sexes	77.2	13.8	91.0
Males	83.4	14.3	97.7
Females	71.1	12.8	83.9
Kawthoung			
Both Sexes	78.2	13.9	92.1
Males	88.6	15.2	103.8
Females	67.8	12.2	80.0
BAGO			
Both Sexes	61.9	10.1	72.0
Males	72.6	12.1	84.7
Females	51.0	7.8	58.8
Bago (District)			
Both Sexes	57.9	9.4	67.3
Males	68.4	11.3	79.7
Females	47.3	7.2	54.5
Taungoo			
Both Sexes	68.5	11.2	79.7
Males	80.0	13.3	93.3
Females	56.8	8.7	65.5
Pyay			
Both Sexes	56.7	9.3	66.0
Males	66.3	11.0	77.3
Females	47.0	7.2	54.2
Thayawady			
Both Sexes	65.5	10.7	76.2
Males	76.6	12.8	89.4
Females	54.2	8.3	62.5

Table C (Continued) Infant, child and under-five mortality by State/Region and District, 2014 Census

State/Region and District	Early-Age Mortality Rate		
	Infant	Child	Under-five
MAGWAY			
Both Sexes	83.9	16.7	100.6
Males	96.5	18.7	115.2
Females	71.5	14.0	85.5
Magway (District)			
Both Sexes	79.5	15.8	95.3
Males	91.0	17.7	108.7
Females	68.1	13.3	81.4
Minbu			
Both Sexes	83.1	16.6	99.7
Males	95.3	18.5	113.8
Females	71.1	13.8	84.9
Thayet			
Both Sexes	78.1	15.5	93.6
Males	89.8	17.4	107.2
Females	66.3	12.9	79.2
Pakokku			
Both Sexes	95.8	19.1	114.9
Males	109.8	21.3	131.1
Females	81.9	15.9	97.8
Gangaw			
Both Sexes	73.8	14.7	88.5
Males	87.9	17.1	105.0
Females	60.0	11.7	71.7

State/Region and District	Early-Age Mortality Rate		
	Infant	Child	Under-five
MANDALAY			
Both Sexes	50.3	8.1	58.4
Males	59.1	8.8	67.9
Females	42.7	5.9	48.6
Mandalay (District)			
Both Sexes	34.0	5.4	39.4
Males	40.4	6.0	46.4
Females	28.3	4.0	32.3
Pyin Oo Lwin			
Both Sexes	49.6	7.9	57.5
Males	58.6	8.7	67.3
Females	41.8	5.8	47.6
Kyaukse			
Both Sexes	49.6	7.9	57.5
Males	58.6	8.7	67.3
Females	41.8	5.8	47.6
Myingyan			
Both Sexes	55.8	9.0	64.8
Males	64.8	9.6	74.4
Females	48.2	6.7	54.9
Nyaung U			
Both Sexes	67.9	10.9	78.8
Males	79.7	11.8	91.5
Females	57.7	8.1	65.8
Yame`thin			
Both Sexes	68.9	11.1	80.0
Males	81.2	12.1	93.3
Females	58.3	8.1	66.4
Meiktila			
Both Sexes	60.9	9.8	70.7
Males	70.6	10.5	81.1
Females	52.6	7.3	59.9
MON			
Both Sexes	41.9	5.4	47.3
Males	47.2	6.3	53.5
Females	36.2	4.8	41.0
Mawlamyine			
Both Sexes	35.3	4.6	39.9
Males	40.6	5.3	45.9
Females	29.9	3.9	33.8
Thaton			
Both Sexes	50.0	6.6	56.6
Males	55.6	7.3	62.9
Females	44.2	5.9	50.1

Table C (Continued) **Infant, child and under-five mortality by State/Region and District, 2014 Census**

State/Region and District	Early-Age Mortality Rate		
	Infant	Child	Under-five
RAKHINE			
Both Sexes	61.1	9.9	71.0
Males	67.3	10.8	78.1
Females	54.9	8.9	63.8
Sittwe			
Both Sexes	48.0	7.8	55.8
Males	54.2	8.6	62.8
Females	42.0	6.7	48.7
Myauk U			
Both Sexes	71.2	11.5	82.7
Males	78.4	12.6	91.0
Females	64.1	10.3	74.4
Maungtaw			
Both Sexes	57.0	9.2	66.2
Males	58.6	9.4	68.0
Females	55.7	8.9	64.6
Kyaukpyu			
Both Sexes	65.0	10.5	75.5
Males	71.3	11.4	82.7
Females	58.7	9.5	68.2
Thandwe			
Both Sexes	56.0	9.1	65.1
Males	61.8	9.9	71.7
Females	50.3	8.1	58.4
YANGON			
Both Sexes	44.9	6.1	51.0
Males	51.5	7.1	58.6
Females	38.2	5.2	43.4
North			
Both Sexes	50.2	6.8	57.0
Males	57.8	7.9	65.7
Females	42.5	5.7	48.2
East			
Both Sexes	32.8	4.4	37.2
Males	38.0	5.2	43.2
Females	27.4	3.7	31.1
South			
Both Sexes	55.8	7.5	63.3
Males	63.5	8.7	72.2
Females	47.8	6.5	54.3
West			
Both Sexes	25.7	3.5	29.2
Males	28.2	3.9	32.1
Females	23.2	3.1	26.3

State/Region and District	Early-Age Mortality Rate		
	Infant	Child	Under-five
SHAN			
Both Sexes	55.5	8.5	64.0
Males	61.7	9.3	71.0
Females	49.4	7.4	56.8
Taunggyi			
Both Sexes	61.4	9.4	70.8
Males	70.3	10.7	81.0
Females	52.5	7.9	60.4
Loilin			
Both Sexes	60.9	9.3	70.2
Males	67.2	10.2	77.4
Females	54.7	8.2	62.9
Linkhe			
Both Sexes	74.0	11.3	85.3
Males	81.3	12.4	93.7
Females	66.6	9.9	76.5
Lashio			
Both Sexes	52.9	8.1	61.0
Males	58.6	8.9	67.5
Females	47.3	7.1	54.4
Muse			
Both Sexes	39.5	6.1	45.6
Males	43.1	6.5	49.6
Females	36.0	5.4	41.4
Kyaukme			
Both Sexes	69.2	10.6	79.8
Males	75.8	11.5	87.3
Females	62.7	9.3	72.0
Kunlon			
Both Sexes	34.9	5.4	40.3
Males	39.4	6.0	45.4
Females	30.8	4.6	35.4
Laukine			
Both Sexes	17.4	2.6	20.0
Males	20.0	3.0	23.0
Females	14.7	2.2	16.9
Hopan			
Both Sexes	22.0	3.4	25.4
Males	23.2	3.5	26.7
Females	20.8	3.1	23.9
Makman			
Both Sexes	59.5	9.1	68.6
Males	63.5	9.6	73.1
Females	55.5	8.3	63.8

Table C (Continued) Infant, child and under-five mortality by State/Region and District, 2014 Census

State/Region and District	Early-Age Mortality Rate		
	Infant	Child	Under-five
Kengtung			
Both Sexes	43.2	6.6	49.8
Males	48.4	7.4	55.8
Females	38.0	5.7	43.7
Minesat			
Both Sexes	74.8	11.4	86.2
Males	80.4	12.2	92.6
Females	69.1	10.4	79.5
Tachilike			
Both Sexes	42.6	6.5	49.1
Males	46.9	7.2	54.1
Females	38.2	5.7	43.9
Minephyat			
Both Sexes	51.7	7.9	59.6
Males	58.0	8.8	66.8
Females	45.4	6.8	52.2
AYEYAWADY			
Both Sexes	86.2	17.4	103.6
Males	98.3	19.3	117.6
Females	74.1	14.8	88.9
Pathein			
Both Sexes	71.7	14.5	86.2
Males	82.3	16.1	98.4
Females	61.2	12.2	73.4
Phyapon			
Both Sexes	96.1	19.4	115.5
Males	109.3	21.3	130.6
Females	82.9	16.6	99.5
Maubin			
Both Sexes	76.7	15.4	92.1
Males	88.1	17.3	105.4
Females	65.3	13.0	78.3
Myaungmya			
Both Sexes	83.7	17.0	100.7
Males	95.1	18.6	113.7
Females	72.5	14.6	87.1
Labutta			
Both Sexes	123.5	24.9	148.4
Males	137.6	26.9	164.5
Females	109.3	21.9	131.2
Hinthada			
Both Sexes	78.2	15.8	94.0
Males	91.2	17.8	109.0
Females	65.3	13.0	78.3

State/Region and District	Early-Age Mortality Rate		
	Infant	Child	Under-five
NAY PYI TAW			
Both Sexes	55.4	8.4	63.8
Males	64.1	9.9	74.0
Females	46.6	6.8	53.4
Ottara			
Both Sexes	53.8	8.2	62.0
Males	62.6	9.7	72.3
Females	44.9	6.5	51.4
Dekkhina			
Both Sexes	56.8	8.7	65.5
Males	65.4	10.2	75.6
Females	48.2	7.0	55.2

Appendix D. Adjustment of household deaths during the 12 months prior to the Census

Table D1

Unadjusted deaths, death rates and probabilities of dying by sex, 2014 Census

Age group	x	n	Population	Deaths	m(x,n)	q(x,n)	Indirect estimates of q(0,1) and q(1,4)*
Both sexes							
Under 1	0	1	809,865	16,679	0.02059	0.02038	0.05878
1 - 4	1	4	3,602,987	6,752	0.00187	0.00747	0.00985
5 - 9	5	5	4,724,561	3,185	0.00067	0.00337	0.00668
10 -14	10	5	4,857,955	2,661	0.00055	0.00274	0.00554
15 - 19	15	5	4,260,063	3,805	0.00089	0.00446	0.00927
20 - 24	20	5	3,922,795	4,857	0.00124	0.00617	0.01331
25 - 29	25	5	3,835,001	6,665	0.00174	0.00865	0.01856
30 - 34	30	5	3,688,862	9,321	0.00253	0.01255	0.02644
35 - 39	35	5	3,408,280	11,520	0.00338	0.01676	0.03535
40 - 44	40	5	3,158,439	13,040	0.00413	0.02043	0.04347
45 - 49	45	5	2,846,351	14,255	0.00501	0.02473	0.05287
50 - 54	50	5	2,480,704	14,953	0.00603	0.02969	0.06375
55 - 59	55	5	1,992,677	16,225	0.00814	0.03990	0.08592
60 - 64	60	5	1,533,332	17,404	0.01135	0.05519	0.11844
65 - 69	65	5	1,032,828	16,902	0.01636	0.07861	0.17053
70 - 74	70	5	691,675	17,075	0.02469	0.11626	0.25257
75 - 79	75	5	535,331	20,117	0.03758	0.17176	0.36482
80 and over	80	inf.	548,293	37,551	0.06849	1	1
Males							
Under 1	0	1	409,619	9,524	0.02325	0.02298	0.06671
1 - 4	1	4	1,822,552	3,603	0.00198	0.00788	0.01132
5 - 9	5	5	2,373,338	1,776	0.00075	0.00373	0.00373
10 - 14	10	5	2,395,227	1,473	0.00061	0.00307	0.00307
15 - 19	15	5	2,040,884	2,317	0.00114	0.00566	0.00566
20 - 24	20	5	1,809,125	3,094	0.00171	0.00851	0.00851
25 - 29	25	5	1,774,288	4,620	0.00260	0.01294	0.01294
30 - 34	30	5	1,732,410	6,832	0.00394	0.01953	0.01953
35 - 39	35	5	1,592,151	8,478	0.00532	0.02627	0.02627
40 - 44	40	5	1,457,800	9,331	0.00640	0.0315	0.0315
45 - 49	45	5	1,302,390	9,979	0.00766	0.03759	0.03759
50 - 54	50	5	1,125,573	9,802	0.00871	0.04261	0.04261
55 - 59	55	5	893,314	10,277	0.01150	0.05591	0.05591
60 - 64	60	5	680,750	10,452	0.01535	0.07393	0.07393
65 - 69	65	5	443,687	9,638	0.02172	0.10302	0.10302
70 - 74	70	5	286,187	9,149	0.03197	0.14801	0.14801
75 - 79	75	5	215,224	10,192	0.04736	0.21171	0.21171
80 and over	80	inf.	200,059	16,130	0.08063	1	1

Table D1 (Continued) **Unadjusted deaths, death rates and probabilities of dying by sex, 2014 Census**

Age group	x	n	Population	Deaths	m(x,n)	q(x,n)	Indirect estimates of q(0,1) and q(1,4)*
Females							
Under 1	0	1	400,246	7,155	0.01788	0.01772	0.05082
1 – 4	1	4	1,780,435	3,149	0.00177	0.00705	0.0081
5 – 9	5	5	2,351,223	1,409	0.00060	0.00299	0.00299
10 -14	10	5	2,462,728	1,188	0.00048	0.00241	0.00241
15 – 19	15	5	2,219,179	1,488	0.00067	0.00335	0.00335
20 – 24	20	5	2,113,670	1,763	0.00083	0.00416	0.00416
25 – 29	25	5	2,060,713	2,045	0.00099	0.00495	0.00495
30 – 34	30	5	1,956,452	2,489	0.00127	0.00634	0.00634
35 – 39	35	5	1,816,129	3,042	0.00167	0.00834	0.00834
40 – 44	40	5	1,700,639	3,709	0.00218	0.01085	0.01085
45 – 49	45	5	1,543,961	4,276	0.00277	0.01375	0.01375
50 – 54	50	5	1,355,131	5,151	0.00380	0.01883	0.01883
55 – 59	55	5	1,099,363	5,948	0.00541	0.02669	0.02669
60 – 64	60	5	852,582	6,952	0.00815	0.03996	0.03996
65 – 69	65	5	589,141	7,264	0.01233	0.05981	0.05981
70 – 74	70	5	405,488	7,926	0.01955	0.09318	0.09318
75 – 79	75	5	320,107	9,925	0.03101	0.14387	0.14387
80 and over	80	inf.	348,234	21,421	0.06151	1	1

* Estimated with data on children ever born and non-surviving children.

Note:

m(x,n) = Age-specific central death rate.

q(x,n) = Probability of dying between exact ages x and x+n (age-specific mortality rate).

l(x) = Number of survivors at age x.

d(x,n) = Number of deaths occurring between ages x and x+n.

L(x,n) = Number of person-years lived between ages x and x+n.

S(x,n) = Survival ratio for persons aged x to x+5 surviving 5 years to ages x+5 to x+10.

T(x) = Number of person-years lived after age x.

e(x) = Life expectancy at age x.

a(x,n) = Average person-years lived by those who die between ages x and age x+n.

Inf. = infinity, which means the age interval is open after age 80.

Table D2

Percentage under-enumeration of adult mortality according to the Brass Growth Balance Equation Method, 2014 Census

Area	Percentage under-enumeration	
	Males	Females
Union	29.7	37.5
Urban	31.8	36.1
Rural	29.2	38.2
Kachin	22.0	34.3
Kayah	25.4	32.7
Kayin	50.7	45.5
Chin	53.1	60.8
Sagaing	29.2	38.4
Tanintharyi	3.8	18.1
Bago	19.1	34.2
Magway	32.7	40.7
Mandalay	37.2	44.8
Mon	36.9	35.1
Rakhine	44.1	51.6
Yangon	33.4	39.6
Shan	44.9	45.9
Ayeyawady	13.0	21.8
Nay Pyi Taw	6.1	25.8

Table D3

Unadjusted Life Tables* based on deaths in the households within 12 months prior to the 2014 Census

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Both sexes									
0	0.02076	0.02038	100,000	2,038	98,168	0.97651	7,534,204	75.34	0.10
1	0.00188	0.00747	97,962	732	390,086	0.99402	7,436,036	75.91	1.59
5	0.00068	0.00337	97,230	328	485,332	0.99694	7,045,950	72.47	2.50
10	0.00055	0.00274	96,903	266	483,849	0.99655	6,560,619	67.70	2.50
15	0.00089	0.00446	96,637	431	482,180	0.99471	6,076,770	62.88	2.67
20	0.00124	0.00617	96,206	594	479,627	0.99268	5,594,590	58.15	2.64
25	0.00174	0.00865	95,612	827	476,115	0.98949	5,114,963	53.50	2.64
30	0.00252	0.01255	94,785	1,190	471,112	0.98534	4,638,848	48.94	2.63
35	0.00338	0.01676	93,596	1,569	464,207	0.98140	4,167,736	44.53	2.60
40	0.00413	0.02043	92,027	1,880	455,573	0.97748	3,703,529	40.24	2.57
45	0.00501	0.02473	90,147	2,229	445,314	0.97301	3,247,956	36.03	2.57
50	0.00602	0.02969	87,918	2,610	433,294	0.96567	2,802,641	31.88	2.59
55	0.00813	0.03990	85,307	3,404	418,418	0.95303	2,369,347	27.77	2.61
60	0.01134	0.05519	81,904	4,520	398,767	0.93409	1,950,929	23.82	2.62
65	0.01633	0.07861	77,383	6,083	372485	0.90416	1,552,162	20.06	2.63
70	0.02461	0.11626	71,300	8,289	336,786	0.85818	1,179,677	16.55	2.62
75	0.03745	0.17176	63,011	10,823	289,025	0.65710	842,890	13.38	2.59
80	0.09423	...	52,188	52,188	553,866	...	553,866	10.61	10.61

*These life tables were computed with the number of deaths in the household in the 12 months prior to the Census by age and sex and the population living in households. The data did not undergo any adjustment.

Table D3 (Continued) Unadjusted Life Tables* based on deaths in the households within 12 months prior to the 2014 Census

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Males									
0	0.02346	0.02298	100,000	2,298	97,951	0.97380	7,082,863	70.83	0.11
1	0.00198	0.00788	97,702	770	388,948	0.99355	6,984,911	71.49	1.58
5	0.00075	0.00373	96,932	362	483,757	0.99660	6,595,964	68.05	2.50
10	0.00061	0.00307	96,571	296	482,112	0.99587	6,112,207	63.29	2.50
15	0.00113	0.00566	96,274	545	480,123	0.99297	5,630,095	58.48	2.71
20	0.00171	0.00851	95,729	815	476,747	0.98943	5,149,972	53.80	2.67
25	0.00260	0.01294	94,915	1,228	471,709	0.98390	4,673,225	49.24	2.67
30	0.00394	0.01953	93,686	1,830	464,115	0.97706	4,201,516	44.85	2.64
35	0.00532	0.02627	91,857	2,413	453,467	0.97107	3,737,401	40.69	2.59
40	0.00640	0.03150	89,444	2,817	440,350	0.96547	3,283,934	36.72	2.56
45	0.00766	0.03759	86,626	3,256	425,146	0.96015	2,843,584	32.83	2.55
50	0.00870	0.04261	83,370	3,552	408,204	0.95136	2,418,437	29.01	2.57
55	0.01149	0.05591	79,817	4,463	388,350	0.93577	2,010,233	25.19	2.59
60	0.01533	0.07393	75,355	5,571	363,405	0.91280	1,621,883	21.52	2.60
65	0.02167	0.10302	69,784	7,189	331,718	0.87635	1,258,478	18.03	2.61
70	0.03187	0.14801	62,595	9,265	290,700	0.82265	926760	14.81	2.60
75	0.04721	0.21171	53,330	11,291	239,145	0.62402	636,061	11.93	2.56
80	0.10592	...	42,040	42,040	396,916	...	396,916	9.44	9.44
Females									
0	0.01801	0.01772	100,000	1,772	98,411	0.97918	7,956,994	79.57	0.10
1	0.00177	0.00705	98,228	693	391,177	0.99461	7,858,583	80.00	1.50
5	0.00060	0.00299	97,535	292	486,948	0.99730	7,467,406	76.56	2.50
10	0.00048	0.00241	97,244	234	485,633	0.99720	6,980,458	71.78	2.50
15	0.00067	0.00335	97,010	325	484,272	0.99624	6,494,824	66.95	2.61
20	0.00083	0.00416	96,685	402	482,449	0.99546	6,010,553	62.17	2.58
25	0.00099	0.00495	96,282	477	480,261	0.99441	5,528,103	57.42	2.59
30	0.00127	0.00634	95,806	607	477,575	0.99271	5,047,842	52.69	2.61
35	0.00167	0.00834	95,198	794	474,093	0.99045	4,570,268	48.01	2.61
40	0.00218	0.01085	94,404	1,024	469,564	0.98779	4,096,175	43.39	2.60
45	0.00277	0.01375	93,380	1,284	463,831	0.98392	3,626,611	38.84	2.61
50	0.00380	0.01883	92,096	1,734	456,373	0.97757	3,162,779	34.34	2.63
55	0.00541	0.02669	90,362	2,412	446,136	0.96721	2,706,406	29.95	2.65
60	0.00814	0.03996	87,950	3,514	431,507	0.95095	2,260,270	25.70	2.65
65	0.01231	0.05981	84,436	5,050	410,342	0.92497	1,828,763	21.66	2.66
70	0.01949	0.09318	79,386	7,397	379,552	0.88359	1,418,421	17.87	2.65
75	0.03088	0.14387	71,988	10,357	335,368	0.67718	1,038,869	14.43	2.63
80	0.08761	...	61,631	61,631	703,500	...	703,500	11.41	11.41

*These life tables were computed with the number of deaths in the household in the 12 months prior to the Census by age and sex and the population living in households. The data did not undergo any adjustment.

Table D4

Unadjusted Life Tables with q(0,1) and q(1,4) estimated indirectly using data on children ever born and non-surviving children*, 2014 Census

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Both sexes									
0	0.07030	0.06671	100,000	6,671	94,892	0.93103	6,744,407	67.44	0.23
1	0.00285	0.01132	93,329	1,056	370,624	0.98923	6,649,515	71.25	1.45
5	0.00075	0.00373	92,273	344	460,502	0.99660	6,278,891	68.05	2.50
10	0.00061	0.00307	91,928	282	458,936	0.99587	5,818,389	63.29	2.50
15	0.00113	0.00566	91,646	519	457,043	0.99297	5,359,453	58.48	2.71
20	0.00171	0.00851	91,127	775	453,830	0.98943	4,902,410	53.80	2.67
25	0.00260	0.01294	90,352	1,169	449,034	0.98390	4,448,580	49.24	2.67
30	0.00394	0.01953	89,183	1,742	441,804	0.97706	3,999,546	44.85	2.64
35	0.00532	0.02627	87,441	2,297	431,669	0.97107	3,557,742	40.69	2.59
40	0.00640	0.03150	85,144	2,682	419,182	0.96547	3,126,073	36.72	2.56
45	0.00766	0.03759	82,462	3,100	404,709	0.96015	2,706,891	32.83	2.55
50	0.00870	0.04261	79,362	3,382	388,581	0.95136	2,302,181	29.01	2.57
55	0.01149	0.05591	75,981	4,248	369,682	0.93577	1,913,600	25.19	2.59
60	0.01533	0.07393	71,732	5,303	345,936	0.91280	1,543,918	21.52	2.60
65	0.02167	0.10302	66,429	6,844	315,772	0.87635	1,197,982	18.03	2.61
70	0.03187	0.14801	59,586	8,819	276,726	0.82265	882,210	14.81	2.60
75	0.04721	0.21171	50,766	10,748	227,649	0.62402	605,485	11.93	2.56
80	0.10592	...	40,019	40,019	377,836	...	377,836	9.44	9.44
Males									
0	0.06164	0.05878	100,000	5,878	95,365	0.93903	6,151,277	61.51	0.21
1	0.00248	0.00985	94,122	927	374,148	0.98915	6,055,912	64.34	1.48
5	0.00134	0.00668	93,195	623	464,418	0.99389	5,681,764	60.97	2.50
10	0.00111	0.00554	92,572	513	461,580	0.99293	5,217,346	56.36	2.50
15	0.00186	0.00927	92,060	853	458,317	0.98876	4,755,766	51.66	2.68
20	0.00268	0.01331	91,206	1,214	453,166	0.98422	4,297,449	47.12	2.64
25	0.00374	0.01856	89,992	1,670	446,013	0.97769	3,844,283	42.72	2.64
30	0.00536	0.02644	88,322	2,335	436,063	0.96915	3,398,270	38.48	2.62
35	0.00719	0.03535	85,987	3,040	422,609	0.96061	2,962,207	34.45	2.59
40	0.00888	0.04347	82,947	3,606	405,963	0.95198	2,539,598	30.62	2.57
45	0.01085	0.05287	79,341	4,195	386,468	0.94219	2,133,635	26.89	2.56
50	0.01316	0.06375	75,147	4,791	364,126	0.92621	1,747,167	23.25	2.58
55	0.01792	0.08592	70,356	6,045	337,256	0.89923	1,383,041	19.66	2.60
60	0.02512	0.11844	64,311	7,617	303,271	0.85806	1,045,785	16.26	2.60
65	0.03715	0.17053	56,694	9,668	260,224	0.79232	742,514	13.10	2.60
70	0.05761	0.25257	47,026	11,877	206,180	0.69669	482,291	10.26	2.56
75	0.08927	0.36482	35,149	12,823	143,643	0.47976	276,111	7.86	2.50
80	0.16854	...	22,326	22,326	132,468	...	132,468	5.93	5.93

* These life tables were computed with the number of deaths in the household in the 12 months prior to the Census by age and sex and the population living in households, except for the first two age groups (0-1 and 1-4 years). For these age groups mortality was estimated indirectly using data on children ever born and non-surviving children. Other data did not undergo any adjustment.

Table D4 (Continued) Unadjusted Life Tables with q(0,1) and q(1,4) estimated indirectly using data on children ever born and non-surviving children*, 2014 Census

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females									
0	0.05297	0.05082	100,000	5,082	95947	0.94730	7,681,797	76.82	0.20
1	0.00204	0.00810	94,918	769	377705	0.99238	7,585,850	79.92	1.44
5	0.00060	0.00299	94,149	282	470042	0.99730	7,208,146	76.56	2.50
10	0.00048	0.00241	93,868	226	468773	0.99720	6,738,104	71.78	2.50
15	0.00067	0.00335	93,641	314	467458	0.99624	6,269,331	66.95	2.61
20	0.00083	0.00416	93,328	388	465699	0.99546	5,801,873	62.17	2.58
25	0.00099	0.00495	92,939	460	463587	0.99441	5,336,174	57.42	2.59
30	0.00127	0.00634	92,479	586	460994	0.99271	4,872,587	52.69	2.61
35	0.00167	0.00834	91,893	766	457633	0.99045	4,411,593	48.01	2.61
40	0.00218	0.01085	91,127	989	453261	0.98779	3,953,960	43.39	2.60
45	0.00277	0.01375	90,138	1,239	447728	0.98392	3,500,699	38.84	2.61
50	0.00380	0.01883	88,899	1,674	440528	0.97757	3,052,971	34.34	2.63
55	0.00541	0.02669	87,225	2,328	430647	0.96721	2,612,443	29.95	2.65
60	0.00814	0.03996	84,897	3,392	416526	0.95095	2,181,796	25.70	2.65
65	0.01231	0.05981	81,504	4,875	396095	0.92497	1,765,270	21.66	2.66
70	0.01949	0.09318	76,629	7,140	366375	0.88359	1,369,175	17.87	2.65
75	0.03088	0.14387	69,489	9,997	323725	0.67718	1,002,800	14.43	2.63
80	0.08761	...	59,492	59,492	679076	...	679,076	11.41	11.41

* These life tables were computed with the number of deaths in the household in the 12 months prior to the Census by age and sex and the population living in households, except for the first two age groups (0-1 and 1-4 years). For these age groups mortality was estimated indirectly using data on children ever born and non-surviving children. Other data did not undergo any adjustment.

Table D5

Adjusted Life Tables*, 2014 Census

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Union									
Both sexes Union									
0	0.06164	0.05878	100,000	5,878	95,365	0.93903	6,469,721	64.70	0.21
1	0.00248	0.00985	94,122	927	374,148	0.99024	6,374,356	67.72	1.48
5	0.00090	0.00448	93,195	418	464,931	0.99594	6,000,208	64.38	2.50
10	0.00073	0.00364	92,777	338	463,043	0.99542	5,535,278	59.66	2.50
15	0.00119	0.00591	92,440	546	460,923	0.99299	5,072,235	54.87	2.67
20	0.00164	0.00817	91,893	751	457,691	0.99032	4,611,312	50.18	2.63
25	0.00229	0.01141	91,143	1,040	453,261	0.98616	4,153,621	45.57	2.64
30	0.00333	0.01651	90,103	1,488	446,989	0.98074	3,700,360	41.07	2.63
35	0.00445	0.02202	88,615	1,951	438,379	0.97555	3,253,370	36.71	2.59
40	0.00545	0.02687	86,664	2,329	427,663	0.97053	2,814,991	32.48	2.57
45	0.00661	0.03253	84,335	2,743	415,061	0.96244	2,387,329	28.31	2.59
50	0.00892	0.04368	81,592	3,564	399,470	0.94822	1,972,267	24.17	2.62
55	0.01275	0.06190	78,028	4,830	378,786	0.92151	1,572,797	20.16	2.65
60	0.02077	0.09903	73,198	7,249	349,056	0.87370	1,194,011	16.31	2.66
65	0.03447	0.15942	65,949	10,514	304,970	0.79700	844,956	12.81	2.64
70	0.05839	0.25601	55,435	14,192	243,061	0.68211	539,985	9.74	2.60
75	0.09805	0.39416	41,243	16,257	165,795	0.44162	296,924	7.20	2.51
80	0.19055	...	24,987	24,987	131,129	...	131,129	5.25	5.25
Males Union									
0	0.07030	0.06671	100,000	6,671	94,892	0.93103	6,017,116	60.17	0.23
1	0.00285	0.01132	93,329	1,056	370,624	0.98868	5,922,224	63.46	1.45
5	0.00097	0.00484	92,273	447	460,246	0.99559	5,551,600	60.17	2.50
10	0.00080	0.00398	91,826	365	458,216	0.99465	5,091,354	55.45	2.50
15	0.00147	0.00734	91,460	671	455,765	0.99088	4,633,138	50.66	2.71
20	0.00222	0.01103	90,789	1,001	451,610	0.98632	4,177,373	46.01	2.67
25	0.00337	0.01674	89,788	1,503	445,432	0.97918	3,725,763	41.50	2.67
30	0.00511	0.02525	88,285	2,229	436,159	0.97035	3,280,331	37.16	2.64
35	0.00690	0.03395	86,055	2,922	423,226	0.96264	2,844,172	33.05	2.59
40	0.00830	0.04066	83,134	3,380	407,417	0.95572	2,420,946	29.12	2.56
45	0.00993	0.04848	79,754	3,866	389,378	0.94523	2,013,529	25.25	2.57
50	0.01290	0.06255	75,887	4,747	368,053	0.92613	1,624,151	21.40	2.60
55	0.01842	0.08825	71,140	6,278	340,863	0.88884	1,256,099	17.66	2.64
60	0.02984	0.13938	64,862	9,041	302,974	0.82515	915,235	14.11	2.64
65	0.04857	0.21750	55,822	12,141	250,000	0.73073	612,261	10.97	2.60
70	0.07929	0.33161	43,681	14,485	182,681	0.60366	362,261	8.29	2.53
75	0.12627	0.47693	29,196	13,924	110,276	0.38592	179,580	6.15	2.44
80	0.22035	...	15,271	15,271	69,304	...	69,304	4.54	4.54

* These life table correspond to those presented in Table 3.2 in Chapter 3. They were computed with the number of deaths in the household during the 12 months prior to the Census and the population living in households adjusted using the Brass Growth Balance Equation method. For the first two age groups (0-1 and 1-4 years) mortality was estimated indirectly using the number of children ever born and non-surviving children.

Table D5 (Continued) Adjusted Life Tables*, 2014 Census

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females Union									
0	0.05297	0.05082	100,000	5,082	95,947	0.94730	6,933,432	69.33	0.20
1	0.00204	0.00810	94,918	769	377,705	0.99182	6,837,485	72.04	1.44
5	0.00082	0.00411	94,149	387	469,778	0.99629	6,459,780	68.61	2.50
10	0.00066	0.00331	93,762	310	468,035	0.99615	5,990,002	63.89	2.50
15	0.00092	0.00460	93,452	430	466,233	0.99483	5,521,967	59.09	2.61
20	0.00115	0.00572	93,022	532	463,822	0.99377	5,055,734	54.35	2.58
25	0.00136	0.00680	92,490	629	460,931	0.99232	4,591,912	49.65	2.59
30	0.00175	0.00871	91,861	800	457,389	0.98999	4,130,982	44.97	2.61
35	0.00230	0.01145	91,061	1,043	452,810	0.98689	3,673,593	40.34	2.61
40	0.00300	0.01488	90,018	1,339	446,874	0.98332	3,220,783	35.78	2.60
45	0.00381	0.01886	88,679	1,672	439,418	0.97710	2,773,909	31.28	2.62
50	0.00562	0.02773	87,006	2,413	429,353	0.96676	2,334,491	26.83	2.65
55	0.00814	0.03994	84,594	3,379	415,082	0.94875	1,905,137	22.52	2.67
60	0.01352	0.06554	81,215	5,323	393,810	0.91332	1,490,056	18.35	2.70
65	0.02387	0.11311	75,892	8,584	359,673	0.84878	1,096,245	14.44	2.69
70	0.04374	0.19839	67,308	13,353	305,285	0.74143	736,572	10.94	2.66
75	0.07944	0.33327	53,955	17,981	226,349	0.47518	431,286	7.99	2.59
80	0.17553	...	35,973	35,973	204,938	...	204,938	5.70	5.70

* These life table correspond to those presented in Table 3.2 in Chapter 3. They were computed with the number of deaths in the household during the 12 months prior to the Census and the population living in households adjusted using the Brass Growth Balance Equation method. For the first two age groups (0-1 and 1-4 years) mortality was estimated indirectly using the number of children ever born and non-surviving children.

Note:

m(x,n) = Age-specific central death rate.

q(x,n) = Probability of dying between exact ages x and x+n (age-specific mortality rate).

l(x) = Number of survivors at age x.

d(x,n) = Number of deaths occurring between ages x and x+n.

L(x,n) = Number of person-years lived between ages x and x+n.

S(x,n) = Survival ratio for persons aged x to x+5 surviving 5 years to ages x+5 to x+10.

T(x) = Number of person-years lived after age x.

e(x) = Life expectancy at age x.

a(x,n) = Average person-years lived by those who die between ages x and age x+n.

Appendix E. Life tables for urban and rural place of residence and for State/Region

Table E

Life Tables for urban and rural place of residence and for State/Region, 2014 Census

Urban areas

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Union									
Both sexes Union									
0	0.03776	0.03658	100,000	3,658	96,882	0.96233	6,524,300	65.24	0.15
1	0.00115	0.00459	96,342	442	384,281	0.99486	6,427,418	66.71	1.54
5	0.00068	0.00338	95,900	324	478,689	0.99682	6,043,137	63.02	2.5
10	0.00059	0.00297	95,576	284	477,169	0.99658	5,564,448	58.22	2.5
15	0.00084	0.00418	95,292	398	475,536	0.99450	5,087,279	53.39	2.68
20	0.00144	0.00716	94,893	679	472,921	0.99044	4,611,744	48.60	2.72
25	0.00249	0.01237	94,214	1,165	468,402	0.98393	4,138,823	43.93	2.71
30	0.00404	0.02003	93,049	1,864	460,874	0.97640	3,670,421	39.45	2.66
35	0.00547	0.02700	91,185	2,462	449,996	0.97008	3,209,547	35.20	2.59
40	0.00665	0.03271	88,723	2,902	436,533	0.96468	2,759,551	31.10	2.56
45	0.00780	0.03826	85,821	3,284	421,114	0.95729	2,323,018	27.07	2.57
50	0.00991	0.04839	82,537	3,994	403,129	0.94233	1,901,904	23.04	2.61
55	0.01440	0.06963	78,543	5,469	379,879	0.91108	1,498,775	19.08	2.65
60	0.02382	0.11282	73,074	8,244	346,099	0.85598	1,118,895	15.31	2.66
65	0.03981	0.18191	64,830	11,793	296,252	0.76905	772,797	11.92	2.63
70	0.06760	0.29039	53,037	15,401	227,832	0.64419	476,545	8.99	2.57
75	0.11206	0.43700	37,635	16,447	146,767	0.40989	248,713	6.61	2.48
80	0.20784	...	21,189	21,189	101,945	...	101,945	4.81	4.81
Males Union									
0	0.04338	0.04186	100,000	4,186	96,496	0.95695	5,970,215	59.7	0.16
1	0.00135	0.00538	95,814	515	381,981	0.99385	5,873,719	61.3	1.53
5	0.00081	0.00402	95,299	383	475,535	0.99628	5,491,738	57.63	2.50
10	0.00068	0.00341	94,915	324	473,768	0.99585	5,016,203	52.85	2.50
15	0.00108	0.00540	94,592	511	471,800	0.99241	4,542,435	48.02	2.73
20	0.00209	0.01042	94,081	980	468,220	0.98511	4,070,636	43.27	2.77
25	0.00407	0.02018	93,101	1,879	461,248	0.97350	3,602,415	38.69	2.73
30	0.00673	0.03314	91,222	3,023	449,025	0.96071	3,141,168	34.43	2.66
35	0.00924	0.04519	88,199	3,986	431,385	0.94968	2,692,143	30.52	2.59
40	0.01132	0.05508	84,213	4,638	409,676	0.94155	2,260,758	26.85	2.54
45	0.01282	0.06213	79,575	4,944	385,729	0.93174	1,851,082	23.26	2.54
50	0.01587	0.07642	74,631	5,703	359,401	0.90940	1,465,353	19.63	2.59
55	0.02299	0.10901	68,927	7,514	326,839	0.86264	1,105,952	16.05	2.63
60	0.03751	0.17220	61,414	10,575	281,944	0.78566	779,113	12.69	2.62
65	0.06075	0.26469	50,838	13,456	221,512	0.67822	497,169	9.78	2.57
70	0.09705	0.39005	37,382	14,581	150,234	0.54562	275,657	7.37	2.48
75	0.14896	0.53553	22,801	12,211	81,971	0.34645	125,424	5.5	2.38
80	0.24372	...	10,590	10,590	43,453	...	43,453	4.1	4.10

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females Union									
0	0.03191	0.03106	100,000	3,106	97,339	0.96790	7,096,103	70.96	0.14
1	0.00099	0.00394	96,894	382	386,611	0.99577	6,998,764	72.23	1.47
5	0.00055	0.00273	96,512	263	481,902	0.99737	6,612,153	68.51	2.50
10	0.00051	0.00253	96,249	244	480,635	0.99729	6,130,250	63.69	2.50
15	0.00061	0.00303	96,005	291	479,332	0.99635	5,649,615	58.85	2.61
20	0.00087	0.00435	95,714	416	477,584	0.99505	5,170,284	54.02	2.63
25	0.00113	0.00563	95,298	537	475,220	0.99312	4,692,700	49.24	2.63
30	0.00167	0.00831	94,761	787	471,948	0.99028	4,217,480	44.51	2.64
35	0.00224	0.01114	93,974	1,047	467,362	0.98751	3,745,532	39.86	2.60
40	0.00281	0.01398	92,927	1,299	461,527	0.98368	3,278,170	35.28	2.61
45	0.00385	0.01907	91,628	1,747	453,992	0.97752	2,816,643	30.74	2.63
50	0.00537	0.02649	89,881	2,381	443,788	0.96785	2,362,650	26.29	2.64
55	0.00801	0.03930	87,500	3,439	429,518	0.94869	1,918,863	21.93	2.68
60	0.01375	0.06663	84,061	5,601	407,480	0.91016	1,489,344	17.72	2.71
65	0.02520	0.11914	78,460	9,348	370,873	0.83789	1,081,864	13.79	2.71
70	0.04795	0.21560	69,112	14,901	310,751	0.71704	710,991	10.29	2.66
75	0.08937	0.36732	54,212	19,913	222,819	0.44329	400,240	7.38	2.58
80	0.19332	...	34,299	34,299	177,421	...	177,421	5.17	5.17

Rural Areas

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Union									
Both sexes Union									
0	0.06796	0.06457	100,000	6,457	95,016	0.93287	6,472,876	64.73	0.23
1	0.00291	0.01157	93,543	1,082	371,421	0.98875	6,377,860	68.18	1.46
5	0.00097	0.00482	92,461	446	461,189	0.99565	6,006,439	64.96	2.50
10	0.00078	0.00388	92,015	357	459,183	0.99495	5,545,250	60.26	2.50
15	0.00134	0.00666	91,658	610	456,865	0.99230	5,086,067	55.49	2.66
20	0.00174	0.00866	91,048	788	453,347	0.99024	4,629,202	50.84	2.60
25	0.00221	0.01101	90,259	994	448,921	0.98713	4,175,855	46.27	2.61
30	0.00302	0.01498	89,265	1,337	443,142	0.98259	3,726,935	41.75	2.62
35	0.00402	0.01991	87,928	1,751	435,428	0.97791	3,283,793	37.35	2.59
40	0.00492	0.02431	86,178	2,095	425,810	0.97311	2,848,365	33.05	2.58
45	0.00609	0.03001	84,083	2,523	414,361	0.96466	2,422,555	28.81	2.60
50	0.00851	0.04172	81,559	3,403	399,716	0.95060	2,008,195	24.62	2.63
55	0.01210	0.05883	78,157	4,598	379,971	0.92557	1,608,479	20.58	2.65
60	0.01961	0.09376	73,559	6,897	351,690	0.88036	1,228,507	16.70	2.67
65	0.03254	0.15112	66,662	10,074	309,613	0.80715	876,817	13.15	2.65
70	0.05519	0.24371	56,588	13,791	249,905	0.69554	567,205	10.02	2.60
75	0.09337	0.37922	42,797	16,229	173,818	0.45220	317,300	7.41	2.53
80	0.18516	...	26,567	26,567	143,482	...	143,482	5.4	5.4

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Males Union									
0	0.07763	0.07338	100,000	7,338	94,522	0.92405	6,072,253	60.72	0.25
1	0.00333	0.01321	92,662	1,224	367,504	0.98701	5,977,731	64.51	1.43
5	0.00102	0.00509	91,438	465	456,026	0.99536	5,610,227	61.36	2.50
10	0.00084	0.00418	90,973	380	453,912	0.99417	5,154,201	56.66	2.50
15	0.00164	0.00816	90,592	739	451,265	0.99021	4,700,289	51.88	2.71
20	0.00228	0.01133	89,853	1,018	446,849	0.98683	4,249,024	47.29	2.63
25	0.00307	0.01526	88,835	1,356	440,963	0.98166	3,802,175	42.80	2.63
30	0.00440	0.02179	87,479	1,906	432,875	0.97448	3,361,212	38.42	2.63
35	0.00593	0.02922	85,573	2,500	421,827	0.96814	2,928,338	34.22	2.58
40	0.00702	0.03450	83,073	2,866	408,388	0.96173	2,506,511	30.17	2.57
45	0.00874	0.04278	80,207	3,431	392,760	0.95076	2,098,122	26.16	2.59
50	0.01172	0.05699	76,775	4,375	373,420	0.93276	1,705,363	22.21	2.61
55	0.01664	0.08007	72,400	5,797	348,310	0.89917	1,331,943	18.40	2.64
60	0.02689	0.12643	66,603	8,421	313,191	0.84091	983,634	14.77	2.65
65	0.04385	0.19848	58,182	11,548	263,364	0.75242	670,443	11.52	2.61
70	0.07223	0.30692	46,634	14,313	198,160	0.62884	407,078	8.73	2.55
75	0.11692	0.45077	32,321	14,569	124,611	0.40354	208,919	6.46	2.46
80	0.21056	...	17,752	17,752	84,308	...	84,308	4.75	4.75
Females Union									
0	0.05843	0.05588	100,000	5,588	95,628	0.94190	6,879,063	68.79	0.22
1	0.00241	0.00959	94,412	905	375,324	0.99048	6,783,434	71.85	1.43
5	0.00091	0.00455	93,507	425	466,469	0.99593	6,408,111	68.53	2.50
10	0.00072	0.00359	93,081	334	464,570	0.99570	5,941,641	63.83	2.50
15	0.00106	0.00527	92,747	489	462,570	0.99414	5,477,071	59.05	2.62
20	0.00128	0.00637	92,258	588	459,861	0.99316	5,014,501	54.35	2.57
25	0.00147	0.00733	91,671	672	456,717	0.99196	4,554,640	49.68	2.57
30	0.00179	0.00889	90,999	809	453,045	0.98985	4,097,922	45.03	2.59
35	0.00233	0.01160	90,190	1,046	448,447	0.98659	3,644,877	40.41	2.61
40	0.00308	0.01531	89,143	1,365	442,434	0.98314	3,196,431	35.86	2.59
45	0.00379	0.01877	87,779	1,648	434,975	0.97687	2,753,997	31.37	2.62
50	0.00575	0.02836	86,131	2,443	424,916	0.96611	2,319,022	26.92	2.65
55	0.00826	0.04052	83,688	3,391	410,513	0.94827	1,894,106	22.63	2.66
60	0.01359	0.06587	80,297	5,289	389,277	0.91337	1,483,593	18.48	2.69
65	0.02373	0.11249	75,008	8,438	355,554	0.85045	1,094,316	14.59	2.69
70	0.0430	0.19533	66,570	13,003	302,381	0.74631	738,762	11.10	2.66
75	0.07737	0.32596	53,567	17,461	225,669	0.48286	436,381	8.15	2.59
80	0.17135	...	36,106	36,106	210,712	...	210,712	5.84	5.84

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Kachin									
Both sexes Kachin									
0	0.04986	0.04790	100,000	4,790	96,073	0.95053	6,423,411	64.23	0.18
1	0.00174	0.00694	95,210	661	379,194	0.99219	6,327,338	66.46	1.51
5	0.00101	0.00504	94,549	477	471,555	0.99536	5,948,144	62.91	2.50
10	0.00085	0.00424	94,073	399	469,366	0.99452	5,476,589	58.22	2.50
15	0.00149	0.00741	93,674	694	466,796	0.98990	5,007,223	53.45	2.73
20	0.00264	0.01311	92,980	1,219	462,079	0.98403	4,540,427	48.83	2.69
25	0.00375	0.01858	91,761	1,705	454,699	0.98008	4,078,348	44.45	2.59
30	0.00427	0.02114	90,056	1,904	445,643	0.97625	3,623,648	40.24	2.56
35	0.00534	0.02636	88,152	2,324	435,060	0.97294	3,178,005	36.05	2.55
40	0.00564	0.02781	85,828	2,387	423,287	0.96916	2,742,945	31.96	2.55
45	0.00709	0.03484	83,441	2,907	410,235	0.95906	2,319,658	27.80	2.60
50	0.00986	0.04816	80,534	3,879	393,439	0.94328	1,909,423	23.71	2.62
55	0.01388	0.06719	76,656	5,151	371,125	0.91570	1,515,984	19.78	2.64
60	0.02220	0.10549	71,505	7,543	339,838	0.86628	1,144,859	16.01	2.65
65	0.03646	0.16781	63,962	10,734	294,395	0.78924	805,021	12.59	2.63
70	0.06026	0.26302	53,229	14,000	232,348	0.67453	510,626	9.59	2.59
75	0.10068	0.40222	39,229	15,778	156,726	0.43680	278,277	7.09	2.50
80	0.19292	...	23,450	23,450	121,552	...	121,552	5.18	5.18
Males Kachin									
0	0.05559	0.05321	100,000	5,321	95,719	0.94515	5,936,283	59.36	0.2
1	0.00197	0.00784	94,679	742	376,855	0.99110	5,840,564	61.69	1.49
5	0.00112	0.00560	93,937	526	468,368	0.99488	5,463,709	58.16	2.50
10	0.00093	0.00464	93,411	433	465,970	0.99325	4,995,340	53.48	2.50
15	0.00204	0.01013	92,977	942	462,826	0.98471	4,529,371	48.71	2.81
20	0.00426	0.02109	92,035	1,941	455,748	0.97416	4,066,544	44.18	2.72
25	0.00606	0.02984	90,094	2,688	443,973	0.96838	3,610,796	40.08	2.58
30	0.00673	0.03311	87,406	2,894	429,935	0.96341	3,166,823	36.23	2.55
35	0.00818	0.04008	84,512	3,387	414,205	0.95890	2,736,888	32.38	2.53
40	0.00857	0.04198	81,125	3,406	397,182	0.95566	2,322,683	28.63	2.52
45	0.00986	0.04817	77,719	3,744	379,572	0.94183	1,925,502	24.78	2.59
50	0.01456	0.07037	73,975	5,206	357,493	0.91737	1,545,930	20.90	2.62
55	0.02039	0.09726	68,770	6,689	327,952	0.87909	1,188,437	17.28	2.62
60	0.03227	0.14987	62,081	9,304	288,301	0.81476	860,485	13.86	2.62
65	0.05111	0.22749	52,777	12,006	234,896	0.72249	572,184	10.84	2.59
70	0.08110	0.33756	40,771	13,763	169,709	0.60083	337,288	8.27	2.52
75	0.12599	0.47567	27,008	12,847	101,966	0.39153	167,579	6.20	2.43
80	0.21583	...	14,161	14,161	65,613	...	65,613	4.63	4.63

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females Kachin									
0	0.04400	0.04246	100,000	4,246	96,507	0.95616	6,930,798	69.31	0.18
1	0.00149	0.00592	95,754	567	381,573	0.99329	6,834,291	71.37	1.45
5	0.00089	0.00446	95,187	425	474,874	0.99585	6,452,718	67.79	2.50
10	0.00077	0.00383	94,763	363	472,906	0.99578	5,977,843	63.08	2.50
15	0.00095	0.00475	94,400	448	470,909	0.99494	5,504,938	58.32	2.57
20	0.00109	0.00544	93,951	511	468,525	0.99362	5,034,029	53.58	2.59
25	0.00149	0.00743	93,440	694	465,537	0.99180	4,565,503	48.86	2.60
30	0.00182	0.00906	92,746	840	461,719	0.98919	4,099,966	44.21	2.61
35	0.00254	0.01263	91,906	1,161	456,730	0.98669	3,638,247	39.59	2.59
40	0.00286	0.01422	90,745	1,290	450,652	0.98181	3,181,518	35.06	2.62
45	0.00463	0.02291	89,454	2,049	442,454	0.97354	2,730,866	30.53	2.65
50	0.00613	0.03022	87,405	2,641	430,748	0.96388	2,288,411	26.18	2.62
55	0.00890	0.04361	84,764	3,697	415,187	0.94404	1,857,664	21.92	2.67
60	0.01480	0.07157	81,067	5,802	391,952	0.90549	1,442,477	17.79	2.69
65	0.02611	0.12313	75,265	9,267	354,908	0.83618	1,050,524	13.96	2.69
70	0.04759	0.21398	65,998	14,122	296,766	0.72390	695,616	10.54	2.65
75	0.08530	0.35325	51,876	18,325	214,828	0.46138	398,850	7.69	2.57
80	0.18232	...	33,551	33,551	184,022	...	184,022	5.48	5.48

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Kayah									
Both sexes Kayah									
0	0.05598	0.05357	100,000	5,357	95,696	0.94455	6,428,144	64.28	0.20
1	0.00211	0.00839	94,643	794	376,580	0.99026	6,332,448	66.91	1.49
5	0.00134	0.00669	93,849	628	467,675	0.99420	5,955,868	63.46	2.50
10	0.00098	0.00491	93,221	458	464,961	0.99358	5,488,193	58.87	2.50
15	0.00170	0.00845	92,763	784	461,978	0.99028	5,023,231	54.15	2.65
20	0.00210	0.01045	91,980	961	457,489	0.99087	4,561,253	49.59	2.49
25	0.00168	0.00839	91,018	764	453,310	0.98479	4,103,764	45.09	2.67
30	0.00477	0.02357	90,255	2,127	446,414	0.97517	3,650,454	40.45	2.72
35	0.00498	0.02458	88,127	2,166	435,331	0.97218	3,204,040	36.36	2.55
40	0.00638	0.03142	85,961	2,701	423,219	0.96697	2,768,709	32.21	2.56
45	0.00711	0.03497	83,260	2,912	409,241	0.95921	2,345,490	28.17	2.58
50	0.00983	0.04801	80,349	3,858	392,547	0.94379	1,936,248	24.1	2.62
55	0.01369	0.06630	76,491	5,071	370,481	0.91658	1,543,702	20.18	2.64
60	0.02193	0.10427	71,420	7,447	339,577	0.87058	1,173,221	16.43	2.65
65	0.03454	0.15960	63,973	10,210	295,630	0.79972	833,644	13.03	2.63
70	0.05683	0.24992	53,763	13,436	236,420	0.69192	538,014	10.01	2.59
75	0.09351	0.37932	40,326	15,297	163,585	0.45760	301,593	7.48	2.51
80	0.18136	...	25,030	25,030	138,009	...	138,009	5.51	5.51

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Males Kayah									
0	0.06195	0.05907	100,000	5,907	95,347	0.93903	5,909,712	59.10	0.21
1	0.00233	0.00928	94,093	873	374,167	0.98893	5,814,364	61.79	1.48
5	0.00154	0.00765	93,220	713	464,316	0.99358	5,440,197	58.36	2.50
10	0.00104	0.00519	92,507	480	461,333	0.99242	4,975,881	53.79	2.50
15	0.00222	0.01105	92,027	1,017	457,838	0.98559	4,514,548	49.06	2.74
20	0.00343	0.01699	91,010	1,546	451,241	0.98499	4,056,709	44.57	2.54
25	0.00275	0.01368	89,463	1,224	444,466	0.97482	3,605,468	40.30	2.67
30	0.00799	0.03922	88,240	3,461	433,274	0.95879	3,161,002	35.82	2.71
35	0.00819	0.04012	84,779	3,401	415,420	0.95814	2,727,728	32.17	2.51
40	0.00904	0.04420	81,377	3,597	398,029	0.95241	2,312,308	28.41	2.54
45	0.01071	0.05222	77,781	4,062	379,086	0.93867	1,914,279	24.61	2.58
50	0.01498	0.07232	73,719	5,331	355,838	0.91554	1,535,193	20.82	2.61
55	0.02083	0.09922	68,388	6,785	325,783	0.87718	1,179,355	17.25	2.62
60	0.03270	0.15168	61,602	9,344	285,771	0.81334	853,572	13.86	2.62
65	0.05135	0.22838	52,258	11,935	232,428	0.72246	567,801	10.87	2.58
70	0.08081	0.33652	40,324	13,570	167,920	0.60289	335,373	8.32	2.52
75	0.12480	0.47223	26,754	12,634	101,237	0.39543	167,453	6.26	2.43
80	0.21324	...	14,120	14,120	66,216	...	66,216	4.69	4.69
Females Kayah									
0	0.04976	0.04784	100,000	4,784	96,142	0.95048	7,021,892	70.22	0.19
1	0.00182	0.00726	95,216	691	379,099	0.99165	6,925,750	72.74	1.45
5	0.00115	0.00572	94,525	541	471,272	0.99482	6,546,651	69.26	2.50
10	0.00093	0.00463	93,984	435	468,832	0.99470	6,075,379	64.64	2.50
15	0.00119	0.00593	93,549	555	466,349	0.99479	5,606,547	59.93	2.48
20	0.00087	0.00433	92,994	403	463,919	0.99628	5,140,198	55.27	2.39
25	0.00070	0.00350	92,591	324	462,194	0.99416	4,676,279	50.50	2.65
30	0.00176	0.00874	92,267	806	459,497	0.99054	4,214,085	45.67	2.72
35	0.00203	0.01009	91,461	923	455,151	0.98537	3,754,588	41.05	2.67
40	0.00396	0.01962	90,538	1,776	448,493	0.97982	3,299,438	36.44	2.64
45	0.00406	0.02012	88,762	1,786	439,442	0.97714	2,850,945	32.12	2.55
50	0.00536	0.02648	86,976	2,303	429,398	0.96865	2,411,503	27.73	2.62
55	0.00763	0.03746	84,673	3,172	415,938	0.95242	1,982,105	23.41	2.66
60	0.01241	0.06031	81,501	4,915	396,149	0.92102	1,566,167	19.22	2.69
65	0.02145	0.10221	76,586	7,828	364,861	0.86430	1,170,018	15.28	2.69
70	0.03862	0.17714	68,758	12,180	315,348	0.76858	805,158	11.71	2.66
75	0.06967	0.29844	56,578	16,885	242,370	0.50518	489,810	8.66	2.60
80	0.16041	...	39,693	39,693	247,440	...	247,440	6.23	6.23

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Kayin									
Both sexes Kayin									
0	0.05309	0.05090	100,000	5,090	95,871	0.94736	6,208,093	62.08	0.19
1	0.00194	0.00771	94,910	732	377,810	0.99119	6,112,221	64.40	1.50
5	0.00118	0.00588	94,178	554	469,507	0.99503	5,734,411	60.89	2.50
10	0.00081	0.00406	93,624	380	467,172	0.99421	5,264,904	56.23	2.50
15	0.00166	0.00825	93,244	769	464,466	0.99004	4,797,732	51.45	2.72
20	0.00235	0.01167	92,475	1,079	459,840	0.98557	4,333,266	46.86	2.65
25	0.00349	0.01729	91,396	1,580	453,205	0.98115	3,873,427	42.38	2.61
30	0.00414	0.02052	89,816	1,843	444,662	0.97522	3,420,222	38.08	2.60
35	0.00597	0.02945	87,973	2,591	433,645	0.96760	2,975,560	33.82	2.60
40	0.00710	0.03490	85,382	2,980	419,597	0.96353	2,541,916	29.77	2.55
45	0.00800	0.03924	82,402	3,233	404,293	0.94947	2,122,319	25.76	2.61
50	0.01326	0.06431	79,169	5,091	383,865	0.92425	1,718,026	21.70	2.65
55	0.01852	0.08871	74,077	6,571	354,789	0.88961	1,334,161	18.01	2.63
60	0.02929	0.13693	67,506	9,244	315,625	0.83037	979,372	14.51	2.63
65	0.04640	0.20874	58,262	12,162	262,087	0.74363	663,747	11.39	2.60
70	0.07419	0.31365	46,101	14,459	194,895	0.62566	401,661	8.71	2.54
75	0.11659	0.44932	31,641	14,217	121,939	0.41026	206,766	6.53	2.45
80	0.20541	...	17,424	17,424	84,827	...	84,827	4.87	4.87
Males Kayin									
0	0.06045	0.05769	100,000	5,769	95,433	0.94046	5,774,251	57.74	0.21
1	0.00225	0.00895	94,231	843	374,798	0.98931	5,678,818	60.26	1.48
5	0.00149	0.00742	93,388	693	465,206	0.99431	5,304,020	56.80	2.50
10	0.00079	0.00394	92,695	365	462,560	0.99338	4,838,814	52.20	2.500
15	0.00212	0.01053	92,329	972	459,498	0.98669	4,376,253	47.40	2.79
20	0.00323	0.01601	91,357	1,463	453,383	0.97967	3,916,756	42.87	2.67
25	0.00502	0.02479	89,895	2,228	444,167	0.97282	3,463,373	38.53	2.62
30	0.00600	0.02959	87,666	2,594	432,095	0.96477	3,019,206	34.44	2.60
35	0.00845	0.04143	85,072	3,525	416,874	0.95420	2,587,111	30.41	2.59
40	0.01017	0.04962	81,548	4,046	397,783	0.94849	2,170,237	26.61	2.54
45	0.01133	0.05514	77,501	4,273	377,293	0.92805	1,772,454	22.87	2.61
50	0.01933	0.09245	73,228	6,770	350,146	0.89204	1,395,161	19.05	2.64
55	0.02662	0.12510	66,458	8,314	312,346	0.84712	1,045,014	15.72	2.60
60	0.04101	0.18664	58,144	10,852	264,595	0.77465	732,668	12.6	2.59
65	0.06256	0.27113	47,292	12,822	204,968	0.67838	468,074	9.90	2.54
70	0.09469	0.38195	34,470	13,166	139,047	0.56024	263,106	7.63	2.47
75	0.14003	0.51201	21,304	10,908	77,899	0.37208	124,059	5.82	2.38
80	0.22522	...	10,396	10,396	46,159	...	46,159	4.44	4.44

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females Kayin									
0	0.04559	0.04395	100,000	4,395	96,404	0.95458	6,672,227	66.72	0.18
1	0.00158	0.00630	95,605	602	380,886	0.99309	6,575,823	68.78	1.45
5	0.00086	0.00430	95,003	409	473,992	0.99576	6,194,937	65.21	2.50
10	0.00084	0.00417	94,594	394	471,985	0.99504	5,720,945	60.48	2.50
15	0.00122	0.00606	94,200	571	469,643	0.99314	5,248,960	55.72	2.63
20	0.00155	0.00771	93,629	722	466,421	0.99089	4,779,317	51.05	2.61
25	0.00212	0.01057	92,907	982	462,171	0.98867	4,312,896	46.42	2.59
30	0.00246	0.01224	91,925	1,125	456,936	0.98488	3,850,725	41.89	2.61
35	0.00370	0.01834	90,800	1,665	450,026	0.97975	3,393,789	37.38	2.61
40	0.00442	0.02187	89,135	1,949	440,912	0.97682	2,943,763	33.03	2.56
45	0.00510	0.02519	87,185	2,196	430,692	0.96815	2,502,851	28.71	2.62
50	0.00816	0.04004	84,989	3,403	416,974	0.95200	2,072,159	24.38	2.66
55	0.01179	0.05736	81,586	4,680	396,959	0.92694	1,655,185	20.29	2.66
60	0.01939	0.09277	76,906	7,135	367,959	0.87920	1,258,226	16.36	2.68
65	0.03351	0.15537	69,772	10,840	323,511	0.79818	890,267	12.76	2.66
70	0.05893	0.25821	58,931	15,217	258,219	0.67797	566,756	9.62	2.61
75	0.10019	0.40124	43,715	17,540	175,064	0.43260	308,537	7.06	2.52
80	0.19610	...	26,175	26,175	133,473	...	133,473	5.10	5.10
Chin									
Both sexes Chin									
0	0.07375	0.06985	100,000	6,985	94,715	0.92725	6,048,054	60.48	0.24
1	0.00334	0.01323	93,015	1,231	368,913	0.98494	5,953,339	64.00	1.44
5	0.00199	0.00992	91,784	911	456,646	0.99180	5,584,426	60.84	2.50
10	0.00130	0.00646	90,874	587	452,902	0.99152	5,127,780	56.43	2.50
15	0.00230	0.01144	90,287	1,033	449,062	0.98539	4,674,878	51.78	2.70
20	0.00351	0.01740	89,254	1,553	442,499	0.98290	4,225,817	47.35	2.57
25	0.00337	0.01669	87,701	1,464	434,930	0.98013	3,783,318	43.14	2.56
30	0.00479	0.02370	86,237	2,044	426,287	0.97372	3,348,387	38.83	2.60
35	0.00578	0.02851	84,193	2,400	415,083	0.96985	2,922,101	34.71	2.55
40	0.00642	0.03160	81,793	2,585	402,569	0.96787	2,507,017	30.65	2.53
45	0.00696	0.03426	79,208	2,714	389,636	0.95182	2,104,448	26.57	2.64
50	0.01344	0.06515	76,495	4,984	370,863	0.92428	1,714,812	22.42	2.67
55	0.01804	0.08646	71,511	6,183	342,782	0.89468	1,343,949	18.79	2.61
60	0.02735	0.12841	65,328	8,389	306,681	0.84256	1,001,168	15.33	2.62
65	0.04231	0.19199	56,939	10,932	258,398	0.76673	694,487	12.20	2.59
70	0.06565	0.28272	46,008	13,007	198,121	0.66226	436,088	9.48	2.55
75	0.10184	0.40490	33,000	13,362	131,208	0.44863	237,967	7.21	2.47
80	0.18395	...	19,639	19,639	106,759	...	106,759	5.44	5.44

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Males Chin									
0	0.08061	0.07608	100,000	7,608	94,379	0.92124	5,736,604	57.37	0.26
1	0.00353	0.01398	92,392	1,292	366,240	0.98330	5,642,224	61.07	1.42
5	0.00227	0.01130	91,100	1,029	452,928	0.99071	5,275,984	57.91	2.50
10	0.00146	0.00725	90,071	653	448,722	0.98967	4,823,056	53.55	2.50
15	0.00296	0.01468	89,418	1,313	444,087	0.98220	4,374,334	48.92	2.71
20	0.00415	0.02057	88,105	1,812	436,184	0.97731	3,930,247	44.61	2.60
25	0.00507	0.02506	86,293	2,163	426,287	0.96980	3,494,063	40.49	2.61
30	0.00726	0.03566	84,130	3,000	413,412	0.96140	3,067,777	36.46	2.59
35	0.00827	0.04053	81,130	3,288	397,454	0.95965	2,654,364	32.72	2.51
40	0.00815	0.03993	77,842	3,108	381,417	0.95998	2,256,910	28.99	2.49
45	0.00866	0.04243	74,734	3,171	366,152	0.94081	1,875,493	25.10	2.63
50	0.01653	0.07959	71,563	5,696	344,479	0.90828	1,509,341	21.09	2.66
55	0.02187	0.10389	65,867	6,843	312,883	0.87480	1,164,863	17.69	2.60
60	0.03257	0.15103	59,024	8,914	273,710	0.81872	851,979	14.43	2.60
65	0.04852	0.21700	50,110	10,874	224,093	0.74115	578,269	11.54	2.57
70	0.07299	0.30896	39,236	12,122	166,087	0.63759	354,175	9.03	2.52
75	0.10952	0.42773	27,114	11,597	105,896	0.43699	188,089	6.94	2.44
80	0.18878	...	15,516	15,516	82,193	...	82,193	5.30	5.30
Females Chin									
0	0.06682	0.06359	100,000	6,359	95,172	0.93363	6,349,113	63.49	0.24
1	0.00305	0.01209	93,641	1,132	371,644	0.98664	6,253,941	66.79	1.42
5	0.00171	0.00849	92,509	785	460,581	0.99291	5,882,298	63.59	2.50
10	0.00114	0.00567	91,723	520	457,317	0.99328	5,421,717	59.11	2.50
15	0.00170	0.00845	91,203	771	454,243	0.98812	4,964,399	54.43	2.70
20	0.00300	0.01490	90,433	1,347	448,845	0.98720	4,510,156	49.87	2.54
25	0.00209	0.01039	89,085	926	443,098	0.98809	4,061,311	45.59	2.48
30	0.00285	0.01416	88,160	1,248	437,823	0.98369	3,618,212	41.04	2.62
35	0.00376	0.01864	86,911	1,620	430,682	0.97833	3,180,389	36.59	2.61
40	0.00498	0.02462	85,291	2,100	421,348	0.97469	2,749,707	32.24	2.57
45	0.00546	0.02696	83,191	2,243	410,684	0.96161	2,328,359	27.99	2.65
50	0.01075	0.05243	80,949	4,244	394,917	0.93829	1,917,675	23.69	2.68
55	0.01476	0.07128	76,704	5,467	370,545	0.91211	1,522,758	19.85	2.63
60	0.02285	0.10842	71,237	7,724	337,978	0.86410	1,152,213	16.17	2.64
65	0.03678	0.16912	63,513	10,741	292,046	0.78887	814,235	12.82	2.62
70	0.05986	0.26134	52,772	13,791	230,386	0.68372	522,190	9.90	2.57
75	0.09492	0.38358	38,981	14,952	157,519	0.46019	291,804	7.49	2.50
80	0.17894	...	24,028	24,028	134,284	...	134,284	5.59	5.59

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Sagaing									
Both sexes Sagaing									
0	0.05884	0.05621	100,000	5,621	95,526	0.94176	6,574,574	65.75	0.20
1	0.00229	0.00911	94,379	860	375,352	0.99091	6,479,047	68.65	1.48
5	0.00086	0.00427	93,519	399	466,598	0.99608	6,103,695	65.27	2.50
10	0.00072	0.00357	93,120	332	464,768	0.99535	5,637,097	60.54	2.50
15	0.00124	0.00617	92,787	572	462,608	0.99265	5,172,329	55.74	2.68
20	0.00171	0.00851	92,215	785	459,206	0.99024	4,709,721	51.07	2.62
25	0.00223	0.01109	91,430	1,014	454,725	0.98733	4,250,514	46.49	2.61
30	0.00293	0.01453	90,416	1,314	448,963	0.98239	3,795,789	41.98	2.63
35	0.00422	0.02087	89,102	1,860	441,056	0.97712	3,346,826	37.56	2.60
40	0.00502	0.02481	87,243	2,164	430,967	0.97197	2,905,770	33.31	2.58
45	0.00637	0.03138	85,078	2,670	418,887	0.96693	2,474,803	29.09	2.56
50	0.00725	0.03564	82,409	2,937	405,034	0.95486	2,055,916	24.95	2.61
55	0.01181	0.05747	79,472	4,567	386,752	0.92694	1,650,882	20.77	2.68
60	0.01916	0.09170	74,904	6,869	358,497	0.88275	1,264,130	16.88	2.67
65	0.03187	0.14826	68,036	10,087	316,462	0.81107	905,634	13.31	2.65
70	0.05385	0.23850	57,949	13,821	256,673	0.70129	589,171	10.17	2.61
75	0.09136	0.37268	44,128	16,446	180,003	0.45863	332,498	7.53	2.53
80	0.18153	...	27,682	27,682	152,495	...	152,495	5.51	5.51
Males Sagaing									
0	0.06620	0.06296	100,000	6,296	95,111	0.93496	6,095,955	60.96	0.22
1	0.00259	0.01029	93,704	964	372,370	0.98960	6,000,844	64.04	1.46
5	0.00093	0.00465	92,740	431	462,621	0.99570	5,628,474	60.69	2.50
10	0.00079	0.00395	92,309	365	460,631	0.99432	5,165,853	55.96	2.50
15	0.00164	0.00817	91,944	751	458,016	0.98982	4,705,222	51.17	2.73
20	0.00245	0.01218	91,193	1,111	453,352	0.98550	4,247,206	46.57	2.65
25	0.00344	0.01704	90,082	1,535	446,777	0.97981	3,793,853	42.12	2.63
30	0.00481	0.02376	88,547	2,104	437,755	0.97138	3,347,076	37.80	2.63
35	0.00682	0.03355	86,443	2,900	425,227	0.96367	2,909,321	33.66	2.59
40	0.00794	0.03893	83,543	3,252	409,777	0.95647	2,484,094	29.73	2.56
45	0.00982	0.04793	80,291	3,848	391,941	0.95227	2,074,317	25.84	2.53
50	0.01002	0.04894	76,442	3,741	373,234	0.93581	1,682,376	22.01	2.60
55	0.01757	0.08439	72,701	6,135	349,277	0.89304	1,309,142	18.01	2.68
60	0.02844	0.13328	66,566	8,872	311,918	0.83254	959,866	14.42	2.64
65	0.04634	0.20860	57,694	12,035	259,685	0.74083	647,948	11.23	2.61
70	0.07599	0.32016	45,659	14,618	192,382	0.61526	388,263	8.50	2.54
75	0.12193	0.46495	31,041	14,432	118,366	0.39573	195,882	6.31	2.45
80	0.21426	...	16,608	16,608	77,516	...	77,516	4.67	4.67

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females Sagaing									
0	0.05143	0.04939	100,000	4,939	96,040	0.94883	7,043,118	70.43	0.20
1	0.00193	0.00769	95,061	731	378,375	0.99224	6,947,078	73.08	1.44
5	0.00078	0.00388	94,330	366	470,735	0.99646	6,568,703	69.64	2.50
10	0.00064	0.00320	93,964	301	469,068	0.99629	6,097,968	64.90	2.50
15	0.00089	0.00442	93,663	414	467,328	0.99500	5,628,899	60.10	2.61
20	0.00111	0.00553	93,249	516	464,992	0.99412	5,161,571	55.35	2.57
25	0.00124	0.00617	92,734	572	462,259	0.99366	4,696,579	50.65	2.54
30	0.00134	0.00669	92,161	617	459,328	0.99175	4,234,320	45.94	2.60
35	0.00203	0.01010	91,545	925	455,536	0.98852	3,774,993	41.24	2.63
40	0.00260	0.01291	90,620	1,170	450,308	0.98487	3,319,456	36.63	2.61
45	0.00357	0.01772	89,450	1,585	443,497	0.97893	2,869,148	32.08	2.63
50	0.00505	0.02494	87,865	2,191	434,151	0.97017	2,425,651	27.61	2.64
55	0.00730	0.03587	85,674	3,073	421,200	0.95397	1,991,500	23.25	2.67
60	0.01210	0.05888	82,601	4,864	401,813	0.92198	1,570,300	19.01	2.70
65	0.02141	0.10201	77,737	7,930	370,462	0.86284	1,168,486	15.03	2.70
70	0.03951	0.18090	69,807	12,628	319,650	0.76141	798,024	11.43	2.67
75	0.07288	0.31021	57,179	17,738	243,386	0.49122	478,374	8.37	2.60
80	0.16785	...	39,442	39,442	234,988	...	234,988	5.96	5.96

Tanintharyi									
Both sexes Tanintharyi									
0	0.06818	0.06477	100,000	6,477	95,004	0.93267	6,553,035	65.53	0.23
1	0.00293	0.01162	93,523	1,087	371,329	0.98913	6,458,030	69.05	1.46
5	0.00079	0.00396	92,436	366	461,266	0.99630	6,086,701	65.85	2.50
10	0.00069	0.00344	92,070	317	459,559	0.99527	5,625,435	61.10	2.50
15	0.00129	0.00644	91,753	591	457,384	0.99301	5,165,875	56.30	2.66
20	0.00149	0.00744	91,163	678	454,189	0.99098	4,708,492	51.65	2.61
25	0.00217	0.01081	90,484	978	450,090	0.98799	4,254,303	47.02	2.62
30	0.00267	0.01325	89,506	1,186	444,684	0.98457	3,804,213	42.50	2.60
35	0.00360	0.01783	88,320	1,575	437,821	0.98013	3,359,529	38.04	2.60
40	0.00446	0.02207	86,746	1,914	429,123	0.97449	2,921,707	33.68	2.59
45	0.00593	0.02925	84,831	2,481	418,176	0.96772	2,492,584	29.38	2.59
50	0.00730	0.03587	82,350	2,954	404,677	0.95722	2,074,408	25.19	2.61
55	0.01061	0.05176	79,396	4,110	387,365	0.93379	1,669,732	21.03	2.66
60	0.01753	0.08421	75,286	6,340	361,716	0.89103	1,282,367	17.03	2.68
65	0.02983	0.13943	68,946	9,613	322,300	0.81841	920,651	13.35	2.67
70	0.05253	0.23355	59,333	13,857	263,775	0.70233	598,351	10.08	2.63
75	0.09255	0.37701	45,476	17,145	185,256	0.44629	334,576	7.36	2.54
80	0.18973	...	28,331	28,331	149,319	...	149,319	5.27	5.27

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Males Tanintharyi									
0	0.07510	0.07108	100,000	7,108	94,647	0.92647	6,219,636	62.20	0.25
1	0.00316	0.01253	92,892	1,164	368,587	0.98788	6,124,989	65.94	1.44
5	0.00089	0.00446	91,728	409	457,618	0.99590	5,756,402	62.76	2.50
10	0.00075	0.00373	91,319	341	455,743	0.99429	5,298,785	58.03	2.50
15	0.00168	0.00835	90,978	760	453,143	0.99083	4,843,042	53.23	2.70
20	0.00197	0.00978	90,219	882	448,988	0.9880	4,389,899	48.66	2.61
25	0.00295	0.01463	89,336	1,307	443,599	0.98285	3,940,911	44.11	2.64
30	0.00398	0.01973	88,029	1,737	435,992	0.97743	3,497,313	39.73	2.61
35	0.00514	0.02538	86,293	2,190	426,150	0.97271	3,061,321	35.48	2.57
40	0.00600	0.02955	84,102	2,485	414,521	0.96496	2,635,171	31.33	2.59
45	0.00838	0.04106	81,617	3,351	399,996	0.95562	2,220,650	27.21	2.59
50	0.00985	0.04813	78,266	3,767	382,245	0.94318	1,820,653	23.26	2.59
55	0.01412	0.06832	74,499	5,090	360,525	0.91323	1,438,409	19.31	2.65
60	0.02311	0.10964	69,409	7,610	329,244	0.86027	1,077,883	15.53	2.66
65	0.03846	0.17629	61,799	10,895	283,239	0.77628	748,640	12.11	2.64
70	0.06516	0.28145	50,905	14,327	219,872	0.65301	465,400	9.14	2.58
75	0.10907	0.42815	36,578	15,661	143,578	0.41523	245,529	6.71	2.49
80	0.20517	...	20,917	20,917	101,951	...	101,951	4.87	4.87
Females Tanintharyi									
0	0.06119	0.05842	100,000	5,842	95,474	0.93919	6,890,221	68.90	0.23
1	0.00261	0.01038	94,158	977	374,119	0.99044	6,794,747	72.16	1.43
5	0.00069	0.00344	93,181	321	465,102	0.99671	6,420,628	68.91	2.50
10	0.00063	0.00314	92,860	292	463,572	0.99623	5,955,526	64.13	2.50
15	0.00092	0.00461	92,569	427	461,822	0.99504	5,491,955	59.33	2.61
20	0.00106	0.00531	92,142	489	459,531	0.99369	5,030,133	54.59	2.59
25	0.00146	0.00727	91,653	666	456,633	0.99289	4,570,602	49.87	2.55
30	0.00140	0.00699	90,986	636	453,386	0.99155	4,113,969	45.22	2.57
35	0.00208	0.01037	90,350	937	449,556	0.98728	3,660,582	40.52	2.66
40	0.00305	0.01514	89,413	1,354	443,840	0.98315	3,211,026	35.91	2.62
45	0.00376	0.01864	88,060	1,641	436,360	0.97833	2,767,186	31.42	2.60
50	0.00514	0.02538	86,418	2,193	426,903	0.96943	2,330,827	26.97	2.63
55	0.00756	0.03713	84,225	3,127	413,850	0.95190	1,903,924	22.61	2.67
60	0.01277	0.06205	81,098	5,032	393,943	0.91695	1,490,074	18.37	2.71
65	0.02306	0.10949	76,065	8,328	361,226	0.85162	1,096,131	14.41	2.71
70	0.04334	0.19685	67,737	13,334	307,627	0.74039	734,905	10.85	2.67
75	0.08071	0.33791	54,403	18,383	227,764	0.46694	427,278	7.85	2.59
80	0.18054	...	36,020	36,020	199,514	...	199,514	5.54	5.54

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Bago									
Both sexes Bago									
0	0.06360	0.06058	100,000	6,058	95,255	0.93711	6,520,170	65.20	0.22
1	0.00261	0.01038	93,942	975	373,301	0.99010	6,424,916	68.39	1.47
5	0.00079	0.00395	92,967	367	463,916	0.99656	6,051,614	65.09	2.50
10	0.00059	0.00293	92,600	271	462,320	0.99571	5,587,698	60.34	2.50
15	0.00125	0.00621	92,328	573	460,335	0.99254	5,125,378	55.51	2.72
20	0.00172	0.00858	91,755	787	456,902	0.99016	4,665,043	50.84	2.62
25	0.00227	0.01128	90,968	1,026	452,405	0.98638	4,208,140	46.26	2.63
30	0.00326	0.01616	89,942	1,453	446,245	0.98172	3,755,736	41.76	2.62
35	0.00411	0.02036	88,488	1,802	438,086	0.97733	3,309,491	37.40	2.58
40	0.00506	0.02498	86,687	2,165	428,154	0.97333	2,871,404	33.12	2.56
45	0.00584	0.02877	84,521	2,432	416,736	0.96633	2,443,250	28.91	2.59
50	0.00810	0.03976	82,089	3,264	402,704	0.95263	2,026,515	24.69	2.63
55	0.01167	0.05679	78,826	4,477	383,629	0.92769	1,623,811	20.60	2.65
60	0.01913	0.09159	74,349	6,810	355,890	0.88223	1,240,182	16.68	2.67
65	0.03221	0.14974	67,539	10,113	313,978	0.80739	884,292	13.09	2.65
70	0.05549	0.24496	57,426	14,067	253,504	0.69260	570,314	9.93	2.61
75	0.09494	0.38446	43,359	16,670	175,577	0.44579	316,809	7.31	2.53
80	0.18897	...	26,689	26,689	141,232	...	141,232	5.29	5.29
Males Bago									
0	0.07479	0.07080	100,000	7,080	94,662	0.92675	6,071,699	60.72	0.25
1	0.00315	0.01248	92,920	1,160	368,711	0.98823	5,977,037	64.32	1.44
5	0.00077	0.00384	91,760	352	457,921	0.99635	5,608,326	61.12	2.50
10	0.00069	0.00346	91,408	316	456,249	0.99497	5,150,405	56.35	2.50
15	0.00147	0.00734	91,092	669	453,953	0.99059	4,694,156	51.53	2.75
20	0.00231	0.01149	90,423	1,039	449,679	0.98652	4,240,203	46.89	2.65
25	0.00317	0.01574	89,384	1,407	443,618	0.98011	3,790,524	42.41	2.65
30	0.00496	0.02449	87,977	2,155	434,795	0.97173	3,346,906	38.04	2.64
35	0.00644	0.03169	85,823	2,720	422,504	0.96593	2,912,111	33.93	2.57
40	0.00739	0.03631	83,103	3,017	408,111	0.96098	2,489,607	29.96	2.55
45	0.00866	0.04239	80,085	3,395	392,188	0.95170	2,081,496	25.99	2.57
50	0.01145	0.05571	76,691	4,272	373,246	0.93376	1,689,307	22.03	2.61
55	0.01654	0.07958	72,418	5,763	348,524	0.89887	1,316,061	18.17	2.65
60	0.02719	0.12780	66,655	8,519	313,279	0.83783	967,537	14.52	2.65
65	0.04513	0.20375	58,137	11,845	262,474	0.74436	654,258	11.25	2.62
70	0.07543	0.31836	46,291	14,737	195,376	0.61485	391,784	8.46	2.55
75	0.12301	0.46831	31,554	14,777	120,127	0.38838	196,408	6.22	2.45
80	0.21994	...	16,777	16,777	76,281	...	76,281	4.55	4.55

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females Bago									
0	0.05234	0.05024	100,000	5,024	95,984	0.94791	6,974,688	69.75	0.20
1	0.00200	0.00796	94,976	756	377,970	0.99195	6,878,703	72.43	1.44
5	0.00082	0.00407	94,220	383	470,141	0.99676	6,500,733	69.00	2.50
10	0.00048	0.00241	93,837	226	468,617	0.99641	6,030,592	64.27	2.50
15	0.00104	0.00517	93,610	484	466,935	0.99425	5,561,974	59.42	2.69
20	0.00123	0.00611	93,126	569	464,252	0.99324	5,095,039	54.71	2.57
25	0.00150	0.00745	92,557	690	461,115	0.99185	4,630,788	50.03	2.57
30	0.00178	0.00886	91,868	814	457,358	0.99047	4,169,673	45.39	2.57
35	0.00209	0.01042	91,054	949	453,001	0.98727	3,712,315	40.77	2.61
40	0.00306	0.01520	90,105	1,370	447,236	0.98391	3,259,314	36.17	2.60
45	0.00345	0.01713	88,736	1,520	440,040	0.97883	2,812,079	31.69	2.61
50	0.00530	0.02618	87,215	2,283	430,724	0.96856	2,372,038	27.20	2.66
55	0.00769	0.03775	84,932	3,206	417,182	0.95151	1,941,314	22.86	2.67
60	0.01278	0.06207	81,726	5,073	396,955	0.91773	1,524,132	18.65	2.70
65	0.02263	0.10757	76,653	8,246	364,297	0.85559	1,127,177	14.70	2.70
70	0.04174	0.19016	68,408	13,008	311,689	0.75049	762,881	11.15	2.67
75	0.07655	0.32324	55,399	17,907	233,918	0.48156	451,192	8.14	2.59
80	0.17256	...	37,492	37,492	217,274	...	217,274	5.80	5.80
Magway									
Both sexes Magway									
0	0.08881	0.08349	100,000	8,349	94,010	0.91264	6,226,821	62.27	0.28
1	0.00456	0.01803	91,651	1,652	362,310	0.98410	6,132,811	66.91	1.40
5	0.00083	0.00413	89,999	372	449,063	0.99612	5,770,501	64.12	2.50
10	0.00073	0.00363	89,627	325	447,321	0.99542	5,321,437	59.37	2.50
15	0.00120	0.00599	89,301	535	445,271	0.99251	4,874,117	54.58	2.69
20	0.00182	0.00904	88,767	802	441,936	0.98970	4,428,846	49.89	2.64
25	0.00235	0.01168	87,964	1,027	437,385	0.98574	3,986,910	45.32	2.63
30	0.00346	0.01718	86,937	1,494	431,146	0.98000	3,549,525	40.83	2.63
35	0.00458	0.02264	85,443	1,934	422,525	0.97586	3,118,378	36.50	2.58
40	0.00520	0.02569	83,509	2,145	412,323	0.97120	2,695,853	32.28	2.57
45	0.00665	0.03271	81,363	2,661	400,449	0.96142	2,283,530	28.07	2.61
50	0.00931	0.04553	78,702	3,583	385,000	0.94598	1,883,081	23.93	2.63
55	0.01330	0.06449	75,119	4,844	364,202	0.91819	1,498,081	19.94	2.65
60	0.02169	0.10320	70,274	7,252	334,407	0.86888	1,133,879	16.14	2.66
65	0.03575	0.16482	63,022	10,387	290,559	0.79177	799,472	12.69	2.64
70	0.05969	0.26090	52,635	13,732	230,057	0.67769	508,913	9.67	2.59
75	0.09928	0.39789	38,902	15,479	155,907	0.44091	278,856	7.17	2.51
80	0.19051	...	23,423	23,423	122,950	...	122,950	5.25	5.25

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Males Magway									
0	0.10243	0.09574	100,000	9,574	93,468	0.90062	5,708,332	57.08	0.32
1	0.00517	0.02041	90,426	1,846	356,840	0.98133	5,614,864	62.09	1.36
5	0.00091	0.00453	88,580	401	441,899	0.99576	5,258,024	59.36	2.50
10	0.00079	0.00394	88,179	347	440,027	0.99471	4,816,125	54.62	2.50
15	0.00148	0.00738	87,832	648	437,700	0.98982	4,376,098	49.82	2.75
20	0.00265	0.01319	87,184	1,150	433,245	0.98469	3,938,398	45.17	2.68
25	0.00355	0.01758	86,034	1,512	426,610	0.97772	3,505,153	40.74	2.65
30	0.00559	0.02761	84,521	2,334	417,105	0.96772	3,078,543	36.42	2.64
35	0.00744	0.03654	82,187	3,003	403,640	0.96105	2,661,438	32.38	2.57
40	0.00843	0.04132	79,184	3,272	387,919	0.95423	2,257,798	28.51	2.55
45	0.01050	0.05121	75,912	3,887	370,165	0.94143	1,869,879	24.63	2.58
50	0.01394	0.06745	72,025	4,858	348,487	0.92029	1,499,713	20.82	2.60
55	0.01992	0.09513	67,167	6,390	320,710	0.88041	1,151,227	17.14	2.63
60	0.03222	0.14968	60,777	9,097	282,357	0.81303	830,516	13.66	2.63
65	0.05216	0.23168	51,680	11,973	229,565	0.71523	548,160	10.61	2.59
70	0.08429	0.34853	39,707	13,839	164,192	0.58712	318,594	8.02	2.52
75	0.13235	0.49322	25,868	12,759	96,400	0.37566	154,403	5.97	2.42
80	0.22601	...	13,109	13,109	58,002	...	58,002	4.42	4.42
Females Magway									
0	0.07530	0.07135	100,000	7,135	94,749	0.92523	6,749,433	67.49	0.26
1	0.00377	0.01493	92,865	1,386	367,866	0.98687	6,654,684	71.66	1.41
5	0.00075	0.00373	91,479	341	456,540	0.99647	6,286,818	68.72	2.50
10	0.00067	0.00333	91,137	303	454,928	0.99605	5,830,279	63.97	2.50
15	0.00096	0.00480	90,834	436	453,130	0.99466	5,375,351	59.18	2.62
20	0.00117	0.00585	90,398	529	450,708	0.99357	4,922,221	54.45	2.58
25	0.00141	0.00705	89,869	634	447,812	0.99217	4,471,513	49.76	2.58
30	0.00175	0.00873	89,235	779	444,306	0.98991	4,023,701	45.09	2.60
35	0.00231	0.01148	88,456	1,015	439,824	0.98776	3,579,395	40.47	2.58
40	0.00263	0.01308	87,441	1,144	434,440	0.98503	3,139,570	35.91	2.58
45	0.00353	0.01750	86,297	1,510	427,936	0.97787	2,705,130	31.35	2.65
50	0.00559	0.02759	84,787	2,339	418,465	0.96684	2,277,194	26.86	2.66
55	0.00810	0.03976	82,448	3,278	404,588	0.94898	1,858,730	22.54	2.67
60	0.01346	0.06526	79,170	5,167	383,945	0.91366	1,454,142	18.37	2.70
65	0.02377	0.11269	74,003	8,339	350,796	0.84927	1,070,197	14.46	2.70
70	0.04360	0.19783	65,664	12,990	297,921	0.74202	719,401	10.96	2.66
75	0.07926	0.33266	52,673	17,522	221,064	0.47551	421,479	8.00	2.59
80	0.17539	...	35,151	35,151	200,416	...	200,416	5.70	5.70

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Mandalay									
Both sexes Mandalay									
0	0.05231	0.05018	100,000	5,018	95,919	0.94811	6,489,291	64.89	0.19
1	0.00190	0.00755	94,982	717	378,136	0.99208	6,393,372	67.31	1.50
5	0.00087	0.00434	94,265	409	470,302	0.99590	6,015,235	63.81	2.50
10	0.00077	0.00386	93,856	362	468,373	0.99533	5,544,934	59.08	2.50
15	0.00117	0.00585	93,493	547	466,184	0.99305	5,076,560	54.30	2.65
20	0.00163	0.00814	92,947	757	462,944	0.99038	4,610,376	49.60	2.64
25	0.00229	0.01139	92,190	1,050	458,491	0.98562	4,147,432	44.99	2.66
30	0.00357	0.01771	91,140	1,614	451,899	0.97934	3,688,941	40.48	2.65
35	0.00477	0.02356	89,526	2,109	442,560	0.97349	3,237,043	36.16	2.60
40	0.00596	0.02939	87,417	2,569	430,829	0.96849	2,794,482	31.97	2.57
45	0.00693	0.03410	84,847	2,893	417,255	0.95994	2,363,653	27.86	2.59
50	0.00969	0.04738	81,954	3,883	400,541	0.94392	1,946,398	23.75	2.62
55	0.01379	0.06678	78,071	5,214	378,078	0.91563	1,545,857	19.80	2.65
60	0.02232	0.10606	72,858	7,727	346,179	0.86580	1,167,779	16.03	2.66
65	0.03654	0.16814	65,130	10,951	299,720	0.78831	821,601	12.61	2.63
70	0.06063	0.26440	54,179	14,325	236,273	0.67508	521,881	9.63	2.58
75	0.09979	0.39937	39,854	15,917	159,503	0.44153	285,608	7.17	2.50
80	0.18982	...	23,938	23,938	126,105	...	126,105	5.27	5.27
Males Mandalay									
0	0.06036	0.05761	100,000	5,761	95,438	0.94054	5,968,488	59.68	0.21
1	0.00225	0.00895	94,239	843	374,830	0.99061	5,873,050	62.32	1.48
5	0.00097	0.00483	93,396	451	465,850	0.99561	5,498,220	58.87	2.50
10	0.00079	0.00395	92,944	367	463,804	0.99469	5,032,370	54.14	2.50
15	0.00146	0.00729	92,577	675	461,341	0.99099	4,568,566	49.35	2.71
20	0.0022	0.01094	91,902	1,005	457,185	0.98579	4,107,225	44.69	2.69
25	0.00365	0.01809	90,897	1,644	450,688	0.97706	3,650,039	40.16	2.69
30	0.00571	0.02815	89,253	2,512	440,350	0.96678	3,199,351	35.85	2.65
35	0.00780	0.03827	86,740	3,320	425,720	0.95687	2,759,001	31.81	2.60
40	0.00977	0.04771	83,421	3,980	407,359	0.94958	2,333,280	27.97	2.55
45	0.01101	0.05363	79,441	4,260	386,820	0.93862	1,925,922	24.24	2.56
50	0.01474	0.07119	75,180	5,352	363,077	0.91601	1,539,102	20.47	2.60
55	0.02100	0.10003	69,828	6,985	332,581	0.87465	1,176,025	16.84	2.63
60	0.03380	0.15645	62,843	9,832	290,891	0.80548	843,445	13.42	2.63
65	0.05431	0.24006	53,011	12,726	234,307	0.70663	552,554	10.42	2.58
70	0.08693	0.35729	40,286	14,394	165,569	0.57914	318,247	7.90	2.51
75	0.13510	0.50032	25,892	12,954	95,887	0.37196	152,678	5.90	2.41
80	0.22781	...	12,938	12,938	56,790	...	56,790	4.39	4.39

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females Mandalay									
0	0.04415	0.04260	100,000	4,260	96,497	0.95595	7,017,172	70.17	0.18
1	0.00153	0.00608	95,740	582	381,478	0.99351	6,920,675	72.29	1.45
5	0.00077	0.00385	95,158	366	474,874	0.99619	6,539,196	68.72	2.50
10	0.00075	0.00376	94,792	356	473,067	0.99594	6,064,323	63.98	2.50
15	0.00091	0.00453	94,435	428	471,144	0.99482	5,591,256	59.21	2.59
20	0.00116	0.00578	94,007	543	468,704	0.99427	5,120,112	54.47	2.55
25	0.00116	0.00576	93,464	538	466,020	0.99287	4,651,408	49.77	2.59
30	0.00177	0.00879	92,926	817	462,695	0.99002	4,185,388	45.04	2.63
35	0.00224	0.01112	92,109	1,024	458,079	0.98750	3,722,693	40.42	2.59
40	0.00283	0.01403	91,085	1,278	452,351	0.98418	3,264,614	35.84	2.60
45	0.00365	0.01810	89,807	1,626	445,196	0.97728	2,812,263	31.31	2.64
50	0.00572	0.02821	88,181	2,488	435,079	0.96619	2,367,067	26.84	2.66
55	0.00825	0.04046	85,694	3,467	420,368	0.94822	1,931,988	22.55	2.66
60	0.01363	0.06606	82,226	5,432	398,603	0.91290	1,511,620	18.38	2.69
65	0.02392	0.11334	76,795	8,704	363,886	0.84897	1,113,017	14.49	2.69
70	0.04356	0.19762	68,091	13,456	308,929	0.74307	749,131	11.00	2.66
75	0.07865	0.33046	54,635	18,055	229,555	0.47852	440,202	8.06	2.58
80	0.17366	...	36,580	36,580	210,647	...	210,647	5.76	5.76

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Mon									
Both sexes Mon									
0	0.03819	0.03699	100,000	3,699	96,852	0.96192	6,350,259	63.50	0.15
1	0.00116	0.00462	96,301	445	384,110	0.99456	6,253,407	64.94	1.54
5	0.00078	0.00390	95,856	374	478,346	0.99636	5,869,297	61.23	2.50
10	0.00068	0.00337	95,482	322	476,607	0.99504	5,390,951	56.46	2.50
15	0.00147	0.00732	95,160	697	474,244	0.99034	4,914,344	51.64	2.76
20	0.00242	0.01204	94,464	1,137	469,661	0.98590	4,440,100	47.00	2.66
25	0.00329	0.01631	93,327	1,522	463,041	0.97984	3,970,439	42.54	2.64
30	0.00490	0.02422	91,804	2,224	453,705	0.97336	3,507,398	38.21	2.61
35	0.00582	0.02867	89,581	2,568	441,618	0.96935	3,053,693	34.09	2.55
40	0.00667	0.03283	87,013	2,857	428,081	0.96418	2,612,076	30.02	2.56
45	0.00813	0.03987	84,156	3,355	412,745	0.95177	2,183,994	25.95	2.61
50	0.01200	0.05835	80,801	4,715	392,839	0.93048	1,771,249	21.92	2.63
55	0.01727	0.08299	76,086	6,314	365,529	0.89539	1,378,410	18.12	2.64
60	0.02796	0.13116	69,772	9,151	327,293	0.83527	1,012,881	14.52	2.64
65	0.04549	0.20516	60,620	12,437	273,379	0.74471	685,588	11.31	2.61
70	0.07476	0.31590	48,183	15,221	203,587	0.61915	412,209	8.55	2.55
75	0.12068	0.46148	32,962	15,211	126,050	0.39579	208,621	6.33	2.45
80	0.21498	...	17,751	17,751	82,571	...	82,571	4.65	4.65

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Males Mon									
0	0.04318	0.04167	100,000	4,167	96,509	0.95716	5,823,715	58.24	0.16
1	0.00134	0.00533	95,833	511	382,069	0.99354	5,727,206	59.76	1.53
5	0.00095	0.00472	95,322	450	475,486	0.99573	5,345,136	56.07	2.50
10	0.00077	0.00382	94,872	362	473,455	0.99403	4,869,650	51.33	2.50
15	0.00188	0.00934	94,510	883	470,627	0.98637	4,396,195	46.52	2.82
20	0.00367	0.01818	93,627	1,702	464,212	0.97873	3,925,568	41.93	2.70
25	0.00496	0.02453	91,925	2,255	454,339	0.96807	3,461,355	37.65	2.66
30	0.00813	0.03990	89,670	3,578	439,834	0.95621	3,007,016	33.53	2.62
35	0.00956	0.04671	86,092	4,021	420,575	0.95016	2,567,182	29.82	2.54
40	0.01092	0.05319	82,071	4,365	399,615	0.94285	2,146,608	26.16	2.54
45	0.01291	0.06262	77,706	4,866	376,779	0.92520	1,746,992	22.48	2.59
50	0.01873	0.08966	72,840	6,531	348,595	0.89446	1,370,214	18.81	2.61
55	0.02652	0.12472	66,309	8,270	311,804	0.84546	1,021,618	15.41	2.61
60	0.04204	0.19093	58,039	11,081	263,617	0.76687	709,814	12.23	2.60
65	0.06578	0.28318	46,957	13,297	202,161	0.66211	446,197	9.50	2.55
70	0.10140	0.40322	33,660	13,572	133,853	0.53634	244,036	7.25	2.46
75	0.15106	0.53988	20,088	10,845	71,791	0.34844	110,183	5.49	2.36
80	0.24075	...	9,243	9,243	38,392	...	38,392	4.15	4.15
Females Mon									
0	0.03297	0.03207	100,000	3,207	97,262	0.96692	6,906,954	69.07	0.15
1	0.00100	0.00399	96,793	386	386,196	0.99554	6,809,692	70.35	1.47
5	0.00061	0.00305	96,407	294	481,299	0.99701	6,423,496	66.63	2.50
10	0.00058	0.00292	96,113	281	479,862	0.99599	5,942,198	61.83	2.50
15	0.00110	0.00549	95,832	526	477,937	0.99380	5,462,335	57.00	2.67
20	0.00137	0.00682	95,306	650	474,976	0.99193	4,984,398	52.3	2.61
25	0.00188	0.00937	94,656	887	471,144	0.98990	4,509,422	47.64	2.59
30	0.00217	0.01078	93,769	1,011	466,387	0.98804	4,038,278	43.07	2.57
35	0.00267	0.01327	92,758	1,231	460,810	0.98542	3,571,891	38.51	2.58
40	0.00324	0.01609	91,527	1,473	454,090	0.98170	3,111,080	33.99	2.59
45	0.00428	0.02118	90,055	1,907	445,778	0.97338	2,656,991	29.50	2.64
50	0.00673	0.03311	88,147	2,919	433,912	0.95985	2,211,213	25.09	2.66
55	0.00995	0.04861	85,229	4,143	416,493	0.93708	1,777,301	20.85	2.67
60	0.01684	0.08106	81,086	6,573	390,287	0.89224	1,360,808	16.78	2.70
65	0.03020	0.14112	74,513	10,515	348,228	0.81211	970,521	13.02	2.69
70	0.05551	0.24531	63,998	15,699	282,800	0.68708	622,293	9.72	2.63
75	0.09876	0.39731	48,298	19,189	194,308	0.42765	339,493	7.03	2.54
80	0.20050	...	29,109	29,109	145,185	...	145,185	4.99	4.99

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Rakhine									
Both sexes Rakhine									
0	0.05842	0.05582	100,000	5,582	95,551	0.94218	6,547,258	65.47	0.20
1	0.00226	0.00899	94,418	849	375,537	0.99027	6,451,707	68.33	1.48
5	0.00115	0.00573	93,569	536	466,506	0.99489	6,076,170	64.94	2.50
10	0.00090	0.00448	93,033	417	464,123	0.99440	5,609,664	60.30	2.50
15	0.00142	0.00710	92,616	658	461,524	0.99215	5,145,541	55.56	2.63
20	0.00172	0.00856	91,959	787	457,902	0.99001	4,684,017	50.94	2.60
25	0.00231	0.01148	91,172	1,047	453,325	0.98790	4,226,115	46.35	2.58
30	0.00259	0.01288	90,125	1,161	447,841	0.98424	3,772,790	41.86	2.60
35	0.00388	0.01920	88,964	1,708	440,782	0.97759	3,324,948	37.37	2.64
40	0.00517	0.02554	87,256	2,229	430,905	0.97208	2,884,166	33.05	2.59
45	0.00623	0.03071	85,027	2,611	418,876	0.96323	2,453,261	28.85	2.60
50	0.00899	0.04402	82,416	3,628	403,475	0.94817	2,034,385	24.68	2.63
55	0.01260	0.06117	78,788	4,819	382,564	0.92363	1,630,910	20.70	2.64
60	0.01991	0.09510	73,969	7,034	353,347	0.88002	1,248,346	16.88	2.65
65	0.03232	0.15014	66,934	10,050	310,951	0.81017	894,999	13.37	2.64
70	0.05376	0.23808	56,885	13,543	251,922	0.70433	584,048	10.27	2.60
75	0.08946	0.36622	43,342	15,873	177,435	0.46576	332,126	7.66	2.53
80	0.17757	...	27,469	27,469	154,691	...	154,691	5.63	5.63
Males Rakhine									
0	0.06465	0.06154	100,000	6,154	95,196	0.93645	6,160,401	61.60	0.22
1	0.00249	0.00991	93,846	930	373,029	0.98893	6,065,205	64.63	1.47
5	0.00133	0.00663	92,916	616	463,040	0.99437	5,692,176	61.26	2.50
10	0.00093	0.00462	92,300	426	460,434	0.99401	5,229,136	56.65	2.50
15	0.00161	0.00802	91,874	737	457,676	0.98982	4,768,702	51.91	2.70
20	0.00251	0.01247	91,137	1,136	453,018	0.98510	4,311,026	47.30	2.65
25	0.00346	0.01717	90,000	1,545	446,266	0.98191	3,858,009	42.87	2.58
30	0.00387	0.01918	88,455	1,697	438,193	0.97679	3,411,742	38.57	2.59
35	0.00566	0.02794	86,758	2,424	428,023	0.96805	2,973,549	34.27	2.62
40	0.00730	0.03585	84,334	3,023	414,348	0.96073	2,545,526	30.18	2.58
45	0.00885	0.04331	81,311	3,522	398,076	0.94894	2,131,178	26.21	2.59
50	0.01242	0.06031	77,789	4,691	377,749	0.92952	1,733,101	22.28	2.61
55	0.01724	0.08282	73,098	6,054	351,125	0.89705	1,355,353	18.54	2.63
60	0.02717	0.12766	67,044	8,559	314,975	0.84142	1,004,228	14.98	2.63
65	0.04318	0.19566	58,485	11,443	265,026	0.75848	689,253	11.79	2.61
70	0.06947	0.29684	47,042	13,964	201,017	0.64253	424,227	9.02	2.55
75	0.11067	0.43215	33,078	14,295	129,161	0.42135	223,210	6.75	2.47
80	0.19972	...	18,783	18,783	94,050	...	94,050	5.01	5.01

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females Rakhine									
0	0.05218	0.05009	100,000	5,009	95,994	0.94809	6,926,006	69.26	0.20
1	0.00198	0.00787	94,991	748	378,052	0.99165	6,830,011	71.90	1.44
5	0.00096	0.00480	94,243	452	470,086	0.99543	6,451,959	68.46	2.50
10	0.00087	0.00433	93,791	406	467,940	0.99476	5,981,873	63.78	2.50
15	0.00126	0.00630	93,385	588	465,487	0.99393	5,513,933	59.05	2.56
20	0.00116	0.00576	92,797	535	462,662	0.99354	5,048,446	54.40	2.53
25	0.00146	0.00729	92,262	673	459,672	0.99246	4,585,784	49.70	2.56
30	0.00159	0.00792	91,590	725	456,207	0.99027	4,126,112	45.05	2.60
35	0.00241	0.01200	90,864	1,090	451,768	0.98533	3,669,905	40.39	2.66
40	0.00349	0.01731	89,774	1,554	445,141	0.98139	3,218,137	35.85	2.60
45	0.00406	0.02012	88,220	1,775	436,856	0.97528	2,772,996	31.43	2.61
50	0.00615	0.03029	86,445	2,618	426,058	0.96412	2,336,140	27.02	2.65
55	0.00867	0.04249	83,826	3,562	410,772	0.94635	1,910,083	22.79	2.65
60	0.01397	0.06764	80,265	5,429	388,734	0.91217	1,499,310	18.68	2.68
65	0.02380	0.11279	74,835	8,441	354,593	0.85205	1,110,576	14.84	2.68
70	0.04200	0.19112	66,395	12,689	302,131	0.75420	755,983	11.39	2.65
75	0.07380	0.31311	53,705	16,816	227,866	0.49793	453,851	8.45	2.58
80	0.16324	...	36,890	36,890	225,985	...	225,985	6.13	6.13

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Yangon									
Both sexes Yangon									
0	0.04273	0.04125	100,000	4,125	96,540	0.95746	6,553,032	65.53	0.16
1	0.00139	0.00553	95,875	530	382,190	0.99408	6,456,492	67.34	1.53
5	0.00070	0.00348	95,345	332	475,895	0.99708	6,074,302	63.71	2.50
10	0.00047	0.00236	95,013	224	474,504	0.99718	5,598,408	58.92	2.50
15	0.00071	0.00355	94,789	337	473,166	0.99542	5,123,903	54.06	2.69
20	0.00118	0.00587	94,452	554	471,000	0.99200	4,650,737	49.24	2.72
25	0.00212	0.01053	93,898	989	467,234	0.98631	4,179,737	44.51	2.72
30	0.00344	0.01705	92,909	1,584	460,836	0.97991	3,712,504	39.96	2.66
35	0.00468	0.02313	91,325	2,112	451,578	0.97336	3,251,668	35.61	2.61
40	0.00613	0.03018	89,213	2,692	439,546	0.96713	2,800,090	31.39	2.58
45	0.00728	0.03576	86,520	3,094	425,099	0.95960	2,360,544	27.28	2.58
50	0.00946	0.04625	83,426	3,858	407,927	0.94461	1,935,445	23.20	2.61
55	0.01386	0.06710	79,568	5,339	385,333	0.91385	1,527,518	19.20	2.66
60	0.02315	0.10983	74,229	8,153	352,135	0.85882	1,142,185	15.39	2.67
65	0.03918	0.17934	66,076	11,850	302,421	0.77102	790,050	11.96	2.64
70	0.06724	0.28911	54,226	15,677	233,171	0.64499	487,630	8.99	2.58
75	0.11199	0.43692	38,549	16,843	150,392	0.40897	254,458	6.60	2.49
80	0.20858	...	21,706	21,706	104,066	...	104,066	4.79	4.79

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Males Yangon									
0	0.04947	0.04754	100,000	4,754	96,098	0.95104	6,053,365	60.53	0.18
1	0.00165	0.00659	95,246	628	379,421	0.99313	5,957,267	62.55	1.51
5	0.00071	0.00355	94,618	336	472,252	0.99686	5,577,846	58.95	2.50
10	0.00055	0.00273	94,282	257	470,769	0.99655	5,105,594	54.15	2.50
15	0.00092	0.00457	94,025	430	469,143	0.99407	4,634,826	49.29	2.71
20	0.00155	0.00770	93,595	721	466,362	0.98858	4,165,682	44.51	2.76
25	0.00323	0.01601	92,875	1,487	461,037	0.97866	3,699,321	39.83	2.76
30	0.00546	0.02695	91,388	2,463	451,199	0.96766	3,238,284	35.43	2.67
35	0.00769	0.03774	88,925	3,356	436,606	0.95655	2,787,085	31.34	2.61
40	0.01003	0.04897	85,569	4,190	417,637	0.94748	2,350,479	27.47	2.56
45	0.01156	0.05619	81,379	4,573	395,703	0.93778	1,932,842	23.75	2.55
50	0.01452	0.07017	76,806	5,389	371,082	0.91614	1,537,139	20.01	2.60
55	0.02135	0.10164	71,416	7,259	339,962	0.87065	1,166,057	16.33	2.64
60	0.03545	0.16356	64,158	10,494	295,986	0.79413	826,095	12.88	2.64
65	0.05860	0.25666	53,664	13,773	235,051	0.68466	530,109	9.88	2.58
70	0.09558	0.38560	39,891	15,382	160,930	0.54774	295,058	7.40	2.50
75	0.14915	0.53645	24,509	13,148	88,148	0.34281	134,129	5.47	2.38
80	0.24708	...	11,361	11,361	45,981	...	45,981	4.05	4.05
Females Yangon									
0	0.03573	0.03468	100,000	3,468	97,066	0.96415	7,079,691	70.80	0.15
1	0.00115	0.00458	96,532	442	385,008	0.99493	6,982,625	72.33	1.47
5	0.00068	0.00341	96,090	328	479,630	0.99730	6,597,617	68.66	2.50
10	0.00040	0.00199	95,762	191	478,335	0.99779	6,117,986	63.89	2.50
15	0.00052	0.00259	95,572	248	477,279	0.99662	5,639,652	59.01	2.66
20	0.00086	0.00429	95,324	409	475,666	0.99497	5,162,373	54.16	2.67
25	0.00116	0.00578	94,915	549	473,275	0.99313	4,686,707	49.38	2.63
30	0.00161	0.00804	94,367	759	470,022	0.99098	4,213,432	44.65	2.61
35	0.00203	0.01010	93,608	945	465,782	0.98808	3,743,410	39.99	2.61
40	0.00282	0.01400	92,662	1,297	460,228	0.98385	3,277,628	35.37	2.62
45	0.00376	0.01861	91,365	1,700	452,793	0.97768	2,817,401	30.84	2.63
50	0.00541	0.02673	89,665	2,397	442,685	0.96760	2,364,608	26.37	2.65
55	0.00804	0.03945	87,268	3,443	428,343	0.94865	1,921,923	22.02	2.68
60	0.01372	0.06651	83,825	5,575	406,347	0.91063	1,493,580	17.82	2.71
65	0.02499	0.11817	78,250	9,247	370,034	0.83971	1,087,233	13.89	2.71
70	0.04723	0.21268	69,003	14,676	310,720	0.72120	717,199	10.39	2.66
75	0.08763	0.36147	54,328	19,638	224,092	0.44870	406,479	7.48	2.58
80	0.1902	...	34,690	34,690	182,387	...	182,387	5.26	5.26

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Shan									
Both sexes Shan									
0	0.05346	0.05124	100,000	5,124	95,849	0.94701	6,474,745	64.75	0.19
1	0.00195	0.00778	94,876	738	377,658	0.99112	6,378,896	67.23	1.50
5	0.00118	0.00590	94,138	555	469,301	0.99421	6,001,239	63.75	2.50
10	0.00114	0.00567	93,582	531	466,586	0.99389	5,531,938	59.11	2.50
15	0.00136	0.00678	93,052	631	463,734	0.99242	5,065,352	54.44	2.58
20	0.00171	0.00852	92,421	787	460,219	0.99018	4,601,618	49.79	2.61
25	0.00229	0.01141	91,634	1,046	455,700	0.98594	4,141,399	45.20	2.64
30	0.00343	0.01703	90,588	1,543	449,293	0.98016	3,685,699	40.69	2.64
35	0.00457	0.02259	89,045	2,012	440,381	0.97500	3,236,405	36.35	2.59
40	0.00556	0.02745	87,034	2,389	429,370	0.96981	2,796,025	32.13	2.57
45	0.00685	0.03372	84,645	2,854	416,407	0.95893	2,366,654	27.96	2.61
50	0.01019	0.04976	81,790	4,070	399,304	0.94173	1,950,247	23.84	2.63
55	0.01413	0.06837	77,721	5,314	376,038	0.91440	1,550,943	19.96	2.64
60	0.02249	0.10678	72,407	7,732	343,850	0.86633	1,174,905	16.23	2.65
65	0.03603	0.16595	64,675	10,733	297,889	0.79259	831,055	12.85	2.63
70	0.05883	0.25748	53,942	13,889	236,105	0.68507	533,166	9.88	2.58
75	0.09541	0.38530	40,053	15,433	161,749	0.45550	297,061	7.42	2.50
80	0.18195	...	24,621	24,621	135,313	...	135,313	5.50	5.50
Males Shan									
0	0.05981	0.05710	100,000	5,710	95,470	0.94108	6,054,416	60.54	0.21
1	0.00221	0.00879	94,290	829	375,072	0.98996	5,958,946	63.20	1.48
5	0.00128	0.00636	93,461	594	465,820	0.99346	5,583,874	59.75	2.50
10	0.00135	0.00673	92,867	625	462,771	0.99242	5,118,054	55.11	2.50
15	0.00176	0.00878	92,242	810	459,265	0.99020	4,655,282	50.47	2.60
20	0.00221	0.01101	91,432	1,007	454,763	0.98678	4,196,018	45.89	2.62
25	0.00320	0.01590	90,425	1,438	448,751	0.98053	3,741,254	41.37	2.65
30	0.00475	0.02350	88,987	2,091	440,012	0.97170	3,292,503	37.00	2.64
35	0.00673	0.03312	86,896	2,878	427,559	0.96378	2,852,491	32.83	2.59
40	0.00801	0.03927	84,018	3,299	412,073	0.95604	2,424,932	28.86	2.57
45	0.01020	0.04978	80,719	4,018	393,961	0.94087	2,012,859	24.94	2.60
50	0.01450	0.07007	76,701	5,374	370,666	0.91816	1,618,898	21.11	2.61
55	0.02013	0.09603	71,326	6,849	340,331	0.88111	1,248,232	17.50	2.62
60	0.03157	0.14685	64,477	9,468	299,871	0.81906	907,901	14.08	2.62
65	0.04963	0.22162	55,008	12,191	245,612	0.72999	608,031	11.05	2.59
70	0.07836	0.32812	42,817	14,049	179,294	0.61139	362,418	8.46	2.52
75	0.12164	0.46348	28,768	13,333	109,618	0.40140	183,124	6.37	2.43
80	0.20998	...	15,435	15,435	73,506	...	73,506	4.76	4.76

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females Shan									
0	0.04713	0.04539	100,000	4,539	96,306	0.95307	6,938,750	69.39	0.19
1	0.00166	0.00663	95,461	633	380,230	0.99226	6,842,444	71.68	1.45
5	0.00109	0.00546	94,828	518	472,846	0.99491	6,462,214	68.15	2.50
10	0.00094	0.00471	94,310	444	470,441	0.99524	5,989,368	63.51	2.50
15	0.00099	0.00492	93,866	462	468,202	0.99449	5,518,927	58.80	2.56
20	0.00124	0.00619	93,404	578	465,620	0.99340	5,050,725	54.07	2.58
25	0.00143	0.00714	92,826	663	462,546	0.99124	4,585,105	49.39	2.61
30	0.00212	0.01054	92,163	971	458,493	0.98861	4,122,560	44.73	2.61
35	0.00245	0.01220	91,192	1,113	453,273	0.98589	3,664,067	40.18	2.58
40	0.00326	0.01619	90,079	1,458	446,876	0.98265	3,210,794	35.64	2.59
45	0.00382	0.01895	88,621	1,679	439,123	0.97562	2,763,918	31.19	2.63
50	0.00628	0.03096	86,942	2,692	428,418	0.96316	2,324,796	26.74	2.66
55	0.00890	0.04360	84,250	3,673	412,633	0.94483	1,896,378	22.51	2.65
60	0.01440	0.06968	80,577	5,615	389,870	0.90936	1,483,745	18.41	2.68
65	0.02465	0.11657	74,962	8,738	354,533	0.84698	1,093,875	14.59	2.68
70	0.04361	0.19775	66,224	13,096	300,284	0.74611	739,342	11.16	2.65
75	0.07661	0.32308	53,128	17,165	224,044	0.48972	439,059	8.26	2.58
80	0.16726	...	35,963	35,963	215,015	...	215,015	5.98	5.98
Ayeyawady									
Both sexes Ayeyawady									
0	0.08987	0.08445	100,000	8,445	93,964	0.91160	6,363,885	63.64	0.29
1	0.00466	0.01841	91,555	1,686	361,835	0.98400	6,269,921	68.48	1.40
5	0.00075	0.00374	89,869	336	448,507	0.99656	5,908,085	65.74	2.50
10	0.00063	0.00313	89,533	280	446,966	0.99598	5,459,578	60.98	2.50
15	0.00105	0.00524	89,253	468	445,171	0.99399	5,012,612	56.16	2.66
20	0.00136	0.00678	88,785	602	442,495	0.99198	4,567,441	51.44	2.62
25	0.00190	0.00945	88,183	833	438,946	0.98878	4,124,947	46.78	2.63
30	0.00265	0.01316	87,350	1,150	434,021	0.98465	3,686,000	42.20	2.63
35	0.00356	0.01765	86,201	1,521	427,358	0.98003	3,251,979	37.73	2.60
40	0.00453	0.02241	84,679	1,898	418,823	0.97478	2,824,621	33.36	2.59
45	0.00575	0.02834	82,782	2,346	408,260	0.96785	2,405,798	29.06	2.59
50	0.00748	0.03676	80,435	2,957	395,134	0.95604	1,997,538	24.83	2.62
55	0.01091	0.05317	77,479	4,120	377,763	0.93168	1,602,404	20.68	2.66
60	0.01819	0.08728	73,359	6,403	351,955	0.88639	1,224,641	16.69	2.68
65	0.03135	0.14607	66,956	9,780	311,968	0.80931	872,686	13.03	2.67
70	0.05558	0.24545	57,176	14,034	252,479	0.68915	560,718	9.81	2.62
75	0.09719	0.39199	43,142	16,911	173,995	0.43552	308,240	7.14	2.53
80	0.19540	...	26,231	26,231	134,245	...	134,245	5.12	5.12

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Males Ayeyawady									
0	0.10391	0.09707	100,000	9,707	93,415	0.89922	6,018,370	60.18	0.32
1	0.00530	0.02089	90,293	1,886	356,193	0.98132	5,924,955	65.62	1.36
5	0.00075	0.00373	88,407	330	441,210	0.99650	5,568,762	62.99	2.50
10	0.00065	0.00326	88,077	287	439,667	0.99563	5,127,552	58.22	2.50
15	0.00118	0.00590	87,790	518	437,747	0.99319	4,687,885	53.40	2.68
20	0.00156	0.00776	87,272	677	434,768	0.99021	4,250,138	48.70	2.65
25	0.00246	0.01222	86,595	1,058	430,510	0.98496	3,815,370	44.06	2.67
30	0.00364	0.01804	85,537	1,543	424,035	0.97889	3,384,861	39.57	2.64
35	0.00489	0.02419	83,993	2,032	415,085	0.97296	2,960,826	35.25	2.60
40	0.00609	0.03003	81,962	2,461	403,859	0.96615	2,545,741	31.06	2.58
45	0.00775	0.03805	79,500	3,025	390,188	0.95757	2,141,882	26.94	2.58
50	0.00978	0.04778	76,475	3,654	373,632	0.94295	1,751,693	22.91	2.61
55	0.01427	0.06906	72,821	5,029	352,318	0.91143	1,378,061	18.92	2.66
60	0.02383	0.11287	67,792	7,652	321,111	0.85487	1,025,744	15.13	2.67
65	0.04041	0.18445	60,141	11,093	274,510	0.76462	704,632	11.72	2.64
70	0.06948	0.29734	49,048	14,584	209,897	0.63394	430,122	8.77	2.58
75	0.11697	0.45161	34,464	15,564	133,062	0.39579	220,226	6.39	2.48
80	0.21683	...	18,900	18,900	87,163	...	87,163	4.61	4.61
Females Ayeyawady									
0	0.07596	0.07195	100,000	7,195	94,718	0.92457	6,720,066	67.20	0.27
1	0.00383	0.01517	92,805	1,408	367,569	0.98668	6,625,348	71.39	1.41
5	0.00075	0.00375	91,397	343	456,129	0.99662	6,257,778	68.47	2.50
10	0.00060	0.00300	91,054	273	454,589	0.99633	5,801,650	63.72	2.50
15	0.00092	0.00459	90,781	417	452,922	0.99474	5,347,060	58.90	2.64
20	0.00118	0.00588	90,365	531	450,539	0.99361	4,894,138	54.16	2.58
25	0.00139	0.00692	89,833	622	447,660	0.99229	4,443,599	49.46	2.58
30	0.00174	0.00865	89,212	772	444,210	0.98994	3,995,939	44.79	2.61
35	0.00235	0.01166	88,440	1,031	439,742	0.98647	3,551,729	40.16	2.62
40	0.00312	0.01550	87,409	1,355	433,794	0.98261	3,111,987	35.60	2.60
45	0.00394	0.01951	86,054	1,679	426,251	0.97722	2,678,193	31.12	2.61
50	0.00541	0.02673	84,375	2,255	416,541	0.96783	2,251,942	26.69	2.63
55	0.00795	0.03901	82,120	3,203	403,141	0.94955	1,835,401	22.35	2.67
60	0.01340	0.06498	78,916	5,128	382,802	0.91327	1,432,261	18.15	2.70
65	0.02407	0.11405	73,788	8,416	349,602	0.84613	1,049,459	14.22	2.70
70	0.04493	0.20333	65,373	13,292	295,810	0.73356	699,857	10.71	2.66
75	0.08283	0.34510	52,080	17,973	216,995	0.46295	404,047	7.76	2.58
80	0.18234	...	34,107	34,107	187,052	...	187,052	5.48	5.48

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Nay Pyi Taw									
Both sexes Nay Pyi Taw									
0	0.05645	0.05400	100,000	5,400	95,668	0.94409	6,766,170	67.66	0.20
1	0.00214	0.00853	94,600	807	376,375	0.99126	6,670,502	70.51	1.49
5	0.00090	0.00448	93,793	420	467,915	0.99664	6,294,127	67.11	2.50
10	0.00045	0.00224	93,373	209	466,341	0.99650	5,826,212	62.40	2.50
15	0.00104	0.00520	93,164	484	464,709	0.99419	5,359,871	57.53	2.71
20	0.00124	0.00619	92,679	574	462,011	0.99314	4,895,162	52.82	2.58
25	0.00158	0.00789	92,106	727	458,843	0.98891	4,433,151	48.13	2.68
30	0.00301	0.01497	91,379	1,368	453,754	0.98144	3,974,308	43.49	2.70
35	0.00436	0.02155	90,011	1,940	445,333	0.97837	3,520,554	39.11	2.57
40	0.00432	0.02137	88,071	1,882	435,699	0.97691	3,075,221	34.92	2.53
45	0.00514	0.02538	86,189	2,187	425,638	0.97173	2,639,522	30.62	2.57
50	0.00648	0.03191	84,002	2,680	413,604	0.96206	2,213,884	26.36	2.61
55	0.00933	0.04567	81,321	3,714	397,910	0.94191	1,800,280	22.14	2.66
60	0.01523	0.07356	77,607	5,709	374,794	0.90479	1,402,370	18.07	2.68
65	0.02584	0.12189	71,898	8,764	339,109	0.84064	1,027,576	14.29	2.67
70	0.04551	0.20548	63,135	12,973	285,071	0.73633	688,467	10.90	2.64
75	0.08015	0.33541	50,162	16,825	209,905	0.47966	403,396	8.04	2.57
80	0.17229	...	33,337	33,337	193,491	...	193,491	5.80	5.80
Males Nay Pyi Taw									
0	0.06601	0.06279	100,000	6,279	95,121	0.93513	6,367,931	63.68	0.22
1	0.00258	0.01026	93,721	962	372,445	0.98957	6,272,810	66.93	1.46
5	0.00096	0.00477	92,759	442	462,691	0.99669	5,900,364	63.61	2.50
10	0.00037	0.00184	92,317	170	461,160	0.99699	5,437,673	58.90	2.50
15	0.00094	0.00468	92,147	431	459,773	0.99428	4,976,513	54.01	2.77
20	0.00134	0.00668	91,716	613	457,143	0.99197	4,516,741	49.25	2.66
25	0.00200	0.00998	91,103	909	453,474	0.98410	4,059,598	44.56	2.75
30	0.00463	0.02291	90,194	2,066	446,262	0.97296	3,606,124	39.98	2.72
35	0.00608	0.02996	88,128	2,640	434,193	0.96876	3,159,862	35.86	2.56
40	0.00653	0.03213	85,487	2,747	420,627	0.96654	2,725,669	31.88	2.52
45	0.00717	0.03524	82,741	2,916	406,552	0.96143	2,305,042	27.86	2.55
50	0.00880	0.04311	79,825	3,441	390,871	0.94872	1,898,491	23.78	2.60
55	0.01276	0.06195	76,384	4,732	370,829	0.92065	1,507,619	19.74	2.66
60	0.02120	0.10103	71,652	7,239	341,403	0.86984	1,136,791	15.87	2.67
65	0.03596	0.16577	64,413	10,678	296,967	0.78689	795,387	12.35	2.65
70	0.06232	0.27101	53,735	14,563	233,682	0.66170	498,420	9.28	2.60
75	0.10685	0.42177	39,172	16,522	154,628	0.41592	264,738	6.76	2.50
80	0.20571	...	22,651	22,651	110,110	...	110,110	4.86	4.86

Age	m(x,n)	q(x,n)	l(x)	d(x,n)	L(x,n)	S(x,n)	T(x)	e(x)	a(x,n)
Females Nay Pyi Taw									
0	0.04685	0.04513	100,000	4,513	96,324	0.95332	7,156,139	71.56	0.19
1	0.00166	0.00662	95,487	632	380,336	0.99291	7,059,815	73.93	1.45
5	0.00084	0.00419	94,855	397	473,281	0.99658	6,679,479	70.42	2.50
10	0.00053	0.00264	94,457	249	471,664	0.99602	6,206,198	65.70	2.50
15	0.00114	0.00568	94,208	535	469,788	0.99411	5,734,534	60.87	2.66
20	0.00116	0.00576	93,673	540	467,021	0.99416	5,264,746	56.20	2.51
25	0.00121	0.00602	93,133	561	464,296	0.99341	4,797,725	51.51	2.55
30	0.00152	0.00755	92,573	699	461,236	0.98930	4,333,429	46.81	2.67
35	0.00279	0.01384	91,874	1,272	456,300	0.98705	3,872,193	42.15	2.59
40	0.00236	0.01173	90,602	1,063	450,391	0.98614	3,415,893	37.70	2.53
45	0.00337	0.01671	89,540	1,496	444,147	0.98071	2,965,502	33.12	2.63
50	0.00449	0.02219	88,043	1,954	435,577	0.97360	2,521,355	28.64	2.63
55	0.00643	0.03169	86,090	2,728	424,080	0.95947	2,085,777	24.23	2.67
60	0.01059	0.05171	83,361	4,311	406,891	0.93159	1,661,698	19.93	2.70
65	0.01863	0.08934	79,051	7,062	379,056	0.87958	1,254,807	15.87	2.71
70	0.03439	0.15926	71,988	11,465	333,412	0.78760	875,751	12.17	2.69
75	0.06415	0.27831	60,524	16,844	262,594	0.51581	542,339	8.96	2.62
80	0.15614	...	43,679	43,679	279,745	...	279,745	6.40	6.40

m(x,n) = Age-specific central death rate.

q(x,n) = Probability of dying between exact ages x and x+n (age-specific mortality rate).

l(x) = Number of survivors at age x.

d(x,n) = Number of deaths occurring between ages x and x+n.

L(x,n) = Number of person-years lived between ages x and x+n.

S(x,n) = Survival ratio for persons aged x to x+5 surviving 5 years to ages x+5 to x+10.

T(x) = Number of person-years lived after age x.

e(x) = Life expectancy at age x.

a(x,n) = Average person-years lived by those who die between ages x and age x+n.

Appendix F. Life expectancy at birth by Districts

The life expectancies were calculated by first computing life tables for the Districts using the programme MATCH from the demographic package MORTPAK, Version 4.3 (UNPD, 2013). Then life expectancy at birth from the life tables was generated. This programme (MATCH) calculates United Nations and Coale-Demeny model life tables or user-designed model life tables corresponding to given levels of mortality.

The input of this programme is the value of any life table column for any age. This input specifies the level of the model life table. In fact, any life table function for any age defines unequivocally a model life table. Hence, the output is a life table model corresponding to the imputed level. When a user designed or empirical life table is used instead of a model, the life table produced corresponds to the mortality pattern of the population from which the empirical life table was obtained.

In the case of Myanmar, the user-designed or empirical life table was calculated for the State/Region, and the level was the infant mortality estimated for the District. In other words, the level corresponds to the District, but the pattern to the State/Region. The assumption of this approach is that the pattern of mortality in the Districts is the pattern of the State/Region to which they belong.

The life expectancy at birth for each District was then extracted from the life table and is presented in the table below.

Table F

Life expectancy at birth by State/Region and District, 2014 Census

State/Region and District	Life expectancy at birth in years		
	Both sexes	Males	Females
Kachin	64.23	59.36	69.31
Myitkyina	64.26	59.42	69.30
Mohnyin	64.98	60.14	70.13
Bhamo	64.44	59.44	68.44
Putao	60.18	55.42	64.51
Kayah	64.28	59.10	70.22
Loikaw	64.41	59.19	68.77
Bawlakhe	63.40	58.40	69.01
Kayin	62.08	57.74	66.72
Hpa-An	61.72	57.31	66.38
Pharpon	60.78	56.64	64.93
Myawady	65.38	61.15	70.50
Kawkareik	61.11	56.77	65.53
Chin	60.48	57.37	63.49
Hakha	72.59	70.69	76.46
Falam	65.31	62.64	68.73
Mindat	53.70	50.17	55.71

Appendix F. Life expectancy at birth by State/Region and District, 2014 Census

State/Region and District	Life expectancy at birth in years		
	Both sexes	Males	Females
Sagaing	65.75	60.96	70.43
Sagaing	70.00	65.38	75.13
Shwebo	79.36	75.99	84.57
Monywa	68.57	64.26	73.10
Katha	63.41	65.26	67.89
Kalay	65.45	60.44	70.37
Tamu	67.30	63.52	71.07
Mawlaik	61.82	57.55	65.22
Hkamti	61.95	57.05	66.14
Yinmarpin	64.27	59.01	69.28
Tanintharyi	65.53	62.20	68.90
Dawei	69.33	66.59	72.00
Myeik	64.28	60.95	67.69
Kawthoung	64.09	59.98	68.28
Bago	65.20	60.72	69.75
Bago	66.08	61.60	70.76
Taungoo	63.77	59.20	68.16
Pyay	66.34	62.05	70.84
Thayawady	64.41	59.88	68.86
Magway	62.27	57.08	67.49
Magway	63.11	64.41	68.25
Minbu	62.41	57.28	67.58
Thayet	63.37	58.30	68.66
Pakokku	60.04	54.68	65.17
Gangaw	64.21	58.65	70.11
Mandalay	64.89	59.68	70.17
Mandalay	70.08	64.52	74.78
Pyin oo lwin	66.00	59.78	70.42
Kyaukse	66.52	60.29	71.07
Myingyan	64.50	58.30	68.46
Nyaung U	61.75	54.94	65.68
Yame`thin	61.53	54.61	65.52
Meiktila	63.32	56.96	67.17
Mon	63.50	58.24	69.07
Mawlamyine	65.45	60.22	71.26
Thaton	61.17	55.86	66.39
Rakhine	65.47	61.60	69.26
Sittwe	68.43	64.56	72.78
Myauk U	63.28	59.22	66.85
Maungtaw	66.35	63.53	69.04
Kyaukpyu	64.60	60.72	68.23
Thandwe	66.57	62.80	70.47

Appendix F. Life expectancy at birth by State/Region and District, 2014 Census

State/Region and District	Life expectancy at birth in years		
	Both sexes	Males	Females
Yangon	65.53	60.53	70.80
North	64.20	58.99	69.52
East	68.79	64.09	74.18
South	62.87	57.65	67.98
West	70.94	67.05	75.64
Shan	64.75	60.54	69.39
Taunggyi	63.33	58.54	68.47
Loilin	63.45	59.24	67.84
Linkhe	60.52	56.15	64.59
Lashio	65.35	61.24	69.95
Muse	68.78	61.24	73.35
Kyaukme	61.57	57.34	65.65
Kunlon	70.05	66.17	75.01
Laukine	75.78	72.37	81.16
Hopan	74.07	71.20	78.56
Makman	63.78	59.26	67.64
Kengtaung	67.81	63.06	72.73
Minesat	60.34	55.38	63.90
Tachileik	67.97	63.45	72.66
Minephyat	65.65	60.60	70.50
Ayeyawady	63.64	60.18	67.20
Pathein	63.38	60.48	66.14
Phyapon	58.27	55.25	60.24
Maubin	62.31	59.32	65.01
Myaungmya	60.81	57.96	63.03
Labutta	52.87	50.08	53.30
Hinthada	61.99	58.72	65.01
Nay Pyi Taw	67.66	63.68	71.56
Ottara	68.00	63.97	72.03
Dekkhina	67.11	63.18	70.80

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Thematic Report on Mortality can be downloaded at:

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or

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