MINISTRY OF PLANNING AND INVESTMENT

GENERAL STATISTICS OFFICE

VIET NAM POPULATION AND HOUSING CENSUS 2009

AGE-SEX STRUCTURE AND MARITAL STATUS OF THE POPULATION IN VIET NAM

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CONTENTS

PREFACE

The Viet Nam National Population and Housing Census 2009 was conducted at 00:00 on April 1st, 2009 under Prime Ministerial Decision No. 94/2008/QD-TTg dated July 10th, 2008. This was the fourth population Census and the third housing Census conducted in Viet Nam since 1975. The purpose of this Census was to collect basic information on population and housing of the Socialist Republic of Viet Nam for national development planning for the period 2011–2020.

Besides the major findings of the national population and housing Census, which were published in July 2010, in-depth analysis of some important issues including birth, death, migration, urbanization, age-sex structure of the population, and education was undertaken to provide important information about the current status as well as appropriate policy recommendations related to these issues.

The monograph "Age-sex structure and marital status of the population in Viet Nam" was developed using the data of the 15% sample survey which was included in the VNPHC2009 in order to provide the readers with the most up-do-date information about Viet Nam's age-sex structure and marital status.

Analysis shows that the current age structure of the population in Viet Nam is typical for a population which has recently completed its transition from high to low mortality and fertility. The age and sex structure in Viet Nam suggests certain new demographic features including a golden population structure, population ageing and household characteristics typically seen at the completion of population transition. Analysis on marital status in Viet Nam reflect the trends towards later marriage age and higher singulate mean age at marriage. However, early marriage and child marriage still exist among ethnic minority groups.

This monograph also suggests some policies to respond to demographic changes including to take advantage of the population structure and improve the quality of the young labour force, enhance healthcare/reproductive health and professional training for the young population while ensuring social security for the elderly.

The Viet Nam General Statistics Office (GSO) would like to express its special thanks to the United Nations Population Fund (UNFPA) for their financial and technical support in the VNPHC2009, especially for data analysis and preparation of this monograph. We also would like to express our sincere thanks to Dr. Nguyen Duc Vinh from the Institute of Sociology and Mr. Nguyen Van Phai - independent consultant, for their great efforts in analyzing data and developing this monograph. Our gratitude also goes to other national and international experts, UNFPA staff, and GSO staff for their hard work and valuable inputs during the development of this monograph.

We are honoured to introduce a special publication with an in-depth look into the age-sex structure of the population and marital status, which is now a topic of interest among researchers, managers, policy makers as well as the whole society. We look forward to your feedback and comments on this monograph to improve the quality of future GSO publications.

General Statistics Office

SUMMARY OF FINDINGS

This monograph presents results from in-depth analysis of the age-sex structure, household structure, and marital status of the population in Viet Nam based on data from the 2009 Viet Nam Population and Housing Census.

• AGE-SEX STRUCTURE

The analysis reveals that, the age-sex structure of population in Viet Nam in 2009 is typical for a population that has recently completed the demographic transition from high to low fertility and mortality. The proportion of children declined while the proportion of the elderly increased. In rural areas, the proportion of the age group 15–19 is highest and is much higher than in the adjacent age groups. In urban areas, the proportion of the age group 20–24 is largest but only slightly higher than adjacent age groups.

Age-sex structures of population in geographical regions and provinces are shaped not only by fertility and mortality but also migration. The age pyramids of the Northern Midlans and Mountains are typical for populations with high fertility and mortality rates. The age structure of population in the Central Highlands is also influenced by in-migration.

The populations in the Red River Delta and Mekong River Delta have low fertility and mortality rates, leading to lower proportions of children and higher proportions of the elderly than in other regions. As the net migration rate in the Red-River Delta is negative and a out-migrants are mainly in working ages, the proportion of the population in working ages is relatively low. The age pyramids of the Central Coast - North and South reflect populations with high migration rates. The proportion of population in the age groups 20–24 and 30–34 in the North and South Central Coast are low as there is a high out-migration rate of young adults. In contrast, the proportion of the population in the age group 20–24 in the Southeast is relatively high as there is a high in-migration rate among the young ages.

The total dependency ratio of Viet Nam has declined dramatically since 1979. If the population aged 15–64 is considered as the non-dependent group, Viet Nam's total dependency ratio had reached the level of a "golden population structure" (<50) by the end of 2007, and fell further to 44.7 by 2009. The decline in the total dependency ratio in Viet Nam is mainly caused by the drop in the fertility rate, while the decrease in the mortality rate has led to a slight increase in the old-aged dependency ratio. Among the six geographical regions, the Southeast, Mekong River Delta, Red River Delta, and Northern Midlands Mountains are experiencing a period of "golden population structure". The North and South Central Coast is expected to achieve a "golden population structure" by 2011. In 2009, 43 of 63 provinces/cities in Viet Nam have obtained a "golden population structure". The provincial total dependency ratio is lowest in Binh Duong (28) and highest in Lai Chau (71). Among the ten largest ethnic groups, six groups have entered the "golden population structure". The Gia Rai and Hmong are the two ethnic groups with the highest total dependency ratio (72.9 and 95.0 respectively).

The population of Viet Nam is aging rapidly as reflected in the aging index (60+) increasing from 18.2 in 1989 to 24.3 in 1999, and 35.5 in 2009, with the expectation of further increases in the future. In 2047, the number of people in old age will be 1.5 times higher than the number of children. The seven provinces with the highest aging indexes (>50) are Ha Tinh, Hung Yen, Ninh Binh, Nam Dinh, Hai Duong, Ha Nam and Thai Binh.

The sex ratio of Viet Nam's population was 97.6 males per 100 females in 2009. However, the sex ratio of the under-15 population in 54 provinces/cities is higher than the normal level (>105). This will lead to the situation of male surplus and female shortage among the marriage age population in the near future.

The number of women aged 15–49 will continue to increase until 2028 (an increase of about 75 thousand women per year) and decline afterward, but the proportion of women aged 15–49 has peaked at the highest level in 2009. Thus even if the TFR remains at the present level (TFR=2.03), the number of newborns will continue increasing in the next decade or so, but the crude birth rate in Viet Nam will gradually decrease.

• HOUSEHOLD STRUCTURE

Similar to the age and sex structures, household structure of Viet Nam's population has significantly changed in the last three decades during the demographic transition. The average size of households declined quickly, from 4.8 people in 1989 to 4.5 in 1999 and 3.8 in 2009. Households with four members are the most common in Viet Nam accounting for 28.5% at present. The reduction in household size is mainly caused by the remarkable drop in the number of children under 15.

From 1999 to 2009, the proportion of one-person households in Viet Nam has risen from 4.4% to 7.3%. Meanwhile, the proportion of one-person households with people in older ages (65+) has increased 1.5 times, from 1.8% to 2.6%. Most people living in one-person household are females, especially those aged 45 or older.

Because of fertility decline, the proportion of households with children aged under 15 also dropped rapidly, from 85.9% in 1989 to 58.0% in 2009. The proportion of households with people in older ages has not changed much. The proportion of household without dependents has more than doubled, from 14.3% in 1989 to 30.8% in 2009, while the proportion of households with at least half the members in dependent ages has decreased from 53.8% to 33.5%.

Until 2009, most household heads in Viet Nam were male and this tendency seems to have increased (from 68.1% in 1989 to 72.,9% in 2009). Most male household heads are married (93.3%) while the proportion of female household heads who are married is significantly lower (40.3%), especially in rural areas (32.5%). The proportion of never-married people among household heads has notably increased during the last two decades (from 2.6% to 5.7%), especially among female household heads in urban areas (from 5.2% to 15.5%) .

In short, common trends seen among Viet Namese households include a decrease in household size; an increase in one-person households; and a decline in the dependency ratio. These are typical characteristics of households in populations completing their demographic transition. However, the traditional pattern of primarily male-headed household persists in Viet Nam. In addition, there is notable variation in these characteristics across geographical regions with different cultures and living standards.

• MARITAL STATUS

In the last two decades, general features of marital status in Viet Nam included earlier marriage among females than males, a majority of the population ever married by the age 50, and in most age groups, the proportion separated or divorced among females higher than among males. In 2009, the proportion married among people aged 35-39 years was nearly 90% and the proportion was even higher for males and in rural areas.

However, there is a clear tendency of increasing mean age at first marriage in Viet Nam. Until 2009, more than 50% of women over age 60 lived outside of marriage, while for men this was only the case after age 85. Compared with two decades ago, the contemporary trend is for women to marry later, and to have a higher probability of being married by the age of 40.

The proportion widowed among females is always higher than among males (about 8-10 times higher for age groups under 60 and from 3 to 6 times higher among age groups above 60), but there is not much difference between rural and urban areas. The proportion widowed is lowest in the Red River Delta and highest in the Mekong River Delta (for men) and in the Central Highlands (for women).

The probability of being divorced/separated among females is usually much higher than among males, both in absolute and relative terms. For the population aged 15 and older, the proportion is 0.9% for males and 2% for females, equivalent to about 287 and 658 thousand individuals respectively. The age group with the highest rate of divorce or separation is the age group 40–44 for males (1.6%) and 50–54 for females (4.4%). The rates of divorce or separation in the Southeast and the Mekong River Delta are much higher than in other four geographical regions. For females, the rate of divorce or separation in the Southeast among people aged 30–70 is remarkably higher than in the other regions. In general, divorce/separation in Viet Nam is associated with low educational levels, middle aged women, infertile women, non-working men, memory disabilities, Kinh ethnic group, urban residence, living in the Southeast, and men living in the Mekong River Delta.

In 2009, the singulate mean age at marriage (SMAM) was 26.2 years for males and 22.8 years for females. Both female and male SMAM in urban areas was higher than in rural areas. The SMAM is lowest in the Northern Midlands and Mountains, followed by the Central Highlands, and is highest in the Southeast. Among ethnic groups, the SMAM is highest for the Kinh majority, and lowest for the Hmong. Educational attainment is one of the factors strongly affecting age at first marriage. Early marriages in the north-western provinces of the Northern Midlands and Mountains are relative common. Rural women in the Central Highlands and Mekong River Delta, and both males and females in the rural north-western provinces of the Northern Midlands and Mountains, especially the ethnic groups with low education levels, should be the key target groups of policies discouraging child and early marriages in Viet Nam. Early termination of schooling, early marriage and early labour force participation are three strongly correlated issues.

Late marriage has become more prevalent. In 1999, there were about more than 84 000 males (1.1%) and 371 000 females (3.8%) aged 40 or older who had never been married. In 2009, the corresponding numbers are more than 210 000 males (1.7%) and 635 000 females (4.4%). Late marriage is always more frequent in urban areas than in rural areas, more frequent in the Southeast and the Mekong River Delta than in other regions, and relatively widespread in the group with low education level, especially people with vision or memory disabilities.

• POLICY RECOMMENDATIONS

Even with the total fertility rate of Viet Nam under the replacement level and continuing to decline, the population in Viet Nam will still increase by more than 9 million over the next decade. Thus, it is necessary for Viet Nam to have suitable policies so that this increase will not hinder economic development, poverty reduction, and living standards improvement, but instead will facilitate implementation of these goals.

It is projected that the number of women aged 15–49 will continue to increase until 2028 but that the rate of increase will decline remarkably in comparison to the last decade. Specifically, over the next decade, the number of women in reproductive ages will increase by about 75 000 people per year. Thus, the demands on reproductive health and family planning services will continue to increase in the near future, but not as rapidly, so the government will be able to focus more on improving quality of reproductive health service systems and family planning programs instead of focusing only on expanding them.

It is expected that the absolute number and proportion of children aged 0–14 in the population will decline (though the absolute number increase slightly in the next decade before declining). This creates conditions amenable to investment per capita to rise in order to improve the quality of education and healthcare systems for children and youth and thus to improve the quality of the labour force in future generations.

The total fertility rate in Viet Nam has fallen below the replacement level and may continue to decline. Therefore, it is necessary to prepare a strategy to ensure that the total fertility rate does not fall below 1.8, or even better, that total fertility is maintained at replacement level (2.1). This will help to avoid the situation of a population structure that is too old and future labour shortages.

The period of "golden population structure" in Viet Nam will continue over the next 3 decades. This is a unique opportunity in which the most favourable demographic structure possible can promote the process of industrialization and modernization in Viet Nam. However, one major constraint is the relative low quality of the labour force. In order to take full advantage of the golden population structure to boost the economy, it is necessary to reduce the unemployment rate and to increase the number of jobs requiring highly-qualified and highly productive labour. Therefore, Viet Nam needs to have policies to strengthen investments for development, especially to enhance the quality of the young labour force through health, education and high-tech training programs.

Population aging is not an urgent issue so far but needs to be taken into account soon as the proportion of the population aged 60 and older will increase quickly. In particular in Viet Nam, many elderly people are economically dependent on others and suffer from many chronic and acute diseases. They will face severe difficulties in their lives, if social protection policies are insufficient or ineffective.

Policies on social insurance, health insurance, and retirement need to be more responsive to population aging, smaller family size, increasing proportions of old people living in one-person households and a large number of people being widowed, especially women. It is crucial to have policies to increase the self-reliance of the elderly as well as to encourage families and communities to be more responsible towards the elderly. More importantly, it is recommended to modernize social insurance programs, to achieve wide-spread coverage and sustainability in the market economy.

Concretely, contributions to the social insurance fund of people in working ages should be in line with the basic costs of living of people when they leave working ages in the future, especially for current workers who are benefitting from the golden population structure. These strategies should be included in the Labour Law, the Law on the Elderly, the Law on Social Insurance and other relevant policies.

It is necessary to carry out stricter policies to prevent the increasing sex ratio at birth, particularly information and communication campaigns affirming and promoting women's status in the family and society and eliminating the attitude of "respect men and disdain women". However, Viet Nam needs not only to prevent it, but also to cope with the situation of surplus male population in the near future. Experiences from Korea, Taiwan, China and India may provide lessons to help establish appropriate policies.

The government needs to continue communication programs and apply more effective methods to reduce the relatively high rates of child and early marriages in some provinces, especially in the Northern Uplands among several ethnic groups. In addition, it is essential to have more comprehensive studies to establish appropriate policies to cope with the increase in divorce and separation, especially in urban areas, and in the Southeast, and the Mekong River Delta. It appears that proactive investment in education is a basic and long-term solution to resolve the problem of early marriage as well as divorce and separation.

In general, Viet Nam's population has been experiencing extensive changes in quantity, quality, and structure, and is gradually moving to the period of post-demographic transition. However, these changes vary remarkably across population groups as well as geographical regions. Therefore, policies on population, marriage, family, and development should be flexible and applied in a way that responds to the diversified demographic features in Viet Nam that vary across region and ethnicit For instance, the government should continue the policies for population in the process of demographic transition in the Central Highlands, Northern Midlands and Mountains, disadvantaged provinces, and ethnic minority groups. On the other hand, effective policies dealing with emerging issues for a post-demographic transition population are also necessary, especially in the Red River Delta and the Southeast, other economically developed provinces and cities.

It is recommended to implement more comprehensive studies on persistent population and family issues, such as child marriage, gender inequality, or emerging issues such as population aging, divorce and separation, delayed marriage, one-person households. It is necessary to examine the relationships of these issues with economic, cultural, and social factors for the improvement of relevant policies. In addition, it is crucial to implement more detailed population projections at both national and provincial levels to provide necessary information for medium and long-term planning and policy making, in order to fully mobilize the potential of demographic dynamics for socio-economic development in Viet Nam.

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ABBREVIATIONS

CPHCSC	Central Population and Housing Census Steering Committee
GSO	General Statistics Office
IMR	Infant Mortality Rate
SMAM	Singulate Mean Age at Marriage
TFR	Total Fertility Rate
UNFPA	United Nations Population Fund

CHAPTER 1: **INTRODUCTION**

1.1 GENERAL CHARACTERISTICS OF POPULATION IN VIET NAM

At the time of the 1979 Census, the population of Viet Nam was in the middle of the demographic transition[1] with a total population of 52.7 million people, the TFR was more than 5 children and life expectancy was under 60. The population in this period reflected several vestiges reflecting consequences of the wars that occurred over previous decades. In the following decades, Viet Nam has made remarkable efforts to implement population and family planning programs and public health measures. Also in this period, the economy of Viet Nam has developed rapidly, changing from a subsidized, central planned and stagnant economy in the 1980s toward a market economy with average economic growth above 8% per year since 1986.

In the three decades after the 1979 Census, the population of Viet Nam underwent dramatic change. In 2009, the total population was almost 85.8 million; the TFR had declined to 2.03; and life expectancy at birth had increased to 72.8 years. The immense decline of fertility and mortality rates have strongly contributed to changes in age and sex structure of the population in Viet Nam. In addition to the demographic transition, the development of the economy and other changes in society have substantially influenced household structure and marital status in Viet Nam. Therefore, it is necessary to establish and to implement socioeconomic development policies that are appropriate with the situation, structure, dynamics and trends of the contemporary population in Viet Nam

1.2 MAIN OBJECTIVES

This monograph uses data from three population and housing Censuses that took place in Viet Nam in 1989, 1999 and 2009 to examine the age-sex structure of population, the structure of households, and marital status. The analysis aims to achieve the following objectives:

First, to assess the quality of age reporting and the possibility of using total- enumeration data from the Population Censuses in 1989, 1999, and 2009 to analyze the age-sex structure of population in Viet Nam.

Second, to describe and to analyze the situation and trends of the age-sex structure of the population in Viet Nam over the three Censuses that took place in 1989, 1999, and 2009. The analysis will concentrate on changes in the population pyramid, the sex ratio, the dependency ratio, and the aging index of the population in Viet Nam.

1 Demographic transition is the process in which population changes from high to low birth and death rates in three stages. Stage 1 with high birth and death rates and slow population growth. Stage 2: decreasing birth and death rates, with faster declines in death rates than birth rates leading to rapid population increase. Stage 3: both low birth and death rates allowing population to become stable.

Third, to describe and analyze the status and trends in household structure of Viet Nam in 2009 in compared with that in 1989 and 1999 using sample Census data. In particular, the analysis focuses on household size, sex of household head, dependency ratio of households, and some characteristics of one-person households.

Fourth, to describe and to analyze marital status of the population aged 15 and over in Viet Nam in 2009 and its relationship to some selected demographic factors using sample Census data. The monograph focuses on structure of marital status by age, sex and by geographical region. The analysis also addresses the situation of early marriage including child marriage, delayed marriage, divorce and separation, and their relationships to other demographic characteristics.

The final objective and, also the overall goal of the monograph, is to provide up-to-date information and appropriate policy recommendations based on the above analysis. It is expected that the monograph will be a useful material for researchers, managers and policy makers, who are interested in population, marriage and family, labour force, social welfare and other relevant issues in Viet Nam.

1.3 INTRODUCTION OF SAMPLE DATA FROM THE 1989, 1999 AND 2009 POPULATION & HOUSING CENSUSES

Population Censuses often record only some basic demographic indicators of total population. The three latest Censuses in Viet Nam (1989, 1999 and 2009) also included subsamples of respectively 5%, 3% and 15% of the total population for which more detailed information was collected. The sample data in the 1989 and 1999 Censuses are representative of the population at the provincial level, while the sample data in the 2009 Census are representative at the district level. Weight or expansion factors are provided with the sample dataset to enable extrapolation to obtain estimates for the total population (see CPHCSC 2010).

Table 1.1: Key characteristics of Census sample data, 1989-2009

	1989	1999	2009
Date	1/4/1989	1/4/1999	1/4/2009
Total households	534 177	534 139	3 692 042
Total population covered	2 626 988	2 368 167	14 177 590
Sampling rate	5%	3%	15%

The analysis of households and marital status in this monograph uses the following key information from the sample data: age, sex, ethnicity, geographical regions (regions, province/city, urban/rural), educational attainment, religion, household size, and sex of household head. In order to avoid sampling errors, total enumeration data are used in the analysis of age-sex structure at the national and provincial levels. This monograph also uses sample data for the analysis of migration, employment, and disability status.

Advantages of the sampled data from three Censuses in 1989, 1999 and 2009 are that they are

representative not only at the national level but also at the provincial level; the sample sizes of households and individuals are large, and sampling errors are relatively small for most estimates. In addition, most indicators are similar across the three Censuses, which allows reliable comparisons between 1989, 1999 and 2009. The main limitation is that these sample datasets include only key socio-demographic indicators, which are not enough for in-depth and comprehensive analysis such as can be performed with data from other household surveys. In addition, several crucial indicators for the topic of the monograph, including directly calculated marriage rates, divorce rates, and type of household, cannot be directly obtained or estimated from the sample data.

1.4 METHODS AND TECHNIQUES

Because the main objective of the monograph is to describe and to compare the age-sex and marital structure of the population, the main methods are descriptive tools, such as cross-tabulation, charts, population pyramids, and maps.

The assessment of data quality will address the following issues: age-heaping, over-age reporting for elderly people, under-reporting of children under age 5. Data on age (or year of birth) from the Censuses or other surveys in general, may exhibit heaping in some ages, as a result of digit preference or rounding, usually to numbers ending in 0 or 5. Substantial age heaping would considerably influence analysis results. Assessments of age heaping is done using Whipple's index, Myer's index or Bachi's index (United Nations, 1993). The general hypothesis in applying these indices is that the actual age structure in a population exhibits gradual variation. Age data exhibits age heaping if there is a concentration of people reported in ages with specific ending digits. These kind of indices can be also calculated for year of birth instead of age. Whipple's index and Myer's index are applied in Chapter 2 of this monograph to assess quality of age data.

Population projection techniques are employed to estimate the population structure of Viet Nam in the near future. A basic and simple type of population projection is to calculate the population by sex and age in the future based on some "rational" hypotheses about fertility rate, sex ratio at birth, mortality rate, and migration in the corresponding periods (Hinde 1998). Besides the estimates of future population, population projection is also applied in Chapter 2 to assess the level of over-reporting of age among the elderly and under-reporting of children under five years of age. The definitions of several indicators and measures of population structure, such as the sex ratio, the dependency rate, the aging index, are presented in Chapter 3.

In order to compare the impact of various indicators on change in household size, a modification of the decomposition method from Dandekar and Unde (1967) is employed. In this method, the household headship rates are decomposed into five components, including indices of nuclear family, marriage, interrupted marriage, sex ratio, and population structure (or proportion of adults). More details of this method are presented in Chapter 4.

In Chapter 5, the mean age at first marriage is estimated from the proportions never married using an indirect method because information about starting point of marital status (at the time of the Census) is missing. Based on life table techniques, this method estimates singulate mean age at marriage (SMAM) as the ratio between the total person-years not yet married among the people who (will) marry by the age of 50 to the total number of people who (will) marry by the age of 50 (United Nations 1983).

Chapter 5 also applies the logistic regression technique to estimate and analyze the relationship between dependent variables (probabilities of early marriage, late marriage, and divorce/separation) and independent variables (some socio-demographic indicators such as urban/rural residence, geographical region, age, sex, ethnicity, religion, educational attainment, working status, migration, and disability). Basically, the construction of a logistic regression model is done in order to estimate the following equation based on observed data:

$$p = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k + \varepsilon)}}$$

or

$$ln\left(\frac{p}{1-p}\right) = (\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k + \varepsilon)$$

Of which, p is the probability for the dependent variable; xi are independent variables; βi are the regression coefficients, ε is error, and p/(1-p) is the odds ratio of p (see Hosmer & Lemeshow 2000). Results from the regression model allow analysis of the relationship between each independent variable and the dependent variable, holding all other independent variables in the model constant (bivariate cross-tabulations do not allow such comparisons). Although they are called dependent variable and independent variables in this monograph, the analysis does not necessarily indicate causal relationships because the analysis is based only on cross-sectional data. More detailed explanations of the logistic regression techniques used will be presented in Chapter 5.

1.5 OUTLINE OF CONTENTS

The monograph consists of 6 chapters whose content is in line with the objectives mentioned above:

Chapter 1. Introduction

Chapter 2. Assessment of data quality and data adjustments

Chapter 3. Age-sex structure

Chapter 4. Household structure

Chapter 5. Marital status

Chapter 6. Conclusions and policy recommendations

CHAPTER 2: ASSESSMENT OF DATA QUALITY AND DATA ADJUSTMENTS

2.1 ASSESSMENT OF AGE HEAPING

The quality of data on the age-sex structure of the population is one of the most important indicators measuring general quality of Census data. The evaluation of data quality related to the age-sex structure as well as the completeness of population enumeration are based on demographic standards.

One type of common error found in responses about age in the population Census and in demographic surveys is age heaping, which occurs most often for the age ending with the digit zero (0) or five (5). A simple index to assess this kind of error is Whipple's index, which is calculated by comparing the number of people reporting their age ending with the digit zero or five and the estimated number of people in these ages, with the assumption that the population is distributed uniformly by age. Whipple's index ranges from 100 to 500. When the Whipple's index is 100, this indicates that no rounding has occurred for ages ending with zero or five. If all the respondents report their age ending with zero and five, Whipple's index would be 500.

The following standards are applied in evaluating quality of responses on age based on Whipple's index:

- Less than 105: very accurate
- 105 to 110: relatively accurate
- 110 to 125: fair
- 125 to 175: bad
- > 175: very bad

Figure 2.1: Values of Whipple's index by sex and year, Viet Nam, 1989-2009

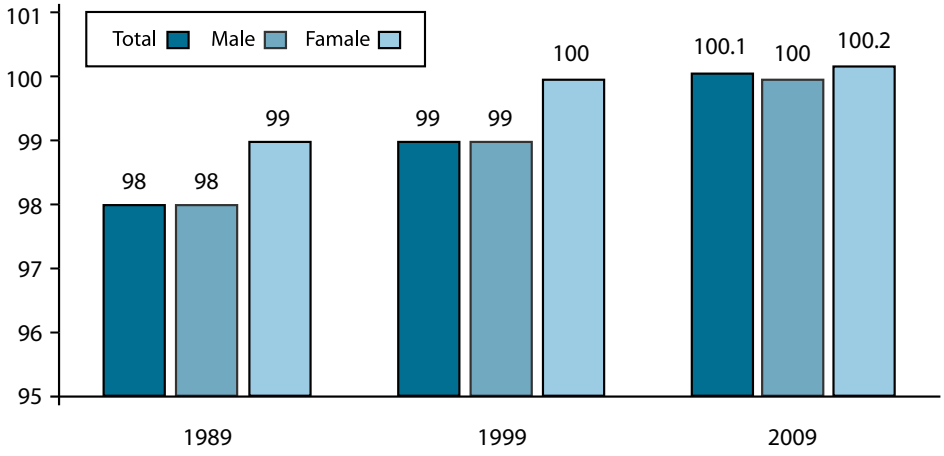


Figure 2.1 presents Whipple's index calculated from the Viet Nam population Censuses since 1989. The results indicate that almost no rounding to 0 or 5 is found in age data in the population Censuses in Viet Nam. According to the above standard, the responses on age in the population Censuses in Viet Nam from 1989 to 2009 can be regarded as "very accurate".

If the value of Whipple's index is less than 100, it indicates that there is a certain age (different from zero and five) that is preferred among the responses. Myer's blended index together with the UN age-sex accuracy index, and age-specific indicators also can show whether there is any other ending digit preferred by respondents in the population Census data. The value of Myer's blended index can range from zero to 90. The higher the value of Myer's index is, the more preference there is for certain digits (age heaping).

Table 2.1: Whipple's index, Myer's index and United Nations Age-sex accuracy index (UNI) for Viet Nam Census data, 1979-1999

	Whipple's Index	Myer's Index	UNI
1979	-	4.1	25.1
1989	98	3.5	20.9
1999	99	2.8	21.2
2009	101	2.9	22.3
2009:			
Male	100	3.1	-
Female	102	2.6	-
Northern Midlands and Moutains	100	3.1	20.7
Red River Delta	102	3.5	27.0
North and South Central Coast	101	4.6	25.7
Central Highlands	100	3.7	27.2
Southeast	100	2.4	31.2
Mekong River Delta	101	2.4	26.0

Note: Myer's index in 1979: Viet Nam Population Census in 1989,Aanalysis of the sample survey, General Statistics Office, Hanoi -1991, p. 8 (the value was 4.3 for males and 3.8 for females in 1979).

Statistics in Table 2.1 indicate that the values of Myer's index in the population Census in Viet Nam is very low and has progressively improved. Myer's index reached the highest value in the population Census in 1979 at only 4.1. The Myer's index was reduced to 3.5 in the population Census in 1989 and to 2.8 in the Census in 1999. The Myer's index in the 2009 population Census was higher by only 0.1 compared to 1999, which is considered very small compared to the full range of this index which varies from 0 to 90. Both Whipple's and Myer's indexes confirm that age heaping at ages ending with 0 or 5 in the population Censuses in Viet Nam is insignificant.

Table 2.2 presents the values of Myer's index by the ending digits of age for the population Censuses in Viet Nam in 1989, 1999 and 2009. These values indicate whether any specific age is preferred in the responses. These age specific index values range from 0 to 10. In the numeric range from 0 to 9, if the value is 0, there is neither preference nor avoidance of any age ending with these numbers. If any value is higher than zero (positive sign), preference at the age ending with that number exists. If the value is less than zero (negative sign) there is an avoidance of age response at that number.

Data in Table 2.2 indicate that in the three Census of 1989, 1999, 2009, the ages that had the highest frequency were ages ending in 8, followed by ages ending in 6. The least frequent ages were those ending in 7, followed by those ending in 2.One of the reasons explaining why respondents often report their ages ending with 8 is because the population Census in Viet Nam is conducted in years ending with 9 and ages are determined by questions asking year in which the respondents were born. When asked for the year they were born, many of the respondents tend to report being born in the years ending with zero (1930, 1940, 1950), especially those who do not remember precisely when they were born or were born close to the years ending with these digits (e.g. years ending in 9 or 1). Since the Census takes place on April 1, when age is calculated, about three quarters of those who declared being born in the years ending with 0 will end up having their age ending with 8 and the remaining quarter will have their age ending with 9.

Table 2.2: Myer's index and digit preference in the Viet Nam population Census, 1989-2009

Ending digit	1989	1999	2009
0	-0.2	-0.1	-0.1
1	-0.2	-0.2	-0.3
2	-0.5	-0.3	-0.4
3	-0.1	-0.1	-0.1
4	0.2	0.2	0.1
5	-0.1	-0.1	0.1
6	0.3	0.5	0.5
7	-0.7	-0.7	-0.4
8	0.8	0.6	0.7
9	0.5	0.1	0.1
Overall	3.5	2.8	2.9

It is necessary to mention that the number of respondents having ages ending with number six is relatively high (ranked second after number 8). It is possible that the number of people having ages ending with number six is large (due to high number of births) not due to incorrect responses. Years ending with number three correspond to "Qui" years in the lunar calendar (i.e. 1943 corresponded to Quy Mui, 1953 corresponded to Quy Ty, and 1963 corresponded to Quy Mao, etc). It is traditionally believed that years start with Quy are good and lucky therefore parents prefer having children in these years. Although precise dates cannot be remembered, those who were born in these Quy years will tend to have ages ending with the number 6.

Despite the existence of the above mentioned phenomena, the age-specific Myer's index in 2009 yielded the highest value at 0.7 (within the possible range of 0 to 10). It can be concluded that age preference in responses to the population Census in Viet Nam are not a concern. In addition, all three Censuses in Viet Nam were conducted on the 1st of April in 1989, 1999 and 2009, if some people reported that they were born in the following years ending with 0, three fourths of these cases will not influence the analysis of age when it is grouped into age groups (0–4, 5–9, 10–14,…).

Another index using uniform distribution but only based on population distribution by sex and 5-year age groups is the Age-sex Accuracy index developed by the United Nations (UNI) . This index tells us how accurate the population structure by sex and 5-year age groups is. Standards for quality of sex and 5-year age group distribution with this index are:

- <20: Accurate
- 20 to 40: Inaccurate
- >40: Very inaccurate

In general the UNI is used in evaluating the quality of population distribution by sex and 5-year age groups before making population projections, in particular this index is used in considering whether any adjustments to population data are needed before making any population projections. Usually, when the UNI ranges from 20 to 40, population structure by sex and five-year age groups is considered incorrect. It is necessary to apply the index, yet not necessary to edit the data before making any population projections but caution is needed when using the data. If the UNI index is higher than 40, data editing is needed before making any projections.

Figures in Table 2.1 (Colum 3) are UNI for population structure by sex and 5-year age groups for Censuses from 1979 to 2009. Statistics in this table indicate that the values of UNI for four Censuses in Viet Nam were above 20 points with the lowest value being 20.9 for the Census in 1989 and the highest value of 25.1 points recorded in the Census conducted in 1979.

Thus, it can be said that the accuracy of combined sex and age indexes in the population Censuses following international classifications is not assessed as high. However, this inaccuracy is attributed to the consequences of the war. The UNI is developed based on the assumption that normal age and sex structures (i.e. the sex ratio gradually decreases from one age group to another and at the highest age group, the value of this index ranges from 95 to 100. Population size corresponding to 5-year age groups decreases as age increases and its value will be approximately equal to the mean value of the two five-year age groups immediate prior and after it. However, it is important to note that the population of Viet Nam has been strongly affected by war casualties. This is particularly true for the age groups over 50. As a result sex and age indexes experience abnormal changes for those age groups.

2.2 ASSESSMENT OF AGE HEAPING AT REGIONAL AND PROVINCIAL LEVELS

Table 2.1 presented Whipple's Index, Myer's Index and UNI for the 2009 population and housing Census in Viet Nam by region. Similar to the whole country, both Whipple's and Myer's indexes by region are very small reflecting high accuracy in responses on age by region. The values of Whipple's index are 100 in three out of the six regions, 101 in two regions and 102 in one region. Myer's index values range from 2.4 to 4.6 across the regions.

The UNI by region is much higher than at the national level with the exception of the Northern Midlands Mountains. Regions with the highest UNI include the Southeast, Central Highlands and the Red River Delta. Apart from the consequences of war affecting the UNI for the whole country, high values of UNI in upland areas particularly in the Southeast, Central Highlands and Red River Delta are also affected by migration. One typical feature of migration is age and sex selection (a majority of migrants are young people and males). This selection in migration significantly changes the normal sex and age structures of both destinations (Southeast and Central Highlands) and places of origin (Red River Delta). Migration therefore is the main reason UNI in the Southeast, Central Highlands and Red River Delta are higher than at the national level.

Figure 2.2: Provinces with lowest and highest Myer's Indices, Viet Nam, 2009

Figure 2.1 indicates that the differences in the value of Myer's index between the lowest value of 1.8 (An Giang province) and the highest value of 6.8 in Ha Tinh province is only five (5) points. This difference is relatively small compared to the possible range from zero to 90. Differences in value of the Myer's index among the five provinces with the highest values only range from 5.3 to 6.8. This small difference reflects high reliability in the quality of responses for age.

Figure 2.3: Five provinces with the lowest UNI values and five provinces with the highest UNI values, Viet Nam 2009

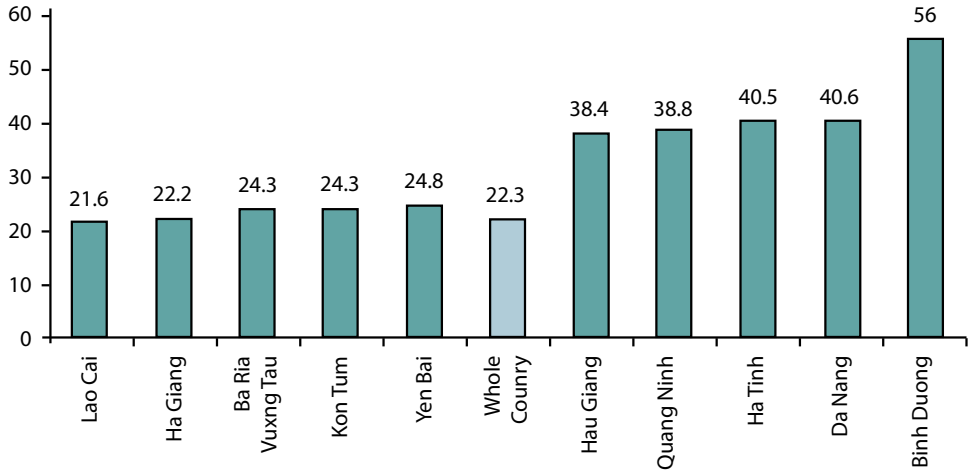


Figure 2.3 compares the value of UNI among five provinces with the lowest values and five provinces with the highest values. It can be concluded that migration has a strong impact on UNI at the provincial levels.

Data in Figure 2.3 and the appendix show that provinces with low UNI value have either small inter-provincial migration or the age structure of in-migrants is very similar to the population structure of the destination province. These are primarily the mountainous provinces including Lao Cai, Ha Giang, Kon Tum and Yen Bai. The UNI values in these provinces are the lowest in the nation.

In contrast, provinces with high values of UNI have high inter-provincial migration (either out-migration or in-migration). These provinces include Binh Duong and Da Nang with high in- migration and Ha Tinh, Quang Nam and Hau Giang with high out- migration. The high level of either out-migration or in-migration disturbs the ordinary sex and age structures of the population. Therefore, high UNI value in these provinces can be explained by the unusual sex and age structures of the population rather than discrepancies in age and sex reporting in the Census.

2.3 ASSESSING THE COMPLETENESS OF ENUMERATION OF CHILDREN AND THE ELDERLY

A post-enumeration survey was used as the method to validate the quality of data collected in the Census. After the 2009 population and housing Census was completed, the Central Steering Committee of the Census randomly selected 60 enumeration areas for a post-enumeration survey. Results of the post-enumeration survey indicated that at the national level there was a 1.8 percent duplication rate and 1.5 percent undercount rate and the net coverage error (undercount rate minus duplication rate) was negative 0.3 percent (CPHCSC, 2009). This is considered a relatively small coverage error.

In a population Census, it is important to have an accurate figure of not only the total population but also the number of people in certain age groups such as the number of children from 0–4 years of age and the elderly population.

2.3.1 Assessing the completeness of enumeration of children 0–4 years of age

In order to check the accuracy of the data regarding number of children in the Census, the number of children enumerated in certain age groups is compared with the "estimated" number of children generated from the fertility rate and mortality rate corresponding to those age groups. It is understood that children age zero are those born in the 12 months prior to and still alive at the time of the Census. The number of children born in a certain period of time (12 months) is identified by using the crude birth rate and the average population of that particular period. The number of children alive is calculated by multiplying number of children born times the survival ratio from delivery to the time of the Census.

Table 2.3: Comparison of child population (age 0, ages 1–4, ages 0–4) recorded in the Census and the estimated child population during 5 years prior to the Census

Age	Estimated population			Enumerated population			% difference		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0	770 721	703 753	1 474 474	806 773	716 348	1 523 121	4.7	1.8	3.3
1–4	2 929 247	2 703 064	5 632 311	3 031 315	2 724 217	5 755 532	3.5	0.8	2.2
0–4	3 699 968	3 406 816	7 106 784	3 838 088	3 440 565	7 278 653	3.7	1.0	2.4

Table 2.3 presents the number of children under 5 years of age in the enumerated in the population and housing Census as of April 1, 2009 in comparison with the estimate of the number of children less than 5 years of age estimated using the crude birth rate (CBR) in the 5 years prior to the Census. The difference between the actual number enumerated in the population Census as of April 1, 2009 and the estimate of the population aged 0–4 is acceptable (only 2.4 percent). The difference for females aged 1–4 years is only 0.8 percent. The differences in the age group zero is higher than in the age group from 1–4 years of age (3.3 percent versus 2.2 percent respectively). The differences among male children is higher than among female children. The difference is nearly three times for the age group zero (4.7 percent versus 1.8 percent) and nearly four times for the age group 1–4 year (3.5 percent versus 0.8 percent).

2.3.2 Assessing the completeness in enumeration of the elderly

In the Censuses, the total number of the elderly enumerated tends to be incorrect since the elderly population does not usually remember their age exactly. In addition, older people tend to report higher ages to gain more respect. One of the popular methods applied in assessing the quality of data on the aged population is to compare the figure collected in the Census for the age group of over 60 with the "projected" number of people in the same age group using complete results of the previous population Census.

Table 2.4 presents the differences in the population aged 60 and over between the data enumerated in the 2009 population Census as of April 1, 2009 and the projected figure for the population over 60 years of age using the complete data of the previous population Census as of April 1st, 1999. Projected population is calculated on the basis of population by sex and by 5-year age groups applied to the 1999 Population and Housing Census (for the age group of 50-54 and older) and the survival ratio by sex and 5-year age groups calculated from the life table in 1999 (66.5 years old for male and 70.1 for female).

Table 2.4: Population aged 60 and older enumerated in the 2009 Census compared with population projected from the 1999 Census

Age group	Projection from 1999 Census			Data from 2009 Census			% difference		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
60–64	863 218	1 055 253	1 918 472	901 535	1 094 054	1 995 589	4.3	3.5	3.9
65–69	658 078	886 833	1 544 912	688 461	916 624	1 605 085	4.4	3.3	3.7
70–74	576 583	799 072	1 375 655	601 320	863 548	1 464 868	4.1	7.5	6.1
75+	810 224	1 242 252	2 052 475	981 292	1 653 718	2 635 010	17.4	24.9	22.1
Total	2 908 103	3 983 410	6 891 514	3 172 608	4 527 944	7 700 552	8.3	12.0	10.5

Data indicate that the difference between the population aged 60 and over collected in the Population and using Census as of April 1, 2009 and the projected population is relatively large at 10.5 percent. This high percentage difference is attributed largely to the difference in the age group 75 and over (22.1%). Meanwhile the differences in other age groups only range from 3.7% to 6.1%. It is important to note that the differences for males is higher than for females for the age groups 60–64 and 65–69. However, the reverse trend is seen among the age group 70–74. In contrast to the situation for the age group from 0–4, the difference among females in the age group 60 and over is higher than among males. That the differences between the actual figures and the projected figure increases by age indicates that the higher the age group, the less accurate the data.

2.4 CONCLUSIONS

The evaluation of the data in this chapter indicates that, in general, the quality of the sample data from the Census 2009 satisfied basic requirements for the purposes of analysis in this monograph. There is some evidence about problems of heaping on certain years of birth, underreporting of the number of children under age 5, and over reporting of age among the elderly. However, these limitations are not serious enough to have significant impacts on the analysis. Thus no adjustments were necessary for estimates made in this monograph

CHAPTER 3: **AGE-SEX STRUCTURE OF THE POPULATION IN VIET NAM**

3.1 AGE-SEX STRUCTURE

3.1.1 Changes in the age-sex structure of the population in Viet Nam from 1979 to 2009

Similar to many developing countries in Southeast Asia, Viet Nam is in the post-demographic transition, in which the transition from high fertility and mortality to low fertility and mortality has already occurred and the age-sex structure of the population has undergone major changes.

Table 3.1 presents the age structure for males and females in Viet Nam in 2009. The data show that, because of the declining fertility rate, the proportion in the 10–14 year-old population for both sexes is smaller than the 15–19 year old cohort and larger than the 5–9 year old cohort. However, the age group 0–4 shows a slight increase in size. The reason for this is that recently only modest decreases in fertility have occurred, while the number of women in childbearing age has increased considerably (as the consequence of high fertility 20–30 years ago), leading to the absolute total number of births (2004–2009) not decreasing, but actually increasing compared with the previous five years (1999–2004).

Table 3.1: Age structure of the population in Viet Nam by sex, 2009

Age	Male	Female	Total
0–4	8.6	7.8	8.2
5–9	8.2	7.5	7.8
10–14	8.8	8.1	8.4
15–19	10.8	10.1	10.4
20–24	10.0	9.6	9.8
25–29	9.2	8.9	9.1
30–34	8.2	7.8	8.0
35–39	7.8	7.4	7.6
40–44	7.0	6.9	7.0
45–49	6.2	6.5	6.3
50–54	4.9	5.4	5.1
55–59	3.2	3.7	3.5
60–64	2.0	2.5	2.3
65–69	1.5	2.1	1.8
70–74	1.3	1.9	1.6
75–79	1.1	1.7	1.4
80–84	0.6	1.1	0.8
85+	0.4	1.0	0.7
Total	100.0	100.0	100.0

Though the proportion of children aged 0–4 is slightly larger than the proportion of the 5–9 group (8.2% versus 7.8%), it can be seen that the proportion of children aged 0–4 decreases dramatically over time. Data in Table 3.2 show that, at the time of the 1979 Census, the children aged 0–4 accounted for 14.6% of the total population, and in the 1999 Census, the proportion was down to 9.4%, which means 5 percentage points lower than 20 years before. The proportion of the population aged 0–4 continued to decrease to 8.2% in 2009.

Table 3.2: Changes in age structure accounted for by children in Viet Nam, 1979-1999

	1979	1989	1999	2009
Number of children (persons)				
0–4	7 712 696	9 084 202	7 172 242	7 034 144
5–9	7 690 318	8 606 693	9 033 162	6 710 737
10–14	7 039 329	7 531 703	9 066 562	7 248 378
Proportion of total population (%)				
0–4	14.6	14.1	9.4	8.2
5–9	14.6	13.4	11.8	7.8
10–14	13.3	11.7	11.9	8.4

Among the child age groups, the proportion in the age group 5–9 years decreased most quickly, especially in the past 10 years. The proportion of the population aged 5–9 decreases from 11.8% in 1999 to 7.8% in 2009. The main reason is the dramatic fall in fertility in the period 1999–2004.

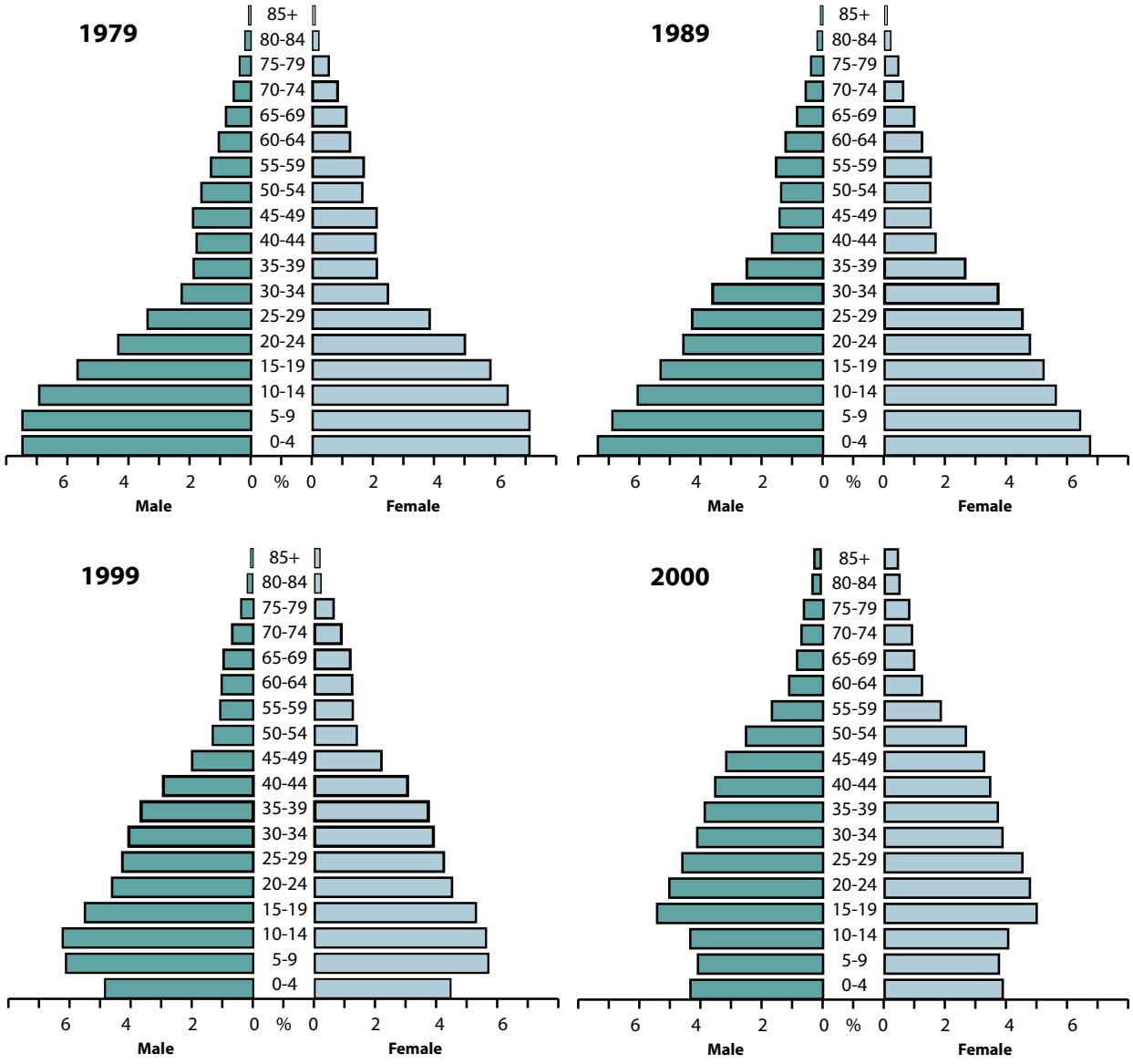
Figure 3.1 presents the age pyramids of population in Viet Nam across four Censuses from 1979 to 2009. The pyramids show that the age structure of Viet Nam's population has changed considerably in the past three decades. Fertility started falling in the 1960s but was still at a high level until 1979. In the early period of the demographic transition in Viet Nam, the age pyramid was largest at the base and the width of bands fell quickly across age groups, while in the later period of transition (since 1999), the pyramid base has become narrower and is no longer the largest band.

The age pyramid of population in Viet Nam in 1979 is typical of populations with high fertility and mortality. Because fertility in the five years before the Census that took place on 1/10/79 had declined very little, and because of the population boom after a long period of war, the total population aged 0–4 was equal to the population aged 5–9. The groups aged 30–34, 35–39, and 40–44 years in 1979 were considerably smaller than the adjacent age groups as a consequence of the long period of war that ended several year before.

After a decade, in 1989, the age structure of the population in Viet Nam reflected mortality was higher than fertility. The characteristics of this pyramid are a large body and slightly narrowed base. Despite the fact that a family planning program was carried out nationally and the total fertility rate had fallen, because the number of women in reproductive ages had increased dramatically, the number of births increase and children aged 0–4 were more numerous than the cohort aged 5–9.

The age pyramid in 1999 is characteristic of the demographic transition with rapid declines in both fertility and mortality. The base of the pyramid (which represents the 0–4 cohort) had narrowed substantially, which illustrates a very rapid decrease in fertility in the five years before the Census. The pyramid body narrows slowly because of the strong decline in mortality and increases in life expectancy. The consequences of war are weaker and only significant for the 50–54 year old and older cohorts.

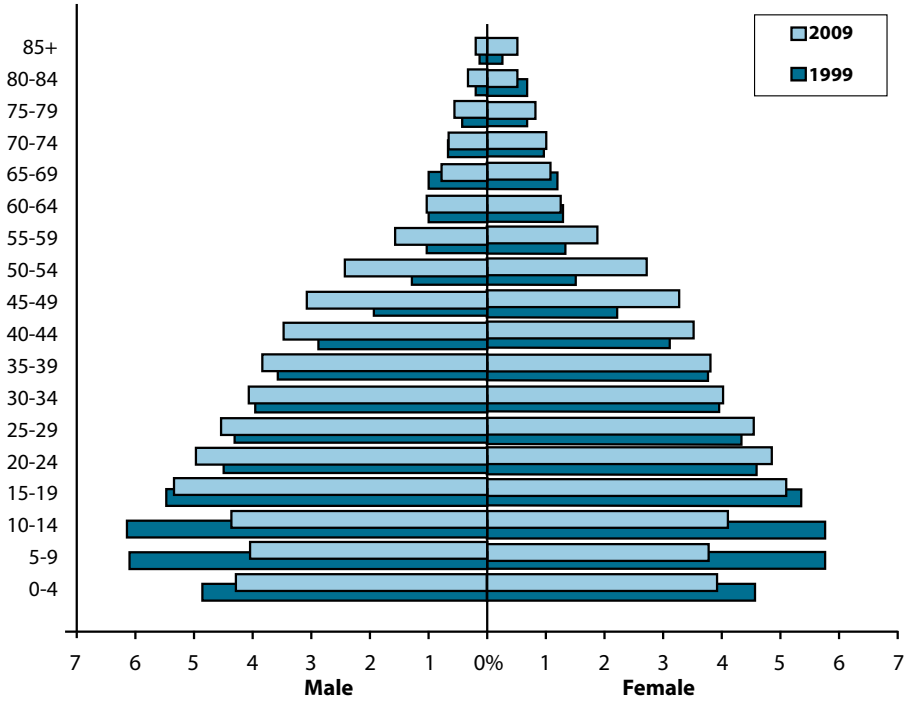
Figure 3.1: Age pyramid of the population in Viet Nam, 1979, 1989, 1999, and 2009



In 2009, the age pyramid is characteristic of the post demographic transition with low fertility and mortality and the beginning signs of an aging population. Fertility had fallen considerably in the 15 years before the Census, narrowing the three bands at the bottom. Mortality also declined and life expectancy increased Thus, the pyramid body is narrowing towards the base. The war consequences impact on the pyramid are no longer clear, and can only be seen among the age groups from 60-64 and older.

Changes in population structures between 1999 and 2009 can be seen easily in a comparison of the two corresponding population pyramids in Figure 3.2. Compared with 1999, the proportion of population in the age groups below 20, especially the cohorts aged 5–9 and 10–14 years of age in 2009 show an obvious decline. Meanwhile, the proportions of the 20–24 and older cohorts, except for the 65–69 cohorts, have increased, with the largest increases seen in the age groups 45–49 and 50–54 cohorts. Thus, after ten years, the decrease in the proportion in child age groups and the increase in the proportion in adult ages have remarkably changed the dependency ratio and aging index in Viet Nam. These indicators will be analyzed in more detail in the following sections.

Figure 3.2: Comparison of population pyramids of Viet Nam, 1999 and 2009



3.1.2 Age-sex structure by urban/rural residence and by region

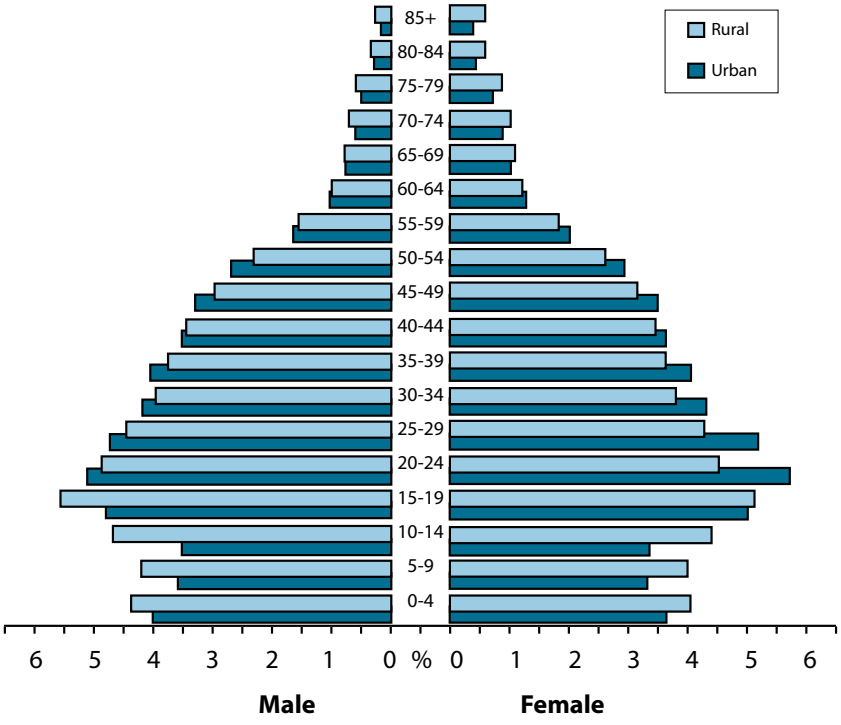
Age structure of the population depends on fertility, mortality and migration. Because international migration to and from Viet Nam is low, the age structure of the population mainly depends on fertility and mortality[2]. However, migration significantly affects the age-sex structure of population in rural and urban areas, regions, and certain provinces. Since the economy has been transformed from a

2 Viet Namese who have gone abroad for study, work, medical care or tourism and are still abroad at the time of the Census are not considered as emigrants and are enumerated in the household (Central Census Steering Committee, 2008)

centrally planned economy to a market economy, domestic migration has changed dramatically with an increasing scale. Compared with the period from 1994–1999, the number of migrants in the five-year period from April 2004 to March 2009 increased almost 2.2 million (CPHCSC & NOTU 2010). All kinds of migration in Viet Nam, including inter-communal migration, inter-district migration, inter-provincial migration, and inter-regional migration, are occurring at a large scale and have shown strong increases. In general, the further the migration distance, the larger the number of migrants. During 2004–2009, total inter-communal migration increase by 275, 000 people compared with the period from 1994–1999, inter-district migration increased by 571, 000people, inter-provincial migration increased by almost 1.4 million people and inter-regional migration increased by more than 1 million people (CPHCSC, 2010).

Figure 3.3 provides a comparison of population age-sex structure between urban and rural areas in Viet Nam in 2009. Since the rural population accounts for 70% of the total population, the rural age pyramid is similar to the national population pyramid. The urban population pyramid also indicates the tendency of decreasing fertility and mortality as seen in the total population. However, mainly because of differences in fertility, the base of the age-sex pyramid for the urban population is much narrower than for the rural population. The urban population pyramid is also significantly influenced by rural to urban migration. Because the rural-urban migrants are mainly in working ages, the proportions of the population in working-age groups, especially females, in urban areas are higher than in rural areas. Compared to the group aged 15–19, the proportions of the population aged 20–24 in urban areas does not narrow as in the total population, but expands. In fact, the pyramid is widest at the cohort aged 20–24 for the urban population, but at the cohort aged 15–19 for the rural population. In contrast, possibly because the proportion of middle-age and old-age (retired) people among urban-rural migrants is relatively large, the band for the age group 55–59 years in urban areas declined faster than in rural areas.

Figure 3.3: Comparison of rural and urban population pyramids, Viet Nam 2009

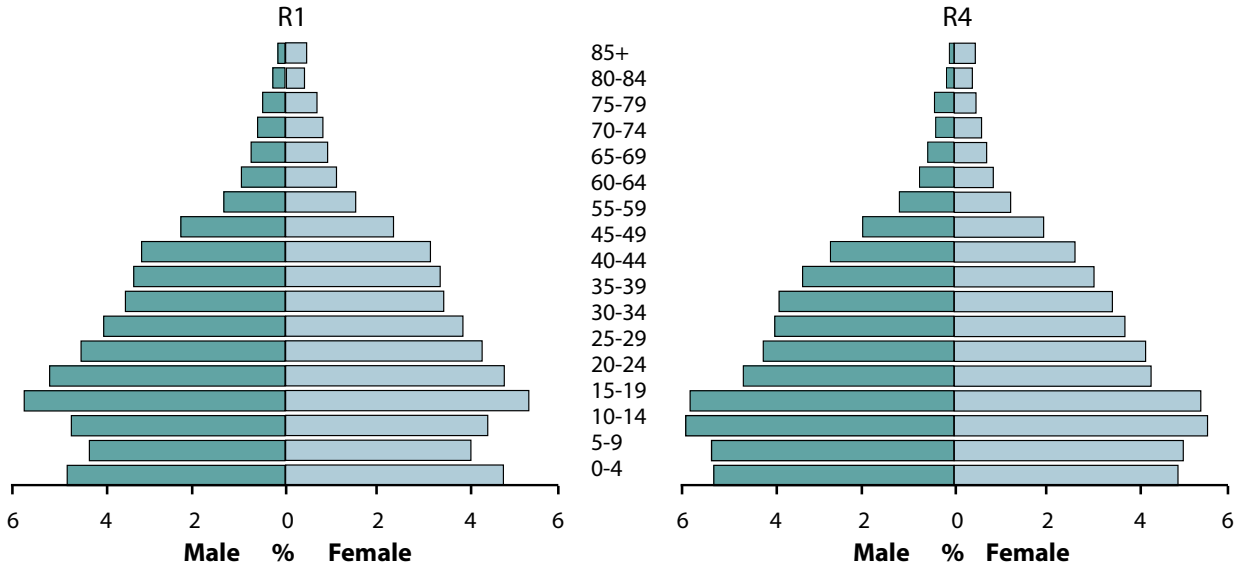


Since fertility, mortality and migration vary dramatically across regions, population age-sex structures also vary. However, in order to analyze the age-sex structures of population by region, it makes sense to compare age pyramids across regions in three pairs as follows.

Type 1: Northern Midlands Mountains (R1) and Central Highlands (R4)

These two regions have the highest fertility and mortality, which have nevertheless shown dramatic declines in recent years. The Northern Midlands Mountains is an out-migration region while the Central Highlands receives substantial in-migration. However, net migration rates are not high and the gap is not too high (-17.5 ‰ in R1 and 11.2‰ in R4).

Figure 3.4: Age pyramid of the Northern Midlands Mountains (R1) and the Central Highlands (R4)



These two regions have population pyramids characteristic of young populations with relatively wide bases and a sharp peak. It can be seen that the population of the Central Highlands is much younger than the Northern Midlands Mountains. The three bands at the bottom of the pyramid (0–4, 5–9 and 10–14 cohorts respectively) of the Northern Midlands Mountains are considerably narrower than the adjacent band (15–19 cohort). The main reason is that fertility in the 15 years before the Census has declined rapidly. Regarding the population pyramid of the Central Highlands, only the two bottom bands (which are equivalent to the 0–4 and 5–9 cohorts) are slightly narrower than the next band (the 10–14 cohort). This is because fertility in the Central Highlands has only decreased over the past ten years and only at a medium pace. The top of the Population pyramid for the Central Highlands narrows more sharply than for the Northern Midlands Mountains, indicating higher mortality in the Central Highlands.

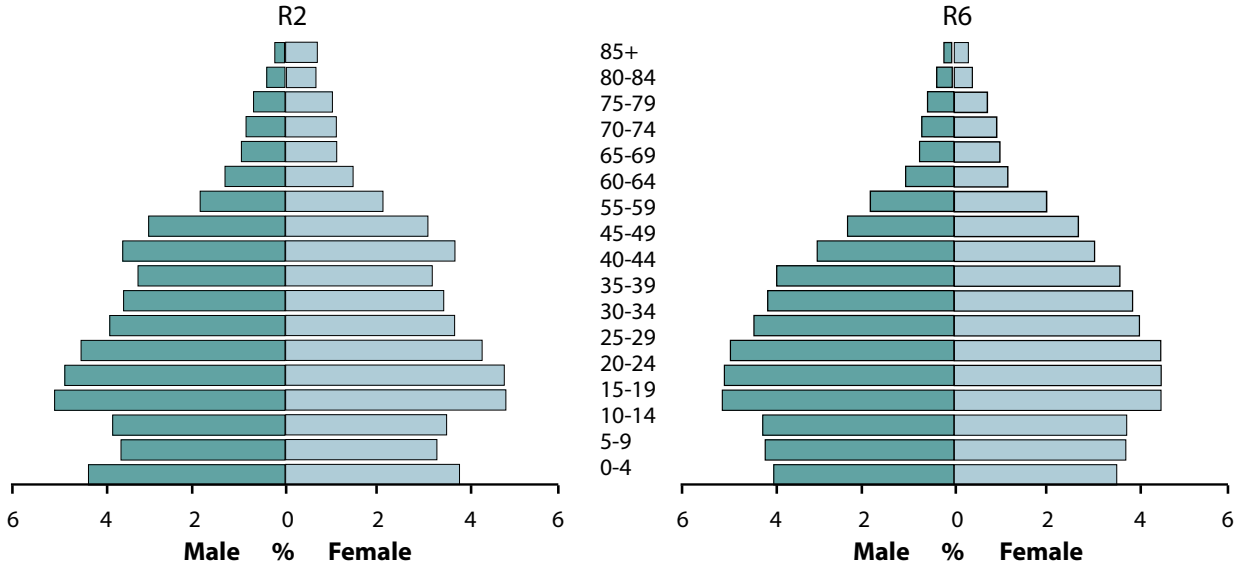
Perhaps mostly as a result of migration, the population pyramid of the Central Highlands narrows sharply in the 15–19 cohort to the 20–24 cohort, especially for males. The population aged 20–24 sharply declines as young people are migrating to other regions for studying (at vocational schools) while middle-age people are migrating into this region to work in agriculture, forestry and construction. Among the six regions, the Central Highlands has the highest proportion of the population aged 10–14 years.

Type 2: Red River Delta (R2) and Mekong River Delta (R6)

Both the Red River and Mekong River Delta regions have low mortality and fertility rates and negative net migration, but the net-migration rate is relatively high in the Mekong River Delta (-40.4 ‰) and small in the Red River Delta (-1.7 ‰).

The age-sex pyramid of the Mekong River Delta is relatively smooth and its base and body narrow steadily. The size of the three bands at the pyramid base vary only slightly, indicating that fertility in the Mekong River Delta has not declined strongly in the past 15 years.

Figure 3.5: Age pyramids of the Red River Delta (R2) and Mekong River Delta (R6), 2009



In contrast, the age-sex pyramid of the population in the Red River Delta is not so smooth. Since fertility declined dramatically in the period 1994–2004, the size of the two bands of the two respective birth cohorts narrows remarkably. In addition, the total population in the main reproductive ages (25–30 years) in the period 1994–2004 (about the age from 30 to 40 in 2009) declined, which contributed to the decline in total births. Similarly, the fact that the cohort of children 0–4 years is notably larger than the 5–9 year old cohort corresponds to the abrupt increase in the size of the 20–29 year old cohort compared to the 30–39 year old cohort, despite continued declines or at least stability in fertility in the Red River Delta in the period 2000–2009.

Though the net migration rate from the Red River Delta is not high, -2.3‰, both out-migration and in-migration are not insubstantial (16.0‰ and 18.5‰, respectively (CPHCSC, 2009)). Migration appears to be a strong factor affecting the age structure of population in this region, making the age pyramid body strongly narrow among the cohorts aged 30–34, 35–39 and 40–44 years, and expand among the older cohorts, especially the cohorts aged 45–49 and 50–54 years for both sexes.

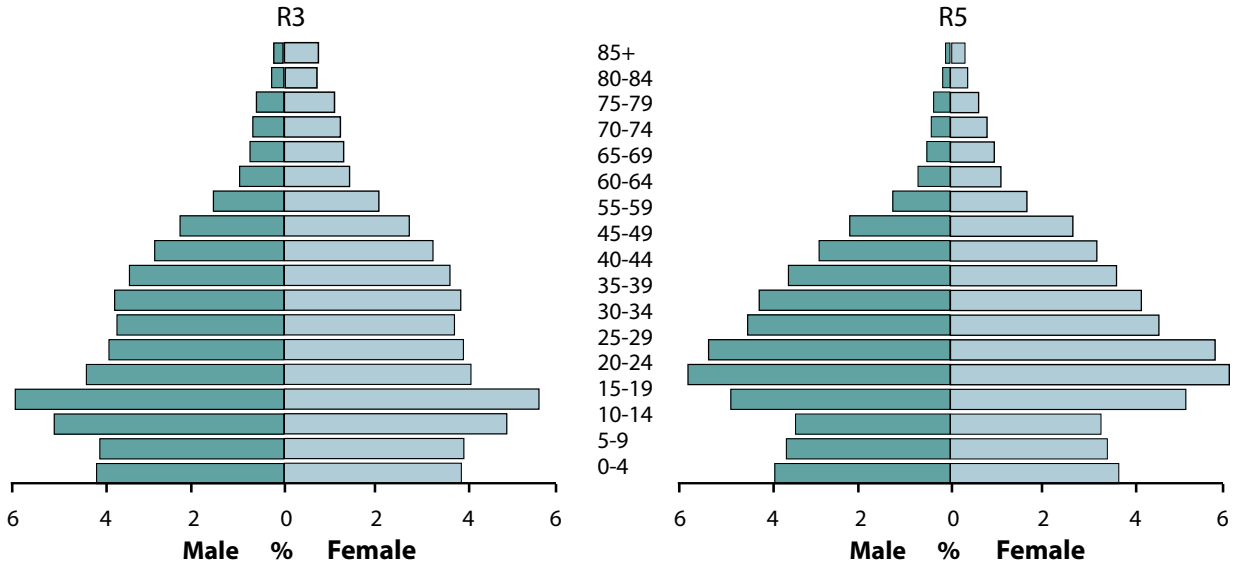
Type 3: The North and South Central Coast (R3) and the Southeast (R5)

The population age-sex structures of these two regions are particular and contradict each other. In both of these regions, crude birth rates are low, only exceeding that in the Mekong River Delta. Migration flows are also distinctive. The Southeast is the destination for most out-migrants from

the North and South Central Coast. According to Census data, among 775, 000 people migrating from the North and South Central Coast in the five years before the Census, 570, 000 people (74%) migrated to the Southeast (CPHSSC, 2010).

The age pyramid of the North and South Central Coast (R3) has a rapidly narrowing base, especially at the cohorts aged 10–14 and 5–9 years. Because fertility in the period April 2004 to –March 2009 slightly declined in compared with the previous five years, the two bottom bands of the pyramid have a similar size. The age structure of the North and South Central Coast suddenly narrows at the 20–24 year old cohort and the next five adjacent cohorts are almost equal. It is likely that this is due primarily to migration as this is the region with the second highest out-migration (ranked second to the Mekong River Delta)

Figure 3.6: Age pyramid of the North and South Central Coast (R3) and Southeast (R5), 2009



The age pyramid of population in the Southeast is most distinctive. This is the only region with an age pyramid that has the two bottom bands wider than the adjacent one (the 5–9 cohort is wider than the 10–14 cohort and the 0–4 cohort is larger than the 5–9 cohort) because of the steady increase in the number of births in the 10 years before the Census. However, this does not mean increasing fertility rates but rather an increase in the number of people in reproductive age groups. Because of rapidly declining fertility in the 1990s and partly because of migration, the bands for the population aged 10–14 is considerably narrower than the band for the 20–24 year age group. This is the region with the highest proportion of the population in the 20–24 year old group. From the 20–24 band through the 60–64 band, the pyramid narrows swiftly and steadily, suggesting a high fertility rate before the period 1985-1989. The population pyramid for the Southeast continues to narrow in the old-age groups but not as rapidly as in the younger age groups.

3.1.3 Age-sex structure differences by province

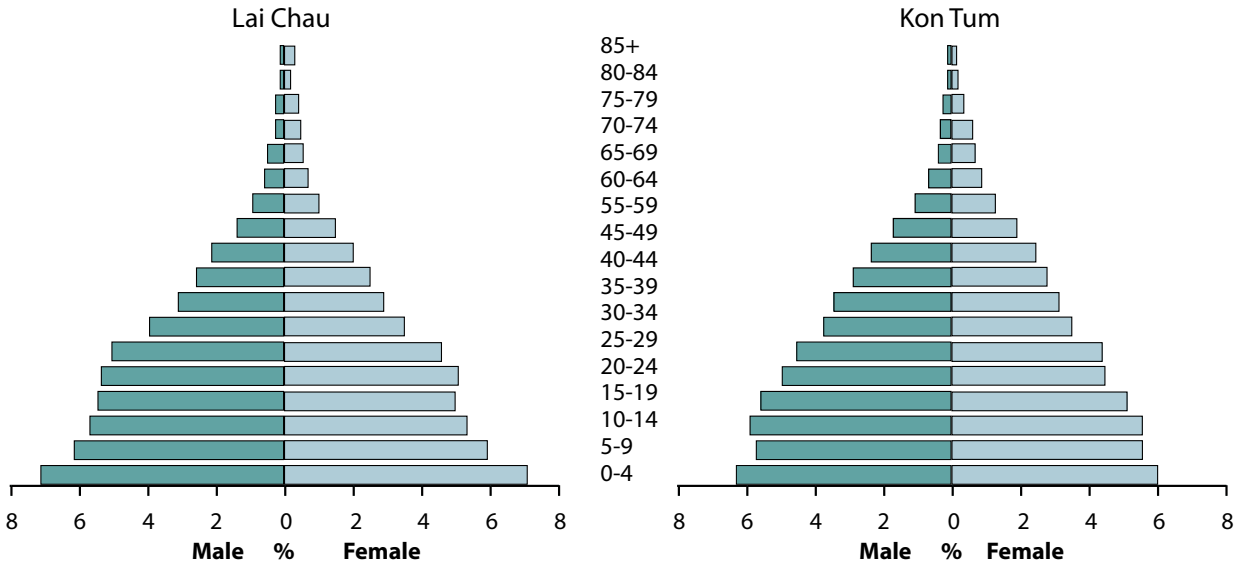
Similar to the variation within regions, the differences in fertility, mortality and migration also lead to differences in population pyramids across provinces. The population structure of provinces in Viet Nam in 2009 can be classified in to the following three typical groups:

a) Provinces with high fertility and mortality rates but relative low net-migration rates.

This group includes mostly mountainous provinces such as Lai Chau, Dien Bien, and Ha Giang in the North and Kon Tum and Gia Lai in the South. The age pyramids of these provinces are typical of young populations.

Figure 3.7 presents age pyramids of the population in Lai Chau and Kon Tum, two typical provinces in this group. For the period of 12 months before the Census, the TFR of Lai Chau was 2.96 and the CBR was 26.2‰, which ranked third among all provinces and only lower than Kon Tum and Ha Giang. In Lai Chau, the IMR in 2006[3] was 36‰,[4] which is quite high in comparison to the IMR of Viet Nam (16‰). The net migration rate in Lai Chau five years before the 2009 Census was 33.6‰ and there were moderate rates of out-migration and in-migration (48.8‰ and 13.5‰). Kon Tum is among the provinces with the highest fertility and mortality (TFR is 3.45 and IMR in 2006 was 52‰). The net-migration rate is 26.9‰ with the out-migration and in-migration rates similar to Lai Chau province, at 46.4‰ and 19.5‰ respectively. Like in most populations with high fertility and mortality, the age pyramids of the population in Lai Chau and Kon Tum have a triangular shape, widest at the base and narrowing swiftly across age groups.

Figure 3.7: Age pyramids of the population in Lai Chau and Kon Tum, 2009



b) Provinces with fertility and mortality rates around the national levels and high negative net migration rates. Most provinces in the Red River and Mekong River Deltas and many provinces the North and South Central Coast belong to this group.

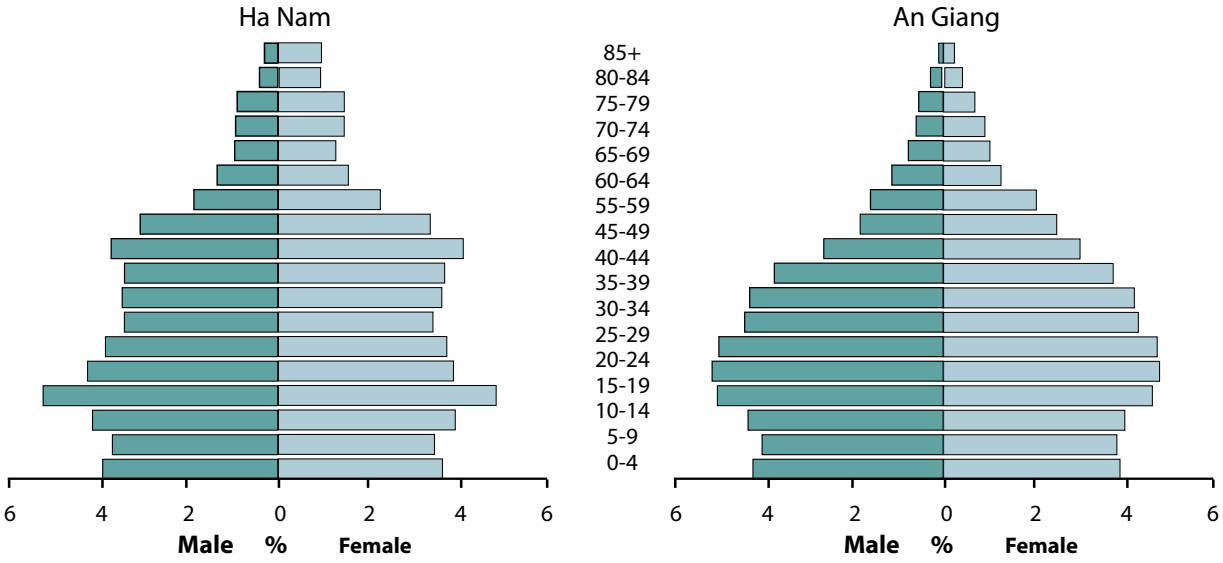
3 2006 is the latest year with provincial data on IMR

4 General Statistics Office. Survey of Population Change and Labor Force and Family Planning. 2006. Main Findings. Hanoi:Statistical Publishing House, 6-2007, page 68, Table 5.3

Figure 3.8 presents the population pyramids of Ha Nam (Red River Delta) and An Giang (Mekong River Delta). In Ha Nam province, TFR is 2.07 and CBR is 14.9 ‰ which are similar to the national averages, IMR in 2006 was 13.0 ‰, which is lower than the national average (16.0‰). Ha Nam reported a net migration rate in the five years before the Census at -53.5‰, with the in-migration rate of 12.1‰ and out-migration rate of 65.6‰. An Giang reports fertility, mortality and migration rates similar to Ha Nam province (TFR=1.97, IMR in 2006=19‰), the net migration rate of -5.9‰, with an in-migration rate of 9.2‰ and an out-migration rate of 55.1‰.

Figure 3.8 indicates that the base of the age pyramid (age groups below the 15–19 year old cohort) is similar between the two provinces with fertility declining rapidly for the period 1994 to 2004, then increasing slightly for the period 2005-2009. However, the two population pyramids are very different in their bodies. For the Ha Nam population, the band for the age group 20–24 narrows abruptly and remains constant until the age group 40-44 (i.e. five adjacent cohorts). Similar to the situation in the Red River Delta, out-migrants from Ha Nam are either students or workers and a majority of them are young, while the in-migrants are mostly returning migrants in middle and older ages. Therefore, the populations in every five-year age group from 20–24 to 40–44 are lower than the population aged 15–19 years and the population aged 45–49 years.

Figure 3.8: Age pyramids of the population in Ha Nam and An Giang provinces, 2009



In contrast, the age pyramid for An Giang is widest in the body and narrows steadily. This result may be because the age structure of net migrants in An Giang is similar to that of the provincial population in general. The top of the age pyramid of An Giang is also narrower than in Ha Nam province.

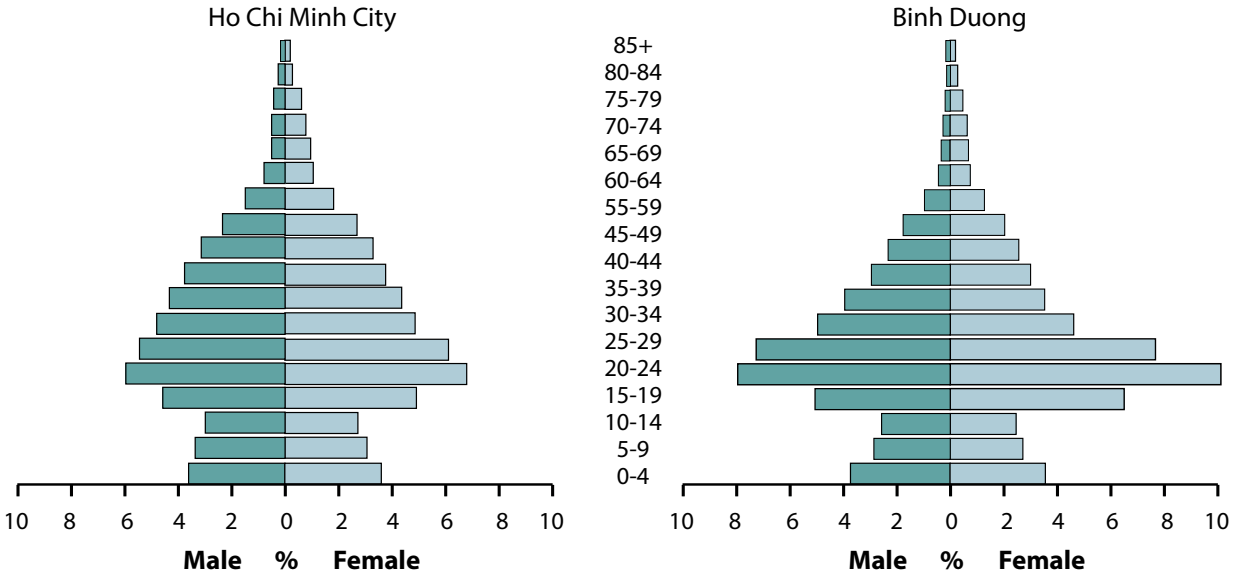
c) Provinces with low fertility and mortality rates, and high positive net-migration. Ho Chi Minh City and Binh Duong are two typical provinces in this group.

In Ho Chi Minh City, the TFR in the 12 months before the 2009 Census was 1.45; CBR was 15.3‰, and the IMR in 2006 was 10‰, which are much lower than the corresponding national rates. Ho Chi Minh City had a net migration rate for the five years before the Census at 135.7‰ and the in-migration and out-migration rates respectively at 156.4‰ and 20.8‰.

In Binh Duong, the fertility and mortality rates are higher than in Ho Chi Minh city (respectively TFR=1.7 and IMR in 2006 =11‰). However, the net migration rate of Binh Duong is 340.4 ‰, 2.5 times higher than in Ho Chi Minh City and ranks the highest in Viet Nam. The in-migration and out-migration rates are respectively 365.9‰ and 24.1‰.

The age pyramids of the populations in Ho Chi Minh City and Binh Duong have very narrow bases, especially Binh Duong province. This reflects not only low fertility but also migration. In both provinces, the in-migration rates are large and most in-migrants are between 20 and 50. Consequently, the proportion of population in the under-20 age groups is relatively small. Similarly, the tops of the population pyramids in Ho Chi Minh City and Binh Duong are quite sharp, which does not mean low life expectancy but the effect of a large number of young in-migrants leading to lower proportions in the old-age groups. In contrast to other provinces, both Ho Chi Minh City and Binh Duong have the highest proportions of population in the age group 20–24.

Figure 3.9: Age pyramids of the population in Ho Chi Minh City and Binh Duong in 2009



Nevertheless, there are several differences in the age pyramids between the two provinces. The age pyramid of Ho Chi Minh City indicates that, bands of the population in the older age groups starting from the 25–29 year old cohort narrow at slower pace. Since people may move to Ho Chi Minh City with many different reasons, such as studying, working, business, retirement and marriage, the age distribution of in-migrants is quite varied, whereas, most people moving to Binh Duong to find jobs at industrial and manufacturing zones are young. As a result, the migrants moving to Binh Duong are mainly in the ages between 20 and 29, leading to large increases in the proportion accounted for by these age groups. Some work in Binh Duong for several years to accumulate savings, and then move back to their origin locations for marriage or family reunification. These return migrants contribute greatly to the decrease in the population aged 30–34, especially for females.

3.2 DEPENDENCY RATIO AND AGING INDEX

When discussing the impact of population on socioeconomic development, the burden of non-working people (dependent people) on working people is often mentioned. In demography, the dependency ratio is used to measure this burden. There are three types of dependency ratios: (i) child dependency ratio, (ii) aged dependency ratio and (iii) total dependency ratio.

The child dependency ratio is measured as the ratio between the population below working ages (below 15 years of age) and the working-age population (from 15 to 64 years of age) multiplied by 100 to measure in percentage terms. The child dependency ratio indicates the number of child dependents that need to be supported for every 100 people in working ages,

The aged dependency ratio is measured as the ratio between the population beyond working ages (above 64 years of age) and the working age population multiplied by 100 to measure in percentage terms. The aged dependency ratio indicates the number of elderly that need to be supported for every 100 people in working ages.

The total dependency ratio is measured as the ratio of the dependent population ((below age 15 and above age 64) and the working age population (15-64) multiplied by 100 to measure in percentage terms. The total dependency ratio indicates how many dependent people need to be supported by every 100 people in working ages. Thus, the higher the dependency ratio is, the heavier the burden for the working population and vice versa.

The demographic transition also leads to an increase in the average age of the population. This phenomenon is called population aging and is measured using the aging index.

The aging index is measured by dividing population aged 65 years and older by the number of children aged 0–14 years and multiplying by 100. The aging index indicates how many people aged 65 years and older there are for every 100 children aged 0–14. While the total dependency ratio is based on the whole age structure of the population, the aging index depends only on the aged population and child population.

In Viet Nam, because official working ages according to regulations are from 15 to 59 years of age, the dependency ratio and the aging index in Viet Nam are measured using age 15-59 for working ages and age 60 and older for the group past working age. Thus, the dependency ratios and aging index in Viet Nam can be measured based on the population aged 15-59 or 15-64 or both for comparison purposes.

3.2.1 Dependency ratio and aging index in Viet Nam

Table 3.3 shows that, the proportion of the population aged 0–14 has decreased remarkably, from 43% in 1979 to 39% in 1989, 33% in 1999 and only 25% in 2009. Within the ten years from 1999 to 2009, the number of children aged 0–14 decreased by almost 4 million, from 25.3 million in 1999 to 21.0 million in 2009. At the same time, the proportion of people in working ages increased greatly, from 52.7% in 1979 to 69.1% in 2009. In last ten years, the population aged 15–64 years increased by 12.6 million, from 46.7 million in 1999 to 59.3 millions in 2009.

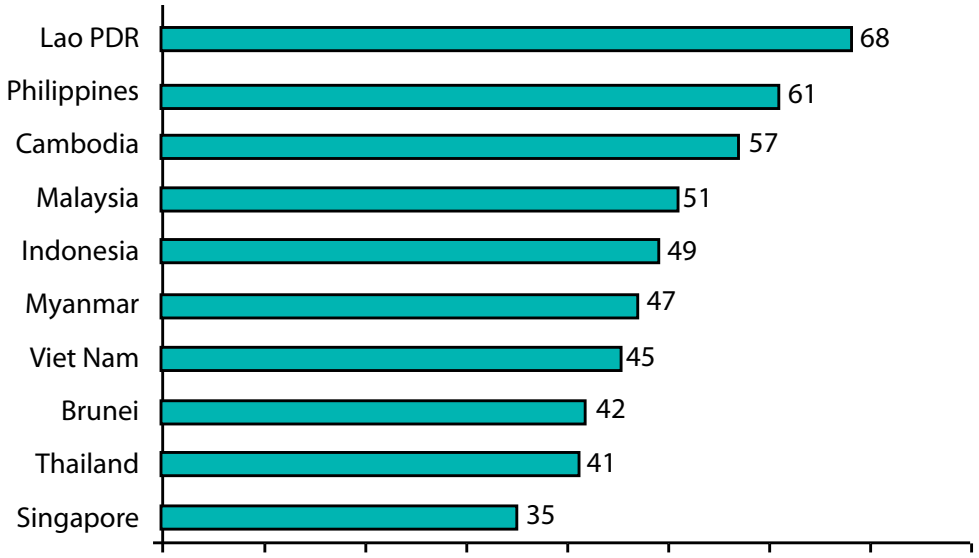
The proportion of the population aged 65 years and older has increased moderately. After 30 years, the proportion increased by only 1.6% (from 4.8% in 1979 to 6.4% in 2009). Because the proportion of the population in young ages declined, the child dependency ratio dropped substantially, from 80.8% in 1979 to 69.8% in 1989, 54.2% in 1999 to only 35.4% in 2009.

Table 3.3: Age structure, dependency ratios and aging index in Viet Nam, 1979-2009

	1979	1989	1999	2009
Age structure (%)				
0-14	42.6	39.2	33.1	24.5
15-64	52.7	56.1	61.1	69.1
65 and older	4.8	4.7	5.8	6.4
Dependency ratio				
Child dependency ratio	80.8	69.8	54.2	35.4
Aged dependency ratio	9.1	8.4	9.4	9.3
Total dependency ratio	89.9	78.2	63.6	44.7
Aging index (65+)	11.3	12.0	17.5	26.1
Aging index (60+)	16.6	18.2	24.3	35.5

Because both the population aged 65 and older and the proportion aged 15-64 increased and with similar speed, the aged dependency ratio was relatively constant around 9%. Because the child dependency ratio was large and declined quickly, the total dependency ratio also declined rapidly, but with a slightly slower pace. Data in Table 3.3 showed that, every non-working-age person corresponded to about one working-age person in 1979 (89.9 dependents per working age person), but with more than two working-age persons in 2009 (44.7 dependents per working age person). That means the total dependency ratio of the population in Viet Nam has declined by half in the past three decades.

Figure 3.10 Total dependency ratios in ASEAN countries, 2010



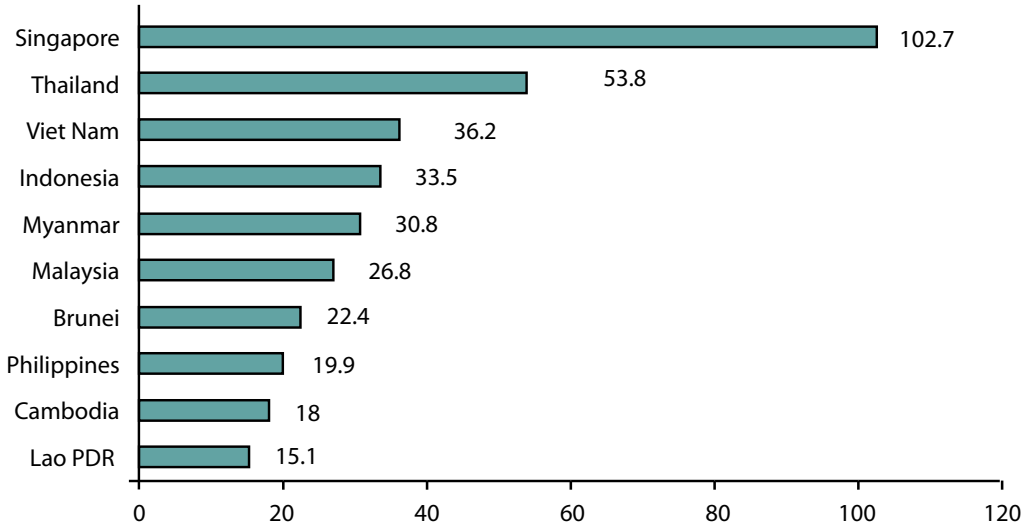
Source: United Nations, Population Division. World Population Prospects: The 2008 Revision. Population Database. Medium Variant.

When the total dependency ratio of the population (calculated using the working ages from 15–65) reaches 50, for every two working persons there is one dependent and the population enters the period of "population bonus" or "golden population structure". Figure 3.10 presents the total dependency ratios (denominator is population aged 15-64) of ASEAN countries in 2010. The data indicate that, the total dependency ratio of Viet Nam ranks fourth in ASEAN and is higher than in Singapore, Thailand, and Brunei. In ASEAN, six countries are currently in the period of population bonus and four countries (Malaysia, Cambodia, the Philippines and Laos) have not.

Because of the decline in fertility rates and increased life expectancy, the aging index of Viet Nam has increases quickly in the past three decades. Data in Table 3.3 show that, the aging index (60+) has increased from 16.6% in 1979 to 18.2% in 1989, 24.3% in 1999 and peaked at 35.5% in 2009. Thus, in 1979, there was a person aged 60 years or older for every six children aged 0–14Thirty years later, there is one aged person (60+) for nearly every three children aged 0-14.

Figure 3.11 reports the aging indices of ASEAN countries (numerator is population above 64 years). The projected aging index of the population in Viet Nam in 2010 is 36.2%, which ranks third among ten ASEAN countries and is higher than Laos, Cambodia, Philippines, Brunei, Malaysia, Myanmar and Indonesia, but lower than Thailand and much lower than Singapore. The aging index of population in Viet Nam is about one third of the index of Singapore (36.2% versus 102.7%).

Figure 3.11: Aging index of population in ASEAN, 2010

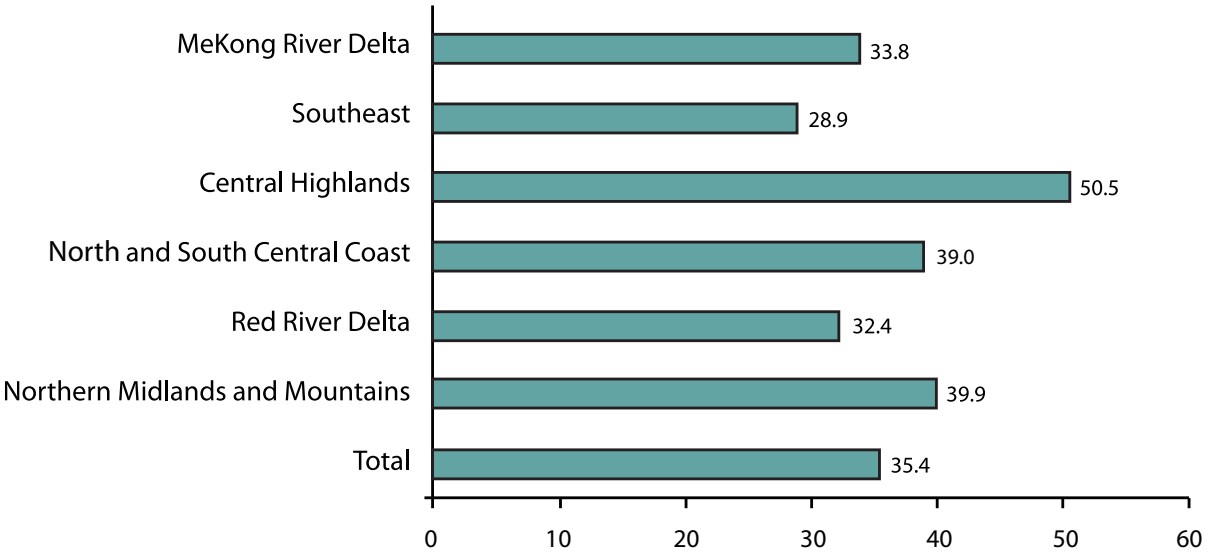


Source: According to United Nations, Population Division. World Population Prospects: The 2008 Revision. Population Database, Medium Variant (aging index of population in Viet Nam is measured using authors' projections)

3.2.2 Dependency ratio by region and province

Although the child dependency ratio of the national population mostly depends on changes in fertility (directly proportional to fertility), for regional and provincial populations, the ratio also depends on migration. Regions with large in-migration rates (positive net migration) would tend to have lower child dependency ratios and vice versa.

Figure 3.12: Child dependency ratio (calculated using working age population aged 15-64) by region in Viet Nam, 2009

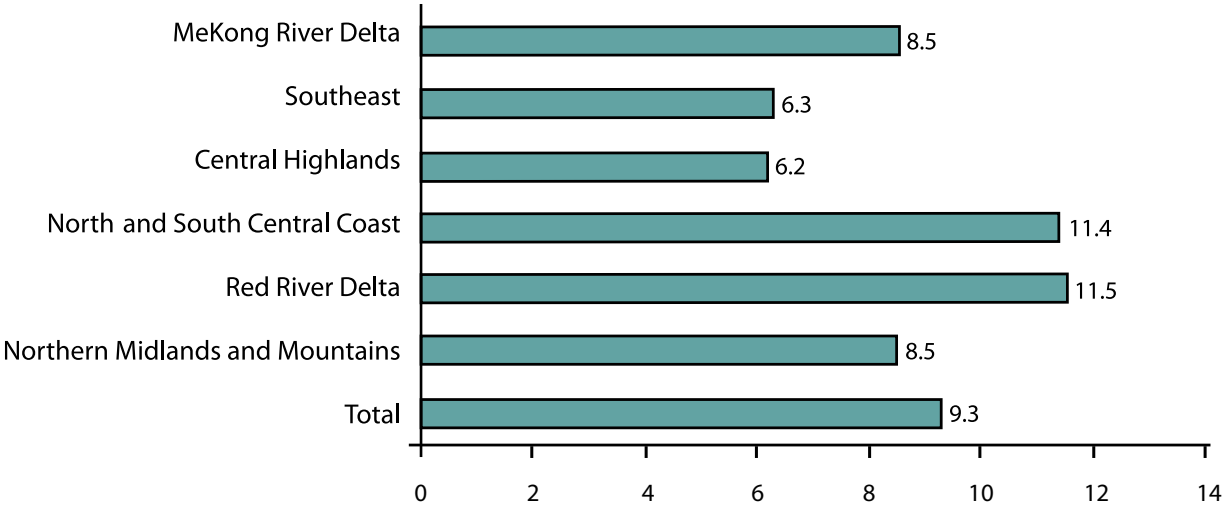


Among the six regions, the Southeast, Red River Delta and Mekong River Delta have the lowest child dependency ratios and lowest fertility rates (see Figure 3.12). In these three regions, there are more than three working-age persons per child (0–14 years). The TFRs in the 12 months before the 2009 Census for these three regions are respectively 2.11, 1.69 and 1.84 births per woman (CPHCSC, 2009). The child dependency ratio of the Southeast is very low, not only because of low fertility but also because of its very high positive net-migration rates. The net-migration rate from 2004 to 2009 was 107.7‰ (CPHCSC, 2009). The highest child dependency ratio was found in the Central Highlands. In this region, there are nearly two working persons per child under age 15. Among the 6 regions, the Central Highlands has the highest total fertility rate, which was 2.65 in the 12 months before the 2009 Census and about 1.6 times higher than in the Southeast.

In contrast to the child dependency ratio, aged dependency ratio in regions and provinces is not directly correlated with fertility but rather on mortality rates and migration. In regions with low mortality, or high life expectancy at birth, the proportion of the population in old ages tends to be higher and lead to a high aged dependency ratio.

Among the six regions, the Central Highlands and the Southeast have the lowest aged dependency ratio (see Figure 3.13). The aged dependency ratio of the Central Highlands is low because of both high mortality and high net in-migration, with a high share of migrants in working ages (CPHCSC, 2009:75). However, the low aged dependency ratio in the Southeast is not related to high mortality rates (Southeast has the highest life expectancy at birth) but primarily to high net in-migration rates. As presented above, the net migration rate of the Southeast in the five years before the 2009 Census was 107.7‰ (CPHCSC, 2010). As most of migrants to the Southeast are in working ages, high positive net migration contributes to the low aged dependency ratio.

Figure 3.13: Aged dependency ratio (calculated using working age population aged15-64) by region in Viet Nam, 2009



The North and South Central Coast is not only the region with the lowest death rate but also has a high aged dependency ratio mostly because of migration. This is one of the regions with the highest negative net-migration (high out-migration) rate. According to the data from the 2009 Census, the net-migration rate in the five years before the Census in the North and South Central Coast was -34.6‰, which is second only to the Mekong River Delta (-40.4‰) (CPHCSC, 2009:13). As mentioned above, high out-migration reduces the proportion of the population in working ages and consequently increases the aged dependency ratio.

The aged dependency ratio of the Red River Delta is high not only because of low mortality but also because of migration. Though the negative net-migration rate in the Red River Delta is not high, -2.3‰, this region has high out-migration and in-migration rates of 16.1‰ and 18.5‰ respectively. Because most of the out-migrants are in working ages while the in-migrants include both people in working ages and beyond working ages, the proportion of people in working ages is notably low, and consequently aged dependency ratios are high.

Figure 3.14: Total dependency ratio by region, Viet Nam, 2009

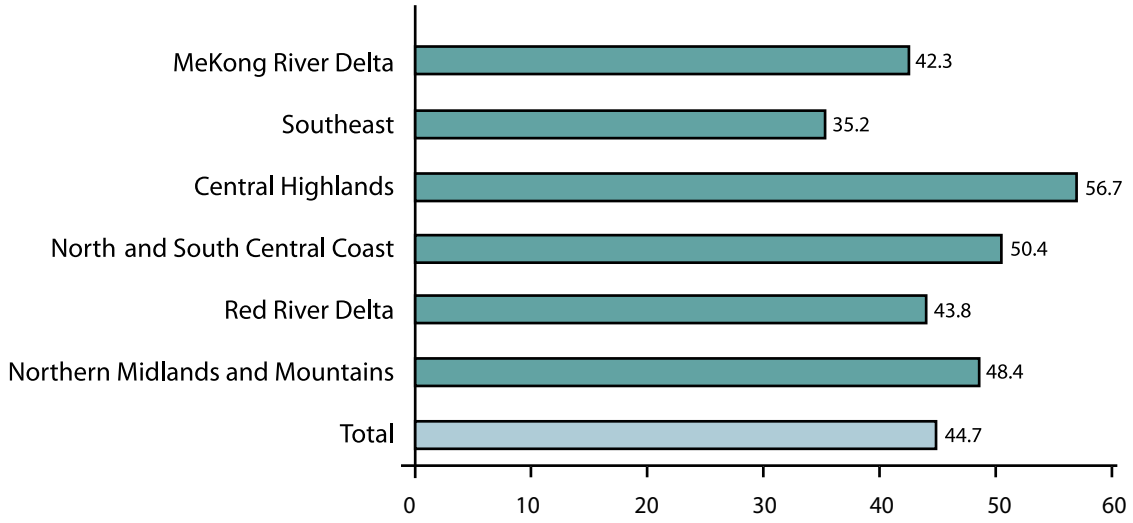
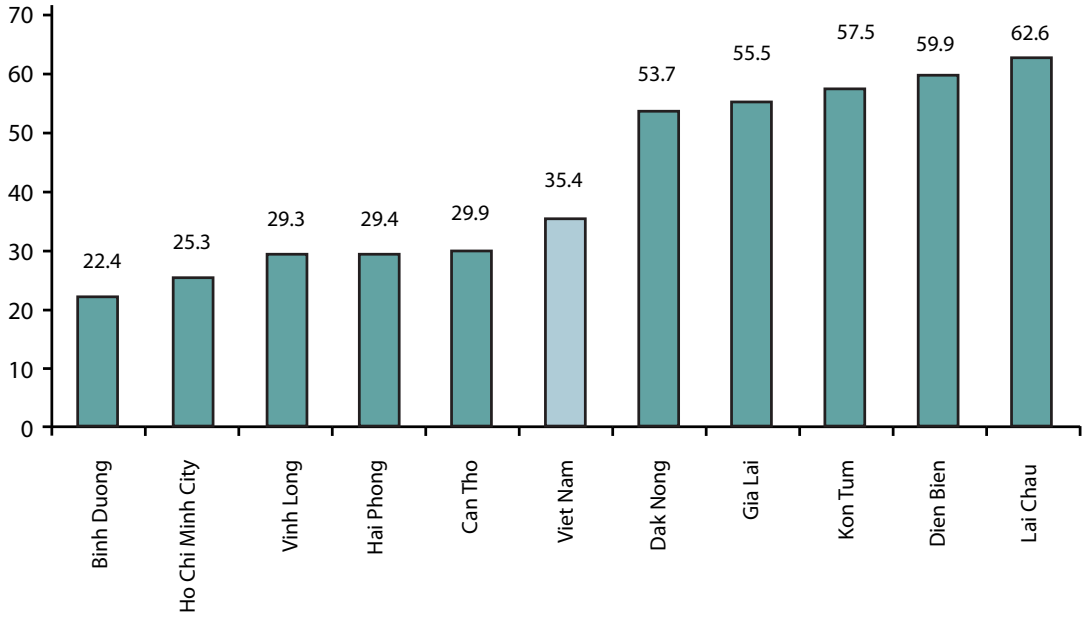


Figure 3.14 illustrates the differences in the total dependency ratio across regions. By 2009, as the child dependency ratio is much higher than the aged dependency ratio, the trends in the total dependency ratio are similar to trends in the child dependency ratio. The Southeast, Mekong River Delta and Red River Delta have the lowest total dependency ratios whereas the Central Highlands and North and South Central Coast have the highest total dependency ratios

At the time of the Census on 1 April, 2009, among the six regions, the Red River Delta, Northern Midlands and Mountains, Southeast and Mekong River Delta already had total dependency ratios less than 50%, indicating that they had entered into the period of "population bonus" or "golden population structure". The North and South Central Coast already had a relatively low level of total dependency ratio at 50.4%, and will enter the period of "golden population structure" in 2010. Only the Central Highlands may need more time before it enters this period.

Figure 3.15: Five provinces with the lowest and highest child dependency ratios, Viet Nam, 2009



Because of substantial variation in fertility, mortality, and net migration rates, total dependency ratios also vary across provinces. Figure 3.15 compares the provinces with the lowest child dependency ratios and the provinces with the lowest child dependency ratios. As explained above, the child dependency ratio depends mostly on fertility and migration in the population. Thus, the five provinces with the lowest child dependency ratios (Binh Duong, Ho Chi Minh City, Hai Phong, Vinh Long, and Can Tho) are also the provinces experiencing low fertility /or high in-migration (positive net migration) or both. In contrast, the five provinces with the highest child dependency ratios (Lai Chau, Dien Bien, Kon Tum, Gia Lai, and Dak Nong) have the highest fertility among all the provinces.

Figure 3.16 presents the five provinces with the lowest and highest aged dependency ratios. It can be clearly seen that the five provinces with the lowest aged dependency ratios are Binh Duong, Dak Nong, Binh Phuoc, Lai Chau, and Kon Tum, i.e. provinces with either high mortality rates (Lai Chau, Kon Tum) or high in-migration rates (positive net migration) (Binh Duong) or both (Binh Phuoc, Dak

Nong). On the other hand, the five provinces with the highest aged dependency ratios are Ha Tinh, Thai Binh, Ha Nam, Quang Nam and Quang Tri. These provinces experience relatively high negative net migration rates and relatively low, but not the lowest, mortality rates.

Figure 3.16: Five provinces with the lowest and highest aged dependency ratios, Viet Nam, 2009

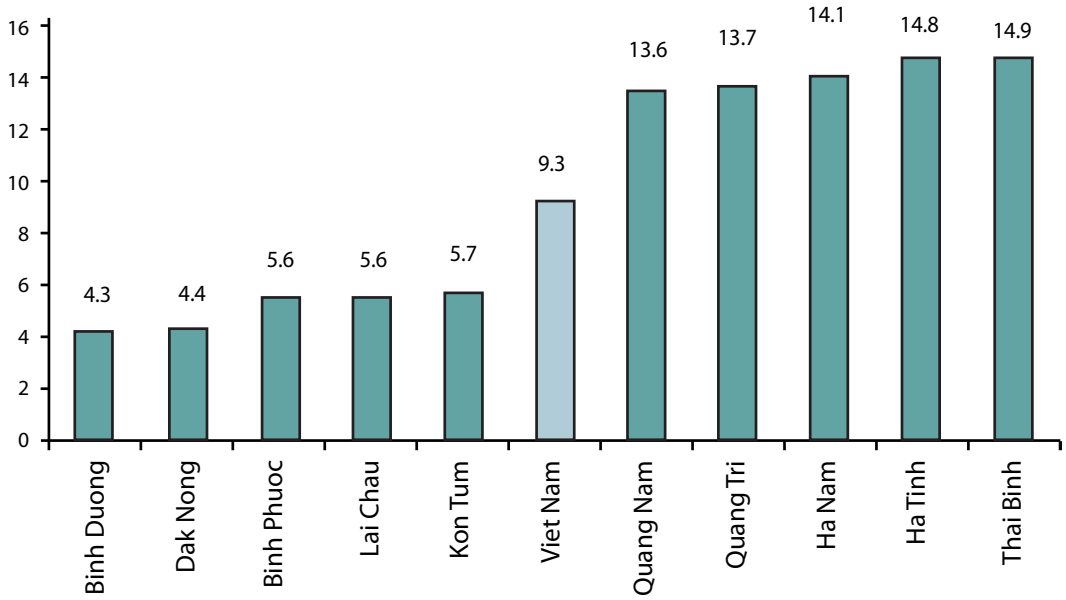


Figure 3.17 presents the total dependency ratios of all provinces in Viet Nam. They range from less than 30% as in Binh Duong province to higher than 70% as in Lai Chau, a large variation from the total dependency ratio of the whole country (44.7%). Figure 3.18 shows that, from 1999 to 2009, the total dependency ratios of all provinces have dramatically declined, even in provinces with high fertility and mortality.

Figure 3.19 compares the five provinces with the lowest and highest total dependency ratios. It is obvious that, the total dependency ratio is influenced by all major indicators of demographic dynamics, including fertility, mortality, out-migration, and in-migration. The provinces with low total dependency ratio must experience at least one of the factors: low fertility (fewer children), low life expectancy at birth (fewer old people), or high positive net migration (lost people in working ages). On the other hand, provinces with high dependency ratios should have at least one of the following factors: high fertility, low mortality, high negative net-migration rate or a combination of at least two or all of these factors.

Figure 3.17: Aged and child dependency ratios by province in Viet Nam, 2009

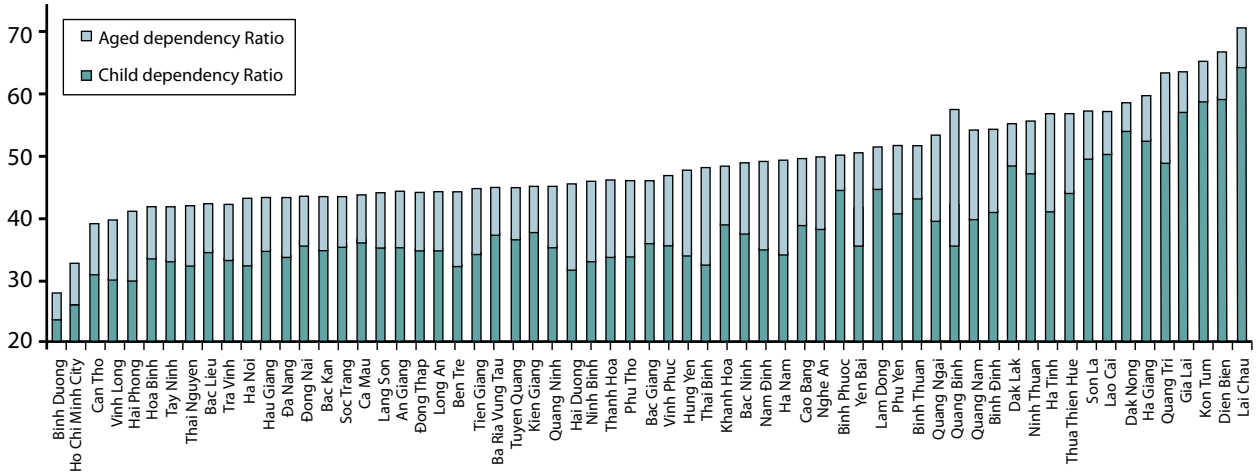


Figure 3.18: Total dependency ratios by province in Viet Nam, 1999 and 2009

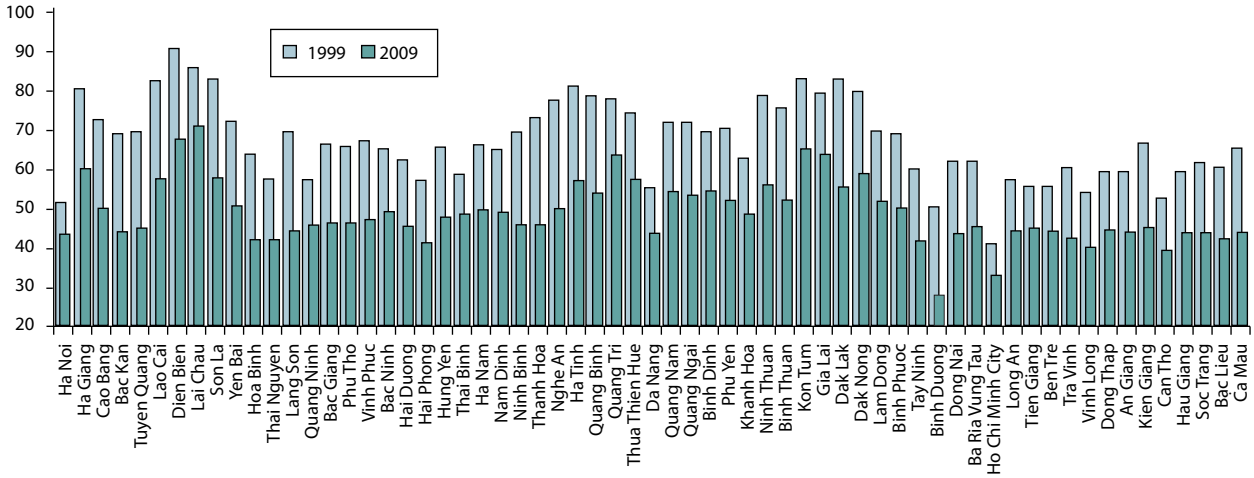
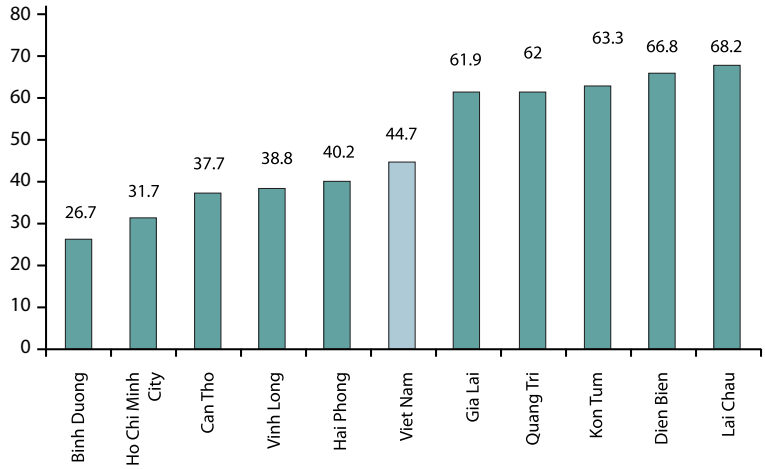


Figure 3.19: Comparison of the five provinces with the lowest total dependency ratios and five provinces with the highest total dependency ratios in Viet Nam, 2009



The five provinces with the lowest total dependency ratio (Binh Duong, Ho Chi Minh City, Can Tho, Vinh Long and Hai Phong) are also those with the lowest fertility and highest positive net-migration. Lai Chau, Dien Bien, Kon Tum and Gia Lai are the provinces with the highest total dependency ratios, and the highest fertility among all provinces in Viet Nam. The TFRs in the 12 months before the Census were respectively 2.96, 2.55, 3.45 and 2.88 children per woman. Quang Tri province had the fifth highest total dependency ratio and the highest fertility in the North and South Central Coast region (2.85 children per woman). This province also had low mortality and high negative net migration (-35.9‰), which combined with high fertility led to it having a high total dependency ratio.

Until 1st April 2009, 43 out of 63 provinces experienced total dependency ratios under 50%, which means they have entered the period of "golden population structure". This is a favourable condition for these provinces to develop economically, to increase capital accumulation, and to increase GDP per capita. Among the remaining 20 province, nine reporting total dependency ratios of less than 55%, which means they are likely to enter the period of "golden population structure" over the next five years. Among these provinces are Phu Yen, Lam Dong, and Binh Thuan, with total dependency ratios of 51.1–51.2%. It is expected that they will enter the period of "golden population structure" by 2010 or 2011. Other provinces may not achieve the population bonus during the next five years but their total dependency ratios are not very high. The highest total dependency ratio is found in Lai Chau province (68.2%), which means there is one dependent for every 1.5 working persons.

3.2.3 Aging index by geographical region and by province

The aging index is calculated as the ratio of the aged population (starting from 60 or 65 years of age) per 100 people aged under 15. Figure 3.20 present regional variation in the aging index (for population above 60 years). The highest aging index is 47.7% in the Red River Delta and the lowest is 17.3% in the Central Highlands. In the Central Highlands, for every 6 children under 15 years of age there is an aged person. In the Red River Delta, for every two children under 15 years of age, there is an aged person. Nationally there is one aged person for every three children.

Figure 3.20: Aging Index of population by region in Viet Nam, 2009

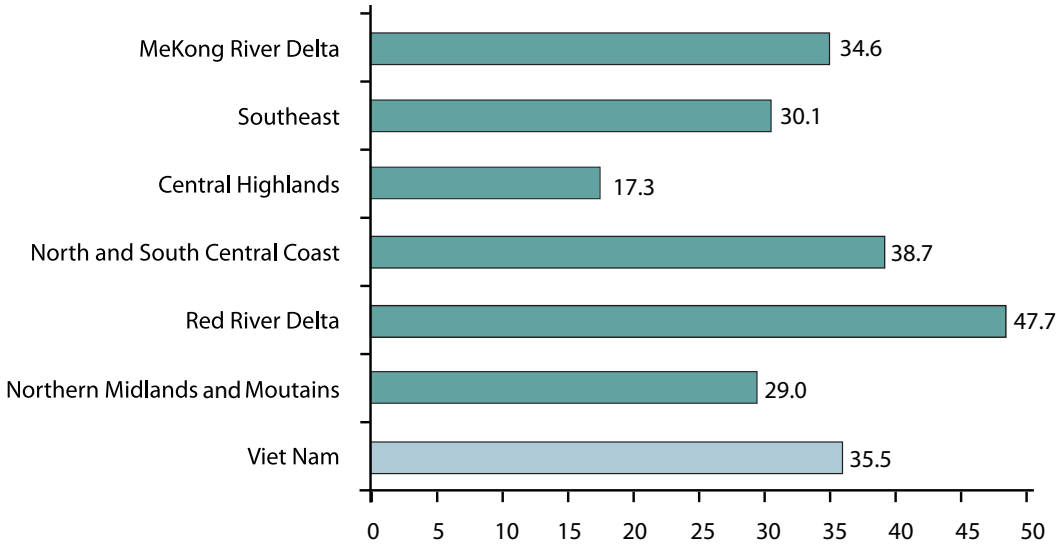
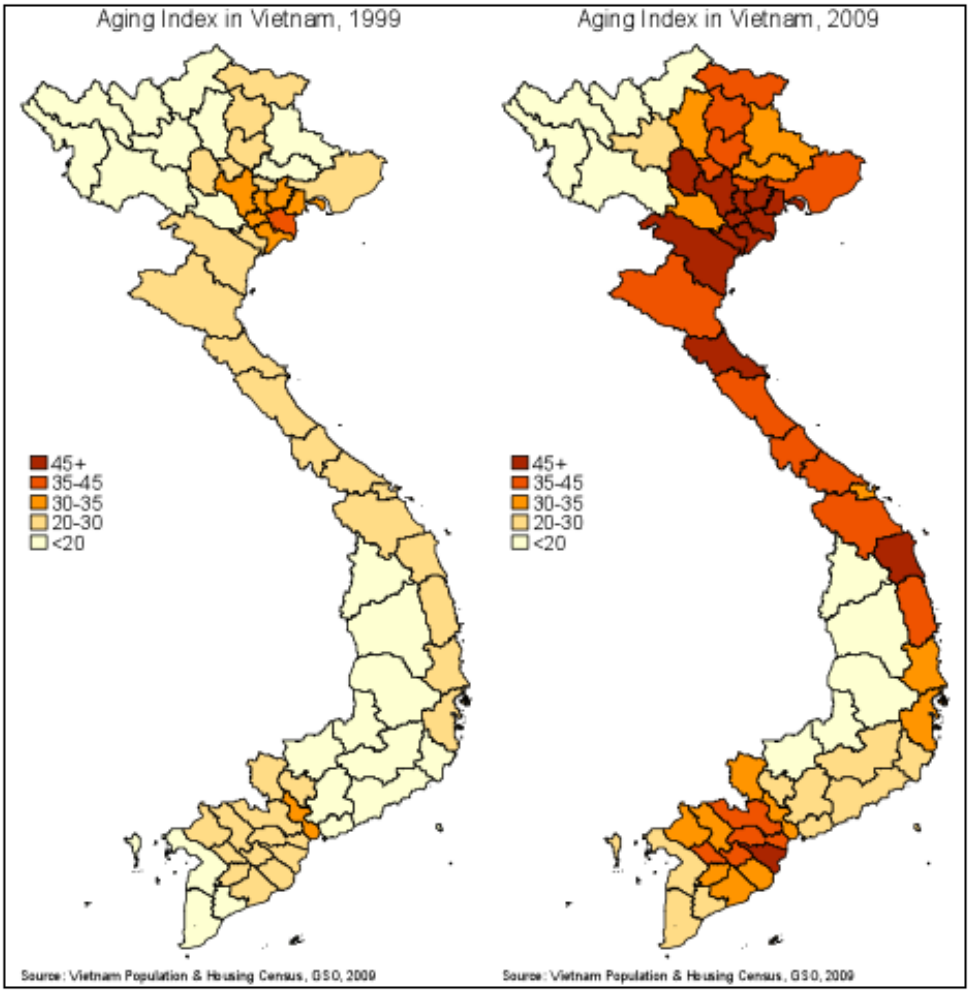


Figure 3.21 consists of maps showing provincial variation in the aging indices (for population aged 60+) from the 1999 and 2009 Censuses. It is obvious that after ten years, the population of Viet Nam's population has aged considerably but to different extents across provinces. In 1999, only seven provinces in the Red River Delta and Ho Chi Minh City had aging indices higher than 30. By 2009 however, not only the Red River Delta but also almost all provinces in former Northeast, the North and South Central Coast and the Southeast and some neighbouring provinces are experiencing this level of the aging index. Seven provinces with the aging index over 50 consist of Hung Yen, Ha Nam, Nam Dinh, Hai Duong, Thai Binh, Ninh Binh, and Ha Tinh. Most are in the Red River Delta with relative low fertility and a large number of in-migrants of retirement age compared to in-migrants aged under 15. The aging indices in most provinces in the former Northeast and Central Highlands remain lowest (under 20).

Figure 3.21: Maps of aging index (60+) by province in Viet Nam, 1999 and 2009

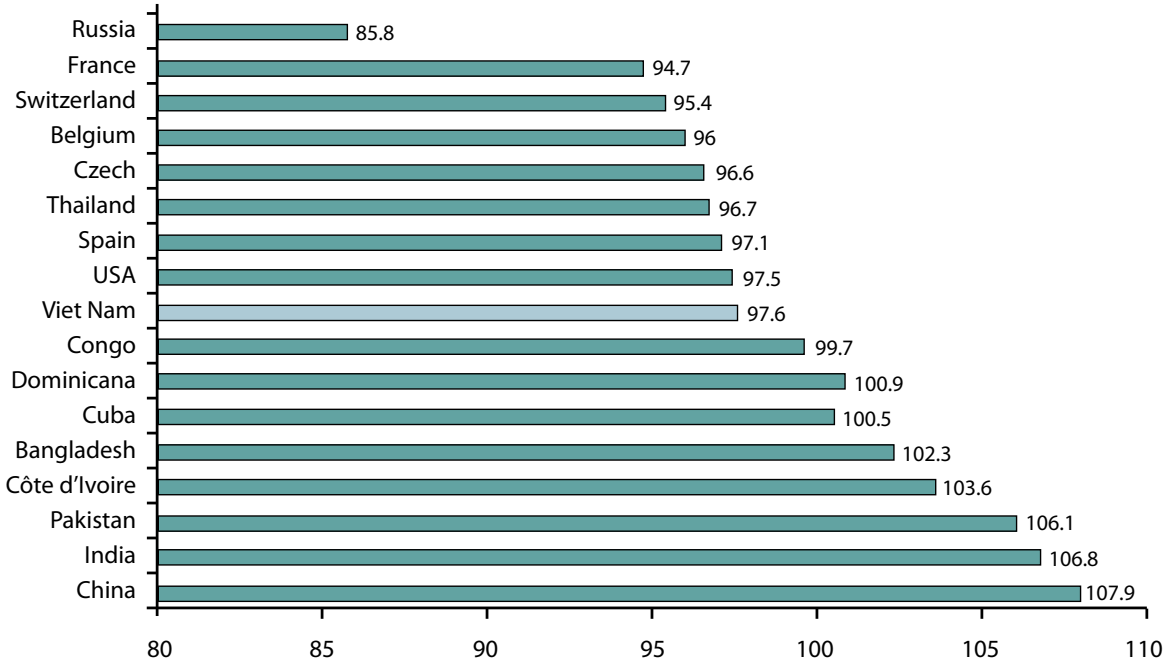


3.3 SEX RATIO

One important indicator in studying sex structure of a population is the sex ratio. The sex ratio is measured by dividing total number of males by females and multiplying by 100, and indicates how many males there are for every 100 females in a given population. The sex ratio of different

populations varies because of demographic and socioeconomic influences. In general, sex ratios in developing countries are often higher than in developed countries. Migration can play a crucial role in determining sex structure of a population when net migration rates are large and vary by sex. Imbalanced sex ratio at birth related to sex selection of the foetus prior to birth and of the child after birth contribute to abnormally high sex ratios in some countries.

Figure 3.22: Sex ratio in Viet Nam and selected countries, 2010

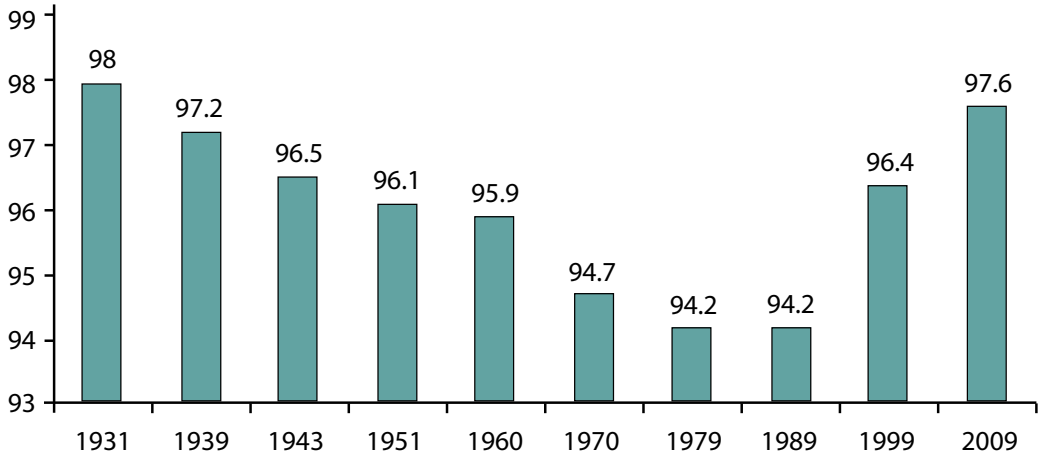


Source: Word Population Prospects: The 2008 Revision Population Database, United Nations, 2009

According to UN projections, developed countries such as Russia, France, Switzerland, Belgium, Spain, and the United States report low sex ratios, but high sex ratios are often found in developing countries, such as Pakistan, Bangladesh, Dominica, and the Congo (Figure 3.22). In China and India, the levels of economic development are relative high but the phenomena of foetal sex selection and child sex selection are quite common (the sex ratio at birth in China in 2005-2010 was 120 males per 100 females).

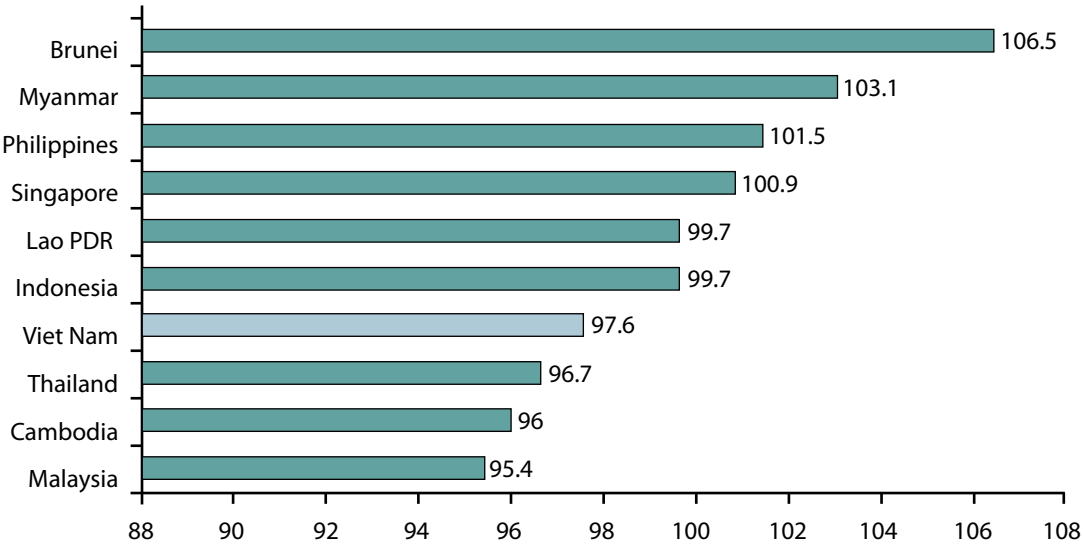
Figure 3.23 presents the trends in the sex ratio of Viet Nam since 1931. The sex ratio of Viet Nam continuously decreased from 98.0 males per 100 females in 1931 to 94.2 males per100 females in 1989, as a consequence of a series of wars between 1946–1954 (French War), 1954–1975 (American War) and 1978–1979 (Cambodian and Chinese border war). After the wars, together with the process of socio-economic development, the sex ratio of Viet Nam's population has become more balanced, increasing from 94.2 males per 100 females in 1989 to 96.4 males per 100 females in 1999 and to 97.6 males per 100 females in 2009. The increase in the sex ratio at birth in the last ten years has significantly influenced the sex ratio of the total population in Viet Nam. Among the 10 ASEAN member countries, the sex ratio in Viet Nam is low, and only exceeds that in Thailand, Cambodia, and Malaysia (Figure 3.24).

Figure 3.23: Sex ratio in Viet Nam, 1931-2009



Source: - 1931-1979: Viet Nam Population Census 1989, Sample Analysis, GSO, Hanoi – 1991, page14 - 1989 and 1999: Authors estimates using Census data. Management Unit of the Central Population Census, Hanoi,-1991 and Results of Census. General Statistics Office. Statistical Publishing House. Hanoi, 8-2001.

Figure 3.24: Sex ratio of ASEAN member countries, 2010



Source: Word Population Prospects: The 2008 Revision Population Database, United Nations, 2009

Table 3.4 shows the change in the sex ratio by age group in Viet Nam in 1979, 1989, 1999 and 2009. Normally the sex ratio at birth is about 105 males per 100 females. Because male mortality is higher than female mortality, the sex ratio by decreases by age and eventually falls below 100 at some age group. In general, the sex ratio declines as age increases.

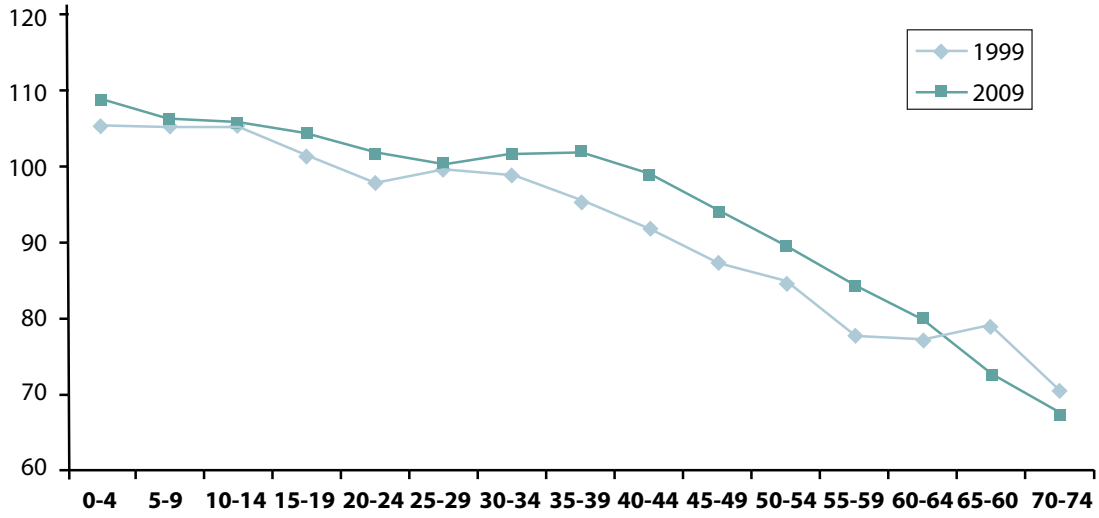
Data in Table 3.4 and Figure 3.25 indicate that the sex ratio among under-five children is abnormally high. The main reason is that the sex ratio at birth has increased, especially in the past five years (UNFPA 2009). The sex ratio among the population under 15 years of age is also relatively high (106.9), but the sex ratio among the working-age population is almost balanced (99). In addition, there appears to be an unusual shortage of males in the age groups 20–24 and 25–29 and to a lesser extent for the age groups 15–19 and 25–29 as seen in data from the 2009 Census.

Table 3.4: Sex ratio by age group in Viet Nam, 1979-2009

Age group	1979	1989	1999	2009
0–4	104.8	105.6	105.5	108.7
5–9	104.4	104.2	105.4	106.3
10–14	106.6	105.0	105.5	105.7
15–19	96.5	97.4	101.5	104.4
20–24	87.7	92.0	98.1	101.8
25–29	88.2	91.1	99.8	100.5
30–34	89.6	91.4	99.1	101.7
35–39	87.5	87.6	95.3	102.0
40–44	84.7	86.5	92.0	99.0
45–49	89.3	81.5	87.6	94.1
50–54	91.5	80.5	84.6	89.4
55–59	78.0	85.8	77.8	84.2
60–64	81.5	82.8	76.9	80.1
65–69	74.9	74.0	78.8	72.5
70–74	65.4	68.2	70.4	67.3
75+	53.2	55.1	54.1	49.9
Total	94.2	94.2	96.4	97.6

The chart on sex ratio by age group reveals that there is an unusual change (concavity) in these age groups (Figure 3.25). This is maybe because of underreporting of males in these age groups. The phenomenon can be seen clearly not only in the data of the 2009 Census but also in all population Censuses of all surveyed years. The sex ratio of the age group 20–24 in all Censuses decline suddenly compared with the age group 15-19, especially compared with the sex ratio of the same generation in the previous Census.

Figure 3.25: Sex ratio by age group in Viet Nam, 1999-2009



For instance, the sex ratio at birth of the age group 10–14 in 1999 was 105.5 males over 100 females. This is a normal sex ratio. After ten years, the population of the previous age group 10–14 would become the age group 20–24 in 2009 and because male mortality tends to be higher than female mortality, the sex ratio of the cohort aged 20–24 in 2009 may decline slightly compared with the cohort aged 10–14 in 1999. However, the sex ratio of this group in 2009 falls abruptly to 101.8 males per 100 females. If the international migration effects are insignificant, there may be undercounts in the survey for males aged 20–24 in the 2009 Census. A similar trend occurs when comparing the sex ratio of the age group 20–24 in 1999 to the age group 10–14 in 1989 as well as the age group 20–24 in 1989 to the age group 10–14 in 1979 (same birth cohort). This can be seen in the chart comparing the sex ratio of birth cohorts in the 1999 and 2009 Censuses (Figure 3.26).

Figure 3.26: Sex ratio by cohort in Viet Nam, 1999-2009

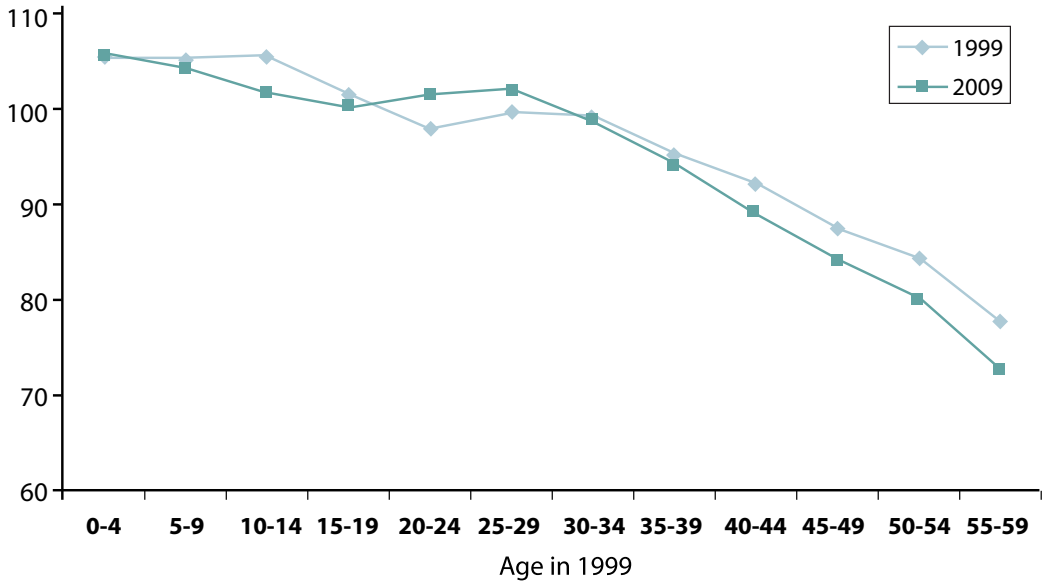
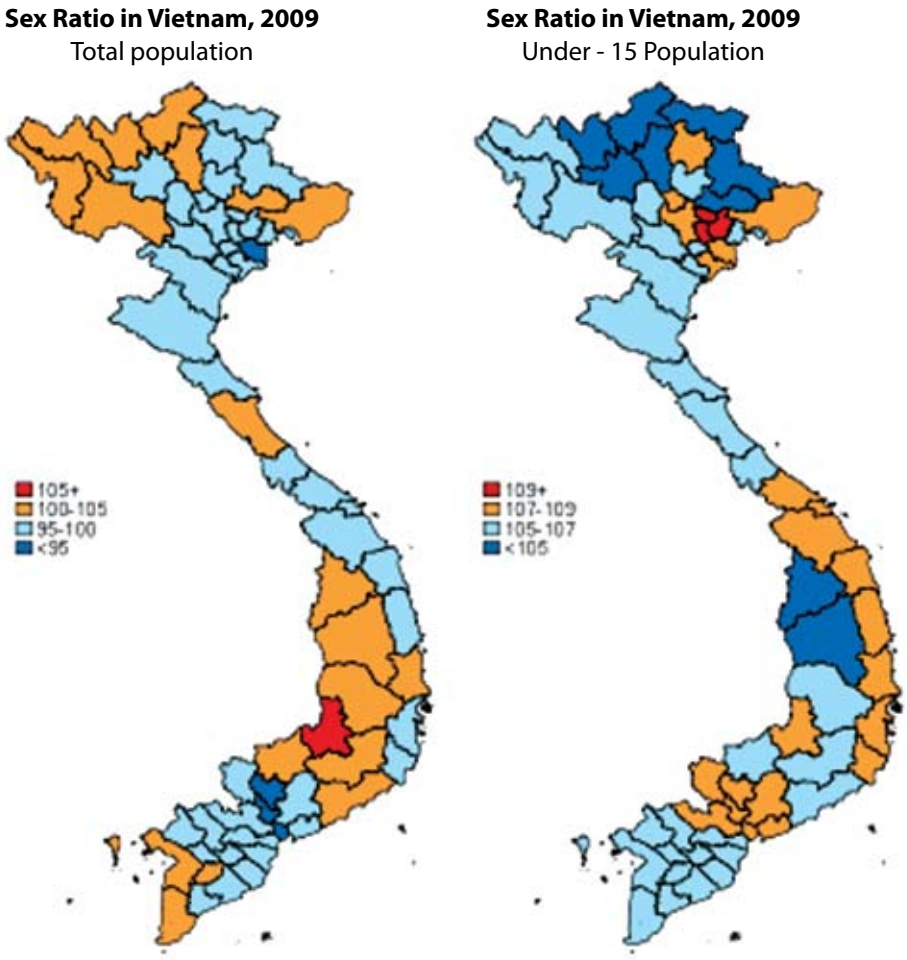


Figure 3.27: Maps of sex ratios by province in Viet Nam (total population and under age 15), 2009



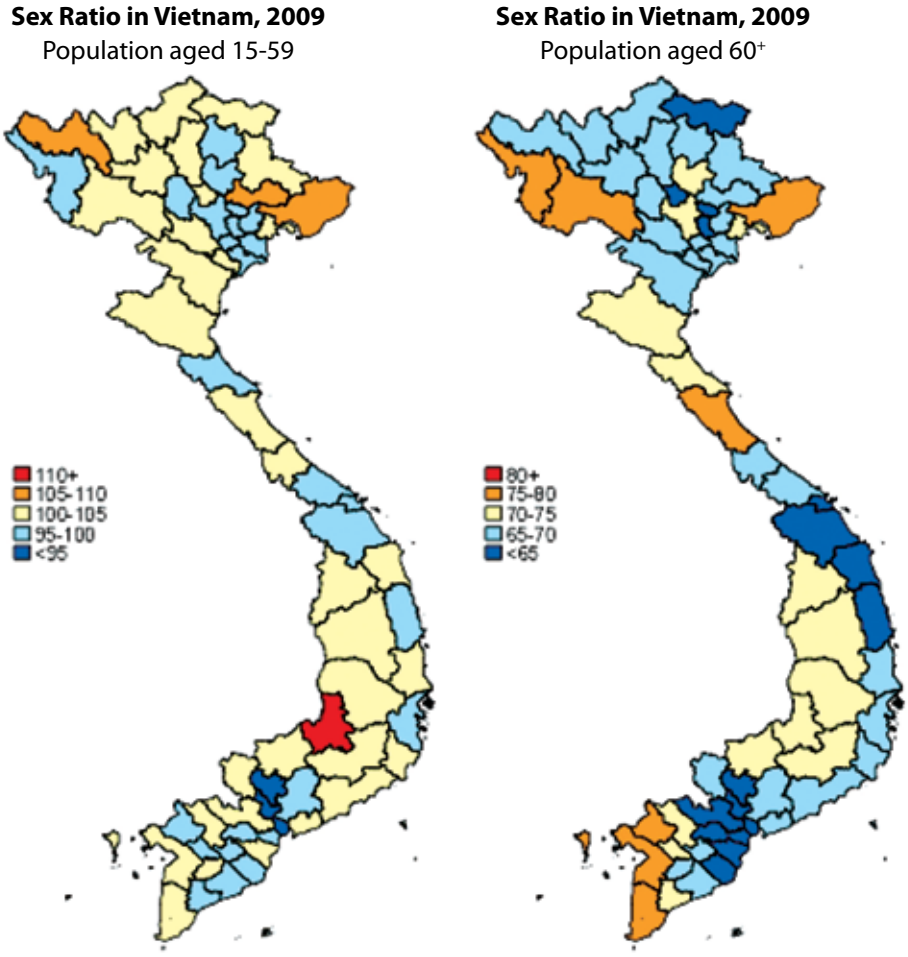
Source: Vietnam Population & Housing Census, GSO, 2000

Source: Vietnam Population & Housing Census, GSO, 2000

Maps of the sex ratio by province for the total population in 2009 and for three age groups are presented in Figure 3.27 and Figure 3.28. For total population, most provinces of Viet Nam have normal or low sex ratios. Three provinces (Thai Binh, HCMC, and Binh Duong) have low sex ratios (less than 95) and only Dak Nong province has a sex ratio higher than the normal level (over 105).

Meanwhile, the sex ratios of the population under age 15 in 54 provinces are higher than the normal value (<105). Three provinces with the highest sex ratios (>109) are Bac Ninh, Hung Yen and Hai Duong. The sex ratios among the population under age 15 are close to the normal level (i.e. from 103–105) in only 9 provinces, including 7 provinces in the Northern Uplands and 2 provinces in the Central Highlands. Thus, it is likely that the situation of male surplus and female shortage at marital age will become more common in Viet Nam in the near future.

Figure 3.28: Maps of sex ratios by province in Viet Nam (age 15-59 and age 60 and older), 2009



Source: Vietnam Population & Housing Census, GSO, 2000

Source: Vietnam Population & Housing Census, GSO, 2000

In general, the distribution of sex ratios across provinces among the population aged 15-59 is similar to that of the total population, but with a slightly higher range. For this age group, Ho Chi Minh City and Binh Duong also have very low sex ratios (less than 95). However, not only Dak Nong (as with the sex ratio for the whole population) but also Bac Giang, and Quang Ninh have high sex ratios (>105). It is expected that the sex ratios among the population 60 years of age and older in all provinces will be low. For this population sub-group, only 7 provinces have sex ratios higher than 75, but as many as 14 provinces (Cao Bang, Vinh Phuc, Bac Ninh, Hung Yen, Da Nang, Quang Nam, Quang Ngai, Binh Dinh, Binh Duong, Ho Chi Minh City, Long An, Tien Giang, Ben Tre, and Tra Vinh) have sex ratios below 65. This means that among the aged population in these 14 provinces, there are only two men for every three women.

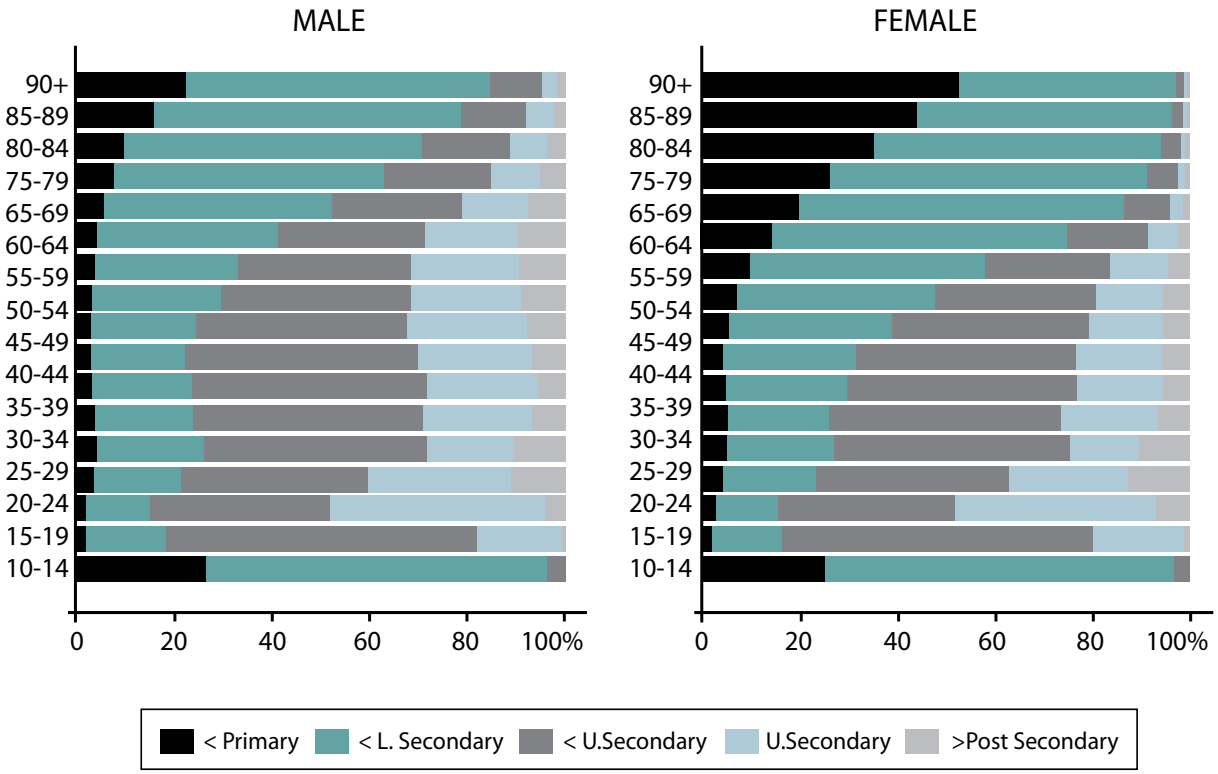
3.4 EDUCATIONAL ATTAINMENT AND WORKING STATUS BY AGE AND SEX

3.4.1 Educational attainment

Figure 3.29 compares the educational attainment by age and sex of the population aged 10 and older in Viet Nam in 2009. In general, the educational attainment of the young population has

improved compared with the older population. The proportion of the population with less than lower secondary education declines quickly by age (except for the age group 10–14 currently enrolled in this level of education). The age groups 30–34 and 15–19 for both males and females are unusual in the lower educational attainment. The proportion of the population with educational attainment below lower secondary school in these groups is higher than the next higher age groups. This may be evidence of the decline in quality of elementary and secondary schooling in the corresponding periods or related to economic conditions that increase demand for labour or reduce ability to pay for education during these periods, i.e. 1990–1995 and the five most recent years. It is difficult to verify this because educational attainment not only depends on educational quality but also on educational standards (for instance, the extent to which schools over-report performance) in a particular period.

Figure 3.29: Distribution of education by age and sex in Viet Nam, 2009



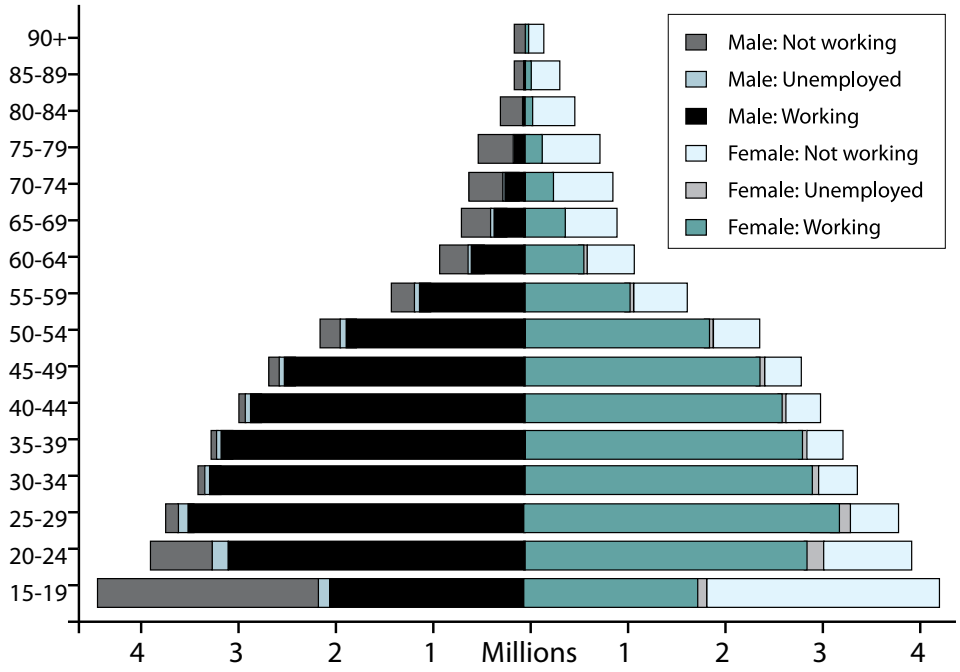
Data show substantial increases in the proportion of population with upper secondary and higher education in the 25–29 and 20–24 age groups, especially for females. This not only affirms the higher educational attainment of young people in recent years, but also the decline in the educational disparities between males and females. Even though on average, the educational attainment of males is higher than females, for the age groups 20–24 and 25–29, the proportion of females with post-secondary education is higher than for males.

3.4.2 Working status

The distribution of working status by age and sex is presented in Figure 3.30. Working status is divided into three categories: not working (i.e. not participating in the labour force), unemployed, and working. In general, the proportion of not working among females in all age groups is higher than among males, especially for the main working age group (25–59). The reason may be that women are more likely to stay at home doing housework or bearing and raising children than males.

It is noteworthy that despite high reported levels of educational attainment, the unemployed proportion among the young, especially for the age group 20–24, is higher than among the older groups. In particular, the unemployed proportion is 1.65% in the 30–39 group, but 3.53% in the 20–29 group and 4.25 in the 20–24 group. The fact that young adults have higher levels of unemployment despite their advantages in physical labour and education may be related to their limited practical skills as well as some social norms, which hinder fair competition between young workers and people with seniority in the labour market.

Figure 3.30 Distribution of working status by age and sex in Viet Nam, 2009

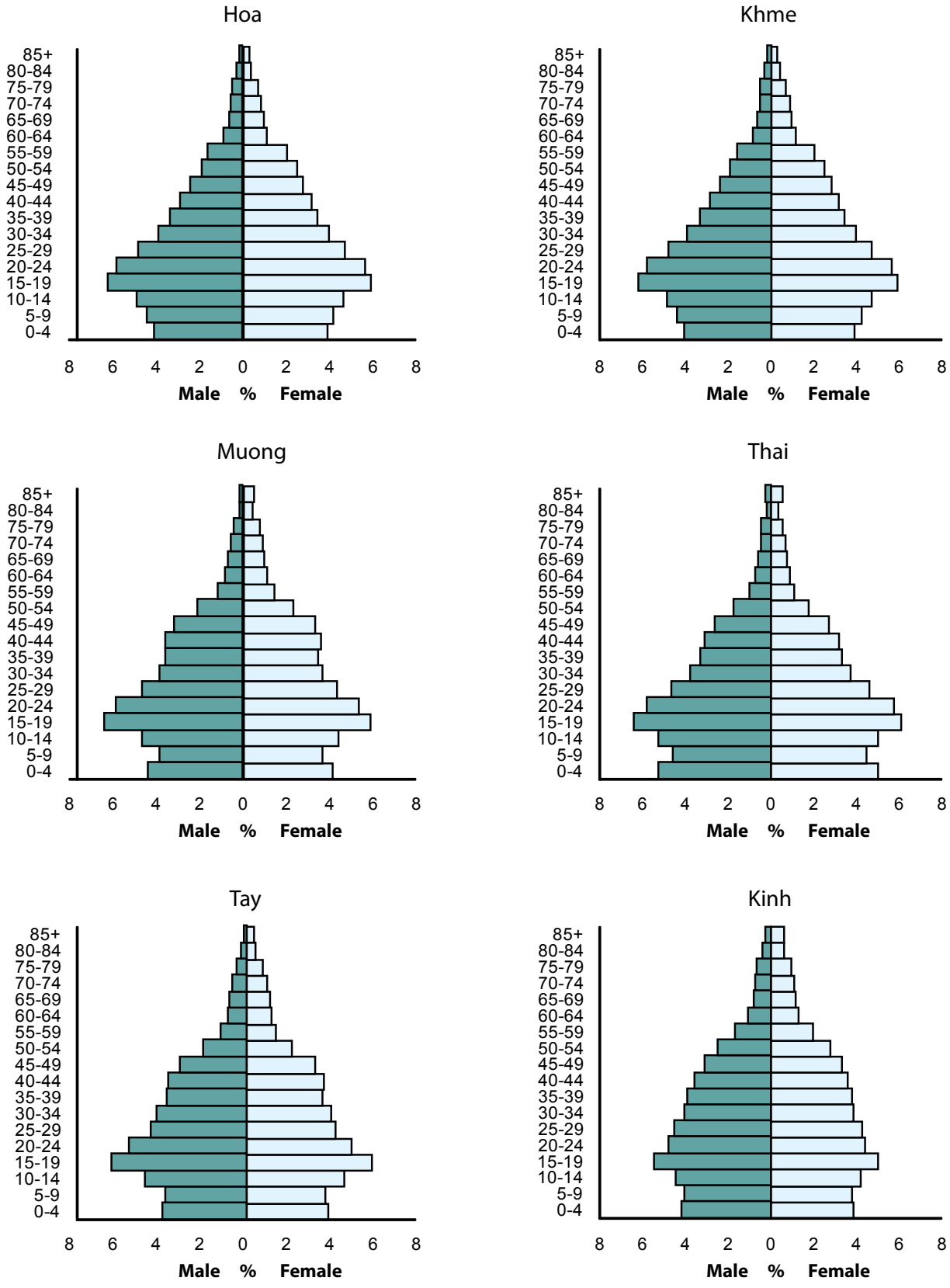


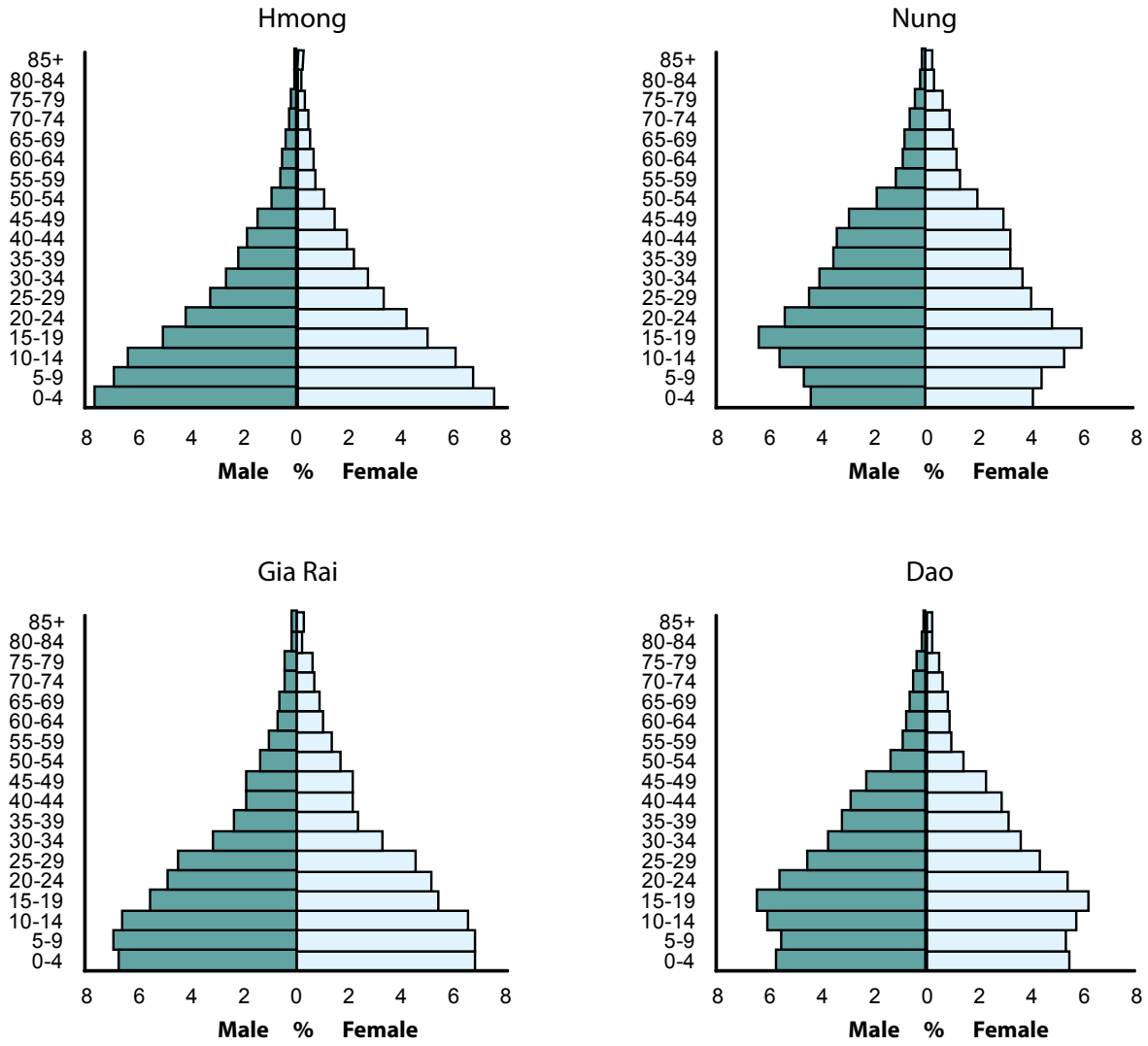
3.5 AGE-SEX STRUCTURE BY ETHNICITY, MIGRANT STATUS AND DISABILITY

3.5.1 Age-sex structure of the ten largest ethnic groups

The 2009 Viet Nam Population and Housing Census collected information on 54 ethnic groups in Viet Nam and of naturalized Viet Namese citizens originally from other countries. For purposes of this monograph, however, details of the age-sex structure of ethnic groups will be investigated with regard to the ten largest ethnic groups, including the Kinh, Tay, Thai. Muong, Khmer, Hoa, Nung, Hmong, Dao, and Gia Rai.

Figure 3.31: Age pyramids of the 10 largest ethnic groups in Viet Nam, 2009





Data presented in age pyramids of three ethnic groups, the Hmong, Dao and Gia Rai reveal relatively high fertility and mortality. The pyramid base is large and the pyramid narrows quickly towards the top. Among these three ethnic groups, the Hmong have very high fertility with only slight declines in recent years. The TFR of the Hmong in the 12 months before the 1989 Census was 9.3 children and by 1999 it had fallen, but was still high at 7.1 children (GSO 2002), a decline of only 24.1%, the next to lowest decline only after the Gia Rai.

The fertility rate of the Gia Rai ranks second among the ten largest ethnic groups and constitute the group with the slowest decline. The TFR of the Gia Rai in the 12 months before the 1989 Census 1989 was 5.5 children, and by 1999 it remained high at 5.3 children (GSO 2002), which was a 3.3% decline compared with 1989. The age pyramids of both the Hmong and Gia Rai have very sharp tops. The Dao has the third highest fertility rate among the ten large ethnic groups but the fertility rate declined more rapidly than among the Hmong and Gia Rai. The mortality rate among the Dao is also high.

The Nung, Khmer, and Hoa are the ethnic groups that have shown a constant decrease in fertility over the past 15 years, and relative low mortality. The age pyramids of these ethnic groups have steadily narrowing bases, relatively large bodies, and the tops do not narrow very abruptly. Among

these three ethnic groups, the age pyramid of the Hoa group is the most unusual. Though the three bands at the bottom gradually narrow towards younger cohorts, the narrowing is more gradual than in the age pyramids of the Nung and Khmer groups. The pyramid body of the Hoa group is relatively vertical, and even narrows in the age groups 20–24 and 25–29 compared to the age group 30–34. This may be the result of international emigration. Among the ten largest ethnic groups, the Hoa group is the only one reporting a decline in population in 2009, compared with 1999.

Three ethnic groups, the Tay, Thai and Muong have similar age-sex structures so their age pyramids have similar shapes. They underwent rapid decline in fertility during the period 1994–1999 and 1999–2004. However, because births in the five years before the Census increased, the age group 0–4 is larger than the 5–9 age group. These three ethnic groups have moderate levels of mortality so the pyramid bodies are larger than among the Hmong, Gia Rai and Dao groups. The Kinh group accounts for 86% of the total population hence the age-sex structure of the Kinh group is similar to the age-sex structure of the whole population.

Data in Table 3.5 indicate that, among the ten largest ethnic groups, the Hmong and Gia Rai have young populations, which means the proportion of the population under 15 years of age is higher than 35%. The proportion of population under 15 years old among the Hmong and Gia Rai were 45.8% and 39.9% respectively. The other ethnic groups are in different stages of aging yet no ethnic minorities have entered the period of an "aged population". Ethnic groups with the proportion of children 0–14 under the national average are the Hoa (22.3%), Kinh (23.4%) and Tay (24.2%). For the population aged 60 years and older, only two ethnic groups have higher proportions than the average, these are the Hoa and the Kinh groups and their proportions are 10% and 9%, respectively. Therefore, only the Hoa and Kinh groups experience higher aging indexes than the national average. At the time of the Census on 1 April, 2009, among the Hoa, there were 4.5 aged persons for every 10 children under age 15, whereas, among the Hmong, there was only 1 aged person for every 11 children. The Dao and Gia Rai groups also reported very low aging indices, with one person aged 60 and older for every seven children under 15 years of age.

Table 3.5: Age structure, aging index, dependency ratio and sex ratio of the ten largest ethnic groups in Viet Nam, 2009

	Proportion of population			Aging index	Dependency ratio			Sex ratio
	0-14	15-59	60+		Child	Aged	Total	
Total	24.5	66.9	8.9	35.5	35.4	9.3	44.7	97.6
Kinh	23.4	67.6	9.0	38.5	33.5	9.6	43.1	94.7
Tay	24.2	67.9	7.9	32.5	34.6	8.3	42.9	98.7
Thai	29.0	64.6	6.4	22.0	43.8	7.2	51.0	99.3
Muong	24.9	67.9	7.2	28.9	35.7	7.6	43.3	98.9
Khmer	25.6	67.4	7.0	27.3	37.0	7.3	44.3	96.1
Hoa	22.3	67.6	10	44.9	31.7	10.3	42.1	105.2
Nung	27.8	64.8	7.4	26.5	41.6	7.9	49.5	100.5
Hmong	45.8	50.0	4.2	9.1	89.4	5.6	95.0	101.3
Dao	33.5	60.8	5.6	16.7	53.7	6.4	60.0	100.9
Gia Rai	39.9	54.1	6.0	15.0	71.4	7.8	79.2	96.4

Among the ten largest ethnic groups, there are six ethnic groups with total dependency ratios under 50%, which means they have entered the "golden population structure". The Hoa and Tay groups report the lowest total dependency ratios, at 42.1% and 42.9%, respectively. The Kinh and Muong groups also report low total dependency ratios at 43.1% and 43.3% respectively. For these ethnic groups, every 2.5 working persons (15-64 years old) would have to support only one dependent. The Thai group has not yet obtained the "golden population structure" but they will enter this period in 1 to 2 more years because their total dependency ratio is currently at 51%. The Hmong, Gia Rai, and Dao groups have moderately high total dependency ratios, at about 60% to 95%.

Four among these ten ethnic groups have a total sex ratio of more than 100%, which means there are more males than females. They are the Hoa (105.2%), Hmong (101.3%), Dao (100.9%) and Nung (100.5%) groups. The sex ratios of the Hmong, Dao and Nung are high mostly because of their low living standards and lack of education, which lead similar mortality rates between males and females. Though the sex ratios for the population under 1 year of age and the population from 1–4 years of age are within the normal range among the Nung (107.0 and 105.5), the Hmong (101.6 and 102.4), and the Dao (104.3 and 105.3) yet their overall population sex ratios are relatively high. the high total sex ratio among the Hoa can be explained by two reasons. First, there may be sex selection, which leads to a high sex ratio of children under aged one (108.9%), and aged 1–4 (110.6%). Second, there is net international emigration among young and middle-aged Hoa females, which leads to a high sex ratio in these age groups. The sex ratio of the age groups 30–34 and 35–39 among the Hoa are high, with 120.3 males per 100 females.

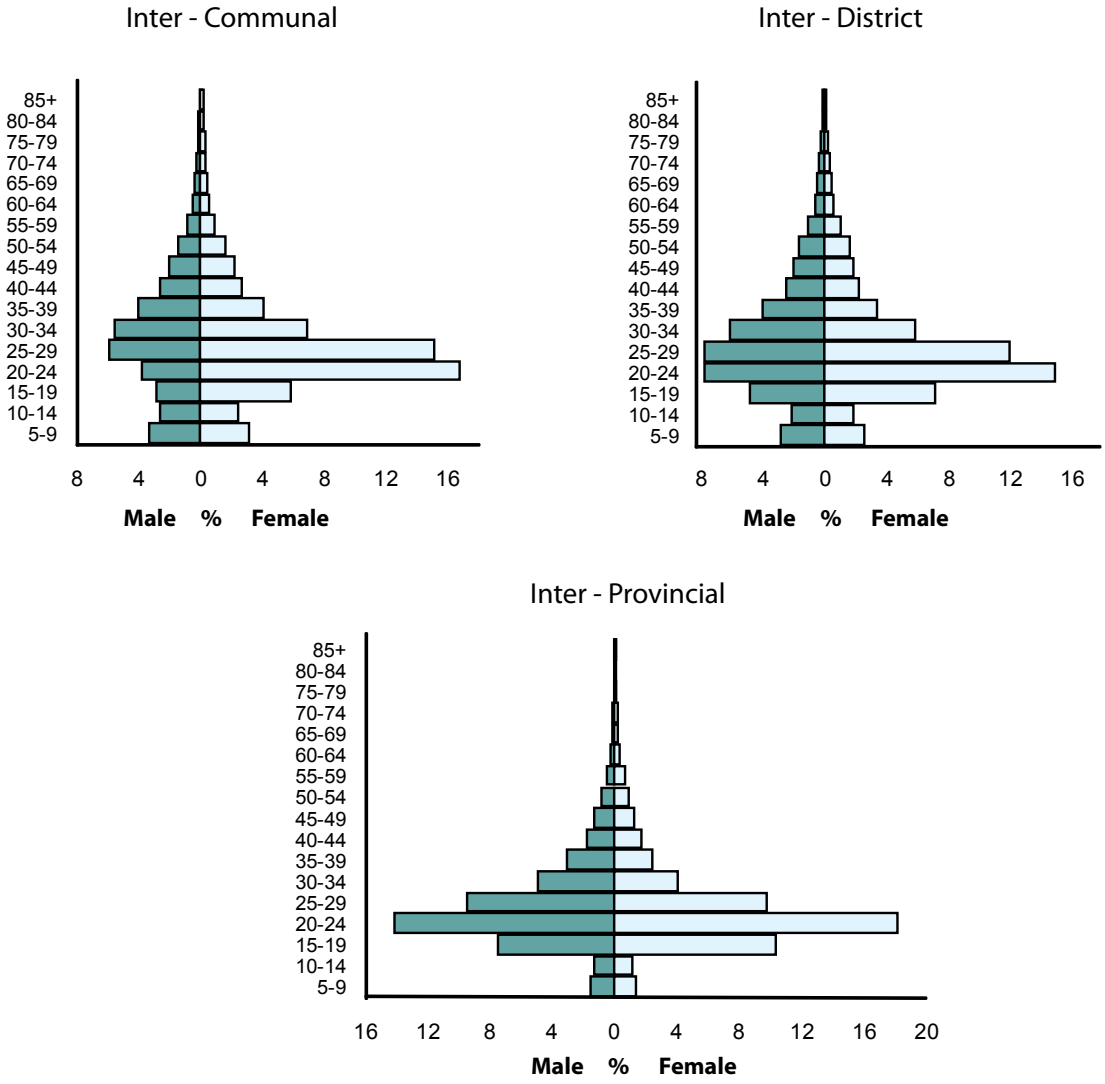
3.5.2 Migrants

From a demographic perspective, migration leads to changes in quantity, structure, and especially age-sex structure of the population at the origin and destination locations. Because the age-sex structure of each type of migration varies, the impact of migration on the age-sex structure also varies. Figure 3.32 presents the age pyramids of three types of migrants, including inter-communal, inter-district, and inter-provincial migrants.

The first pyramid illustrates the age-sex structure of the inter-communal migrants (within the same district). It is obvious that migration in general and inter-communal migration in particular occurs primarily among the young and middle age people. Only five age groups, from 15–39, account for 70% of all inter-communal migrants. In particular, for every 10 inter-communal migrants, four of them belong to the age groups 20–24 and 25–29.

Data in Table 3.6 show that, among inter-communal migrants, female migrants account for two thirds (63.6%), especially among younger groups. For every 10 inter-communal migrants in the age group 20–24, there are 8 females (81.5%). In the age group 25–29, the proportion female is almost three fourths (72%). The proportion female among migrants in the age group 15–19 is also high. For inter-communal male migrants, the age group 25–29 ranks the highest, but for female migrants, the age group 20–24 is the largest one (26.3%).

Figure 3.32: Age pyramids of migrants by migration type, 2004-2009



The second age pyramid in Figure 3.32 illustrates the age-sex structure of the inter-district migrants in the five years before the Census on 1 April, 2009. It can be said that the shape of the age pyramid for inter-district migrants (within a province) is similar to the inter-communal migration, especially for females. There is a slight difference among the male migrants. For inter-communal male migrants, the age group 20–24 is smaller than the age group 25–29 (10.4% versus 16.2%), and for inter-district migration, the two age groups report the same proportion (17.7%).

Data in Table 3.7 illustrate that, among inter-district migrants, female migrants account for a smaller proportion than among inter-communal migrants (56.6% versus 63.6%). Except for the older age groups with low migration rates, the age group with the highest migration was 20–24 years and two thirds of these migrants were female (65.9%). For inter-district male migration, the two age groups 20–24 and 25–29 reported the highest migrant proportions (17.7%), yet for females, the age group 20–24 reported the highest migrant proportion (26.3%).

Table 3.6: Inter-communal migrants in the five years before the 2009 Census by sex and age group

Age	Number			In-migrant proportion of population (%)			Sex structure of migrants (%)	
	Male	Female	Total	Male	Female	Total	Male	Female
5–9	54 442	51 167	105 609	9.2	5.0	6.5	51.6	48.4
10–14	42 271	39 503	81 774	7.2	3.8	5.1	51.7	48.3
15–19	45 758	94 389	140 147	7.8	9.2	8.7	32.7	67.3
20–24	61 379	270 553	331 932	10.4	26.3	20.5	18.5	81.5
25–29	95 707	244 177	339 884	16.2	23.7	21.0	28.2	71.8
30–34	89 475	110 520	199 995	15.2	10.7	12.4	44.7	55.3
35–39	65 089	65 054	130 143	11.0	6.3	8.0	50.0	50.0
40–44	42 983	43 338	86 321	7.3	4.2	5.3	49.8	50.2
45–49	32 272	34 782	67 054	5.5	3.4	4.1	48.1	51.9
50–54	23 798	26 718	50 516	4.0	2.6	3.1	47.1	52.9
55–59	13 530	15 572	29 102	2.3	1.5	1.8	46.5	53.5
60–64	7786	9254	17 040	1.3	0.9	1.1	45.7	54.3
65–69	5239	6994	12 233	0.9	0.7	0.8	42.8	57.2
70–74	4031	5622	9653	0.7	0.5	0.6	41.8	58.2
75–79	3111	4560	7671	0.5	0.4	0.5	40.6	59.4
80–84	1754	3392	5146	0.3	0.3	0.3	34.1	65.9
85–89	799	1838	2637	0.1	0.2	0.2	30.3	69.7
90+	257	1047	1304	0.0	0.1	0.1	19.7	80.3
Total	589 681	1 028 480	1 618 161	100.0	100.0	100.0	36.4	63.6

Table 3.7: Inter-district migrants in the five years before the 2009 Census by sex and age group

Age	Number			In-migrant proportion of population (%)			Sex structure of migrants (%)	
	Male	Female	Total	Male	Female	Total	Male	Female
5–9	47 235	44 097	91 332	6.4	4.6	5.3	51.7	48.3
10–14	36 010	33 058	69 068	4.9	3.4	4.0	52.1	47.9
15–19	81 381	121 542	202 923	11.0	12.6	11.9	40.1	59.9
20–24	131 250	253 977	385 227	17.7	26.3	22.5	34.1	65.9
25–29	131 123	203 914	335 037	17.7	21.1	19.6	39.1	60.9
30–34	102 394	99 838	202 232	13.8	10.3	11.8	50.6	49.4
35–39	67 269	58 196	125 465	9.1	6.0	7.3	53.6	46.4
40–44	41 810	38 750	80 560	5.6	4.0	4.7	51.9	48.1
45–49	33 715	31 899	65 614	4.5	3.3	3.8	51.4	48.6
50–54	26 478	28 219	54 697	3.6	2.9	3.2	48.4	51.6
55–59	16 950	18 694	35 644	2.3	1.9	2.1	47.6	52.4
60–64	9397	11 122	20 519	1.3	1.2	1.2	45.8	54.2
65–69	6897	8059	14 956	0.9	0.8	0.9	46.1	53.9
70–74	4392	5981	10 373	0.6	0.6	0.6	42.3	57.7
75–79	3097	4067	7164	0.4	0.4	0.4	43.2	56.8
80–84	1648	3092	4740	0.2	0.3	0.3	34.8	65.2
85–89	729	1587	2316	0.1	0.2	0.1	31.5	68.5
90+	296	736	1032	0.0	0.1	0.1	28.7	71.3
Total	742 071	966 828	1 708 899	100.0	100.0	100.0	43.4	56.6

The third age pyramid in Figure 3.32 presents the age-sex structure of inter-provincial migrants during the five years before the Census of 1 April, 2009. The age pyramid for this migration type is substantially different from the two previous migration types. Sex balance in different age groups of inter-provincial migrants is evident (both sides of the age pyramid are balanced).

Table 3.8: Inter-provincial migrants in the five years before the 2009 Census by sex and age group

Age	Number			In-migrant proportion of the population (%)			Sex structure of migrants (%)	
	Male	Female	Total	Male	Female	Total	Male	Female
5–9	52 651	46 054	98 705	3.3	2.5	2.9	53.3	46.7
10–14	45 048	40 102	85 150	2.8	2.2	2.5	52.9	47.1
15–19	257 453	355 962	613 415	15.9	19.5	17.8	42.0	58.0
20–24	485 691	624 431	1 110 122	30.0	34.3	32.3	43.8	56.2
25–29	324 441	337 041	661 482	20.1	18.5	19.2	49.0	51.0
30–34	170 027	138 932	308 959	10.5	7.6	9.0	55.0	45.0
35–39	103 907	83 977	187 884	6.4	4.6	5.5	55.3	44.7
40–44	62 990	58 254	121 244	3.9	3.2	3.5	52.0	48.0
45–49	44 984	43 772	88 756	2.8	2.4	2.6	50.7	49.3
50–54	29 223	32 613	61 836	1.8	1.8	1.8	47.3	52.7
55–59	16 523	23 178	39 701	1.0	1.3	1.2	41.6	58.4
60–64	10 046	12 563	22 609	0.6	0.7	0.7	44.4	55.6
65–69	5465	8592	14 057	0.3	0.5	0.4	38.9	61.1
70–74	3921	5521	9442	0.2	0.3	0.3	41.5	58.5
75–79	2891	4182	7073	0.2	0.2	0.2	40.9	59.1
80–84	1516	2980	4496	0.1	0.2	0.1	33.7	66.3
85–89	673	2001	2674	0.0	0.1	0.1	25.2	74.8
90+	293	995	1288	0.0	0.1	0.0	22.7	77.3
Total	1 617 743	1 821 150	3 438 893	100.0	100.0	100.0	47.0	53.0

Data in Table 3.8 show that, among all inter-provincial migrants, females account for a smaller proportion than for inter-communal and inter-district migrants (53% versus 63.6% and 56.6%). Excluding age groups beyond age 65, the group aged 15–19 had the highest female share (53.0%). For both sexes, the inter-provincial migration is concentrated mostly in the age group 20–24 (30.0% for males and 34.3% for females). Among these types of migrants, the proportion in the age group 10–14 is lower than the age group 5–9. It is clear that, the younger the children are, the higher the possibility they will migrate with adult family members.

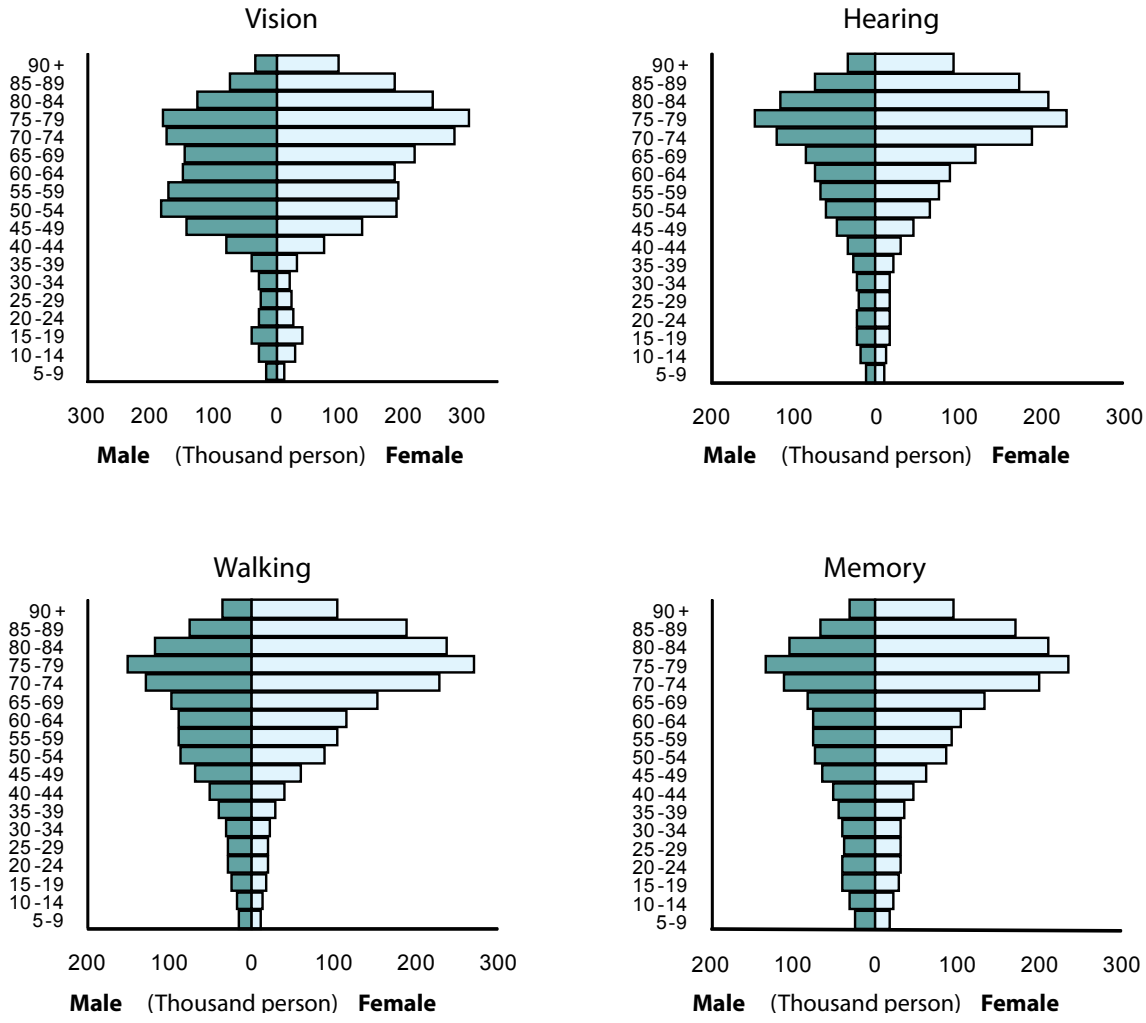
Figure 3.32 and data in Table 3.6, Table 3.7 and Table 3.8 indicate that, the greater the migration distance, the smaller the proportion of children among migrants. Among inter-communal migrants, the proportion of children aged 5–9 accounts for 6.5%, this proportion declines to 5.3% for inter-district migration and further to 2.9% for inter-provincial migration. For children aged 10–14 years,

the proportions are 5.1%, 4.0% and 2.5% respectively. The proportions of the elderly (aged 60 years and older) among migrants are insignificant, accounting for only 3.6% of inter-communal and inter-district migration, and only 1.8% of inter-provincial migration.

3.5.3 Age-sex structure of the disabled population

The Viet Nam Population and Housing Census 2009 collected information on people living with disabilities in the population. Respondents were asked four small questions (Parts of Question No. 11) regarding their vision (with glasses), hearing, walking and memory or attention abilities. Enumerators tick one of four categories: no difficulty, some difficulty, great difficulty, and impossible. Figure 3.33 and Table 3.9 present summary results for each type of disability.

Figure 3.33: Population pyramids by types of disability in Viet Nam, 2009



According to estimates from sample Census data, the population with vision disabilities is the largest (3947.5 thousand people), this group is followed by the population with walking-disabilities (2901.4 thousand people), with memory disabilities (2762.9 thousand people) and finally with hearing disabilities (2451.5 thousand people). In general, for all types of disability and for each sex, the absolute

number and proportion of people living with disabilities increases with age and peaks at the age group 75–79. After these ages, the size of the population with disabilities decreases, mostly because the population size declines. However, for the male population with vision disabilities, the proportion disabled in the age groups 55–59, 60–64 and 65–69 is lower compared with younger age groups.

Regarding number of people living with disabilities, females suffer from disability more than males. Among four types of disability, the proportion female does not vary much and accounts for from 57.9% (vision disabilities) to 59.5% (walking difficulties). However, if divided into three subgroups, under 15, 15–59 and age 60 and older (Table 3.9), it can be seen that in the first two age groups, the number of males living with disability is higher than females, but the difference is not high, especially for the age group 15–59. In this age group, males and females report similar proportions of disability (50.1 versus 49.9%). Gender differences are highest among people with walking disabilities. Among the age group 15–59, males accounted for 53% of the total population with walking disabilities.

Table 3.9: People with disabilities by type of disability in Viet Nam, 2009

	Number			Age structure of people with disabilities (%)			Sex structure %	
	Male	Female	Total	Male	Female	Total	Male	Female
Vision								
5–14	43 964	41 047	85 011	2.6	1.8	2.2	51.7	48.3
15–59	734 681	733 019	1 467 700	44.2	32.1	37.2	50.1	49.9
60+	882 324	1 512 441	2 394 765	53.1	66.1	60.7	36.8	63.2
Total	1 660 969	2 286 507	3 947 476	100.0	100.0	100.0	42.1	57.9
Hearing								
5–14	30 981	22 866	53 847	3.1	1.6	2.2	57.5	42.5
15–59	327 613	309 215	636 828	32.5	21.4	26.0	51.4	48.6
60+	649 865	1 110 998	1 760 863	64.4	77.0	71.8	36.9	63.1
Total	1 008 459	1 443 079	2 451 538	100.0	100.0	100.0	41.1	58.9
Walking								
5–14	32 772	24 097	56 869	2.8	1.4	2.0	57.6	42.4
15–59	451 001	399 445	850 446	38.4	23.1	29.3	53.0	47.0
60+	691 529	1 302 550	1 994 079	58.8	75.5	68.7	34.7	65.3
Total	1 175 302	1 726 092	2 901 394	100.0	100.0	100.0	40.5	59.5
Memory								
5–14	56 020	40 117	96 137	5.0	2.5	3.5	58.3	41.7
15–59	468 346	444 670	913 016	41.5	27.2	33.0	51.3	48.7
60+	604 182	1 149 516	1 753 698	53.5	70.3	63.5	34.5	65.5
Total	1 128 548	1 634 303	2 762 851	100.0	100.0	100.0	40.8	59.2

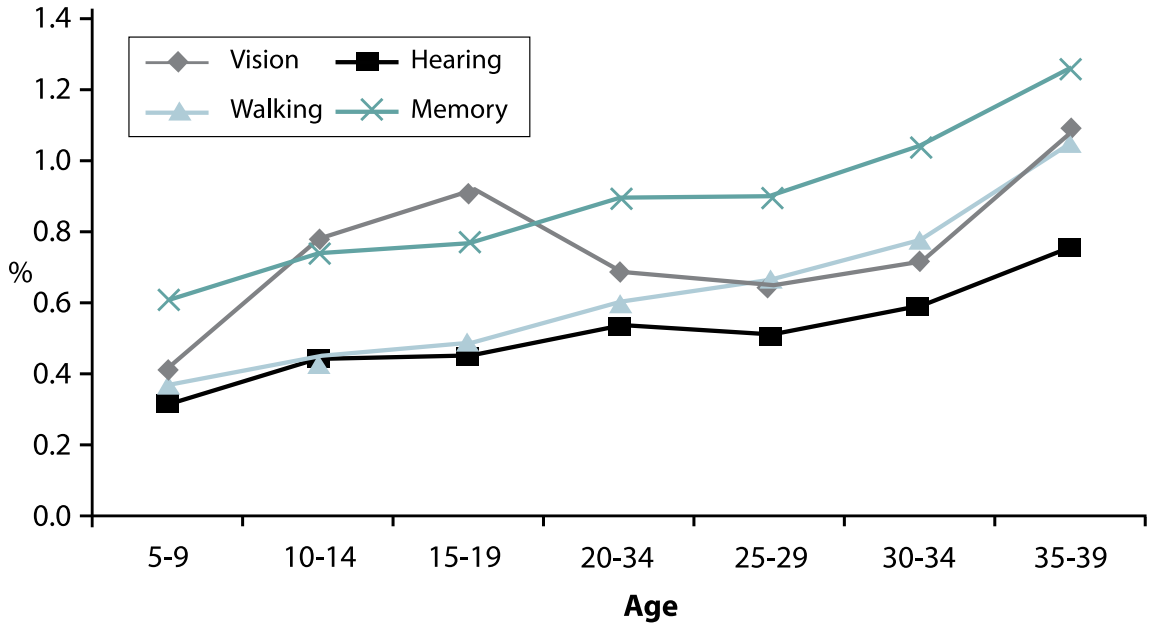
In general, the data show that, among all types of disability for both sexes, prevalence of disability increases by age. In the age group 5–14, the proportion of any disability varies from 0.38% (hearing), 0.48% (walking) to 0.6% (vision), 0.68% (memory) and 1.32% (suffer from at least one disability). For the age groups 30–59, the respective proportions are 1.6%, 2.2%, 4.0%, 2.2% and 6.6% and for the group aged 60 and above, prevalence reaches 23%, 26%, 31%, 23% and 43% respectively for the different types of disability.

One point to take note of is the prevalence of vision disabilities in the age group 10–19 is much higher than in the age group 20–24 (Figure 3.34). This indicates an increase in vision problems (mostly myopia) among children and the young in the last 5–10 years.

Table 3.10: Prevalence of disabilities by severity and age group in Viet Nam, 2009

Age group	5–14	15–29	30–59	60+	Total
Vision					
Difficult	0.49	0.63	3.68	26.62	4.40
Very difficult	0.08	0.09	0.22	3.88	0.51
Impossible	0.03	0.04	0.06	0.77	0.12
Total	0.60	0.76	3.96	31.27	5.03
Hearing					
Difficult	0.23	0.31	1.32	18.64	2.50
Very difficult	0.08	0.10	0.19	3.77	0.49
Impossible	0.07	0.09	0.09	0.58	0.13
Total	0.38	0.50	1.60	22.99	3.12
Walking					
Difficult	0.22	0.34	1.68	19.96	2.79
Very difficult	0.09	0.14	0.38	4.59	0.67
Impossible	0.10	0.09	0.13	1.49	0.24
Total	0.41	0.57	2.19	26.04	3.70
Memory					
Difficult	0.37	0.44	1.67	18.52	2.70
Very difficult	0.17	0.23	0.33	3.55	0.59
Impossible	0.14	0.17	0.18	0.83	0.23
Total	0.68	0.84	2.18	22.90	3.52
Maximum of all 4 types					
Difficult	0.88	1.19	5.46	33.54	6.06
Very difficult	0.24	0.36	0.78	7.39	1.20
Impossible	0.21	0.26	0.35	2.34	0.49
Total	1.32	1.81	6.58	43.25	7.74

Figure 3.34 Prevalence of 4 types of disability by age group from 5–9 to 35–39 in Viet Nam, 2009



In general, among all types of disability, the proportion female is higher than male. The sex differential of disabilities varies by age. For all types of disability, males account for a higher share of the disabled than females for ages under 60, and vice versa, females account for a higher share of the disabled among people aged 60 and older.

3.6 AGE-SEX PROJECTIONS OF THE POPULATION IN VIET NAM

We can assert that Viet Nam's population has passed through or at least is passing through the post-demographic transition period[5] and has entered a period of population aging. The "demographic transition" or "population transition" are terms demographers use to describe the process of transformation from high birth and death rates in low income countries to low birth and death rates in high income countries (Casterline 2003: 210). This can be seen through the series of age pyramids from 1979 to 2009. In order to project the age-sex structure prospects of the population in the future, it is possible to use the UN projections in "World Population Prospects". However, for inputs into Viet Nam's population projections, the UN used the 1999 Census,, which is out-of-date and is greatly biased towards the status-quo. Even in the latest version in 2008, the discrepancy between the UN prospects with the data of the Viet Nam Population and Housing Census is about 2.2 million people.

In order to study of the age-sex structure prospects of population in Viet Nam, the authors have applied the Spectrum (Demproj) software to project the population until 2059 (50 year) with the following input information:

5 UNFPA. Population and Development in Viet Nam: Toward a new Strategy 2011-2020, Hanoi, December 2009, page 16

1) Population by sex and five-year age groups: Results of the Population and Housing Census at 0:00, on 1 April 2009 (complete population Census):

2) Fertility: Total fertility rate (TFR)

   - 2009: 2.03 children/woman

   - 2024: 1.80 children/woman remaining constant until 2059.

3) Mortality: Life expectancy at birth (e0)

   - In 2009: 70.2 years for males and 75.6 years for females

   - In 2030: 75.4 years for males and 80.0 years for females remaining constant until 2059;

4) Sex ratio at birth (SRB):

   - 2009: 110.6;

   - 2020: 115.0;

   - 2030: 105.0, remaining constant until the end of the projection period.

5) International migration: Net migration rate equal to 0.

Hypotheses used in the projections are equivalent to the varying hypotheses in the medium variant of the UN (the main change is in the input data). Key results are presented in the appendices. The results are used to construct the age pyramids in 2034 and 2059, and to calculate the dependency ratios and aging indexes for the years from 2014 to 2059.

Because population in Viet Nam continues to age, the median age has increased considerably. In 1950, the median age of the Viet Namese population was 24.6; in 1970 it had declined to 18.0; in 2000 it had increased to 23.1 (UNFPA 2009:17); by 2009 it had increased to 28.0 years. In the future, the median age of Viet Nam's population will increase greatly. Within ten years from 2009 to 2019, the median age is expected to increase by 4 years, from 28 to 32 years of age, and to increase another 5 years during the following decade (from 32 years in 2019 to 37 years in 2029). However, after 2029, the median age is likely to increase more slowly, with an increase of 3 years for the decade from 2029 to 3039 (from 37 to 40 years of age), and then an increase of 2 years for the following two decades (from 40 years in 2039 to 42 years in 2049 and 44 years in 2059).

Figure 3.35: Population pyramids in Viet Nam, 1979, 2009, 2034 and 2059

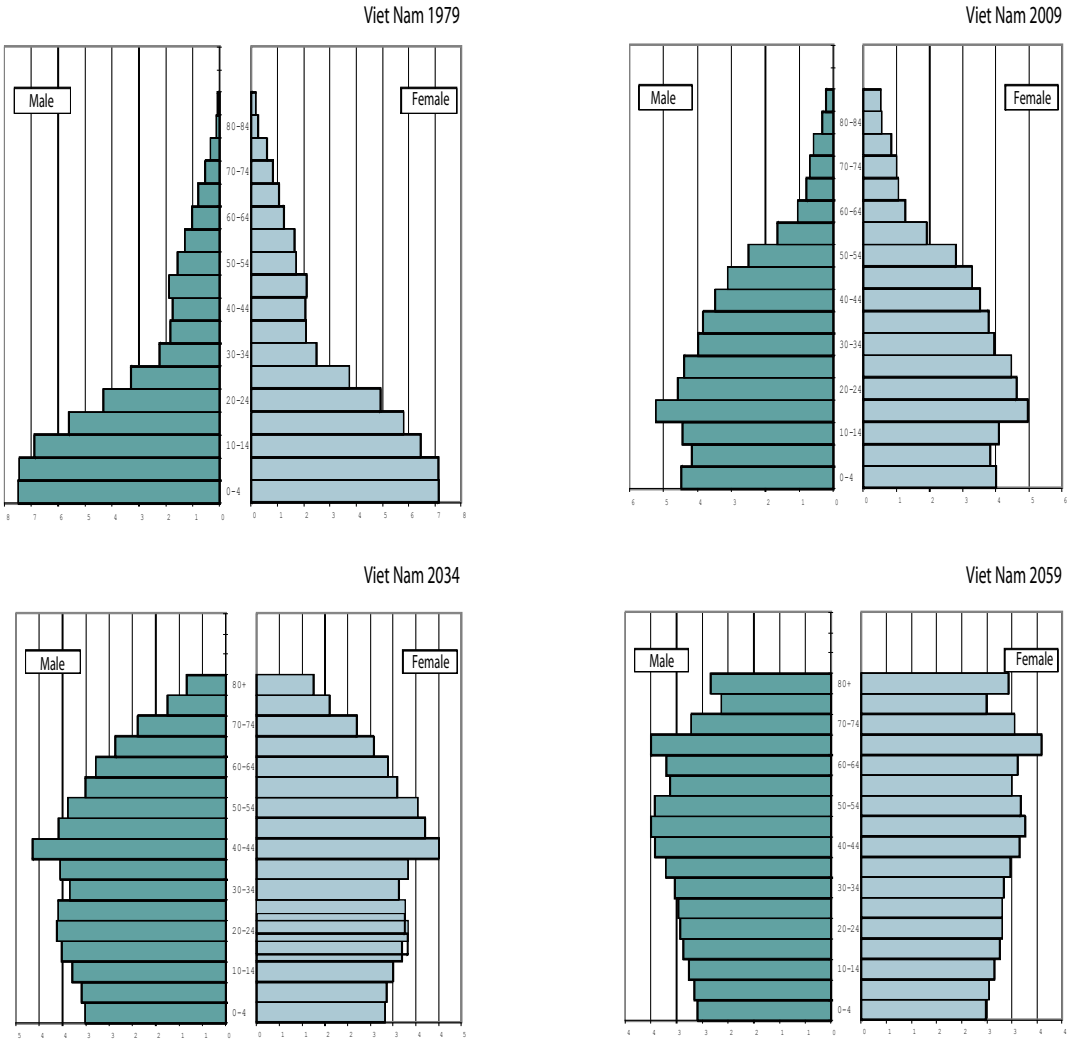


Figure 3.35 presents the age pyramids of population in Viet Nam in 1979, 2009, 2024 and 2059. The age pyramids for 1979 and 2009 were constructed using population data from the 1979 and 2009 Censuses. The age pyramids in 2034 and 2059 are based on the projection results as mentioned above. Due to continuous declines in fertility, then maintenance of fertility at low levels, by 2034 (after 25 years), the age pyramid will be transformed into a jar shape. It is clear that the population of Viet Nam will be aging dramatically. By 2059, after 50 years, the age pyramid of Viet Nam's population will have a drum shape with the drum face being even wider than the drum base.

a) Projection of total population of Viet Nam

The difference between total births and total deaths will determine the rate of natural increase of the population regardless of the TFR and actual life expectancy. Normally, paralleling the demographics

transition, population will continue to increase for several decades after reaching "replacement fertility rates". This is called population momentum. Population momentum is the change in the population growth rate after changes in reproductive behaviour and mortality rates have occurred. Population momentum takes place during the process of age structure changes, which mean that when a population has grown rapidly over a long period, it will tend to be a young population, and even if fertility declines to replacement level, the population will continue to grow for several decade before achieving a zero growth rate (Feeney 2003: 647).

Because of high fertility in previous years, the proportion of women aged 15-49 has increased continuously from 41.3% in 1970 (UNFPA 2009:18), to 45.1% in 1979; 48.4% in 1989; 53.5% in 1999 and 57.3% in 2009. In 2009, the proportion of women aged 15-49 peaked at a maximum value. In 2010, the proportion of women aged 15-49 has fallen slightly to 57.2%. After 25 more years, by 2034, the proportion of women aged 15-49 will decline to 48.6% and by 2059, this figure will be down to 41.6%, which is similar to the proportion in 1970.

Even though the proportion of women aged 15-49 peaked at the maximum value in 2009, the absolute number of women will continue to increase from 24 485 000 in 2009 to the maximum at 25 910 000 in 2028. After this year, the number of women aged 15-49 will steadily decreases and will decline to approximately 21 841 000 in 2059.

With regard to the female age group with the highest fertility in 2009 (25-29 years of age), it can be seen that, the proportion of women in this age group will slowly increase. In particular, it is projected to increase from 8.9% in 2009 to 9.3% in 2018, equivalent to an increase of 0.4 percentage points over nine years, after which it will decrease continuously, down to 6.4% in 2034 and to only 5.6% in 2059. Considering absolute numbers, the number of women aged 25-29 will increase from 3 885 00 in 2009 to the highest value of 4 400 000 in 2018, indicating an increase of 515 000 people over 9 years, or on average, about 46 000 per year.

If the TFR continues to decline to 1.8 children per woman in 2024, though the total number of women aged 15-49 and the number of women in the highest fertility ages will continue to increase, but the number of births will constantly decrease, from 1 564 000 in 2009 to 1 234 000 in 2039 and only 1 070 000 in 2059. Even if the fertility rate remains constant (TFR=2.03), the number of births will only increase to a maximum of 1 647 000 in 2014, meaning that there will be an increase over current births of about 83 000 newborns every five years and, on average, 17 thousand per year.

Table 3.11 shows that, even if the total fertility rate remain unchanged, the crude birth rate of Viet Nam will decline constantly, from 18.1‰ in 2014 to 13.4‰ in 2034 and only 12.3‰ in 2059. In the case that the TFR decreases continuously till it reaches 1.8 children per woman in 2024, the crude birth rate would decline greatly to 11.7‰ in 2034 and 10.1‰ in 2059.

Table 3.11: Projection of TFR and CBR in Viet Nam, 2014-2059

Year	Newborns ('000)		CBR (‰)	
	TFR 2024=1.8	TFR constant (2.03)	TFR 2024=1.8	TFR constant (2.03)
2014	1518	1647	16.7	18.1
2019	1434	1588	15.0	16.5
2024	1303	1466	13.1	14.6
2029	1237	1394	12.1	13.5
2034	1234	1415	11.7	13.4
2039	1234	1456	11.5	13.5
2044	1198	1451	11.1	13.3
2049	1140	1401	10.6	12.8
2054	1093	1352	10.2	12.4
2059	1070	1334	10.1	12.3

According to our projection, because the number of births is higher than the number of deaths, the population of Viet Nam will continue to increase until 2046. Thus, even though replacement fertility rate has been reached, the population of Viet Nam will continue to increase in the next 40 years and then gradually decrease.

Figure 3.36: Trend and projection of total dependency ratio in Viet Nam, 1979-2059

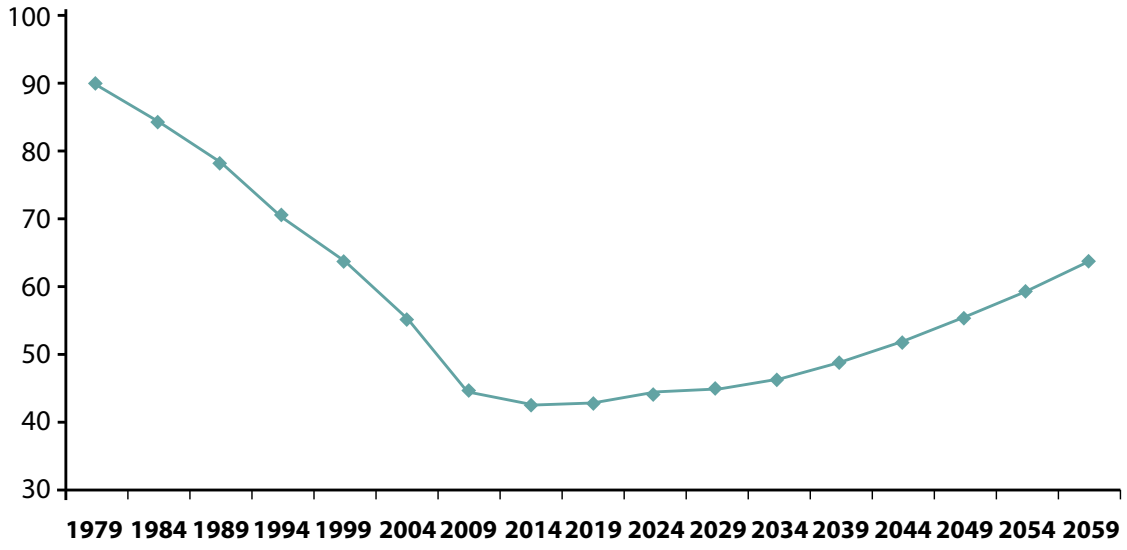
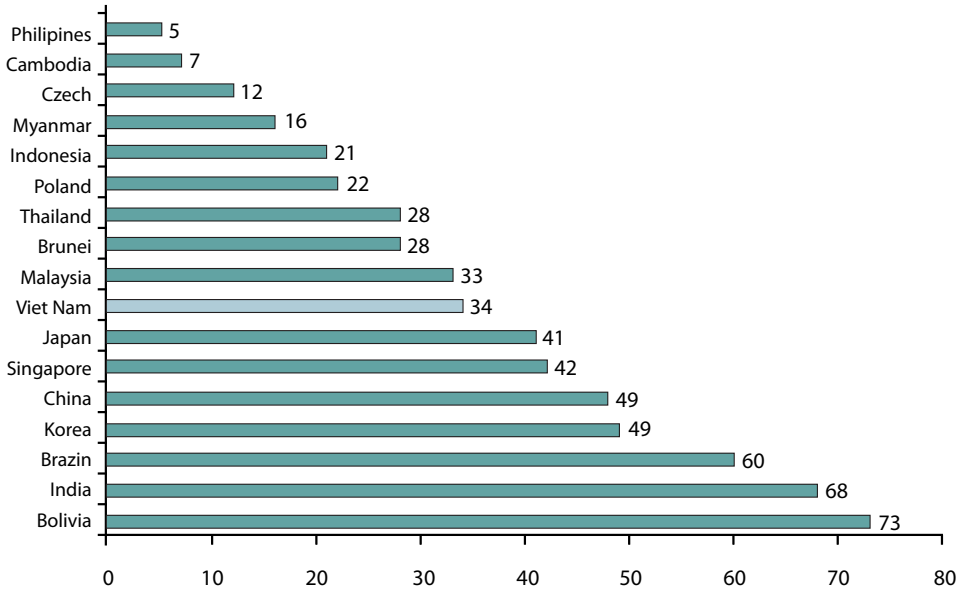


Figure 3.36 presents the projections of total dependency ratio of the population of Viet Nam (using the aged dependency threshold of 65+ years) in the next 50 years, based on the above population projection results. Similar to many other populations in the world, the total dependency ratio of Viet Nam's population in the 1970s was very high, approximately 90, which means that on average, one working-age person had to support nearly one non-working-age person. The total dependency ratio has continually decreased, reaching 50 in 2007, indicating that every two working-age persons were available to support one non-working-age person. In other words, the population of Viet Nam had entered the era of "golden population structure" or "population bonus".

Figure 3.37: Duration of the period of "golden population structure" for selected countries



The total dependency ratio of Viet Nam is projected to continue to decrease to the minimum value of 43 by about 2015. That is in 2015, every 2.3 working-age persons would support only one non-working-age person. After 2019, the total dependency ratio will gradually increase, back to 50 in 2041 and continue increasing from then on. Thus, the period of "golden population structure" in Viet Nam will last for about 34 years, a medium duration in comparison to other countries. In comparison with ASEAN countries, the period of "golden population structure" in Viet Nam will be quite long, only second to Singapore in terms of duration (Figure 3.6.3). After 2040, the total dependency ratio of Viet Nam will increase quickly to 63.6 in 2059, indicating that for every 1.6 working-age persons there will be one non-working-age person.

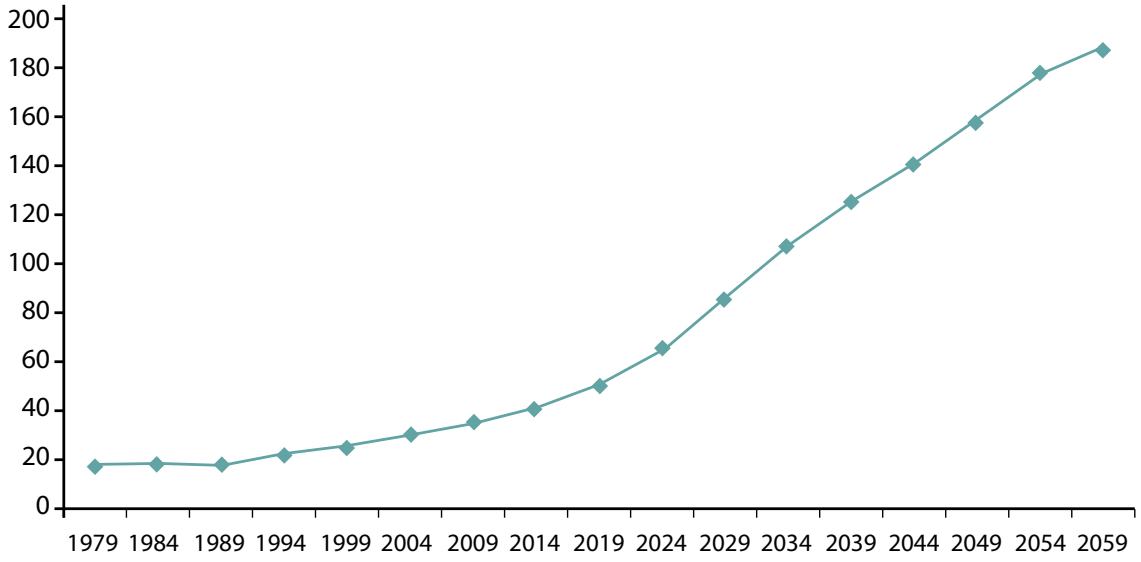
b) Population aging

Because life expectancy has increased to a relatively high level while the total fertility rate has decreased continuously and is being maintained at a low level, the population of Viet Nam is aging. If people aged 60 or older are regarded as the old-age population, three decades ago, in 1979, the aging index of Viet Nam was 16.6, which means there was only one aged person for every 10 children under age 15. In 2009, the aging index of Viet Nam had increased to 35.5, meaning that for every 3 children under age 15, there is an aged person. In 2034, the aging index is projected to

increase to 106.6, indicating only one child for every 1.1 aged persons, three times higher than the current index. In 2047, the aged population will be 1.5 times higher than the population of children in Viet Nam (see Figure 3.38).

Population aging has not been an urgent issue in Viet Nam so far but needs to be taken into account soon as the aged population is increasing quickly in both numbers and proportion. The total number of people aged 60 and older in Viet Nam was 7.5 million in 2009 and is projected to increase to almost 11 million by 2019, 17 million by 2029, 22.3 million by 2039, 28.2 million by 2049 and more than 31 million by 2059. As most aged people in Viet Nam tend to be economically dependent and often suffer from multiple chronic and acute medical conditions, they will face significant difficulties if social welfare support policies are insufficient or ineffective.

Figure 3.38: Trend and projection of aging index (60+) in Viet Nam, 1979-2059



c) Sex ratio

As analyzed in Section 3.4, the sex ratio of Viet Nam's population is strongly influenced by consequences of the long period of war from the 1950s through the 1970s. The peaceful period in Viet Nam in the last three decades has led to an increasing sex ratio. In addition, the considerable increase in the sex ratio at birth has contributed significantly to the total sex ratio of the present and future population.

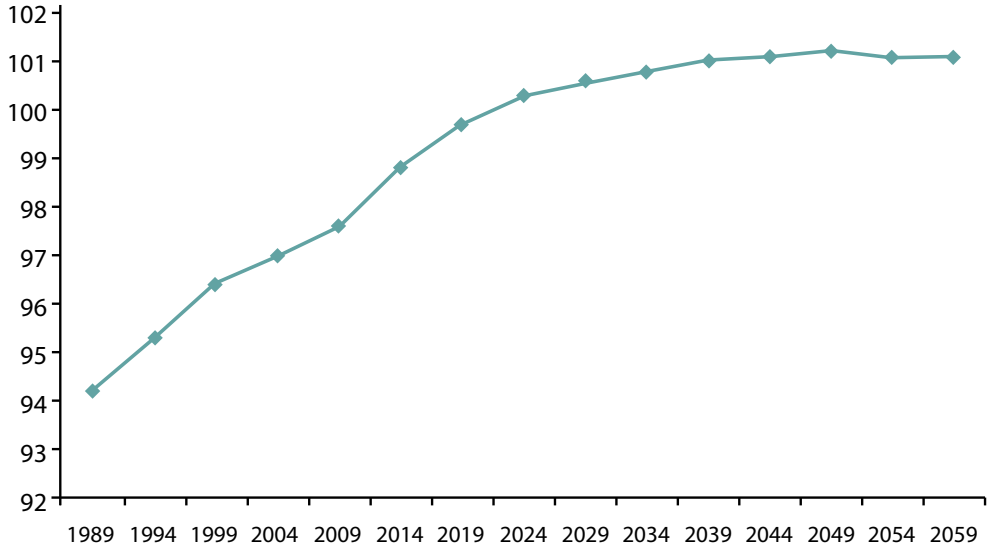
The high sex ratio at birth in Viet Nam indicates the existence of gender discrimination. The sex ratio at birth is also used to indicate prospects of sex imbalance for the population in the future. The unusual excess of boys (more than 105 boys per 100 girls) in the last several years will lead to a slight surplus of young male adults in the next 20 years or so. The situation will become more serious if the sex ratio at birth continues at the current high level or increases further.

Population projection, as presented above, can help to evaluate the prospects of the total sex ratio of the population in Viet Nam. The projection is based on the hypothesis that the sex ratio at birth in

Viet Nam continues to increase to 110 in 2020 and then, because of more effective policies to reduce sex selection, the sex ratio at birth will return to the normal level (105) by 2030.

Figure 3.39 presents the general sex ratios of Viet Nam's population according to the 1989, 1999 and 2009 Censuses and the projections based on the hypotheses mentioned above (in Section 3.5). The sex ratio of the population has increased from 94.2 in 1989 to 97.6 in 2009. According to the projection, the sex ratio will reach 100 (number of males equal to the number of females) by 2021. After 2021, the male population will slightly exceed the female population, and the total sex ratio will peak at 101.2 in 2049 and decline steadily afterward, to 101.1 in 2054 and remain relatively stable around this level in the following years.

Figure 3.39: Trend and projection of sex ratio in Viet Nam, 1989-2059



3.7 SUMMARY AND REMARKS

The age structure of Viet Nam's population in 2009 was typical of a post-demographic transition population in which high birth and death rates have been transformed to low birth and death rates. The decline of the birth rate narrows the age pyramid base while the increased life expectancy of the population slows down the narrowing at the top of the pyramid.

There is a clear difference between rural and urban age structure. In rural areas, the age group with the highest proportion of the population is the group aged 15–19, which is substantially larger than the adjacent younger and older age groups. In urban areas, the age group with the highest proportion is the age group 20–24, but this group is only slightly larger than the adjacent younger and older age groups. The age pyramid of the urban population is strongly influenced by in-migration, which contributes to a high proportion of people in working ages.

The age-sex structures of population in different regions and province are affected not only by birth and death rates, but also by migration. The age pyramids of the Northern Uplands and Central Highlands are typical of highland populations with high birth and death rates. However, because the birth rate in the Northern Midlands and Mountains is decreasing more rapidly than in the Central

Highlands, the pyramid base has narrowed more abruptly. The age pyramid of population in the Central Highlands is also influenced by in-migration.

The age pyramids of the Red River Delta and Mekong River Delta are typical for lowland populations with low birth and death rates, leading to narrowed pyramid bases and relatively wide pyramid tops, compared with other regions. The Red River Delta has experienced negative net migration, with out-migrants primarily in working ages leading to a substantial narrowing of the pyramid body.

The age pyramids of the North and South Central Coast and the Southeast are characteristic of populations with high migration in opposite directions. The North and South Central Coast reports a high rate of out-migration, concentrated in young ages so the population in the age groups 20–24 and 30–34 decline suddenly for both males and females. In contrast, the Southeast has a high rate of in-migration concentrated in young ages, so the pyramid body is wide. This is the only region of the country for which the age group 20–24 has the highest proportion (in all other regions the age group 15–19 has the highest proportion).

Compared with 1999, the proportion of the population under age 20 declined while the population aged 20–59 increased considerably. The change in the age pyramid shape since 1979 reflects a very clear population aging process in Viet Nam with the aging index increasing gradually, from 16.6% in 1979 to 24.3% in 1999 and reaching 35.5% in 2009.

The total dependency ratio of Viet Nam has declined dramatically since 1979. If independent ages are defined between 15 and 64, the total dependency ratio of Viet Nam reached a "golden population structure" (50%) by the end of 2007, and the ratio has now reached 44.7%. The total dependency ratio in Viet Nam has declined mostly because of fertility decline. The decrease in mortality has contributed positively to the aged dependency ratio, but only slightly.

Among Viet Nam's six regions, the Southeast, Mekong River Delta, Red River Delta, and Northern Midlands and Mountains are experiencing a "golden population structure". The North and South Central Coast is expected to enter a period of "golden population structure" in 2011 since the total dependency ratio currently is only 50.4%. In 2009, 43 out of 63 provinces in Viet Nam reported total dependency ratios under 50%, which means they are experiencing a "golden population structure". The province with the lowest total dependency ratio was Binh Duong, at 28%. Among the other 20 provinces, 9 have a total dependency ratio under 55% and will enter the period of "golden population structure" over the next five years. The other provinces have total dependency ratios that are not extremely high. The province with the highest total dependency ratio is Lai Chau, at 71%.

The sex ratio of the population in Viet Nam has gradual decreased over the 60 years from the 1930s to 1990s, mostly because of the consequences of war. The peaceful period in last 30 years and the increase in the sex ratio at birth have led to a recovery of greater sex balance, with 97.6 males for every 100 females in 2009.

In the future, population in Viet Nam will age very rapidly. In 2009, the size of the aged population (60+) was one third the size of the child population (under 15). According to the population projection, by 2030, the size of the aged population will be equal to that of the child population. The difference in the number of aged people and children will continue to increase. Compared to the child population, the aged population will be 1.5 times larger by 2047, and two times higher by the late 2060s.

The number of women aged 15–49 will continuously increase until 2028 (an increase of about 75 000 women each year) and will decline thereafter. However, the proportion of women aged 15–49 has already peaked in 2009. Thus even if the TFR remains at the present level (TFR=2.03), the number of newborns will increase over the next ten or more years, but the crude birth rate of the population in Viet Nam will gradually decrease.

CHAPTER 4: **HOUSEHOLD STRUCTURE**

4.1 HOUSEHOLD SIZE

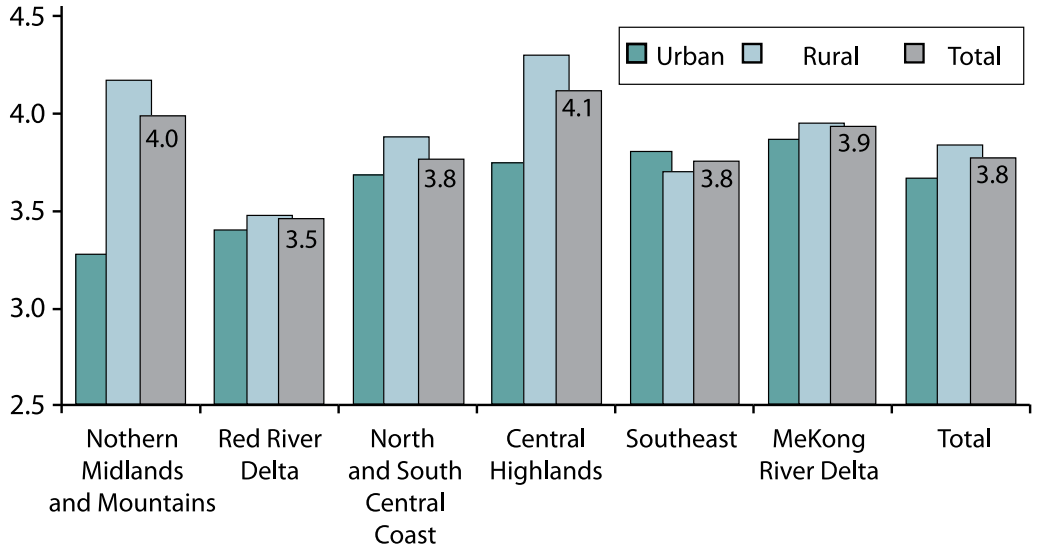
The population in developed countries usually has low fertility, a high proportion of unmarried persons and a preponderance of nuclear families. Therefore, household[6] size tends to decrease together with the process of economic development.

Table 4.1: Mean household size in Viet Nam, 1989-2009

	Urban	Rural	Total
1989	4.80	4.83	4.82
1999	4.36	4.56	4.51
2009	3.66	3.84	3.78

In Viet Nam, the results from the three most recent Censuses reveal that[7], average household size has dramatically declined, from 4.82 persons in 1989 to 4.51 in 1999 and 3.78 in 2009 (Table 4.1). In 1989, there was not much difference in household size between rural and urban areas. However, the rate of decline in urban areas has been more rapid, so by 2009, the average household size was 3.66 in urban areas and 3.84 in rural areas.

Figure 4.1: Household size by region in Viet Nam, 2009



6 The concept of "Household", in the Population Census/ Survey, consists of a person or group of persons who eat and live together. This concept may not be identical with the concept of "family" in other research.

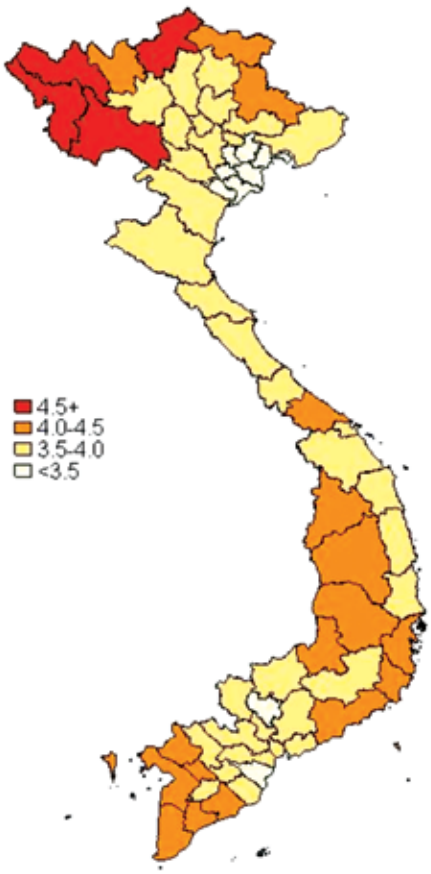
7 In this chapter, only results from 1989 do not include institutional households.

In regional comparisons, it can be seen that areas of lower economic development tend to have larger household size. In particular, in 2009, the average household size in the Northern Midlands and Mountains and the Central Highlands (two areas with the lowest living standards) were 4.0 and 4.1 respectively, as compared with the average of the whole country at 3.78 persons (Figure 4.1). However, the difference among the other regions does not strictly follow this rule, for example, the levels of economic development of the Southeast and the North and South Central Coastal differ yet they have the same average household size at 3.8 persons.

It is worth noting that the gap in average household size between the rural and urban areas of the Northern Midlands and Mountains and the Central Highlands is the largest, and considerably larger than in the four remaining regions. In particular, average household size in urban areas of the Northern Midlands and Mountains was only 3.3 persons, lower than in urban areas in all other regions. Only the Southeast region has higher average household size in urban than in rural areas, while the five remaining regions all have lower average household size in urban rather than in rural areas. This illustrates that the average household size does not only depend on economic development but also a great number of other elements, such as cultural factors, housing conditions, in-migration, or age-sex structure. It is likely that the high average household size of the Southeast is due to the fact that many people live in rental housing or boarding houses, while in the 2009 Census, all people living together in a boarding house room or apartment are identified as one household.

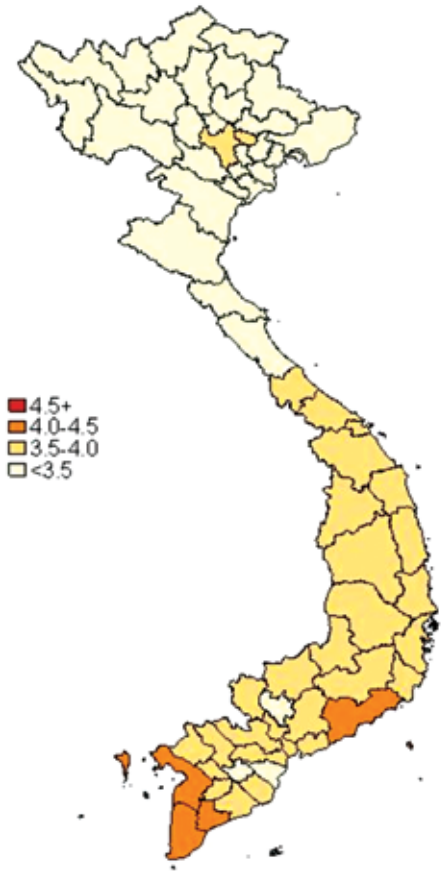
Figure 4.2: Map of household size by province in Viet Nam, 2009

Household size in Vietnam, 2009



Source: Vietnam Population & Housing Census, GSO, 2000

Household Size in Urban Vietnam, 2009



Source: Vietnam Population & Housing Census, GSO, 2000

According to the map in Figure 4.2 provinces with low population density and development tend to have larger household size (especially in the north-western provinces of the Northern Uplands region). The four provinces with the largest average household size in the map (over 4.5) include Ha Giang, Lai Chau, Dien Bien and Son La. Meanwhile, if we compare only urban areas, there is a difference between the northern provinces (from Quang Binh on north) and the southern provinces. Indeed, most of the urban areas of the northern provinces have an average household size under 3.5 persons, while most of the urban areas of the southern provinces have an average household size of 3.5 persons or higher. The urban areas in Ha Noi and Bac Ninh are the only two urban areas in the North with average household size of over 3.5. In contrast, urban areas in Binh Duong, Ben Tre and Vinh Long are the only three urban areas in the south with average household size under 3.5.

Table 4.2: Distribution of household size in Viet Nam, 2009

(%)	Northern Midlands and Mountains	Red River Delta	Central Coast	North and South Central Highlands	Southeast	Mekong River Delta	Overall
Urban							
1 person	9.9	8.6	8.0	7.7	7.6	7.6	8.1
2 persons	20.4	18.8	16.0	14.4	16.5	13.6	16.7
3 persons	27.3	24.9	22.5	22.0	22.9	23.4	23.7
4 persons	26.6	29.3	27.5	28.9	25.7	26.6	27.2
5+ persons	15.8	18.4	26.2	27.0	27.3	28.8	24.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Rural							
1 person	4.3	9.3	7.5	4.3	7.8	5.4	6.9
2 persons	10.6	17.8	13.6	9.7	16.4	11.1	13.8
3 persons	19.4	21.0	18.9	18.6	22.8	22.5	20.6
4 persons	30.5	30.2	27.3	27.6	26.5	29.8	28.9
5+ persons	35.2	21.7	32.7	39.8	26.5	31.2	29.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total							
1 person	5.4	9.1	7.6	5.3	7.7	5.9	7.3
2 persons	12.6	18.1	14.2	11.2	16.5	11.6	14.7
3 persons	20.9	22.1	19.8	19.7	22.9	22.7	21.6
4 persons	29.8	29.9	27.3	28.0	26.0	29.0	28.4
5+ persons	31.4	20.8	31.1	35.8	26.9	30.8	28.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 4.2 presents the distribution of household size by urban/rural residence and six regions in Viet Nam in 2009. In general, in all six regions, households with 1, 2 or 3 persons in urban areas account for a higher share than in rural areas. The only two exceptions are in the Red River Delta and the Southeast where one-person households in rural areas account for a higher share than in urban areas.

The figure also shows that in present day Viet Nam, 4-person households are the most common model in almost all groups of the population presented in Table 4.2, accounting for from 26.6% to 29.3% of the total in urban areas, and from 26.5% to 30.5% in rural areas. The exception is that, the most common household size in urban areas of the Northern Midlands and Mountains is 3 persons (27.3%), which is only slightly higher than the percentage of 4-person households (26.6%).

One-person households are a considerable concern in relation to developing social security policies, especially for those who are above working ages. In 2009, for both urban and rural areas, nationally one-member households accounted for 7.3% of all households, with the highest proportion in the Red River Delta (9.1%) and the lowest in the Central Highlands (5.3%) and the Northern Midlands and Mountains (5.4%). Table 4.3 shows that the proportion of one-member households in Viet Nam has decreased from 5% in 1989 to 4.4% in 1999, but then increased to 7.3% in 2009. In 1989, the proportion of one-person households in rural areas was higher than in urban areas. After that, the proportion of one-person households in urban areas increased more quickly and exceeded the proportion in rural areas in 2009 (8.1% in urban and 6.9% in rural areas). However, the proportion of one-member households in older ages (age 65 and older) in rural areas tends to be higher than in urban areas. From 1999 to 2009, the proportion of one-person households in older ages has increased 1.5 times: from 1.8% to 2.6%.

Table 4.3: Proportion of one-person households in Viet Nam, 1989- 2009

Year	1989	1999	2009
% of one-person households			
Urban	4.6	4.7	8.1
Rural	5.1	4.2	6.9
Total	5.0	4.4	7.3
% of one-person elderly households (65+)			
Urban	1.1	1.0	1.6
Rural	2.6	2.0	3.1
Total	2.3	1.8	2.6

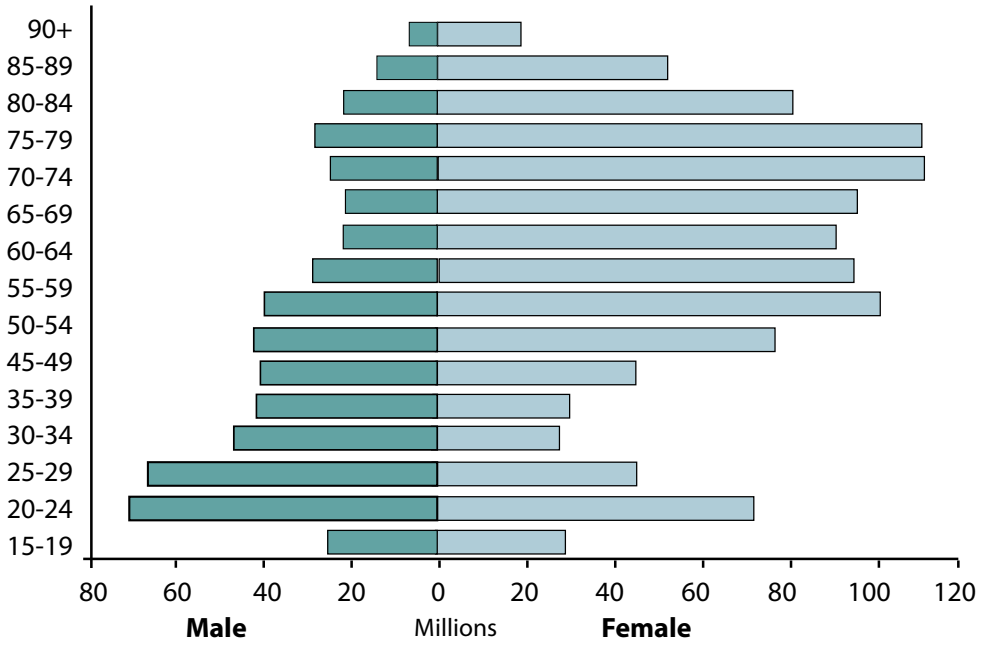
Table 4.4 indicates that most people living alone are females. Perhaps the main reason is that females have a higher proportion never married and a higher life expectancy than males. This proportion in urban areas is remarkably lower than in rural areas. However, among people living in one-person households, the proportion female has decreased from 72.9% in 1989 to 67% in 2009.

Table 4.4: Distribution of sex of one-person households in Viet Nam, 1989, 1999 and 2009

	1989			1999			2009		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Male	41.8	23.9	27.1	45.2	26.5	31.3	40.3	29.3	33.0
Female	58.2	76.1	72.9	54.8	73.5	68.7	59.7	70.8	67.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The population pyramid of people living in one-person households in 2009 is presented in Figure 4.3. At the ages under 25 years, the numbers of males and females are nearly equal. However, at the ages from 25 to under 40, the numbers of males and females living in one-person households declines (mainly due to marriage) but the number of females declines faster and becomes notably lower than the number of males. The main reason is that women usually get married earlier than males, and unmarried females are more likely to live with their parents or relatives than unmarried men. After that, the number of females living alone increases quickly and exceeds the numbers of males starting with the age group 40–44, with the bands for female one-member households becoming much larger than the bands for male one-member households in the older age groups. This situation can be attributed primarily to the following factors. First, the unmarried proportion of women in this age is higher than for men because of the low sex ratio; the death rate of men is higher than for women; and the probability of remarriage among females is lower than for males. Thus social problems resulting from middle-aged and aged people living alone in Viet Nam are much more likely to be related to females.

Figure 4.3: Population pyramid of people living in one-person households in Viet Nam in 2009



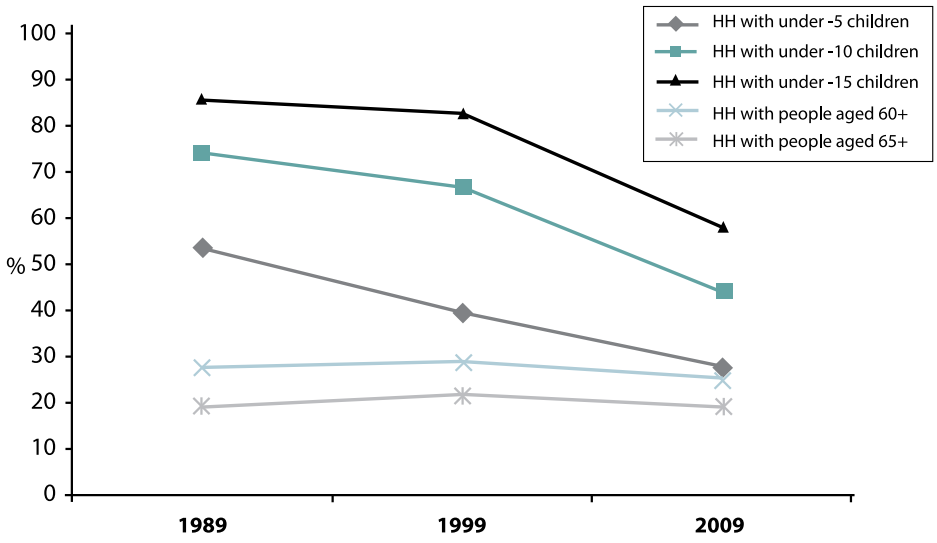
4.2 AGE STRUCTURE AND DEPENDENCY RATIO IN HOUSEHOLDS

The increase in the proportion of working-age people in households is advantageous for households to improve their economic situation and to increase average income per capita. In contrast, when the proportion of dependent people (outside of the working age groups) increases, the burden on households as well as on social security programs generally increases.

The analysis in Chapter 3 indicated that, in the last decade, the age structure of the Viet Namese population has changed considerably towards a more advantageous situation for national economic development and it is expected that there will be similar changes in the age structure of households

According to the results presented in Figure 4.4, as fertility dropped in the last two decades, the proportion of households with children under age 15 fell dramatically from 53.9% in 1989 to 39.5% in 1999 and 27.5% in 2009. The proportion of households with children under 5 or 10 years of age has tended to face a similar decline. Meanwhile, there are only negligible changes in the proportion of households with people aged over 60 or over 65. This is not inconsistent with the aging of the Viet Namese population because the proportion of both aged and working-age population have both increased over time. As a result, the proportion of households with aged people has not changed much, yet the proportion of households with dependent age members has declined rapidly but not as rapidly as the proportion of households with children.

Figure 4.4: Proportions of households with dependents in Viet Nam from 1989 to 2009



In the last two decades, the proportion of households without dependent age members (<15 and 65+) has strongly increased in both rural and urban areas (Table 4.5). In 1989, only 14.3% of households were without dependent age members but in 2009, this figure has more than doubled reaching 27.5%. In addition, the proportion of households with all members in dependent ages has also increased, to 3.2% in urban areas, 5.7% in rural areas and 4.9% for the whole country in 2009. This is of great importance in further development of social welfare policies and programs, especially in rural areas. In contrast, during the same period, the proportion of households with at least 50% of

members in dependent ages has remarkably decreased. In 1989, the proportion of households with 50% or more of its members in dependent ages was 53.8%, but by 2009, the proportion had fallen to 33.5%. The pace of decline is similar between rural and urban areas.

Table 4.5: Dependent age structure of household membership in Viet Nam, 1989, 1999 and 2009

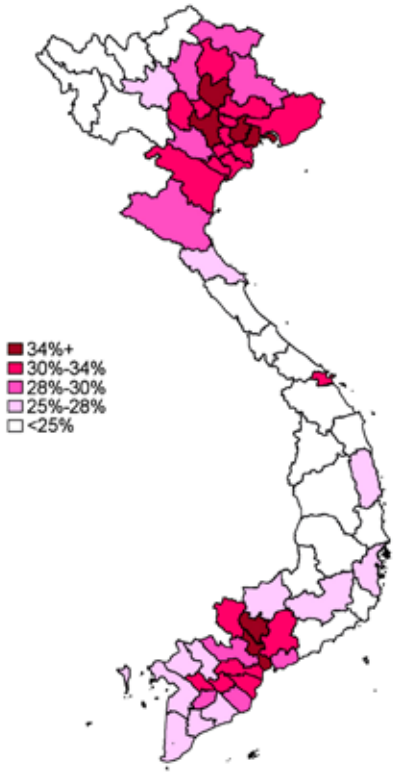
	1989	1999	2009
No dependent age members			
Urban	17.1	23.8	36.6
Rural	13.6	14.6	28.2
Total	14.3	16.8	30.8
100% in dependent ages			
Urban	2.3	2.2	3.2
Rural	4.2	3.9	5.7
Total	3.9	3.5	4.9
At least 50% in dependent ages			
Urban	44.1	34.7	27.2
Rural	56.2	48.7	36.3
Total	53.8	45.4	33.5

Regarding the distribution by provinces, the provinces in the Red River Delta, the Southeast, and several neighbouring provinces and Da Nang have high proportions (over 28%) of households with no dependent-age members, in other words with only working-age members. If having only working-age members is considered advantageous, this advantage is disproportionately prevalent in places that already have high levels of economic development, rather than places with lower level of economic developments such as the Northernains Midlands and Mount and Central Highlands. Six provinces with the highest proportion of households with only working-age members (over 34%) are Thai Nguyen, Hanoi, Hai Duong, Hai Phong, Binh Duong and Ho Chi Minh City.

Provinces with relatively high rates (over 5%) of household with only dependent age members (aged under 15 and over 64) are mainly concentrated in coastal areas from Quang Ninh to Phu Yen. Nine provinces, including Hai Duong, Hung Yen, Ha Nam, Thai Binh, Nam Dinh, Ninh Binh, Ha Tinh, Quang Nam and Quang Ngai, report the highest rates (over 8%) of households with only non-working-age members. There is only one province, Hai Duong, which has both a high proportion of households with no dependents and a high proportion with only dependent age members. Therefore, social security policies and programs in these provinces need to focus on the elderly and children, especially people in one-member households who have no one to take care of them.

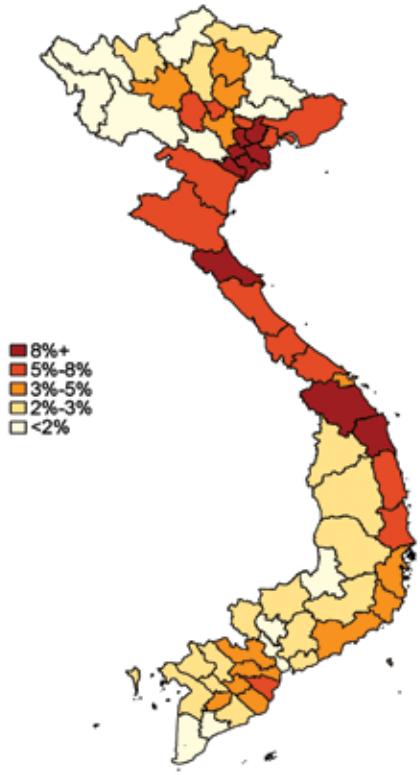
Figure 4.5: Proportions of households without dependent age members and without working-age members in Viet Nam in 2009

Households without dependent persons in Vietnam, 2009



Source: Vietnam Population & Housing Census, GSO, 2000

Households without 15-64 persons in Vietnam, 2009



Source: Vietnam Population & Housing Census, GSO, 2000

4.3 CHARACTERISTICS OF HOUSEHOLD HEADS

Examining the characteristics of household headship may help to evaluate the changing dynamic of family size and structure (United Nations, 1973). In this section, the analysis focuses on three characteristics, including sex, mean age, and marital status of household heads.

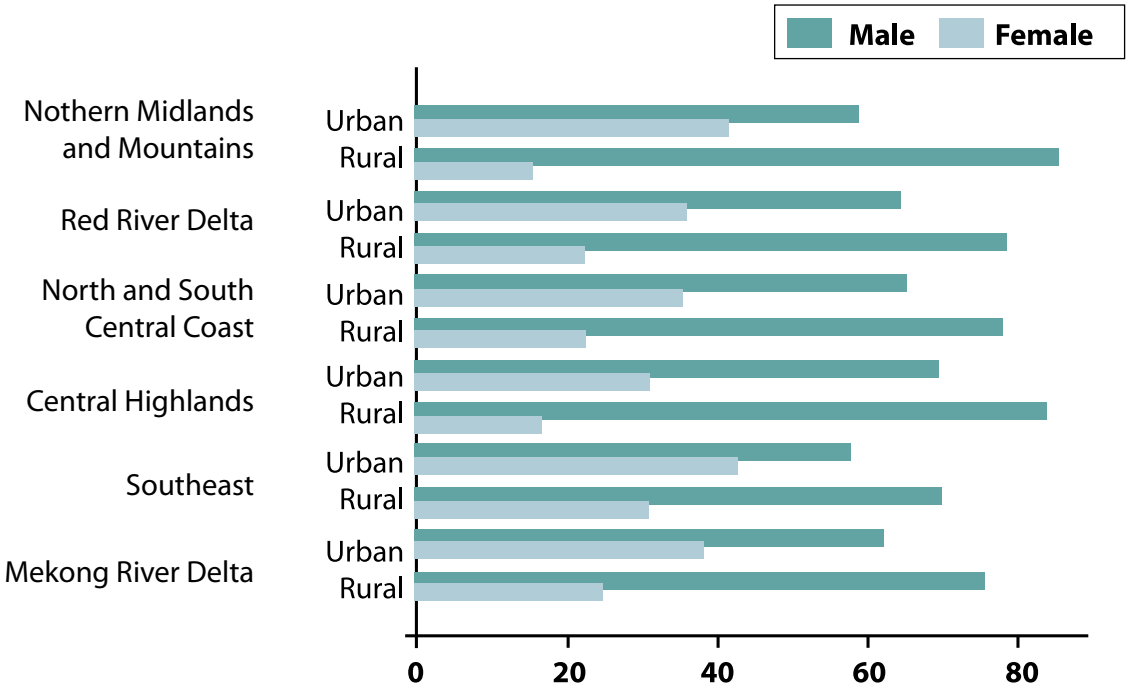
4.3.1 Sex of household head

The sex of household heads partly reflects gender status in family relations. Table 4.6 illustrates that in both rural and urban areas over the last two decades in Viet Nam, the majority of households are headed by males and this tendency appears to be increasing compared to 1989. In urban areas, there is slightly more balance in the sex of household head, but in rural areas male headed households predominate. This situation also exists in all six regions (Figure 4.6). For instance, in the Red River Delta, female household heads account only for 35.7% of all households in urban areas and 22.0% in rural areas.

Table 4.6: Sex of household head in Viet Nam, 1989-2009

%	1989			1999			2009		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Male	51.8	72.1	68.1	60.8	79.2	74.8	61.9	77.7	72.9
Female	48.2	27.9	31.9	39.2	20.8	25.2	38.1	22.3	27.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Figure 4.6: Sex of household heads by geographical regions in Viet Nam, 2009



4.3.2 Age of household head

According to the projection in Table 4.7, from 1989 to 1999, the mean age of male household heads slightly decreased (from 43.7 to 43.3) and the mean age of female household heads increased by about 2.5 years (from 47.6 to 50.1). Because most household heads are males, the mean age of all household heads (both male and female) remains around 45.0. Between 1999 and 2009, the mean age of household heads increases by 1.6 years (from 45.0 to 46.6) due to the increase in mean age of male heads of household by about 2 years while the mean age of female heads of household was almost unchanged.

In all three Censuses, the difference between rural and urban areas in mean age of household head is mostly seen among female household heads. The mean age of female household heads in urban areas tends to be about 4 years lower than in rural areas. The reason may be that old and widowed women in urban areas are more likely than women in the rural areas to hand over the position of household head to their children. However, it is necessary to have more detailed data to prove this hypothesis.

Table 4.7: Mean age of household head in Viet Nam, 1989-2009

	1989			1999			2009		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Male	45.5	43.4	43.7	44.3	43.0	43.3	45.1	45.2	45.2
Female	45.1	48.7	47.6	47.3	51.7	50.1	47.3	52.6	50.3
Total	45.3	44.9	45.0	45.5	44.8	45.0	46.0	46.8	46.6

4.3.3 Marital status of household head

The second point to note is that the proportion of household heads who have never married has increased over the last two decades (from 2.6% in 1989 to 5.7% in 2009), especially in urban areas and among females. In particular, among female household heads, the proportion never married rose from 5% in 1989 to 7.3% in 1999 and to 12.2% in 2009. The corresponding proportions in urban areas are 5.2%, 8.4% and 15.5%. The main reason for this is that the proportion of women delaying marriage or never getting married has increased over time. In addition, the process of modernization and industrialization is likely to have helped women to become more independent and self-sufficient, allowing them to live away from their parents even when they are still unmarried. Migration and the participation of young women in non-agricultural labour may also contribute to the phenomena.

Table 4.8 compares the marital status of household heads in 1989, 1999 and 2009. It is worth noting that most male heads of household are married (from 88.6% to 96%) while the proportion of female heads of household who are married is significantly lower, especially in rural areas (41.9% in 1989, 31.9% in 1999 and 32.5% in 2009). The main reason is that the proportion widowed among females is always higher than among males (see Chapter 5). This is illustrated clearly through the fact that the proportion widowed among female household heads is clearly higher than among male household heads. In particular, the proportion widowed among female heads in rural areas is almost two times higher than in urban areas and this is the main reason explaining why mean age of female household heads in urban areas tends to be lower than in rural areas as presented in section 4.3.2

The second point to note is that the proportion of household heads who have never married has increased over the last two decades (from 2.6% in 1989 to 5.7% in 2009), especially in urban areas and among females. In particular, among female household heads, the proportion never married rose from 5% in 1989 to 7.3% in 1999 and to 12.2% in 2009. The corresponding proportions in urban areas are 5.2%, 8.4% and 15.5%. The main reason for this is that the proportion of women delaying marriage or never getting married has increased over time. In addition, the process of modernization and industrialization is likely to have helped women to become more independent

and self-sufficient, allowing them to live away from their parents even when they are still unmarried. Migration and the participation of young women in non-agricultural labour may also contribute to the phenomena.

Table 4.8: Marital status of household heads in Viet Nam, 1989-2009

	1989			1999			2009		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Male									
Single	2.8	1.3	1.5	4.6	1.1	1.8	7.5	1.8	3.3
Married	92.4	94.9	94.5	91.4	95.9	95.0	88.6	95.0	93.3
Widowed	3.7	3.3	3.4	2.9	2.4	2.5	2.7	2.5	2.5
Separated/divorced	1.1	0.5	0.6	1.1	0.6	0.7	1.2	0.8	0.9
Female									
Single	5.2	4.9	5.0	8.4	6.7	7.3	15.5	9.7	12.2
Married	64.4	41.9	48.6	56.1	31.9	40.9	50.7	32.5	40.3
Widowed	25.7	47.3	40.9	29.5	53.4	44.5	27.5	50.5	40.6
Separated/divorced	4.7	5.9	5.5	6.0	8.0	7.3	6.4	7.4	7.0
Total									
Single	4.0	2.3	2.6	6.1	2.3	3.2	10.5	3.5	5.7
Married	78.9	80.1	79.9	77.6	82.6	81.4	74.2	81.1	79.0
Widowed	14.3	15.6	15.3	13.3	13.0	13.1	12.1	13.1	12.8
Separated/divorced	2.8	2.0	2.2	3.0	2.1	2.3	3.2	2.2	2.5

4.4 CRUDE HEADSHIP RATE AND RESULTS FROM DECOMPOSITION

The crude headship rate is the ratio of the total households to total population. It reflects the average size of the household as the larger the crude headship rate, the smaller the average size of the household, and vice versa. The question is why the average size of household changes over time and varies across population groups. Many studies have pointed out that, the decrease in household size accompanies the process of family nuclearization when the society is transformed from a traditional to a modern one. Decrease in household size clearly occurs as a result of declines in fertility, in the other words, couples have fewer children, so the proportion of children in the household as well as in the population decreases. Adult individuals tend to live separately from their parents, especially when they get married. The sooner and the more common this situation, the smaller the household size (see Bongaarts et al, 1987).

In order to compare the impacts of the above factors on household size, there are different methods of decomposition. In this section, a decomposition method modified from Dandekar and Unde (1967) is applied. In this method, the crude headship rate is decomposed into five components, including indices reflecting nuclear family share of households, interrupted share of female marriages, marriage ratio among adult women, adult sex ratio, and adult proportion of the total population.

$$\frac{H}{P} = \frac{H}{FE} \times \frac{FE}{FM} \times \frac{FM}{AF} \times \frac{AF}{A} \times \frac{A}{P}$$

Of which:

H total households

P total population

FE ever-married women aged 15+

FM married women aged 15+

AF women aged 15+

A population aged 15+

In this formula, H/P is the crude headship rate. H/FE reflects the extent of family nuclearization (the higher the proportion of nuclear families, the larger the value of H/P[8]). FE/FM reflects the extent to which marriage is interrupted due to widowhood, separation, or divorce. FM/AF is equivalent to the extent of marriage (if all women aged 15 or older are married, the ratio is equal to 1). AF/A reflects the sex ratio of population aged 15 or older (the ratio is equal to 0.5 if the numbers of males and females are equal). A/P reflects the age structure of population (the higher the proportion of children under age 15 in the population the smaller the ratio). Note that these indices only reflect these components, but they are not necessarily formal rates of these five components

Table 4.9 Decomposition of the crude headship rate, 1989-2009

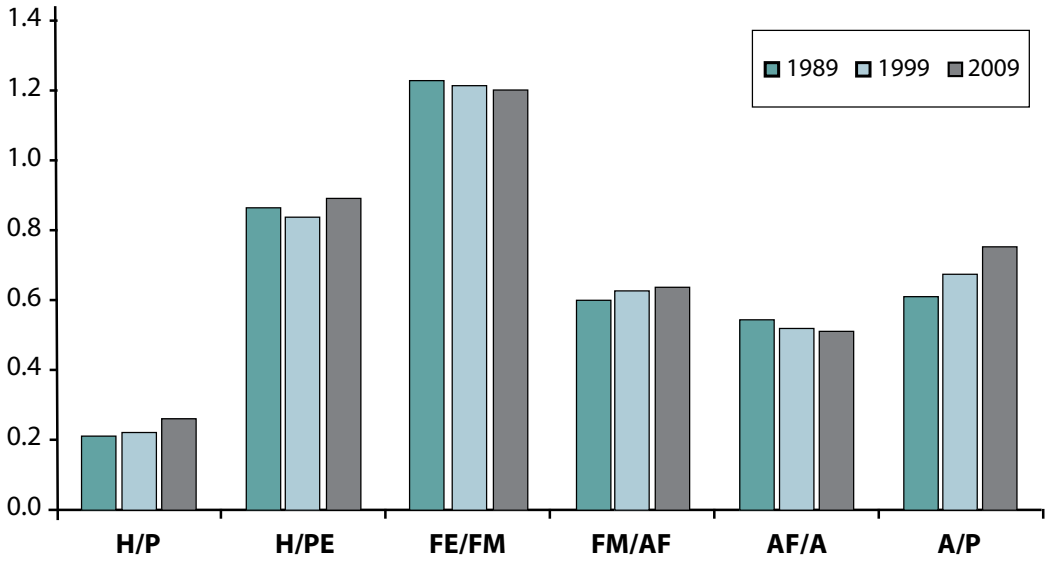
	H/P	H/FE	FE/FM	FM/AF	AF/A	A/P
			1989			
Urban	0.20	0.84	1.21	0.56	0.54	0.67
Rural	0.21	0.86	1.23	0.61	0.54	0.59
Total	0.21	0.86	1.22	0.60	0.54	0.61
			1999			
Urban	0.22	0.83	1.21	0.58	0.52	0.72
Rural	0.22	0.85	1.21	0.63	0.52	0.65
Total	0.22	0.84	1.21	0.62	0.52	0.67
			2009			
Urban	0.27	0.93	1.20	0.60	0.52	0.78
Rural	0.26	0.88	1.20	0.66	0.51	0.74
Total	0.26	0.89	1.20	0.64	0.51	0.75

8 Each nuclear family has a maximum of one ever-married woman. If all households are nuclear families (full), the ratio H/FE equals 1 and if all families report two ever-married women, the ratio H/FE equal 0.5. The existence of extended families with 1 or zero ever-married women would bias the ratio. However, hypothecally, these cases are rare and error is small.

The crude headship rate in 1989, 1999 and 2009 in Viet Nam and results of the decomposition into five components are presented in Table 4.9 The table also includes separate estimates for rural and urban areas. From 1999 to 2009, the crude headship rate increased more quickly than in the period from 1989 to 1999. This is consistent with results in Table 4.1, which indicated that mean household size in Viet Nam declined slightly in the 1990s but more rapidly over the last decade.

The results show that the crude headship rate has increased in the last two decades from 0.21 to 0.26 mostly because of the decrease in proportion of children aged under 15 and a decline in fertility in Viet Nam. If one by one, we kept each of these indices at its 1989 level, the crude headship rate in 2009 would be in turn 0.25, 0.27, 0.25, 0.28 and 0.21 respectively. For the period from 1999 to 2009, the near universalization of the nuclear family also contributed to the increase in the crude headship rate, or in other words, the decrease in average household size (Table 4.9 and Figure 4.7).

Figure 4.7: Comparison of five components of the crude headship rate in Viet Nam, 1989-2009



Changes in the interrupted marriage index and the sex ratio contributed negatively while changes in the marriage ratio contributed positively to changes in the crude headship rate. However, the impacts of these three indices on reducing average household size in the last two decades in Viet Nam were small.

4.5 SUMMARY AND REMARKS

Similar to the population age and sex structure, household structure in Viet Nam has also changed significantly over the last three decades during the demographic transition. Average household size decreased quickly, from 4.82 persons in 1989 to 4.51 in 1999 and 3.78 in 2009. Regions and provinces with low population density and low economic development still tend to have larger household size. The average size of rural households is only slightly larger than the size of urban households (3.8 versus 3.7 respectively). Household size of four members is currently the most common type of household in Viet Nam (28.4% of the total). The analysis also indicates that, average household

size has decreased over the last two decades, mostly because of the substantial decrease in the proportion of children under age 15 in the total population.

The proportion of households with only one person in Viet Nam has increased from 4.4% in 1999 to 7.3% in 2009. Among these, the proportion of one-person aged households (age 65+) has increased 1.5 times: from 1.8% to 2.6%. In 2009, the proportion of one-person households varied from the highest in the Red River Delta to the lowest in the Central Highlands and Northern Mountains. The one-person household proportion in urban areas is significantly higher than in rural areas (8.1% versus 6.9%). Most people living in one-person households are females, mainly because starting with age 45, the number of female one-person households is substantially greater than the number of male one-person households. However, the proportion of one-person households headed by females has decreased from 72.9% in 1989 to 67% in 2009.

During the last two decades, because of the falling fertility rate, the proportion of households with children under age 15 has declined rapidly, from 85.9% in 1989 to 58.0% in 2009. Meanwhile, the proportion of households with aged people has not changed much. The proportion of households without dependent-age people has more than doubled, from 14.3% in 1989 to 30.8% in 2009. During the same time, the proportion of households with at least half the members in dependent ages has decreased dramatically from 53.8% to 33.5%.

In 2009, most household heads in Viet Nam are still male and this tendency seems to be increasing compared to the level in 1989 (from 68.1% to 72.9%). During this period, the mean age of male household heads increased about two years while the mean age of female household heads has remained almost unchanged. Most male household heads are married (93.3%) while the proportion of female household heads who are married is much lower (40.3%), especially in rural areas (32.5%). The proportion never married among all household heads has remarkably increased during the last two decades (from 2.6% to 5.7%), especially among female headed households in urban areas.

In short, the general trends of households in Viet Nam is towards decreasing size, an increase on one-person households, and a decline in the dependency ratio. These are typical characteristics of households in population completing the demographic transition. However, Viet Namese households still retain the traditional characteristic of a high prevalence of male headship. These characteristics are not the uniform across regions due to different cultures and living standards.

CHAPTER 5: **MARITAL STATUS**

5.1 INTRODUCTION

Marriage is a type of union of the sexes, which is relatively stable and is recognized by social custom and/or by the law (Endruweil & Trommsdorff 2002). Marriage is very important as families, essential ethical and moral units of most societies, are almost all formed from marriage. The major types of marital status include never married (or single), cohabiting, married, widowed, separated and divorced.

Marriage is closely relevant to fertility, especially in a society like Viet Nam where births outside marriage are still uncommon. Early marriage for women leads to higher probability of motherhood and reduced interval between generations, thus leading to increased fertility. Therefore, analyses of marital status helps to provide more insights into the dynamics of fertility in the population. Beside early marriage, other uncommon cases of marital status, such as divorce, widowhood, delayed marriage or never marriage, are a concern of researchers, policy makers and implementers.

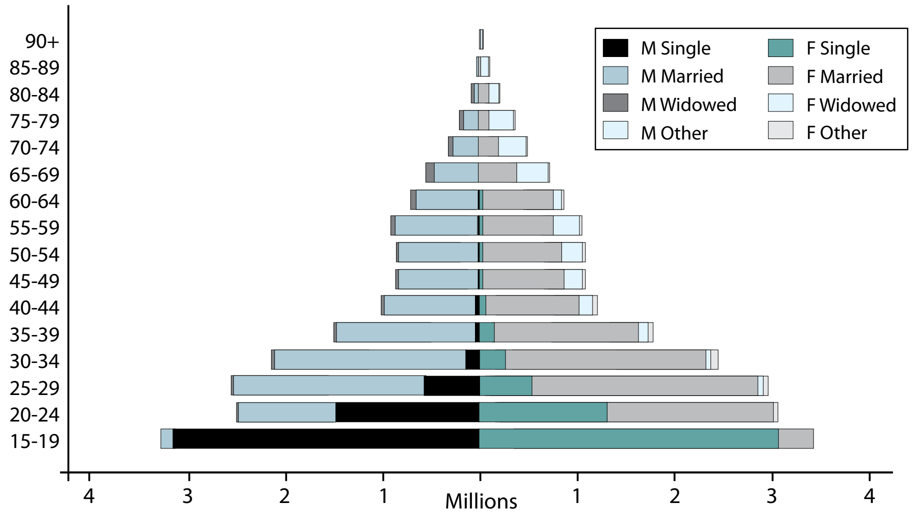
In Viet Nam, there are a number of studies on marriage, many of which indicate that marital status, and families in Viet Nam in general, have significantly changed along with the process of socioeconomic development. As a result, recent analyses of Viet Namese marital status, especially analysis based on Census data, will provide up-to-date and useful information for researchers and policy makers.

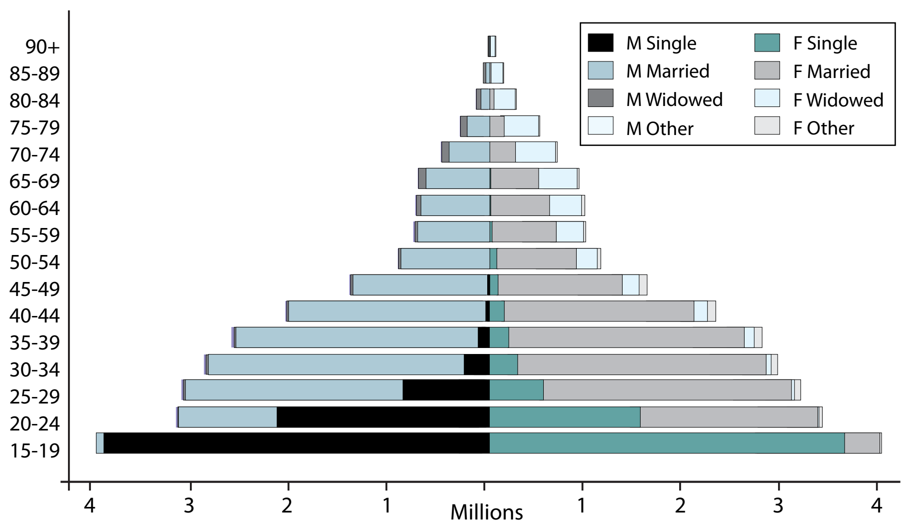
Marriage is a very broad subject. However, in the scope of this monograph, the analysis only focuses on the structure of marital status using information available from the Census sample surveys in 1989, 1999 and especially in 2009. Marital status in this chapter is classified into four groups: single, married, widowed, and divorced/separated and focuses on the population aged 15 and older. As marital status is identified using information reported by interviewed household members, it is not necessarily the legal marital according to law. As there is no information on the timing of changes in marital status, this monograph examines only the distributions but not rates of for different marital statuses.

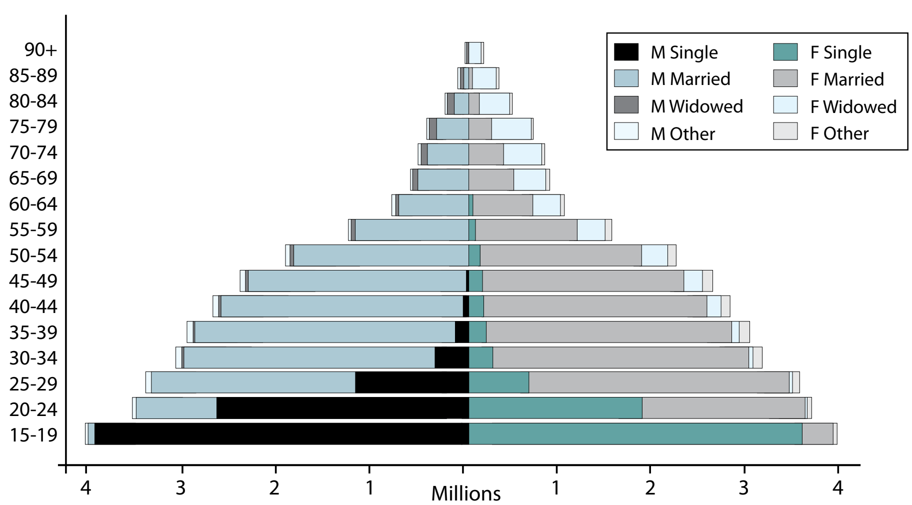
5.2 DISTRIBUTION OF MARITAL STATUS

Figure 5.1 presents the age-sex pyramids of marital status in Viet Nam for 1989, 1999 and 2009. Basically, the three pyramids indicate the same pattern: females usually get married earlier than males. After the age of 50, most of the Viet Namese population has ever been married, and the proportion of females being widowed, divorced or separated is higher than the proportion of males in almost all age groups.

Figure 5.1: Population pyramid by marital status in Viet Nam, 1989-2009

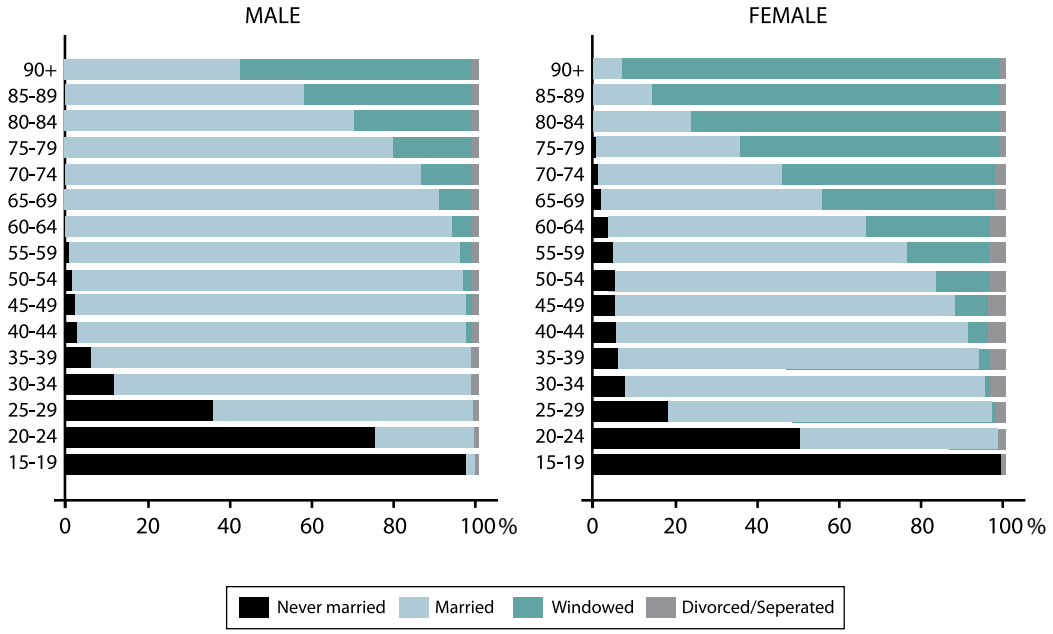






However, from 1989 to 1999 and 2009, the proportion never-married in the population aged 35–54 has increased considerably. This means that people are tending to delay marriage so and age at first marriage has increased over time. The proportion of never-married women aged 50 and older was small in 1989 but much higher in 2009. From analysis of these trends together with Figure 5.2, it can be seen that the widowed proportion of women increases rapidly with age, and increases somewhat across time (across the three Censuses). In 2009, more than 50% of Viet Namese women aged over 60 lived outside of marriage, while among males this situation only occurs starting at age 85.

Figure 5.2 Distribution of marital status by age and sex in Viet Nam. 2009



The following analysis provide more details about the distribution of marital status by age group in Viet Nam in 2009.

- ***The proportion of population never married, 2009***

In a comparison of the 6 regions in 2009, it can be seen that the proportion never married across the different age groups is highest in the Southeast and lowest in the Northern Uplands. The proportion never married in the Central Highlands is quite low, and only higher than in the Northern Uplands. All other three regions have similar proportions never married in the population. The most noticeable difference is in the Mekong River Delta where the proportion never married is lower than in the Red River Delta and in the North and South Central Coast for the age group 20–24 but higher starting at age 35 (for males) and 25 (for females). This means that in comparison with the Red River Delta and the North and South Central Coast, the young population in the Mekong River Delta has a higher probability of being married but when they become older and are still single, their probability of getting married is lower.

Figure 5.3 shows that, compared to females, the proportion of never-married males is always higher in groups under 35 years of age, but equal for the ages 35–39 years, and lower starting from age 50.

The pace of the decline in the proportion never married is fastest for females aged 15–29 and for males aged 20–34. Starting with age 40, the percentage of never-married women decreases much more slowly than the percentage of never-married men, suggesting that the likelihood of getting married after the age of 40 among single females in Viet Nam is quite low. For both females and males (starting at age 15), the proportion of never-married people in urban areas is always higher than in rural areas for the same age group.

Figure 5.3: Proportion never married by age group, sex and urban/rural residence in Viet Nam, 2009

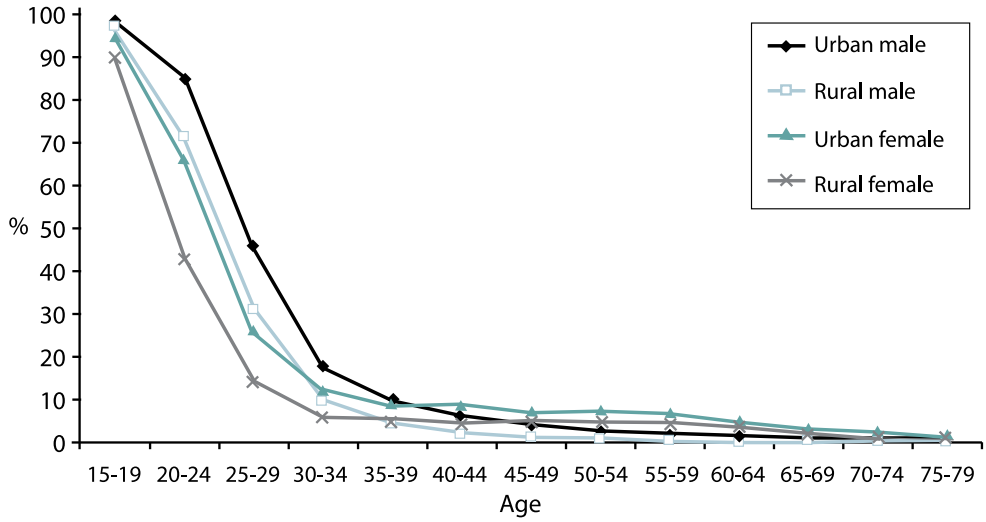


Figure 5.4: Proportion of males never married by age group and region in Viet Nam, 2009

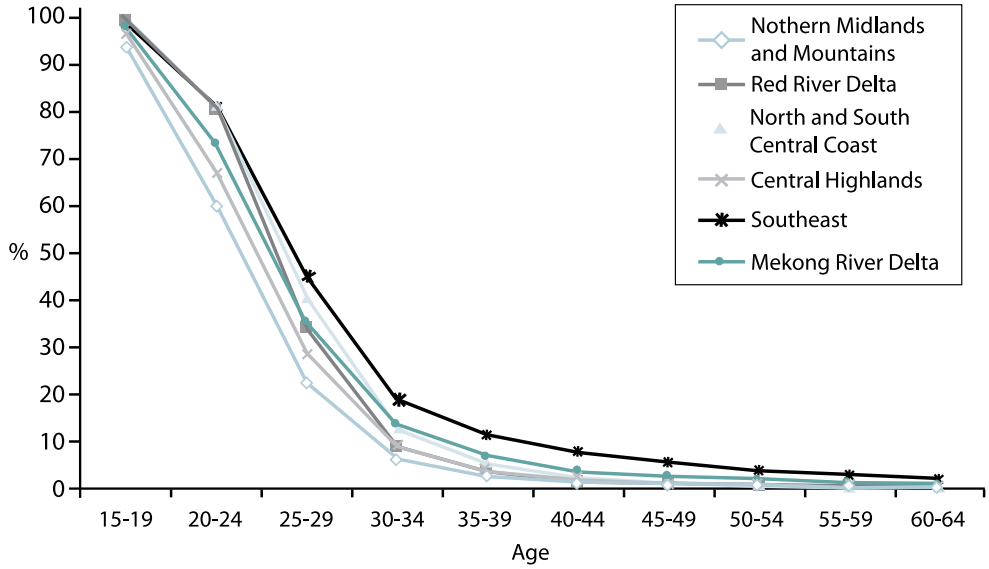


Figure 5.5: Proportion of females never married by age group and region in Viet Nam, 2009

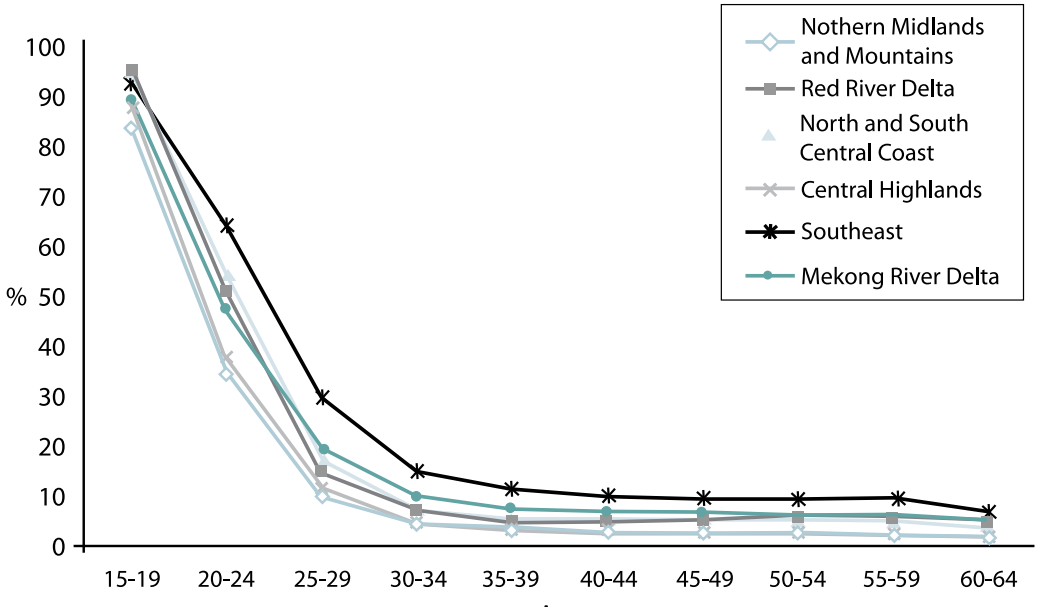
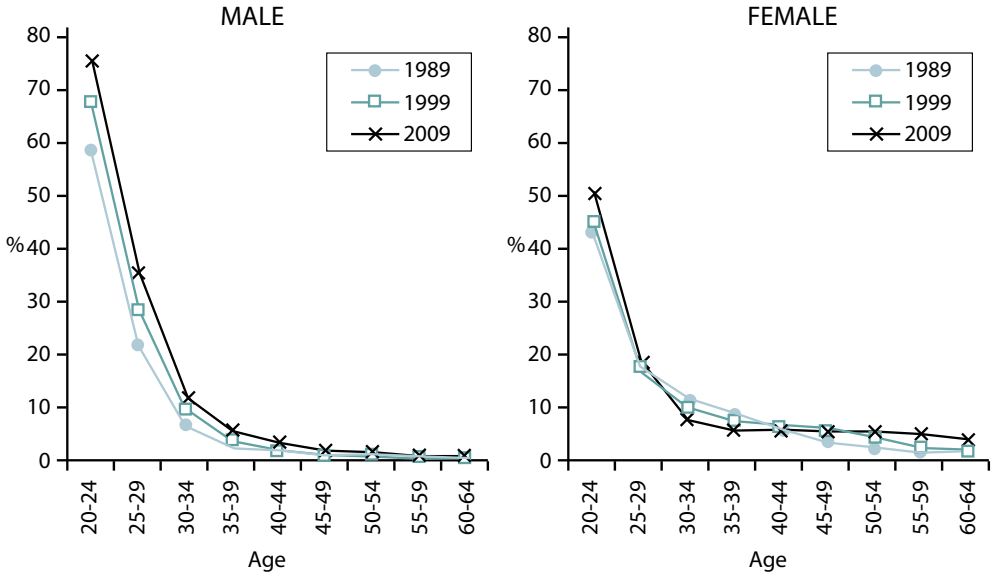


Figure 5.6: Proportion never married by age group, sex and region in Viet Nam, 1989-2009



The comparison of the proportion never married among males and females in each of three Censuses (Figure 5.6) can show more clearly the changing pattern over time as mentioned in the analysis in Figure 5.1. In order to be more focused, Figure 5.6 presents only data for the ages from 20–24 to 60–64, where significantly different proportions are exhibited between the three Censuses. In order of the 1989, 1999 and 2009 Censuses, the proportions of never-married males in all ages increased gradually, indicating an increase in the average age at first marriage among males. Regarding the female population, the change is not so simple. In the same period, the proportion of never-married

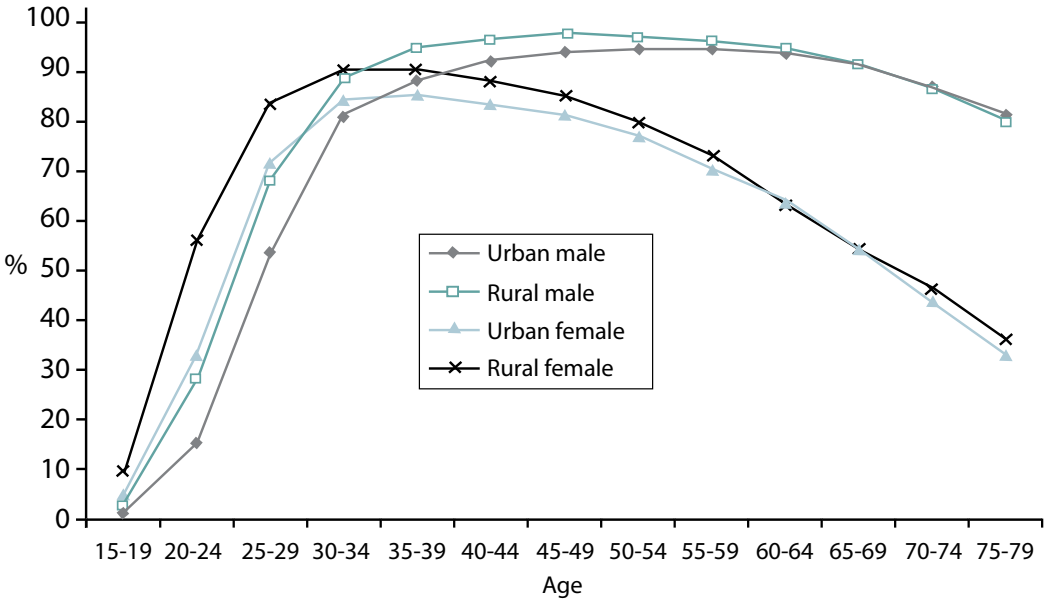
females increased clearly in the 20–24 group (from 43% up to more than 50%), but decreased in the 30–39 group, then increased considerably in the age groups of 50 and over. Thus, in comparison to women in 1999, currently women tend to get married later but have a higher possibility of being married before 40 years of age.

For women aged 50 years or older, it is hard to conclude from the figure if women at these ages have difficulty getting married compared to the past. However, it can be clearly seen that the higher proportion of never married females aged 50–59 in 2009 mainly reflects the high proportion never married for this cohort in 1989 when those women were 30-34 years old. They are women born in the 1950s and their marital status was significantly affected by the low sex ratio resulting from long periods of war.

- ***The proportion of the population currently married, 2009***

Figure 5.7 presents the proportion currently married among the population by age, sex and urban/rural areas in Viet Nam in 2009. As the divorced and widowed rates for people under age 25 is relatively low, the proportion of people currently married in this age group is basically the remainder of the part never married in the population in Figure 5.3. For females in both rural and urban areas, the percentage currently married is highest from 35–39 and then quickly falls due to widowhood, divorce or separation. For males, the proportion currently married is high (above 90%) and stable in the age from 40 to 69 because the rate of widowhood of males in these ages is noticeably lower than for women.

Figure 5.7: Proportion married by age group, sex and urban/rural residence in Viet Nam, 2009



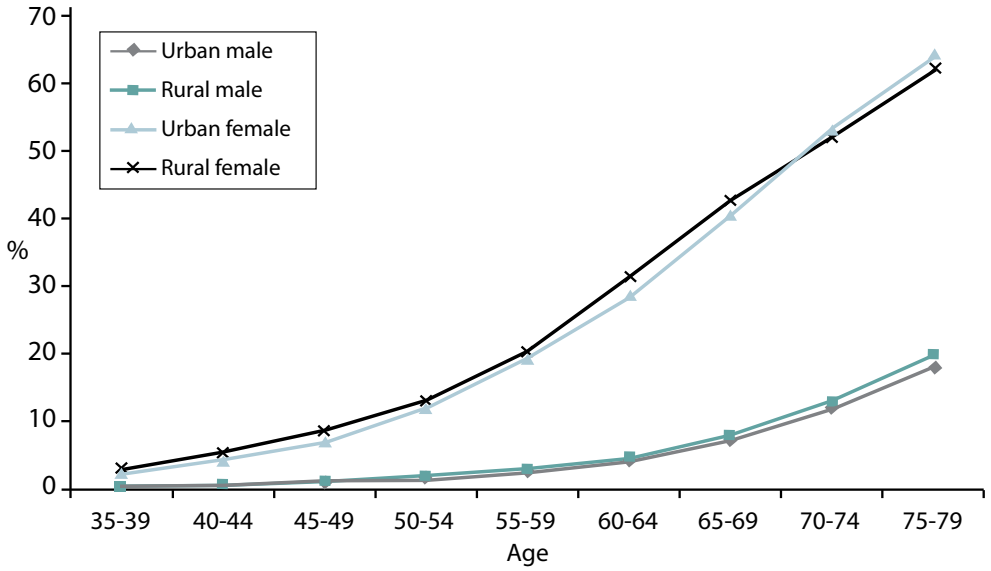
At the early ages of adulthood, the proportion married in rural areas is much higher than in urban areas. From the age of 60 and over, as the possibility of getting married and remarried in urban areas is higher than in rural areas, the difference is reduced gradually to a negligible amount. However, as these are the synthetic cohorts, not real cohorts, the difference among the age groups can be related to marital status in the past (which does not come out of the analysis relying on cross sectional data from only one Census).

• ***The proportion widowed in the population, 2009***

As the proportion widowed in the ages below 35 are quite low, they are not presented in Figure 5.8, Figure 5.9 and Figure 5.10. Data in Figure 5.2 reveals that the proportion widowed among females is much higher than among males, and increases quickly with age, especially for females. If estimated separately for rural and urban areas as in Figure 5.8 the results show that in all age groups, there is no difference in the proportion widowed between urban and rural areas for males or for females.

However, the proportion widowed in the population clearly varies across regions (Figure 5.9 and Figure 5.10), especially between the Red River Delta – with the lowest proportion widowed among males and females – and the five other regions. The question is why the proportion widowed in the population of the Red River Delta is so much lower. Logically, it could be related to several different factors. Firstly, it is likely that the mortality rates among middle aged and aged people in the Red River Delta are lower than in other regions. However even if this factor strongly influences the proportion widowed in the population, it is certainly not the only cause since the proportion widowed in the Southeast is even higher than in the Red River Delta in spite of similar low mortality rates in both regions.

Figure 5.8: The proportion widowed by age, sex and urban/rural residence in Viet Nam, 2009



A second possible explanation is that the possibility of remarriage for widowed and divorced people in the Red River Delta is higher than in other regions. A third reason is that migration flows in the Red River Delta may "naturally select" people of certain marital status, which reduces the proportion of the widowed population in this region. However, more information is needed to test these hypotheses. The North and South Central Coast has a relatively low proportion of widowed males (only higher than in the Red River Delta), but the proportion of widowed females is at a medium level in comparison with other regions.

The highest proportion widowed is in the Mekong River Delta for males (except for the age group from 70–74) and in the Central Highlands for females. Perhaps one of the reasons is the gender

differences in mortality rates (from age 35 years and over), with the highest differential in the Central Highlands and lowest in the Mekong River Delta. In addition, these differentials may also be affected by remarriage or migration as mentioned above.

Figure 5.9: Proportion widowed among males by age group and region in Viet Nam, 2009

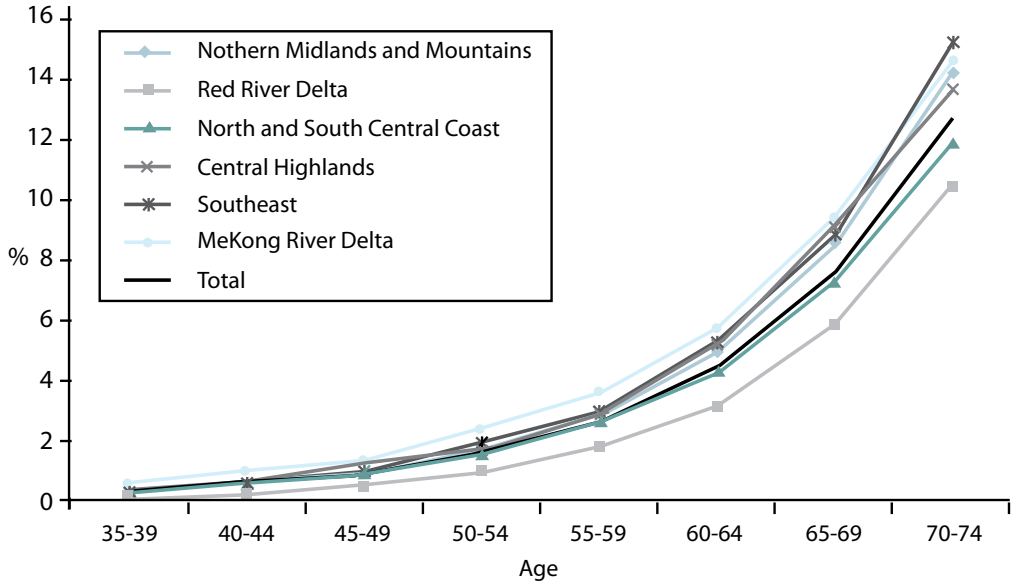
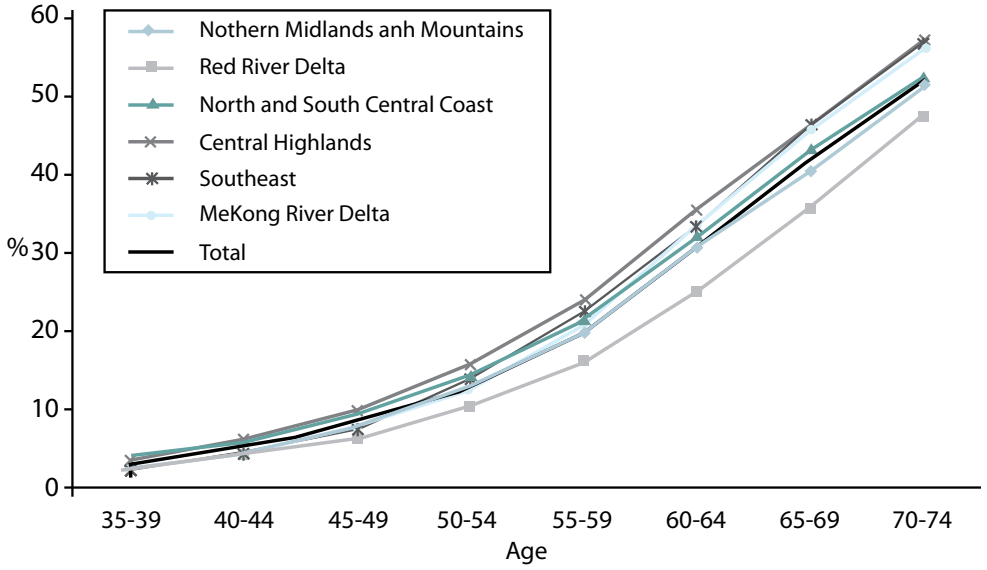


Figure 5.10: Proportion widowed among females by age group and region in Viet Nam, 2009



• Divorce/separation rates and ratios, 2009

Estimates from the 2009 Census sample presented in Table 5.1a show that, in Viet Nam, there are about 286 500 divorced/separated males and more than 658 000 divorced/separated females,

which account for 0.9% of the male population (0.6% divorced and 0.3% separated), and 2% of the female population (1.4% divorced and 0.6% separated) among people aged 15 and older. Thus, the proportion divorced or separated among females is noticeably higher than among males, in both absolute number and proportion of the population. When a couple is divorced or separated, both become divorced or separated individuals, so the numbers of divorced or separated males and females should be equal. However, as males have a higher possibility of remarriage and higher mortality rate, there exists significant differences in the absolute number and proportion divorced or separated between the two sexes.

Table 5.1a: Proportion divorce and separated by sex and age group in Viet Nam, 2009

Age	Male			Female		
	Divorced	Separated	Total	Divorced	Separated	Total
15–19	0.01	0.01	0.02	0.08	0.06	0.13
20–24	0.17	0.14	0.31	0.56	0.33	0.90
25–29	0.50	0.34	0.84	1.19	0.51	1.71
30–34	0.87	0.42	1.29	1.78	0.61	2.39
35–39	0.98	0.44	1.42	2.07	0.66	2.73
40–44	1.03	0.47	1.50	2.35	0.72	3.06
45–49	0.94	0.43	1.36	2.59	0.87	3.46
50–54	0.86	0.43	1.29	2.49	0.93	3.42
55–59	0.70	0.42	1.12	2.14	0.91	3.06
60–64	0.52	0.50	1.01	1.55	0.86	2.41
65–69	0.46	0.50	0.96	1.03	0.75	1.78
70–74	0.27	0.51	0.78	0.51	0.56	1.07
75+	0.18	0.41	0.59	0.21	0.28	0.49
Total	0.59	0.33	0.92	1.43	0.56	1.99
Estimated cases	183 539	102 972	286 512	471 899	186 167	658 066

In general, the age distribution of the proportion divorce and separated follows a bell shape, with low values in young ages (under 25) and among the elderly (age 70 and older) and high values for the ages in the middle of the distribution. However, when the proportion of the population that is married is rather low (for example, for ages under 25), the comparison of the proportion divorced/separated across groups is no longer meaningful because the denominator includes large proportion of never-married people. In this case, comparisons of the divorce/separation to marriage ratio (the number of divorced/separated people divided by the number of married people then multiplied by 100) in Table 5.1b is more suitable.

Table 5.1a and Table 5.1b show that, both the proportion divorced/separated and the ratio of divorce/separation to marriage among females are much higher than among males, not only in total but also in every age group from 15–19 to 74 and older. The age group with the highest divorce/separation to marriage ratio is 40–44 years for males (1.58 per 100 marriages) and 50–54 years for females (4.36 per 100 marriages).

Table 5.1b: Ratios of the number divorced and separated to the number currently married by sex and age group in Viet Nam, 2009

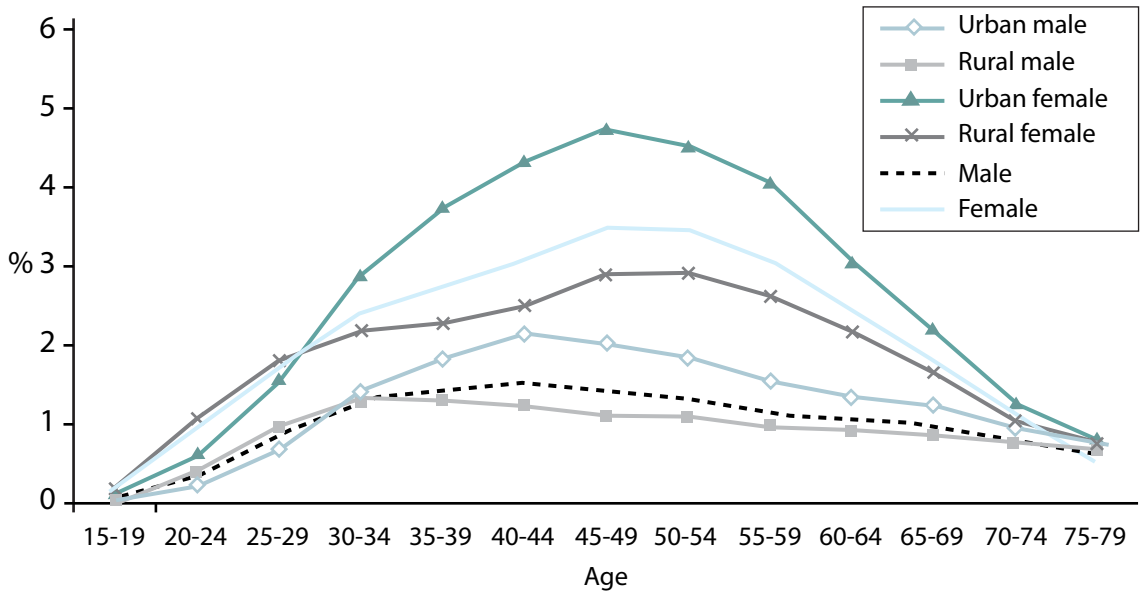
Unit: Percent

Age	Male			Female		
	Divorced	Separated	Total	Divorced	Separated	Total
15–19	0.54	0.50	1.04	0.95	0.66	1.61
20–24	0.72	0.57	1.29	1.17	0.70	1.87
25–29	0.80	0.54	1.33	1.51	0.65	2.16
30–34	1.01	0.48	1.49	2.03	0.69	2.72
35–39	1.06	0.48	1.54	2.35	0.75	3.10
40–44	1.08	0.50	1.58	2.72	0.83	3.55
45–49	0.98	0.44	1.42	3.12	1.04	4.16
50–54	0.90	0.45	1.35	3.18	1.18	4.36
55–59	0.74	0.44	1.18	2.98	1.27	4.26
60–64	0.55	0.53	1.08	2.46	1.36	3.82
65–69	0.50	0.55	1.06	1.92	1.39	3.31
70–74	0.32	0.59	0.90	1.14	1.23	2.37
75+	0.25	0.57	0.82	0.83	1.11	1.94
Total	0.88	0.49	1.37	2.23	0.88	3.12
Estimated cases	183 539	102 972	286 512	471 899	186 167	658 066

Note: The unit is the number of divorced or separated people per 100 married people

In the next set of analyses, to be more focused, divorce and separation are combined into one category "divorce/separation". Many studies have pointed out that in modern societies, where dependence on community and clan decreases and individual freedom is given more respect, divorce/separation is more likely to happen than in traditional society (Bilton et al, 1993). It is, therefore, the basic reason for the fact that the proportion divorced/separated in the population is much higher in urban than in rural areas for every age group starting with 30–34 (Figure 5.11).

Figure 5.11 Proportion divorced/separated by age, sex and urban/rural residence in Viet Nam, 2009



Only the rural group aged less than 30 years has a slightly higher proportion divorced/separated than the urban group. This does not result from rural couples more easily divorcing or separating than urban couples but the inappropriate usage of the indicators as analyzed above (rate used instead of ratio). It can be seen in Figure 5.12 that, compared with rural areas, the divorce/separation to marriage ratio in urban areas is never lower but either equal (for age group 20–29 years) or higher (for age groups 15–19 years and over 29 years).

Figure 5.12: Ratios of divorce/separation to marriage by age group, sex and urban/rural residence in Viet Nam, 2009

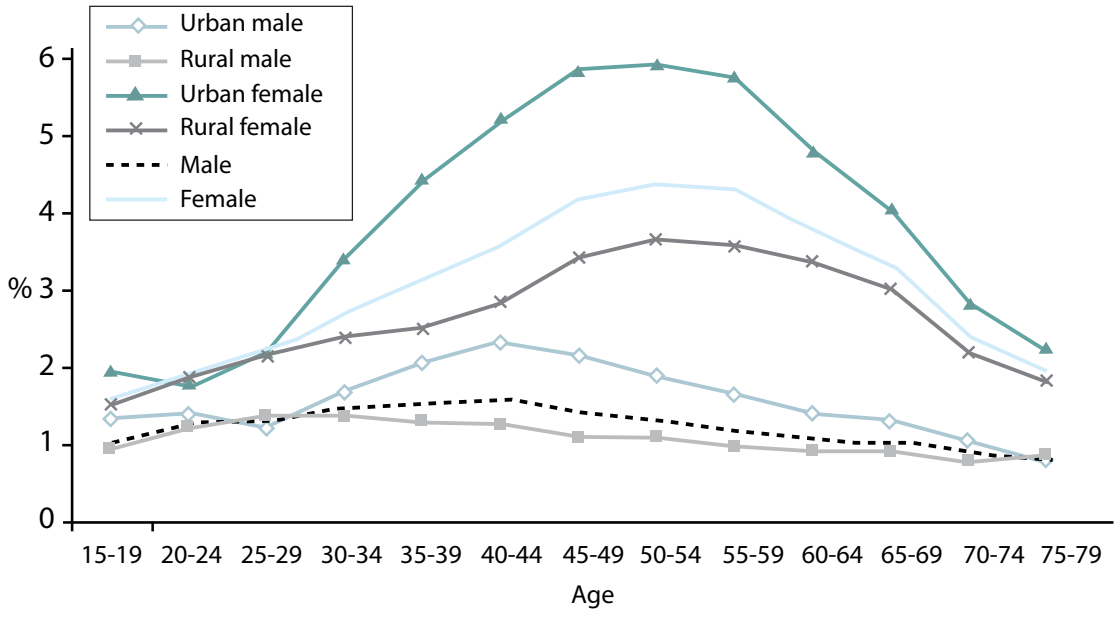


Figure 5.13 and Figure 5.14 present the ratios of divorce/separation to marriage among males and females for six regions. It can be clearly seen that the male divorce/separation to marriage ratios in the Southeast and in the Mekong River Delta are much higher than in the other four regions. Beside the effect of migration, other socio-cultural factors affect divorce and separation. The most noticeable difference between the two regions is that, compared to the Southeast, male in the Mekong River Delta have higher divorce/separation to marriage ratios at younger age (under 40) and older ages (70 and up) but lower ratios between 40 and 70. As a result, the highest divorce/separation to marriage ratio among males in the Mekong River Delta is at the age group 20–24 years, while in the Southeast it is at the age group 45–49.

The divorce/separation to marriage ratio among males by age in the other four regions fluctuates closely around 1.0, except for the low ratio among the aged (from 60 years of age and older) in the North and South Central Coast and the unusually high ratio among the 15–19 group in the Red River Delta. One possible reason for the second exception may be related to sampling error as the number of married men aged 15–19 in the Red River Delta is small.

For females aged 30 to 70, the divorce/separation to marriage ratio in the Southeast is much higher than in other regions. Compared to other regions, the divorce/separation to marriage rate of females in the Mekong River Delta, though higher in the ages under 30, is nevertheless approximately equal to the ratio for all females in the ages from 35–39 through 70–74. In addition, the divorce/separation to marriage ratio among females in the North and South Central Coast is usually lower than in the five remaining regions, especially in the ages starting from 45 on up.

Figure 5.13: Male ratios of divorce/separation to marriage by age group and region in Viet Nam, 2009

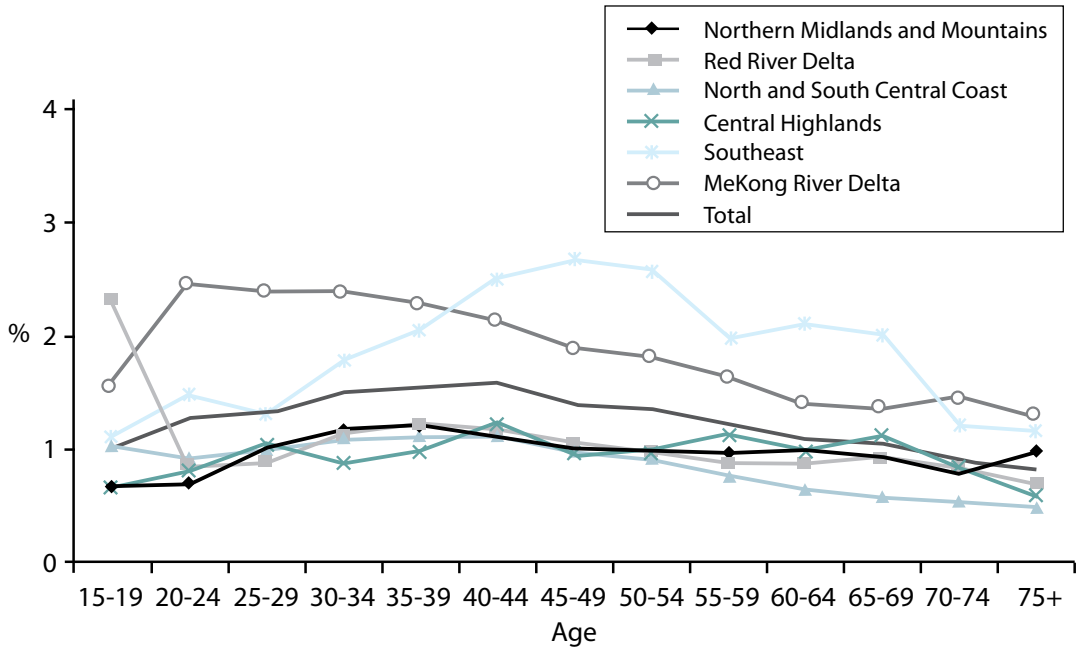


Figure 5.14: Female ratios of divorce/separation to marriage by age group and region in Viet Nam, 2009

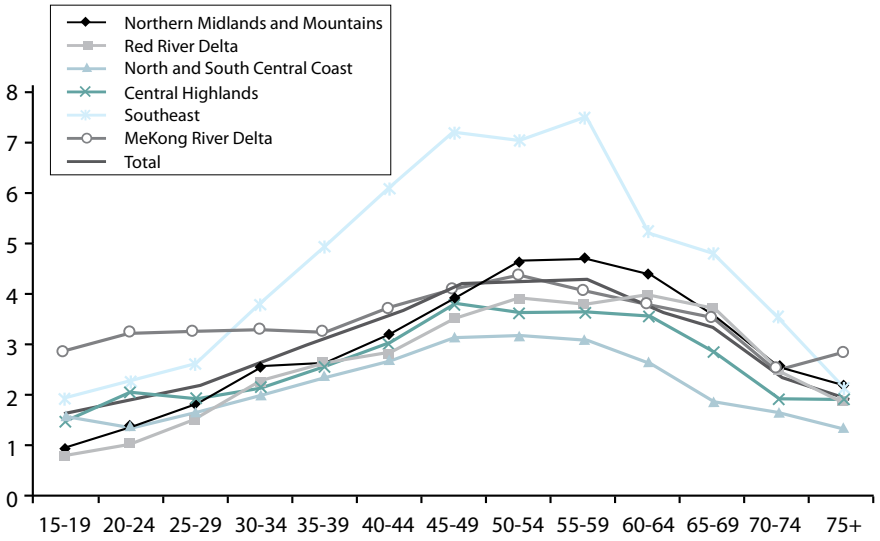
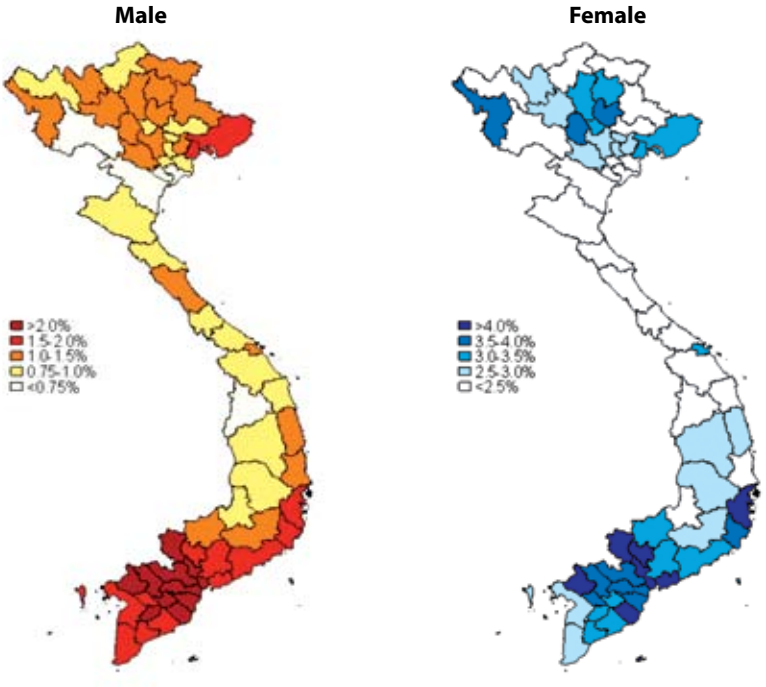


Figure 5.15 presents maps of provincial divorce/separation to marriage ratios for males and females aged 15–64 in Viet Nam in 2009. For males, most provinces with divorce/separation ratios at the two highest levels in the map (from 1.5% and up) are in the south of Viet Nam (starting at Khanh Hoa province). Only two provinces in the north, Quang Ninh and Hai Phong, have males divorce/separation to marriage ratios of more than 1.5%. An important point to note is that all 10 provinces with the highest ratios (>2%) are geographically clustered (Ho Chi Minh City, Tay Ninh, Long An, Dong Thap, An Giang, Tien Giang, Vinh Long, Ben Tre, Hau Giang and Tra Vinh).

Figure 5.15: Maps of provincial ratios of divorce/separation to marriage among males and females aged 15–64 years in Viet Nam, 2009



Source: Vietnam Population & Housing Census, GSO, 2000

Source: Vietnam Population & Housing Census, GSO, 2000

Compared with male divorce/separation to marriage ratios, the ratios among females are always notably higher, although the geographic distribution is similar. North of Khanh Hoa province, only three provinces (Dien Bien, Phu Tho and Thai Nguyen) have female divorce/separation to marriage ratios higher than 3.5%. Meanwhile, all 7 provinces with the highest level of female divorce/separation to marriage ratios in the map (>4%) are in the region starting with Khanh Hoa and moving south (Khanh Hoa, Ho Chi Minh City, Tay Ninh, Binh Duong, An Giang, Tra Vinh, Ba Ria – Vung Tau). Thus the map indicates clearly that, Ho Chi Minh City, Tay Ninh, An Giang and Tra Vinh are the provinces with the highest divorce/separation to marriage ratios for both males and females.

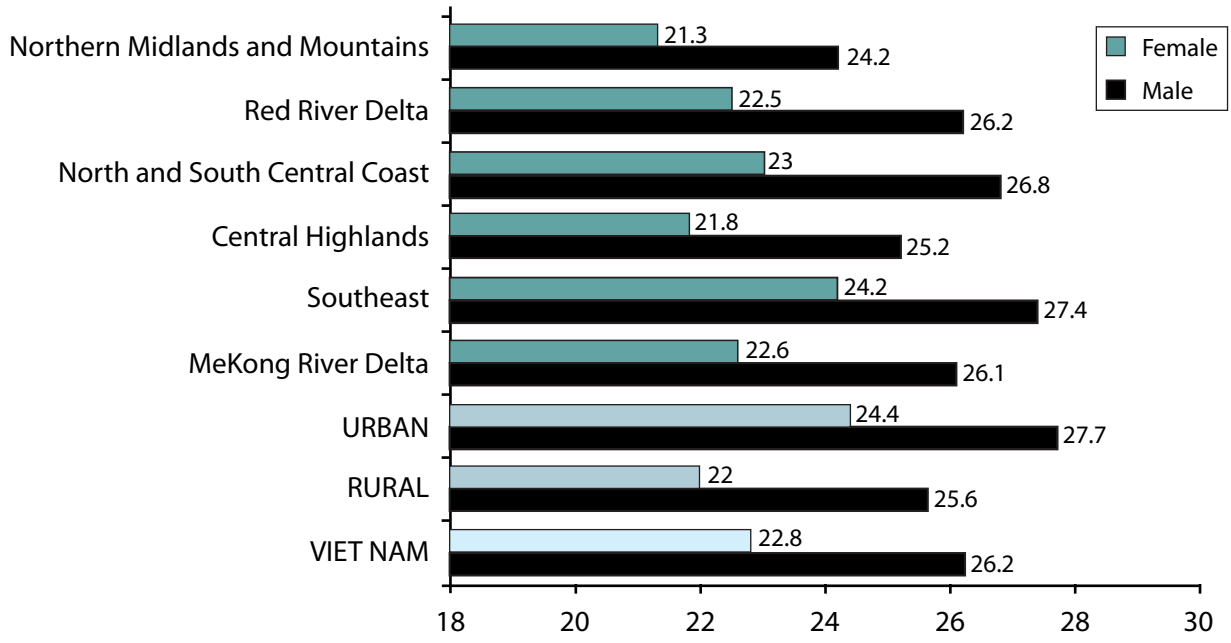
In general, the distribution of divorce/separation to marriage ratios by age is quite varied between rural and urban areas, regions and provinces. We will analyze more about the relationship between divorce and separation by region and other social demographic factors using regression models.

5.3 SINGULATE MEAN AGE AT MARRIAGE

Viet Nam Population Census Sample survey data do not allow for direct estimates of mean age at first marriage because information about time or age at marriage is unavailable. In this analysis, mean age at first marriage is estimated indirectly from proportions of never-married cohorts aged from 15–19 to 45–49 (or 50–54). The result of such an indirect estimation is called singulate mean age at marriage (SMAM). In other words, SMAM is the average person-years lived unmarried among the population that marries before age 50.

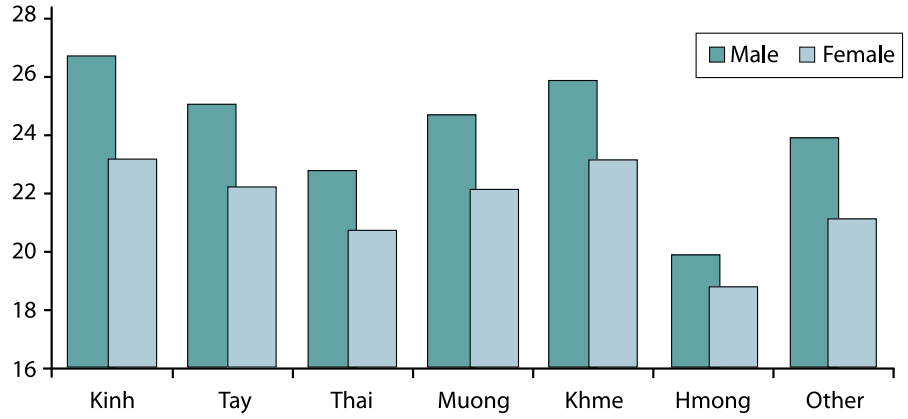
According to the estimates presented in Figure 5.16 SMAM of males is 26.2 years, about 3.4 years higher than SMAM of females (22.8 years). It is hard to conclude whether such figures are high or low as they are similar to SMAM in Indonesia It hard to conclude that such figures are high as they are similar to SMAM in Indonesia but lower than SMAM in Thailand and Malaysia in 2000. Compared to those in 1999, male SMAM increased about 0.6 years but female SMAM remained almost unchanged.

Figure 5.16: SMAM by sex and region in Viet Nam, 2009



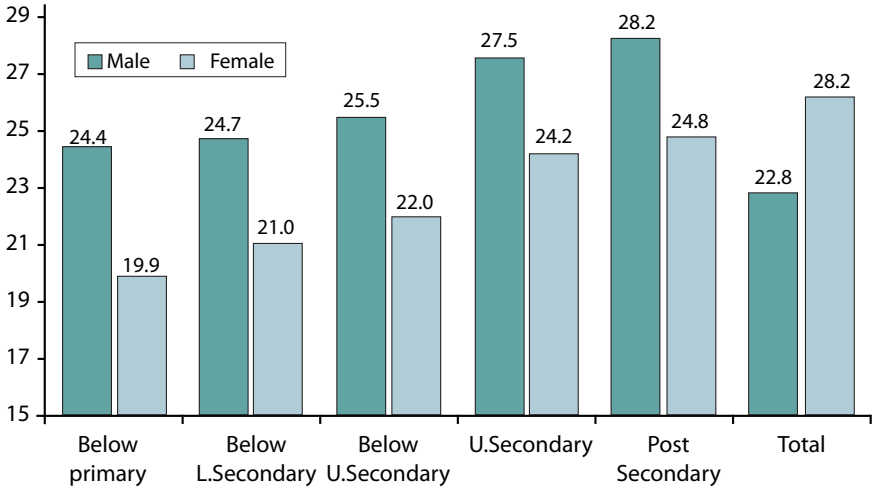
SMAM for males and females in urban areas (27.7 and 26.6) are higher than in rural areas (25.6 and 22.0). By region, male and female SMAM are highest in the Southeast (27.4 and 24.2), and lowest in the Northern Midlands and Mountains (24.2 and 21.3) and Central Highlands (25.7 and 21.8). This ranking seems to match the regional ranking of economic development. However, in the Red River Delta, where living standards rank second, SMAM is smaller than in the North and South Central Coast and equivalent to SMAM in the Mekong River Delta. Thus, the correlation between age at first marriage and economic development is obvious only when the difference in economic development is large enough. In addition, the socio-cultural characteristics of individuals and communities may have a greater direct influence on age at marriage.

Figure 5.17 SMAM among major ethnic groups in Viet Nam, 2009



Since each ethnic group is characterized by their own culture including marriage customs, SMAM may vary greatly across ethnic groups. The estimates of SMAM for major ethnic groups in Viet Nam clearly reflect this diversity (Figure 5.17). In particular, the SMAM of the Kinh majority is highest (26.6 for male and 23.1 for female), and slightly higher than the national level because the Kinh account for more than 85% of the population in Viet Nam. Compared to that of the Kinh, the SMAM of the Khmer is slightly lower for males (25.8) but similar for females. SMAM is lower for the Tay, Muong, Thai, and lowest among the Hmong (19.9 for male and 18.8 for female). This finding supports the fact that child marriage is still common among the Hmong people. SMAM for all other ethnic groups is 23.9 for males and 21.1 for females, about in the middle of the SMAM of the Tay and Thai groups.

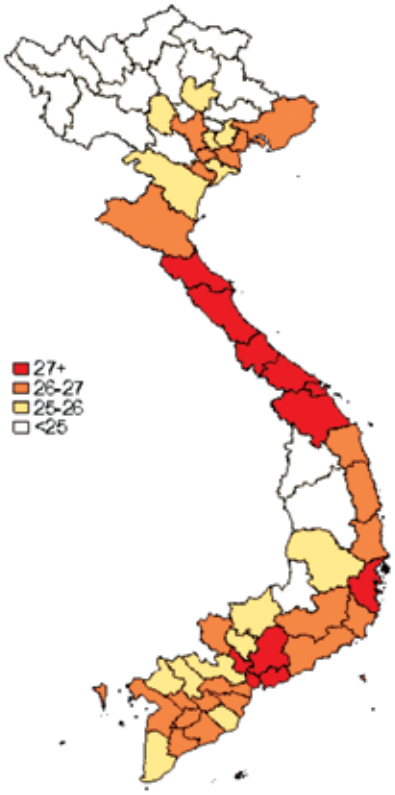
Figure 5.18: SMAM by educational attainment in Viet Nam, 2009



Educational attainment is the indicator perhaps most strongly related to SMAM. People dropping out of school early are more likely to get married early, and individuals who marry early usually leave school or miss opportunities and lack conditions for higher educational attainment. In Viet Nam at present, these relationships are clearly reflected in the estimates in Figure 5.18. SMAM increased steadily with level of educational attainment, from 24.3 for males and 19.9 for females in the group with less than primary education to 28.2 for males and 24.8 for females in the post-secondary education group. It is likely that the difference in educational attainment can explain most of the differentials in SMAM among ethnic groups presented in Figure 5.17. Therefore, improvements in educational attainment or, at least, the universalization of primary education are essential to reducing child marriage and early marriage in groups with low SMAM like the Hmong.

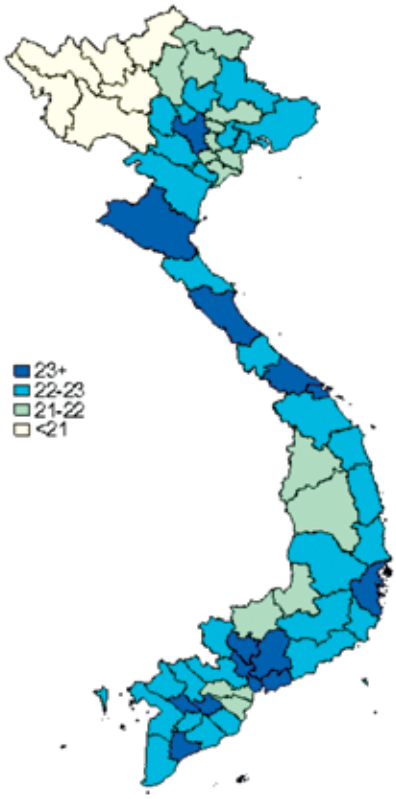
Figure 5.19: Map of SMAM by province in Viet Nam, 2009

Male SNAM in Vietnam, 2009



Source: Vietnam Population & Housing Census, GSO, 2000

Female SNAM in Vietnam, 2009



Source: Vietnam Population & Housing Census, GSO, 2000

The maps in Figure 5.19 show that SMAM of males is lowest in the provinces of the Northern Uplands and some provinces of the Central Highlands (Kon Tum, Gia Lai, and Dak Nong). Male SMAM at highest level (27+ years) are found in some provinces in the central region (from Ha Tinh to Quang Nam), and in Khanh Hoa, Dong Nai, Ba Ria-Vung Tau, and Ho Chi Minh City. Provinces with the lowest female SMAM (under 21) are concentrated in the western provinces of the Northern Midlands and Mountains (Lai Chau, Dien Bien, Ha Giang, Lao Cai, Ha Giang, Son La, Yen Bai provinces). On the other hand, the provinces with the highest female SMAM (23+) are dispersed widely throughout the

country (Hanoi, five provinces in the North and South Central Coast, five provinces in the Southeast, and three provinces in the Mekong River Delta).

5.4 ANALYSIS OF EARLY AND DELAYED MARRIAGE, DIVORCE, AND SEPARATION AND RELEVANT SOCIO-DEMOGRAPHIC FACTORS

Child marriage, early marriage, delayed marriage or never marriage, divorce and separation are marital phenomena that may occur in any society. However, if they become prevalent, these phenomena become social problems. Therefore, it is expected that, the estimation of magnitude, characteristics, and correlation between these unusual marital statuses and other socio-demographic factors may provide useful information for researchers and people involved in management of related issues in Viet Nam.

5.4.1 Child marriage and early marriage

Viet Namese Law on Marriage and Family sets the legal minimum marriage age at 20 for males and 18 for females. Marriage before these legal ages is considered as child marriage. There is no official definition of the notion of early marriage but the population and family planning programs in Viet Nam encourages men not to marry before the age of 22 and women not to marry before the age of 20. Thus we may consider a case as early marriage if men and women marry before these recommended ages. For the convenience of comparison, the analyses in this section examines marriage by the age of 18 and 20 for females and by the age of 20 for males.

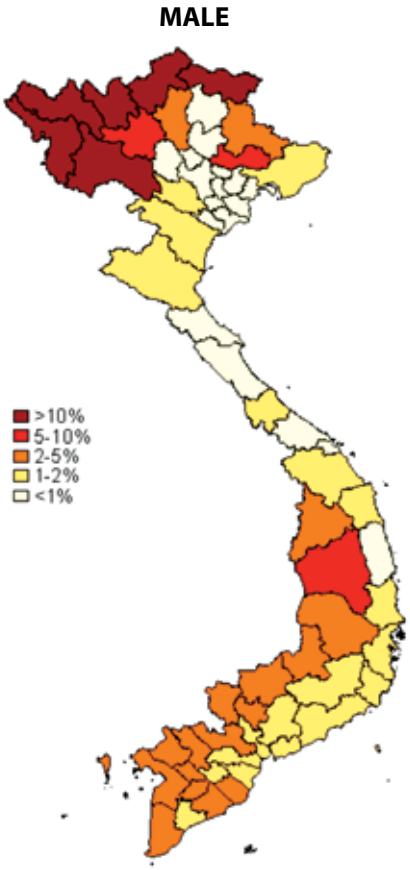
Table 5.2 presents the proportion ever-married among males in the age group 15–19 and the proportions ever-married among females for the age groups 15–17 and 15–19. It should be noted that data in the table do not fully reflected the situation of child marriage or early marriage because they do not include married children under age 15 nor the situation of people aged 20 and older who were married before legal or recommended minimum marital ages. Maps of proportion ever-married among males and females in the age group 15–19 by province are presented in Figure 5.20.

Table 5.2: Proportion ever married among young adults in 63 provinces in Viet Nam, 2009

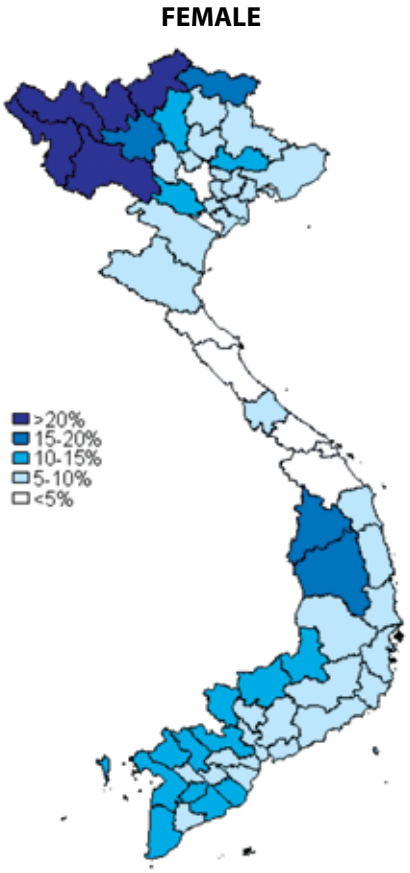
Province	Male 15–19	Female 15–19	Female 15–17	Province	Male 15–19	Female 15–19	Female 15–17
Ha Noi	0.65	4.83	1.20	Quang Nam	1.33	4.37	1.74
Ha Giang	17.25	25.52	14.31	Quang Ngai	1.50	5.80	2.25
Cao Bang	10.70	16.73	8.64	Binh Dinh	0.60	5.13	1.26
Bac Kan	5.49	13.08	5.86	Phu Yen	1.18	7.07	2.27
Tuyen Quang	3.28	14.08	5.07	Khanh Hoa	1.14	6.06	2.12
Lao Cai	11.37	23.16	11.83	Ninh Thuan	1.74	8.71	3.56
Dien Bien	14.40	27.60	17.53	Binh Thuan	1.30	7.88	2.57
Lai Chau	18.65	33.83	21.20	Kon Tum	4.69	15.75	7.85
Son La	14.03	29.08	17.14	Gia Lai	5.46	17.26	7.83
Yen Bai	5.16	16.11	6.15	Dak Lak	2.32	9.02	3.53
Hoa Binh	1.83	10.61	2.98	Dak Nong	3.38	14.07	5.25
Thai Nguyen	0.85	8.53	2.47	Lam Dong	1.86	9.36	3.31
Lang Son	3.47	9.58	3.08	Binh Phuoc	2.29	12.47	4.69
Quang Ninh	1.17	7.29	1.55	Tay Ninh	2.63	12.92	5.23
Bac Giang	0.97	8.49	1.72	Binh Duong	2.53	8.90	3.50
Phu Tho	0.74	7.15	1.60	Dong Nai	1.22	5.23	1.66
Vinh Phuc	0.69	9.11	2.00	Ba Ria-Vung Tau	1.06	5.92	1.96
Bac Ninh	0.71	7.57	1.25	Ho Chi Minh City	1.38	5.29	1.96
Hai Duong	0.61	6.00	1.06	Long An	2.18	10.38	3.69
Hai Phong	0.87	6.02	1.52	Tien Giang	1.94	9.68	2.52
Hung Yen	0.97	6.32	1.44	Ben Tre	1.38	8.70	2.40
Thai Binh	0.37	5.04	1.06	Tra Vinh	2.19	10.54	4.29
Ha Nam	0.75	5.40	0.95	Vinh Long	1.43	8.03	2.56
Nam Dinh	0.44	7.58	1.30	Dong Thap	2.41	11.04	3.77
Ninh Binh	0.33	4.96	0.76	An Giang	3.40	13.85	5.56
Thanh Hoa	1.15	5.61	1.62	Kien Giang	2.46	11.12	4.36
Nghe An	1.50	5.40	2.09	Can Tho	2.19	9.85	3.69
Ha Tinh	0.21	2.51	0.43	Hau Giang	2.54	12.42	4.27
Quang Binh	0.65	4.13	1.25	Soc Trang	2.37	10.09	3.76
Quang Tri	1.37	5.46	1.80	Bac Lieu	1.70	8.85	2.60
Thua Thien Hue	0.67	3.09	1.04	Ca Mau	2.83	11.46	4.03
Da Nang	0.39	2.57	0.86	Whole country	2.19	8.51	3.12

It is not surprising that child marriage and early marriage in this age group is more prevalent in the north-western provinces of the Northern Miadlands and Mountains than in other regions. It is surprising that some provinces have a very high proportion of child and early marriages. For instance in Lai Chau, 18.7% of males aged 15–19, 33.8% of females aged 15–19 and 21.2% of females aged 15–17 have ever been married. This means that approximately one fifth of the male population and one third of the female population aged 15–19 of this province have ever been married. These proportions in Dien Bien are also relatively high, respectively 14.4%, 27.6% and 17.5%. Some provinces in the Central Highlands and Mekong River Delta also experience a high proportion married among females aged 15–19 (higher than 10%), but among them, only Gia Lai province has more than 5% of men aged 15–19 males who have ever been married.

Figure 5.20: Maps of the proportion ever married among people aged 15–19 years by province in Viet Nam, 2009



Source: Vietnam Population & Housing Census, GSO, 2000



Source: Vietnam Population & Housing Census, GSO, 2000

Thus, though the legal age of marriage has been set out in law for quite a long time, child marriage is still quite common in Viet Nam. In total, 9 provinces report more than 5% of the male population aged 15–19 ever married and 14 provinces have more than 5% of the female population aged 15–17 ever married. The situation of early marriage among females is similar: one third of provinces (23 out of 63) report more than 10% of the female population aged 15–19 being ever married. The question is what socio-demographic factors are related to the early marriage in Viet Nam and how do they influence early marriage?

In order to respond to this question, two logistic regressions for males and females have been estimated and presented in Figure 5.21. The sample is the population aged 15–19. The dependent variable is ever-married status of (never married=0, ever married=1). The independent variables include region (reference group: Northern Midlands and Mountains), place of residence (rural and urban), age (reference group is 15 years of age), in-migration status, ethnic minority, religious adherence, educational attainment (reference group is less than lower secondary school), and working status.

It should be noted that because there is no information about starting time of marital status, these regression models (and also other models in this chapter) reflect only the correlations, not necessarily causal relationships between variables, although we still apply the terms independent and dependent variables. The following analysis evaluates the relationship of each independent variable with early marriage status, assuming that other variables are held constant. The more negative (or positive) the regression coefficient is, the smaller (or larger) the probability of ever having been married, holding all other independent variables constant in the model. More precisely, the regression coefficients indicate liner correlations between independent variables and the logarithm of the odds ratio of the probability of being ever-married. Since the probability of being ever-married, and logarithm of its odds ratio, are always monotonic, we use the term "probability of being ever-married" for simplification. The figure also presents the 95%-confidence intervals of the regression coefficients. If a 95%-confidence interval cuts the vertical axis, the corresponding regression coefficient will not be statistically significant at the 0.05 level.

Regression results show that compared with the Northern Midlands and Mountains, the probability of being ever-married among both males and females aged 15–19 in the other five regions, especially in the Red River Delta and North and South Central Coast, is significantly lower. But for females (1519), the probability of being ever-married does not vary between those living in the Northern Midlands and Mountains and in the Central Highlands or the Mekong River Delta. The coefficients also indicate that, holding all other independent variables constant, the probability of early marriage among females in rural areas is significantly lower than in rural areas. For males, however, there is no significant difference between urban and rural areas. This suggests that rural women in the Central Highlands and the Mekong River Delta, and rural males and females in the Northern Midlands and Mountains should be the main target groups for policies discouraging child and early marriage in Viet Nam

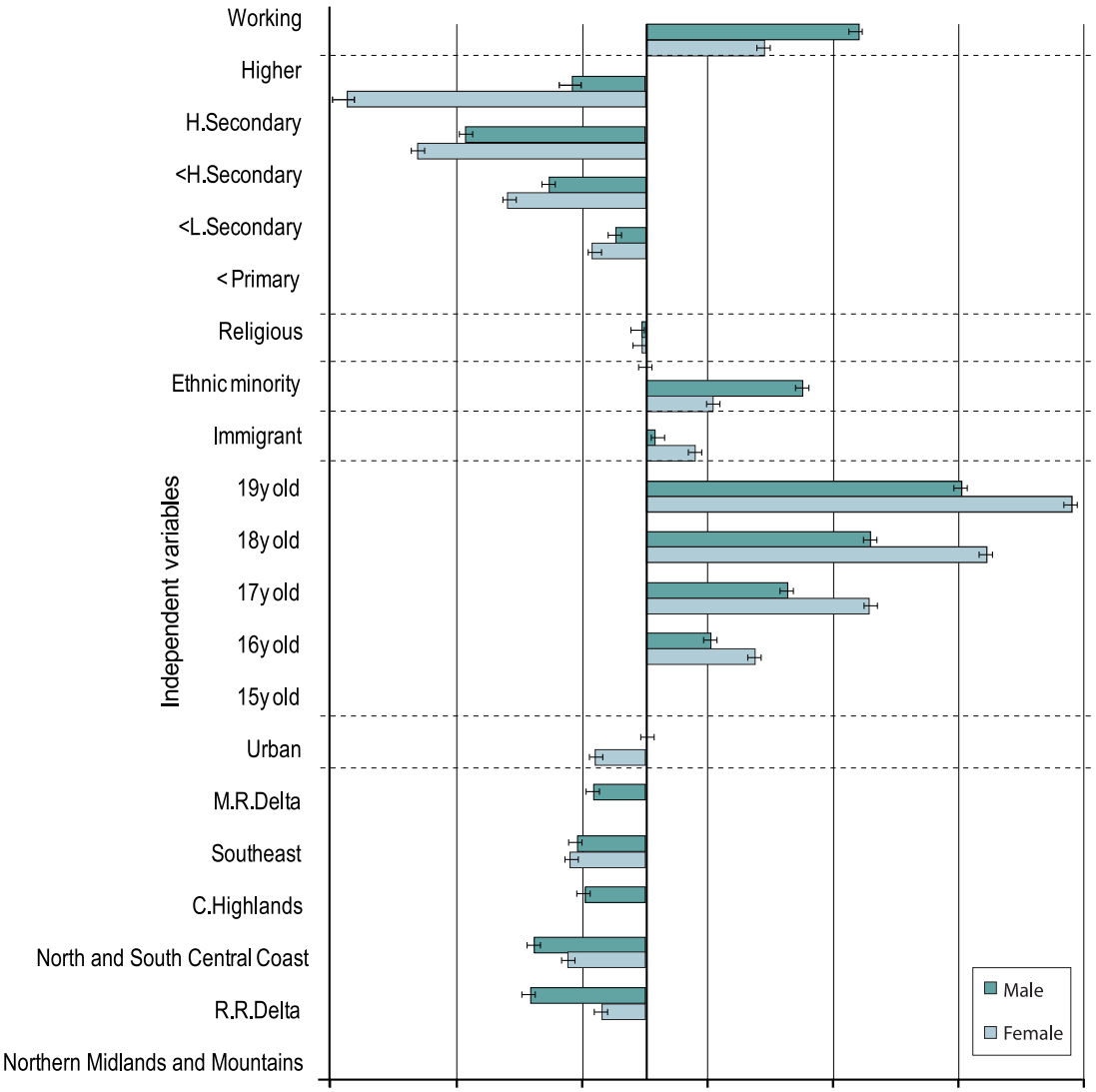
We would expect that the probability of marriage increases with age (from 15 to 19 years), especially for females. In-migration corresponds to higher probability of ever-marriage for females, but is not statistically significant for males. Perhaps the main reason is that most young women migrate as a result of marriage (move to the spouse's residence), but among men this probability is much lower.

Ethnic-minority groups are more likely to experience child and early marriage than the Kinh majority and the effects of ethnicity seem to be stronger for males than for females. In other words, keeping other variables constant, ethnic minorities report higher probability of child and early marriages than the Kinh, and the difference is significantly larger for males than for females. In addition, religion is not significantly related to early marriage of either males or females.

The results also show that, educational attainment is significantly related to early marriage, especially for females. The higher the educational attainment, the lower the probability of early marriage

and vice versa. For males, the regression coefficient for the educational level of post- secondary is negative, but the absolute value is smaller than the coefficient of the educational level at completed upper secondary. The 95%-confidence interval of this coefficient is large and the reason is probably that only a few males under age 20 have attained post-secondary education in the sample. More information may be needed to explain this unusual phenomenon more fully.

Figure 5.21: Coefficients of the logistic regression model on probability of ever being married among the age group 15–19 in Viet Nam, 2009



The last indicator examined is working status. According to the regression model, working people are more likely to get married earlier than non-working people and the difference is greater among males than among females. The regression coefficient for working status is even larger than the coefficient for ethnic minority. This may be a reciprocal relationship. Many young people get married then have to work to feed their family, while many other people may get married early because they are unemployed. Since young women usually stay home to take care of children, the probability that males work after marriage is much higher than for females. It is necessary to conduct a more comprehensive study to examine this.

In summary, the above analysis shows a clear pattern that: early school leaving, early marriage, and early employment are three different issues but they are tightly correlated and are a common situation of many young people and adolescents in Viet Nam, especially among ethnic minorities and certain regions as mentioned above.

5.4.2 Delayed marriage

In this analysis, based on social norms and distribution of marital status by age in Viet Nam, delayed marriage is defined as the situation of individuals who delay marrying till after the age of 40. The term delayed marriage is used for convenience, but in fact, includes also people who will never marry. In addition, it should be noted that delaying marriage, as defined in this monograph, does not necessarily correspond to the level of SMAM in the population.

According to estimates from the Census sample survey data, by the time of the 1999 Census in Viet Nam, there were more than 84 000 males and 371 000 females aged 40 and older who had never been married, accounting for 1.1% and 3.8% of males and females respectively in this age cohort (Table 5.3). Ten years later, by the time of the 2009 Census, the corresponding numbers had increased to 210 000 males and 635 000 with the proportions at 1.7% and 4.4%, respectively. The absolute size of the never-married population increased greatly over the past ten years not only because of the increases in the size of the total population but also because of increases in the proportion never-married in the population. Particularly, from 1999 to 2009, the proportions never-married among males aged 40–49 and of both sexes aged 50–59 and 60–69 had all increased. Only the proportion never-married among females aged 40–49 had decreased (from 6.2% to 5.7%), most likely because of the recent decline in the population sex ratio. However, in general, the number and the proportion delaying marriage among females are much higher than among males, reflecting the situation of low sex ratio of the population in Viet Nam in the last several decades (see Chapter 3)

Table 5.3: Proportion and number never married among the population aged 40 and older by sex and age group in Viet Nam, 1999 and 2009

	Age group				Total
	40-49	50-59	60-70	70+	
Proportion (%):					
Male 1999	1.6	0.8	0.4	0.5	1.1
Male 2009	2.7	1.2	0.6	0.3	1.7
Female 1999	6.2	3.6	1.5	0.9	3.8
Female 2009	5.7	5.3	3.2	1.0	4.4
Number:					
Male 1999	58 196	14 766	6345	5071	84 378
Male 2009	153 643	41 778	9686	5316	210 423
Female 1999	248 910	78 661	28 126	15 818	371 515
Female 2009	330 164	215 609	64 160	25 186	635 118

From the birth cohort perspective, the size of the never-married population has decreased during the period 1999-2009. In 1999, about 58 000 males aged 40–49 were never-married, accounting for 1.6% of the cohort. In 2009, this cohort now aged 50–59 years had only 42 000 never married males, accounting for 1.2% of this birth cohort. The numbers declined not only because of marriage, but also because of mortality and international emigration. However, if mortality and international migration rates are not much different by marital status, the decline of about one third (from 1.6% to1.2%) would be close to the proportion getting married in this cohort over the 10 years between the Censuses. For other cohorts in Table 5.3 (except the cohort 70+ because of the strong effects of mortality), the probabilities of getting married in the ages 40 and older for males (about 25% after 10 years) are higher than for females (less than 15% after 10 years).

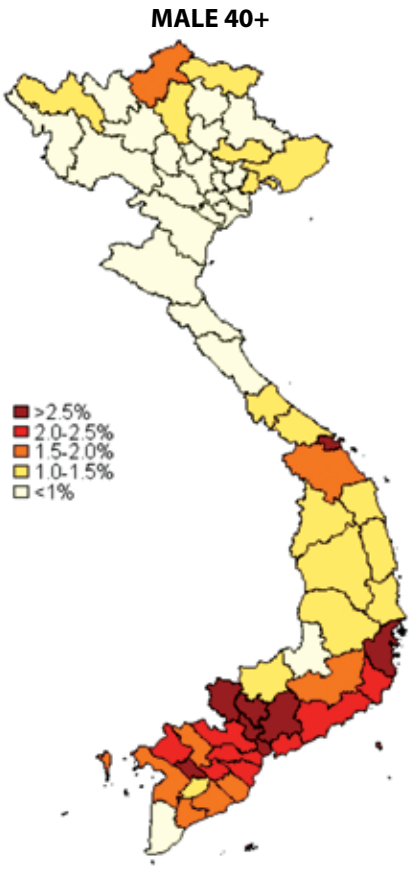
Table 5.4: Proportion never married among males and females aged 40 and older by age group and region in Viet Nam, 2009

	Age group				Total
	40–49	50–59	60–70	70+	
Male (%):					
Urban	5.0	2.2	1.0	0.5	3.1
Rural	1.7	0.7	0.5	0.3	1.1
Total	2.7	1.2	0.6	0.3	1.7
Female (%):					
Urban	7.9	7.1	4.3	1.8	6.3
Rural	4.6	4.5	2.7	0.7	3.6
Total	5.7	5.3	3.2	1.0	4.4

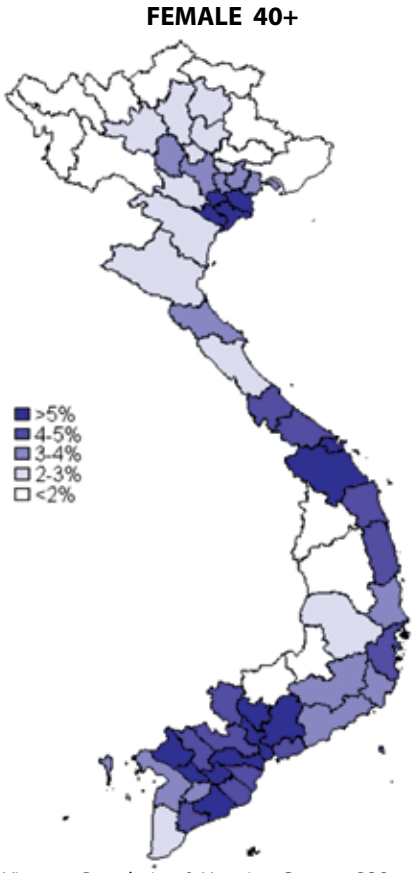
Table 5.4 compares the status of never-marriage after age 40 of males and female in urban and rural areas in 2009. The results show that, delayed marriage is more frequent in urban areas than in rural areas in all four age groups of both sexes. The proportion never-married among males in the age group 40–49 in urban areas is about three times higher than in rural areas (5% versus 1.7%), and the proportion never-married among females in urban areas is about 1.7 times higher than in rural areas (7.9% versus 4.6%). This corresponds to the general pattern that delayed marriage or never marriage is becoming more common in regions with higher levels of economic development and industrialization.

Figure 5.22 presents the maps for the proportion never married for both sexes among people age 40 and older in all provinces in Viet Nam in 2009. It is likely that the pattern of "delayed marriage becoming more common in areas with higher levels of economic development and industrialization" is more consistent with the situation in provinces from Da Nang and further south. The proportion never married among the population aged 40 and older is highest in more industrialized provinces such as Da Nang, Ho Chi Minh City, and Binh Duong. In the North, the situation is different when the highest proportions delaying marriage are not found in Hanoi or Hai Phong, but in Ha Giang (for males) and Thai Binh, Ha Nam, Nam Dinh, and Ninh Binh (for females). Thus, it can be concluded that delayed marriage in Viet Nam is not only related to the level of industrialization but also depends on other socio-cultural factors.

Figure 5.22: Maps of the proportion never married among the population aged 40 and older by province in Viet Nam, 2009



Source: Vietnam Population & Housing Census, GSO, 2000



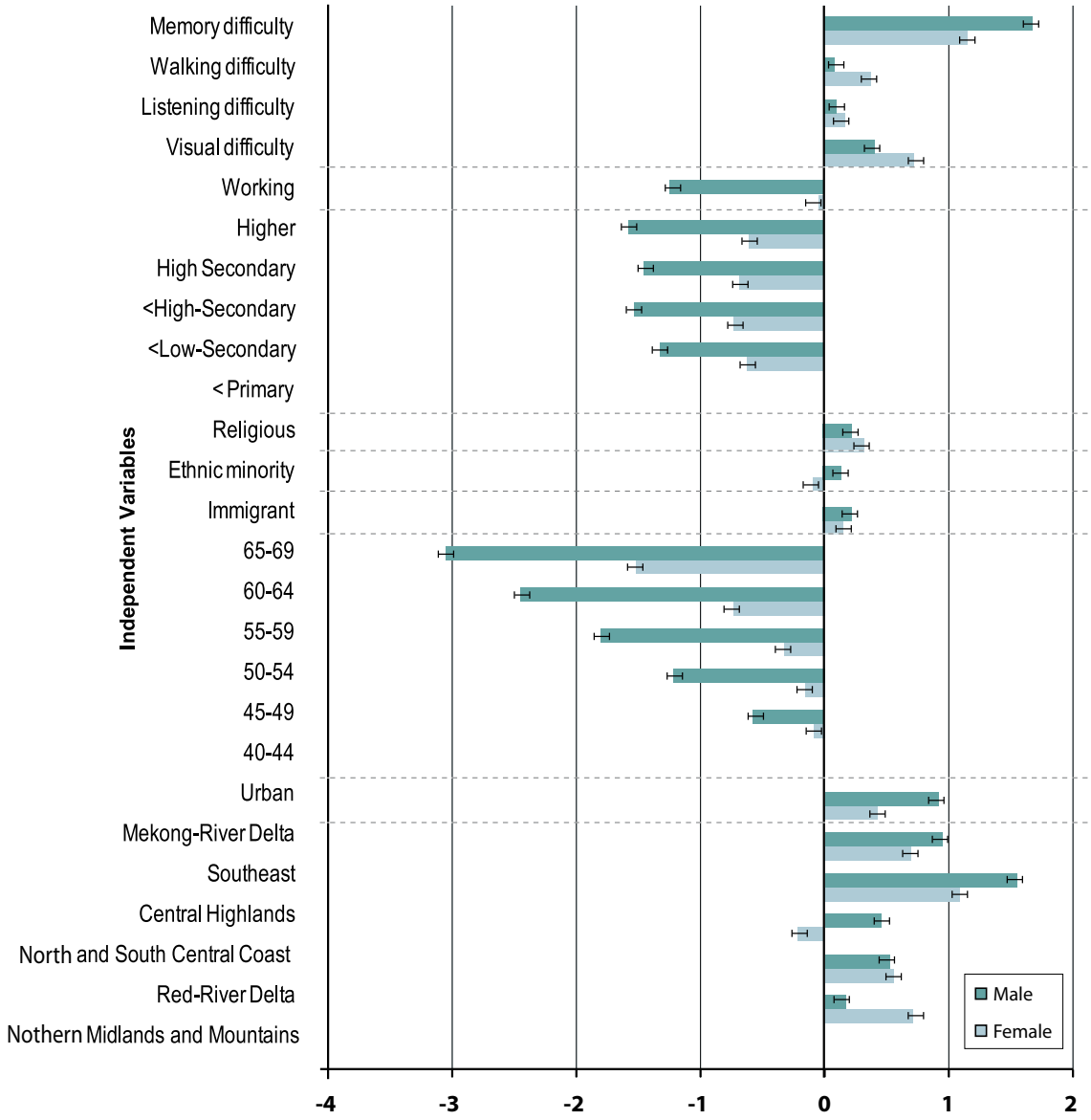
Source: Vietnam Population & Housing Census, GSO, 2000

Figure 5.23 presents the regression model of probability of never-marriage among the population aged 40–69 in Viet Nam in 2009. The age group 70+ is excluded from the model because of the small proportions never married and strong influence of mortality. The dependent variable is delayed marriage status of individuals (never-married =1, ever-married=0). The independent variables are the same as in the model in Figure 5.21 but include also four types of disability status: vision, hearing, walking, and memory. Other technical specifications and interpretations are similar to the previous regression model. In general, the results indicate that, in comparison to the previous model on early marriage, the independents variables in this regression model explain smaller part of the variation of the dependent variable, especially in female group. The reason is that delayed marriage may be more strongly related to other omitted variables. Below can be found the analysis of the relationship between each independent variable and the probability of never-marriage among the population aged 40–69.

The results show that among males and females aged 40–69, the probability of never-marriage is higher than the Northern Midlands and Mountains for all five remaining regions, especially for the Southeast and Mekong River Delta. Only the regression coefficient for females in the Central Highlands is negative. Thus, holding constant the other independent variables in the model, females

in the Central Highlands and males in the Northern Midlands and Mountains are most likely to be married by age 40 in comparison with other regions. On the other hand, for both males and females, the probability of delayed marriage in the Southeast was significantly higher than in other regions.

Figure 5.23: Coefficients of the logistic regression on the probability of never marriage among the population aged 40–69 in Viet Nam, 2009



Regarding urban and rural areas, the regression model one again confirms the results analyzed in Table 5.4. Population aged 40–69 in urban area is more likely to be never-married than in rural areas, and the difference is clearer for males than for females.

Third, regarding age, the probability of being never-married decreases quickly as age increases, especially for males. That means as age increases, the proportion delaying marriage decreases because many individuals get married after they turn 40 (not because old people can get married more easily than the young). Only for females, the difference between the age group 40–44 and 45–49 is not statistically significant.

Forth, regarding migration status, the results show that for males and females aged 40–69, in-migrants have a higher probability of delaying marriage than non-migrants. Combined with the results in the regression model in Figure 5.21, it can be concluded that migration is relevant to both early and delayed marriage of females in contemporary Viet Nam.

Fifth, regarding ethnicity, it is interesting that, the probability of delayed marriage among ethnic minority males is higher than among Kinh males. In contrast, the probability of delaying marriage among ethnic minority females is lower than for Kinh females, holding other variables constant. The difference is small but it is statistically significant. One of the possible reasons is that the sex ratio among the young and middle-aged people in the ethnic minorities is lower (more balance) than in the Kinh population.

Sixth, concerning religion, the probability of being unmarried among both males and females who are religious adherents is higher than in the non-religious groups. This seems reasonable as some people do not marry because they are religious adherents, while some people become religious because they are unable to get married.

Regarding educational attainment, people with higher educational levels are less likely to delay marriage compared to those with less than primary education, and the difference is stronger for males than for females. Thus, low educational levels may be the direct or indirect cause of delaying marriage for people aged 40–69, especially for males. However, the regression coefficients do not vary much between the level at "less than lower secondary school" and the higher levels, especially for females. This shows that the probability of delaying marriage among people aged 40–69 is not significantly related to educational achievement, except for the group "less than primary school" that are more likely to be married at the age 40-69. If high educational attainments leads to later marriage, it must be very high educational achievement such as post-university, not the educational levels considered in the regression.

The results on working status show that there is a significant difference between males and females. The probability of delaying marriage among working males is significantly lower than for non-working males. However, the working status of females aged 40–69 is not significantly related to their probability of being unmarried. This result corresponds with the general view that working males can more easily get married than unemployed males and vice versa, married males are more responsible than unmarried males so they find jobs in order to be the breadwinners for their families.

And last but not least are the results on disability status. As predicted, people with disabilities have a higher probability of delaying marriage than people without disabilities. The highest probability of delaying marriage is for people with memory disability (difficulty with memory and concentration), followed by people with vision disability (difficulty in seeing even with glasses). Males with walking disabilities (difficulty in moving around) and hearing disabilities (hard of hearing) are more likely to delay marriage than people without disabilities, but the differences are small. Compared to the female model, the male model reports a higher coefficient for memory disability, lower coefficients for vision and walking disabilities, and a similar coefficient for hearing disability.

In short, delayed marriage (defined as being unmarried among the age group age 40 to 69) is most correlated to low educational attainment, disability (especially memory and vision disability), religious adherence, in-migration status, and residence in the Southeast and the Mekong River Delta.

5.4.3 Divorce and separation

As divorce and separation have already been presented in detail in section 4.2, this section includes only the analysis of the regression model in Figure 5.24. The data are taken from the 2009 Census sample survey, and include people aged 15–69 who are married, divorced or separated. People aged 70 and older are excluded from the sample used for analysis since this cohort tends to have high mortality rates which may strongly influence the general results.

The dependent variable is divorce/separation status of individuals (divorced or separated=1; married=0). Independent variables are the same as the regression model in Figure 5.23, but the model for females also includes the variable ever given birth. The dependent variable estimated from the regression model is called the probability of separation/divorce for simplicity, but it is actually the probability of having separated/divorced status (not the probability of becoming divorced or separated). Other technical specifications and explanations are similar to those in the two previous regression models.

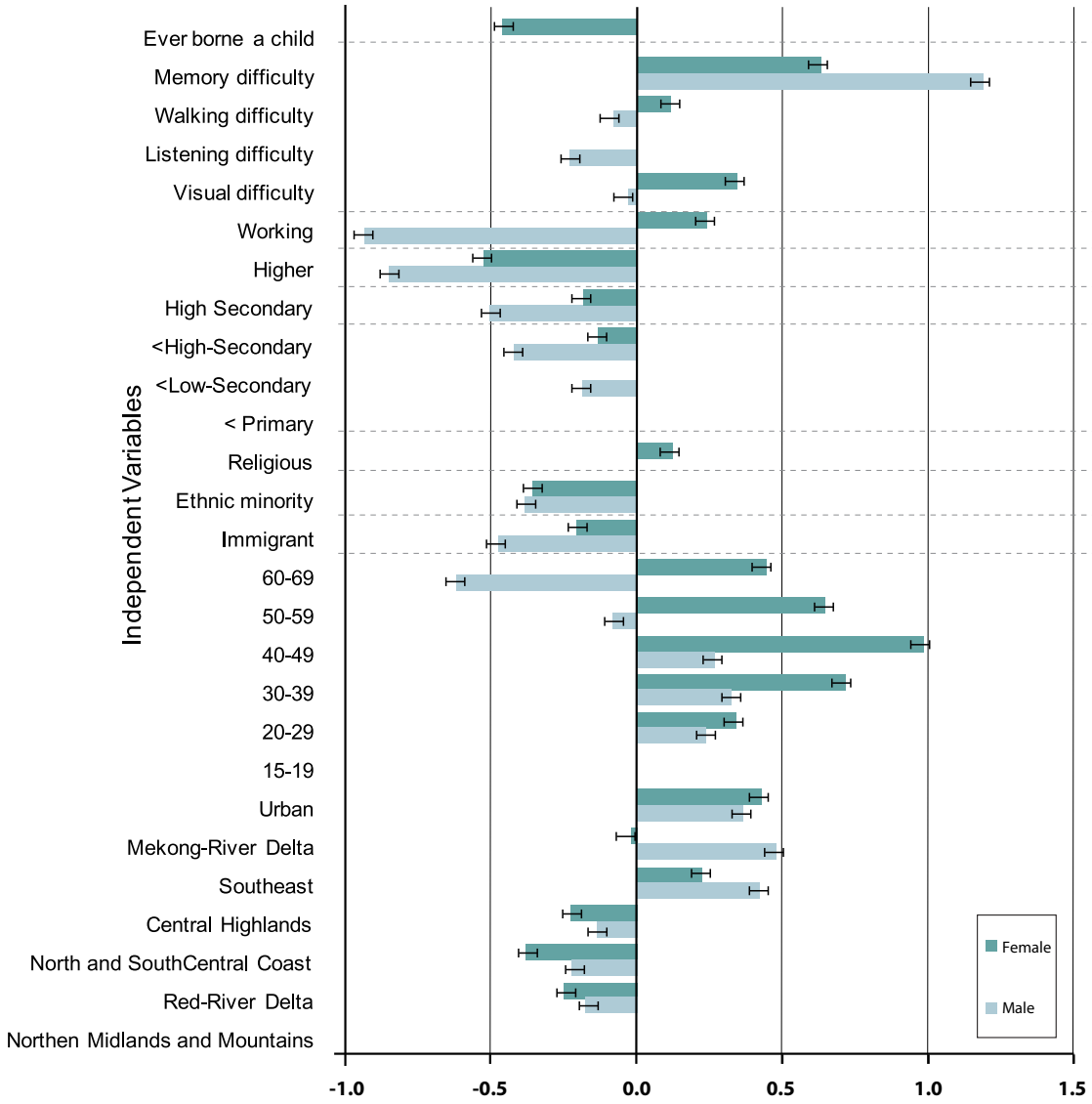
The results show that, unlike in the previous regression model on early marriage, the independent variables in this regression model explain just a small part of the probability of being divorced/separated. The reason is that divorce and separation often depend more strongly on other omitted factors. Following is the analysis of the relationship of each independent variable with the probability of being divorced/separated among the ever-married and not widowed population aged 15–69.

In analysis by region, holding all other variables constant, the probability of being divorced/separated among sever-married people in the Northern Uplands is higher than in the Red River Delta, the North and South Central Coast, and the Central Highlands, but is lower than in the Southeast. Males in the Mekong River Delta have much higher probability of being divorced or separated than males in the Northern Midlands and Mountains, but there is no significant difference in this probability for females between these two regions.

Second, results related to rural and urban residence. Males and females in urban areas are more likely to be divorced or separated than in rural areas. This corresponds to theory and to many previous studies on marriage and divorce.

The third finding relates to age, for ever-married women, the probability of being divorced or separated is lowest among the ages 15–19, and increases gradually, peaking at the age group 40–49, and then declining in the two subsequent age groups. For ever-married men, however, the probability of being divorced or separated increases gradually among the first three age groups (15–19, 20–24, and 25–29), and then decreases to a very low level at the age group 60–69, even lower than in the age group 15–19. Thus, the correlation between the probability of being divorced or separated and age follow a bell shape with the peak at the age group 30–39 for males and 40–49 for females. It should be noted that this reflects the divorced/separated status by age at the time of Census, not the age of separation or divorce.

Figure 5.24: Coefficients of the logistic regression on probability of separation or divorce among the population aged 15–69 in Viet Nam, 2009



The fourth variable is in-migrant status. The probability of being divorced or separated among in-migrants is significantly lower than among the non-migrants. Maybe the reason is that most migrants tend to move from places with lower levels of modernization to more modern ones but they are still influenced by traditional living styles, culture and social values of the places of origin. The coefficients on the relationship between in-migration and divorced/separated status is larger among males than females.

The fifth variable is ethnic minority status. The probability of being divorced or separated among ethnic minorities is significantly lower than among the Kinh majority and the regression coefficients are not much different between the male and female models. This corresponds to the theory on impacts of modernization on marriage as most ethnic minority groups in Viet Nam have more traditional and less modernized societies than the Kinh people.

The sixth variable analyzed is religion. It is slightly surprising that the probability of being divorced or separated among women religious adherents is significantly higher than among those who don't follow a religion. The regression results show no such difference among males. However, we cannot conclude that religion leads to divorce or separation, in particular for women, because religious belief generally tends to reduce the possibility of being divorced or separated, but on the other hand, separation or divorce may lead someone to become more religious,. however, only the combined impact of the two influences is expressed in the regression model.

The seventh variable assessed is educational attainment. For both males and females, the higher the educational attainment, the lower the probability of being divorced or separated and the difference is greater for males than female. This matches results from the Survey on the Family in Viet Namese in 2006. Normally, societies with higher levels of modernization and industrialization tend to experience higher levels of educational attainments and divorce/separation than traditional ones. However, results from the regression model present the opposite result that higher educational attainment does not lead to higher probability of divorce. In addition, a notable point is that there is no difference in probability of being divorced/separated among women with less than primary schooling and women with less than lower secondary schooling.

The eighth variable examined is working status. It is notable that the relationship between the probability of being divorced/separated and working status is in different directions for males and females. Working males have significantly lower probability of being divorced/separated than non-working males, but working females have a higher probability of divorce/separation than non-working females. This may be because the pattern of "the husband working and the wife doing housework" remains common and if such families experience divorce or separation, women end up having to work. Another reason is that it is usually women who initiate divorce/separation in Viet Nam (UNICEF, 2008) when their status in the family is not lower than men. Thus, if women work or/and men do not work, women's status increases and the probability of being divorced or separated also increases.

It has long been argued that increased labour-force participation of women was a major factor in the rise in divorce rates. The causal mechanism cited for this relationship is typically that the increase in labour-force participation increased women's income, and thus their ability to participate in society outside the family, and in part increases their contacts with people of the opposite sex in the workplace. Another opinion is that divorce and separation increased because traditional roles of Viet Namese women became a burden for them when the participate in the labour force.

The ninth variable studied is disability status. It is obvious that people with memory disabilities are much more likely to divorce or separate than people without disabilities, and the difference is larger for males than for females. The probability of being divorced or separated among women with walking disabilities or vision disabilities is significantly higher than women without disability. There is no significant difference in the probability of divorce or separation between males with vision disability and those without, maybe because severely short-sighted people are also considered as having a vision disability (they tend to have average or higher educational levels). It is surprising that males with hearing and walking disabilities have a lower probability of being divorced than males without disabilities. These disabilities are clearly not as unacceptable to women as memory disability. According to the Survey on the Family in Viet Nam in 2006 ((UNICEF, 2008), among divorce cases, nearly 28% of divorce was due to lifestyle conflicts, 26% due to adultery and only 2.2% due

to health problems. Thus, health may not be the main problem for family happiness for males with hearing and walking disabilities. If the two main reasons for divorce mentioned above rarely happen to this male group, their family sustainability is understandable. However, this is only a hypothesis that needs to be tested.

The final variable identifies women who have ever given birth. After marriage, women with children may be less likely to be divorced or separated than women without children. It is clear that in Viet Namese society, children strongly secure the family relationship. Many couples divorce because of childlessness, and many others have serious spousal conflicts but cannot divorce because of children.

In short, divorce and separation in Viet Nam are associated mainly with low educational levels, middle aged women, childless women, non-working males, memory disabilities, the Kinh majority, urban residence, living in the Southeast, and males living in the Mekong River Delta.

CHAPTER 6: **CONCLUSIONS AND POLICY RECOMMENDATIONS**

6.1 CONCLUSIONS

6.1.1 Age-sex structure

Age structure of the population in Viet Nam in 2009 is typical of a population in the latest stage of demographic transition with the changes in fertility and mortality from high to low levels. The population pyramid has a more narrowed base because of fertility decline, and a more gradually narrowed top because of the increase in life expectancy.

There is a clear difference in population structure between rural and urban areas. In rural areas, the group aged 15–19 accounts for the highest proportion of the population and is substantially higher than the adjacent younger and older age groups. In urban areas, the age group 20–24 has the highest proportion of the population and again the proportion in this group is much higher than in adjacent age groups. The age pyramid of the urban population is also strongly influenced by in-migration, contributing to a high proportion of people in working ages.

The age-sex structure of population in different regions and provinces is shaped not only by fertility and mortality but also by migration. The age pyramids of the Northern Midlands and Mountains and Central Highlands are typical of populations with relatively high fertility and mortality rates. However, the population pyramid in the Northern Midlands and Moutains has a narrower base as the mortality rate in this region has decreased more rapidly than in the Central Highlands. The age pyramid of population in the Central Highlands is also notably influenced by in-migration.

The populations the Red-River Delta and Mekong-River Delta have characteristics of those with low fertility and mortality rates, which lead to population pyramids with relatively narrower bases and wider tops than in the other regions. Since the Red-River Delta has negative net migration rate and major part of migrants are at the working ages, the base of its population pyramid is considerably narrowed.

The populations of the North and South Central Coast and the Southeast are typical of those affected by large migration flows in opposite directions. As the North and South Central Coast has a high proportion of out-migration, concentrated in younger ages, their population pyramids narrow abruptly in the age groups 20–24 and 30–34 for both males and females. In contrast, as the Southeast received a high proportion of in-migrants concentrated in young ages, its population pyramid has a wider body. This is the only one of Viet Nam's six regions in Viet Nam that has the highest proportion of the population in the age group 20–24 (other regions have the highest proportion in the age group 15–19).

From 1999 to 2009, the proportion of the population under 20 years of age declined while the population aged 20–59 increased considerably. The change in shape of the age pyramids from 1979

to 2009 has clearly illustrated the aging process of the population in Viet Nam, corresponding with the gradual increase in the aging index from 16.6 in 1979 to 24.3 in 1999 and 35.5 in 2009.

The total dependency ratio of Viet Nam has declined dramatically since 1979. If one considers independent ages as the age group 15–64, the total dependency ratio of Viet Nam has reached a "golden population structure" (total dependency ratio of 50 or lower) since about the end of 2007, and this has continued to fall to 44.7 by April 2009. The decline in the total dependency ratio in Viet Nam was primarily caused by a drop in fertility. The decline in mortality led to a slight increase in the old-age dependency ratio.

Among the six regions, the Southeast, Mekong River Delta, Red River Delta, and Northern Midlands and Mountains have been experiencing a period of "golden population structure". The North and South Central Coast has not yet reached the "golden population structure", but is expected to enter this period next year since its total dependency ratio is already at 50.4.

In 2009, 43 out of 63 provinces in Viet Nam had the total dependency ratio under 50, or in other words, they are experiencing a period of "golden population structure". The provinces with low total dependency ratios often have low total fertility rates but high net in-migration among the working-age group. The province with the lowest total dependency ratio is Binh Duong (28). Among the remaining 20 provinces, 9 have total dependency ratios under 55 and will enter the period of "golden population structure" in the next five years. The total dependency ratios of all other 11 provinces are not very high. The province with the highest total dependency ratio is Lai Chau (71). Among ten major ethnic groups, 6 groups have entered a period of "golden population structure". The ethnic groups with the highest total dependency ratio are the Gia Rai (72.9) and the Hmong (95.0).

As a direct consequence of its demographic transition, the population in Viet Nam is aging very rapidly with the aging index (60+) increasing from 18.3 in 1989 to 24.3 in 1999, 35.5 in 2009 and the expectation that it will continue increase more rapidly. In 2009, the number of aged people (60+) was one third of the number of children under age 15. According to the population projection in this monograph, by 2030, the numbers of the aged and children will be equal. The ratio of aged people to children will continue to increase. Compared to the child population, the aged population will be 1.5 times higher in 2047, and two times higher by 2060.

From 1999 to 2009, the population of Viet Nam has undergone substantial aging but with different levels across provinces. In 1999, only seven provinces in the Red River Delta and Ho Chi Minh City had aging indices higher than 30. In 2009 however, not only the Red River Delta but also almost all provinces in the north-western provinces of the Northern Midlands and Mountains, the North and South Central Coast and the Southeast and some neighbouring provinces are experiencing this level of the aging index. The aging indices in most provinces in the north-western provinces of the Northern Midlands and Mountains and Central Highlands remain quite low (under 20).

The sex ratio of the population in Viet Nam has gradually decreased over the 60 years from the 1930s to the 1990s, mostly because of the consequences of war. The peaceful period over the last 30 years and the increasing sex ratio at birth have led to a recovery of the sex ratio in the population, which has now reached to 97.6 males for every 100 females in 2009. Combining all age groups, the sex ratio remain relatively low (under 95) in three provinces, including Thai Binh, Binh Duong, and Ho Chi Minh City. The sex ratios among population in working ages (15–59) are similar across provinces. However, the sex ratios of children (under 15) and the aged (aged 60 and above) vary

quite substantially. The sex ratios of children under age 15 are relatively high, 106.9 at the national level and more than 105 in 54 of 63 provinces. Even if child sex selection is totally eliminated as of today, Viet Nam will still have to face a considerable level of male surplus and female shortage in marital ages in the future because the male surplus among the population aged under 20 in 2009 is nearly 900 000. In contrast, the sex ratio among the aged population is relatively low, only 67.8. As many as 56 out of 63 provinces have an aged sex ratio lower than 75, and for 14 provinces, the ratio is lower than 65. Among the ten largest ethnic groups, the sex ratios are lowest for the Kinh group (94.7) and highest for the Hoa group (105.2).

The number of women aged 15–49 will continue to increases until 2028 (an increase of about 75,000 women per year) and decline afterward. However, the proportion of women aged 15–49 has peaked in 2009. Thus, even if the TFR remains at the present level (TFR=2.03), the number of births will continue to increase over the next ten years, but the crude birth rate of the population in Viet Nam will gradually decrease.

In general, in comparison with previous generations, young people have higher levels of educational attainment and there is a smaller educational disparity between males and females. However, the fact that the unemployment rate of young population remains high may be related to limited practical skills. In addition, existing social factors may not allow for fair competition between the young and the old in the labour market.

6.1.2 Household structure

Similar to the age and sex structures of the population, household structure in Viet Nam has changed remarkably in the last three decades of the demographic transition. Mean household size decreased quickly, from 4.8 people in 1989 to 4.5 in 1999 and 3.8 in 2009. The regions and provinces with low population density and low economic development tend to have larger household size. Mean household size in rural areas is larger than in urban areas but the difference is small (3.7 versus 3.8). Four-member households have become the most common in Viet Nam (28.4%). Mean household size has decreased in the last two decades mostly because the proportion of children under age 15 in the total population has decreased considerably.

The proportion of one-person households out of all households in Viet Nam has seen a notable increase from 4.4% in 1999 to 7.3% in 2009. Meanwhile, the proportion of one-person households consisting of an aged person out of all households has increased 1.5 times, from 1.8% to 2.6%. In 2009, the proportion of one-person households out of all households varied from the highest level in the Red River Delta to the lowest level in the Central Highlands and Northern Midlands and Mountains. The one-person household proportion in urban areas is significantly higher than in rural areas (8.1% and 6.9%). Most people living alone are females, especially for age groups starting at 45. However, among people living in one-person households, the proportion female has decreased from 72.9% in 1989 to 67% in 2009.

During the last two decades, because of the falling fertility rate, the proportion of households with children under age 15 has declined rapidly, from 85.9% in 1989 to 58.0% in 2009. Meanwhile, the proportion of households with aged people has not changed much. The proportion of households without dependent-age members has more than doubled, from 14.3% in 1989 to 30.8% in 2009. At the same time, the proportion of households with at least half the members in dependent ages has dropped rapidly from 53.8% to 33.5%.

Up till 2009, most household heads in Viet Nam are still male and this tendency actually appears to be increasing compared to the level in 1989 (from 68.1% to 72.9%). During this period, the mean age of male household heads has increased about two years while the mean age of female household heads has almost not changed. Most male household heads are married (93.3%) while the proportion married among female household heads is much lower (40.3%), especially in rural areas (32.5%). The proportion of never-married people among all household heads has remarkably increased during the last two decades (from 2.6% to 5.7%), especially among female heads in urban areas.

In short, the general trend in Vietnamese households is towards decreasing size, increase in the prevalence of one-person households, and declines in the dependency ratio. These are typical characteristics of households in a population completing the demographic transition. However, Viet Namese households still report the traditional high prevalence of male headship. These characteristics are not uniform across regions due to different cultures and living standards.

6.1.3 Marital status

In the last two decades, the situation of marital status in Viet Nam indicates that females usually get married earlier than males; by the age 50, almost all people in Viet Nam have ever been married; in most age groups, the proportion separated or divorced among females is higher than among males. In 2009, the proportion of married people among those aged 35–39 years was nearly 90% and the proportion was even higher for males and for people in rural areas.

However, there is a clear tendency towards increasing mean age at first marriage in Viet Nam. In 1989, only a small proportion of women had not been married by the age of 50 but by 2009, this figure had clearly increased. By 2009, more than 50% of females aged 60 and over were living outside of marriage, a situation only seen among men for the ages 85 and older. Compared to two decades ago, nowadays women are likely to get married later but their possibility of being married by the age 40 is higher.

In 2009, the proportion widowed among females is always higher than among males (about 8–10 times higher for age groups under 60 and from 3 to 6 times higher among age groups 60 and older), but not much different between rural and urban areas. The proportion widowed in the population is lowest in the Red River Delta and highest in the Mekong River Delta for men and in the Central Highlands for women.

The level of divorce and separation among females tends to be much higher than among males, both in absolute number and proportion. For the population aged 15 and older, the proportion divorced is 0.9% for males and 2% for females, corresponding to about 287 000 and 658 000 males and females respectively. The most probably explanations for this are related to the higher probability of remarriage and mortality among males than females. The highest ratios of divorce/separation to marriage are found in the group 40–44 for males (1.6%) and 50–54 for females (4.4%). The proportion divorced or separated is significantly higher in urban areas than in rural areas for all groups aged 30–34 and older. The ratio of divorce/separation to marriage in the Southeast and the Mekong River Delta is much higher than in the other four regions. For females, the ratio of divorce/separation to marriage in the Southeast in the ages between 30 and 70 is notably higher than in the other regions.

The ten provinces with the highest levels of male divorce/separation to marriage ratios are concentrated in a cluster bounded by Ho Chi Minh City and, Tay Ninh on south to Hau Giang and Tra Vinh. The seven provinces with the highest level of female divorce/separation to marriage ratios on the map are found in the region from Khanh Hoa on south (Khanh Hoa, Ho Chi Minh City, Tay Ninh, Binh Duong, An Giang, Tra Vinh, Ba Ria – Vung Tau). The four provinces of Ho Chi Minh City, Tay Ninh, An Giang and Tra Vinh have the highest divorce/separation to marriage ratios for both males and females. In general, the distribution of divorce/separation to marriage ratios by age varies across urban and rural areas, regions and provinces. In short, divorce and separation in Viet Nam are associated with low educational levels, middle aged women, childless women, non-working males, people with memory disability, the Kinh majority, urban residence, living in the Southeast, and males in the Mekong River Delta.

In 2009, the SMAM was 26.2 years for males and 22.8 years for females. Both female and male SMAM in urban areas was higher than in rural areas. The SMAM was lowest in the Northern Midlands and Mountains, following by the Central Highlands, and highest in the Southeast. The SMAM was highest in the Kinh group, followed by the Khmer, Tay, Muong, and lowest among the Hmong group. Educational attainment is one of the factors most strongly associated with age at first marriage. People dropping out of school early are more likely to get married early and people who marry early often have to leave school, and miss opportunities due to lack of conditions to study for higher educational attainment. Child marriage and early marriage in the north-western provinces of the Northern Midlands and Mountains are relatively common. For instance, in Lai Chau, about 18.7% of males aged 15–19, 33.8% of females aged 15–19, and 21.2% of females aged 15–17 are ever married. This means about one fifth of the male population and one third of the female population aged 15–19 in this province have ever been married. In total, there are 6 provinces with more than 10% ever married among males aged 15–19, and 10 provinces with more than 5% ever married among females aged 15–17.

Rural females in the Central Highlands and the Mekong River Delta, both males and females in the rural north-western provinces of the Northern Midlands and Mountains, especially the ethnic minority groups, and people with low education levels, should be the key target groups of policies discouraging child and early marriages in Viet Nam. Early school leaving, early marriage and early labour force participation are three strongly related issues.

The situation of delayed marriage is tending to increase. In 1999, More than 84,000 males and 371,000 females among the population aged 40 or older had never married, accounting for respectively 1.1% and 3.8% of these groups. Ten years later, in 2009, the corresponding numbers increased to more than 210,000 males (1.7%) and 635,000 females (4.4%). The situation of delayed marriage is more prevalent in urban areas, in the Southeast and the Mekong River Delta, in the group with low educational attainment, especially people with vision or memory disabilities. In general, the socio-demographical factors considered in this analysis are related to child and early marriage more than to delaying married or divorce and reparation.

6.2 POLICY RECOMMENDATIONS

Even with the total fertility rate in Viet Nam below replacement level, and continuing to fall to 1.8 children by 2024 and remaining unchanged afterward, the population of Viet Nam will continue to increase to 95.5 million in 2019, 102.6 million in 2029, 107 million in 2039, and to a maximum of

108 million in 2046 before starting to fall. That is, within the next ten years, Viet Nam's population will increase by more than 9 million people. Therefore, it is necessary for Viet Nam to have suitable economic development policies so that this substantial increase will not be a barrier for progress in economic development, poverty reduction, and living standard improvement, but instead will provide conditions amenable for the implementation of these strategies.

It is estimated that the number of women aged 15–49 will continue to increase until 2028 but that the rate of increase will decline considerably in comparison to the previous decade. Namely, in the next ten years, the female population in reproductive ages (15–49) will increase by 75,000 people annually, instead of 369,000 people per year in the 1999–2009 period. Thus, the demands on reproductive health and family planning services will continue to increase in the near future. However, because the size of increase will be smaller, the government will be able to focus more on improving quality of reproductive health service systems and family planning programs instead of expanding them.

It is likely that the number of children (aged 0–14) will continue to increase in the next decade and decline afterward (from nearly 21 million in 2009 to 21.8 million in 2019 and only 18.4 million in 2039). This is a good condition to raise government investment per capita in order to improve the quality of education and health services for youth, and thus to improve the quality of the labour force in the future.

The total fertility rate of Viet Nam has already fallen below replacement level. Experience from many countries shows that, once the fertility rate has declined to a too-low level (TFR under 1.5), it would be difficult to increase it again and as a result, the population structure would become too old, the population would decline rapidly, and a large shortage of labour force would result. Some western countries with very low fertility rates have to rely on immigrants to meet demand in the labour market. Therefore, it is necessary for Viet Nam to prepare a strategy to maintain the total fertility rate at a level higher than 1.8, or even better, at the replacement level (2.1). This will help to avoid the situation of a population structure that is too old and labour shortages in the future.

Viet Nam has reached the period of "golden population structure", which may continue over the next 30 years. This is a "window of opportunity" with the most advantageous population features for completing the transformation towards industrialization and modernization in Viet Nam. In order to take full advantages of the "golden population structure" to develop the economy, it is necessary to reduce the unemployment rate, to increase the number of jobs requiring skilled and highly productive workers to increase labour productivity. At the same time, it is necessary to set up investment policies for development, especially investments for improving the quality of human resource among the young via health, education, and modern technical training.

Population aging is not an urgent issue in the current period but it needs to be taken into account soon as the proportion of aged people in the population is increasing quickly. The fact is that most aged people in Viet Nam are economically dependent on others, and they tend to often suffer from chronic and acute conditions. Thus, if there are inadequate social welfare support policies, they would face many hardships in their lives. Social insurance policies, heath insurance, and retirement policies need to respond to the aging population, decreasing family size, and increasing proportions of one-person households and widowed people, especially females. It is necessary to have policies for a modern social insurance system that has wide coverage and is sustainable in the market economy.

Concretely, contributions to the social insurance fund of people in working ages should be in line with the basic costs of living of people when they leave working ages in the future, especially for current workers who are benefitting from the golden population structure. However, in the labour code as well as in the law on the elderly, this policy is not yet clear. In addition, there is a need for policies aimed at strengthening the self-sufficiency of aged people and at the same of encouraging families and the community to take responsibility for care of the aged.

As the population is aging fast, current relatively low age at retirement in Viet Nam, especially for female (55 years), will become unsuitable. Thus, a plan for extending the retirement age should be prepared soon because it requires a particular process.

It is necessary to carry out more stringent policies to prevent the increasing sex ratio at birth. However, Viet Nam needs not only to prevent but also to cope up with the situation of surplus male population in the near future. Perhaps it is necessary to examine the experience of Korea, Taiwan, and China to help in setting up appropriate policies.

The government needs to continue communication programs and apply more effective methods to reduce the relatively high rates of child and early marriages in some provinces, especially in the Northern Midlands and Mountains among many ethnic groups. In addition, it is essential to have more studies to examine in more details the increasing prevalence of divorce and separation in some urban areas such as the Southeast and Mekong River Delta to establish suitable policies. More effective investment in education is a basic and long term solution for both early marriages and divorce and separation.

In general, Viet Nam's population has been experiencing great changes in size, quality, and structure, and has gradually moved to a period of post demographic transition. Nevertheless, these changes vary significantly across population groups as well as regions. policies on population, marriage, family, and development should be flexibly established and deployed to correspond to the diversified demographic features in Viet Nam, depending on region, ethnicity, and other factors. For instance, the government should continue the policies for population in the midst of demographic transition in the Central Highlands, Northern Midlands and Mountains, disadvantaged provinces, and ethnic-minority groups. On the other hand, effective policies dealing with emerging issues in post demographic transition are also necessary, especially in the Red River Delta, the Southeast, as well as in provinces with advanced economic development.

Clearly development and implementation of diverse policies is not simple, especially when relevant information is inadequate. Therefore it is recommended to implement more comprehensive studies on persistent issue of population and family such as child marriage, gender inequality, or emerging issues such as population aging, divorce/separation, delayed marriage, and one-person households. It is necessary to examine the correlations among economic, cultural, and social determinants and these population issues for design of appropriate policies. In addition, it is crucial to implement more detailed population projections at both national and provincial levels to provide necessary information for mid and long-term planning and policy making, in order to maximize mobilization of population potential for socio- economic development in Viet Nam.

REFERENCES

Bongaarts, J., T. Burch, K. Wachter (ed.), 1987. Family Demography: Methods and their Applications, International Studies in Demography, Clarendon Press, Oxford.

CPHCSC, 1989. Population and Housing Census 1989: Major Findings, Hanoi.

CPHCSC, 2009. The 2009 Viet Nam Population and Housing Census: Expanded Sample Results, Hanoi.

CPHCSC, 2010. Population and Housing Census 2009: Major Findings, Hanoi.

Dunekar, K. and D. Unde, 1967. Inter-state and intra-state differentials in household formation rates, in A. Bose (ed.), Patterns of Population Change in India, 1951-1961, Allied Publishers, Bombay.

Endruweil & Trommsdorff, 2002. Từ điển Xã hội học, World Publishing House, Hanoi.

GSO, 2002. Chuyên khảo về hôn nhân, sinh để và tử vong ở Việt nam: mức độ, xu hướng và những khác biệt. Statistical Publishing House, Hanoi.

GSO, 2007. Điều tra chọn mẫu biến động dân số, nguồn lao động và kế hoạch hoá gia đình 2006, Statistical Publishing House, Hanoi, 6-2007, p 68.

Hinde, A., 1998. Demographic Methods, Arnold, London.

Hosmer, David W.; Stanley Lemeshow (2000). Applied Logistic Regression, 2nd ed. New York; Chichester, Wiley

Jones, Gavin, 1997. Modernization and divorce: contrasting trends in Islamic Southeast Asia and the West, Population and Development Review.

Seligman, E. and A. Johnson, 1931. Encyclopedia of the Social Sciences, New York.

UNFPA, 2009. Recent Changes in the Sex Ratio at Birth in Viet Nam: A Review of Evidence, Hanoi.

UNFPA. 2009. Population & Development in Viet Nam: Towards A New Population/ Reproductive Health Strategy, 2011-2020, Hanoi.

UNICEF, Ministry of Culture, Tourism and Sports, 2008. Results from Viet Nam Family Survey 2006: Brief Reports

United Nations, 1973. The determinants and Consequences of Population Trends, United Nations, New York.

United Nations, 1983. Indirect Techniques for Demographic Estimation. Manual X, Population Studies 81. New York.

United Nations, 1993. Readings in Population Research Methodology, Volume 1: Basic tools, Social Development Center, Chicago.

United Nations, 2009. World Population Prospects: The 2008 Revision, Population Division, Population Database, Medium Variant.

APPENDIX

Table A1. Total dependency ratio by province in Viet Nam, 1999 and 2009 (calculated using the age groups 0–14, 15–64, and 64+)

No.	Province	1999			2009		
		Child dependency ratio	Aged dependency ratio	Total dependency ratio	Child dependency ratio	Aged dependency ratio	Total dependency ratio
1	Ha Noi	42.0	9.9	51.9	33.0	10.7	43.7
2	Ha Giang	73.7	6.9	80.6	53.1	7.1	60.3
3	Cao Bang	63.0	9.7	72.7	39.5	10.5	50.1
4	Bac Kan	61.1	8.0	69.1	35.2	8.7	44.0
5	Tuyen Quang	61.8	7.9	69.7	37.0	8.3	45.4
6	Lao Cai	76.5	6.5	83.0	51.0	6.7	57.8
7	Dien Bien	83.3	7.5	90.8	60.2	7.2	67.8
8	Lai Chau	79.8	6.2	86.0	65.2	5.9	71.1
9	Son La	75.3	7.9	83.2	50.3	7.4	57.7
10	Yen Bai	64.0	8.1	72.1	42.1	8.9	51.0
11	Hoa Binh	56.8	7.4	64.2	34.0	8.1	42.1
12	Thai Nguyen	49.9	7.7	57.6	32.8	9.4	42.2
13	Lang Son	61.4	8.2	69.6	35.7	8.7	44.4
14	Quang Ninh	49.7	7.6	57.3	35.9	9.6	45.5
15	Bac Giang	57.8	8.5	66.4	36.5	10.0	46.5
16	Phu Tho	54.9	11.2	66.1	34.4	12.1	46.4
17	Vinh Phuc	56.6	10.7	67.3	36.2	11.1	47.3
18	Bac Ninh	55.7	9.9	65.6	38.0	11.2	49.2
19	Hai Duong	50.1	12.5	62.6	32.3	13.6	45.9
20	Hai Phong	46.3	11.0	57.3	30.3	11.3	41.6
21	Hung Yen	52.8	12.8	65.6	34.6	13.6	48.2
22	Thai Binh	44.5	14.0	58.6	33.0	15.6	48.7
23	Ha Nam	53.0	13.5	66.4	34.8	14.9	49.7
24	Nam Dinh	52.7	12.3	65.1	35.8	13.6	49.4
25	Ninh Binh	57.1	12.6	69.7	33.5	12.7	46.2
26	Thanh Hoa	61.5	11.9	73.4	34.3	12.1	46.3
27	Nghe An	66.7	11.2	77.9	39.0	11.2	50.2

No.	Province	1999			2009		
		Child dependency ratio	Aged dependency ratio	Total dependency ratio	Child dependency ratio	Aged dependency ratio	Total dependency ratio
28	Ha Tinh	67.1	14.3	81.4	41.5	15.8	57.3
29	Quang Binh	67.7	11.2	78.9	42.5	11.6	54.1
30	Quang Tri	66.7	11.8	78.5	49.6	14.2	63.8
31	Thua Thien Hue	62.7	11.6	74.3	44.7	12.8	57.5
32	Da Nang	46.2	9.1	55.3	34.6	9.2	43.9
33	Quang Nam	59.3	12.9	72.2	40.4	14.2	54.5
34	Quang Ngai	59.7	12.3	72.0	39.8	14.1	53.9
35	Binh Dinh	57.5	11.9	69.4	41.5	13.2	54.6
36	Phu Yen	60.9	9.8	70.8	41.4	10.7	52.1
37	Khanh Hoa	55.2	8.4	63.6	39.5	9.3	48.8
38	Ninh Thuan	71.2	7.7	78.9	47.9	8.2	56.1
39	Binh Thuan	67.6	8.2	75.8	43.8	8.4	52.2
40	Kon Tum	77.0	6.3	83.3	59.5	6.1	65.6
41	Gia Lai	73.7	6.3	79.9	57.7	6.4	64.2
42	Dak Lak	76.7	6.2	82.8	49.3	6.4	55.6
43	Dak Nong	75.0	5.1	80.1	54.6	4.3	58.9
44	Lam Dong	63.4	6.4	69.9	45.2	6.7	51.9
45	Binh Phuoc	63.9	5.2	69.1	45.1	5.7	50.8
46	Tay Ninh	52.6	7.6	60.2	33.8	8.2	42.1
47	Binh Duong	43.1	7.6	50.7	24.0	4.2	28.2
48	Dong Nai	54.8	7.2	62.0	36.9	6.9	43.9
49	Ba Ria-Vung Tau	54.9	7.0	62.0	38.0	7.3	45.3
50	Ho Chi Minh City	33.7	7.4	41.1	26.4	6.6	32.9
51	Long An	48.9	8.6	57.5	35.4	9.4	44.7
52	Tien Giang	46.6	9.1	55.7	34.9	10.2	45.2
53	Ben Tre	45.9	9.6	55.5	32.8	11.9	44.7
54	Tra Vinh	52.2	8.1	60.3	34.1	8.5	42.7
55	Vinh Long	45.0	9.0	54.0	30.7	9.6	40.3
56	Dong Thap	50.9	8.6	59.5	35.6	9.0	44.6
57	An Giang	51.0	8.5	59.5	35.9	8.7	44.5
58	Kien Giang	59.7	7.1	66.7	38.3	7.1	45.4
59	Can Tho	44.9	8.0	52.9	31.3	8.2	39.6
60	Hau Giang	51.7	8.0	59.6	35.2	8.5	43.7
61	Soc Trang	53.7	8.0	61.8	36.1	7.9	44.1
62	Bac Lieu	53.2	7.5	60.7	35.4	7.2	42.6
63	Ca Mau	59.2	6.4	65.5	37.1	7.0	44.1

Table A2. Total dependency ratio by province in Viet Nam, 1999 and 2009 (calculated using the age groups 0–14, 15–59, and 60+)

No.	Province	1999			2009		
		Child dependency ratio	Aged dependency ratio	Total dependency ratio	Child dependency ratio	Aged dependency ratio	Total dependency ratio
1	Ha Noi	43.8	14.6	58.4	34.4	15.5	50.0
2	Ha Giang	76.4	10.9	87.3	54.9	10.8	65.8
3	Cao Bang	66.2	15.4	81.6	41.1	14.9	56.0
4	Bac Kan	63.5	12.3	75.8	36.3	12.1	48.5
5	Tuyen Quang	63.9	11.7	75.6	38.3	12.0	50.3
6	Lao Cai	79.1	10.2	89.3	52.5	9.7	62.2
7	Dien Bien	85.9	10.9	96.8	62.1	9.8	71.9
8	Lai Chau	82.3	9.5	91.8	66.8	8.4	75.2
9	Son La	77.9	11.5	89.4	51.5	9.9	61.3
10	Yen Bai	66.4	12.2	78.6	43.6	12.8	56.4
11	Hoa Binh	58.9	11.2	70.1	35.2	11.7	46.9
12	Thai Nguyen	51.6	11.4	62.9	34.0	13.4	47.4
13	Lang Son	63.9	12.5	76.4	36.9	12.3	49.2
14	Quang Ninh	51.6	11.8	63.4	37.2	13.8	51.0
15	Bac Giang	60.1	12.7	72.8	37.8	13.8	51.6
16	Phu Tho	57.1	15.6	72.6	35.7	16.4	52.1
17	Vinh Phuc	58.9	15.3	74.2	37.6	15.4	53.0
18	Bac Ninh	58.1	14.6	72.8	39.6	15.6	55.2
19	Hai Duong	52.6	18.1	70.7	33.6	18.2	51.8
20	Hai Phong	48.3	16.0	64.3	31.4	15.6	47.0
21	Hung Yen	55.6	18.7	74.2	36.0	18.3	54.2
22	Thai Binh	46.8	19.8	66.5	34.9	22.2	57.1
23	Ha Nam	55.6	19.1	74.7	36.4	20.3	56.7
24	Nam Dinh	55.0	17.2	72.2	37.6	19.4	57.0
25	Ninh Binh	59.4	17.2	76.6	35.1	18.1	53.2
26	Thanh Hoa	64.1	16.6	80.7	35.8	17.0	52.8
27	Nghe An	69.6	16.1	85.7	40.7	15.8	56.5
28	Ha Tinh	70.7	20.5	91.2	43.7	22.0	65.7
29	Quang Binh	71.0	16.6	87.6	44.0	15.5	59.5
30	Quang Tri	70.0	17.4	87.4	51.7	18.9	70.6

No.	Province	1999			2009		
		Child dependency ratio	Aged dependency ratio	Total dependency ratio	Child dependency ratio	Aged dependency ratio	Total dependency ratio
31	Thua Thien Hue	65.5	16.6	82.1	46.4	17.1	63.6
32	Da Nang	48.0	13.4	61.5	35.5	12.1	47.6
33	Quang Nam	62.3	18.6	80.9	41.8	18.1	59.9
34	Quang Ngai	62.7	18.0	80.7	41.5	19.0	60.5
35	Binh Dinh	60.1	17.0	77.2	43.2	17.7	60.8
36	Phu Yen	63.5	14.4	77.9	42.8	14.6	57.4
37	Khanh Hoa	57.2	12.3	69.5	40.8	12.9	53.6
38	Ninh Thuan	73.7	11.4	85.0	49.4	11.5	60.9
39	Binh Thuan	69.9	11.9	81.8	45.2	11.8	57.1
40	Kon Tum	79.3	9.4	88.7	61.1	9.0	70.1
41	Gia Lai	76.0	9.6	85.6	59.3	9.4	68.7
42	Dak Lak	78.9	9.3	88.2	50.6	9.2	59.8
43	Dak Nong	76.8	7.8	84.6	55.8	6.5	62.3
44	Lam Dong	65.3	9.6	75.0	46.4	9.6	56.0
45	Binh Phuoc	65.8	8.3	74.1	46.3	8.5	54.9
46	Tay Ninh	54.6	11.6	66.1	34.8	11.4	46.2
47	Binh Duong	44.6	11.3	55.9	24.4	5.8	30.2
48	Dong Nai	56.7	10.7	67.4	37.9	9.7	47.6
49	Ba Ria-Vung Tau	56.7	10.5	67.2	39.1	10.4	49.5
50	Ho Chi Minh City	34.8	10.9	45.7	27.0	9.2	36.2
51	Long An	50.6	12.4	62.9	36.6	13.1	49.7
52	Tien Giang	48.2	12.9	61.1	36.2	14.4	50.6
53	Ben Tre	47.6	13.6	61.3	34.1	16.4	50.5
54	Tra Vinh	54.0	11.6	65.6	35.2	12.0	47.2
55	Vinh Long	46.5	12.6	59.1	31.7	13.2	44.9
56	Dong Thap	52.7	12.5	65.2	36.8	12.7	49.5
57	An Giang	52.9	12.4	65.3	37.2	12.6	49.7
58	Kien Giang	61.6	10.5	72.1	39.5	10.3	49.8
59	Can Tho	46.3	11.5	57.8	32.3	11.5	43.8
60	Hau Giang	53.3	11.4	64.7	36.4	12.1	48.5
61	Soc Trang	55.5	11.5	67.0	37.2	11.2	48.4
62	Bac Lieu	54.9	10.9	65.7	36.4	10.3	46.7
63	Ca Mau	60.9	9.6	70.5	38.2	10.3	48.5

Table A3. Aging index by province in Viet Nam, 2009

No.	Province	Calculated using the age groups 0–14 and 64+		Calculated using the age groups 0–14 and 60+	
		1999	2009	1999	2009
1	Ha Noi	23.6	32.5	33.3	45.1
2	Ha Giang	9.4	13.4	14.3	19.7
3	Cao Bang	15.4	26.6	23.3	36.3
4	Bac Kan	13.1	24.8	19.4	33.3
5	Tuyen Quang	12.8	22.4	18.3	31.3
6	Lao Cai	8.5	13.2	12.9	18.5
7	Dien Bien	9.0	11.8	12.7	15.8
8	Lai Chau	7.8	9.0	11.5	12.6
9	Son La	10.5	14.7	14.8	19.2
10	Yen Bai	12.7	21.2	18.4	29.4
11	Hoa Binh	13.0	23.8	19.0	33.2
12	Thai Nguyen	15.4	28.7	22.1	39.4
13	Lang Son	13.4	24.3	19.6	33.3
14	Quang Ninh	15.3	26.9	22.9	37.1
15	Bac Giang	14.7	27.3	21.1	36.5
16	Phu Tho	20.4	35.1	27.3	45.9
17	Vinh Phuc	18.9	30.6	26.0	41.0
18	Bac Ninh	17.8	29.4	25.1	39.4
19	Hai Duong	25.0	42.0	34.4	54.2
20	Hai Phong	23.8	37.4	33.1	49.7
21	Hung Yen	24.2	39.5	33.6	50.8
22	Thai Binh	31.5	47.4	42.3	63.6
23	Ha Nam	25.5	42.9	34.4	55.8
24	Nam Dinh	23.3	38.0	31.3	51.6
25	Ninh Binh	22.1	38.1	29.0	51.6
26	Thanh Hoa	19.3	35.2	25.9	47.5
27	Nghe An	16.8	28.6	23.1	38.8
28	Ha Tinh	21.3	38.2	29.0	50.3
29	Quang Binh	16.5	27.2	23.4	35.2
30	Quang Tri	17.7	28.6	24.9	36.6
31	Thua Thien Hue	18.5	28.6	25.3	36.9

No.	Province	Calculated using the age groups 0–14 and 64+		Calculated using the age groups 0–14 and 60+	
		1999	2009	1999	2009
32	Da Nang	19.7	26.6	27.9	34.1
33	Quang Nam	21.8	35.1	29.9	43.3
34	Quang Ngai	20.6	35.4	28.7	45.8
35	Binh Dinh	20.7	31.7	28.3	41.0
36	Phu Yen	16.1	26.0	22.7	34.1
37	Khanh Hoa	15.2	23.5	21.5	31.6
38	Ninh Thuan	10.8	17.1	15.5	23.3
39	Binh Thuan	12.1	19.1	17.0	26.1
40	Kon Tum	8.2	10.2	11.9	14.7
41	Gia Lai	8.5	11.2	12.6	15.9
42	Dak Lak	8.1	12.9	11.8	18.2
43	Dak Nong	6.8	7.9	10.2	11.6
44	Lam Dong	10.1	14.9	14.7	20.7
45	Binh Phuoc	8.1	12.6	12.6	18.4
46	Tay Ninh	14.4	24.3	21.2	32.8
47	Binh Duong	17.6	17.5	25.3	23.8
48	Dong Nai	13.1	18.8	18.9	25.6
49	Ba Ria-Vung Tau	12.8	19.3	18.5	26.6
50	Ho Chi Minh City	22.0	24.9	31.3	34.1
51	Long An	17.6	26.5	24.5	35.8
52	Tien Giang	19.5	29.3	26.8	39.8
53	Ben Tre	20.9	36.4	28.6	48.1
54	Tra Vinh	15.5	25.0	21.5	34.1
55	Vinh Long	20.0	31.4	27.1	41.6
56	Dong Thap	16.9	25.3	23.7	34.5
57	An Giang	16.7	24.1	23.4	33.9
58	Kien Giang	11.9	18.5	17.0	26.1
59	Can Tho	17.8	26.2	24.8	35.6
60	Hau Giang	15.5	24.1	21.4	33.2
61	Soc Trang	14.9	22.0	20.7	30.1
62	Bac Lieu	14.1	20.4	19.9	28.3
63	Ca Mau	10.8	18.9	15.8	27.0

Table A4. Sex ratio by age group and by province in Viet Nam, 2009

No.	Province	0–14	15–59	60+	Total
1	Ha Noi	108.6	96.9	72.4	96.6
2	Ha Giang	103.0	103.0	68.0	100.3
3	Cao Bang	101.8	103.4	63.6	98.5
4	Bac Kan	104.5	105.2	69.7	101.7
5	Tuyen Quang	105.0	103.5	66.6	100.4
6	Lao Cai	104.9	103.0	68.3	101.2
7	Dien Bien	105.7	99.1	78.6	100.1
8	Lai Chau	105.4	106.2	69.2	103.9
9	Son La	105.3	101.7	76.6	101.1
10	Yen Bai	104.7	102.0	68.7	99.6
11	Hoa Binh	105.1	100.7	66.0	98.5
12	Thai Nguyen	105.6	99.3	70.4	97.8
13	Lang Son	104.6	101.9	66.1	99.0
14	Quang Ninh	107.9	106.9	78.2	104.3
15	Bac Giang	107.6	99.9	67.2	98.3
16	Phu Tho	106.9	99.0	66.0	96.7
17	Vinh Phuc	107.8	100.5	62.3	97.6
18	Bac Ninh	110.1	97.3	64.0	96.4
19	Hai Duong	109.3	97.7	66.7	95.9
20	Hai Phong	106.9	100.4	71.2	98.2
21	Hung Yen	110.1	98.3	63.9	96.1
22	Thai Binh	107.1	95.4	67.2	93.3
23	Ha Nam	105.9	98.6	66.0	95.4
24	Nam Dinh	107.4	97.6	68.8	95.8
25	Ninh Binh	105.9	102.3	69.1	98.7
26	Thanh Hoa	107.0	100.8	65.4	97.6
27	Nghe An	105.9	100.4	72.1	98.6
28	Ha Tinh	106.5	99.9	73.6	97.8
29	Quang Binh	105.2	101.6	79.5	100.2
30	Quang Tri	105.8	100.3	65.9	97.4
31	Thua Thien Hue	107.3	100.0	65.3	97.7
32	Da Nang	108.1	96.5	62.1	95.8

No.	Province	0–14	15–59	60+	Total
33	Quang Nam	107.1	99.0	57.1	95.2
34	Quang Ngai	107.8	100.4	64.5	97.2
35	Binh Dinh	107.6	97.3	61.3	95.1
36	Phu Yen	107.2	102.7	68.2	100.2
37	Khanh Hoa	107.4	98.2	67.9	97.6
38	Ninh Thuan	107.1	100.1	66.3	99.4
39	Binh Thuan	106.8	102.0	67.5	100.3
40	Kon Tum	104.1	104.5	74.6	102.6
41	Gia Lai	105.0	101.5	73.1	100.8
42	Dak Lak	105.9	103.4	71.1	102.0
43	Dak Nong	107.1	111.5	74.5	108.2
44	Lam Dong	105.7	101.0	71.2	100.2
45	Binh Phuoc	106.6	103.8	73.2	102.6
46	Tay Ninh	107.6	100.7	65.7	99.0
47	Binh Duong	107.3	91.0	61.5	92.0
48	Dong Nai	107.8	98.3	67.5	98.1
49	Ba Ria-Vung Tau	108.2	100.8	67.6	99.9
50	Ho Chi Minh City	108.4	91.4	62.9	92.2
51	Long An	107.6	100.5	63.0	98.1
52	Tien Giang	106.2	99.1	60.7	96.3
53	Ben Tre	105.3	101.3	57.1	96.3
54	Tra Vinh	106.7	99.7	58.6	97.1
55	Vinh Long	105.9	99.3	65.1	96.9
56	Dong Thap	107.0	100.3	74.0	99.4
57	An Giang	106.6	98.8	78.1	98.7
58	Kien Giang	106.7	101.6	76.5	101.0
59	Can Tho	106.4	99.2	73.8	98.5
60	Hau Giang	106.9	103.4	69.8	101.0
61	Soc Trang	106.8	99.9	69.4	98.8
62	Bac Lieu	107.0	99.3	72.1	98.9
63	Ca Mau	106.1	102.0	76.5	101.0

Table A5. Family size by urban/rural residence and province in Viet Nam, 2009

No.	Province	Urban	Rural	Total
1	Ha Noi	3.4	3.4	3.4
2	Ha Giang	3.5	3.5	3.5
3	Cao Bang	3.3	3.4	3.4
4	Bac Kan	3.3	3.3	3.3
5	Tuyen Quang	3.1	3.3	3.2
6	Lao Cai	3.2	3.2	3.2
7	Dien Bien	3.4	4.8	4.6
8	Lai Chau	3.4	4.7	4.3
9	Son La	3.4	3.8	3.8
10	Yen Bai	3.5	4.3	4.1
11	Hoa Binh	3.2	4.0	3.9
12	Thai Nguyen	3.2	4.2	4.0
13	Lang Son	3.2	3.6	3.6
14	Quang Ninh	3.2	4.2	4.0
15	Bac Giang	3.3	3.9	3.6
16	Phu Tho	3.5	5.2	4.9
17	Vinh Phuc	3.3	5.1	4.7
18	Bac Ninh	3.3	4.8	4.5
19	Hai Duong	3.3	3.8	3.8
20	Hai Phong	3.3	3.9	3.8
21	Hung Yen	3.4	3.6	3.5
22	Thai Binh	3.5	4.1	4.0
23	Ha Nam	3.8	4.1	4.0
24	Nam Dinh	3.9	4.1	4.0
25	Ninh Binh	3.9	3.8	3.9
26	Thanh Hoa	3.7	3.7	3.7
27	Nghe An	3.5	3.7	3.7
28	Ha Tinh	3.6	3.7	3.7
29	Quang Binh	3.6	3.8	3.8
30	Quang Tri	3.9	4.1	4.0
31	Thua Thien Hue	3.9	4.5	4.3
32	Da Nang	3.8	4.2	4.1

No.	Province	Urban	Rural	Total
33	Quang Nam	3.5	4.1	3.8
34	Quang Ngai	3.9	3.8	3.9
35	Binh Dinh	3.8	4.2	4.1
36	Phu Yen	3.6	4.0	3.9
37	Khanh Hoa	3.7	3.8	3.7
38	Ninh Thuan	3.2	3.1	3.1
39	Binh Thuan	4.0	4.1	4.1
40	Kon Tum	3.7	3.8	3.8
41	Gia Lai	3.7	4.0	3.9
42	Dak Lak	3.9	4.1	4.0
43	Dak Nong	3.6	3.7	3.7
44	Lam Dong	3.5	3.7	3.7
45	Binh Phuoc	3.3	3.4	3.4
46	Tay Ninh	4.2	4.2	4.2
47	Binh Duong	3.9	4.2	4.0
48	Dong Nai	3.8	4.0	4.0
49	Ba Ria-Vung Tau	3.8	4.0	4.0
50	Ho Chi Minh City	3.9	4.2	4.1
51	Long An	4.2	4.4	4.3
52	Tien Giang	4.0	4.2	4.2
53	Ben Tre	3.3	4.3	4.1
54	Tra Vinh	3.1	3.7	3.5
55	Vinh Long	3.3	3.8	3.7
56	Dong Thap	3.5	3.7	3.6
57	An Giang	3.2	3.3	3.3
58	Kien Giang	3.2	3.5	3.4
59	Can Tho	3.2	4.2	4.0
60	Hau Giang	3.8	4.4	4.2
61	Soc Trang	3.8	4.3	4.2
62	Bac Lieu	3.7	3.9	3.9
63	Ca Mau	3.7	4.0	3.9

Table A6. Proportion of households without members in dependent ages and without working age members by province in Viet Nam, 2009

No.	Province	% households with no members in dependent ages (below 15, over 64)	% households without working age (15-64) members
1	Ha Noi	34.98	7.49
2	Ha Giang	31.87	7.20
3	Cao Bang	32.66	10.40
4	Bac Kan	32.61	12.54
5	Tuyen Quang	33.58	11.50
6	Lao Cai	32.73	11.89
7	Dien Bien	20.50	1.16
8	Lai Chau	22.54	2.19
9	Son La	30.12	4.84
10	Yen Bai	28.62	1.97
11	Hoa Binh	28.95	2.64
12	Thai Nguyen	26.65	3.29
13	Lang Son	31.95	6.32
14	Quang Ninh	30.32	1.68
15	Bac Giang	31.37	5.13
16	Phu Tho	17.48	1.28
17	Vinh Phuc	18.60	1.94
18	Bac Ninh	20.46	1.76
19	Hai Duong	30.04	6.49
20	Hai Phong	29.07	6.25
21	Hung Yen	27.56	11.52
22	Thai Binh	24.11	7.10
23	Ha Nam	22.45	6.12
24	Nam Dinh	23.68	7.99
25	Ninh Binh	30.79	4.08
26	Thanh Hoa	24.75	9.08
27	Nghe An	24.24	9.11
28	Ha Tinh	25.15	7.69
29	Quang Binh	24.96	6.86
30	Quang Tri	26.70	3.36

No.	Province	% households with no members in dependent ages (below 15, over 64)	% households without working age (15-64) members
31	Thua Thien Hue	18.90	2.25
32	Da Nang	24.00	1.62
33	Quang Nam	27.97	2.90
34	Quang Ngai	41.05	1.56
35	Binh Dinh	22.07	4.27
36	Phu Yen	26.26	2.26
37	Khanh Hoa	31.63	2.85
38	Ninh Thuan	53.78	1.51
39	Binh Thuan	23.40	3.86
40	Kon Tum	29.37	3.33
41	Gia Lai	27.95	2.74
42	Dak Lak	26.98	2.60
43	Dak Nong	30.12	3.51
44	Lam Dong	33.61	3.20
45	Binh Phuoc	31.87	5.32
46	Tay Ninh	25.58	2.13
47	Binh Duong	31.68	2.30
48	Dong Nai	28.26	3.12
49	Ba Ria-Vung Tau	28.23	3.02
50	Ho Chi Minh City	27.30	2.49
51	Long An	26.80	1.94
52	Tien Giang	27.66	1.46
53	Ben Tre	28.59	2.76
54	Tra Vinh	34.83	3.80
55	Vinh Long	31.76	5.44
56	Dong Thap	34.31	4.97
57	An Giang	34.97	10.43
58	Kien Giang	32.91	10.57
59	Can Tho	29.10	1.98
60	Hau Giang	20.84	2.61
61	Soc Trang	22.58	2.17
62	Bac Lieu	32.71	2.65
63	Ca Mau	29.91	2.70

Table A7. Proportion single by age, sex and urban/rural residence in Viet Nam, 2009

Age group	Male		Female		Male	Female
	Urban	Rural	Urban	Rural		
15–19	98.89	97.42	95.10	90.10	97.81	91.49
20–24	84.84	71.49	66.40	42.80	75.61	50.80
25–29	46.08	31.16	26.50	14.00	35.82	18.24
30–34	17.91	9.56	12.00	6.10	12.12	8.01
35–39	9.89	4.16	9.20	4.70	5.93	6.13
40–44	6.03	2.13	8.44	4.51	3.29	5.72
45–49	3.85	1.25	7.37	4.76	2.07	5.59
50–54	2.42	0.79	7.21	4.68	1.32	5.49
55–59	1.76	0.58	6.84	4.33	0.95	5.13
60–64	1.11	0.49	4.99	3.51	0.68	3.97
65–69	0.79	0.40	3.38	1.86	0.52	2.30
70–74	0.64	0.29	2.30	0.95	0.39	1.31
75+	0.47	0.25	1.52	0.63	0.31	0.85

Table A8. Proportion widowed by age, sex and urban/rural residence in Viet Nam, 2009

Age group	Male		Female		Male	Female
	Urban	Rural	Urban	Rural		
15–19	0.00	0.01	0.02	0.05	0.01	0.04
20–24	0.01	0.04	0.16	0.37	0.03	0.30
25–29	0.05	0.11	0.54	0.96	0.09	0.82
30–34	0.13	0.24	1.24	1.86	0.21	1.66
35–39	0.26	0.38	2.32	3.12	0.35	2.87
40–44	0.48	0.64	4.15	5.30	0.59	4.94
45–49	0.77	0.99	6.98	8.28	0.92	7.86
50–54	1.49	1.71	11.81	13.05	1.64	12.66
55–59	2.62	2.76	19.20	20.42	2.72	20.03
60–64	4.21	4.59	28.80	31.34	4.47	30.55
65–69	7.25	7.81	40.66	42.60	7.64	42.04
70–74	12.17	12.82	53.20	52.15	12.64	52.43
75+	25.65	27.96	73.93	72.99	27.36	73.22

Table A9. Proportion divorced or separated by age, sex and urban/rural residence in Viet Nam, 2009

Age group	Male		Female		Male	Female
	Urban	Rural	Urban	Rural		
15–19	0.01	0.03	0.09	0.15	0.02	0.13
20–24	0.21	0.36	0.60	1.05	0.31	0.90
25–29	0.67	0.92	1.55	1.79	0.84	1.71
30–34	1.37	1.25	2.87	2.17	1.29	2.39
35–39	1.80	1.25	3.75	2.26	1.42	2.73
40–44	2.12	1.23	4.33	2.50	1.50	3.06
45–49	2.00	1.07	4.73	2.87	1.36	3.46
50–54	1.80	1.05	4.51	2.91	1.29	3.42
55–59	1.53	0.93	4.03	2.60	1.12	3.06
60–64	1.33	0.88	3.02	2.13	1.01	2.41
65–69	1.21	0.85	2.18	1.62	0.96	1.78
70–74	0.92	0.73	1.22	1.02	0.78	1.07
75+	0.59	0.59	0.54	0.48	0.59	0.49

Table A10. Proportion married by age, sex and urban/rural residence in Viet Nam, 2009

Age group	Male		Female		Male	Female
	Urban	Rural	Urban	Rural		
15–19	1.09	2.55	4.81	9.72	2.16	8.34
20–24	14.94	28.11	32.89	55.79	24.05	48.00
25–29	53.20	67.81	71.41	83.24	63.24	79.23
30–34	80.58	88.95	83.92	89.83	86.38	87.93
35–39	88.04	94.20	84.78	89.91	92.30	88.28
40–44	91.37	96.00	83.08	87.70	94.62	86.28
45–49	93.37	96.70	80.93	84.09	95.65	83.09
50–54	94.28	96.45	76.46	79.36	95.75	78.43
55–59	94.08	95.72	69.93	72.65	95.21	71.79
60–64	93.35	94.04	63.19	63.02	93.83	63.07
65–69	90.75	90.93	53.79	53.92	90.88	53.88
70–74	86.28	86.16	43.28	45.89	86.19	45.19
75+	73.30	71.19	24.02	25.90	71.74	25.44

Table A11. Proportion single by age, sex and region in Viet Nam, 2009

	Northern Midlands and Mountains	Red River Delta	North and South Central Coast	Central Highlands	Southeast	Mekong River Delta	Total
Male							
15–19	93.57	99.33	98.91	96.75	98.39	97.67	97.81
20–24	59.78	80.02	81.07	67.15	80.94	72.99	75.61
25–29	22.49	33.91	40.49	28.55	45.18	34.94	35.82
30–34	6.22	8.97	12.55	9.24	18.95	13.14	12.12
35–39	2.81	3.66	5.20	4.11	11.34	6.60	5.93
40–44	1.41	1.55	2.46	2.62	7.67	3.68	3.29
45–49	0.85	0.98	1.46	1.34	5.53	2.47	2.07
50–54	0.64	0.66	0.84	1.03	3.70	1.46	1.32
55–59	0.49	0.46	0.55	0.79	2.86	1.03	0.95
60–64	0.53	0.34	0.50	0.46	1.96	0.78	0.68
65–69	0.45	0.28	0.37	0.37	1.44	0.57	0.52
70–74	0.36	0.16	0.26	0.38	1.17	0.46	0.39
75+	0.35	0.13	0.27	0.31	0.82	0.30	0.31
Female							
15–19	84.13	94.05	94.78	87.93	93.19	89.30	91.49
20–24	34.21	50.98	53.90	37.89	64.05	46.97	50.80
25–29	10.26	14.48	16.77	11.43	29.68	18.68	18.24
30–34	4.13	5.81	6.46	4.40	14.73	9.07	8.01
35–39	3.00	4.45	5.12	3.33	11.35	6.99	6.13
40–44	2.87	4.50	5.24	3.19	10.09	6.33	5.72
45–49	2.73	5.26	5.07	2.75	9.37	6.14	5.59
50–54	2.80	5.45	4.83	2.84	9.08	5.63	5.49
55–59	2.48	5.13	4.26	2.31	8.80	5.41	5.13
60–64	2.01	4.48	3.20	1.66	6.75	4.06	3.97
65–69	0.97	2.28	1.86	0.91	4.32	2.52	2.30
70–74	0.59	0.93	1.05	0.89	3.14	1.49	1.31
75+	0.38	0.64	0.67	0.53	2.19	1.06	0.85

Table A12. Proportion married by age, sex and region in Viet Nam, 2009

	Northern Midlands and Mountains	Red River Delta	North and South Central Coast	Central Highlands	Southeast	Mekong River Delta	Total
Male							
15–19	6.37	0.65	1.08	3.23	1.59	2.29	2.16
20–24	39.88	19.79	18.73	32.57	18.76	26.31	24.05
25–29	76.63	65.46	58.81	70.58	54.07	63.39	63.24
30–34	92.48	89.92	86.28	89.71	79.49	84.51	86.38
35–39	95.69	95.00	93.38	94.61	86.61	90.82	92.30
40–44	96.86	97.05	95.90	95.55	89.51	93.41	94.62
45–49	97.22	97.46	96.68	96.53	91.05	94.45	95.65
50–54	96.83	97.36	96.68	96.35	91.97	94.46	95.75
55–59	95.78	96.94	96.02	95.20	92.31	93.80	95.21
60–64	93.58	95.68	94.53	93.46	90.82	92.21	93.83
65–69	90.12	93.05	91.87	89.52	87.96	88.88	90.88
70–74	84.79	88.65	87.35	85.27	82.63	83.79	86.19
75+	70.87	72.48	72.62	74.35	71.64	69.49	71.74
Female							
15–19	15.67	5.89	5.09	11.81	6.66	10.36	8.34
20–24	64.52	48.32	45.03	60.34	34.97	51.10	48.00
25–29	87.04	83.44	80.87	85.71	68.04	78.11	79.23
30–34	91.30	90.56	89.54	91.62	81.09	86.80	87.93
35–39	91.24	90.28	89.11	90.93	82.43	87.91	88.28
40–44	89.11	88.56	86.16	87.98	80.65	86.41	86.28
45–49	85.73	85.14	82.78	84.14	77.54	83.18	83.09
50–54	80.61	81.01	78.45	78.63	71.98	78.62	78.43
55–59	73.92	75.63	72.19	70.98	63.86	71.08	71.79
60–64	64.25	67.93	63.01	60.60	56.87	60.22	63.07
65–69	56.35	59.67	54.00	51.33	47.08	50.01	53.88
70–74	46.57	50.49	45.67	41.23	38.69	41.35	45.19
75+	25.88	26.78	25.68	23.20	22.83	24.34	25.44

Table A13. Proportion widowed by age, sex, and region in Viet Nam, 2009

	Northern Midlands and Mountains	Red River Delta	North and South Central Coast	Central Highlands	Southeast	Mekong River Delta	Total
Male							
15–19	0.01	0.01	0.00	0.00	0.00	0.01	0.01
20–24	0.05	0.02	0.03	0.03	0.02	0.05	0.03
25–29	0.12	0.05	0.11	0.14	0.04	0.14	0.09
30–34	0.22	0.11	0.22	0.26	0.15	0.33	0.21
35–39	0.35	0.19	0.38	0.34	0.28	0.52	0.35
40–44	0.56	0.27	0.58	0.67	0.57	0.92	0.59
45–49	0.95	0.54	0.92	1.21	0.98	1.30	0.92
50–54	1.60	1.02	1.59	1.68	1.96	2.37	1.64
55–59	2.81	1.76	2.70	2.93	2.99	3.64	2.72
60–64	4.96	3.13	4.37	5.15	5.30	5.71	4.47
65–69	8.59	5.83	7.23	9.12	8.84	9.33	7.64
70–74	14.17	10.43	11.91	13.64	15.20	14.56	12.64
75+	28.08	26.88	26.76	24.89	26.72	29.31	27.36
Female							
15–19	0.05	0.01	0.05	0.09	0.03	0.04	0.04
20–24	0.38	0.20	0.45	0.53	0.18	0.30	0.30
25–29	1.12	0.82	1.02	1.21	0.50	0.67	0.82
30–34	2.22	1.61	2.18	2.00	1.09	1.29	1.66
35–39	3.34	2.87	3.64	3.43	2.14	2.25	2.87
40–44	5.17	4.45	6.27	6.18	4.35	4.08	4.94
45–49	8.16	6.60	9.55	9.89	7.50	7.29	7.86
50–54	12.87	10.39	14.23	15.68	13.86	12.32	12.66
55–59	20.12	16.38	21.33	24.12	22.55	20.63	20.03
60–64	30.90	24.89	32.12	35.56	33.39	33.42	30.55
65–69	40.67	35.84	43.14	46.29	46.32	45.71	42.04
70–74	51.64	47.34	52.52	57.09	56.80	56.14	52.43
75+	73.18	72.09	73.30	75.82	74.49	73.90	73.22

Table A14. Proportion divorced or separated by age, sex and region in Viet Nam, 2009

	Northern Midlands and	Red River Delta	North and South Central Coast	Central Highlands	Southeast	Mekong River Delta	Total
Male							
15–19	0.04	0.01	0.01	0.02	0.02	0.04	0.02
20–24	0.28	0.17	0.17	0.26	0.28	0.65	0.31
25–29	0.76	0.58	0.59	0.74	0.71	1.52	0.84
30–34	1.08	1.01	0.95	0.79	1.41	2.02	1.29
35–39	1.15	1.16	1.04	0.94	1.78	2.07	1.42
40–44	1.17	1.13	1.06	1.17	2.24	1.99	1.50
45–49	0.98	1.02	0.94	0.92	2.45	1.78	1.36
50–54	0.93	0.96	0.89	0.93	2.37	1.71	1.29
55–59	0.92	0.84	0.72	1.08	1.83	1.53	1.12
60–64	0.93	0.84	0.61	0.92	1.91	1.29	1.01
65–69	0.85	0.85	0.53	1.00	1.77	1.22	0.96
70–74	0.68	0.76	0.47	0.72	1.00	1.20	0.78
75+	0.70	0.50	0.35	0.45	0.83	0.90	0.59
Female							
15–19	0.15	0.05	0.08	0.17	0.13	0.30	0.13
20–24	0.89	0.50	0.62	1.24	0.79	1.64	0.90
25–29	1.58	1.26	1.34	1.65	1.79	2.54	1.71
30–34	2.35	2.02	1.82	1.98	3.08	2.84	2.39
35–39	2.42	2.40	2.12	2.31	4.08	2.86	2.73
40–44	2.86	2.49	2.33	2.65	4.91	3.18	3.06
45–49	3.38	3.00	2.60	3.21	5.59	3.39	3.46
50–54	3.73	3.15	2.49	2.84	5.08	3.44	3.42
55–59	3.48	2.86	2.22	2.59	4.80	2.88	3.06
60–64	2.83	2.70	1.67	2.18	2.98	2.30	2.41
65–69	2.00	2.21	1.00	1.47	2.28	1.76	1.78
70–74	1.20	1.23	0.76	0.79	1.38	1.02	1.07
75+	0.56	0.50	0.35	0.45	0.48	0.69	0.49

Table A15. Proportion single by age and sex in Viet Nam, 1989- 2009

Age group	Male			Female		
	1989	1999	2009	1989	1999	2009
15–19	95.87	97.74	97.81	89.61	90.76	91.49
20–24	59.34	67.75	75.61	43.13	45.32	50.80
25–29	22.14	28.31	35.82	17.99	17.26	18.24
30–34	6.98	9.31	12.12	11.07	9.73	8.01
35–39	3.20	3.77	5.93	8.85	7.28	6.13
40–44	1.96	1.93	3.29	6.08	6.52	5.72
45–49	1.54	1.14	2.07	3.52	5.79	5.59
50–54	1.12	0.89	1.32	2.30	4.62	5.49
55–59	0.92	0.78	0.95	1.79	2.44	5.13
60–64	0.92	0.39	0.68	1.59	1.56	3.97
65–69	0.88	0.44	0.52	1.32	1.37	2.30
70–74	0.78	0.45	0.39	1.50	0.88	1.31
75–79	1.07	0.52	0.31	1.36	0.96	0.85

Table A16. Distribution of marital status (%) of population aged 15–19 by province in Viet Nam, 2009

No.	Provinces/Cities	Single	Married	Widowed	Divorced/ separated
1	Ha Noi	97.27	2.72	0.00	0.01
2	Ha Giang	78.77	21.11	0.04	0.08
3	Cao Bang	86.39	13.41	0.02	0.18
4	Bac Kan	90.93	8.94	0.04	0.09
5	Tuyen Quang	91.67	8.26	0.01	0.06
6	Lao Cai	82.93	16.95	0.03	0.09
7	Dien Bien	79.22	20.44	0.09	0.25
8	Lai Chau	73.94	25.68	0.04	0.33
9	Son La	78.68	20.98	0.10	0.24
10	Yen Bai	89.67	10.26	0.01	0.06
11	Hoa Binh	93.99	5.92	0.03	0.06
12	Thai Nguyen	95.46	4.51	0.01	0.01
13	Lang Son	93.61	6.33	0.02	0.05
14	Quang Ninh	95.92	4.05	0.00	0.03
15	Bac Giang	95.41	4.56	0.01	0.02
16	Phu Tho	96.18	3.78	0.01	0.04
17	Vinh Phuc	95.28	4.68	0.01	0.03
18	Bac Ninh	95.79	4.16	0.01	0.04
19	Hai Duong	96.73	3.20	0.02	0.05
20	Hai Phong	96.63	3.31	0.00	0.06
21	Hung Yen	96.37	3.59	0.01	0.02
22	Thai Binh	97.37	2.63	0.00	0.00
23	Ha Nam	97.02	2.95	0.01	0.02
24	Nam Dinh	96.13	3.74	0.04	0.09
25	Ninh Binh	97.51	2.47	0.00	0.02
26	Thanh Hoa	96.75	3.20	0.02	0.03
27	Nghe An	96.66	3.29	0.01	0.04
28	Ha Tinh	98.73	1.26	0.00	0.01
29	Quang Binh	97.67	2.31	0.02	0.01
30	Quang Tri	96.72	3.22	0.03	0.03
31	Thua Thien Hue	98.15	1.84	0.00	0.01

No.	Provinces/Cities	Single	Married	Widowed	Divorced/ separated
32	Da Nang	98.52	1.44	0.01	0.02
33	Quang Nam	97.21	2.75	0.01	0.03
34	Quang Ngai	96.40	3.50	0.05	0.04
35	Binh Dinh	97.23	2.73	0.02	0.02
36	Phu Yen	96.04	3.83	0.03	0.10
37	Khanh Hoa	96.43	3.42	0.06	0.09
38	Ninh Thuan	94.94	4.90	0.07	0.10
39	Binh Thuan	95.63	4.20	0.05	0.13
40	Kon Tum	89.96	9.83	0.06	0.15
41	Gia Lai	88.83	10.92	0.07	0.18
42	Dak Lak	94.44	5.45	0.05	0.06
43	Dak Nong	91.61	8.28	0.01	0.09
44	Lam Dong	94.54	5.39	0.03	0.04
45	Binh Phuoc	92.83	7.01	0.05	0.11
46	Tay Ninh	92.40	7.25	0.06	0.28
47	Binh Duong	93.81	6.07	0.02	0.10
48	Dong Nai	96.76	3.16	0.02	0.06
49	Ba Ria-Vung Tau	96.57	3.34	0.01	0.08
50	Ho Chi Minh City	96.60	3.36	0.00	0.03
51	Long An	93.86	6.02	0.03	0.09
52	Tien Giang	94.28	5.54	0.01	0.17
53	Ben Tre	95.14	4.71	0.03	0.13
54	Tra Vinh	93.68	6.08	0.03	0.21
55	Vinh Long	95.44	4.47	0.04	0.06
56	Dong Thap	93.42	6.36	0.02	0.20
57	An Giang	91.60	8.05	0.02	0.32
58	Kien Giang	93.44	6.37	0.03	0.16
59	Can Tho	94.03	5.88	0.02	0.07
60	Hau Giang	92.87	6.97	0.01	0.15
61	Soc Trang	93.87	5.93	0.04	0.15
62	Bac Lieu	94.83	5.04	0.03	0.10
63	Ca Mau	93.00	6.88	0.02	0.10

Table A17. Distribution of marital status (%) among male population aged 15–19 by province in Viet Nam, 2009

No.	Provinces	Single	Married	Widowed	Divorced/ separated
1	Ha Noi	99.35	0.65	0.00	0.00
2	Ha Giang	82.75	17.18	0.02	0.04
3	Cao Bang	89.30	10.55	0.03	0.13
4	Bac Kan	94.51	5.46	0.01	0.02
5	Tuyen Quang	96.72	3.28	0.00	0.00
6	Lao Cai	88.63	11.31	0.02	0.04
7	Dien Bien	85.60	14.26	0.00	0.14
8	Lai Chau	81.35	18.46	0.00	0.19
9	Son La	85.97	13.88	0.06	0.08
10	Yen Bai	94.84	5.13	0.00	0.03
11	Hoa Binh	98.17	1.83	0.00	0.00
12	Thai Nguyen	99.15	0.85	0.00	0.01
13	Lang Son	96.53	3.40	0.01	0.06
14	Quang Ninh	98.83	1.17	0.00	0.01
15	Bac Giang	99.03	0.96	0.01	0.00
16	Phu Tho	99.26	0.71	0.00	0.02
17	Vinh Phuc	99.31	0.69	0.00	0.00
18	Bac Ninh	99.29	0.70	0.00	0.01
19	Hai Duong	99.39	0.54	0.01	0.06
20	Hai Phong	99.13	0.85	0.00	0.02
21	Hung Yen	99.03	0.97	0.00	0.00
22	Thai Binh	99.63	0.37	0.00	0.00
23	Ha Nam	99.25	0.75	0.00	0.00
24	Nam Dinh	99.56	0.33	0.04	0.06
25	Ninh Binh	99.67	0.31	0.00	0.02
26	Thanh Hoa	98.85	1.13	0.00	0.02
27	Nghe An	98.50	1.49	0.00	0.01
28	Ha Tinh	99.79	0.21	0.00	0.00
29	Quang Binh	99.35	0.65	0.00	0.00
30	Quang Tri	98.63	1.33	0.02	0.02
31	Thua Thien Hue	99.33	0.67	0.00	0.00

No.	Provinces	Single	Married	Widowed	Divorced/ separated
32	Da Nang	99.61	0.39	0.00	0.00
33	Quang Nam	98.67	1.30	0.01	0.03
34	Quang Ngai	98.50	1.49	0.00	0.01
35	Binh Dinh	99.40	0.59	0.01	0.00
36	Phu Yen	98.82	1.16	0.00	0.02
37	Khanh Hoa	98.86	1.12	0.00	0.02
38	Ninh Thuan	98.26	1.72	0.00	0.01
39	Binh Thuan	98.70	1.30	0.00	0.00
40	Kon Tum	95.31	4.65	0.02	0.03
41	Gia Lai	94.54	5.41	0.01	0.04
42	Dak Lak	97.68	2.31	0.00	0.01
43	Dak Nong	96.62	3.36	0.00	0.02
44	Lam Dong	98.14	1.84	0.00	0.01
45	Binh Phuoc	97.71	2.25	0.00	0.05
46	Tay Ninh	97.37	2.56	0.01	0.06
47	Binh Duong	97.47	2.47	0.02	0.04
48	Dong Nai	98.78	1.22	0.00	0.00
49	Ba Ria-Vung Tau	98.94	1.06	0.00	0.00
50	Ho Chi Minh City	98.62	1.37	0.00	0.01
51	Long An	97.82	2.16	0.00	0.02
52	Tien Giang	98.06	1.90	0.01	0.03
53	Ben Tre	98.62	1.34	0.02	0.03
54	Tra Vinh	97.81	2.12	0.00	0.07
55	Vinh Long	98.57	1.42	0.02	0.00
56	Dong Thap	97.59	2.37	0.01	0.03
57	An Giang	96.60	3.32	0.00	0.09
58	Kien Giang	97.54	2.45	0.01	0.01
59	Can Tho	97.81	2.18	0.00	0.01
60	Hau Giang	97.46	2.49	0.00	0.05
61	Soc Trang	97.63	2.33	0.02	0.02
62	Bac Lieu	98.30	1.66	0.00	0.04
63	Ca Mau	97.17	2.76	0.01	0.05

Table A18. Distribution of marital status (%) among female population aged 15–19 by province in Viet Nam, 2009

No.	Provinces	Single	Married	Widowed	Divorced/ separated
1	Ha Noi	95.17	4.81	0.01	0.02
2	Ha Giang	74.48	25.35	0.05	0.12
3	Cao Bang	83.27	16.48	0.02	0.23
4	Bac Kan	86.92	12.84	0.06	0.17
5	Tuyen Quang	85.92	13.94	0.01	0.13
6	Lao Cai	76.84	22.97	0.05	0.14
7	Dien Bien	72.40	27.05	0.18	0.37
8	Lai Chau	66.17	33.26	0.09	0.48
9	Son La	70.92	28.54	0.13	0.40
10	Yen Bai	83.89	16.00	0.03	0.09
11	Hoa Binh	89.39	10.43	0.05	0.13
12	Thai Nguyen	91.47	8.48	0.03	0.02
13	Lang Son	90.42	9.51	0.03	0.05
14	Quang Ninh	92.71	7.23	0.00	0.06
15	Bac Giang	91.51	8.43	0.01	0.05
16	Phu Tho	92.85	7.08	0.01	0.06
17	Vinh Phuc	90.89	9.02	0.03	0.06
18	Bac Ninh	92.43	7.48	0.02	0.06
19	Hai Duong	94.00	5.93	0.03	0.05
20	Hai Phong	93.98	5.91	0.01	0.10
21	Hung Yen	93.68	6.26	0.02	0.04
22	Thai Binh	94.96	5.04	0.00	0.00
23	Ha Nam	94.60	5.34	0.02	0.04
24	Nam Dinh	92.42	7.41	0.04	0.13
25	Ninh Binh	95.04	4.93	0.01	0.02
26	Thanh Hoa	94.39	5.52	0.05	0.05
27	Nghe An	94.60	5.32	0.02	0.06
28	Ha Tinh	97.49	2.48	0.01	0.03
29	Quang Binh	95.87	4.08	0.04	0.02
30	Quang Tri	94.54	5.37	0.04	0.05
31	Thua Thien Hue	96.91	3.06	0.00	0.03

No.	Provinces	Single	Married	Widowed	Divorced/ separated
32	Da Nang	97.43	2.49	0.03	0.05
33	Quang Nam	95.63	4.31	0.02	0.04
34	Quang Ngai	94.20	5.62	0.10	0.07
35	Binh Dinh	94.87	5.05	0.03	0.04
36	Phu Yen	92.93	6.81	0.07	0.19
37	Khanh Hoa	93.94	5.77	0.13	0.16
38	Ninh Thuan	91.29	8.38	0.15	0.18
39	Binh Thuan	92.12	7.51	0.10	0.27
40	Kon Tum	84.25	15.37	0.10	0.28
41	Gia Lai	82.74	16.80	0.14	0.33
42	Dak Lak	90.98	8.81	0.10	0.12
43	Dak Nong	85.93	13.87	0.02	0.17
44	Lam Dong	90.64	9.24	0.05	0.06
45	Binh Phuoc	87.53	12.19	0.09	0.18
46	Tay Ninh	87.08	12.28	0.12	0.52
47	Binh Duong	91.10	8.74	0.02	0.14
48	Dong Nai	94.77	5.08	0.03	0.12
49	Ba Ria-Vung Tau	94.08	5.75	0.02	0.16
50	Ho Chi Minh City	94.71	5.23	0.00	0.06
51	Long An	89.62	10.15	0.07	0.17
52	Tien Giang	90.32	9.36	0.00	0.32
53	Ben Tre	91.30	8.43	0.03	0.24
54	Tra Vinh	89.46	10.14	0.05	0.35
55	Vinh Long	91.97	7.84	0.06	0.12
56	Dong Thap	88.96	10.62	0.04	0.39
57	An Giang	86.15	13.23	0.04	0.58
58	Kien Giang	88.88	10.73	0.06	0.33
59	Can Tho	90.15	9.68	0.03	0.14
60	Hau Giang	87.58	12.12	0.02	0.28
61	Soc Trang	89.91	9.73	0.07	0.29
62	Bac Lieu	91.15	8.62	0.06	0.16
63	Ca Mau	88.54	11.27	0.04	0.15

Table A19. Proportion never married among the population aged 40 and older and among the population up to age 20 by sex and province in Viet Nam, 2009

No.	Provinces	% of never-married population aged from 40		% population ever-married by the age of 20	
		Male	Female	Male	Female
1	Ha Noi	1.28	3.12	0.87	6.02
2	Ha Giang	0.28	2.78	0.71	7.57
3	Cao Bang	0.42	3.18	0.97	6.32
4	Bac Kan	0.65	5.44	0.75	5.4
5	Tuyen Quang	0.55	5.31	0.44	7.58
6	Lao Cai	0.60	6.56	0.37	5.04
7	Dien Bien	1.58	1.24	17.25	25.52
8	Lai Chau	0.75	1.41	11.37	23.16
9	Son La	0.41	2.23	0.97	8.49
10	Yen Bai	0.82	1.65	3.47	9.58
11	Hoa Binh	1.06	2.55	3.28	14.08
12	Thai Nguyen	0.92	2.48	5.16	16.11
13	Lang Son	0.61	3.31	0.74	7.15
14	Quang Ninh	1.05	1.69	5.49	13.08
15	Bac Giang	1.05	1.36	1.17	7.29
16	Phu Tho	1.19	1.33	18.65	33.83
17	Vinh Phuc	0.91	1.10	14.4	27.6
18	Bac Ninh	0.78	1.73	14.03	29.08
19	Hai Duong	0.50	2.72	1.15	5.61
20	Hai Phong	0.58	2.43	1.50	5.4
21	Hung Yen	0.62	3.19	0.21	2.51
22	Thai Binh	0.67	2.45	0.65	4.13
23	Ha Nam	1.15	4.19	1.37	5.46
24	Nam Dinh	1.47	4.53	0.67	3.09
25	Ninh Binh	2.77	5.35	0.39	2.57
26	Thanh Hoa	1.60	6.83	1.33	4.37
27	Nghe An	1.18	4.54	1.50	5.8
28	Ha Tinh	1.28	4.46	0.6	5.13
29	Quang Binh	1.29	3.71	1.18	7.07
30	Quang Tri	2.73	4.31	1.14	6.06

No.	Provinces	% of never-married population aged from 40		% population ever-married by the age of 20	
		Male	Female	Male	Female
31	Thua Thien Hue	1.11	1.77	5.46	17.26
32	Da Nang	0.88	1.28	3.38	14.07
33	Quang Nam	1.85	3.78	1.86	9.36
34	Quang Ngai	6.45	10.88	1.38	5.29
35	Binh Dinh	2.07	3.19	1.74	8.71
36	Phu Yen	1.12	1.52	2.29	12.47
37	Khanh Hoa	2.56	4.81	2.63	12.92
38	Ninh Thuan	3.58	5.53	2.53	8.9
39	Binh Thuan	2.06	3.54	1.30	7.88
40	Kon Tum	2.02	4.78	2.18	10.38
41	Gia Lai	1.96	4.47	2.41	11.04
42	Dak Lak	2.26	5.24	3.40	13.85
43	Dak Nong	2.28	5.85	1.94	9.68
44	Lam Dong	2.13	5.55	1.43	8.03
45	Binh Phuoc	2.21	4.75	1.38	8.7
46	Tay Ninh	1.61	3.94	2.46	11.12
47	Binh Duong	2.92	6.90	2.19	9.85
48	Dong Nai	1.39	3.82	2.54	12.42
49	Ba Ria-Vung Tau	1.55	4.28	2.19	10.54
50	Ho Chi Minh City	2.00	5.03	2.37	10.09
51	Long An	1.82	4.60	1.70	8.85
52	Tien Giang	0.99	2.79	2.83	11.46
53	Ben Tre	1.29	1.64	10.70	16.73
54	Tra Vinh	0.75	2.56	0.85	8.53
55	Vinh Long	0.38	2.65	0.69	9.11
56	Dong Thap	0.99	3.76	0.65	4.83
57	An Giang	0.43	3.17	0.61	6
58	Kien Giang	0.56	5.29	0.33	4.96
59	Can Tho	0.76	2.25	1.83	10.61
60	Hau Giang	1.39	1.95	4.69	15.75
61	Soc Trang	1.41	2.11	2.32	9.02
62	Bac Lieu	3.20	5.53	1.22	5.23
63	Ca Mau	2.41	4.21	1.06	5.92

Table A20. Regression on probability of never marriage among population aged 40–69, Viet Nam, 2009

	Total		Male		Female	
	Coef.	SE	Coef.	SE	Coef.	SE
Region						
Northern Midlands and Mountains	0.000		0.000		0.000	
Red River Delta	0.631	0.016	0.174	0.034	0.718	0.018
North and South Central Coast	0.546	0.015	0.519	0.030	0.563	0.017
Central Highlands	-0.027	0.022	0.446	0.040	-0.185	0.026
Southeast	1.189	0.016	1.545	0.031	1.080	0.019
Mekong River Delta	0.718	0.016	0.944	0.030	0.688	0.019
Urban (Rural=0)	0.558	0.008	0.917	0.017	0.438	0.009
Age group						
40–44	0.000		0.000		0.000	
45–49	-0.198	0.010	-0.556	0.019	-0.045	0.011
50–54	-0.410	0.010	-1.216	0.024	-0.136	0.012
55–59	-0.659	0.013	-1.794	0.033	-0.309	0.014
60–64	-1.108	0.017	-2.446	0.045	-0.709	0.019
65–69	-1.894	0.024	-3.044	0.060	-1.495	0.026
In-migrant	0.150	0.030	0.216	0.055	0.147	0.035
Ethnic minority	-0.040	0.014	0.141	0.026	-0.077	0.017
Religious adherent	0.297	0.009	0.220	0.018	0.321	0.011
Educational attainment						
Below primary	0.000		0.000		0.000	
Below L. Secondary	-0.780	0.013	-1.314	0.025	-0.608	0.015
Below U. Secondary	-0.929	0.014	-1.518	0.025	-0.712	0.016

	Total		Male		Female	
	Coef.	SE	Coef.	SE	Coef.	SE
U. Secondary	-0.887	0.016	-1.443	0.028	-0.651	0.019
Post secondary	-0.862	0.022	-1.573	0.041	-0.564	0.025
Working	-0.255	0.009	-1.238	0.020	-0.038	0.011
Vision Disability	0.635	0.029	0.399	0.051	0.722	0.035
Hearing Disability	0.125	0.019	0.087	0.036	0.166	0.023
Walking Disability	0.315	0.019	0.084	0.034	0.363	0.022
Memory Disability	1.376	0.017	1.676	0.029	1.150	0.020
Female (male=0)	0.992	0.009				
Constant	-3.639	0.024	-2.279	0.041	-3.081	0.026
N	3643806	3643806	1716721	1716721	1927085	1927085
R^2						
Cox-Snell	0.173		0.190		0.126	
Nagelkerke	0.202		0.274		0.137	
McKelvey & Zavoina	0.619		0.751		0.445	
McFadden	0.099		0.178		0.054	

Table A21. Regressions on probability of ever-marriage among population aged 15–19, Viet Nam, 2009

	Total		Male		Female	
	Coef.	SE	Coef.	SE	Coef.	SE
Region						
Northern Midlands and Mountains	0		0		0	
Red River Delta	-0.467	0.082	-0.912	0.042	-0.339	0.019
North and South Central Coast	-0.707	0.053	-0.895	0.027	-0.613	0.017
Central Highlands	-0.156	0.059	-0.480	0.030	-0.004	0.020
Southeast	-0.616	0.084	-0.555	0.043	-0.579	0.025
Mekong River Delta	-0.165	0.053	-0.419	0.027	-0.051	0.018
Urban (Rural=0)	-0.305	0.065	-0.013	0.033	-0.379	0.017
Age group						
15 years	0		0		0	
16 years	0.791	0.094	0.508	0.048	0.886	0.031
17 years	1.624	0.088	1.128	0.045	1.775	0.029
18 years	2.506	0.084	1.782	0.043	2.713	0.028
19 years	3.205	0.082	2.517	0.042	3.398	0.028
In-migrant	0.345	0.120	0.079	0.061	0.387	0.024
Ethnic minority	0.747	0.037	1.250	0.019	0.544	0.014
Religious adherent	-0.029	0.053	-0.050	0.027	-0.020	0.016
Educational attainment						
Below prtimary	0		0		0	
Below L. Secondary	-0.312	0.069	-0.232	0.035	-0.415	0.024
Below U. Secondary	-0.941	0.065	-0.762	0.033	-1.084	0.021
U. Secondary	-1.637	0.082	-1.413	0.042	-1.792	0.025
Post secondary	-1.950	0.584	-0.579	0.298	-2.364	0.176
Working	1.043	0.065	1.700	0.033	0.945	0.013
Female (male=0)	1.639					
Constant	-5.545	0.061	-5.761	0.060	-3.890	0.035
N	1474153		752881		721272	
R^2						
Cox-Snell	0.472		0.251		0.541	
Nagelkerke	0.517		0.351		0.559	
McKelvey & Zavoina	0.830		0.820		0.790	
McFadden	0.261		0.230		0.227	

Table A22. Regressions on probability of divorce or separation among population aged 15–69, Viet Nam, 2009

	Total		Male		Female	
	Coef.	SE	Coef.	SE	Coef.	SE
Region						
Northern Midlands and Mountains	0		0		0	
Red River Delta	-0.223	0.012	-0.173	0.023	-0.251	0.014
North and South Central Coast	-0.346	0.012	-0.219	0.022	-0.382	0.014
Central Highlands	-0.219	0.016	-0.133	0.030	-0.222	0.018
Southeast	0.263	0.013	0.421	0.024	0.221	0.016
Mekong River Delta	0.116	0.012	0.477	0.021	-0.014	0.014
Urban (Rural=0)	0.411	0.008	0.365	0.014	0.424	0.009
Age group						
15–19	0		0		0	
20–29	0.226	0.034	0.232	0.082	0.343	0.039
30–39	0.484	0.034	0.324	0.081	0.716	0.040
40–49	0.650	0.034	0.265	0.081	0.985	0.040
50–59	0.642	0.034	-0.084	0.082	0.649	0.038
60–69	0.359	0.036	-0.618	0.085	0.442	0.040
In-migrant	-0.242	0.022	-0.476	0.045	-0.204	0.027
Ethnic minority	-0.378	0.012	-0.388	0.021	-0.356	0.015
Religious adherent	0.085	0.009	0.014	0.016	0.122	0.010
Educational attainment						
Below primary	0		0		0	
Below L. Secondary	-0.057	0.015	-0.186	0.027	0.008	0.018
Below U. Secondary	-0.232	0.015	-0.424	0.028	-0.130	0.019
U. Secondary	-0.289	0.017	-0.500	0.030	-0.183	0.020
Post Secondary	-0.631	0.022	-0.849	0.040	-0.530	0.027
Working	0.016	0.010	-0.937	0.019	0.242	0.011
Vision Disability	0.239	0.052	-0.025	0.075	0.346	0.071
Hearing Disability	-0.099	0.028	-0.229	0.042	0.016	0.036

	Total		Male		Female	
	Coef.	SE	Coef.	SE	Coef.	SE
Walking Disability	0.107	0.025	-0.077	0.038	0.115	0.032
Memory Disability	0.927	0.023	1.186	0.032	0.629	0.031
Ever given birth					-0.462	0.018
Female (male=0)	0.822	0.007				
Constant	-4.664	0.040	-3.441	0.088	-3.937	0.044
N	6728732	6728732	3249608	3249608	3479124	3479124
R^2						
Cox-Snell	0.045		0.030		0.037	
Nagelkerke	0.061		0.051		0.046	
McKelvey & Zavoina	0.385		0.356		0.279	
McFadden	0.035		0.034		0.023	

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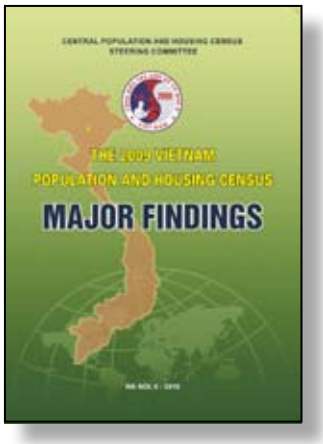

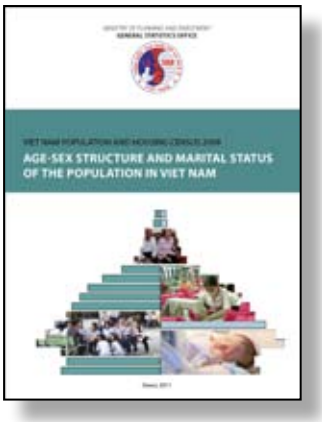

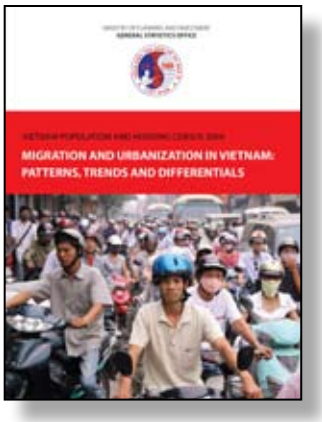

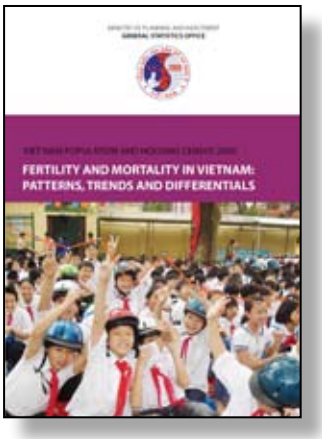

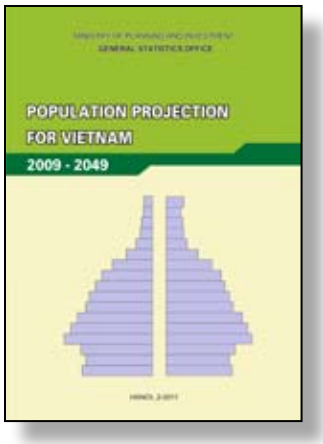

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