Population Structure and Social Change:

Labor, Care and Regional Disparities in Aging Japan

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Doctoral Dissertation

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February, 2011

Acknowledgements

I would like to express my gratitude to my supervising professor, Professor Scott North for his help and patience during the research and writing of this dissertation. I would also like to thank Professor Hiroshi Yamanaka, Kazoe Muta, Professor Toru Kikkawa and other staff members of Osaka University for their helpful lectures, comments and advice. I am indebted to my friends who have lent me their emotional support throughout the duration of my studies at Osaka University.

Abstract

Population Structure and Social Change:

Labor, Care, and Regional Disparities in Aging Japan

（人口構造と社会変動：

高齢化する日本における雇用、介護と地域格差）

The history of human kind is a history of economic development based on population growth. For millenniums, economic development was premised on growth and expansion. During the last two centuries, however, all the developed countries have completed the demographic transition and birth rates have fallen almost everywhere in the world. For the first time in history, the population decreased in places not affected by wars, disease or famines. While, the debate on whether population decline is harmful or beneficial for the modern world is ongoing, the negative impact of skewed population structure is more obvious.

Unlike European industrialized states, Japan has gone through the demographic transition in a fairly short period of time. This makes all the changes accompanied by shifts in population structure more pronounced than anywhere else. Furthermore, due to very low birth-rates, changes in population structure and population aging have progressed more than anywhere else. Researching how Japanese society is being transformed under the influence of demographic change is the main objective of my dissertation.

In this dissertation I analyze various aspects of social change in Japan caused by rapid population aging. Japan pursues a path that no country went through before, which makes Japan's experience a valuable source of knowledge for other countries.

I start by analyzing the demographic determinants of population aging (life expectancy vs birth-rates). Both factors contribute to population aging, but decreasing birth-rates also affect the size of the household and are not accompanied by an increase of productive life-span. There is no consensus about what factor contributes more to aging in Japan. Actually, recent studies tend to emphasize the role of longevity. Based on data from National Census, I assess the importance of each factor. I argue that the role of the birth rates is more important not only because of its immediate effect on the size of young population, but also because of its long-term consequences for population structure.

The next issue discussed is the influence of the changing population structure on the labor environment and its relation to labor dualism. The impact of demographic change on labor environment is a very important issue, because labor market instability and labor dualism are responsible for increasing social and income inequality in Japan. The relation of selected demographic indicators to labor environment indicators, like the job-offers-to-seekers ratio and irregular workers ratio is analyzed in this section. Contrary to predictions by some researchers, the labor shortages and competition between the enterprises to secure human resources have not become distinctive features of Japan's economy. On the other hand, growing labor costs due to the shift towards older ages within corporate population pyramid encouraged the enterprises to look for new means of cost reduction: moving production offshore, limiting employment, employment dualism.

In the following section I discuss how the demographic change caused by low birth rates changes the structure of Japan's household. Due to the fact that traditionally the family was the main source of support and socializing opportunities in Japan, the impact of the shrinking

household is very significant. Traditional living arrangements are transformed as more and more people chose or are forced to live alone. A similar situation applies to old-age care practices in Japan. The stereotypes of Japanese elderly cared for by their family or elderly in Japan being rich are changing as they lose connection with reality. Traditional safety net of family support tends to weaken especially in places where it is required the most. This gives space for new developments, like emigration of Japanese pensioners overseas.

Finally, I analyze how demographic change is contributing to regional disparities. The arguments have been made by some researchers that population decrease will help Japan to resolve its overpopulation problem and allow more living space for the citizens. However, the data presented in this section shows that overpopulation still continues in overpopulated areas as depopulation progresses in the areas with low levels of population density, contributing to further increase in regional inequality in Japan.

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Chapter 1

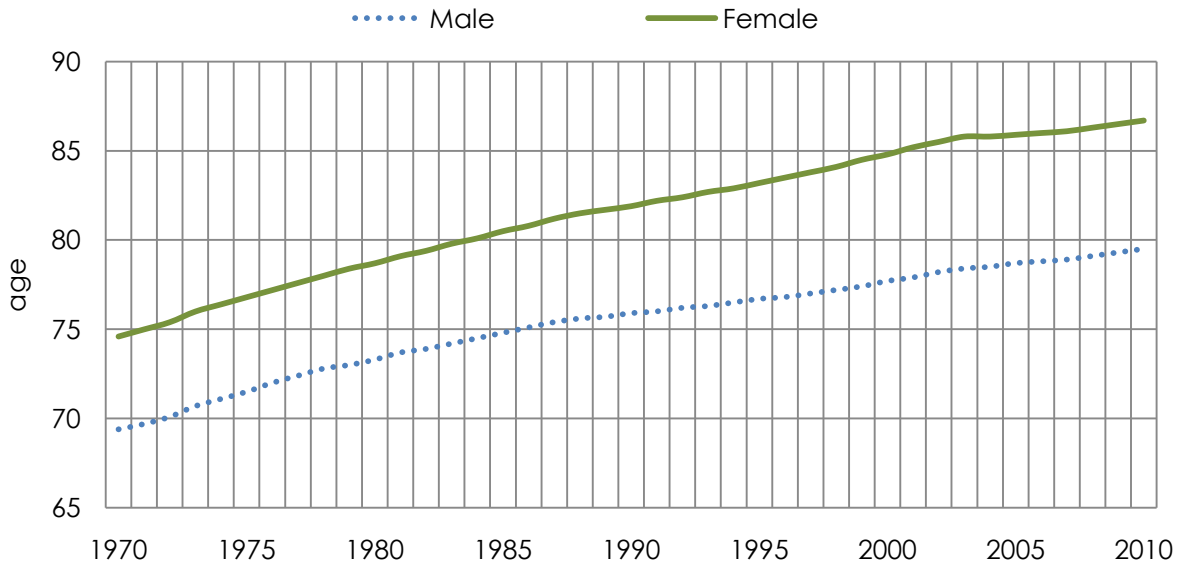
Introduction

1.1 Aging as an Achievement

Most developed countries are now facing the problem of aging population and some of them – declining population. The average age of human population in the developed world has been increasing steadily, and this is as a result of improved living standards, absence of famines or epidemics and improved health care. Aging of the population is first of all a victory for humanity. As developed nations managed to deal with infectious diseases and epidemics and new living standards (i.e. canalization, electrification) became widely accessible, child mortality decreased and people enjoyed longer and healthier lives. Therefore aging was certainly one of the greatest achievements of the 20th century.

Furthermore, as advocates of the "demographic trap theory" argued, having fewer children allowed people to concentrate more on work and be more mobile, which helped many nations to develop prosperous societies over relatively short periods of time. Being a leader of economic and industrial progress in Asia since the Meiji era, Japan was also leading in terms of average life expectancy, first of all due to improvement in child-mortality rates and success in fighting infectious disease (Figure 1.1). A turning point in Japan's demographics is the two decades after World War II, when child-mortality rates and birth-rates both declined and Japan's population started aging.

Figure 1.1: Life Expectancy at Birth (years)



Source: MHLW 2010, *Average Life Expectancy of the Japanese – Life Tables*

During the last three decades a lot of scientific research has been done in the field of population studies. Yet, none of the social or economic disciplines succeeded in explaining the mechanism responsible for falling birth-rates in developed nations and understand the influence of changes in population structure on the society and vice-a-versa.

The main objective of the present work is to present relevant data and analysis of the demographic change in contemporary Japan and by doing so to contribute to interdisciplinary understanding of the problem. The problems addressed are: the question of demographic determinants of aging (what causes population shift?); labor market problems (how do changes in population structure affect employment?); household patterns and old age care (his is the Japanese family and welfare system affected by aging?); and the problem of regional disparities (how does the situation differ across the regions? Why might such differences be

dangerous for society?). Finally, Japan's experience is a valuable source of evidence for the demographic theory. Examples from Japan will show how the society behaves in new demographic setting.

Demography, Economy, Sociology, Welfare and Politics as well as other disciplines are involved in the debate. For instance, many researchers (Wada 2007, Ishii 2008, Veron 2008, Kyogoku and Takahashi 2008) emphasize the role of increasing life-expectancy as the demographic factor behind aging. I argue that the role of falling birth rates is at least as important and is growing. Unlike other researches that tend to analyze the influence of each factor (life-expectancy and birth-rates) in a particular time point, I analyzed data from 1970 to 2050 to show how important the role of birth-rates is.

The question of demographic determinants of aging is a question of demography, but it has many implications for other fields. Economical aspects of demographic aging, or more precisely, changes in population age structure, are most obvious in the labor market. Despite the fact that baby boomers still have not reached pensionable age, skewed population structure has already affected the labor market of Japan. I argue that it is skewed population structure, caused by falling birth-rates and not increased life-expectancy that promotes changes on the labor market and creates demand for irregular employees.

Economic and demographic problems are also closely related to social problems. My argument is that the sole fact that people live alone longer periods of their lives would not be problematic as long as they are able to maintain a decent living standard and receive pension and welfare benefits they have earned during their lives. I show that this is not

the case in Japan and that the demographic change affected seriously the social issue of loneliness and poverty.

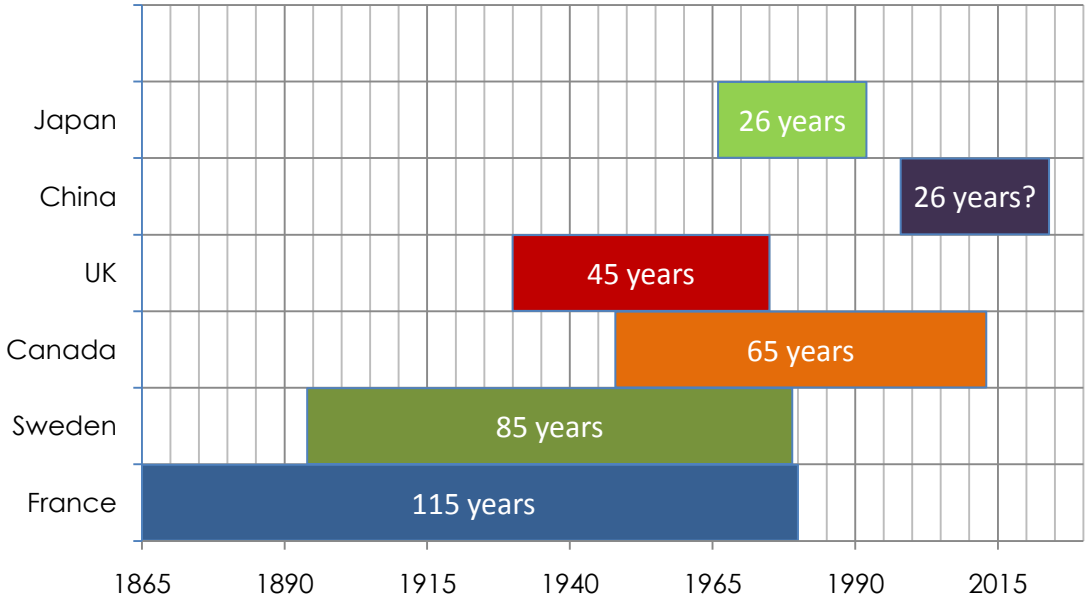
Last but not least is the problem of regional differences, which is a political problem, but is also influenced by demography. I argue that the problem of overpopulation in certain regions of Japan will not be resolved by overall decrease in the population, like some would suggest. Furthermore, Japan's future depends on how wisely it will deal with the issue of regional inequality. A detailed description of each chapter and its contribution is summarized in section 1.4 Objectives, Structure and Contribution.

1.2 Aging as a Challenge - Background

Demographic aging is one of the greatest challenges Japan is facing today. Japan's case is particularly interesting, because here, demographic change occurred faster than anywhere else. Thus, its effect on the society is more obvious. In other words, the demographic change in Japan is not only problematic because of highest life-expectancy and one of the lowest birth-rates, but first of all, because of the speed of the change (Figure 1.2). Japan's population is aging much faster than advanced Western European countries or the USA. The elderly in Japan accounted for only 7.1 percent of the total population in 1970, but by 1994, it had almost doubled to 14.1 percent. Today about 22.8% of the total population is over age 65.

Figure 1.2: Accelerating Speed of Demographic Aging Across the World

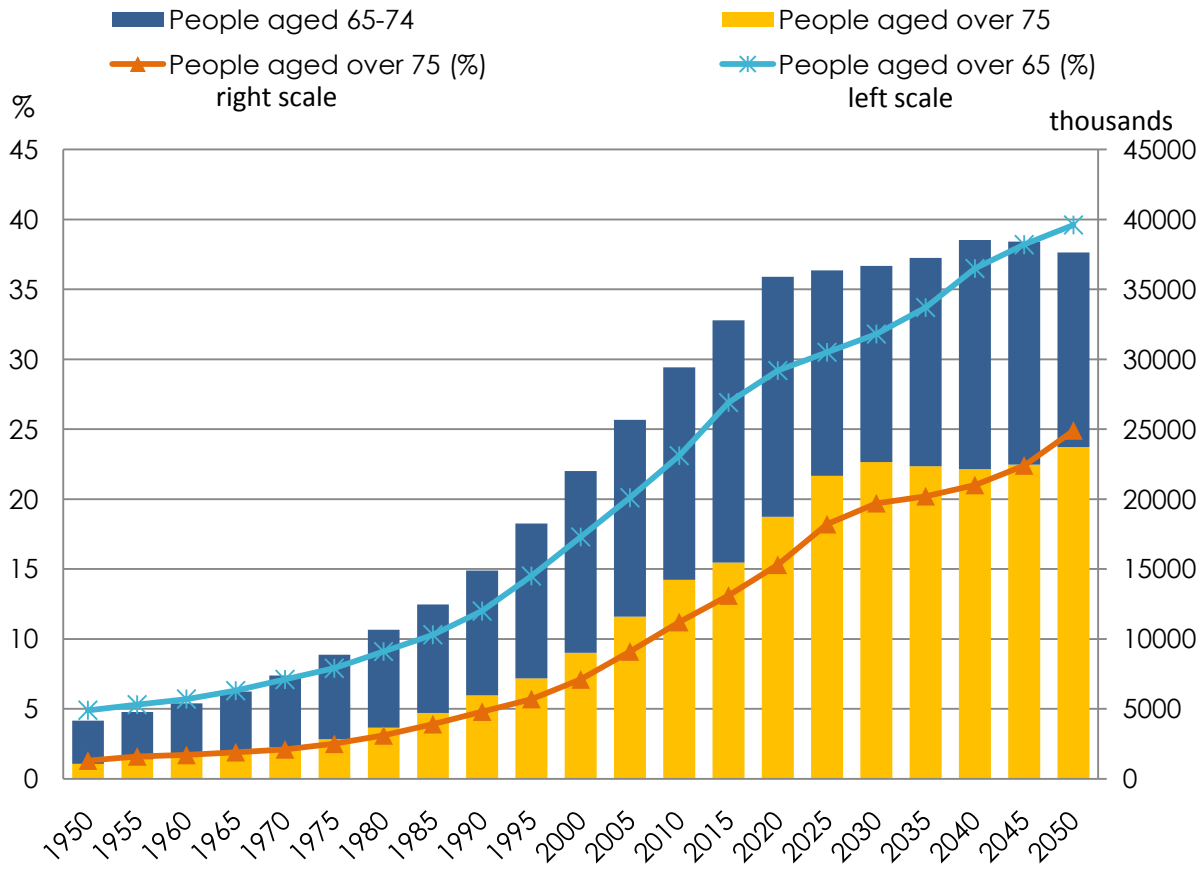
Time taken for number of persons over 65 to increase from 7 to 14% of population



Source: United Nations, *The Aging of Populations and its Economic and Social Implication,* 1956; United Nations, *World Population Prospects,* 2008

As for the relationship of older population to the population of productive age, in 1960 there was one elderly person for 11 people of productive age, while in 2005 there were only about three persons to support one elderly person. The aging ratio will continue to rise further and by 2050, the ratio is estimated to be one elderly person for every 1.3 people of productive age. Even if the age we now consider to be "old-age" is raised to let's say over 75, the ratio will be one elderly person to 2.2 persons of productive age (Figure 1.3).

Figure 1.3: Increase in Elderly Popluation in Japan
(absolute figures and ratios to total population)



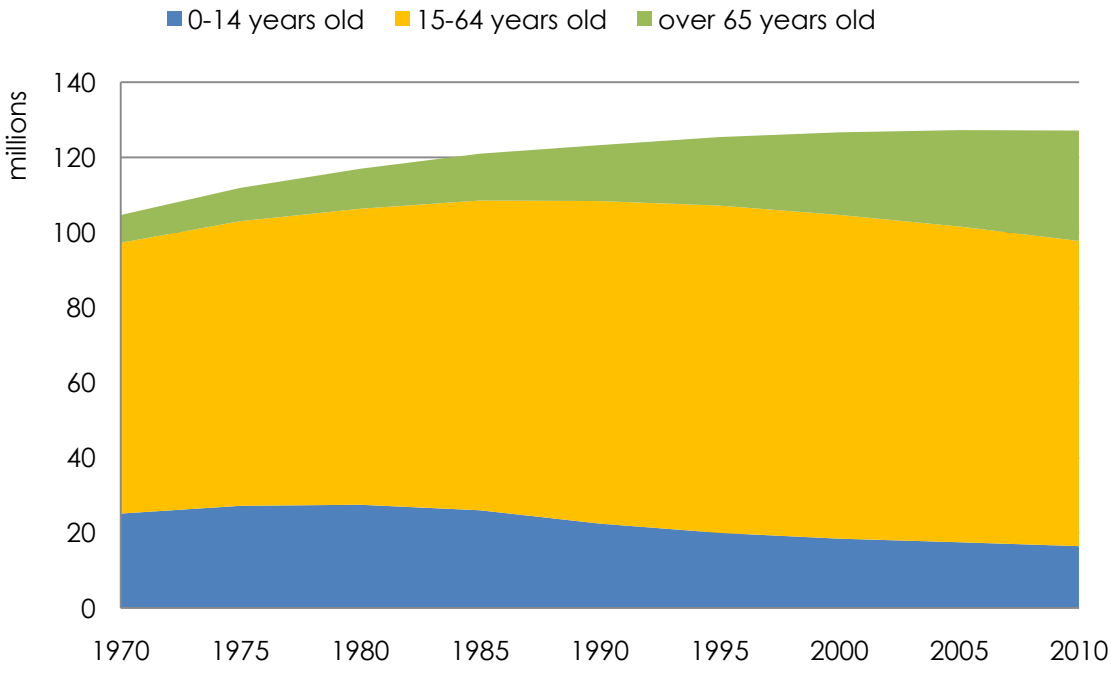
Source:
1950-2005: MIAC, *National Census*
2005-2050: NIPSSR, *Population Projections for Japan*, 2006

In terms of demographic change, the 20th century can be divided into four periods of demographic transition: 1st stage - up to 1945, when crude death rates (CDR) decreased faster than crude birth rates (CBR) and stimulated population growth; 2nd stage – the period between 1945 and 1960, when actual fertility transition completed and Japan's population started aging; 3rd stage, the period of population bonus and high economic growth from 1960 to roughly 1975; and the period since 1975 until now – the period of below-replacement birth rates and hyper-aging

society. The present paper deals mostly with the last period, first of all because no other country has experienced the demographic developments that are occurring in Japan now, and second, because many of the interrelations between the hyper-aging population and social change are yet to be understood.

With highest life expectancy and lowest birth rates, Japan is leader of demographic developments (Figure 1.4).

Figure 1.4: Changes in Population Age Composition



Source: NIPSSR 2010, *Japan's Statistics, (Chapter 2: Population)*

There are several reasons why research on Japan's demography is important right now. First, Japan is entering a new era, when population is decreasing in absence of war, famines and infectious diseases. Such

demographic change is unprecedented and understanding its implications is essential to ensure social stability and sustainability of the welfare system. Unlike previous cases of population decline in world history, the decline of population in Japan is characterized by rapid population aging and skewed population structure on all the steps of the population pyramid. Aging and decreasing population create a number of challenges for Japanese society, primarily sustainability of the welfare and pension systems (Suzuki 2008). However, the effects of changing population structure also come out in unexpected areas, for instance employment.

Japan is pursuing a path that no country has traveled before and therefore it will need to find its own solutions to meet social and economic issues related to demographic change. As a pioneer in the field of a hyper-aged society, Japan anticipates the issues that are most likely to show up over time in other countries with aging population. Although the solutions that Japan developed so far and might develop during upcoming years cannot be copied exactly by other countries, Japanese experience will be of the greatest value as a source of knowledge in the fields of newest demographic developments. A big objective of the present work is to gather that knowledge and reveal the links between recent social developments in Japan and demographic change.

1.3 Population Aging is a Multidimensional Issue

As will be discussed throughout the paper, no sphere of Japanese society remains untouched by changing demographics. Of course each and every social change cannot be explained only by population aging. However, it is obvious that declining birth-rates, life expectancy gains, and

migration are in combination very powerful factors that affect the future of Japan's internal arrangements as well as its position in the international arena. Interconnections of different developments related to population structure are very complex and often counterintuitive. For instance, low birth-rates do not create labor-shortages as predicted by many, but they influence many other aspects of social life, like family size, household patterns, education system and, in the long run, demand. Aging labor-force raises the problem of labor cost and also gives rise to the debate on immigration policy and social inequality. Changing household patterns – is a cultural issue, but it is also related to problem of social ties and political debate over welfare issues. Drawing on official statistical data, including among others National Census, National Livelihood Survey, and Basic Survey on Wage Structure, I analyze interconnection of the developments, where the effect of population structure changes is most immediate: labor market, welfare, regional disparities. What makes this kind of research important is that humanity for centuries lived under the premise of economic and population growth. Because the demographic developments we see in the 20th century are unprecedented, they represent a challenge not only to Japanese society, but to the whole concept of human progress we experienced until now. Fundamentally new ways of social progress under conditions of shrinking economies and shrinking populations need to be found (Korotayev et al. 2006).

1.4 Objectives, Contribution and Structure of the Dissertation

The present paper consists of 8 chapters: Introduction, State of Knowledge, five main body chapters, Conclusion and Appendix.

The paper starts with a review of knowledge (Chapter 2) on population and its relation to society, economy and politics. Chapter 2

summarizes and analyzes briefly ancient ideas on population size and structure and presents a comprehensive review of modern theories, including demographic transition, youth-bulge, and demographic trap theories. Following that is an overview of the present day debate in the field of demography and its connection to socio-economic problems. This section traces how demographical thought evolved from considering only population size to including population age structure and how the preoccupation of thinkers was switching from overpopulation to depopulation and vice-a-versa. Special attention is devoted to the predictions concerning population growth that did not come true and to the questions that have not been resolved and are widely discussed now: causes of demographic aging, labor issues, sustainability of welfare systems, and regional depopulation.

The objective of Chapter 3 is to evaluate the importance of various demographic determinants of the population aging process. There are two reasons why this is important. First, before considering the impact of an aging population on a given society it is necessary to understand what the causes of aging are. The second reason is very important when considering the ideas of "aging-optimists", who argue that the problem of the aging society is too much exaggerated, that aging happens as a result of the longer and healthier lives of the citizens who are going to contribute to the economy long after reaching age 65. Of course, these arguments are valid under 2 conditions: 1) aging of the population is mostly caused by increased life-expectancy; 2) healthy life expectancy (as well as the time the individual is going to belong to the productive group) is increasing along with life expectancy. The main purpose of the chapter dealing with demographic determinants of aging – is to verify whether the conditions above are true and determine the most important

factors that contribute to population aging. In order to do this, the data on expected total fertility (TFR), age specific fertility rates (ATFR) and life expectancy rates is taken from National Census (MIAC 1970-2005) and Population Projections for Japan (NIPSSR 2006) and used to create a component-cohort simulation to show what Japan's population pyramids would look like if: Case 1) birth-rates did not change since 1970 and Case 2) life-expectancy did not change since 1970. By comparing the results it is possible to determine which factor contributed and will contribute to the aging process more. Component-cohort approach to population projection was used as the most accurate method currently available (Preston 2001). Unlike precedent models that relied on average age and often did not take into account population structure, component-cohort approach accounts for population in every age group, sex distribution, TFR, age-specific TFR (ASTFR) and gives entirely accurate projections as long as all the other variables' stimates are correct. The results produced by this analysis provide the context for assessing potential influence of demographic change on Japanese society. The contribution of this chapter is to show the importance of birth-rates in population structure in the long run and to argue that no increase in healthy life-expectancy will be able to compensate for the increasing ratio of older cohorts.

Next, I go on to discussion of interrelations between labor markets and population structure in Japan. Chapter 4 analyzes how changing population structure, in particular changing age-structure of the economically active part of the population affects employment in Japan. This section contributes to the whole dissertation by establishing links between the demographic factors (birth-rates and increasing preponderance of older workers in regular employment) and demand for young workers on the labor market. Some researchers have predicted

that aging population will cause very serious labor shortages and that the problem of unemployment will very soon fade away, as the government and enterprises will face a new challenge of securing manpower. These predictions of labor shortages are analyzed and speculations are made on why those predictions did not quite come true in Japan. Then, based on the data from Basic Survey on Wage Structure (MHLW 2008a), General Survey on Part-time Workers (MHLW 2006) and National Census (MIAC 1970-2005) the relationship between aging population and irregular employment is analyzed. Special attention is paid to the problem of inequality between regular and irregular workers as seen through the lens of demographic change. I argue that we should think of labor market dualism not as a result of overprotection of older cohorts, but as a result of combination of two factors – demographic change and increase in the numbers of those who are supposed to be "overprotected". Finally, some recent examples of enterprises seeking to cut expenditures at the expense of employment stability are discussed. The main objectives of this section are to find out how the labor market is affected by changing demographics and how instable employment in turn affects demographics.

Chapter 5 discusses the influence of population aging on household patterns. In Japan, industrialization and subsequent migration to the big cities played a vital role in changing the shape of a common household. As migration of young people to the metropolitan areas progressed, the number of people living in 3-generation households gradually declined. The role of migration and industrialization was widely recognised but the role of changing population structure received less attention. In this chapter I make an attempt to fill the gap and show the relationship between aging and changes in household patterns. I emphasize the role

of decreased birth-rates in shrinking the number of household members. The problem of lonely people and old lonely people is discussed based on the data from Latest Demographic Statistics (NIPSSR 2010) National Census (MIAC 197-2005) and National Livelihood Survey (MHLW 2009d). The main questions of this section are 1) how does aging change household patterns? And 2) why does it matter? People spend much longer parts of their lives living alone in comparison to the preceding generations and this undermines many social norms established long ago. Another issue that is raised for discussion in this chapter is the widely held assumption that Japanese elderly are rich and can buy themselves all kinds of services or goods they need. Despite the fact it is true that old-aged people in Japan enjoy high life standards, the issue of inequality among the elderly should not be underestimated. The issue of unequal distribution of wealth among the elderly, and the issue of poverty among 1-person households is discussed. This chapter is rather an illustration of what social and economic problems are brought in by the changes in population structure.

Chapter 6 deals with the problem of old-age care. It is another illustration of socio-economic problems caused by demographic change in another dimension. Traditionally old-age care in Japan was considered to be responsibility of the closest kin, namely children. However, the current demographic situation is such that many elderly live away from their children or do not have any children at all. This is one of the most important issues of demographic aging. Data from Survey of Households Requiring Care (MHLW 2006b) and Life Security Survey (JILI 2001, 2004, 2007, 2010) is used to illustrate how aging population changes the situation in old-age care sector. Arguments have been made that along with life-expectancy increase, the overall health of the population also

improved and that less people will need care services in the future, so the problem of elderly care is exaggerated. The aim of this section is to verify whether this assumption is plausible. Another issue discussed here is the emergence of unregistered elderly homes that often do not conform to industry standards and provide low quality services to those elderly who have nowhere else to go and the emergence of the practice of going abroad to spend the rest of one's life in a place that is cheaper to live.

Chapter 7 deals with demographical change in Japan in the light of regional disparities. The main finding of this section is that unlike what some researchers argue, population distribution across the country has little to do with overall population growth. This debate is particularly important for Japan, because it is overpopulated and overcrowded with limited land and natural resources. It is thus absolutely plausible to assume that a decrease in population should be welcomed as allowing more living space even if the total GDP would decrease. Japan's population has been declining since 2005 and the working population started to decline even earlier. One of the questions of this section is did decrease in population decrease population density? If so, where did the population density decrease? Using cluster analysis, the various regions of Japan are divided into groups based on birth-rates, aging ratio and population growth. The main objective is to reveal what differences exist between different regions of Japan and how those differences are affected by variation in demographics. The contribution of this chapter is that it shows that decrease in the population is not going to have any positive implications like for instance better environment or more affordable and better living conditions because population decrease is very uneven across the regions.

The last Chapter summarizes the arguments and findings presented in the previous sections. As mentioned throughout the paper, aging of the population and its influence on society is a multidimensional issue. The objective of this chapter is to summarize the discussion on how different elements of the demographic change interact one with another and how they change the social norms of Japan's society. Chapter 8 is followed by the Appendix, which contains an atlas of population of Japan and a list of references.

Chapter 2

State of Knowledge: Population Doctrines and Theories

Population studies are often blamed for not having a comprehensive general theory that could explain factors behind population growth and predict consequences of demographical change for a given society (Burch 2003). However, the ideas about what population size is best and whether we do have to care about population growth were discussed ever in ancient times. Since the population was always growing except for fairly limited periods of wars and disease all early reflections on the issue of population are focused on population growth. We may hope that the theories for particular cases as well as empirical evidence may be gathered into a general theory of population growth, but it might well turn out that Marx (1970) was right in saying that absolute population theory is only for animals and plants.

2.1 Ancient Population Doctrines

Debates about whether rapid population growth is good or bad for the state can be traced back to ancient Greece. Aristotle and Plato discussed the best population size for city-states. Their conclusion was that population of the city has to be large enough to protect from invasions but not too large so that it is easy to administrate and ensure effective participation of citizens in public life. Plato emphasized the role of education saying that quality is more important than quantity. Aristotle concluded that immigration and emigration policies should be implemented depending on the current situation. He also linked overpopulation to poverty and advocated abortions as a mean of birth control (Aristotle 1986, Ellis 1986, Knight 2007).

In ancient China Confucius argued that too rapid population growth can reduce output per worker, decreasing life quality. He also noted that wars and famines check population increase (Neurath 1994). He argued the population should only grow to the extent the resources allow and the government was responsible for maintaining the balance between population and resources (Tang 1995).

In ancient Rome pro-natalist views dominated, Cicero postulated that population growth was a must as the empire needed more population to administrate its vast territories (Neurath 1994). On the other hand, Christian philosopher Tertullian described famines and wars as consequences of overpopulation, although he also criticized unwise spending and luxury (Heer 1966).

Very soon Christian position on population control went back to the "be fruitful and multiply" principle, with St. Augustine and St. Thomas Aquinas describing marriage and procreation as one of the ideal ways to serve God along with celibacy. A Christian writer Williams (1999) declared that connecting overpopulation and poverty was nonsense and provided evidence that high population growth could be accompanied by seamless economic development.

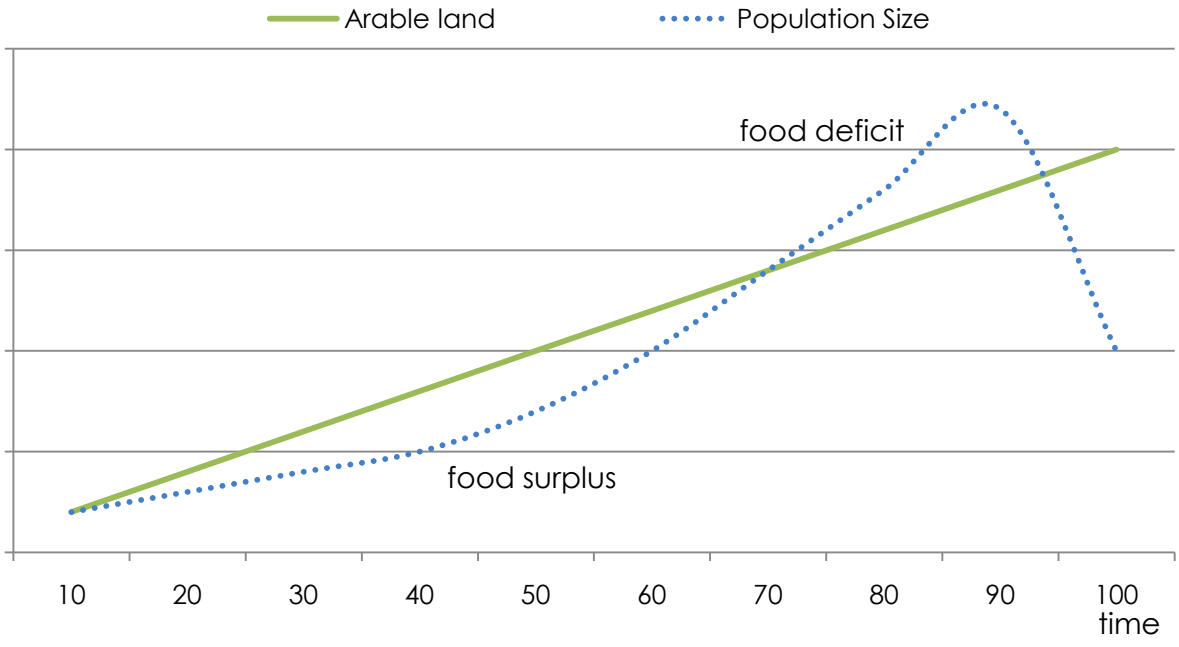
During years 1600~1800 mercantilist ideas were very influential in Europe. Mercantilist theory was that increasing national wealth depends on a growing population in order to produce resources and promote trade. Encouraging a large working population was one of the nine-points that Philipp Wilhelm von Hornick claimed to be the way to success and prosperity (Ekelund 1997).

2.2 Classic Population Doctrines

Throughout the 16th and 17th century populations of European states grew faster than before. This again gave rise to speculations about overpopulation. Niccolò Machiavelli drew attention to floods, plague and famines that might result as a consequence of uncontrolled population growth (Montevecchi 1972).

But perhaps one of the most influential and controversial works was published by Thomas Malthus in 1798. He argued that populations grow at a geometrical rate and thus it will eventually overgrow agricultural output that grows at arithmetical rate. This would lead to "positive checks" such as wars, famines to take control over population growth. It was up to the people to understand the limits of nature and use "preventative checks" such as moral restraint to prevent wars and famines (Malthus 1798, Peterson 1999).

Figure 2.1: Malthusian Collapse



Many ideas of Malthus were restated in Paul R. Ehrlich's "*Population Bomb*" where he compares population growth to cancer. Since he published this book, overpopulation has been cited as the main cause for many problems, including environmental pollution, high unemployment, poverty and famine. Although many predictions by Machiavelli, Malthus and Ehrlich did not come true, it is worth admitting that these works constituted an attempt to show that radical population change can have very serious consequences for humanity.

The Marxist perspective on population growth was more flexible and thus more difficult to confirm or disprove. According to Marx, every society at any point in history has its own rules of population growth. In capitalist societies, the results of uncontrolled population growth are overpopulation and poverty. On the other hand, in socialist societies every new member is accepted and integrated flawlessly into the economy (Marx 1970, 1992; Blackledge 2006).

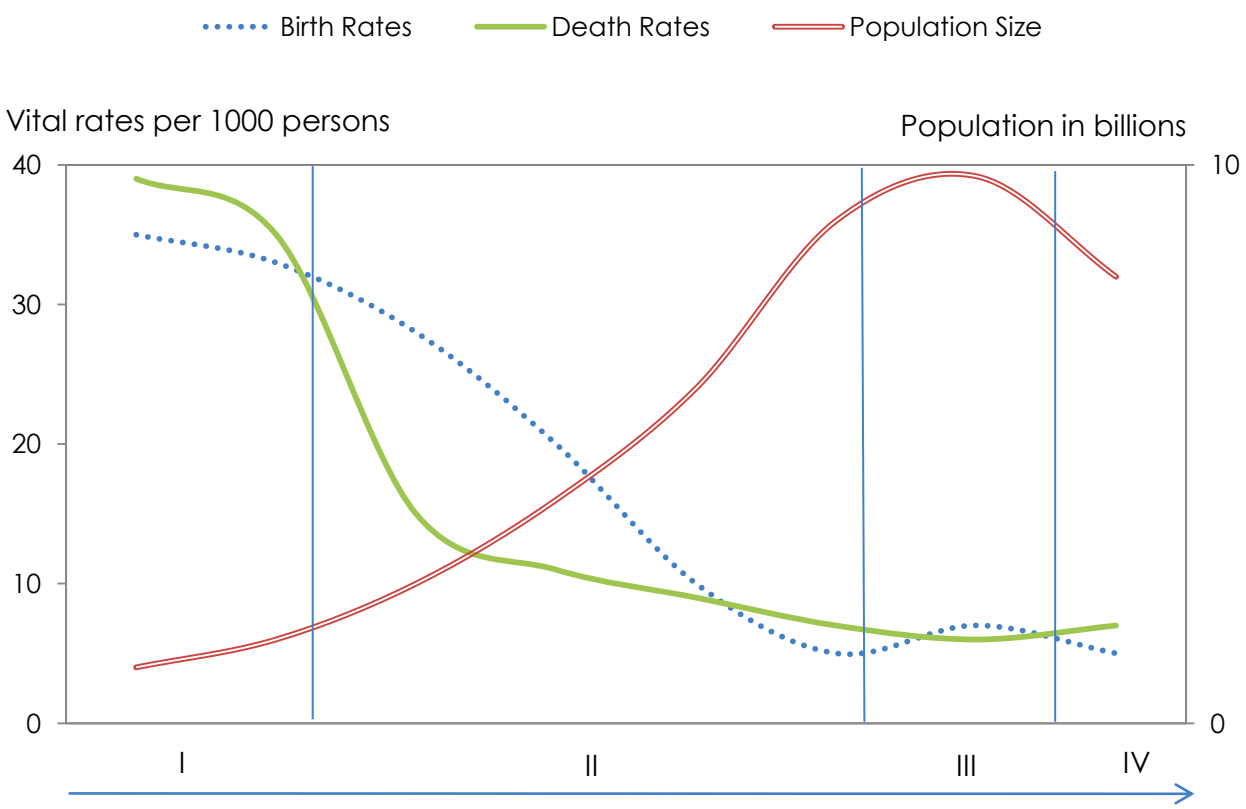
2.3 Contemporary Population Doctrines

2.3.1 Demographic Transition Theory

In the 20th century demographic transition theory became dominant. It was based on data on birth and death rate trends in industrialized European states. The theory emphasized the importance of economic and social development and argued that there are 3 stages of demographic transformation that all industrialized countries are destined to go through. The First stage is a situation when high fertility is balanced by high mortality, thus this stage is characterized by low or no population increase. In the Second stage the mortality decreases due to advancements in life quality, hygiene and medical services, but fertility

rate remains high, stimulating rapid population growth. By the end of the second stage, fertility decreases as well, but not as fast as mortality. The third stage is characterized by low fertility and low mortality, causing slow or no population growth at all (Caldwell 1976; Saito 1996; Oded 2005).

Fiure 2.2: The Demographic Transition



The theory of demographic transition explains these three stages in terms of industrialization and urbanization. It was criticized for assuming that less developed nations will necessarily go through the transition as they develop and for assuming that population change can have an effect on economic development and vice versa (Handwerker 1986; Caldwell 2006).

Japan completed its demographic transition with the decline in birth rates in the post-war period. Japan's demographic transition was considered a miracle that could not be explained by the established demographic transition theory (Ohbuchi 1976; Taeuber 1962).

As we can see, all population doctrines can be divided into two groups: ones that advocate rapid population growth and others that see such growth as problematic. The demographic transition theory implies that society aims to stabilize its population, and will respond with adequate fertility to rising or falling death rates. So all these doctrines are only concerned with population growth and population size. Such properties as age structure are ignored, which can be understood, as population pyramid had its triangular shape for centuries. Until the 20th century, population aging was as difficult to anticipate as it was difficult to anticipate a flat tire for societies that used chariots with wooden wheels. However, there seems to be a serious drawback of the demographic transition theory: given that any given society responds to lower mortality with lower fertility, the proportions of young to old should also change in favor of the old.

2.3.2 Easterlin Relative Cohort Size Hypothesis

Economist Richard Easterlin (Easterlin 1987; Macunovich 1998) has formulated a controversial theory about chances we get in a society. According to Easterlin, these life chances are by large determined by the relative size of the cohort we belong to. For example, if a person is a member of a small generation, he/she will experience less competition and chances to become successful and to fulfill all aspirations are greater (Pampel and Peters, 1995). On the other hand, there is less space under

the sun for members of large cohorts, so they have to compete, and the odds of becoming successful are lower unless the economy is growing to keep pace.

But of greater importance to this research are Easterlin's assumptions about fertility. According to Relative Cohort theory, the standard of living people experience in late childhood is the base from which they will evaluate their life chances. Thus, if it is possible to improve life chances as adults, people will be more likely to marry and have many children. Simply put, if your life is becoming better in comparison to what it was when you were 10~18 years old, and if you feel like there are chances that the life of your children will be better as well, you are likely to have a family and children soon (Easterlin, Macdonald, Macunovich, 1990).

This part of Easterlin's theory actually applies very well to the situation in Japan. Japanese society is so developed that it is hard to imagine continuous rapid improvement in the future, on the other hand, recent economic downturns have caused many problems and raised concerns of Japanese people about their prospects. However, the part of the theory that argues smaller cohorts will have greater chances during the life course can be criticized on the basis that, despite the fact that cohort sizes have declined in Japan, unemployment and poverty rates have grown.

According to the theory, as birth rates decline, the employment prospects should be better and wages should go up (Auerbach and Kotlikoff 1987, Kotlikoff 2005), but this is far from what is happening in Japan (Genda 2003, 2005). And it certainly cannot be argued that people born 20 years ago in 1990 and are now entering the labor market

are better off than those who were born in 1970 and entered labor market around year 1990 even though there is a two-fold relative difference between these cohorts' sizes.

2.3.3 Demographic Trap Theory and Youth Bulge Theory

A country is considered to be caught in demographic trap when it goes through 3rd stage of demographic transition and its population is growing rapidly due to a high birth rate and low death rate. In the end of the 3rd stage the country's level of health care reaches levels high enough to decrease mortality rates, but fertility remains low. The fruits of economic growth end up consumed by ever growing dependent young population instead of being spent for development and the country cannot complete the demographic transition. Instead the population continues to grow rapidly and can possibly trigger famines, poverty and wars as predicted by Malthus (King and Elliott, 1993). The theory is criticized based on the fact that famines and wars occur in places where food is actually available but is not accessible due to political or logistic reasons (Sen 1989).

A study by Population Action International (PAI 2007) shows a strong correlation between countries prone to civil unrest and armed conflicts and countries with large ratio of young people. According to the PAI between 1970 and 1999, 80% of conflicts occurred in countries where 60% of the population or more were under 30 years old. Some demographers refer to this phenomenon as "youth bulge" and emphasize its potential to destabilize countries in the developing world with high ration of young citizens (Goldstone 1991; Fuller 1995, 2004). The theory argues that developing countries undergoing demographic transition are especially susceptible to armed conflicts (Heinsohn 2003). The theory is criticized on

number of points, first being that all societies before demographic transition have youth bulges but not all are subject to social unrest and conflicts. Another problem is that the theory does not take into account other factors that might cause social unrest – like poverty, unemployment and corruption that is common for the countries where most of today's armed conflicts occur (Dhillon 2008).

Both demographic trap and youth bulge theory consider not only the population size but population structure as an important factor that may influence economic development of the state.

Following the youth bulge theory, it is possible to assume that if increase in the young-age cohorts may lead to social unrest, then maybe increase in working-age cohorts may also influence the society in some way, for example increase economic growth. Similarly, demographic trap theory implies that economic resources might end up used for supporting dependent cohorts, but these cohorts do not have necessarily to be young, it can be any group that is not involved in economy and requires financial support – like unemployed, military or old-age.

2.4 Focus Shift - Aging Population

In 20th century, all the developed countries have completed demographical transition. In fact, many researchers pointed to the existence of a 4th stage of demographic transition, when the birth rates continue to fall while life expectancy continues to grow, causing rapid aging of the population (Kotlikoff 2005, Myrskyla et al. 2009). Changes in demographic regimes during the 20th century shifted focus of population research from overpopulation problems to problems of aging and population decline (OECD 1988b, 1996).

Unlike youth-bulge, aging of the population is a fairly new phenomenon. It is difficult to predict how it may change the society, because it never happened in the past and the data that may support or disprove some of the assumptions about population aging is not readily available.

Author of "*Global issues*", Seitz (2007), draws an analogy between growing youth population and growing old population and claims that aging population is affecting society in a number of ways. First is increased burden on social security. The ratio of working-age people to retired people declines and puts a strain on pension system. Governmental health care costs also increase as population ages.

Seitz notes that carrying for the aged is a big concern in Japan, where population ages faster than anywhere else. He also argues that when a country has a low birth rate, and the number of young people entering the labor market is reduced, the result will be conflicts over immigration policies. However, if population aging and population decline are gradual they can be handled in a timely manner. Very rapid aging of the population and its consequences are much more difficult to address (Seitz 2007; McFalls 1991, 2005; Kotlikoff 2005).

Ideas were also expressed that decreased growth in labor supply could lead to lower unemployment and to increase in real wages due to cohort size effects (OECD1986) and to capital-deepening investment (Auerbach and Kotlikoff 1987). But evidence from most countries with shrinking labor force has not proved this to be true so far. In fact, in Japan unemployment and underemployment are on the rise and real wages

have actually decreased, especially if reduced bonuses and non-regular workers wages are taken into account.

In May 1995 a meeting of OECD ministers was called to discuss the impacts of demographic aging on the member countries. One year later a book was published by OECD (1996, De Carbon 1997) describing challenges that the aging societies are going to face, providing hypothesis for demographic development for future generations and suggesting possible solutions to mitigate the problem. The projections of population growth expressed in the book are very optimistic and suggest that most OECD countries will reach near replacement levels of births by 2030. Authors argued that 1) most social security system are already facing crisis, which will worsen after 2010 when the baby-boom cohorts will head for retirement; 2) pensions and social security systems need to be reformed, because keeping status quo will cause deficit and eventually cause the systems to collapse (OECD 1988a).

Another issue that was discussed was that of health. The author shows that it is yet unknown if increase in life-time expectancy is correlated with increase in healthy life time expectancy (Grundy 2006, Olshansky 2001, Carnes 2003). This is a very important issue, because healthy life-time expectancy may limit the extent to which pensionable age can be pushed and also has a direct impact on health related expenditures. It is estimated that at age 70 health related costs are double, and at age 80 are four times as high as average age costs (MHLW 2006f). In this regard, OECD (2006) and many European demographers (Kohner 2002) argue for gradual increase of pensionable age and abandonment of early retirement practices.

Year 1989 can be defined as a starting point when preoccupation about population aging and low birth rates became obvious in Japan. In 1989 total fertility rate (TFR) fell to 1.57 and the 1990 rate was even lower (1.53). Yanagishita (1992) analyzed current trends and compiled it in a provocatively titled book "Japan's declining fertility: "1.53 shock"". TFR at 1.53 meant an annual population growth of only 0.33%. If nothing changed, the population would eventually start to decline after 2010. Now we know the population started to decline even earlier – in 2005, but in early 90s the idea was that TFR only declines because of postponed marriage age, and many including government officials argued TFRs will go back to "normal" levels in a matter of few years. Japan began to feel the effects of such low birth rates as early as 1990. The main problems during early 90s were a shortage of young workers and rising health care costs for the older population (Furuta 1993).

In 1990, the government started a survey aiming to monitor the concerns of the population about demographic problems. The result was that most people still considered 2 as an ideal number of children. The ideal number of children did not change significantly, while actual practices did. About 40% found falling birth rates to be a problem because of aging and 65% answered that government has to take measures to increase birth rates. Among other findings, Yanagisita points to the fact that the reasons for not having the ideal number of children are the economic cost of child-rearing, lack of adequate housing and lack of child-care facilities and child-care leave.

Since 1989, scholars worked to find out how aging of population will affect different aspects of the society: social security, health, employment, inequality. Others have tried to disprove the fatalistic prognoses and

argued that the problem is not as bad as it is thought to be, or perhaps, is not a problem at all.

2.5 Is Aging Really a Problem?

There is a general consensus among scholars that aging of the populations is likely to put strains on social security and pension systems and stress the economy because of decreasing consumption and decreasing labor force (Seitz 2007; Longman 2004; Weil 2006; Goldstone 2010). In his book, "The Empty Cradle," Longman (2004:156) writes: "…..the quality of health care for everyone will deteriorate. There will be serious hardships rippling throughout the economy and society."

However, some researchers continue to insist that declining population is at least not to be feared and at best is to be welcomed (Le Bras 2005; Akagawa 2004; Healy 1998, 2004; Curnow 2000). They argue that smaller population is not a bad thing and emphasize such benefits of smaller population as lower pollution, more resources per capita, etc. These arguments are of course valid, but the members of the "calm-down" group do not take into account that it is actually aging (not declining population) that is going to cause most problems. Another argument, often heard, is that as life expectancy increases, healthy life expectancy is going to grow as well, people in their 60s and 70s and maybe even older can be still active and contributing members of the societies, rather than dependents, if they are not discriminated against and are given the opportunity to work (Ogawa T., 2008). It is very possible (although not confirmed) that life expectancy means longer life without disabilities, but Ogawa T. and others, who share this optimism seem to disregard the fact that population structure changes, turning the pyramid upside down, so even if society is freed from the burden of carrying about the old, the

burden of carrying for the old-olds still remains and is growing. Furthermore, many specialists in longevity studies say that increase in life expectancy is not necessarily strongly associated with increase in healthy life expectancy (Olshansky, Carnes, Désesquelles 2001, Olshansky and Carnes 2009).

On another account, the fact that people will be able to work, does not mean they will be willing to work. They fulfilled their duty to the society by serving and paying taxes for a number of years. Rising pensionable age might face some opposition. For example, Healy (2004) writes:

"Contrary to the gloomy view expressed by some, satisfaction with life increases with age….. (Headey 1999; Cummins *et al*. 2002). ….. a survey of 1400 older people aged 55-74 years reported that they identified many positive aspects of ageing: having more time and freedom; being able to do what they want….. (Howe and Donath 1997)."

The "to do what they want" and "having more freedom" parts can be very different from "actively contributing to the society". The dilemma here is whether we should, for instance, push retirement age up or keep the status quo.

Campbell (1992) and Usui (2004, 2008) accept the idea that population aging is a serious concern, but they argue that with the correct government policies it can be easily dealt with and is not likely to cause major problems for Japan. Campbell argues that expenditures associated with aging are only going to rise 1~1.5% per year, which can be easily covered by economical growth of 2%. Campbell also explains that older people in Japan are more likely to continue to work and

contribute to economic growth and womens' participation in labor force is on the rise. Usui argues, that being over 65 years old does not mean to be unproductive and expresses hope that Japan will successfully deal with problems caused by aging population by increasing its productivity. Her basic point is that societies become more and more efficient.

Let's see how other researchers estimate the influence of demographic aging, based on empirical data.

2.6 Aging and Social Security

In welfare societies there are 3 ways of redistributing wealth from independent to dependent groups – taxes, family support and personal savings. Family is supposed to play vital role in taking care of children. Taking care of older people is government's responsibility and is fulfilled in form of pensions and health insurance programs. Personal savings is an additional way of financing one owns needs after retirement.

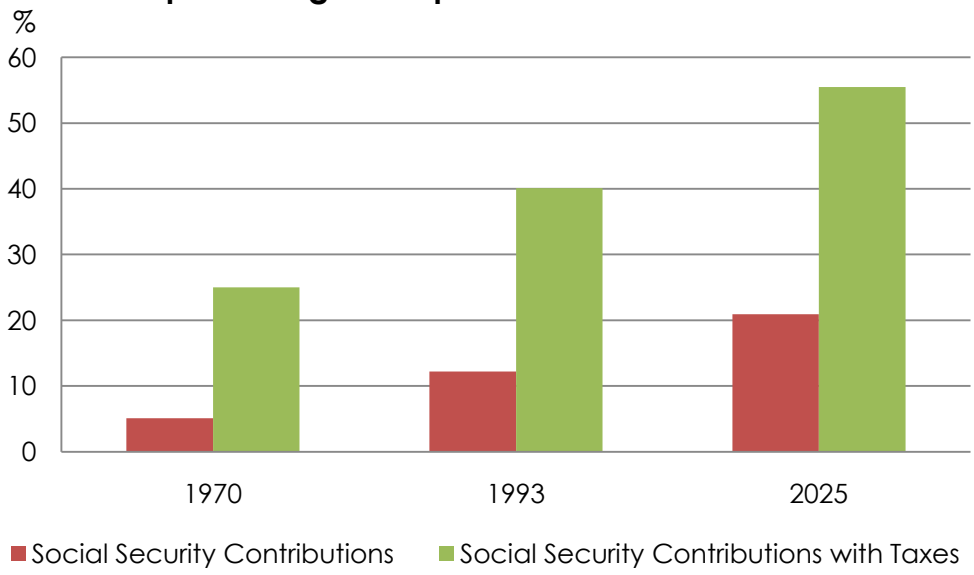
Since population aging started to be widely discussed, a number of researchers have expressed doubts about sustainability of the welfare states and their ability to provide benefits to growing number of pensioners. Many urged the governments to reform pension systems and cut welfare expenditures, but not that many reforms were actually undertaken. Galasso (2008) expresses doubt that any major reforms will be implemented if they are based purely on economic theory. He argues that success of such reforms depends on political factors. Galasso proposes a comprehensive analysis of financial sustainability of modern welfare states with aging populations in future and concludes that states with higher ratios of older people will tend to discourage reforms that aim at reducing benefits during the elections. As a result, aging population will

inevitably lead to increase in public pension spending to unsustainable levels and may cause collapse of pension systems. The only politically possible solution to this problem is pushing up the retirement age.

Lee (2003) discusses two major problems caused by aging population: rising old-age dependency ratio and falling savings rates, as retired people start to spend their savings. Regardless of the fact that these problems are serious concerns, Lee expresses some optimism because of the gradual nature of increasing dependency ratio (Rosen 2002). The burden on pensions and health care will increase at a relatively slow pace in US, so the government might have enough time to adapt. Also the labor force of future might be more productive than it is now.

This kind of optimism cannot be shared by such countries as Japan, where the aging of the population is occurring at a very rapid pace. Contributions to Social Security are projected to rise from 13% of national income in 1993 to 21% in 2025 as shown on Figure 2.3 (Ogawa N. and Retherford, 1997; Retherford and Ogawa N. 2006).

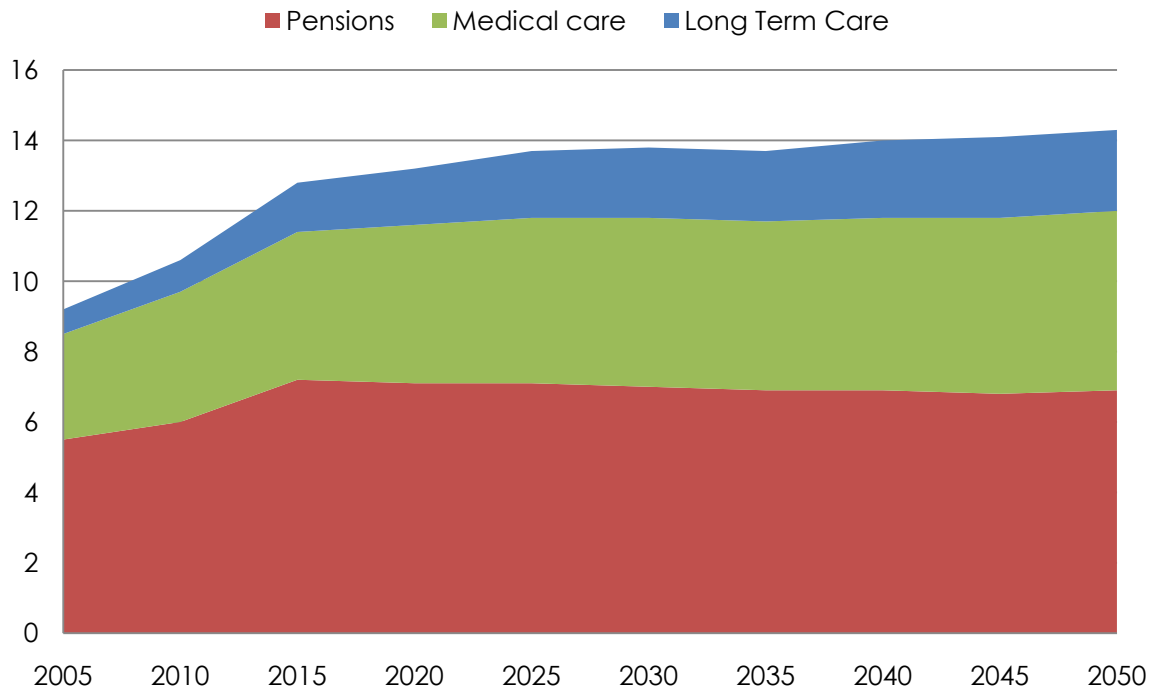
Figure 2.3 : Social Security Contributions and Taxes as percentage of Japan's National Income



Source: Ogawa and Retherford (1997)

Kawase and Ogura (1994, 2005, 2007; Kawase, Akihiro, Kitaura, Kimura, Maekawa 2007) have provided a comprehensive simulation of impact of aging on public finance. They show that PAYG (pay-as-you-go) health insurance and pension systems inevitably increase the level of contributions to maintain the current level of benefits as old-age dependency ratio grows. Kawase and Seiritsu's simultaion is based on the assumption, that current levels of benefits should be maintained, so they focus their attention on the relationship between the tax rate of the PAYG social security system and old-age dependency ratio. The other assumption is that aging society increases chances of longer life and thus, increases risks of chronic diseases and long-term care needs. Figure 2.3 shows the result of simulation of future pension, medical care and long-term care expenditures as percentage of GDP.

Figure 2.4: Social Security Contributions as a Percentage of GDP



Source: Kawase, Akihiro, Kitaura, Kimura, Maekawa (2007)

The results of simulations by Kawase, Akihiro, Kitaura, Kimura, and Maekawa (2005, 2007) make it clear that the 2004 pension reform may alleviate the problems caused by population aging to some extent (Figure 2.4). However, additional financing in the form of higher consumption tax and cuts in the benefit levels will be needed to make the social security system sustainable.

One of the problems is that the simulation is based on the NIPSSR Population Projections for Japan: 2001-2050 (NIPSSR 2002) that tend to be too optimistic. For instance, it is unclear why in the low variant of TFR estimations for Japan assume that TFR will stop falling around year 2010.

The other problem is that if higher consumption tax is to be chosen as the way of financing growing social security expenditures, arrangements have to be made so that birth rates are not further depressed due to increased burden on young families.

Takayama (2002, 2008) reaches similar conclusions about sustainability of the social security system based on his analysis of Ministry of Health, Labor and Welfare estimates of social security costs. If total costs are taken into account, Social Security consumed 22.5% of the GDP in 2002 and will consume 32.5% of GDP in year 2025. Another problem Takayama addresses is the issue of inequitability of the pension system from the younger generation's standpoint. That is to say that due to population aging under PAYG system younger generations have to pay more only to get less if anything when they are retired. He points out that a growing number of young people feel reluctant to pay pension contributions because they have doubts the system will pay them back when they are old. In such circumstances, according to Takayama it is necessary to design a more "incentive-compatible" system, where the amount of contributions would me more directly linked to the benefits after retirement. Takayama acknowledges the problem of financing the pension system. He says that supporting growing retired population is possible if economic output increases. But as economic output depends very much on labor force, increased labor force participation will be required. Linking the amount of contributions to the amount of benefits may indeed work as a good incentive for people to participate in the system. However, it is hard to imagine how high level of contribution for the beneficiaries can be insured if the number of contributors will continue to fall.

2.7 Aging, Health and Care

Many concerns with population aging are related to rising health costs. This is due to the idea that older people tend to be less healthy, have higher risk of disability and many of them have special health care requirements.

There are three basic theories that predict the influence of aging on overall health of the population. The theory of morbidity compensation (Fries 1980) is the most optimistic. Fries suggests that medical progress will improve the health of every citizen of a given society. Better health behavior and medication will push the age of chronic disease and disability to later stages. If life-expectancy was to remain constant, the risk of illness and thus health expenditures would actually decrease.

The most pessimistic theory is the theory of pandemic and chronic disease supported by Kramer (1980, 1983). It assumes that every year of gain in life-expectancy is another year spent in illness and disability. According to Kramer, in industrialized societies with high hygiene standards, all the gain in life-expectancy is not due to child survival rate, but due to decrease in lethality among chronically ill. Incidence of such illness or retardation of its development has little if any significance.

Theory of dynamic equilibrium (Manton 1982) explains that improvement in life-expectancy is due to retardation of chronic diseases. It means that life-expectancy increases along with healthy life-expectancy, thus healthy life time increases, while period of life spent in illness or disability remains stable.

There is one thing that all the three theories have in common: while trying to predict the effects of aging on society, they lack understanding of changes in demographical structure behind aging. The question is not whether a single individual will be more likely to be disabled or not but whether there will be a growing number of individuals with higher risk of disability. The three theories only account for increase in life-expectancy as a contributing factor to aging (Inoue 1997, Harada 2005). However, as will be shown later, low birth-rates are a more important factor. In addition, the most rapid growth occurs in the oldest age groups – the so called old-old (Gaymu 1994; JICA 2006, 2007). In simple words, even if, for instance, healthy life expectancy goes up from 60 to 100 years, it does not make much difference for a person if he has to care for his parents when they are 60~70 years old or 100~110 years old. There is however a big difference between one person looking after three and three persons looking after one.

But even if demographic factors are taken into account, there is still a debate between scholars about relationship of aging and health care issues. Healy (2004) argues that an aging population does not necessarily equal a population with high risk of disabilities and does not necessarily burden the country with health care related expenditures. This is partly due to the fact that the baby-boom and following generations are much healthier than today's old people. An alternative opinion is that a growing elderly population has particular health care requirements. For instance, about 30% of Japanese over the age of 85 are going to struggle Alzheimer's disease or similar illness. As aging among the oldest cohorts progresses, risks of severe health conditions, such as dementia, can cause huge increases in social and financial expenditures.

Furukawa (2008) traces the history of health care services in Japan and shows that proportion of patient cost sharing in national health expenditures declined from 40% in 1955 to 10-12% in 1990. However, the cost covered by the patient (*jikofutan*) started to rise again after recent health care reforms were implemented. Furakawa also confirms that average per-capita health care cost is 4 times higher for the persons over 65 years than for other cohorts. Furukawa sees the problem of financing health care system as a very serious issue

As for old-age care, Japan's government now is facing the dilemma of choosing between universal systems that cover everyone or targeting system, which only cover those who "really" need. The other choice is between institutional care and home care. Aratame (2007) and Ogawa T. (2007) address the aging and care issues at community level. They argue that in Japan, policy measures to address aging problems have to be focused on "community oriented welfare." The idea is to reconstruct welfare system so that they are "community" oriented, because the present system has become obsolete due to rapid ageing, unsustainable national social security system and decline in family support. It is unclear, however, what is meant by the term "community" and how it will insure equal level of service to everyone who is in need. Ogawa T. (2007) argues that the elderly people are not only consuming but also providing social services, and that population aging does not increase the expenditures. He sees community-based welfare going along with community development, in which older people are active participant in community life.

Reliance on family and community advocated by Aratame and Ogawa T. raises new questions of expanding inequality between those

who have family to rely on and those who have not, and regional inequality between the communities that are supposed to provide care. Originally, the burden of caring for both seniors and children was taken by the family. In some cases, the community or religious organizations played a role in taking care of lonely seniors or abandoned children. However, with development of the welfare state, the country and the society assumed its responsibility for taking care of people who helped to build that country. Consequently, in modern welfare states the family is the main supporter for children, while the government takes care of seniors by providing pensions and health care. Despite the fact that failure to extend welfare state support for children is what caused population aging in the first place, there is an obvious tendency to reverse the history and limit the welfare state in questions of caring about the old.

2.8 Aging and Inequality

Early post-war years in Japanese society were characterized by class struggle and class division (Price 1997; Muto 1987). However, during the 1960s a new concept of mass-middle class society was introduced and accepted within and outside Japan. Mass-middle class society meant first of all that Japan became a place free from class struggle, where all members of the society shared the same values and interests and life-styles regardless origin, occupation or religious beliefs. It also meant that Japan's middle- became a dominating class, exercising power through elections. This view strengthened during the 1970s and dominated until mid the 1990s.

In 1974, new Prime Minister Miki Takeo gathered liberal theorists to establish a new ideological base for social stratification. Led by Murakami Yasusuke, economists put forward the idea of a conflict-free mass-middle

class society (Murakami 1977, 1979, 1980; Vogel 1963). A widely cited analysis of an OECD international survey (Sawyer 1976) supported the idea that the level of inequality was the lowest among OECD countries. Subsequently, the image of Japan as a homogeneous classless society became commonly accepted.

A large proportion of young people and growing labor force during years 1960-1980 was one of the factors that stimulated rapid economic growth (Ogoshi 2006). The triangular shape of the population pyramid combined with life-time employment created an environment where new recruits were promoted to higher positions almost automatically.

Recently, economists re-analyzed the data from national surveys and reached conclusions different from the commonly accepted view of mass-middle class society. First, Japan was not extremely egalitarian in terms of income. Ishizaki (1983) showed that in terms of Gini coefficient Japan was somewhere in the middle among OECD countries and never had levels of inequality comparable to some of North-European countries. The share of the lowest 20% in total income was also not particularly high. Tachibanaki (1998) compared income distributions in Japan and the United States for years 1980-1995 and found that income inequality in Japan was as large as in US. Tachibanaki (2000) goes as far as claiming that Japan can no longer be considered a welfare state. He provides an extensive discussion about how the roles of family and private enterprise are overemphasized, while the role of the state is downplayed.

Empirical evidence that Japan was a mass-middle class society is really weak. On the other hand, there are no studies clearly supporting the notion of a radical transformation from equal to unequal. How and why

did Japan switch from an equal "homogeneous" to unequal "*kakusa*" society? Japan society was known for long time as "connections society" (*kone-syakai*). Japan's economy was continuously criticized for being "closed" or "not-transparent." Such phenomena as "*amakudari*" and "Iron Triangle" (Amaki 2004; Miyamoto 1995) suggest that Japan was not entirely a free-market economy, and so the well-being of citizens cannot be easily measured by income alone.

Ohtake (1999, 2000) and Ooishi (1999) argued that inequality was on the rise in all OECD countries in 1980s, and Japan was no exception. Ooishi (1999) claimed that measurement of income used by Tachibanaki (1998) was not consistent between the 2 countries, so inequality in Japan was not as high as in US but started catching up from the 1980s.

Ohtake and Saito (1998) concluded that a lot of the recent increase in inequality can be explained by changes in population structure. Their argument is very straightforward and technical – the inequality levels are usually high among older people, so the relative increase in number of seniors will cause more inequality overall. Ohtake (2005) disproves the idea of rising inequality as illusory, based on the fact that within each age cohort inequality did not change, thus the only explanation is that the number of people in a cohort where inequality tended to be higher, increased. According to Ohtake (2000) Japan's Gini coefficient fell during the period of rapid economic growth - from about 0.31 in 1960 to 0.25 in 1970. Since then the Gini coefficient has grown and at least half of this increase can be attributed to population aging. In his other work, Ohtake analyzed consumption inequality using data from the "*Income Redistribution Survey*" of 1981 and 1993 to argue that inequality is on the rise among people over 40 years old. A big difference was found also

between full-time employees and individuals who faced illness or dismissals.

Sociologist Sato (2000a, 2000b) also confirmed increasing inequality in Japan. Sato relied on historical comparison to show that social mobility became more restricted after 1980. According to Sato (2000a, 2000b) for cohorts born between 1896 and 1915 a person was 10 times less likely to get a white-collar job if his father was not from the same white-collar class. Later, for cohorts born between 1925 and 1945, the probability of moving up to higher class increased. A person was only 4 times less likely to end up in white-collar if his family did not belong to white-collar class. But, for cohorts born between 1946 and 1955 the chances of upward mobility returned almost to the prewar level: for those not from white-collar class families, the chance of becoming white collar was 8 times lower than for those whose parents had white-collar jobs.

Of course, claiming that inequality increased in Japan implies that it was an egalitarian society to start with. Ishida (2002) and Hara & Seiyama (1999) argue that there is no evidence that inequality dramatically increased during the recent period and that people's preoccupation of rising inequality is based only on the myth that equality existed.

Yoshihiro (2001) examined possible ways to reform the social security system and income redistribution policies in order to address the growing inequality in the aging society. The main objective is to analyze the relationship between the pensions and the income redistribution after the pension reform of 1999.

As this summary of the research shows, there is a consensus among many researchers that inequality represents a major concern for Japan's aging society. The difference in opinions lays in the question whether Japan became unequal after 1990 or was it a society with a significant level of inequality in the first place.

Sociologist Shirahase (2006) agrees with Tachibanaki and others who point out that Japan was never as egalitarian as it used to be thought. Instead, she argues that the recent resurgence of preoccupation with inequality is better explained by labor market instability. The economic downturn of the 1990s had a big impact on enterprise employment policies. Seeking to save money here and there the private sector reduced numbers of new recruits. One-third of the labor force became employed on a non-regular basis and more than half of non-regular jobs were taken by women. Shirahase points out that even having a job does not guarantee a bright future anymore, because it has become more difficult to be employed under life-time employment system. On the other hand, part-time workers are often underpaid and often have to work in unfavorable conditions.

Much of Shirahase's work is about household income and changing household patterns. According to her findings, inequality did not strike every member of the society at once. Much of the poverty and inequality can be explained by the growing number of 1-2 person elderly households. Single person households, especially single older women are especially at high risk of falling under the poverty line, she explains.

Similarly, the recent increase in inequality among young households hides increase in the number of single-parent households. According to

Shirahase, single-mothers are at high risk of falling under the poverty line even if employed.

The family is traditionally a very important source of support in the Japanese welfare pattern. This is important for both child-rearing and caring about the seniors. However, because of the growing number of couple-only, single-parent and single households Japanese people can no longer expect the family to take all the responsibility. Shirahase (2005) argues that changing household patterns is one of the greatest problems in Japan. Especially, growing number of single-person and single-parents households is playing an increasingly important role in rising poverty rates as these households are at highest economic risk.

There are two factors that explain declining birth rates in Japan. The first one is that many young people do not get married (*mikonka*). This factor was more important until the mid 1990s. Now the more important contributor is decline in birth-rates among married couples.

The reproduction of class is one more important issue addressed by Shirahase. She concludes that marriage is one of the main institutions that transmit the stratification pattern to new generation. In Japan, people are more likely to get married with someone of similar social background and education. Thus, the children of rather well-off families will enjoy better chances, while less advantaged individuals will pass their disadvantages to their children.

As we can see, a great deal of research has contributed to clarifying the influence of aging on inequality, with a focus on the increasing number of elderly households. Recently, a lot more attention is being paid

as well to economic disparities among young people. Genda (2002, 2004) argued that life-time earnings of youth are declining if compared to the previous generation. On the other hand, it has become clear that the difference between successful and disadvantaged young individuals is found in the difference between regular and non-regular employees or unemployment (Ohta 2005).

Chapter 3

Demographic Determinants of Population Aging: What is More Important – Increasing Life Expectancy or Decreasing Birth Rates?

In this chapter I will try to shed light on the demographic conditions behind population aging and the patterns of aging in Japan. As already mentioned, the debate on whether aging is problematic at all is ongoing. It seems like the nature of population aging and different demographic indicators are still not entirely understood. This section provides description of selected demographic indicators, their values in Japan and analyses the importance of demographic determinants of population aging in Japan. When speaking about population aging, many researchers emphasize the role of increased longevity (Wada 2007, Kyougoku and Takahashi 2008, Ishii 2008, Véron 2008). These conclusions are often based on short-term or one-point data that tend to underestimate the effect of the birth-rates.

I analyze the National Census data from 1970 to 2005 to show the importance of the birth-rate factor and by doing so contribute to better understanding of nature of the population aging in Japan. In order to do so, I use component-cohort method discussed in details later in this chapter. This method is used for population projections by Statistics Bureau of Japan, the United Nations and many other institutions because it gives very reliable results under conditions of correct assumptions of life expectancy, birth-rates and other indicators. Using this method to evaluate what the population would be like if certain conditions were true in the past is even more reliable as we know what the birth rates of life expectancy were for sure. For example, we could set the TFR value for all

years studied to 2.1 and estimate the effect of life expectancy on population structure for that period.

Unlike in other developed nations, Japan's aging population has not as much to do with baby-boom cohorts moving into older groups. This is because the baby-boom in Japan lasted only a few years and the baby-boomers will still be part of the working age population during next 2-3 years (Horlacher 2002).

Both, increasing life expectancy and declining birth rates influence the population aging process. But there is a fundamental difference between aging due to increasing life expectancy and declining birth rates (Lee 2003). As mentioned earlier, declines in mortality among the older population may be accompanied by a corresponding increase in the ability to contribute to the economy over a longer period of time (although this is debatable). In contrast, lower birth rates increase the ratio of old population without increasing healthy life expectancy whatsoever.

3.1 Definition and Measuring

Demographic aging or population aging is a shift in age distribution of a population, characterized by increasing proportion of older population. There are three causes that may potentially influence age structure of a population: 1) birth rates, 2) mortality rates, 3) migration.

Because concerns about population aging are often rooted in problems with pension systems, the aging of population is often measured by relative growth of the population of retirement age, and the commonly accepted old-age is over 65 years old.

Old-age dependency ratio (ODR) is often used to compare the number of working-age population to retired population. This measure should be used with caution, because not everyone who is over 65 is necessarily retired. On the other hand, in the modern developed world there are few children of 15~20 years old who actively participate in economy, but they are still included in working-age population. EDR is still useful to illustrate general trend in changing age structures and for international comparison.

Old-age dependency ratio (ODR) as well as young-age dependency ratio (YDR) and old-age to young age dependency ratio (OYDR) are simply measures to relate two large categories, but they fail to illustrate more sophisticated age distribution within the larger groups. For example if the ratio of individuals over 65 years old is growing, it may be caused by a growing number of people aged 65 or a growing number of people aged 85. But the health expenditures and economic independence of 65 and 85 year-olds can be very different. More attention should be given to the so called old-old, usually defined as over 75 or older ("*koukikoureisya*"), but perhaps it would be useful to decompose all of the old-age groups into smaller 5-year groups to see how fast they are growing.

As population aging implies changes in every step of the population pyramid, no single indicator of population aging can measure it by itself. The age distribution is very uneven and has traces of some occurrences in the past, like WWII, the following baby-booms and so on. That is why it cannot be described in a simple way. Therefore, one of the best ways to describe the process of changes in age structure is by population pyramids (Gavrilov 2003).

3.2 Demographic Determinants of Population Aging

To illustrate the influence of different factors on population structure, demographers use the stable population theory (Coale 1956, 1957; Preston 2001). The notion of stable population assumes that birth-rates and mortality rates remain unchanged. As a result, age distribution stabilizes and it is easy to single out the effect of every factor – birth rates, mortality or migration.

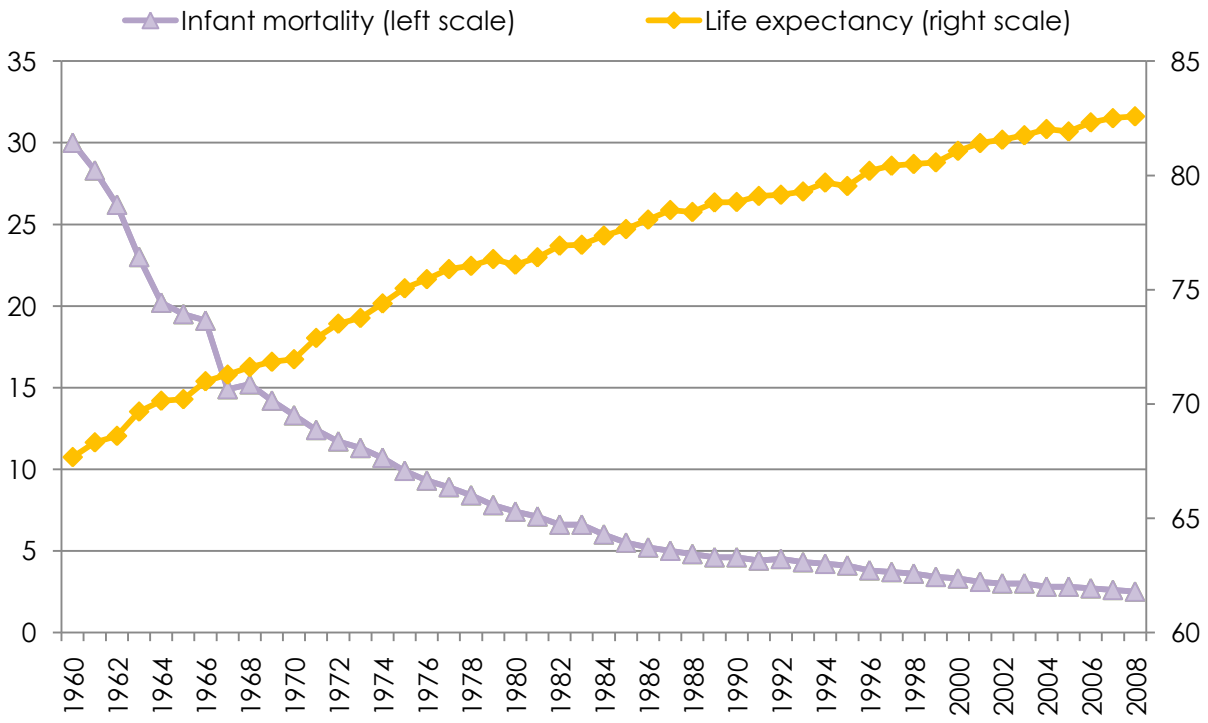
Decreasing mortality rates are the most intuitive cause of population aging. This idea is based on the assumption that the longer people live the larger are the numbers of older individuals. The effect of declines in mortality are however not straight-forward. For example, decreasing infant mortality makes the group with age 0 to grow faster and thus has an effect of diminishing population aging. For the developed countries the decline in mortality rates during the postwar period are mostly explained by reduced infant mortality rates (UN 1956; Atoh 2001, 2008). Thus, in this case, decreasing mortality actually helped to alleviate population aging.

On the other hand, decreasing birth rates always have the effect of increasing population aging and the mean age. During the post-war period, demographers showed that it is actually falling birth rates that are entirely responsible for increasing ratios of population over 65 (Bourgeois-Pichat 1951, Coale 1956, Weil 1997, Horlacher 2002). Their arguments and evidence were so persuasive that many subsequent researchers focused on population aging tended to disregard changes in mortality patterns. Indeed, in Japan the decline of the TFR from almost 4 in 1950 to near 2 in 1960 was the major factor responsible for population aging. Decline in

mortality during this period was mostly explained by declines in infant mortality and had negative effect on aging.

However, very soon infant mortality reached very low levels and life expectancy in Japan still continued to increase this time due to better survival rates among older cohorts.

Figure 3.1: Life Expectancy and Infant Mortality Trends in Japan



Source: Cabinet office, Statistics Bureau, 2006

Continuously increasing life expectancy forced experts to reconsider the roles of mortality and birth rates. Actually, due to the fact that Japan became so famous for its longevity, low birth-rates were overlooked (Kyougoku and Takahashi 2008, Ishii 2008, Véron 2008), especially by critics of family and child-friendly policies (Wada 2007). Nowadays, the general

consensus among researchers is that increasing longevity is the major contributing factor to aging of the population. But is it really so?

In terms of human longevity, there are strong arguments to believe that there is a limit to the increase in human life time. Demographers Carnes and Olshansky (Olshansky et al 2001; Carnes 2003) argue we have almost reached the limit, thus further increases will be difficult. Thus, from now on the birth rates will be the determining factor of population structure.

3.3 Estimation Method of Demographic Factors' Importance

For the purpose of the present research I have used component cohort approach, modified for one-year projections – a population projection method used widely for population projections. By using data from National Censuses from 1970~2010 (MIAC 1970~2010) and population projections for Japan (NIPSSR 2006a) I attempt to estimate what would Japan's population pyramid would look like if TFR remained stable at 1970 year level and what would it look like if life expectancy would be stable at the level of 1970. Then, by comparing the two pyramids it is possible to see whether growing life-expectancy or lower birth rates are responsible for population aging.

Component cohort method is used by UN, Japan and many other countries and institutions to produce accurate population projections. As it takes into account survival rates of every-year cohort, birth rates, age at birth and base population – it is very accurate as long as the assumptions on future survival-rates and birth-rates are correct. That makes the method the perfect tool to answer questions like "What would the population be in year XXXX if TFR had been 2 during the period 1900-2000?", because we

already know the real values of the variables that influence population structure and growth. This is the first time this method is applied to estimate figures in the past rather than population projections.

The variables used in this simulation are as follows:

- Life expectancy
- $deaths_{a,s,t-1,t} = (pop_{a-1,s,t-1} \ / \ 2) \bullet (1 - sr_{,a,s,t})$

  Death rate where $deaths_{a,s,t-1,t}$ - is number of deaths during transition of the age group *a-1*, to age group *a*, during period *t-1*
- $pop_{a,s,t}$

  population of age group *a* on the interval *t*
- $sr_{a,s,t}$

  surviving rate or number of age group *a-1* of sex *s* that passes to age-group *a* on the interval *t*
- $pop_{a,s,t} = pop_{a-1,s,t-1} - deaths_{a,s,t-1,t}$.

  For most age groups Population is calculated as the difference of population one year younger than the target age group in the preceeding year and deaths.
- Last age group (in this case 80+) is calculated as

  $pop_{a,s,t} = pop_{a-1,s,t-1} - deaths_{a,s,t-1,t}$.
- youngest age-group is calculated as the number of children born during the year and survived till the end of the year:

  $pop_{0,s,t} = births_{s,t} - deaths_{0,s,t-1,t}$.
- Number of births is calculated from total fertility rates, age at birth (age specific fertility rates) and female population:

  $births_{a,t} = TFR_t \bullet ASFR_{a,t} \bullet pop_{a,female,t}$,

  where

  $births_{a,t}$ - is number of births among women of the age group *a*

  TFR_t - is the total fertility rate on *t* interval

$ASFR_{a,t}$ – is age specific fertility rate at age *a*

- Sex at birth ratio is set to 106.

International migration was excluded from this simulation to check the pure effects of low birth rates and life expectancy and also because immigration to Japan is so insignificant it has no substantial impact on aging.

3.4 Population Pyramids 1970~2050

Below are presented the actual population pyramids, population pyramids that show the actual population structure (column 1) compared to what would the population structure would look like if TFR had not changed since 1970 (column 3), and population pyramids that represent population structure in the case if life expectancy had not improved since 1970 (column 2).

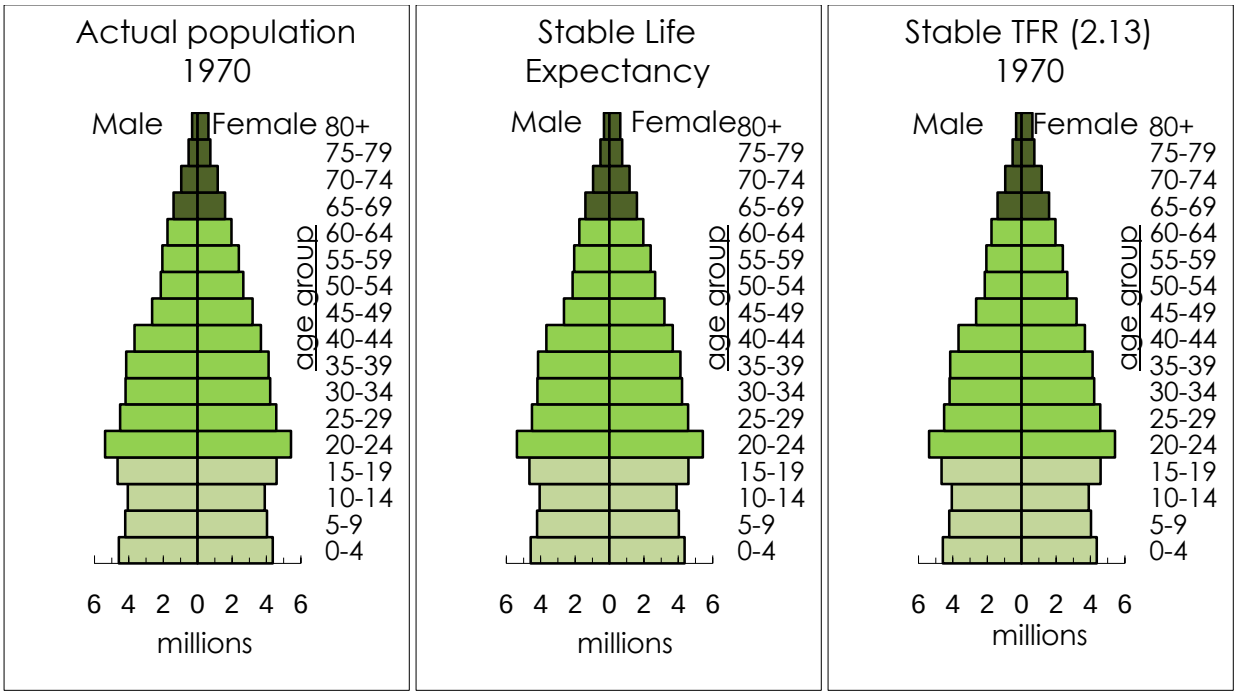
As can be seen from the pyramids, no matter what age groups are considered to be old, increase in proportion of older population is obvious among all patterns. The difference is in the absolute numbers and the sources of increase in older cohorts.

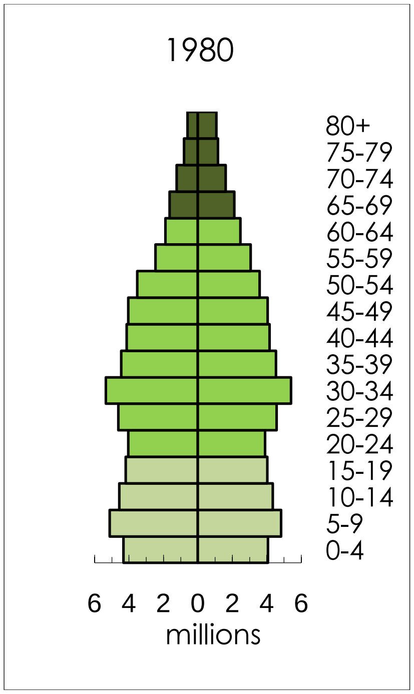
In the simulation, where life expectancy is kept stable at the level of 1970, the increase in ratio of population over 65 is not as pronounced as it actually is due to higher mortality among older groups. However, the lower part of the stable life expectancy pyramids has exactly the same shape as the actual ones with every younger age group smaller than the preceding one.

Importantly, the biggest difference between stable life expectancy and actual pyramids is that between the oldest age groups. While the difference between the 60~64 and 65~69 age groups is not as pronounced. Thus the difference in aging among the oldest cohorts is more significant.

Stable TFR pyramids resemble the population pyramids of the United States and tend to form a stable stationary population with all age groups almost equal in numbers.

Figure 3.2: Population Pyramids (actual and simulation results)

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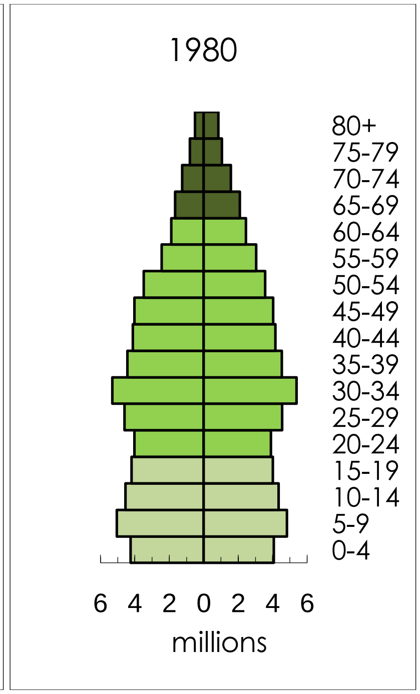
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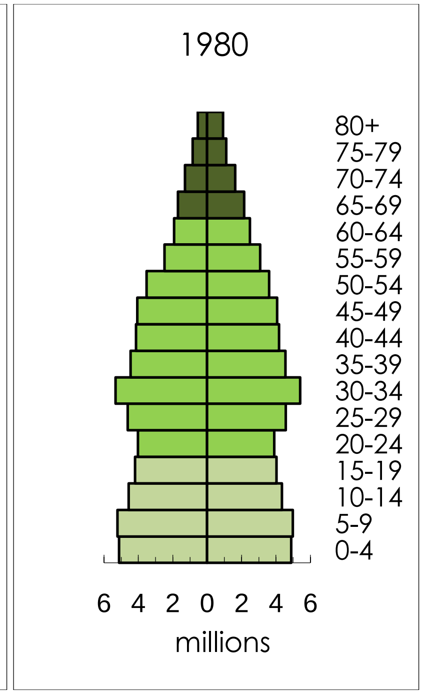
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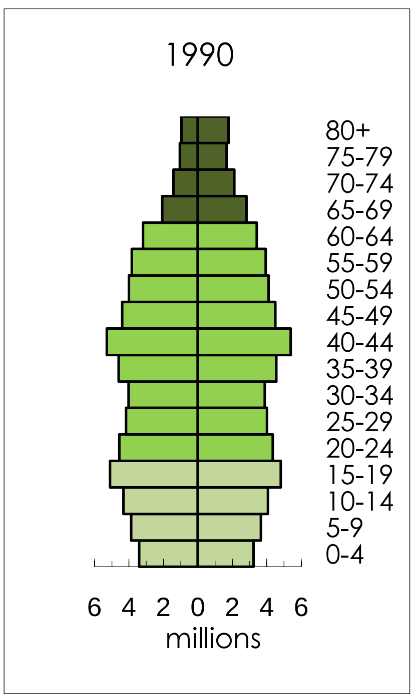
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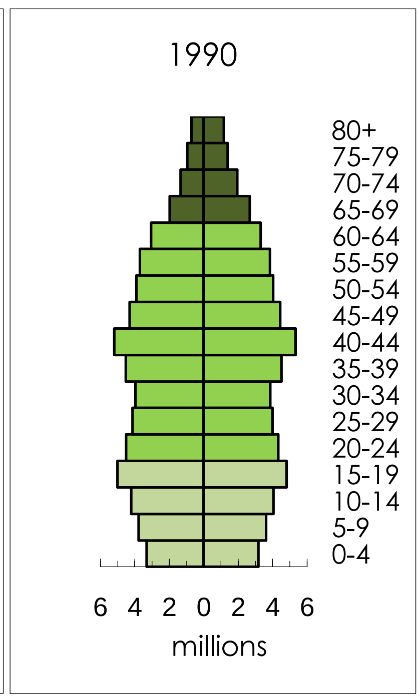
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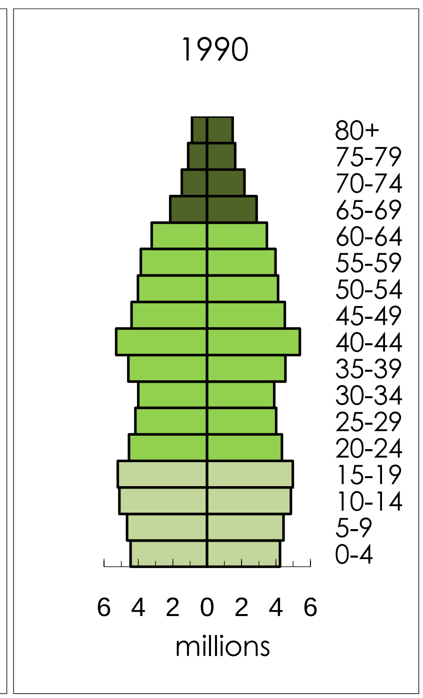
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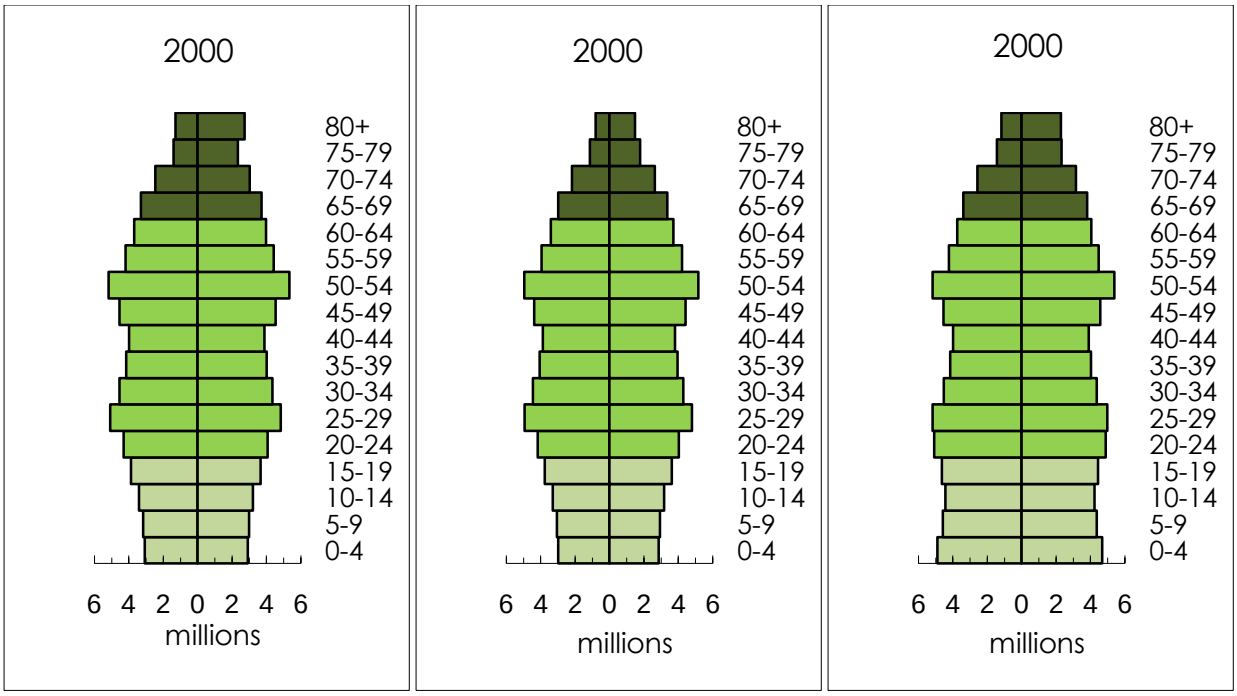
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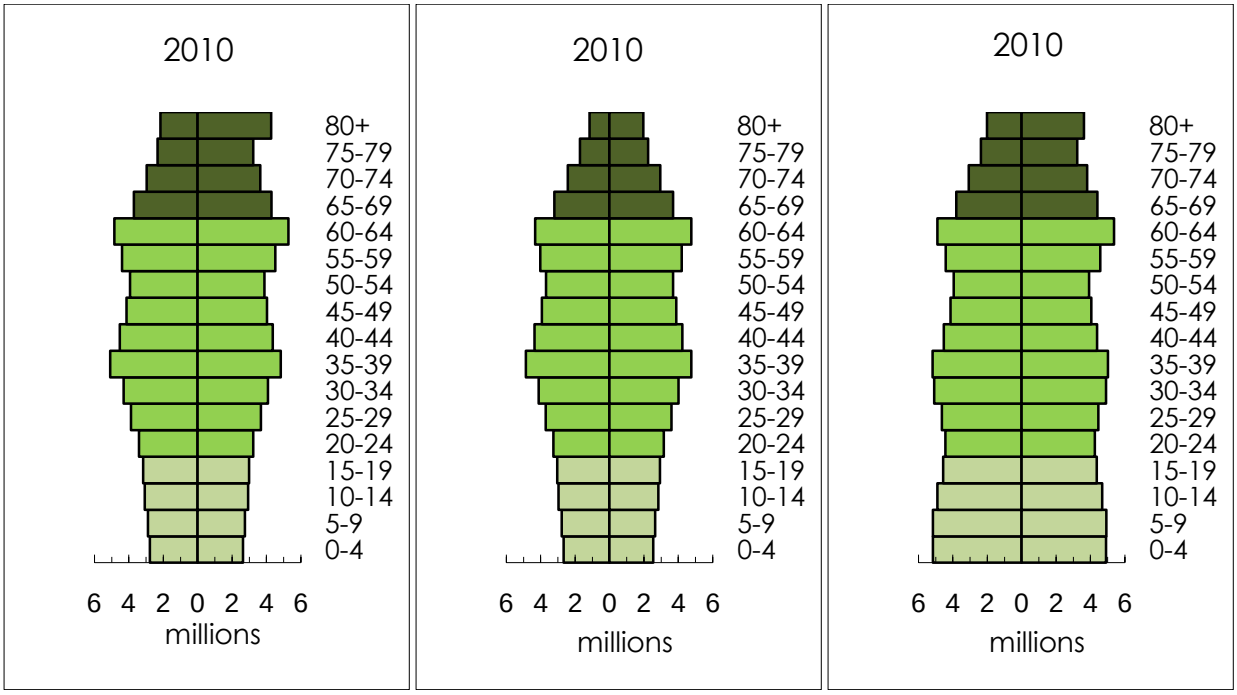
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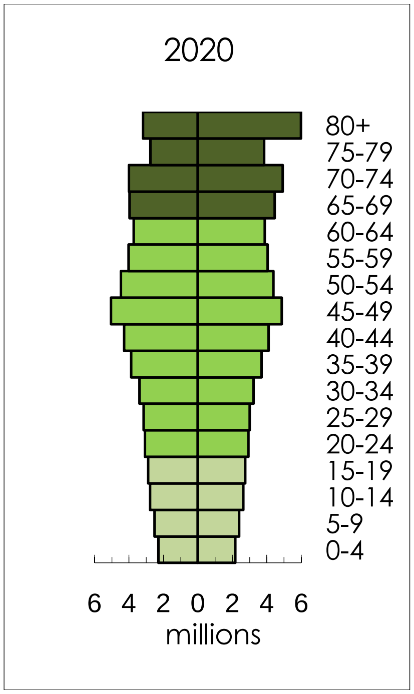
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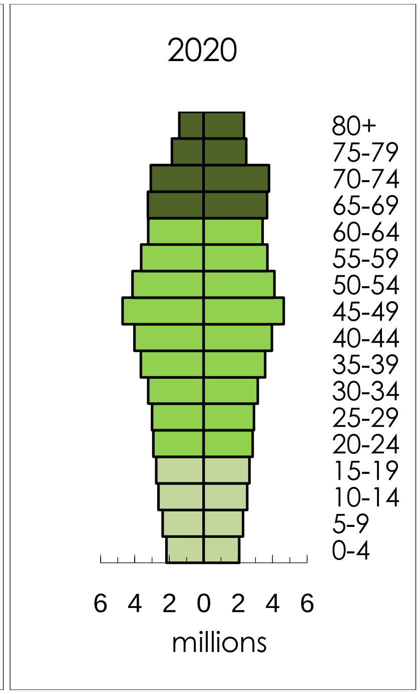
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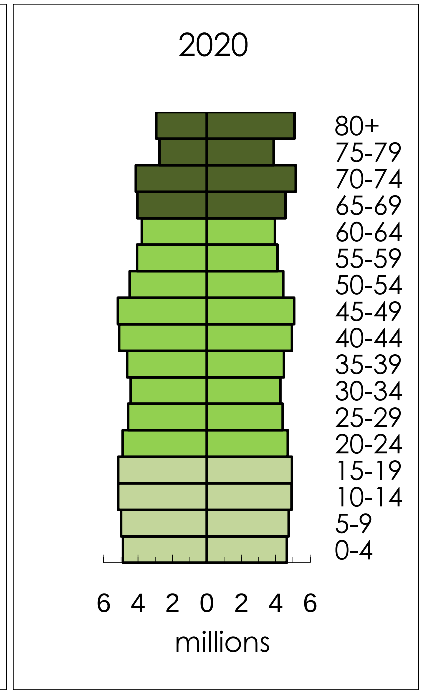
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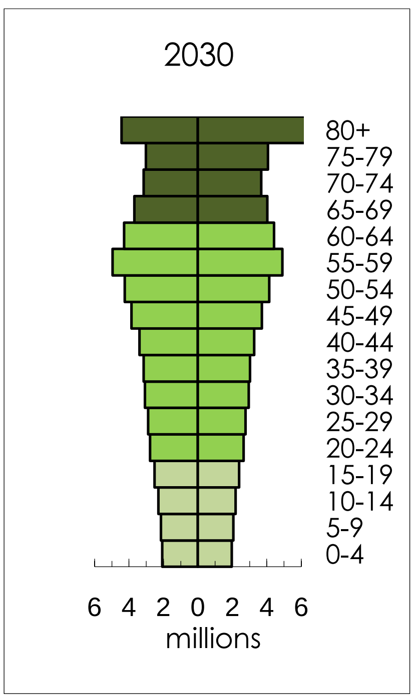
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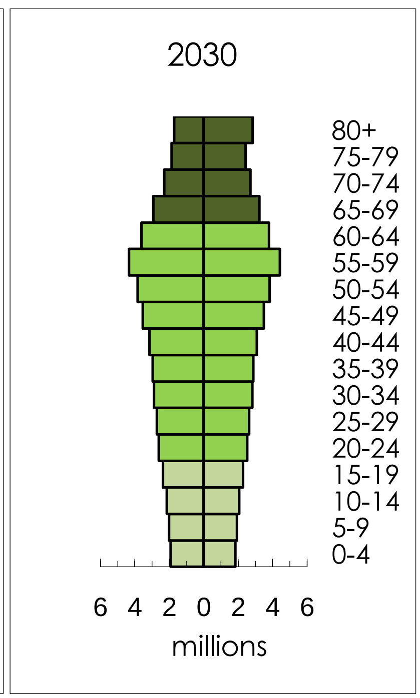
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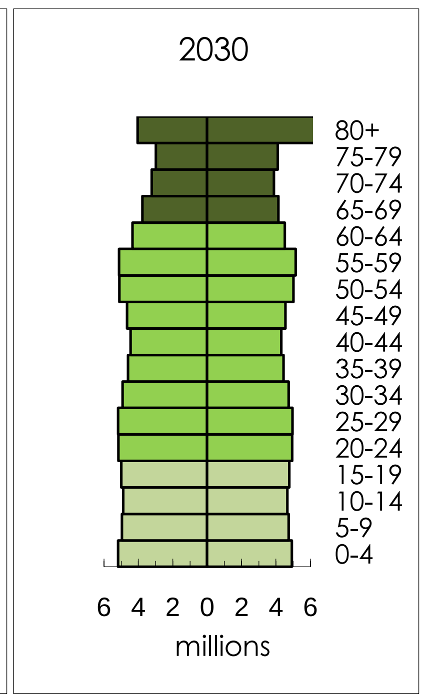
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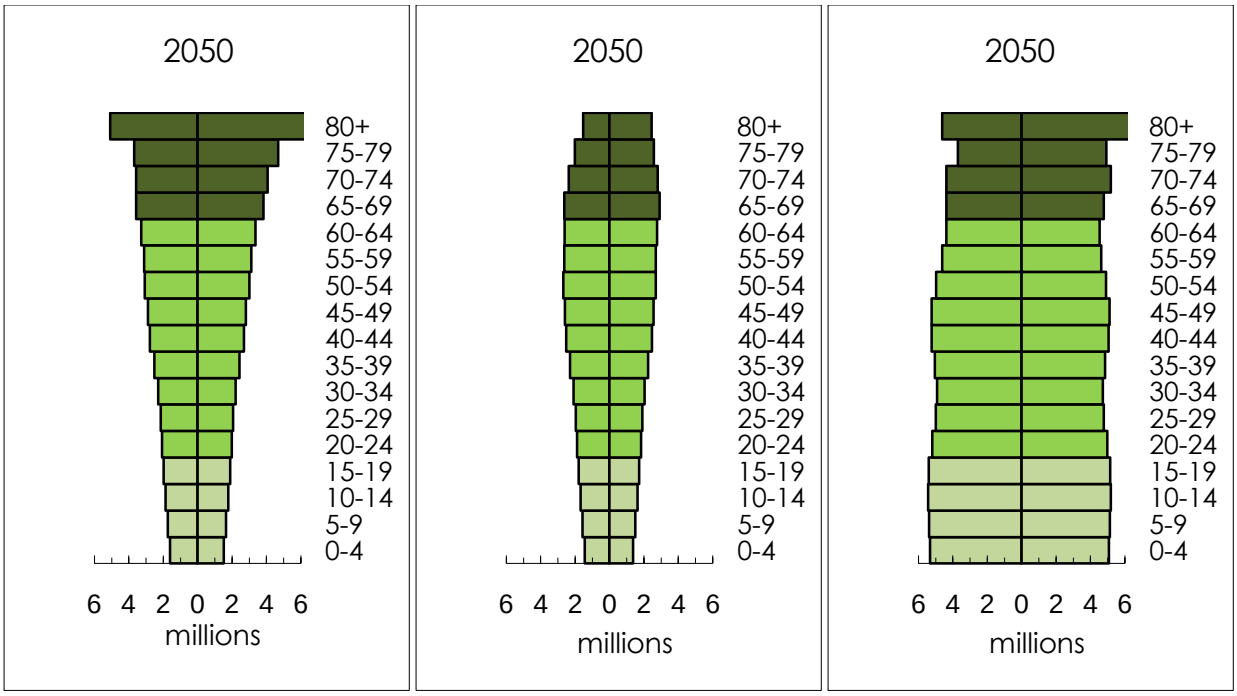


Source: Author's simulation based on data from Ministry of Health, Labor and Welfare, National Censuses (1970~2005) and National Institute for Population and Social Security Research, Population Projection (2005~2050) (NIPSSR 2006a)

3.5 Simulation Results: What is More Important - Falling Birth-rates or Increasing Life-Expectancy?

In order to see the difference between the effects of better longevity and lower TFR on population aging, it is useful to calculate the percentage of population over 65 for selected years. Below are the estimates of aging ratios according to the simulations:

Table 3.1: Simulation Results

Simulation	**Actual***	**Stable Life Expectancy since 1970**	**Stable TFR since 1970**
Year 1970			
Total population	104,448,200,000	104,448,200,000	104,448,200,000
Population over 65	7,327,100,000	7,327,100,000	7,327,100,000
Aging ratio	**7.02%**	**7.02%**	**7.02%**

Year 1994			
Total population	124,051,623,094	119,277,193,109	131,729,010,594
Population over 65	16,193,382,406	13,761,098,297	16,090,118,406
Aging ratio	**13.05%**	**11.54%**	**12.21%**
Year 2010			
Total population	126,123,054,344	114,318,685,781	147,127,336,719
Population over 65	26,603,355,438	19,364,632,906	26,308,738,844
Aging ratio	**21.09%**	**16.94%**	**17.88%**
Year 2020			
Total population	122,722,845,813	106,079,281,844	153,497,624,219
Population over 65	33,122,537,125	21,851,290,469	32,560,450,656
Aging ratio	**26.99%**	**20.60%**	**21.21%**
Year 2050			
Total population	99,636,941,281	74,441,566,125	169,941,329,750
Population over 65	37,812,590,563	19,257,050,844	39,733,799,875
Aging ratio	**37.95%**	**25.87%**	**23.38%**

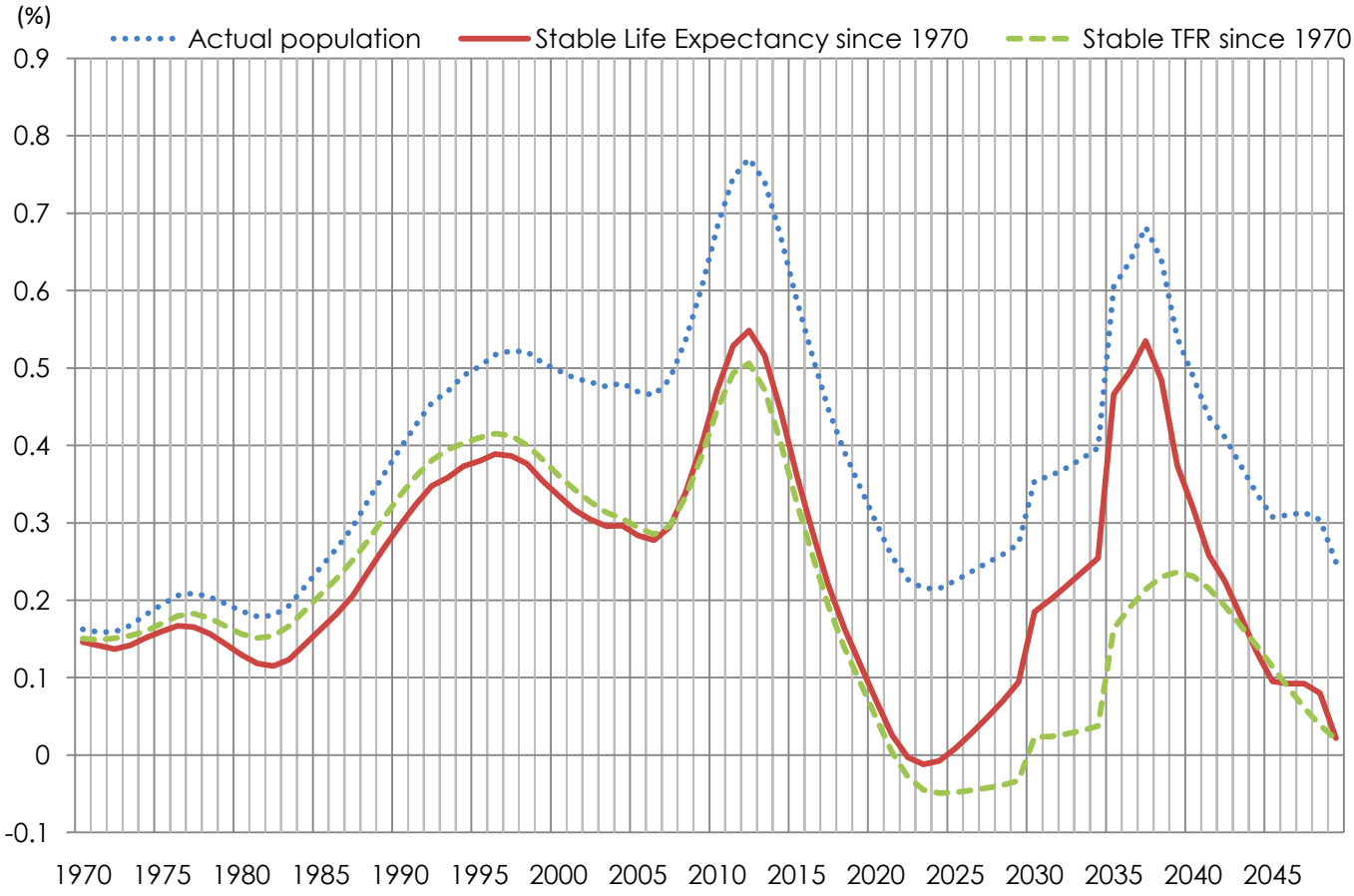
*Source: Author's simulation based on data from Ministry of Health, Labor and Welfare, National Censuses (1970~2005) and National Institute for Population and Social Security Research, Population Projection (2005~2050) (NIPSSR 2006a) * Note: international migration excluded*

During the postwar period until 1960, decline in birth rates was the main reason of aging population. However, since 1960 longevity was improving, especially after 1970. It is fair to say, that aging population is a great victory of humanity that made it possible to increase the average life-span.

Table 3.1 above shows that aging ratio would be less than 1% higher in 1994 in the case where TFR is stable since 1970. Thus the role of life expectancy during the time frame 1970-1994 is slightly higher that the role of birth rates. In 2010 this difference is still less than 1%.

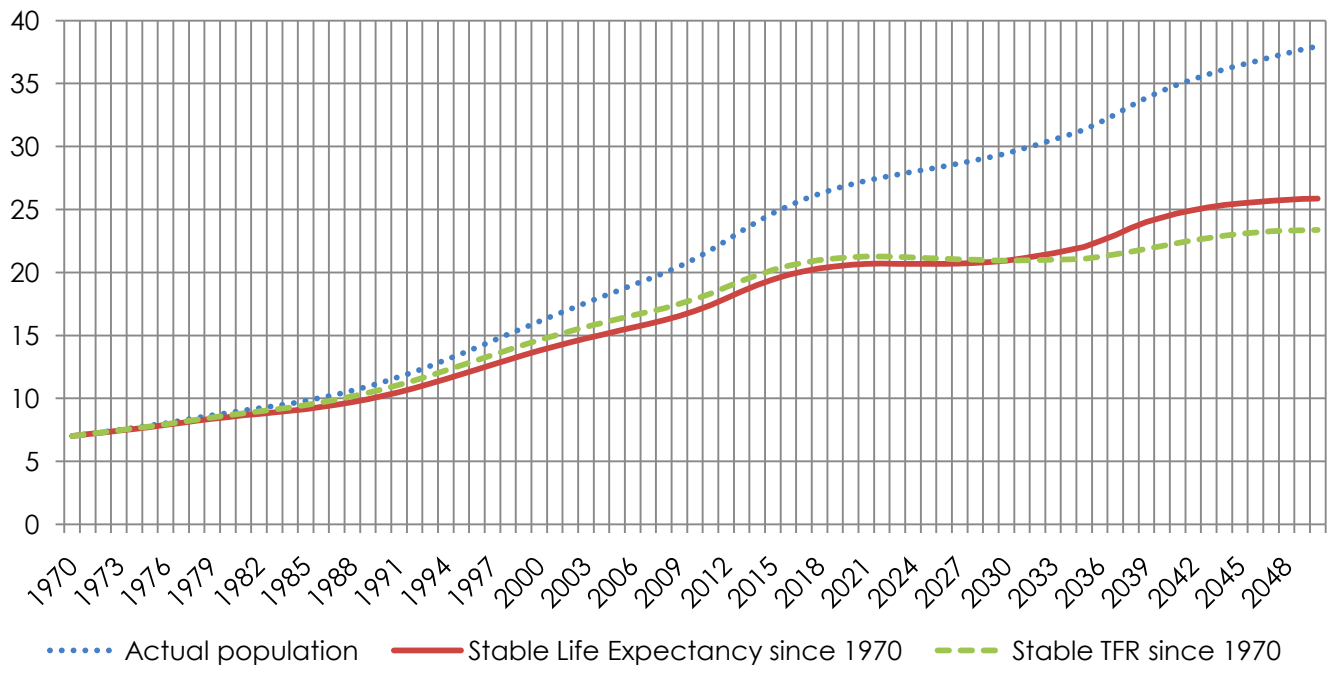
Figure 3.2 below illustrates the speed of aging expressed by the percentage of increase in population over 65 under different scenarios. We can see that the effect of life-expectancy on population aging (green dotted line) is slightly more significant than the effect of the birth-rates (red line) up until 2010. After 2025 the effect of the birth-rates increases drastically. But, it is very important to remember that the effect of the birth rates we see in 2025 is a result of fertility patterns during years 1975-2000, because it takes time for the birth rate effect to show up in the statistics.

Figure 3.2: Aging Rate as Percantage of Increase in Population over 65 (%)



Source: Author's simulation based on data from Ministry of Health, Labor and Welfare, National Censuses (1970~2005) and National Institute for Population and Social Security Research, Population Projection (2005~2050) (NIPSSR, 2005)

Figure 3.3: Aging Ratio (population over 65 (%))



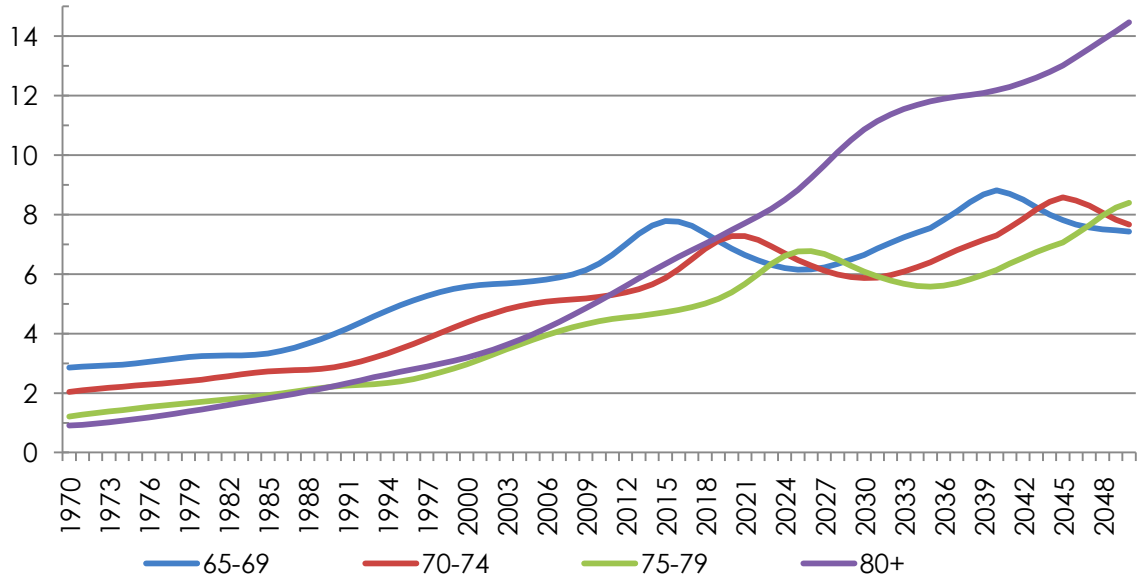
Source: Author's simulation based on data from Ministry of Health, Labor and Welfare, National Censuses (1970~2005) and National Institute for Population and Social Security Research, Population Projection

As we can see from Figures 3.2 and 3.3, both factors influence aging ratio almost in the same amount until 2010. After 2025 the influence of low birth rates becomes higher. Why is that? In the stable longevity pyramids the bulge of second baby-boom (cohorts born between 1970 and 1980) moves up the ladder until it merges into the oldest group around 2025-2050. That is actually when the effects of low birth rates will become most significant. It is important to note here that effects of low-birth rates on population aging are not immediate. Of course, there is an immediate effect of adding to the population aged 0. However, much more important influence is changes to population structure. It takes up 80-90 years with birth rates of same level for the structure change to be complete. Thus, the rise in influence of low birth-rates can be explained by

a long period of low birth rates that caused change in population structure.

As mentioned earlier, dividing the population into 3 large groups gives a general picture of population structure trend, but it fails to illustrate detailed changes in population structure. Let's see what the speed of aging looks like for different age groups (Figures 3.4, 3.5, 3.6).

Figure 3.4: Percantage of Population Aged over 65 by Age Groups (actual figures)



Source: Author's simulation based on data from Ministry of Health, Labor and Welfare, National Censuses (1970~2005) and National Institute for Population and Social Security Research, Population Projection (2005~2050) (NIPSSR, 2005)

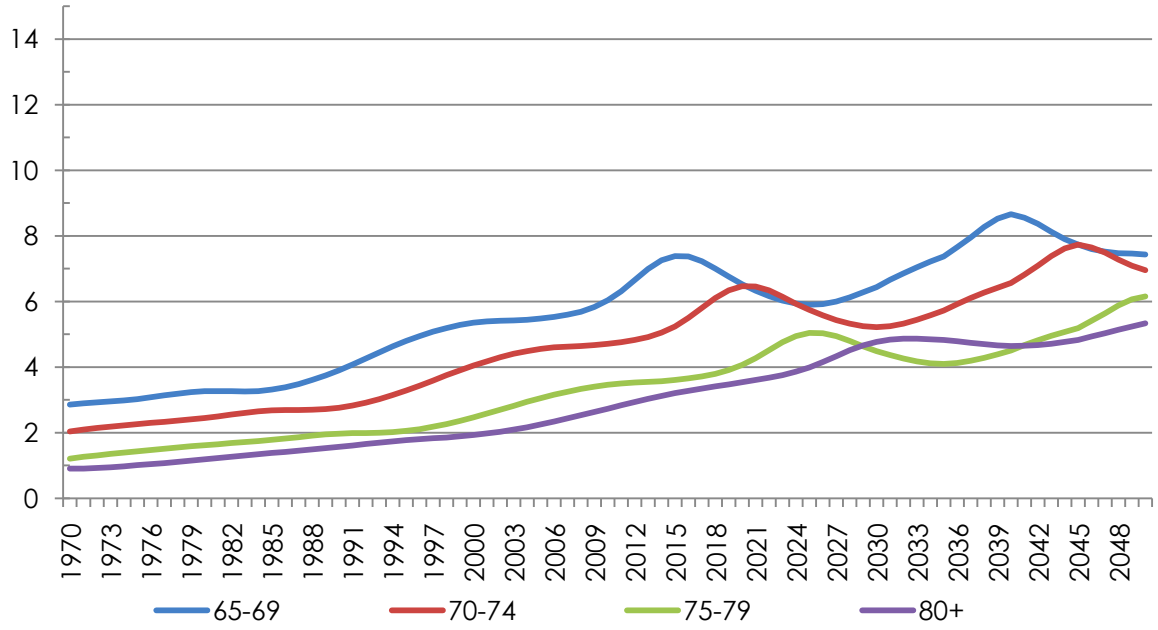
As shown on Figure 3.4, the actual situation is that the oldest group (80+) is the one that is growing faster than any other. Next to it is the second oldest group (75~79) and so on. The growth in the oldest (80+) age group is especially pronounced after 2010 and peaks at more than

14% of total population in 2050 putting nearly half of older population into the oldest group. What does this data tell us?

For one, that upside-down population pyramid structure, caused by low birth rates combined with high longevity increases absolute and relative numbers of people who are more likely to be dependent, require more medical attention than other age-groups and are at higher risk of falling under the poverty line.

What is interesting to note, is that even in the simulation were life expectancy is kept stable since 1970 (Figure 3.5), the oldest group grows at least as fast as other age groups and even faster during certain periods of time. This supports the argument that even though it is important how long people live, aging ratio is seriously influenced by the population structure caused by low birth rates.

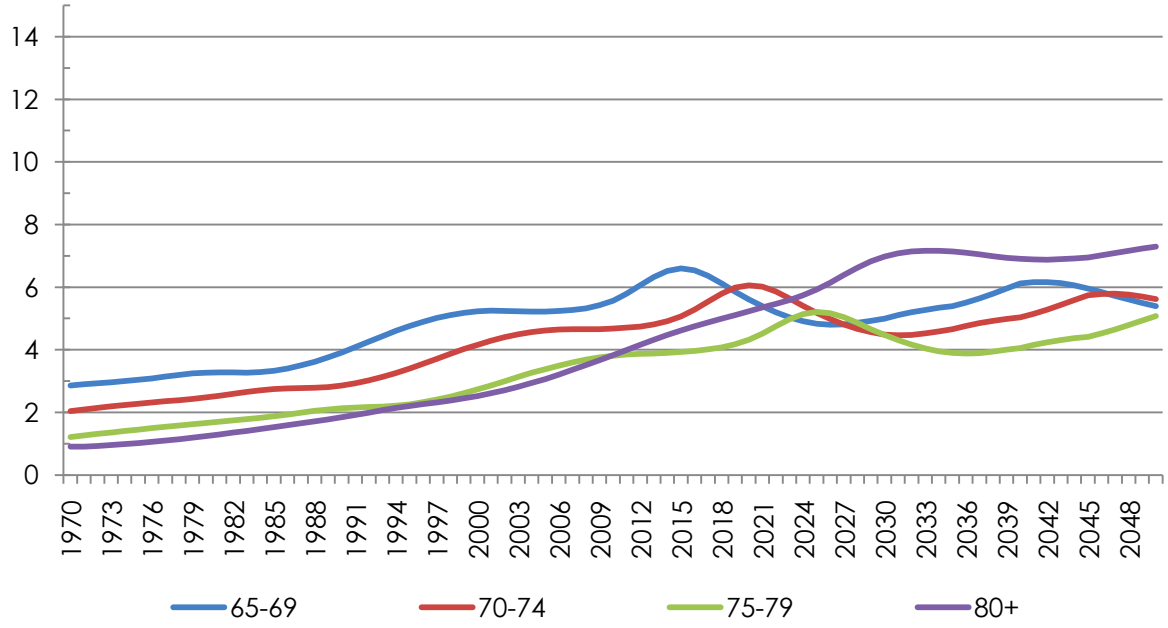
Figure 3.5: Percantage of Population Aged over 65 by Age Groups (Stable Life Expectancy since 1970)



Source: Author's simulation based on data from Ministry of Health, Labor and Welfare, National Censuses (1970~2005) and National Institute for Population and Social Security Research, Population Projection (2005~2050) (NIPSSR, 2005)

In the stable TFR simulation, the oldest group (80+) is also growing faster than any other. This is explained by high longevity that is not to be underestimated. However, as opposed to upward trend of actual projection, the ratio of people 80 and over in this simulation seems to stabilize after 2030. This is a result of stabilization of the population pyramid (see population pyramid 2030~2050 column 3) due to TFR kept at replacement level during 80 years. This means that increase in life expectancy causes increase in ratio of corresponding age-group, but the population structure remains stable.

Figure 3.6: Percantage of Population Aged over 65 by Age Groups (Stable TFR since 1970)



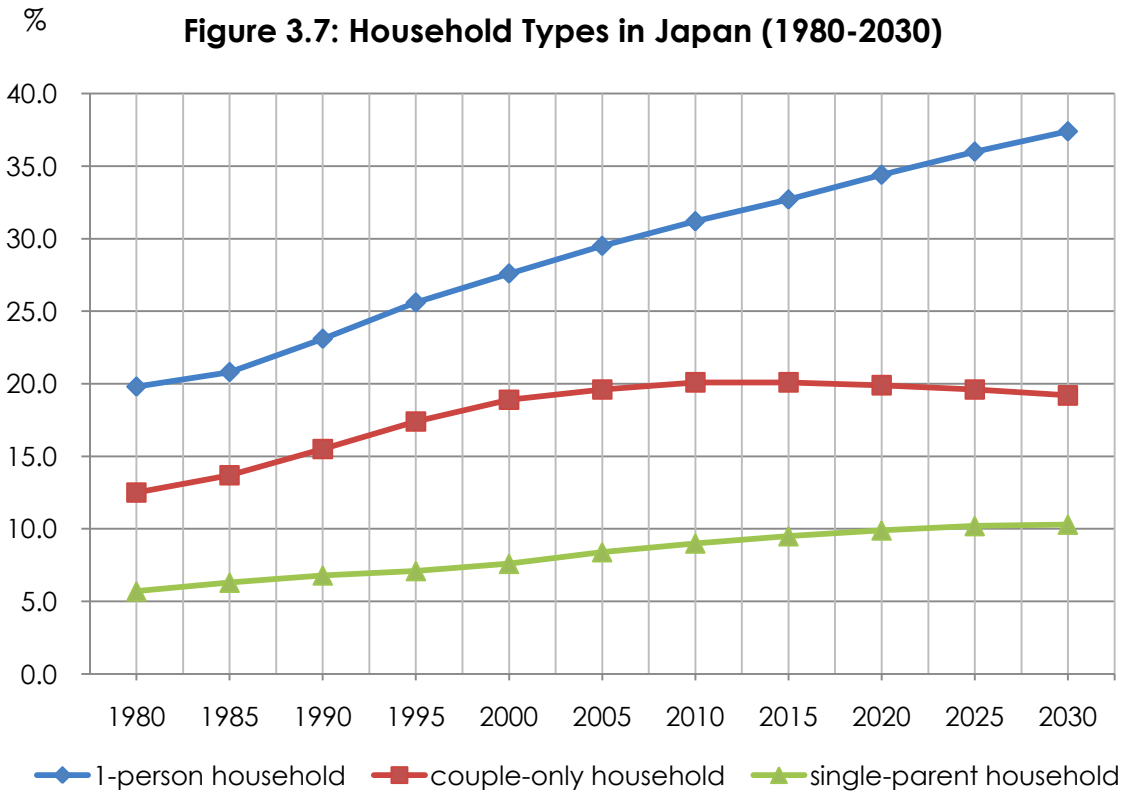
Source: Author's simulation based on data from Ministry of Health, Labor and Welfare, National Censuses (1970~2005) and National Institute for Population and Social Security Research, Population Projection (2005~2050) (NIPSSR, 2005)

3.6 Feminization of Aging

So far it is clear that aging is caused by both low birth rates and increasing life-expectancy, and that aging occurs faster among older groups. However, there are still a few remarks that should be made about the nature of the aging process. First, as it can be easily noticed from population pyramids the number of older women is much higher than the numbers of older men. Second, which is not obvious, is the rise in one-person and couple-only households.

From the 1960s to the early 1980s the changes in Japanese family structure were characterized by nuclearization, that is to say switch from 3-generation family to 2-generation family. However, since mid-1980s the most important change was an increase in couple-only and one-person households.

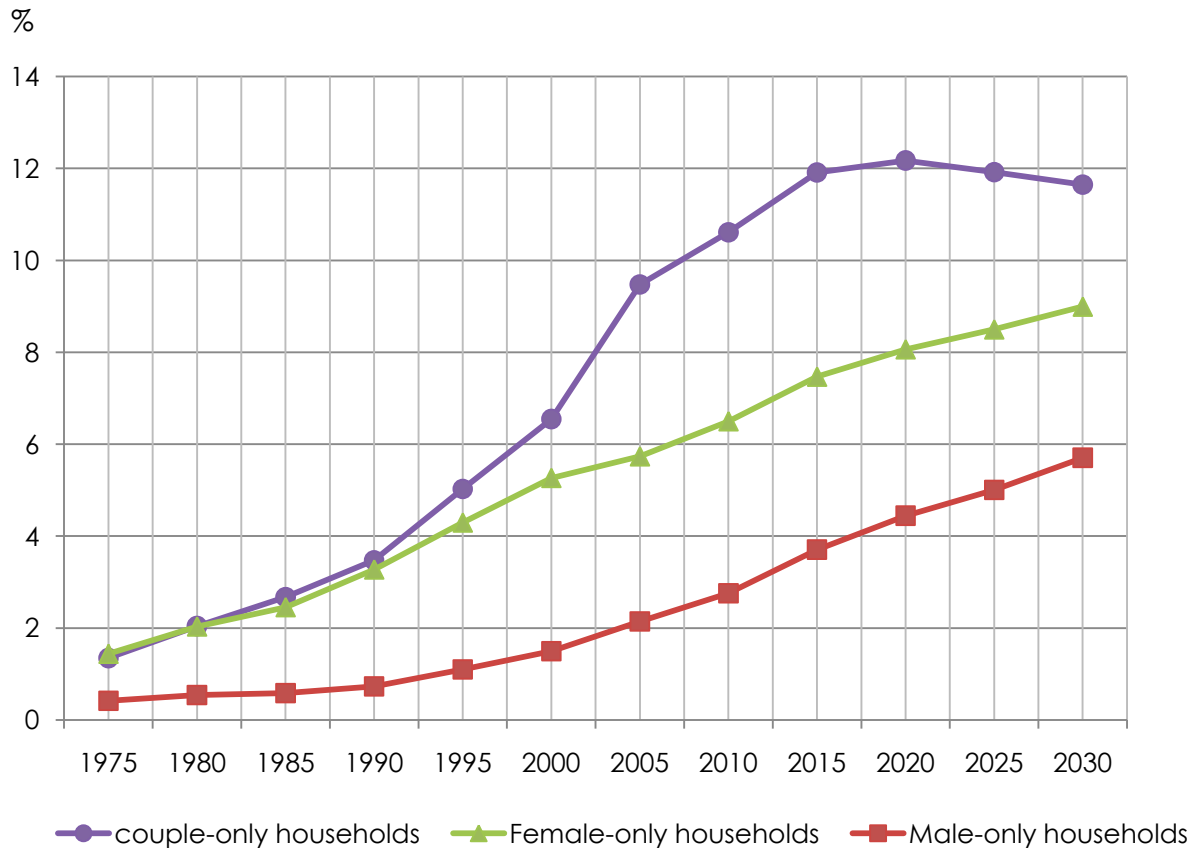
Figure 3.7: Household Types in Japan (1980-2030)



Source: NIPRSS (2008b), *Projections of Changes in Japan's household types* http://www.ipss.go.jp/pp-ajsetai/j/HPRJ2008/t-page.asp

Figure 3.7 shows a dramatic increase in one-person household relative numbers from 20% in 1980 to 31% in 2010 which is projected to become 37% in 2030. What about the elderly households?

Figure 3.8: Propotion of Elderly Households



Source:
1975-2005: MHLW, *National Census*
after 2005: NIPRSS 2008, Projections of changes in Japan's household types
http://www.ipss.go.jp/pp-ajsetai/j/HPRJ2008/t-page.asp

It is obvious that as population ages, the number of households with elderly grows as well. What is important is the increase in one-person elderly households. Their numbers increased 7 times between 1975 and 2010. Currently 3 out of 4 one-person elderly households are female. Although, urbanization played a vital role in changing household structure, as children moved from urban to rural areas, the demographic factors behind changes in household patterns are very significant. Having fewer

or no children increases an individual's chances of living in a one-person household, especially when reaching old-age.

So what kind of livelihood do those elderly households have? The image that is still stuck into minds of both Japanese people and foreigners, is that old people in Japan are carefree affluent couples, who spend most of their time playing golf, travelling around the world on a boat trip and wondering around photographing everything in large groups. Many journalists and enterprises see aging society as an opportunity for expanding business in an emerging "Silver market" (Tanikawa 1999, Aritake 2005). Average savings rate for all households in Japan is 17,190,000 JPY, while for the households whose head of the household is over 65 this rate raises to 24,810,000 JPY (Horioka 2010, Bank of Japan *2008*).

What remains less acknowledged is the growing poverty rate among the elderly, especially among women (Nishioka et al 2010a). The distribution of the above savings rate is quite unequal: more than 35% of elderly households have less than 10,000,000JPY in savings. But the average figures are often misleading. 20% of elderly households have no savings at all (Horioka 2006, Bank of Japan *2008*). According to National Livelihood Survey (MHLW 2009a) the relative poverty rate among women aged 65~69 is 19% as opposed to 15.5% for men. The poverty rate among women aged 70~74 is 26.6% as opposed to 17.3% for men. We can see how dramatically the difference in poverty rates increases among sexes with age. But even more striking result of the survey is the level of poverty among 1-person households. Relative poverty among men over 65 living alone is 38.3% and among women living alone 52.3%.

When compared to other age groups, income inequality is higher among households with a person(s) over 65 years old (Seike and Yamada 2003, Ohtake and Saito 1998, Ohtake 2005a, Shirahase 2006). Also, economic inequality is higher within a generation than between a generation for cohorts older than 65 (Iwamoto 2000, Ohtake 2005b). The ratio of population with higher inequality levels increases, and so the overall inequality level is growing as well. However, it is also very important to acknowledge problems of the youth and growing inequality among young cohorts. It has been shown that expected lifetime aggregate income of today's young cohorts is significantly lower than the lifetime income of the retired cohorts (Ishikawa 1991, 1994; Genda 2002). The difference in incomes among the young is explained by growing practices of irregular employment (Higuchi 2004, Ohta 2005). But there are reasons to believe that it is actually changing age structure that diminishes employment and reduces the chances of the young population. This influence of aging on employment environment will be discussed in detail in the next section.

3.7 Concluding Remarks

The most important findings of the simulations presented are:

1. The most important finding is that the influence of longevity and low birth rates on aging ratio is equally important and the influence of birth rates is growing rapidly. Furthermore, if the birth rates continue to be low for a long period of time (80-90 years), the structure of the population changes completely and population starts to shrink exponentially causing an old-age demographic trap. Japan as a society is getting older not because people live longer, but because people have fewer children.

2. Population aging occurs faster in the oldest age groups. Thus, the hope that aging problem can be alleviated significantly by the fact that older people are becoming healthier may not be true, because the number of the oldest people is growing fastest.

3. It is birth rates and not longevity that are responsible for changes in age structure. Increased longevity only makes the pyramid look higher and only changes the structure at the top. Low birth rates are much more important factor because they cause aging without a corresponding increase in healthy life expectancy and because of their long term consequences for population structure.

4. It does not really matter what age is considered to be old-age. The upside-down triangular shape of the population pyramid is self-explanatory: the share of dependent people increases, while the number of contributors to pension and health care systems shrinks.

5. As a secondary observation of the analysis in this chapter, it should be noted that population aging is particularly rapid among women. In Japan this is especially important because women are often less protected and are often house-wives or part-time workers. When retired and without husband's support, the risk of falling under poverty line is very high (Shirahase 2006, Atoh 2008).

6. Finally, both increased longevity and low birth rates are important when evaluating population aging. Focusing on only one factor might give a distorted picture and lead to erroneous conclusions.

However, it is important to acknowledge the role of low birth rates in changing the structure of population pyramid with the ratio of oldest group growing faster than others.

Chapter 4

Population Structure and Economy: How Is the Labor Market Affected?

In this chapter I will analyze how the aging of population and changing population structure affect the labor market in Japan. It was predicted that aging population will cause labor shortages, but that did not happen in Japan and there must be an explanation for that. In addition I speculate about the influence of the labor market on population structure, in particular the influence of employment inequality (labor market dualism) on young people. The problems of unemployment or labor market dualism are often discussed in terms of "overprotection" of the oldest cohorts. The economists who study the labor market tend to tie the problems of employment to economic downturns and political decisions, such as deregulation. I strongly believe we should reconsider the role of the demographic factor as a catalyst of economic downturns and labor law deregulation. The contribution of this section is that it links the decreasing birth-rates as a determining factor of changes in population structure to the contemporary problems of Japan's labor market. The question this chapter is answering is: how is the labor market affected by population aging caused by falling birth-rates?

Reflecting on the demographics of the period of high economic growth, the Japanese adult population (over 15) increased by 21% between 1960 and 1970. During the 80s and 90s, the adult population grew by 13%. Total population increased from 65 million in 1960 to 101 million in 1990, but after that population growth became significantly slower. The adult population increased only by 7.3% between 1990 and 2000 (Table 4.1).

Table 4.1: Population and Labor Force			
Year	Adult population (15 an over, millions)	Labor force (millions)	Labor Participation Rates (%)
1960	65.2	45.1	69.2
1970	78.9	51.5	65.3
1980	89.3	56.5	63.3
1990	100.9	63.8	63.2
2000	108.4	67.7	62.5
2005	111.0	66.5	60.4
2009	110.5	66.2	59.9
Source: Statistics Bureau, *Annual Report on the Labor Force Survey*, 2009			

The fact that age specific labor force participation rates decreased and demographic changes towards an older society meant that the labor force increased more slowly than the total population (Sakai and Asaoka, 2007). As a result, the labor force started declining 7 years earlier than total population. It reached its peak at 67.9 million in 1998 and fell every year after with a small break between 2004 and 2006.

The beginning of the 1990s is often regarded as a borderline when Japan's economic environment and labor policies started to change (Wood 1992, 1994; Rebick 2005). Collapse of the bubble economy and plummeting asset prices were obvious, so it is intuitive to draw a line at that pont. The end of the bubble economy is also strongly associated with rising unemployment and subsequent economic stagnation (Clark et al 2009). Changes in labor market environment are often described in terms of differentiation of employment patterns (regular vs irregular). However,

the traditional life-time employment system has changed substantially in itself:

1. Age of mandatory retirement was pushed from 55 to 60 or more years old
2. Age-seniority principle weakened. In other words, the salary now depends less on age than it used to.
3. Education matters more these days and cases when high-school graduates could make it to managerial positions have now faded away.

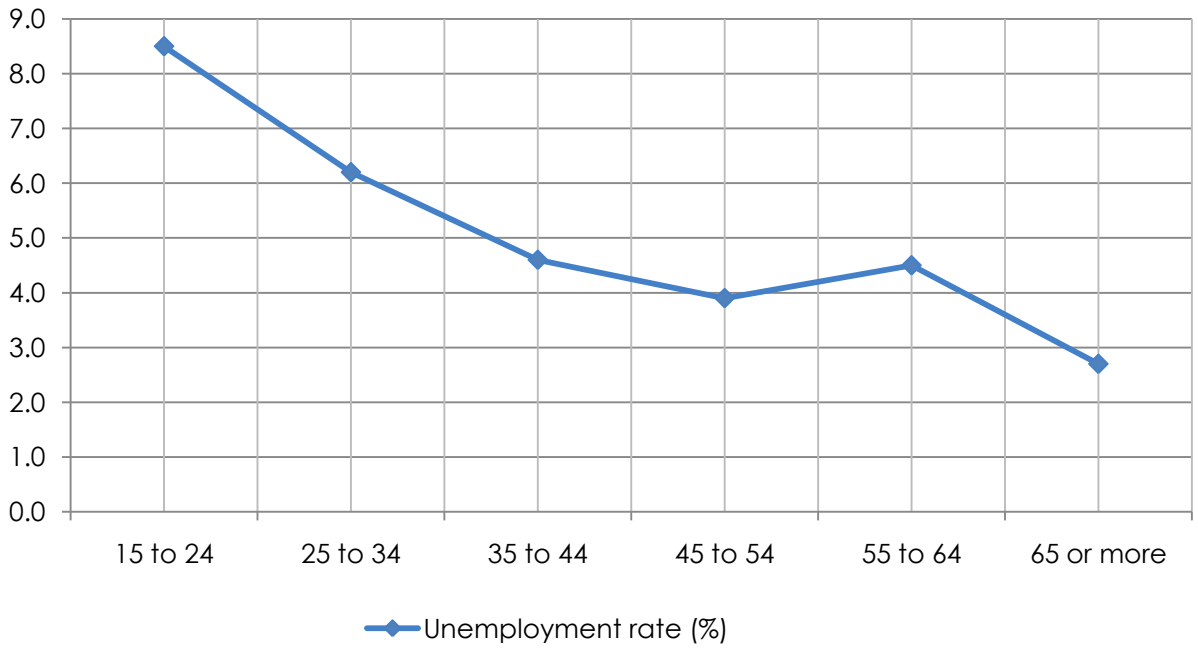
Common wisdom suggests that aging of the population eventually will cause the share of working population to shrink, causing more demand for labor and thus reducing unemployment. Many scholars predicted social crisis induced by huge labor shortages in the countries where aging pace is most rapid (Richman 1990, Hewitt 2002). The question is – where is the labor shortage? Why did these predictions not come true in Japan?

4.1 Why is Demand for Irregular Employment Increasing?

Despite the fact that the population started declining in 2005, and the working population started declining even earlier, labor shortages predicted by some scholars are nowhere to be seen. Why are unemployment and demand for irregular workers increasing? In order to answer that question, I consider the interaction between the demographic factors (birth-rates), socio-economic factors (age seniority system) and political factors (deregulation of the labor market). Under the age-seniority system supported by most Japanese enterprises, salaries rise with worker's age. Younger workers are paid less, and so they are more

attractive to employers. If unemployed, the difficulty to find employment increases with age. However, official statistics still show that unemployment rates are higher among the young.

Figure 4.1: Unemployment Rate by Age (%)



Source: Cabinet Ofice, Statistics Bureau (2010) http://www.stat.go.jp

My interpretation of this data is the following: firstly, even though the number of people without jobs among the old increase, they are often left without any hope of finding a job and so have stopped looking for work. So they are not included in the statistics. Secondly, economic downturn and increased concerns about profitability have forced enterprises to limit hiring young workers.

The government is caught in a dilemma: on the one hand, increasing pensionable age seems logical as life-expectancy increases and people

are supposed to be able to work longer (Akagawa 2004; Healy 1998, 2004). On the other hand, even under current legislation many enterprises refrain from hiring new workers unless they can dismiss older workers. In other words, older workers are overprotected and therefore diminish employment opportunities for the young (Genda 2003).

Genda et al (2007, 2008) found the effects of aging on unemployment to be minimal. Their analysis focused on how the change in age composition of labor supply affected overall unemployment rates. However, as the authors point out themselves, aging may be related to labor demand as well as labor supply.

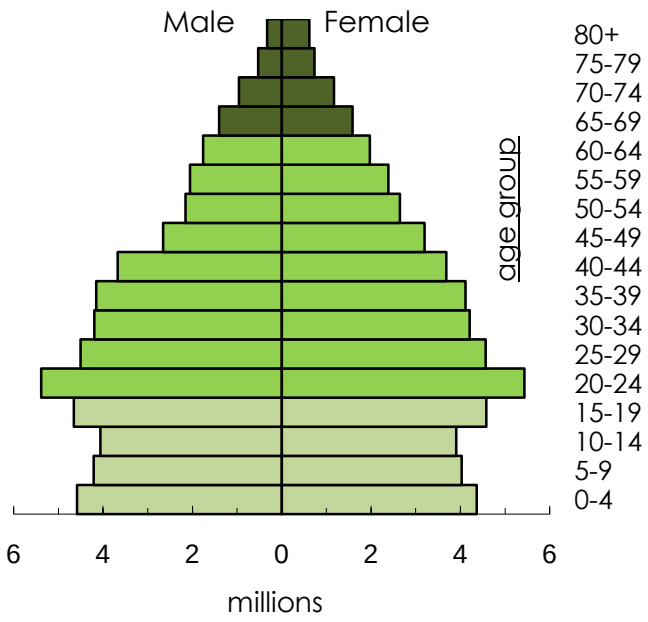
In this section I investigate how changing population structure influenced the labor environment. Even though the 1990s are regarded as a line between prosperous Japan and post-bubble Japan with its growing unemployment and stagnating economy, it is useful to recall some processes that started in 1970s that helped bubble creation in the first place.

Japan faced a severe economic challenge in the mid-1970s. In 1973, the October War broke between Israel and a coalition of Arab states. The war had a lot many consequences for international community. In particular, the Arab members of OPEC announced that they would no longer ship oil to any country that supported Israel, including Japan. As a result, Japan's Consumer price index (CPI) and inflation rose. Japan experienced its first postwar decline in industrial production. A recovery followed, however ensuring economic growth became impossible without some serious changes in the way enterprises were run.

Many businesses started to hire low-wage part-timers to cut costs. And, interestingly, these low-paid, part time jobs were often taken by women. Caring for children – was and still is women's responsibility in Japanese society. Lack of child-care support from government combined with growing numbers of women employed led to further decrease in the birth rates. TFR fell to 1.91 in 1975, 1.76 in 1985, 1.42 in 1995, and 1.26 in 2005. Women, now more and more often with higher education, supplied labor to enterprises at a low cost and often without any prospect of making a career. In the 1990s, following the bubble collapse, the trend persisted. Companies began to hire more contractual workers, most of them women. Most of the newly hired expected that their unsecured position would evolve over time into a full-time job, but that just did not happen.

It is often argued that during the 1990s the employment environment in Japan underwent very significant changes. I think that unstable employment is nothing new in Japan. This country is a very good example of dual labor market. The division between different types of employment is clear cut. By saying this I mean the difference between regular and non-regular employment. On the other hand the difference between multiplying types of irregular jobs is very confusing and makes it very difficult for legislation to create universal and fair rules. Formally, no fundamental changes occurred to the main characteristics of the labor market. The main shift that is obvious – is that irregular working arrangements are becoming more common and more important.

Figure 4.2: Japan's Popyaltion Pyramid 1970



Let's have a look at the actual population pyramid of 1970 (Figure 4.2). The 1970s are the period when the baby boomer generation entered the labor force. With every decade, this generation goes up one step in the pyramid and every subsequent generation is smaller in size. It is important to take into account the life-course pattern of a Japanese salary-man. Japan's age seniority system works on the assumption that young people do not really need that much money and have to show full devotion to the enterprise. This is compensated in future with promotions, gradually rising wages, bonuses, lump-sum retirement payments and finally pensions. Even now it is very uncommon for young individuals to be in top management or to be a president of a company. Even more uncommon is a situation where young individuals are in position higher than older employees. In practice this means that an individual's highest earnings are reached at about age of 55~60. The devotion of a young

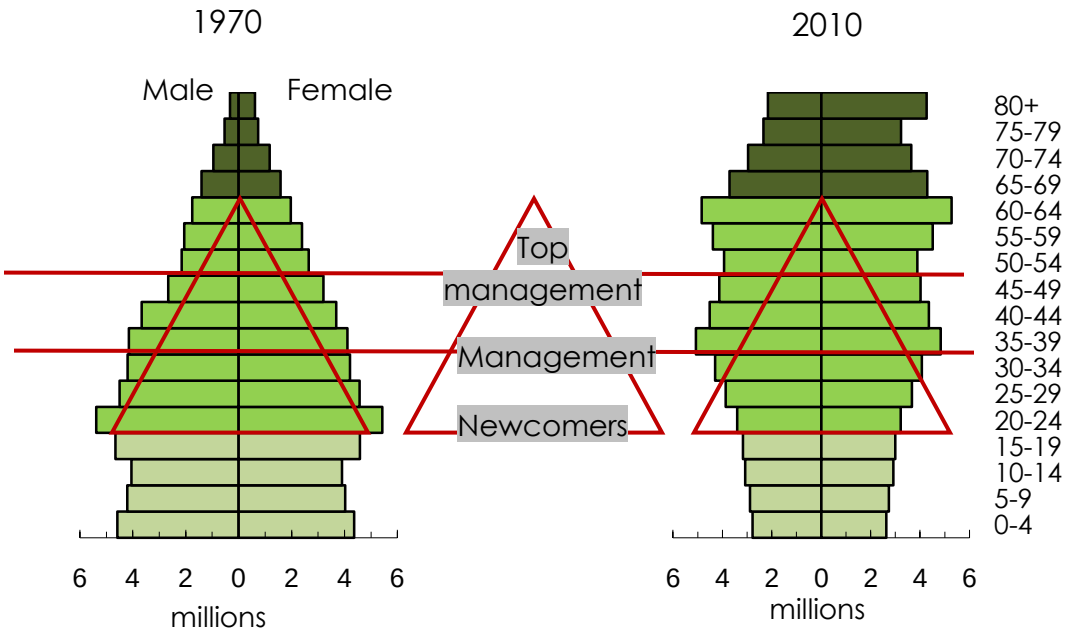
worker to his employer is an obligatory investment in the future – a person agrees to work for less, so that he can get more afterwards.

4.2 Is Age Seniority Principle a Pyramid Scheme?

The 1970 population pyramid shows us that a significant number of people entered into the labor force group. High levels of wages and other benefits for the much smaller population aged 55~60 were secured at the expense of newcomers who work for lower wages.

The age seniority system is based on the principle of paying relatively low wages to newcomers. In exchange, workers were guaranteed promotion and salary increases with time. If a worker changed jobs, he had to restart at a low level. Thus loyal workers, who dedicated their lives to the company, were most rewarded, often ending up in management or top-management positions after 20-40 years of service. In postwar Japan the system allowed enterprises to grow fast by hiring young workers in masses (Ogoshi 2006). During the rapid economic growth period, more and more young cheap workers were hired every year. This allowed paying higher salaries to older workers, who supervised the new-comers. Japan's population pyramid in 1950-1960 almost perfectly fit the hierarchy pyramid of enterprises, which provided life-time employment (Figure 4.3). With certain reservations, it can be argued that the age-seniority system is a pyramid scheme highly dependent on cheap new labor. Falling birth-rates have made this system unsustainable not only by failing to provide cheap new labor, but also by increasing the ratio of those who are supposed to be at the top of the pyramid.

Figure 4.3: Population Pyramid vs Enterprise Structure



4.3 Changing Age Structure of the Labor-Force

What is happening to this age-seniority pyramid, as the demographic structure of the population changes? The major concern with aging is the retirement of baby-boomers, - people born right after the war, in years 1946-1947. Problems caused by aging are often described in terms of growing burdens on pension and health insurance systems. But it will not be until the year 2011~2012 that baby-boomers will reach age of 65 and retire en masse creating additional burden on pension and insurance systems. Meanwhile, it is interesting to look at workplaces. As mentioned above, the 1950~1960 population pyramid fitted almost exactly the hierarchy pyramid of most public and private enterprises. Under the age seniority principle, newcomers could expect to be promoted almost automatically as they reached appropriate age (Ogoshi 2006; Rebick 2005).

The 2007 population pyramid no longer corresponds to the hierarchical structure of enterprises. The middle layers of the triangle are no longer able to accommodate all the workers who reach "appropriate" age for promotion. What happens to those outside the red full-time employment triangle? All the workers who cannot be supported in a traditional full-time employment age-seniority system are hired or re-hired on contractual basis or are let go. Many workers are sent out to subsidiaries. Older workers, who are rehired on contracts when they reach age of 50-55, make up for lower numbers of new recruits and provide cheap and experienced labor. In factories where emphasis is put on physical endurance, the preference is given to young. In the very end there are employees who are able to maintain their positions, employees who are hired on contracts and those who are let go (Lonien 2003).

Thus the rise in inequality after the 1990s is largely inequality between those who fit into the corporate hierarchy pyramid and those who do not. The above pyramids are not an exact representation of absolute figures in full time and part-time employment, but are rather an illustration of trends in Japan's labor market.

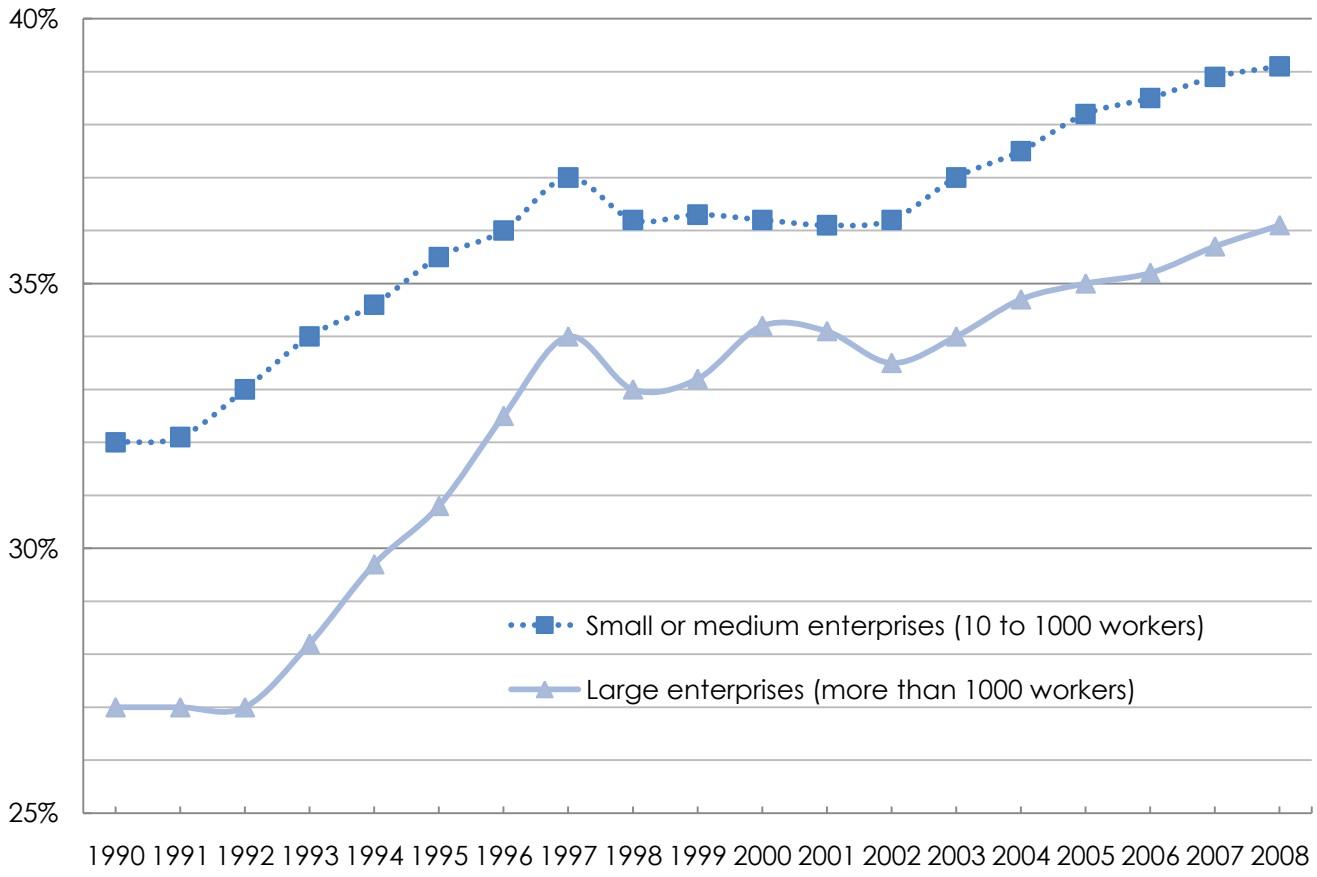
Note also that the enterprise hierarchy pyramid has changed in its shape as well. The enterprises have stopped promoting everyone according to age and significantly reduced the number of managerial positions (Sako and Sato 1997; Hassard and Morris 2008; Iida and Morris 2008). The enterprise hierarchy pyramid has become narrower, especially at the top. On a side note, this hierarchy-pyramid theory can also be applied to the public sector. In governmental institutions such as

universities and organizations financed from budget, the age-seniority principle tends to be more important (Jyo 2006).

4.4 How Do the Enterprises React to Changing Age-Structure?

Neither the aging of the Japanese work force nor the increasing longevity of workers has led corporations to adjust their thinking about how old is too old. In the seniority-based wage system, an aging workforce equates to a salary increase. Japanese enterprises are seeking to cut labor costs, and so reduce hiring of young people and take any opportunity to cut expensive older personnel. Companies tend to offer money as an incentive, often sweetening or accelerating benefits, to usher employees into retirement. But many people measure their self-worth by where they work, so they have to be pushed out - unless they are too successful and powerful to oust. What caused enterprises to be so preoccupied by labor costs? While collapse of the bubble economy as well as recent economic recessions and low consumption played vital roles, demographic factors are also worth attention. Age-seniority life-time employment system with high salaries for older workers increases labor costs dramatically as the proportion of older workers increases. In spite of attempts to introduce performance-based promotion systems, age-seniority remains largely intact in many enterprises. Under that system, a person is rewarded based on age and years of employment. The problem is that as the number of older workers within companies continued to grow, this age-seniority system became more and more difficult to maintain (Boscaro, Gatti, Raveri 1991; Conrad 2009).

Figure 4.4: Regular Workers over 45 Years Old



Source: Ministry of Health, Labor and Welfare. *Basic statistic survey on wages*. (2008)

The figure 4.4 shows how fast the number of older workers within companies is growing. In 1998,1999 and 2002 there is a step decrease in the ratio of older workers. In my view, there is no other plausible explanation for this decrease, but an attmept by the enterprises to get rid of the older workers.

In response to labor force aging acommpained by swelling labor costs, enterprises took steps to reduce expenses. In particular many had their personnel expenses fixed. To stay within the fixed amount of personnel expenses the companies 1) cease hiring or hire fewer young

workers, 2) switch (partly) from age-seniority to performance based principle 3) hire easily dismissed non-regular workers (*hiseiki*) who are not subject to the age-seniority principle 4) try to dismiss as many older workers as possible and possibly rehire them as contractual or part-time workers. All four statements are cited among the top reasons for increased inequality.

Figure 4.4 above shows that the intensity in older workers increase continued until 1997 but fell thereafter. This trend cannot be explained by an increased proportion of young workers because of aging and decreasing labor demand. The only explanation is that older workers were removed from their jobs. Policies undertaken by enterprises, such as fixed labor budgets and removing older employees, increased unemployment and labor-market-dualism, a situation when full-time and contractual workers receive significantly different treatment and salaries while often doing basically the same job. Two studies (Genda and Kondo 2003; Genda 2005) show that enterprises with more middle-aged and older workers tend to limit labor demand for youth. Consequently, aging within such enterprises progresses further. In this sense, aging in Japan's specific environment has a negative influence on labor demand, expecially for young workers.

According to a Ministry of Health, Labour and Welfare survey on part-time workers (MHLW 2006a), reducing labor costs is the most important reason why enterprises hire non-regular workers (71% of respondents). This number was higher in 2006 than in a similar 2001 survey, suggesting that the corporations were even more committed to labor cost cutting in 2006 than during the 2001 downturn (Table 4.1).

Table 4.1: Reasons Given by Enterprises for Hiring Irregular Workers (%)

	Share of enterprises hiring non-regulars	To reduce costs	To deal with temporary demand	To deal with business fluctuations	To deal with busy time-frames	To work on easy tasks	Easy to hire	To hire skilled workers	To reemploy retired regulars	Not able to find new graduates	Other
2001 Survey											
Part-time	56.6	65.3	27.3	16.4	39.2	31.4	17.8	12.2	12.4	5.8	6.5
Irregular	15.3	57.9	17.3	19.6	11.0	15.7	8.1	19.8	16	6.4	13
2006 Survey											
Part-time	61	71	23.8	21.9	39.5	36.3	29.5	18.8	15.5	12.9	7.9
Irregular	17.3	58.4	18.8	19	9	18.6	15	31.9	29.3	16.1	17.1

Note: Multiple answers were allowed; Irregular workers include contractual, dispatched and other workers whose working hours are as long as regular workers and thus they are not considered part-time. Part-timers are also included.
Source: MHLW 2006a, General Research on Part-time Workers.

Jones (2008) also shows that there is a strong negative correlation between the rise in part-time employment and wage growth by industry. Retail, restaurants and hotels, medical and nursing care and other services which are the four service industries with the largest increases in part-timers – also experienced the largest wage declines.

There are several reasons why Japan's enterprises became more focused on profitability. Recessions made it more difficult to borrow money from banks, so many rely on stock selling for cash inflow, and so seek to cut labor cost to show higher profitability. It is the rising cost of labor in Japan – a product of both decline in labor-force and changing population structure, combined with age seniority system – that pushes

enterprises to divide employees into regular and irregular. They tend to rely more and more on irregular employees as focus on profitability becomes more important.

4.5 Enterprise Pensions

As population ages and the number of retired people eligible for pension benefits grows relative to working population, it becomes more and more difficult for government to finance the pension funds. Currently, the government is considering financing national pension through taxes. The Democratic Party of Japan (DPJ), who initially strongly opposed increasing the consumption tax, is now planning to increase it from 5% to 10%. The funds raised from increasing tax rates are supposed to be used for "welfare purposes".

However the government is not the only one who is struggling to balance income with expenditures. The pension system in Japan consists of basic pension (financed by National Pension fund) and Employees' Pensions Insurance for employees of private enterprises (financed by respective enterprises' pension funds) (Takayama 2004). As population ages, age structure shifts towards older age with the corporations as well. The problem here is that the baby-boomers and subsequent generations who were employed en masse during the 60s and 70s are heading for retirement, while the numbers of young working employees relatively decreases. How are the enterprise pension funds dealing with this problem?

Naturally, the enterprises do not have the option to finance their pension schemes trough taxes. There are only two ways to maintain the level of benefits for the enterprise. One is to increase profitability and to

use a share of the profit to finance the pensions of retired generation. However increasing profitability under conditions of slow economic growth or economic downturn is not an easy task. In addition, private companies are created with the purpose of generating profit, not financing pension in the first place. So in order to keep the existing levels of benefits, profitability should be reduced or some part of salary funds have to be transferred to the pension fund. The second way to maintain the pensions system is to reduce the level of the pension benefits. So far, this seems the way some enterprises tend to chose.

A recent example is Japan Airlines (JAL). This company filed for bankruptcy in January 2010. At that point JAL had 2.3 trillion yen in debt, and so was unable to pay full amount of promised pensions. The government has bailed out the company 4 times during last 9 years. In March, 2009 the then president of JAL made a plea to the pension fund to reduce the pension benefit by 50%. This move triggered strong opposition from both current workers and pensioners. They felt the commitment that the company made to them was undermined. Finally, JAL announced that current workers agreed to have their future pension benefits cut by 50%, and retirees by 30%. However, a website (http://jalnenkin.web.fc2.com/) set up by a former employee of JAL showed that 40% (well above 1/3 needed to stop the reform) of 9,000 who are receiving the benefits signed an online petition against the cuts.

JAL's example is the first big issue, but such benefit cuts may spread all around Japan. Giant enterprises like Hitachi had the largest deficit in pension funding (687 billion yen) in 2009. The Nippon Telegraph and Telephone Corporation (NTT) and Toshiba are also among the enterprises with huge pension fund deficits.

NTT group recently filed a lawsuit against the government demanding to change the verdict forbidding NTT to cut pension benefits to 140,000 of its retirees. The government denied the corporation the right to cut its pension expenditures based on the fact that NTT has actually made profit during the last fiscal year and so the financial condition of the enterprise cannot be described as poor.

These stories about enterprises seeking to cut pensions benefits raises again the question whether the pension should be financed by private sector enterprise in the first place. Private enterprises in a capitalist world are built to make profit and the whole structure of the companies is not suitable for taking care of retirees and running pension funds. It is the government's task to tax profits and salaries, ensure minimal wages, and use these funds to support the welfare state. We may not rely on the "good will" of private enterprise to finance the welfare state because the "good will" may change dramatically from company to company and even within a company depending on who is in charge during that particular time frame. It is natural that the management of the company will seek to cut salaries and pensions to increase profit, as profit is the ultimate goal. To say more, a private company may go bankrupt in some 20-30 years, and then the promised pensions cannot be paid at all.

The government including the newly established DPJ cabinet was arguing for unification of the pension system for a long time now. However, unification of the pension system seems to be a very difficult issue. In fact, what the government says does not always comply with what the government does. And this is exactly what happened when the government supported the reduction of pension benefits by JAL.

As the debate about whether it is enterprise greed or inevitable economic conditions that push private companies to cut pensions continues, population aging progresses and the age-structure of the labor force changes toward a higher ratio of older individuals. The problem of enterprise pensions may trigger rising inequality among those who retired from well-off corporations and those who are beneficiaries of pension funds with huge deficits. It is quite possible that an enterprise will be out of business and not able to pay the pension benefit anymore. So it will be up to government to support its retirees. That said we may expect the situation to become even more serious. Even if birth-rates return to replacement level (which is not likely to happen) the labor force is destined to age at the present pace for another 20-30 years.

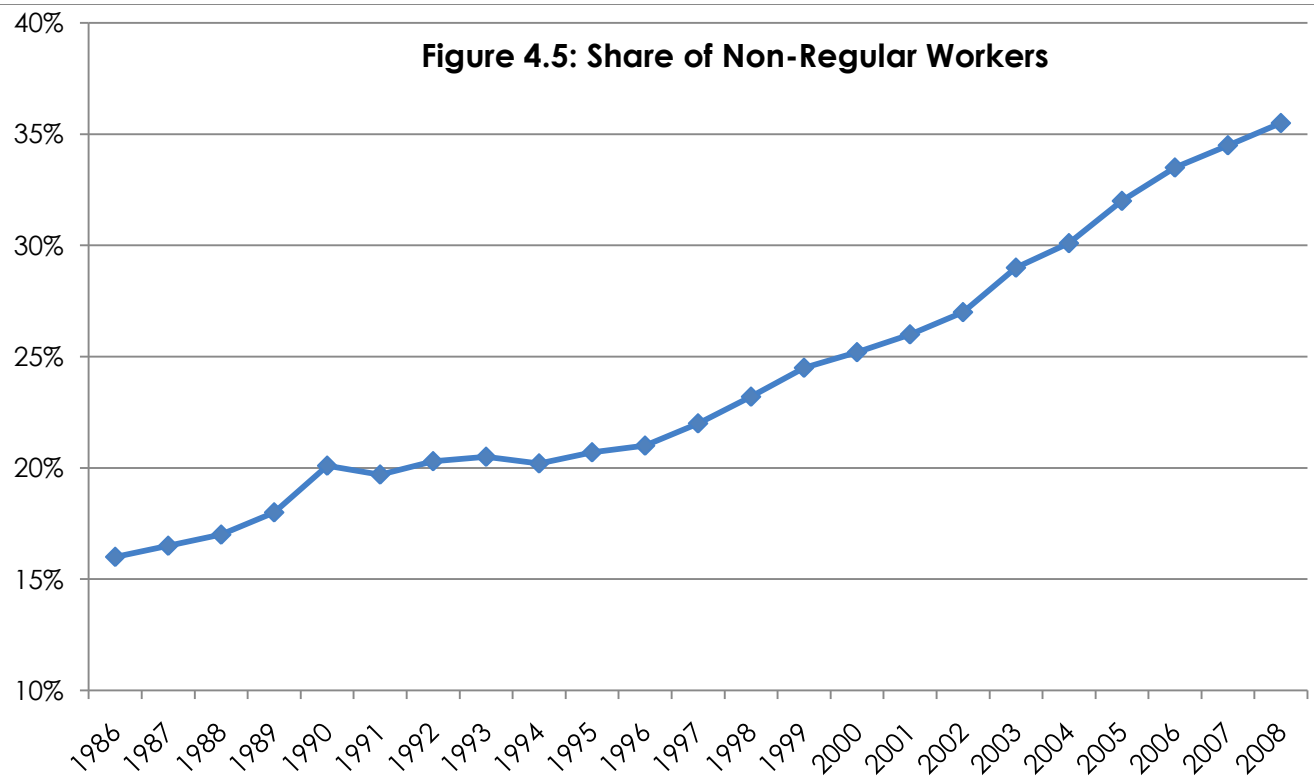
4.6 What Constitutes Class in Modern Japan?

When resources available for distribution are limited, there are two options: 1) decrease everyone's share, so that the amount distributed equals to the amount of resources available, or 2) differentiate levels of benefits. It seems that Japan is pursuing the second path. The companies keep a lot of employees on the life-time career track. Are there limits to cost cutting? Obviously there are. In order to maintain know-how, sustain the image of the enterprise and so on, companies must have permanent workers. The division of population into regular workers and irregulars is a contemporary variant of class division. The division is mostly forced and artificial, but to justify it LDP officials used the neoliberal "Get what you deserve" or "Everyone who makes effort is rewarded" ideological base. The reality, however, is that no matter how hard one works, a place in full-time employment is no longer guaranteed, as there are simply not enough "chairs to sit on" (Genda 2006). The new government formed by the DPJ proposes a bill that will make dispatched workers illegal in

manufacturing. This seems to be a good place to start, but whether policies to reduce labor market dualism will be effective is still a question.

I believe that the increase in labor market dualism in Japan can be explained by aging population within enterprises (demand side of the labor market). This employment inequality divides workers into groups, making it difficult for them to act uniformly to protect their interests. Non-regular employees seldom have protection from labor unions, while full-time workers are always told they should be happy with what they have. The difference between permanent and non-regular workers is one of the features that constitute classes in modern Japan.

Essentially, the class is still defined by the relation of the individual to the means of production. The two big fractions are the owners of the means of productions and those who use the means of production to create commodities. However, in a process of evolution the owners of means of production became able to control the labor force (often by compromise) in order to avoid social conflicts. Splitting the other fraction into small groups is a strategy often employed by the class of owners. And the division of workers into regular and irregular groups is a successful example of such approach.



Source: Ministry of Internal Affairs and Communications Statistics Bureau, *The Special Survey of the Labour Force Survey* (February from 1985 to 2001), and *Labour Force Survey* (from 2002 to 2008)

Note : Non-regular employees include part-time workers, albeit's temporary workers, dispatched workers, contract workers, entrusted workers and other non-regular workers.

4.7 Will Inequality between Regular and Non-Regular Workers Increase?

What is interesting to note is that between 1990 and 2008, the ratio of older workers in enterprises was highly correlated (r=0.8) with the increase in the share of irregular workers. It may be argued that other factors like economic crises and recession might have influenced labor market, but even when controlling for GDP and GDP growth, high correlation (r=0.8) is observed. This leads to the conclusion that labor market deregulation laws are an inevitable arrangement to allow business to shed the workforce that does not fit in the shrinking triangle of corporate hierarchy. Japanese

enterprises, represented by Japan Business Federation (Keidanren) have put pressure on government to relax labor regulations and introduce flexible-employment. The "Tripartite Agreement on Employment issues" (Keidanren, 2002) emphasizes the necessity of cutting labor costs and pressuring labor to adopt "more diverse employment patterns", "using private job placement agencies" (*haken*), "actively promoting trial employment and tailor-made vocational training". This agreement eventually developed into further deregulation of labor laws in 2004. "*New Directions for the Japanese-Style Employment System*" (Keidanren 2007:2) emphasizes the aging population problem and concludes that because of aging "people desire various types of employment and more flexible options". The foreword of the document says:

"To respond to this changing business environment, elements of the Japanese-style management and the employment system behind it that must be preserved should be retained, but at the same time there should be awareness that the necessary changes must be made."

Reading the document, one is fully convinced that "must be retained" practices include hard work and full devotion to the company, while "changes that must be made" include abolition of industry-based minimum-wage, introduction of flexible employment patterns, deregulation in dispatch labor related laws and abolition of the age-seniority principle. Flexible working hours as well as work sharing are not considered at all.

On another account, the ratio of older workers in big enterprises is negatively correlated with the job-offers-to-seekers ratio (r=-0,5). These

findings support the claim that companies with older workforce tend to limit hiring full-time employees.

I think that if the situation remains as it is, the inequality between regular-employed workers, contractual workers, part-timers, and "*freeters*" at retirement age will increase. People who retire from regular employment usually enjoy: 1) really high salaries just before retirement, 2) high retirement bonuses 3) a high level of savings. Non-regular workers, on the other hand, are usually cut-off much earlier than retirement age, do not get bonuses and often have no savings, as they work for only 40% of regular workers' salary (MHLW 2008a). The practice of hiring part-time workers increased from the 1970s and the numbers of non-regular workers has grown since then (OECD 2008a). By the year 2020, when the first wave of workers employed on a non-regular basis will reach retirement age, inequality between the two groups will become even more apparent. The Liberal Democratic Party was criticized by the Democratic Party of Japan for promoting labor market dualism and inequality. But since DPJ took power, the situation has not yet shown any sign of improvement. How the new government will deal with rising inequality due to upside-down population pyramid still remains to be seen.

4.8 Concluding Remarks

In this Chapter I discussed how the changing population structure of Japan's labor force challenges traditional employment norms. The first important finding from Japan's experience is that despite decrease in the labor force, labor shortages are very unlikely. This is due to falling demand within the country and outsourcing to other countries where the labor is cheaper. The second thing that other countries should learn from Japan's experience is that under conditions of growing labor costs, the private

sector is going to put pressure on the government to promote deregulation reforms to reduce expenses. If done unwisely, such deregulations will lead to increased inequality, falling demand and further decline in population due to low marriage and birth-rates, creating a vicious circle. I believe that the burden of socio-economic problems caused by population decline should be equally distributed among all players on the field, then it will be easier to deal with and will not produce further complications.

Chapter 5

Growing Old Alone: What does Skewed Population Structure Mean for Families?

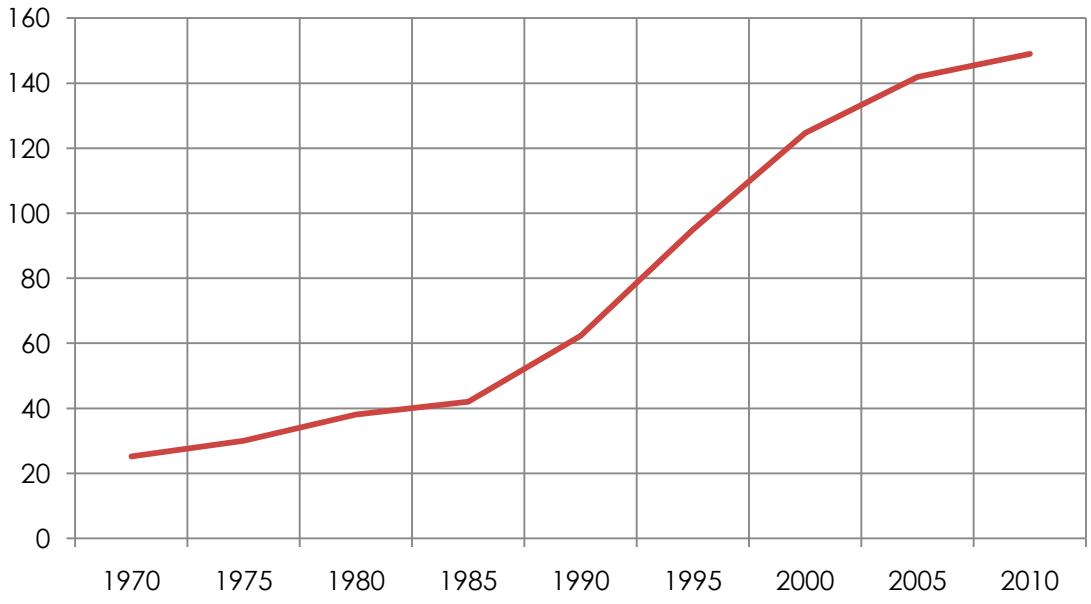
Japan is a country with growing numbers of elderly people and, as discussed throughout this paper, aging society poses a number of problems that need to be solved, such as the material well-being of the elderly, including pension systems or medical care in old-age. These challenges that Japanese society is facing seem even more serious if we consider the fact that more and more elderly people are living alone, often without any support from their families. Is aging society problematic only because the number of the elderly is growing? Are there other issues related to changes in population structure and changing household patterns? This chapter illustrates the changes in social arrangements caused by continuously low birth rates. It argues that the nature of these changes is best understood through the lens of changing population structure.

Japan has been traditionally a country where the social security system heavily relies on family support (Ochiai 2005, Traphagan 2003, Shirahase 2006, Long 2008). This chapter analyzes how aging population affects the way of living, in particular household patterns.

5.1 Changing Household Patterns (explained by changing population pyramid)

As discussed earlier, the two major demographic contributors to population aging are increasing life expectancy and decreasing birth rates. Figure below shows the aging index calculated as the percentage of population aged 0-14 to population over 65 years old.

Figure 5.1: Ratio of Population Aged 0-14 to Population Aged over 65



Source: *NIPSSR (2010), Latest Demographic Statistics 2010*

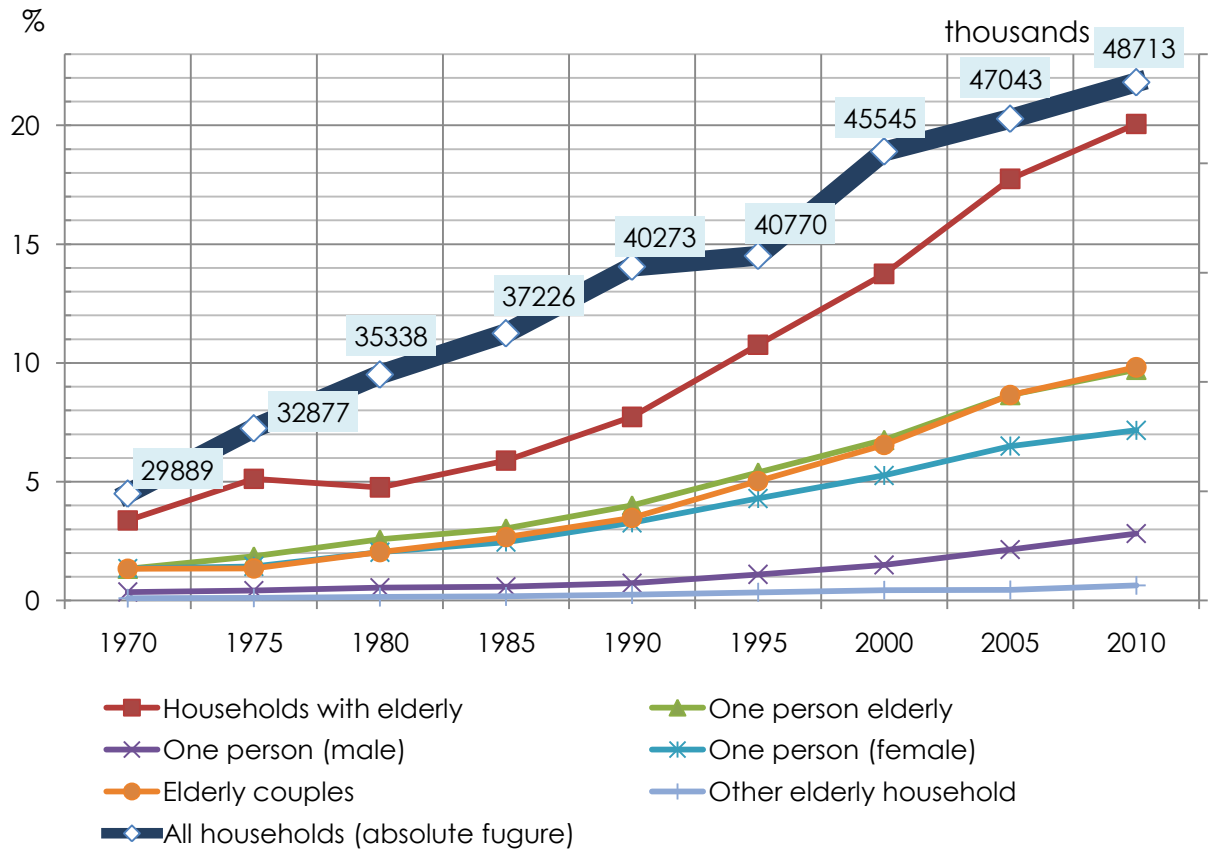
It can be seen that there is a step increase in the speed of aging since 1990. This is when low birth-rates start to play a more important role than longevity. A very rapid transformation of population structure brought a significant imbalance between preceding and succeeding generations.

Changes in household patterns are often regarded as a result of cultural or historical changes or adaptation of a society to new circumstances (Ochiai 1997, 2005, Osawa 2002, Nishioka et al 2010b). However demographic factors influencing household composition are often ignored, because they are to some extent caused by the same cultural or social changes.

Population aging is not simply an increase in absolute numbers of people over 65. Population aging is first of all an increase in the ratio of older people and is accompanied by changes in household structure. The fewer children people have – the smaller and older is the household they live in. The household type is one of the most important factors in social stratification studies (Goldthorpe 1980, Osawa 2002, Shirahase 2006). The usage of the household concept became problematic as female labor participation rates went up and household lost a lot of its uniformity. For example, the husband may be employed in a white-collar job while his wife may be a blue-collar worker or vice-versa. In such a case it is difficult to judge what class the household belongs to. However, in Japan, the concept of the head of the household has always been and still is very important, and usually, the social position of the household is defined by the social position of the head of the household.

Another problem with the household concept is that the household is seldom permanent. It is much more common for a person to change the household patterns during his or her life-course. For instance, one can be born in a three-generation household, then move to another city to study or to work and live in one-person household, then get married and have children – nuclear family household. This fact may represent a problem in some cases, but when analyzing changing household patterns in Japan, this fact only emphasizes the point. In Japan's particular situation the relative number of the young (who would normally fit into one-person household) is falling, while the number of one-person households is on the rise and the total number of households will soon go over 50 million for the first time in history.

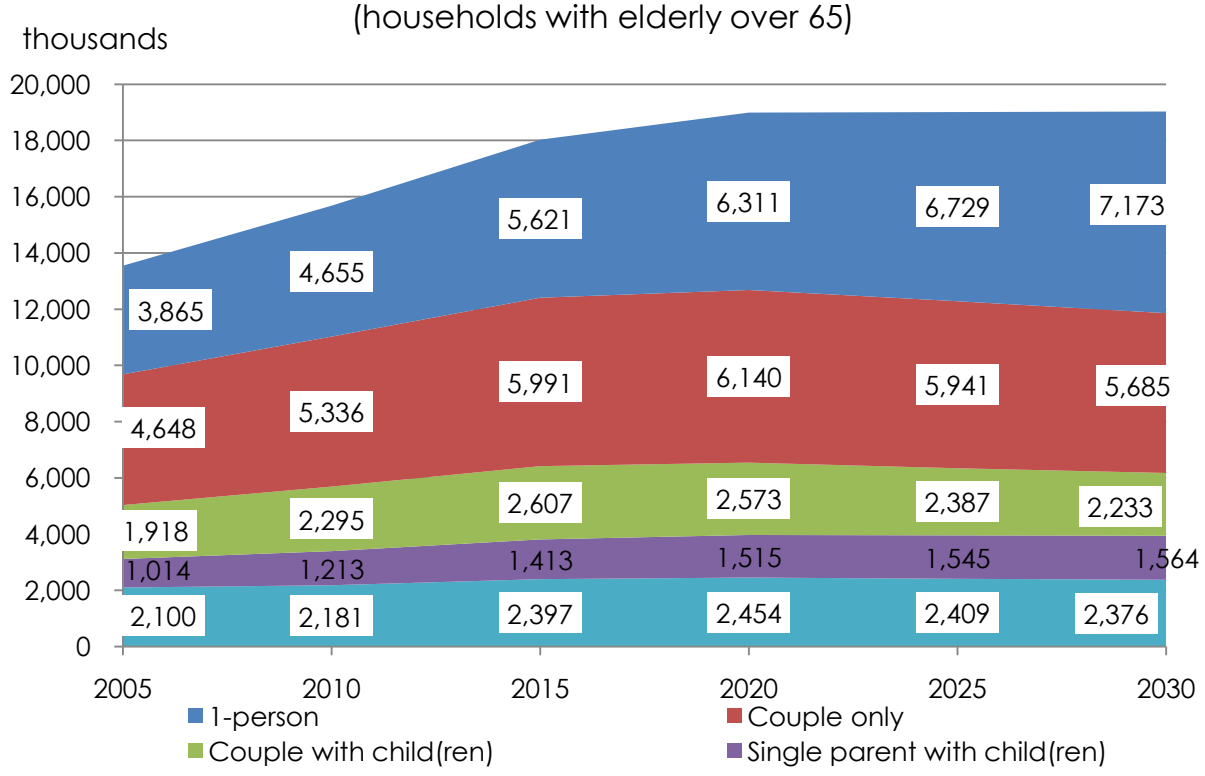
Figure 5.2: Trends in Household Patterns in Japan
(overall household number in absolute figures vs household types in %)



Source: *Ministry of Health, Labor and Welfare (2010)*

The total number of households, type of households, and size of households have undergone very significant changes. If the trend seen from the data in National Censuses continues, one-person households will outnumber all other types of the households this year (2010). In half of all the households there are no children of any age living with their parents.

Figure 5.3: Projection of Changes in Household Patterns
(households with elderly over 65)

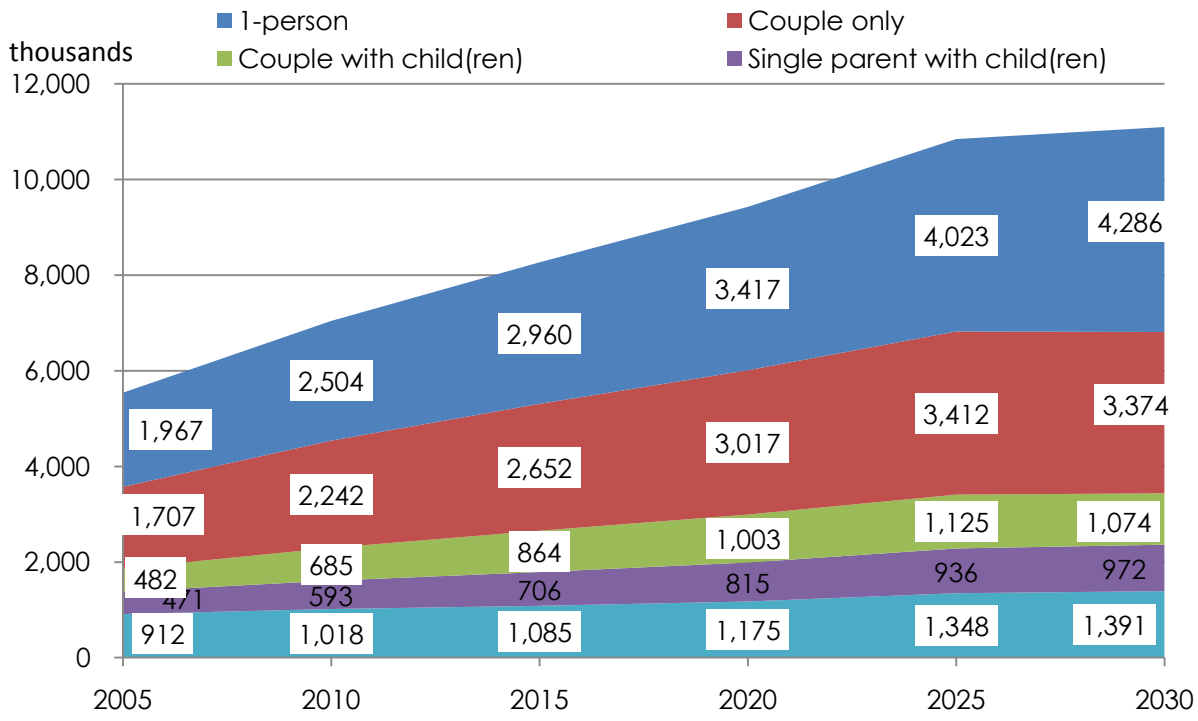


Source: NIPSSR *Population Projections*, medium variant 2008

Japan's population has the highest life expectancy and it continues to rise along with the proportion of the life spent in a one-person household. Japanese live more of their lives alone. A great concern is that the pace of increase of 1-person household is faster among the so called "old-old" (persons over 75 years old), who are under greater risk of becoming dependent on care.

As I am arguing through the whole paper, like any changes, the changes in living arrangements are most likely to have biggest impact on those who are most vulnerable.

Figure 5.4: Projection of Changes in Household Patterns
(households with elderly over 75)



Source: NIPSSR *Population Projections for Japan (2006)*, medium variant

The projections shown on figure 5.3 and 5.4 also reflect the fact that the very oldest population ratio is growing faster than the moderately-old population ratio. That is to say aging is faster among older cohorts.

What does this trend mean? Behind the figures of growing numbers of elderly and small households we can clearly see an image of a person lost in an urban space without family support. According to a recent government white paper on aging society (Cabinet Office 2010), the ratio of single males over 65 years old living alone as a percentage of older households is expected to increase from the current 11% to 17.8% by 2030. As for women, the ratio of older women living alone is projected to increase from the current 19% to around 21% by 2030. But given life-

expectancy rates and household trends, there is high probability of underestimation.

5.2 How Does Aging Affects Socializing Opportunities?

The idea that the household type a person belongs to can influence his or her social ties and life prospects -is not a new one. A number of studies have been made to assess the effect of new-born child on social networks and family support (Belesky and Rovine, 1984). It is commonly accepted that family relationships are modified as the family becomes a 3-person micro society (Rossi 1968, Russel 1974).

Hammer, Gutwirth and Phlips (1982) find that rearing children increases kin connections for both parents and that working mothers tend to interact more with their friends than coworkers. According to their study, working parents have a larger number of friends than do people without children. This is natural as people get to know other people as they take their children to nursery or school. It is also normal to rely on family help and support when a child is born. The social ties of the family tend to expand or deepen as well, as the child grows up and builds his own network of friends. Unfortunately, it is very difficult to assess how the children influence social ties of a family during the life course, and no longitudal study has been done focusing on this. However, it is still important to note that simple support from children is a very important factor influencing well-being during old-age.

I argue that the decline in birth rates is not only the main reason causing aging it is also a very important reason why a growing number of elderly people are living alone. Such social problems as falling birth-rates, aging, and solitary death (*kodokushi*) are all results of the same change in demographic behavior. People are just not getting married. And in case

of Japan this also means they have no children, although problems of single mothers and single farthers are becoming a serious concern worth attention. In order to understand fully how birth rate patterns change the society, it is necessary to consider how family ties and social networks are affected. The number of opportunities for socializing and creating social ties decreases together with the number of children born.

5.2.1 Shrinking Family

First of all, decreasing number of children means decreasing number of immediate kin, who play vital role in providing a safety net and support in the case it is needed. This is especially important in Japan, as, traditionally the family played and continues to play a very important role. In a traditional family, any burden (like financial problems or caring for sick members of the family) is shared (unequally or equally) between family members. A smaller household makes the burden bigger for every single member.

It should be noted that there is a substantial difference between switching to smaller (1 or 2 generation) households due to rural-to-urban migration and switching to smaller households due to changes of customs or housing. In the first case the physical distance between the family members increases significantly, so the family relations are weakened by distance. In the second case, the family members may have different residences but still maintain deep relations with each other. In Japan the biggest reason why the average number of persons per household decreases is low birth-rate. More people chose not to get married. People live in smaller households because they do not have any children to live with, in the first place. The second big reason is migration. As will be

discussed in the next chapter, the regions that have higher birth rates "subsidize" the population growth of the metropolitan areas around Tokyo, Osaka and Nagoya. The children who were born in rural areas of Japan move to big cities. This is the main reason why the population of the 3 big metropolitan areas is still growing, despite overall decreasing population. And, finally, changes in traditions and customs, account for the smallest part of changes in the household patterns.

5.2.2 Shrinking Social Networks

Secondly, people often make new acquaintances when meeting other parents, sending children to school, taking them to hospitals, sport clubs, camps etc. Therefore the decreasing number of children is one of the major factors for degrading social networks along with urbanization and migration (Nishioka et al. 2010a).

Based on a study of social integration among 4 groups of elders in USA (1.Without children; 2.With one child; 3.Two or more children; 4.Children and grandchildren) Gironda, Lubben and Atchison (1999) argue that people without children are often members of unprivileged groups, live alone and have fewer social ties. They tend to have lower incomes and are more prone to sickness and health problems than those who have children and stay in close contact with them.

Makino (2001, 2010) argues that the shrinking size of the family negatively affects children's ability to socialize with other people. This is explained by the fact that the children have less and less experience of living or communicating with individuals of different ages.

Many family sociologists address the issue of voluntary childlessness and involuntary childlessness, and define involuntary childlessness as a physiological infertility. What about people who are forced into decision

not to have children due to economic reasons? Should we still count them as voluntarily childless?

Unfortunately, the tendency is that social networks are absent in places where they are most needed. Similarly, the people who are most likely to require financial and emotional support from their children when they are old do not have children.

According to the Population Survey Report compiled by Ministry of Health, Labour and Welfare, men with higher education and higher income are more likely to get married. In particular, men with permanent place of employment are twice as likely to get married as contractual or part-time workers. A survey conducted by Ministry of Health, Labour and Welfare tracked records of 21-35 year old men and women between 2002~2005. The table below shows the percentage of who got married during last 3 years according to their employment status:

Table 5.1: Number of Persons Married During 2002-2005

	Permanent job	Irregular job	Unemployed
Men	15.3%	6.3%	4.4%
Women	14.9%	16.8%	15.6%

Source: MHLW 2009c, *21st century Full-age Survey*

According to another survey by the Independent administrative legal entity "*Institute for Labor Policy*", 50% of men 25-29 years old, whose salary is over 5.000.000 yen per year are married, while only 15% of same age cohort as part-time or contractual workers are married. It is evident that income/employment inequality among young influences significantly their chances to get married and have children.

The role of the family is even more important when considering the time average Japanese spend at work. With long hours of "zangyou" (overtime) and almost no vacation, people just have no time to make close friends. In such an environment, the difference between the relatively well-off educated people in regular employment and underprivileged individuals is deepened by the fact they do not get married and do not have children. Not only is their financial situation is worse, their social capital is also limited if compared to the members of big families. As the shift to smaller households continues, more and more people may end up in isolation, especially as they reach old age. It is therefore an important task for the government to ensure that people living in 1-person or couple-only households do not end under the poverty line.

5.3 Wealthy or Poor?

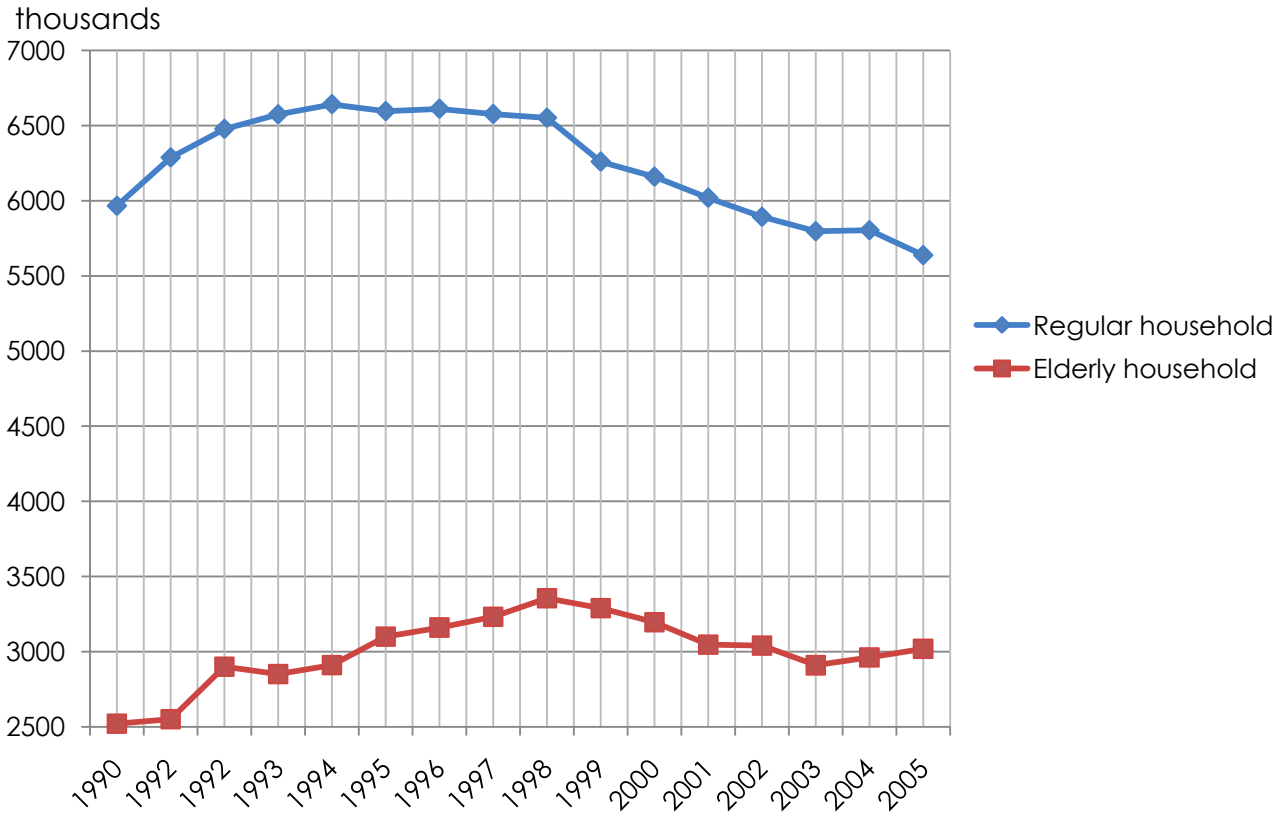
In this section I will discuss the economic situation of people who belong to the old age groups. In order to grasp the economic situation of people it is necessary to take their income, property and consumption into account. However, this data should be also seen through the lens of living arrangements. For example, the situation of two elderly persons who have the equal pension and equal property maybe different, because one lives with his son, who happens to be rich and takes the responsibility of covering financial costs of his father, while the other lives alone and has to make ends meet by himself.

Until recently, the idea that the old in Japan are rich, healthy and satisfied with their lives was widely spread and commonly accepted. The image of a wealthy Japanese couple after their retirement travelling around the world with expensive cameras and spending a lot of money ware enforced by the statistics on saving rates. The statistic data on

savings rates was interpreted in a way that showed Japanese older generations as wealthy and big-savers (Horioka 2006, Horioka, Suzuki, Hatta 2007).

As long as average figures are considered, the economic situation of old people in Japan has been improving significantly since 1945. This is mainly due to implementation of the public pension system. The public pension consists of basic benefits – a defined amount of money granted to anyone who paid the premiums for required period of time (25 years) and additional benefits corresponding to the period and amount of contributions. The second part is paid according to what sum and how long the person was paying the contributions, but the maximum period is defined as 40 years and the benefit do not grow from there on. Currently, the number of people who contributed to the pension system for 40 (thus the older people with high pension benefits) years is growing significantly. What is interesting to note, is that even though average household income stagnated for a long time and started to decline in the 90s, the average income of elderly households continued to rise (MHLW, *National Livelihood Survey*, 1990-2005)

Figure 5.5: Average Income of Regular Households vs Average Income of Elderly Households

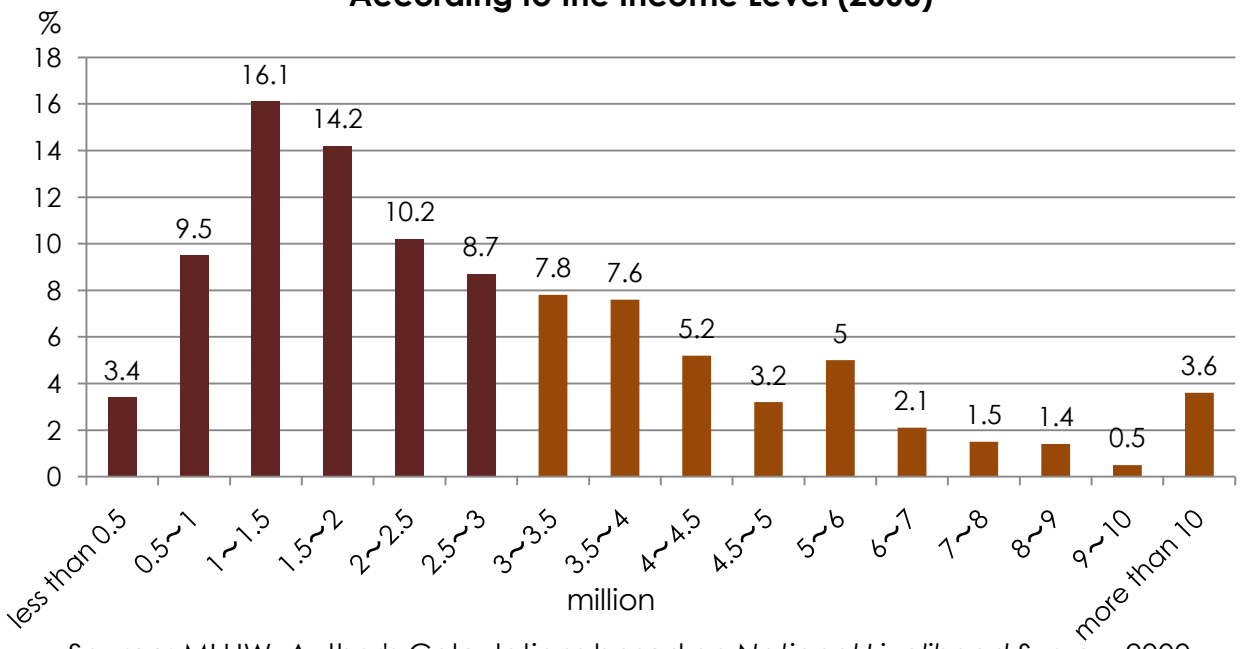


Source: MLHW, *National Livelihood Survey*, 1990-2005

So, it looks like while average income of regular households stagnated and eventually went down, the income of elderly households was still growing until 1999 and even then, the decline is not as sharp. As long as we consider average, the situation of elderly households improved relatively. However, as the average was increasing, income and wealth gaps continued to grow. I argue that this data cannot be interpreted in a way that makes elderly livelihood improving.

To see what stands behind the average numbers, I analyzed the data from the MHLW *National Livelihood Survey* (2000). In year 2000 the average income of elderly households was 3.289.000 yen, however the mode value lies between 1and 1.5 million yen.

Figure 5.5: Relative Frequency Distribution of Elderly Households According to the Income Level (2000)



Source: MLHW, Author's Calculations based on *National Livelihood Survey*, 2000

This data shows for one, that income for a very significant number of elderly households is around 1~1.5 million yen. This income level is the most common among elderly households. For two, it shows that majority of elderly households (62.1%) live on less than average income.

The difference between average and mode values of regular households' income is not as pronounced. This is explained by the fact that the gap between the rich and the poor is larger among older households. Unfortunately, the data from MHLW *National Livelihood*

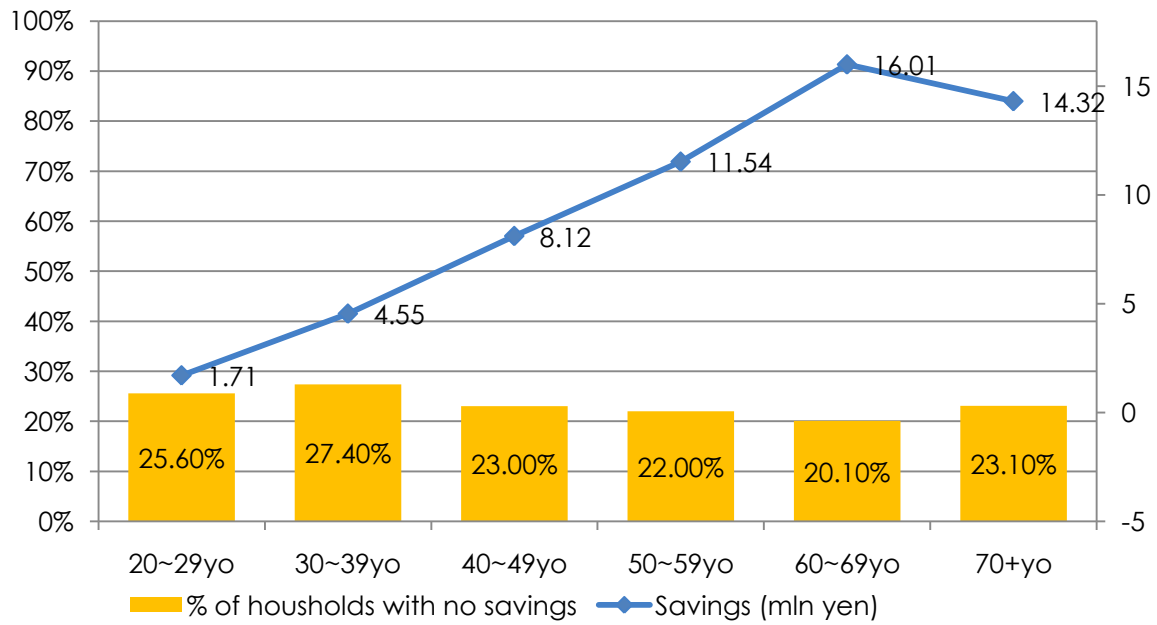
Survey is published selectively, and the data available for each year is not consistent, thus it is very difficult to trace the trends and compare the results for different years. However, the Gini coefficients suggest that inequality has expanded.

Horioka (2006) showed that savings rates were at least not as big as many believed and argued that inequality between those with savings and those without is widening. Horioka, Suzuki, Hatta (2007) argue that the trends in households savings can be explained by demographical trends and that the pay-as-you-go pension systems, combined with rapid population aging, created great intergenerational inequalities.

To put it into simple words – inequality in savings rates is also more obvious among the older cohorts, and the image of wealthy Japanese elderly is misleading.

In order to illustrate the inequality in savings rates among age groups, I have compiled the data from the Cabinet Office, *Family Income and Expenditure Survey,* 2008 in Figure 5.7. The blue line indicates that saving rates grow with age, as people work and accumulate wealth. The savings rate tends to go down at age 65-70 when people retire and start to draw down savings to meet their needs.

Figure 5.7: Savings Rates vs Ratio of Households Without Savings



Source: Cabinet Office, *Family Income and Expenditure Survey,* 2008

This is a normal state of things and can be easily explained by human life course. What I see as an alarming problem here are the households without savings (yellow columns). Despite the fact that average savings rates grow with age the number of people who are able to accumulate wealth is limited. More than 20% of all households enter old age with no savings. As mentioned in the previous chapter, I believe this inequality exists because of labor market dualism, which in turn is caused by skewed population structure.

The issue here is not inequality in itself, but rising poverty among the old. According to a recent OECD report, Japan is ranked 4th in terms of inequality, following USA, Mexico and Greece (OECD 2006b, 2008b). These are not simple figures – Japanese society is undergoing changes:

people feel anxious about their future; many do not believe the pension system is sustainable and therefore the number of people not willing to pay the premiums is growing. Finally the crime rates among the elderly are higher than ever before.

5.4 Elderly Crime

The problem of the elderly living alone and the problem of inequality show up in many surprising dimensions of social life. The number of old age law-offenders (excluding traffic related crimes) arrested tripled since 1999 and reached 48,786 (MOJ, 2008). About 30% of those arrested during the period were repeat offenders.

Crimes committed by the elderly are becoming a serious issue as they are, but the tendency of growing crime rates reflects the problems old people are facing in an aging society. The newspapers are full of headlines like "Elderly Steal to Make Ends Meet" or "Prison Is Better than Pension".

A White Paper by the Ministry of Justice (2008) emphasised on demographical problems, saying that aging of the baby-boomers is primarily responsible for such an increase in crime-rates among the elderly. The White Paper goes on to argue that those who are over 65 now, are the ones who also contributed to the highest crime rates among youth, during the post-war period. In other words, the old criminals suddenly decided to turn to the good-old method of making money – stealing. According to the report, 68% of crimes were theft, while violent offences and fraud amounted for 1.8% only.

The attitude of the report seems to ignore the real problem forcing people into crime – poverty. According to the data presented, about 60% of the repeat criminals were people who lived alone. This indicated

that more aged individuals try to make ends meet by committing minor crimes like shoplifting. As discussed in the previous sections, the number of 1-person households is rising and the family ties tend to weaken. Lonely people are more likely to fall under poverty line and less likely to be stopped from committing crimes by thoughts about the family.

Some of the old age law offenders actually turn to crimes just to have a place to sleep and 3 meals a day. In August 2008, a 79-year old woman was arrested in Tokyo for stabbing a person. When asked what her motives were, she replied she had no place to stay and wanted the police to take care of her (Yomiuri Shinbun of 22 August, 2008). Unfortunately, such crimes are not isolated cases.

Who ever thought that Japan will have to support a special prison for the old-age inmates? The growing numbers of elderly inmates are forcing the authorities to rethink the design of the jails to meet the special needs of the olds. The first modern prison for the elderly is stated in Onomichi, Hiroshima prefecture. The average age of the prisoners in this special facility that at times reminds visitors of a nursing home for the aged, is 70. Special rails are installed in halls and toilets to prevent those with disabilities from falling down.

Hamai Koichi, a professor at Law School of Ryukoku University says in his interview to AlJazeera in March 2008 that much more of aged prisoner are expected, so the government needs to build new facilities similar to ones in Onomichi. Many of the inmates just cannot keep up with the strict regime demanded of younger prisoners. They are also given light work and extra-medical examinations. Many have poor hearing or eyesight, while others suffer from dementia. The prisoners are given three meals a day, a place to live and something to do. Many of the inmates are homeless with nowhere to go after they are released. So they would just

often go and commit some minor crime just to be brought back (Yamada 2007).

I believe that as long as the inequality gap and social isolation of the elderly continue to increase more and more elderly people may be reduced to crime as the only solution to their economic and social problems. Therefore crime-fighting should not be focused on increasing the deterrent, but removing the root of the problem which is poverty among the elderly.

5.5 Problem of the "Forgotten Olds"

Recently, the public in Japan and abroad was shocked by news hundreds of people registered as elderly citizens who have been found dead or have not been heard from for decades.

The news about centenarians who were found to be dead long time ago or not found at their registered addresses unveiled the gloomiest problems of the aging society, including social workers overwhelmed with the crushing labor of looking for the oldest citizens, isolated and forgotten.

The mystery of the forgotten olds became highly publicized in July 2010, when the police and prefectural authorities discovered that the person thought to be Tokyo prefecture's oldest man had been dead for 32 years. The public was shocked to know that his decayed body was kept at home all these years. The police initiated an investigation with allegations of pension fraud and illegal abandonment.

This discovery revealed the problem of forgotten olds and forced the authorities around the country to look for the people who are over 100 years old. The findings were not less shocking than the first incident.

The woman born in 1897, registered as Tokyo's oldest, was also missing. There were cases when old people were registered as living in buildings that no longer existed. In Kobe city a woman, who would be 125 if still alive, was registered in an address where now a parking lot is standing instead of a building. Authorities keep looking for more than 100 lost centenarians.

According to official statistics, Japan has 40,399 centenarians. However, no one knows if this number should be diminished by a few hundreds or maybe even thousands. More than 230,000 centenarians are missing all around Japan (BBC, 10.09.2010).

The mystery of forgotten olds unfolded just in time to illustrate problems related to changes in household patterns discussed in the previous section, when an ever growing number of elderly live alone.

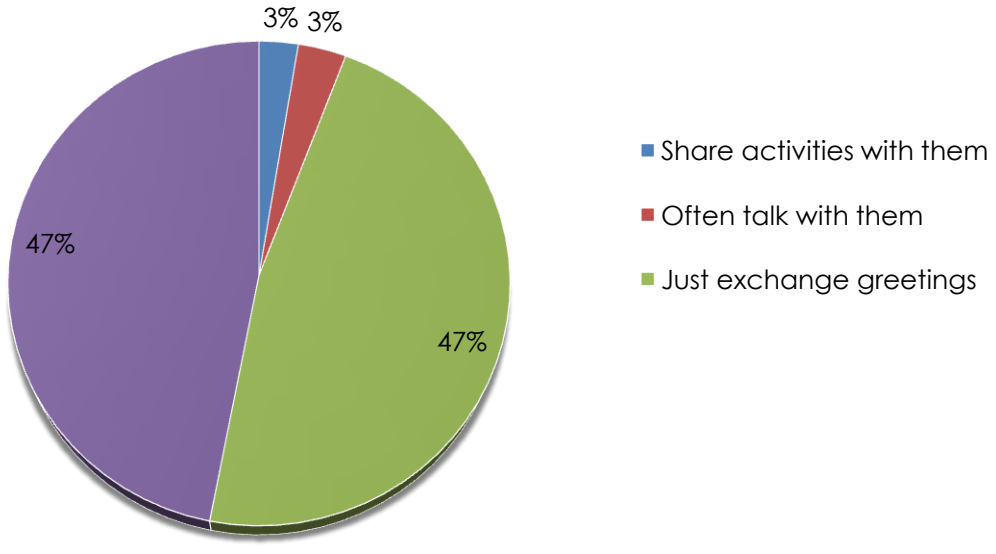
The family members, who in Japan traditionally play the role of main care-givers and are supposed to revere of their old relatives, often do not know where they are and even are not aware if they are alive. From now on, the number of such lonely forgotten elderly people is going to grow, as explained in previous section. Furthermore, many of the elderly in not-so-far future are not going to have any relatives.

As a sign of recognition and respect, the government sends a present and a letter to every person who celebrated his/her 100th birthday, but until the recent incidents little was done to check the living conditions of the oldest citizens. Single-household elderly are becoming isolated from the rest of the community, especially when they reach "old-old" age and have problems with moving around. As a result, some of the lonely aged people may be left unnoticed even after their death. "Kodokushi" - lonely death – is a growing concern in Japan. According to Tokyo Medical

Examiner's Office data, the number of people over 65 who died alone in their homes amounted to 2211 in 2008, which is almost twice as much as in 2002. The tendency is that the number of people living alone is increasing. As discussed earlier, one in 10 elderly men and one if four elderly women were living alone in 2005. (MIAC, National Census 2005). There are more women living alone than men, because they have longer life expectancy. However, men are more likely to become socially isolated (Fujimori 2010). This is most likely due to the fact that long hours of work and poor work-life balance prevented men from participating in community activities and making friends other than at the workplace.

An interesting internet survey was made by Goo Research and All About Japan (All About Japan 2008). Among other things, the survey asked 1017 persons aged 20-35 who live alone how well they know their neighbors. The answers are represented in the Figure 5.8 below:

Figure 5.8: How Well do You Know Your Neighbours?



Source: *All About Japan, Survey on security issues for young Japanese living alone, 2008*

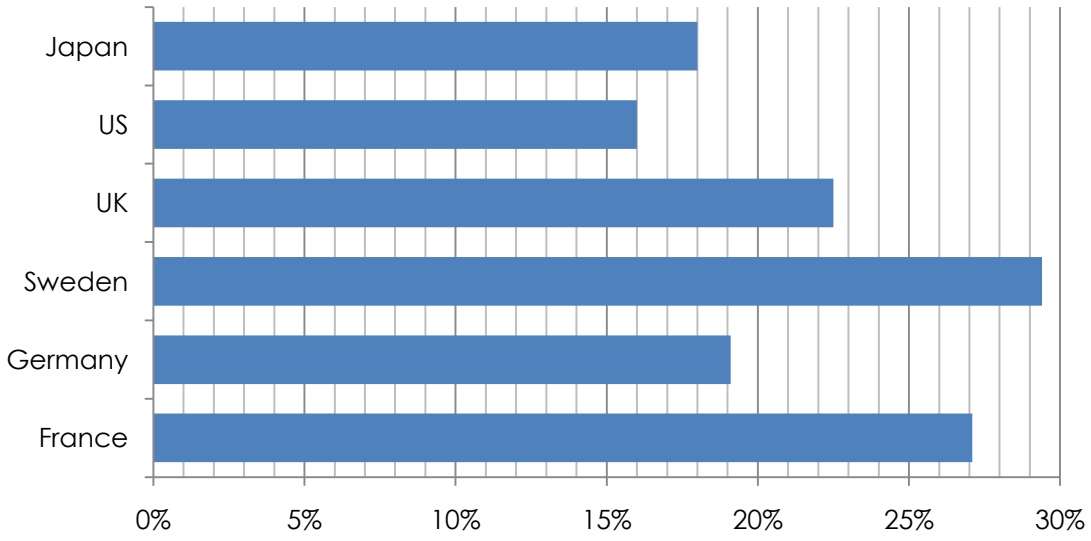
I interpret this information as a sign that the problems related to elderly care, elderly crime etc will be growing very rapidly as the subjects of the survey are people who in some 30 years will become elderly themselves and they are much less likely to have children than today's elderly. But not only they won't have children to turn for help; they may also be completely isolated and have no close friend around them.

Today's elderly living alone spend less time with people other than family. Elderly people still continue to rely on their relatives for nursing care, but very often, there is no one who can become a caregiver, or the supposed caregiver is old himself/herself.

In 2000 a nursing insurance system was introduced, targeting the elderly people who need assistance. Under the system 90% of the cost is covered, but 70% of the households with elderly who qualify, cannot make use of the system (Fujimori 2010).

Despite the fact that Japan is one of the oldest nations, its social security spending related to GDP is not that big. As the graph below shows, in Sweden and France this ratio is approaching 30%, while in Japan it is less than 20%. The experts wonder if Japan is really doing all it can.

Figure 5.9: Social Security Expenditures per GDP (2005)



Source: *OECD, Social Expenditure Database (SOCX), 2005*

It is the task of local authorities to ensure that each community provides the necessary support and increases interaction of the elderly with the society. However, in a rapidly aging society like Japan, this task is becoming more difficult every day. For the central government a pressing issue is to reinsure the people's trust in financial and security system in order to be able to continuously collect taxes and increase social security spending according the need of an aging society.

Chapter 6

Old Age Care in Japan

As the population of Japan ages, the number of people who need assistance with their daily activities increases. More and more people become eligible for the care services provided by the Long Term Care insurance (LTC) or Citizen's Health Insurance (CHI) programs. In this section I discuss how the welfare sectors are influenced by demographic changes and what urgent problems in the area of old-age care emerge as a result of the population aging process.

I use the data from *Survey of Households Requiring Care* (MHLW 2006b), and *Life Security Survey* (JILI 2001, 2004, 2007, 2010) to illustrate how aging population changes the situation in old-age care sector. I argue, that the increase in life-expectancy will not be necessarily correlated with improved health conditions of the aged people. Furthermore, as a major contributing factor to aging is low birth-rates (and not only increased life expectancy), the situation in the old-age care sector may worsen, unless appropriate measures are taken.

6.1 How Was it and How will it Be?

Traditionally, care of the ill, disabled and elderly in Japan was considered the responsibility of the family (Ikegami 1995, 2006). In 1961 universal health care coverage was introduced, but the rate the patient had to cover him/herself was set at 50%, so for elderly people access to health care services remained fairly limited. In the pre-war Civil Code the right of the eldest son to inherit the property was bound with obligation to care for the parents, and practically this meant that the daughter-in-law of the eldest son was in charge of caring for the parents. Even though the

"*ie-seido*" (family system) was abolished after World War II, these practices were still considered to be social norms and were widely accepted.

Public welfare services were mostly used by people of the lowest social class who had no children. This is the main reason why the welfare services such as elderly nursing homes became stigmatized and many people felt reluctant to use their services. The very first elderly homes were introduced under Welfare law for the Elderly (Rojin Fukushi-hou) in 1963. At the present there are two types of facilities: 1) Special Care Homes for the Elderly (Tokubetsu yougou rojin houmu) and 2) Care Homes for the Elderly (Yougou rojin houmu). The first type was designated for people with severe disabilities (like Alzheimer disease) who require help in their daily activities, while the second type was restricted to the people of low social class who do not necessarily require care. These services have been covered by taxes from central and district governments. The welfare services in Special Care Homes and Care Homes for the elderly are funded by taxes and are limited by the budget. So services have been inadequate to meet the need of the rapidly aging society.

However, the latent demand for long term care has increased. The health care was made more available to all elderly people, in 1973 when health care became free for everyone older than 70. The number of elderly in the hospitals rose very quickly. By 1990 about 60% of all the aged people who were taken care of in a facility were in hospitals and not in the facilities for the elderly (MHLW 1992). Due to the lack of welfare services, many elderly people who needed a place to live or simply wanted food tried to secure a bed in a hospital. First of all, being treated in a hospital was not stigmatized as was the case with other welfare facilities for the old. Furthermore, there were no officially set limits for

health-care expenditures as opposed to welfare with its limited budget. This created a phenomenon known in Japan as "social hospitalization" (Ikegami 1995, 2006). The government eventually had to introduce a 5% co-payment to decrease somehow the amount of "social hospitalization". The problem here is that unless a person is from a very low-income class, it is cheaper to stay in a hospital than in a welfare facility for the elderly. That is why many aged people tend to stay in hospitals even if they no longer require medical attention.

In 1989 the so called Golden Plan was introduced to develop welfare services for aging society. This project represented a major shift from institutionalized care in hospitals to home-care programs. It also aimed to increase the availability of long term care services to the elderly. Goals were set to reach a certain amount of facilities and workers in the field of long term care. Even though the plan was a success, later, it became apparent that the goals specified in the plan were not enough. So it was followed by a New Gold Plan in 1994 with the following goals:

- Home helpers – 70,000 persons
- Short stay institutionalized care – 60,000 beds
- Day care centers – 17,000 units
- Home-visit nursing care facilities – 5,000 units
- Special Care Homes for the elderly – 290,000 beds
- Health care facilities for the aged – 280,000 beds
- Care Homes for the elderly – 100,000 beds

These services were still controlled by local government, and a significant degree of regional inequality exists. Although the restrictions on income and family members have been removed, the lack of beds and

manpower forced the municipalities to choose among the persons in need of care, and the preference was given to underprivileged lonely persons.

Because of the problems with providing care in hospitals and welfare facilities a new Long Term Care insurance (*kaigo houken*) was introduced (Ihara 2000). As a result home services such as bath giving, home alterations and leasing of welfare products such as wheelchairs were transferred to the Long Term Care insurance system.

6.2 What are the Challenges of Old-age Care in Japan?

As it can be seen the government is making efforts to transfer the elderly from hospitals to elderly homes or deal with the elderly at home. Even though some level of efficiency is achieved by introducing the various systems, they do not solve the problem of aging population. The number of people requiring help in their daily activities is growing with the ratio of elderly, while the ratio of people who are supposed to be caregivers decreases.

The current state of things is that there are 9,108 welfare facilities for the elderly with about 572,600 beds and 2670 paying elderly homes while there are 4,587,000 people who require help with their daily activities (MHLW 2007). It is not unusual for an elderly nursing home with 200 beds to have a waiting list of 400 persons. This situation is common in elderly homes and even hospital around Japan (Ikegami and Ikeda, 1996)

Currently there are 4 types of facilities for the elderly:

1) Care Home for the Elderly (*Yougou Rojin Houmu*)

Admission for people older than 65 who do not require daily care but need a shelter due to financial difficulties. The price to enter differs from 0 to 80,000 yen monthly depending on income.

2) Special Care Homes for the Elderly (*Tokubetsu Yougou Rojin Houmu*)
   Admission for people over 65 years old and who require help with their daily activities. The price is 150,000 yen monthly plus around 50,000 yen monthly is charged for the meals.

3) Low-Payment Homes for Elderly (*Keihi Roujin Houmu*)
   For people over 60 who do not require care but whose life at home became difficult because they have no relatives or due to other reasons. The entrance fee for such facilities varies from zero to several hundred thousand yen, the monthly payment varies from 60,000 yen to 110,000 yen and the charge for meals is 50,000 yen monthly.

4) Paying Elderly Homes with Care Services (*Kaigo-tsuki Yuryou Roujin Houmu*)
   Admission is for people over 60 years old. The facilities are mostly run for profit so the entrance fee varies a lot from 0 to hundred million yen, monthly rent is several hundred thousand yen and additional 60,000 to 70,000 yen is charged for meals.

The easiest facility to get into – is type 4) Paying Elderly Home with Care services. Because of its "for profit" basis the services are readily available but for a price an ordinary person is not likely to be able to afford. For example, an entrance fee for such facilities in Tokyo area is around 50,000,000 yen. This is a lump sum paid just to be admitted. On the other hand, the most difficult to enter the type 2) Special Care Home for

the Elderly. There are simply not enough facilities to accommodate everyone who needs help with daily activities. Like Japanese society, the welfare domain is becoming extremely polarized. There are high-end luxurious elderly homes providing high quality services, the state-run elderly homes that do not have nearly enough places to accommodate everyone and un-registered "*mutodoke*" elderly homes that accept anyone but have a very low level of service.

The welfare expenditures related to aging are growing exponentially. The government declared that the cost of old age care would have to be increased from 4.3 trillion yen in 2000 to 5.5 trillion yen in 2005, but actually the expenditures reached 6.8 trillion yen (Ikegami 2006). The number of persons eligible for old age care services increased from 10% of elderly over 65 years old to 16% during the years 2000-2005. As more and more people become aware of the services available, and more and more people find themselves in a situation when they cannot be helped out by their family, the number of persons eligible for health care will grow at an even faster pace (MHLW 2005a).

The government is making continuous efforts to cut the costs. For instance, since 2006, the community care programs no longer provide services other than so called "preventive services" that constitute physical training and proper diet advice for those who are classified as lowest levels of eligibility for care services. Also, many auxiliary services like house cleaning are no longer available. In welfare facilities that used to be free except for food, some rent is to be covered by the patients since 2005. The persons with low-income are still charged lower amounts (MHLW 2005). Perhaps one of the most important cuts is decreasing the actual 380,000 beds designated to long term care in hospitals to 150,000 beds by the end

of 2011. Long term care in hospitals is one of the most expensive and perhaps ineffective forms of care. The beds covered by long term care insurance system are going to be cut and transferred to elderly homes (Ikegami 2006). Furthermore, a new payment system that took effect as of 2006 makes it unprofitable for hospitals to keep patients in hospitals for a long time, unless they are classified as high complexity patients (MHLW 2006b). This measure is designated as finally putting a stop to "social hospitalization".

The problem of old-age care is not limited by the number of beds and facilities. According to the information posted on MHLW website as of 2009 there were 640,402 persons qualified as welfare care workers. Around 130,000 of moved to other jobs or never worked in welfare sector. The MHLW (2006b) calculations however show that by the year 2014 around 1,500,000 care workers will be required to cover the needs of the rapidly aging population. Due to the lack of experienced workers, the working hours of the caregivers tend to be long and very intense. Here is a rough list of the duties that the care giver should carry out during the day. This is a typical schedule officially used in job-offers, but in reality the working day may start earlier and last longer.

09:00 getting to the workplace, making necessary preparations
10:00 helping the patients with waking up and the exercise
10:45 helping patients with shower, toilet, etc.
11:15 preparing lunch
11:30 helping the patients to the dining room
12:00 Helping the patients with their meals and giving them medicine
13:00 dinner break

14:15 helping with bath, shower
17:00 preparing for supper
18:00 helping with dinner, toilet, etc.
19:00 doing the paperwork, giving instructions/information to the night shift workers
20:00 going home

Meanwhile, the law of demand/supply does not seem to work in the case of caregivers. Despite the exhausting and long hours of work, the salary of a care worker starts at 160,000 yen and averages at 210,000 yen. If overtime work is excluded, then the salary will almost always be lower than 200,000 yen (MHLW 2006c).

As of 2010, the population over 65 years old is around 28,220,000 and there are 2,260,000 persons suffering from dementia Alzheimer or similar disease (JSPN 2010). This means about every 12th elderly person is suffering from an illness that requires institutional care. And there are around 600,000 qualified care-workers. Around 50% of the qualified care workers are not working in the old-age care segment due to various reasons like low salary and exhaustive work. Thus there are only 300,000 qualified care-givers available – nearly 1 care-giver per 8 persons with severe illness.

Despite government efforts, at this point in a rapidly aging Japan there are not enough bed-places for all the people eligible and not enough man power to provide care services.

6.3 A Growing Problem: Population Shift and Care Receivers

As mentioned earlier, the population of Japan is aging at a very rapid pace, and the speed of aging tends to be higher in the oldest cohorts. Logically, this means that the number of persons who need assistance with their daily activities is growing even faster than the population is aging. However, it might also be that healthy life-time expectancy is improving together with the life-time expectancy and that should reduce the number of people who require care.

In order to verify whether these assumptions have real ground beneath them it is suficient to check the numbers of people who require care for different periods. In 2000 there were 2,800,000 or 2.2% of total population and 12.8% of the population over 65 years old who need care. In 2010 there are 4,752,954 or 3.7% of total population and 16.4% of the population aged over 65 years old who need assistance in their daily life (MHLW 2000, MHLW 2010).

The number of people who need care is growing in relation to the total population. This can be explained by growing ratio of population older than 65 years old, because those who need care usually belong to that category. But, it is clear that the ratio of people who require help grows even within the "over-65-years-old" group. This fact makes the idea that healthy life-expectancy increase will alleviate the old age care problem look too optimistic. My explanation of this phenomenon is demographical population shift. When speaking about population aging, we all tend to think of it as an increase in numbers or ratios of those over a certain age (usually 65), but we often forget about aging within this old-age group. Within the "over 65" age cohort the average age is growing

as well and the relative number of those who are over 75 or over 80 is growing even at a faster speed.

The issue is not only with the people who require helping themselves, but also with those around them. As population ages, spouses, children and friends are getting older as well, and those factors also increase the number of persons eligible for care services.

The results of Survey of Households Requiring Care by MHLW (2000b) show that most of the people who require help with their daily activities are over 80 years old. As a whole, men constitute only 33.8% of population with special needs, but it can be seen that in early stages (40-69 years old), there are more men requiring help, while among the old-old, there are many more women who need care services in their daily life.

Table 6.1: People Requiring Care by Age Group (%)

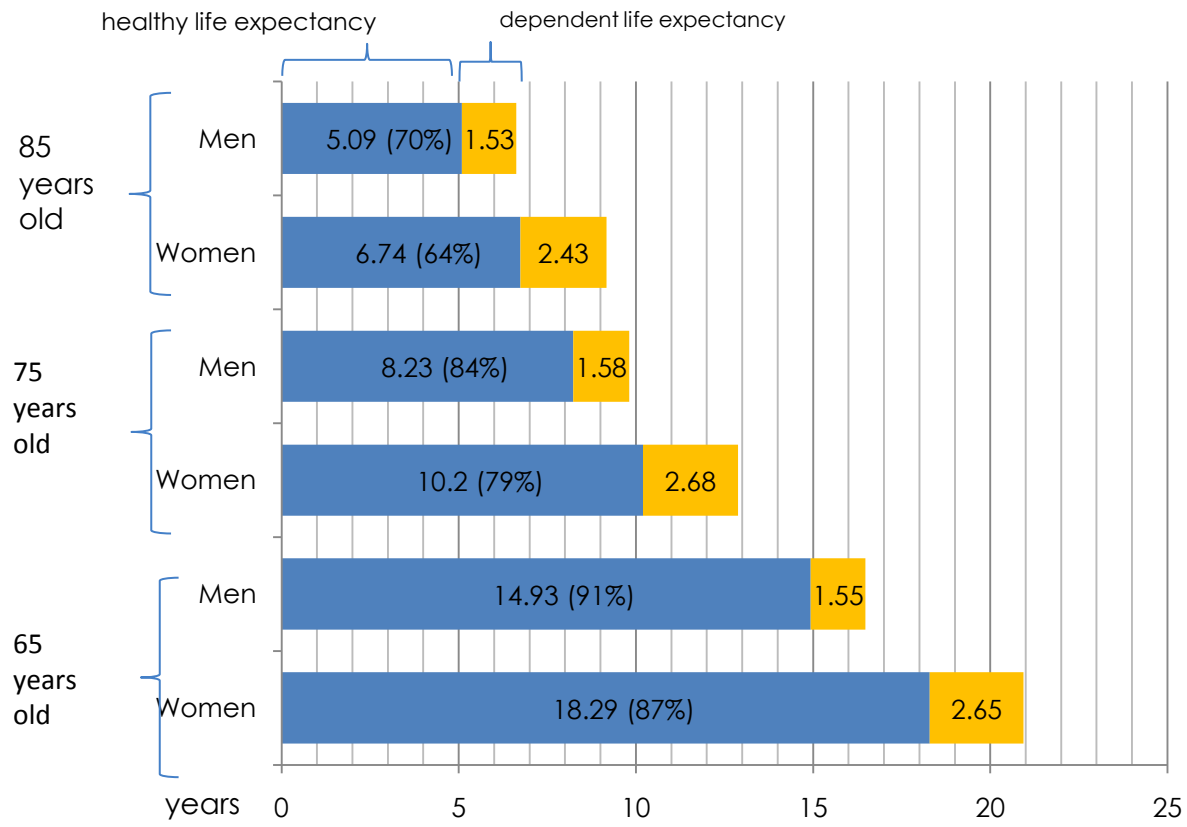
Sex	Total	40~64	65~69	70~74	75~79	80~84	85~89	90~	Over 65
Total	100	4.4	7.0	12.6	16.6	22.0	22.6	14,7	95.6
Men	100	7.7	10.8	17.6	19.5	19.0	16.7	8.6	92.2
Women	100	2.7	5.0	10.1	15.2	23.6	25.6	17.8	97.3
Total	100	100	100	100	100	100	100	100	100
Men	33.8	59.5	52.6	47.0	39.7	29.2	25.0	19.7	32.6
Women	66.2	40.5	47.4	53.0	60.3	70.8	75.0	80.3	67.4

Source: MLHW (2000b), *Survey of Households Requiring Care*

With higher age, more women and fewer men are in a position when they need assistance for their daily activities. According to the same survey, the reasons why men need care include mostly cerebral-vascular diseases; while for women, the reasons are elderly debility, rheumatism and other conditions specific to the oldest ages. The same reasons contribute to the difference in periods of care between men and women.

The first attempt to study this difference was made in 1995 by MHLW (1995) in a Study for Development and Application of Indicators of Regional Healthcare. The data collected in this study subtracted average healthy life expectancy from average life expectancy to calculate the time an old person will spend in dependence of third-person help. At age 65, life expectancy for men was 16.48 years – of which 14.93 years was healthy life expectancy and 1.55 was the average period spent in need of care. For women of the same age group, life expectancy was 20.94 years – of which 18.29 was healthy life expectancy and 2.65 years – time spent in need of care.

Figure 6.1: Life Expectancy vs Healthy Life Expectancy (1995)

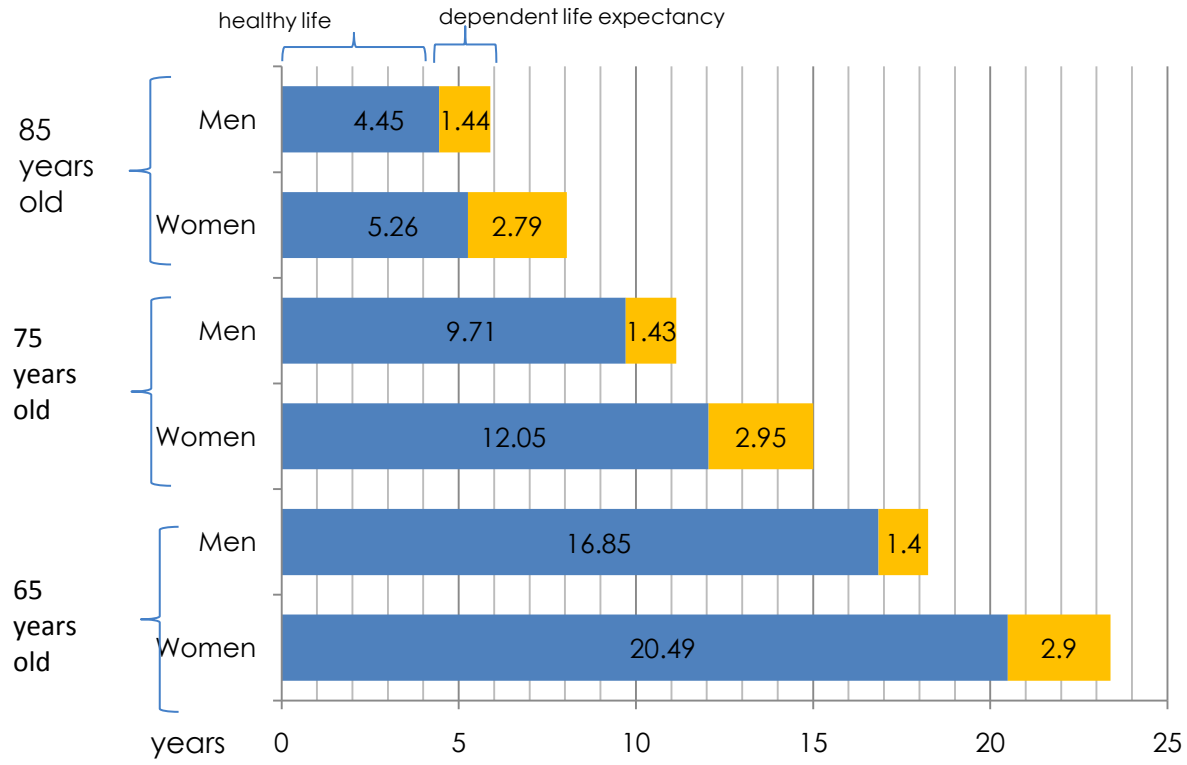


Source: MHLW, *Study for Development and Application of Indicators of Regional Healthcare*, 1995

The average dependent life expectancy is calculated based on population statistics from National Census (MIAC 1970-2005), mortality rates from Life Tables (MHLW 2005b) and Population Survey Report (MHLW 2006d). It is too early to make final conclusions on whether healthy life expectancy will grow along with life expectancy or vice-versa. However, it is clear that women have longer life expectancy as well as higher probability of needing care, and this difference grows with age. Furthermore, as explained in chapter 2, more than 50% of future aging will be caused not by increased longevity but by cohorts joining the old-age group and by low birth rates. The number of potential caregivers

decreases while the number of potential care receivers increases every year.

Figure 6.2: Life Expectancy vs Healthy Life Expectancy (2005)

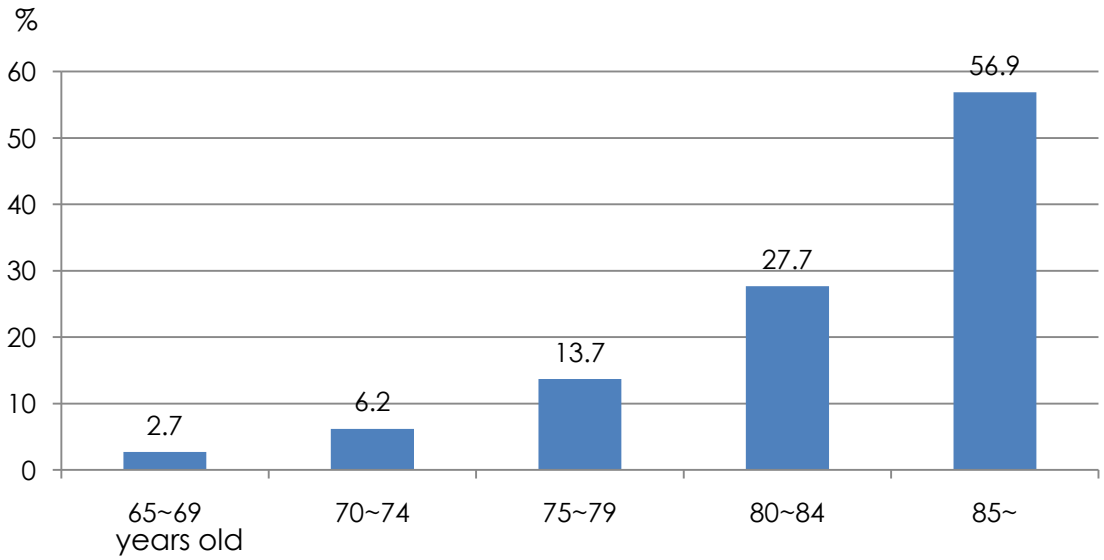


Source: Author's calculations based on MHLW, *National Census and Life tables,* 2005

My interpretation of this data is following: Risk of becoming dependent and unable to fulfill ones daily needs alone grows with age. While as discussed in Chapter 3, the population is aging by large due to falling birth-rates, population shift occurs on every stage of the pyramid, that is to say the ratio of the oldest-old is also increasing relatively to the ratio of old people. The optimists may argue that overall health is improving and very soon anyone will be able to afford a home robot that will be helping with all daily activities. I do not want to sound pessimistic or

optimistic. As no one can predict the future with 100% accuracy, my suggestion is to assume that the present trend will continue unless something is changed. Therefore, I believe that the relative number of people who require care is going to increase at a faster pace than technological progress.

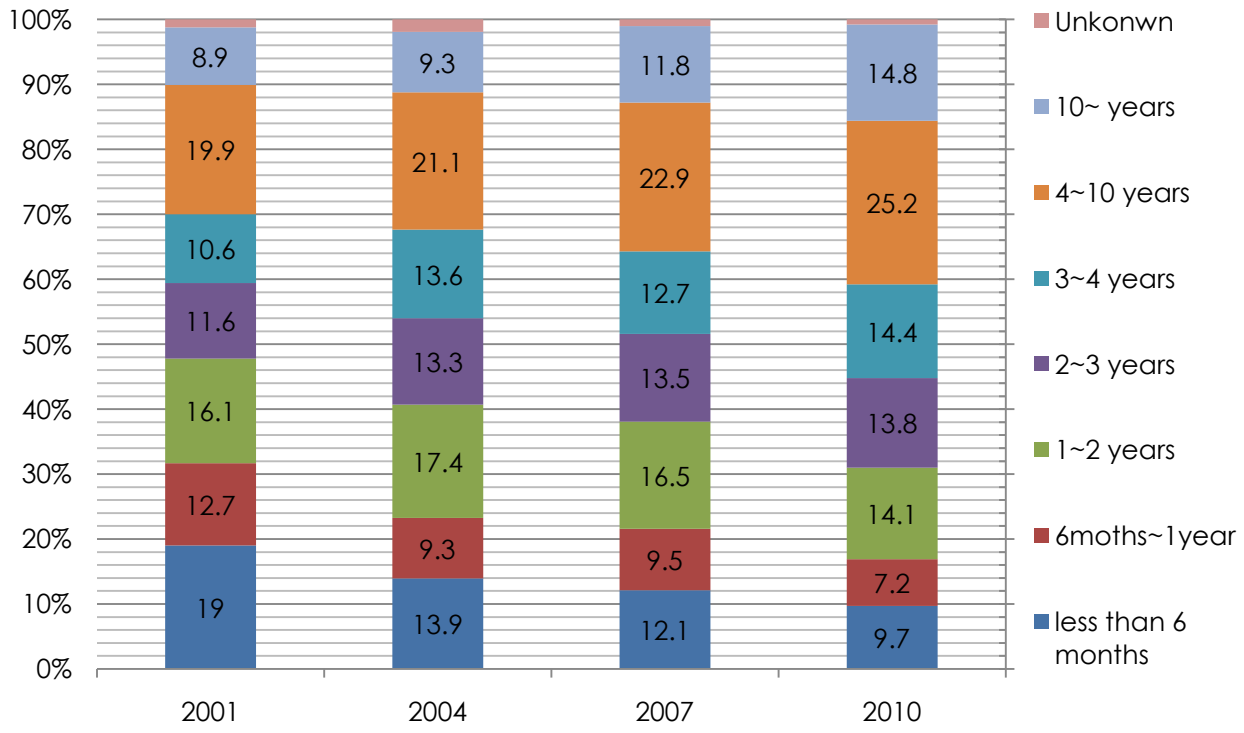
Figure 6.3: Ratio of Individuals Who Need Care Services (by age group)



Source: MHLW, *Report on Long Term Care Insurance Situation*, 2010

As discussed earlier, aging of Japanese population is characterized by aging in the oldest cohorts, which means the numbers of people who require care will be growing exponentially. The problem is not limited by the absolute and average number of people who are dependent on care-services. The situation is aggravated by the fact that expected care-giving period is also increasing.

Figure 6.4: The Period of Care-giving



Source: Japan Institute of Life Insurance, *Life Security Survey* (2001, 2004, 2007, 2010)

According to a survey by Japan Institute of Life Insurance (JILI 2001, 2004, 2007, 2010) the average period of care-giving is increasing. The average period of care-giving is now around 4 years, and the number of people who stay dependent for more than 4 years and more than 10 years is growing rapidly. This increase in the time people spend being dependent on someone's help is corresponding to the increase of the ratio of the eldest cohorts (over 75 years old and 85 years old).

Thus, even if we accept the idea that healthy life expectancy grows with life expectancy, that fact alone will not be enough to reduce the burden of the aging population on younger generations.

6.4 Unregistered ("mutodoke") Elderly Homes: a Solution or a Problem?

The problem of so-called "*mutodoke*" elderly homes received attention in March 2009, after a devastating fire in "Tamayura" unregistered elderly home in Shibukawa city, Gunma prefecture that took the lives of 10 aged persons. None knows for certain how many unregistered elderly homes are out there and what their conditions are. It is certain, however, that the conditions are significantly worse than those of regular registered elderly homes, both in terms of living conditions for the aged and fire prevention standards. This home for the elderly was so isolated from the surrounding community that some municipal officials did not even know it existed. As revealed later, the existence of "Tamayura" was well known to the officials of Sumida-ward, Tokyo, who suggested "Tamayura" as a solution to individuals on welfare who could not find any place to go in Tokyo. As became known shortly after the incident, 6 of the victims moved to "Tamayura" by recommendation of Sumida-ward officials. Not surprisingly, Tokyo with its high land prices and still growing population cannot accommodate all the aged in elderly homes, therefore it is to be expected that Tokyo is trying to get rid of the elderly and pushes them somewhere else. The fact that elderly with low incomes find it harder and harder to live in Tokyo, combined with mass migration of the young who look for jobs in that area, is one reason why Tokyo's population stays relatively young for the time being. This will be discussed in detail in the last chapter.

The problem of the unregistered elderly homes is that they are not bound by any regulations and restrictions. The Ministry of Health, Labor and Welfare provides disaster prevention guidelines for elderly homes, in which such disaster-prevention standards as width of the corridors,

number of fire-extinguishers per floor, fire-proof door design, and so on, are defined. However, there is no way to check whether a particular facility conforms to the rules, unless it is registered. Actually the reason why they do not register is that they do not conform to one or more standards. Unfortunately no one knows for certain how many homes like this are operating. Following the incident, Ministry of Health Labour and Welfare has announced at a press-conference that around 525 facilities in 39 prefectures were found that "seem to be unregistered homes for the aged". Most of the unregistered facilities were found in Kanagawa (91) followed by Tokyo (48), Chiba (41), Gunma (31) and Okinawa (20). Realizing that given the circumstances, similar incident may occur again, MHLW requested those facilities to register and urged them to improve the living conditions and fire-prevention and fire-preventing measures.

It is interesting to note that polarization of Japanese society can also be traced in the elderly home business. There are luxurious elderly homes with spacious rooms and high quality services available for unrealistically high prices or unregistered homes that people on welfare can afford, but with terrible living conditions. The problem of unregistered homes and living conditions in them deserves a separate comprehensive study to describe the living conditions in such places and the extent this phenomenon is diffused.

There is one important cause of the problem of "mutodoke" facilities. Care Homes for Elderly and Special Care Homes for Elderly can only be created by local authorities, social welfare corporations or healthcare corporations. As there were not enough Care Homes for Elderly, many private or group-run facilities like Paid Homes for Elderly or "group homes" were organized, that provided the same services as Care Homes for

Elderly. These facilities are also covered by Care Insurance system. In 2005, amendments to the Long-term Care Insurance law were introduced that allowed local governments to deny organization and construction of such facilities. The local governments under pressure of rising Long-term Care costs competed with one another in "controlling the number" of the facilities. As a result – the construction of new facilities has de-facto stopped. The fight of MHLW with "social hospitalization" adds to the problem, because despite the fact that the number of beds was cut and the costs caused by "social hospitalization" went down, the people still need a place to get help with their daily activities.

The case of "Tamayura" is only the tip of the iceberg and no MHLW orders or fines are going to solve the problem as long as there are elderly people who have no place to go. The problem of social hospitalization was partly solved by cutting the number of beds and limiting the periods of hospitalization covered by the insurance system (MHLW 2008b). However, the number of people who require help with their daily activities is growing together with the waiting lists of the elderly homes. The demand generates offers, and with the prices of private elderly homes going through the roof and waiting lists for special homes for elderly counting thousands of people, the problem of unregistered elderly homes is very likely to become more severe every year.

6.5 "Export" of the Elderly

While Japan is staying rather closed to the idea of allowing more immigrants to alleviate the problem of the aging population, the number of old-age emigrants, who look for a more affordable place to spend their last days grows. The history of retiring emigrants can be traced back to 1986 when the former Ministry of International Trade and Industry created

the so-called "Silver Columbia Plan '92". This plan was a government driven attempt to promote a wealthy and joyful life abroad after retirement. But the plan was heavily criticized within Japan and from abroad on the basis that Japan was "exporting the elderly" and so the idea of "exporting the old" was transferred to private enterprises (Idei 2007).

South-Asian countries are regarded as attractive health care and retirement destinations for Japanese. Many notable Japanese companies like Sanyo Emeritus Co. Ltd or Tokushukai Medical Corp. have already built retirement residences in the Philippines. Several trillions of yen are invested into new projects to build the infrastructure for Japanese retirees. Such countries as Philippines, Taiwan, Malaysia are usually chosen as the most suitable places due to physical proximity to Japan, nice climate and high quality of health care. In 2004, according to Long Stay Foundation the most popular destinations for long-stay tourism were Australia, Malaysia, Hawaii and Thailand (Long Stay Foundation 2005). The companies market the retirement facilities as places where retirees can keep an active fruitful lifestyle, enjoy good housing conditions and make use of recreational and health care facilities. Some countries even established a new type of visa – Special Resident Retirees Visa in Philippines and non-immigrant pension in Taiwan, for the people who wish to spend their "second life" there. Unlike Japan's elderly homes with their small rooms sometimes shared by several residents, elderly homes in Philippines provide luxurious space in resort-like areas.

The economic aspect is an important factor in Japanese long-stay tourism. In the countries of South Asia, the cost of living is about 60% lower in the than in Japan, which makes this "elderly export" business so

profitable. Many elderly Japanese migrants are seeking financial security for old age abroad (Toyota 2006) and even call themselves "economic refugees". Some others would sell their houses and then move to South Asia, becoming "international homeless" (Chiba 2006).

Many of the retirement migrants chose to go abroad, because they are forced to chose between elderly homes abroad or so-called "unregistered elderly homes" ("*mutodoke roujin ho-mu*").

Japanese retired emigrants are from different economic backgrounds but it is common for them to express concern about sustainability of their life-styles. Moving to South Asian countries for them is an escape from anxiety about the Japanese social security and welfare system. The lower costs of living in South Asia allow them to engage in many leisure activities they would be unable to pursue in Japan for financial reasons. However, South Asia retirement option is also attractive to those whose financial situation is too bad to live in Japan at all.

Following are few cases found on Internet discussion boards (see Appendix 2 for the list of URLs) of Japanese pensioners who moved temporarily or permanently to South-Asian countries. These examples illustrate the differences among those who left Japan, but they also summarize the problems that the demographic change creates for Japanese society.

1) A 72 year old man from Japan lives alone in an apartment in Taiwan. His pension is less than 100.000 yen. He says the main reason he left Japan was economic problems. He asked for advice at the city office. Municipal officials suggested he applies

for a place in a facility for the elderly. He would have to share the room with one roommate and follow many, as he says, "prison-like" rules, for instance it was forbidden to go out after 22:00. He thought a lot about it but finally refused. He now pays about 25.000 yen for his apartment and about 20.000 for food and products of daily use and saves the rest. He comes back to Japan once a year to enjoy and bring some food one cannot find in Taiwan. He also says he misses Sumo broadcasts.

2) A lonely woman aged 65 moved to Malaysia 2 years ago and now lives in a multi-stored building. She says she really likes the place. After being dismissed from her job 5 years ago she worked as a care worker, but after breaking her arm, she had to quit. Her husband passed away and so she decided to move to Malaysia because as she explains "I would be alone in both Japan and here, but here life is much more affordable". She says her basic monthly expenses amount to approx 70.000 yen – less than 50.000 yen for a 3-room apartment and 20.000 yen for food. Also she does not have to pay for the insurance and taxes she would have to pay if she had lived in Japan. This allowed her to pursue some personal interests – she started playing golf, which would be too expensive in Japan for her budget. Malaysian government gives preference to relatively wealthy families or individuals to avoid any trouble. The woman says she heard about a man who became ill with dementia and was sent back to Japan.

   Unfortunately, it is very hard to find such problematic stories as people who a less well-off are much less likely to have PC, use internet and share their tough experience with others. The

problems like this do not seem to stop new emigrants as the lure is bigger than the deterrent. The woman says she was the only foreigner in her building when she came, but there are around 30 households from Japan. Among them, an old couple whose business failed and so they look for a cheaper place for retirement and a man in his late 50s who was fired from his job and came to live here for a fraction of cost until he is 60 and starts getting pension benefits.

3) A couple from Hyogo prefecture moved to Taiwan. The husband is a former worker of a private company and is 65 years old. His wife is 57. They spend half a year at a guest house in Taiwan and then go back home. That is their way to live on pension benefits (around 220.000 yen) without spending the savings. 100.000 yen a month is more than enough for both if the demands are not too luxurious. The biggest burden is travelling expenses back and forth to Japan. The husband would like to cut on that, but the wife would not sacrifice her time in Japan for even more economy.

Unfortunately no statistics that accounts completely for all the elderly, who migrated abroad to spend their retirement are readily available. Many migrants do not register at the embassies and for various reasons and it is hard to keep track of everyone. Therefore it is difficult to argue to what extent retirement migration has developed. However the fact of building special retirement homes dedicated entirely to Japanese migrants speaks volumes. In the Philippines alone, the number of Japanese who received Special Resident Retirees Visa (SRRV) issued by Philippine Retirement Authority (PRA) amounts to 1200 persons. Every year, some 100 Japanese citizens receive this type of visa (MOFA 2010).

While international retirement emigration is growing, domestic migration to the countryside is also on the rise. Many retirees are going to villages and sometimes even become full-time farmers. Local governments promote such de-urbanization to the places were cost of living is less expensive and where there are more opportunities for the aged people to pursue their interests (Oe 2006), and this is definitely a positive development for over-concentrated Japan.

6.6 Concluding Remarks

As a result of analyzing all the information presented above, it becomes clear that, for one, the problem of old-age care is not going to be self-solved magically thanks to improved health of the citizens. There are a number of reasons for that. First is that the shift of the population pyramid towards older ages is explained more by falling birth-rates than by improved health and longevity (although longevity also should not be underestimated). Second reason is that despite the improvement in health conditions in the early stages of old-age, the nature of illnesses that people suffer when they reach older ages are such that they require much longer periods of care, as shown and explained in this chapter. And finally, the work of the care workers, despite being exhausting, is not often rewarded enough to keep the workers on the career track.

Chapter 7

Why Are Increasing Regional Differences Problematic for Japan's Future?

Interest in the problem of regional disparities in Japan started to increase in the mid-1960s. Japan was undergoing a period of rapid economic growth and the economic activity tended to be concentrated around the so-called "Pacific Belt" – Tokyo, Osaka, Nagoya, Fukuoka and some intermediate prefectures. Williamson (1965) suggested that regional inequality rises as country develops. After that, at a certain point, the disparities should level up. This means that a developing country will have a high level of regional inequality while a developed country would be more equal. Borts and Stein (1964) also predicted that regional disparities will disappear, because people are going to move to "better" regions, and business will move the regions where the labor costs are lower. As a result, the disparities among the different regions will converge. In this section I will try to evaluate if this proved to be true for Japan, focusing especially on the demographic aspect of regional inequality.

There are tree contributions this chapter makes to the whole thesis. First, it refutes the arguments of researchers who argue that population decline is for the best by showing that population decline is very uneven across the regions, and thus population decline will not help anyone to secure more living space, jobs or clean air. The second argument of this chapter is that depopulation happens faster in those places that have relatively high birth-rates and still subsidize populations of Tokyo, Nagoya and Osaka, therefore depopulation of such regions will significantly increase the speed of population structure change. And third, regional

demographical differences lead to increasing income inequality and labor market dualism.

7.1 How and Why Does Rural Depopulation Progress?

Japan is known for its dense population and one point concentration. The population of the three most densely populated metropolitan areas – Tokyo, Osaka and Nagoya has surpassed 50% of total Japan's population (Nikkei Shinbun 29 October 2007). Since 2005 the population of Japan has decreased, but population decline is happening very unevenly across the regions. Some regions will maintain or even increase population due to migration (See Appendix, Map 2).

But in rural areas population loss is very serious. One extreme example is Yubari-shi in Hokkaido. A coal mining town, its population grew rapidly, reaching 116,908 in 1960. However, when the mining industry became obsolete in the 1980s, the city faced problems. An attempt was made to convert to tourism. Huge investments were made, but eventually the project failed and the city entered bankruptcy. Young people fled and by 2005 the population declined to roughly a tenth of what it was just 50 years ago. Furthermore, 21 of 27 elementary schools, 7 out of 10 middle-schools and 4 out of 6 high-schools closed. Factors in addition to aging, like mining industry downturn and unwise investments, also contributed to financial crisis. However, this example clearly shows us that we do not know anything about city planning and regional development under conditions of population aging and decline. All the experience in regional and city development is built on the premise of economic and population growth. As baby-boomers head for retirement and the number of old-elderly (people over 75 years old) grows, more and more municipalities will face Yubari-shi's problems.

Table 7.1: Ratio of Population over 65 by Prefecture (%) 2005 figures vs projections for 2035											
Rank (2035)		2005	2035	Rank (2035)		2005	2035	Rank (2035)		2005	2035
1	Akita	26.9	41.0	17	Kagawa	23.0	35.9	33	Gunma	20.6	33.9
2	Wakayama	24.1	38.6	18	Kagosima	24.8	35.9	34	Miyagi	20.0	33.8
3	Aomori	22.7	38.2	19	Nagano	23.8	35.6	35	Saitama	16.4	33.8
4	Iwate	24.6	37.5	20	Kumamoto	23.8	35.6	36	Tochigi	19.4	33.6
5	Hokkaido	21.5	37.4	21	Oita	24.3	35.6	37	Gifu	21.0	33.6
6	Yamaguchi	25.0	37.4	22	Fukushima	22.7	35.5	38	Mie	21.5	33.5
7	Kouchi	25.9	37.4	23	Yamanashi	21.9	35.3	39	Okayama	22.5	33.4
8	Nagasaki	23.6	37.4	24	Ibaraki	19.4	35.2	40	Osaka	18.7	33.3
9	Shimane	27.1	37.3	25	Shizuoka	20.6	34.6	41	Fukuoka	19.9	32.6
10	Ehime	24.0	37.0	26	Ishikawa	20.9	34.5	42	Kyoto	20.2	32.3
11	Miyazaki	23.5	36.9	27	Tottori	24.1	34.5	43	Kanagawa	16.9	31.9
12	Nara	20.0	36.8	28	Hiroshima	21.0	34.5	44	Tokyo	18.5	30.7
13	Tokushima	24.4	36.7	29	Hyogo	19.9	34.3	45	Shiga	18.1	29.9
14	Niigata	23.9	36.6	30	Chiba	17.6	34.2	46	Aichi	17.3	29.7
15	Yamagata	25.5	36.3	31	Saga	22.6	34.2	47	Okinawa	16.1	27.7
16	Toyama	23.3	36.0	32	Fukui	22.0	34.0				
Japan overall										20.2	33.7
Source: NIPSSR, *Population projections for Japan (2006a),* MIAC, *National Census (2005)*											

Table 7.1 estimates the uneven distribution of older population across prefectures in 2035 in comparison to actual aging levels. In the 1950s the difference between the regions with most aged population (Shimane 7.6%) and youngest (Tokyo 3.5%) was around only 4%. After 1975 the difference grew to 7%. During the period of high economic growth, youth went out to big cities, abandoning rural areas, contributing to aging of population there. Since then, the difference between regions has gradually increased. Migration was also significant in the late 1990s. However, those young urban migrants will soon become part of the aged population themselves. Thus, it appears that during next 10-15 years the acceleration of aging might be as significant in big cities as it is in rural

areas. Doteuchi (2003), for instance, claims that Tokyo and Osaka will be the next most rapidly aging areas. Does this mean that all of Japan's cities and villages will face the same problems as Yubari-shi? The answer is – no. As I will show in this chapter, there is significant inequality among prefectures/cities/villages in terms of aging population. Some remain relatively young, while in others the aging process is much faster than nationwide. Let's consider the possible reasons of this inequality.

7.2 Differences in Birth Rates and Aging Ratio

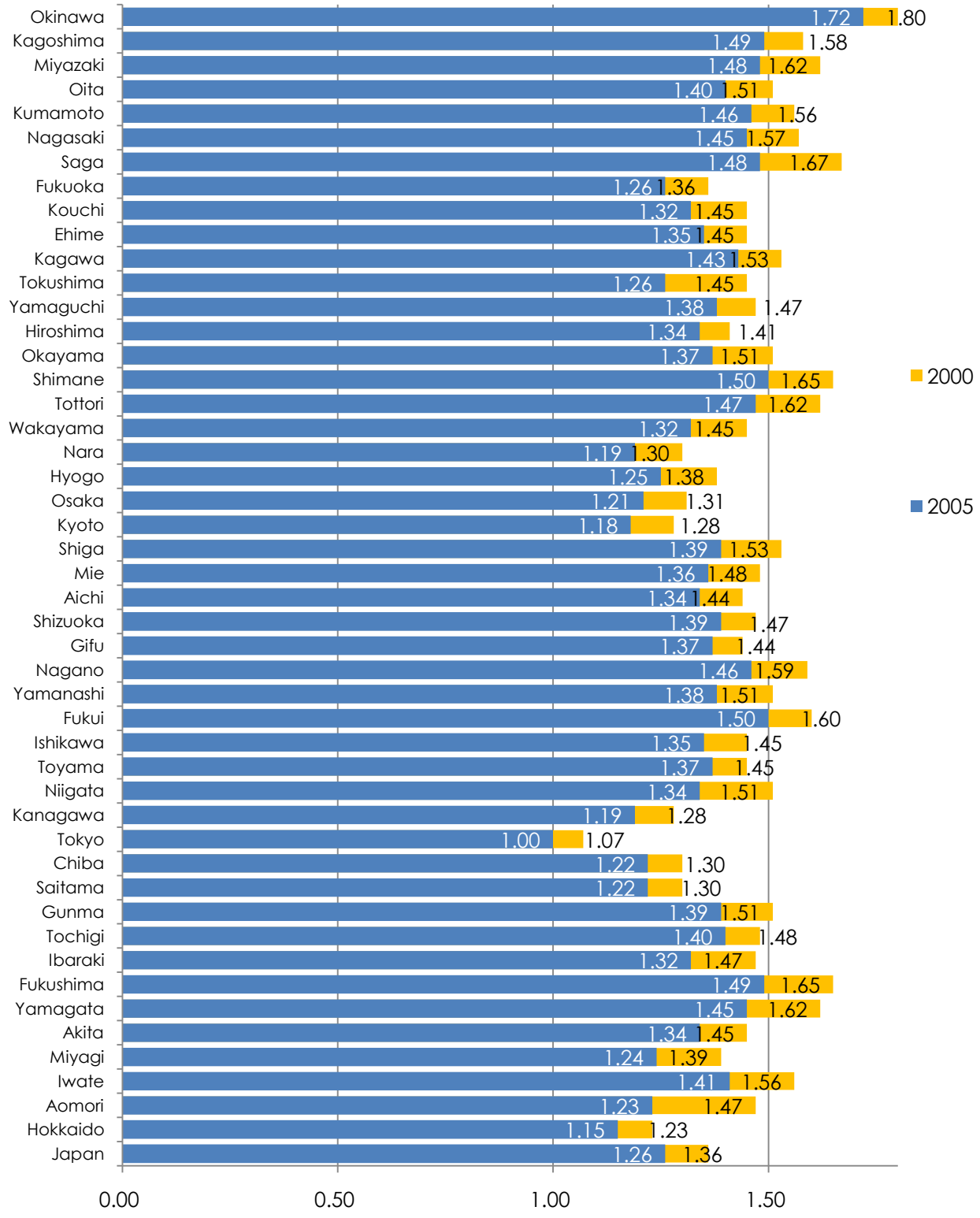
Two factors contribute to aging in Japan: long lifetime expectancy and decreasing number of births. Japan's total fertility rate (TFR) has fallen as low as 1.26 in 2005. The government efforts to improve the situation do not seem to be very effective so far. This is not the first time Japanese society has faced decline in birth rates. A significant decline took place from 1950 to 1956 when Japan's TFR was more than halved, from 4.54 to 2.04, leading to a labor shortage in 1970s. Later TFR started falling again after 1973, although at a slower pace. The significant difference is that in 1950-1956 declining birth rates were universal across all prefectures and households. The demographic change we see now differs from region to region (Fig. 7). For instance, TFR is around 1.0 in Tokyo and Hokkaido while other prefectures like Okinawa (1.7), Tottori (1.47) and Shimane (1.50) maintain a TFR significantly higher than average (MHLW 2006d).

Sociologist Yamada Masahiro (2007), a government policy consultant, suggests that falling TFR is a problem requiring urgent and massive government intervention. He too notes that unlike previous birth rate declines, the decline after 1974 is very uneven across the regions of Japan, which suggests that some regions are more suitable for child-rearing than others (Figure 7.1). Furthermore, this regional gap continues to grow. Atoh

Makoto (2000) argues that there is a positive correlation between fertility and female employment rates. His analisys is based on data from 13 OECD countries. The conclusion thus is that improving gender-equality policies and female employment would lead to increased birth rates. Sociologist Akagawa Manabu (2004) strongly opposes this interpretation. Akagawa believes that fall in the birth rates is inevitable and no policies can reverse the trend. Akagawa's critism of Atoh is based on the fact that including other countries would make the correlations statistically insignificant. Accordingly, government efforts should be directed to adapting to the new demographic environment rather than changing it.

My point of view lies in between. Even if it is very difficult to boost birth rates above replacement level, it should be possible to create an environment where people's wishes for creating family are not thwarted by economic problems. New laws and regulations will not help resolve the problem of low birth rates unless they are powerful enough to change the reality of Japanese corporate culture. Maternal and paternal leave may be increased on paper, but Japanese employees do not take even half of the paid leave they have under current law (JIL 2002; MHLW 2004, 2009b). Because traditionally in Japanese families the burden of child rearing falls almost exclusively on women, gender equality and female employment policies alone would not resolve the problem of low birth rates. Even though economic burdens are the top reason for not having children, young people do not use income statistics to decide whether to have children or not. Rather they make their decision based on confidence of being able to raise children. Such confidence may derive from full-time employment, for instance, as oppesed to irregular employment.

Figure 7.1: TFR by Prefecture

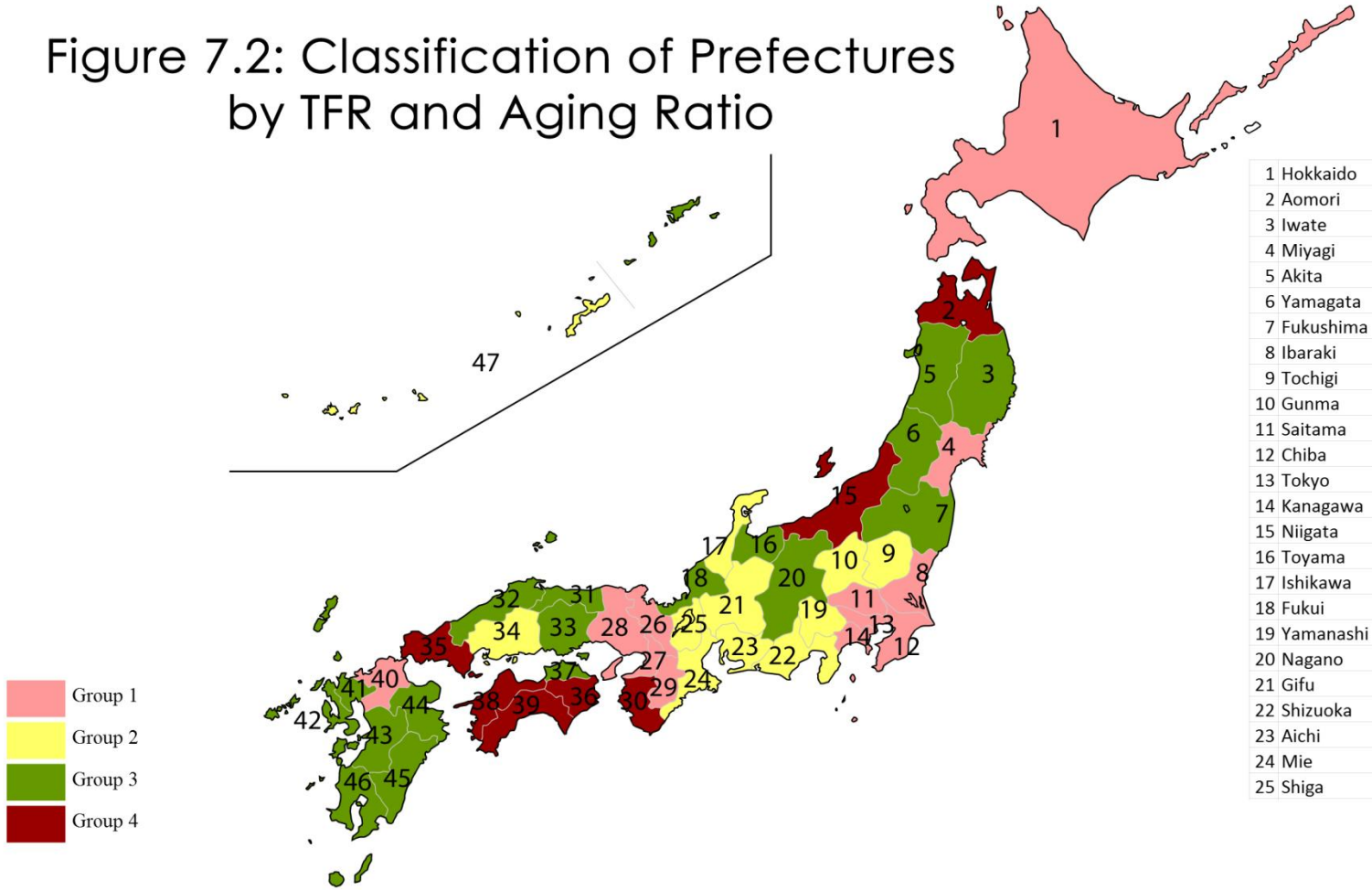


Source: Ministry of Health, Labor and Welfare, *Population Survey Report* , 2006b

Using cluster analysis I have classified all the prefectures of Japan into 4 groups based on population structure and demographic behavior. First group includes Tokyo, Saitama, Chiba, Kanagawa, Osaka, Miyazaki, and Hyogo that have youngest populations within Japan and at the same time below-average birth rates. The second group is represented by prefectures like Shiga, Mie, Hiroshima, Okayama and Okinawa that also have relatively young populations and higher than average birth-rates. Third are the prefectures with high birth rates and higher than average aging ratio: Yamagata, Fukushima, Shimane and others. These are the regions, which send their youth to metropolitan areas like Tokyo or Osaka. As a result the populations of these regions age faster, while metropolitan areas are able to maintain relatively young populations despite lowest birth-rates. Finally the fourth group is comprised of regions with low birth-rates and high aging rates like Aomori, Niigata, Wakayama, Tokushima and others (Table 7.2, Figure 7.2).

Table 7.2: Classification of Prefectures by TFR and Aging Ratio							
Group 1		Group 2		Group 3		Group 4	
Code	**Prefecture**	**Code**	**Prefecture**	**Code**	**Prefecture**	**Code**	**Prefecture**
1	Hokkaido	**9**	Tochigi	**3**	Iwate	**2**	Aomori
4	Miyazaki	**10**	Gunma	**5**	Akita	**15**	Niigata
8	Ibaraki	**17**	Ishikawa	**6**	Yamagata	**30**	Wakayama
11	Saitama	**19**	Yamanashi	**7**	Fukushima	**35**	Yamaguchi
12	Chiba	**21**	Gifu	**16**	Toyama	**36**	Tokushima
13	Tokyo	**22**	Shizuoka	**18**	Fukui	**38**	Ehime
14	Kanagawa	**23**	Aichi	**20**	Nagano	**39**	Kouchi
26	Kyoto	**24**	Mie	**31**	Tottori		
27	Osaka	**25**	Shiga	**32**	Shimane		
28	Hyogo	**34**	Hiroshima	**33**	Okayama		
29	Nara	**47**	Okinawa	**37**	Kagawa		
40	Fukuoka			**41**	Saga		
				42	Nagasaki		
				43	Kumamoto		
				44	Oita		
				45	Miyazaki		
				46	Kagoshima		

Figure 7.2: Classification of Prefectures by TFR and Aging Ratio



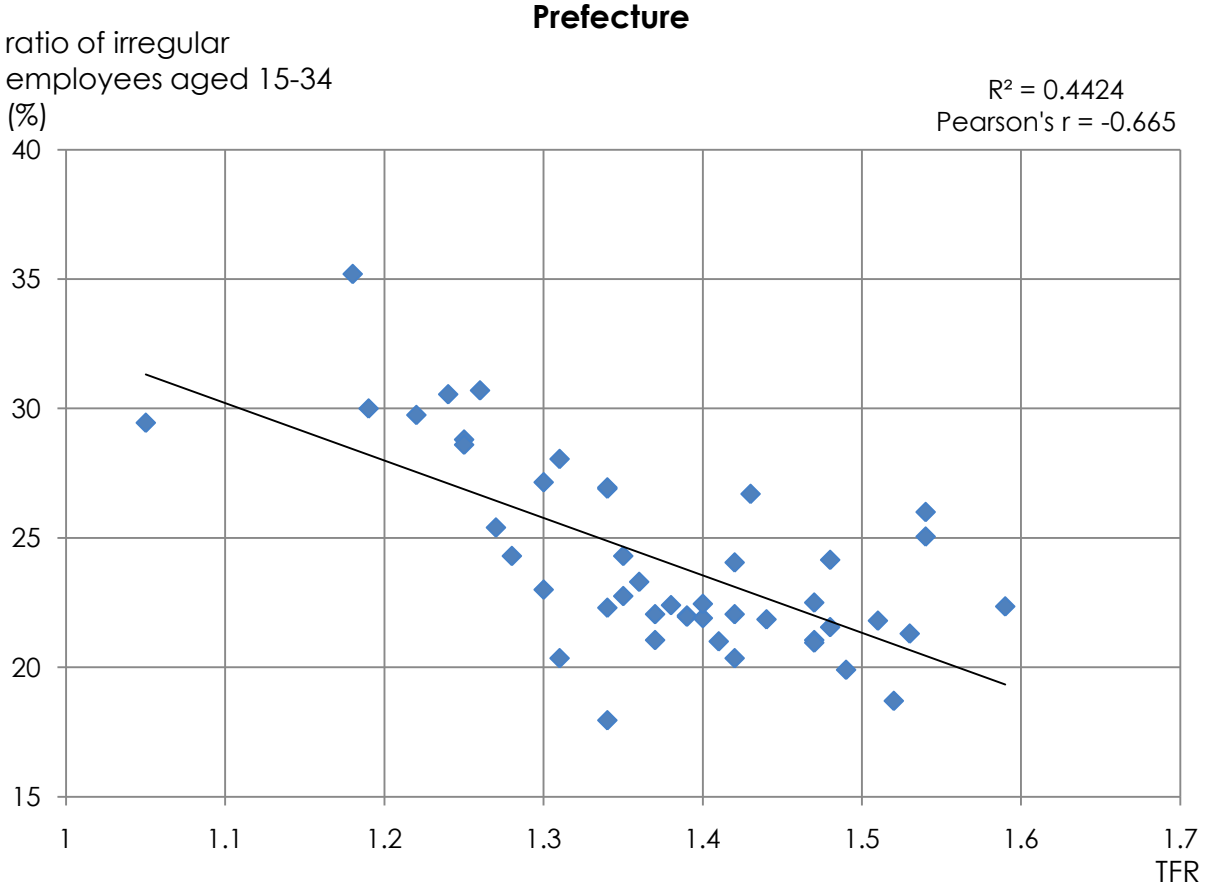
1	Hokkaido	26	Kyoto
2	Aomori	27	Osaka
3	Iwate	28	Hyogo
4	Miyagi	29	Nara
5	Akita	30	Wakayama
6	Yamagata	31	Tottori
7	Fukushima	32	Shimane
8	Ibaraki	33	Okayama
9	Tochigi	34	Hiroshima
10	Gunma	35	Yamaguchi
11	Saitama	36	Tokushima
12	Chiba	37	Kagawa
13	Tokyo	38	Ehime
14	Kanagawa	39	Kouchi
15	Niigata	40	Fukuoka
16	Toyama	41	Saga
17	Ishikawa	42	Nagasaki
18	Fukui	43	Kumamoto
19	Yamanashi	44	Oita
20	Nagano	45	Miyazaki
21	Gifu	46	Kagoshima
22	Shizuoka	47	Okinawa
23	Aichi		
24	Mie		
25	Shiga		

Source: Author's calculations based on data from MIAC, National Census, 2005

Thus, while low birth rates should normally influence the level of aging, it seems that Japanese regional differences in aging are in many cases explained by migration more than by differences in birth rates.

What factors influence the birth rates? There are studies that take into account the effects of income and amount of debt on demographic behavior (Kojima 1993). One problem with this approach is that the influence of income should not be considered equal for every social class. For example, a person with monthly income of 120.000 yen may decide to postpone or not have children at all due to economic reasons, while the person who earns 320.000 yen may decide to have one child. The difference in income is 200.000 yen. But if the income of the first person is 2.200.000 yen and the other's is 2.420.000, it is hard to believe that same difference in income of 200.000 yen can change something. I have considered several possible aspects, such as work-life balance, employment (regular vs irregular), and household size. In the first analysis TFR was found to be negatively correlated with the ratio of young people in irregular employment (Figure 7.3). Okinawa with its high ratio of irregular employment and high birth rates was excluded from these calculations as an outlier. But historically, Okinawa seems to move into the same direction as other prefectures, although with some lag.

Figure 7.3: Correlation of TFR and Ratio of Employees Aged 15-34 in Irregular Employment (arbaito and part-time) by Prefecture

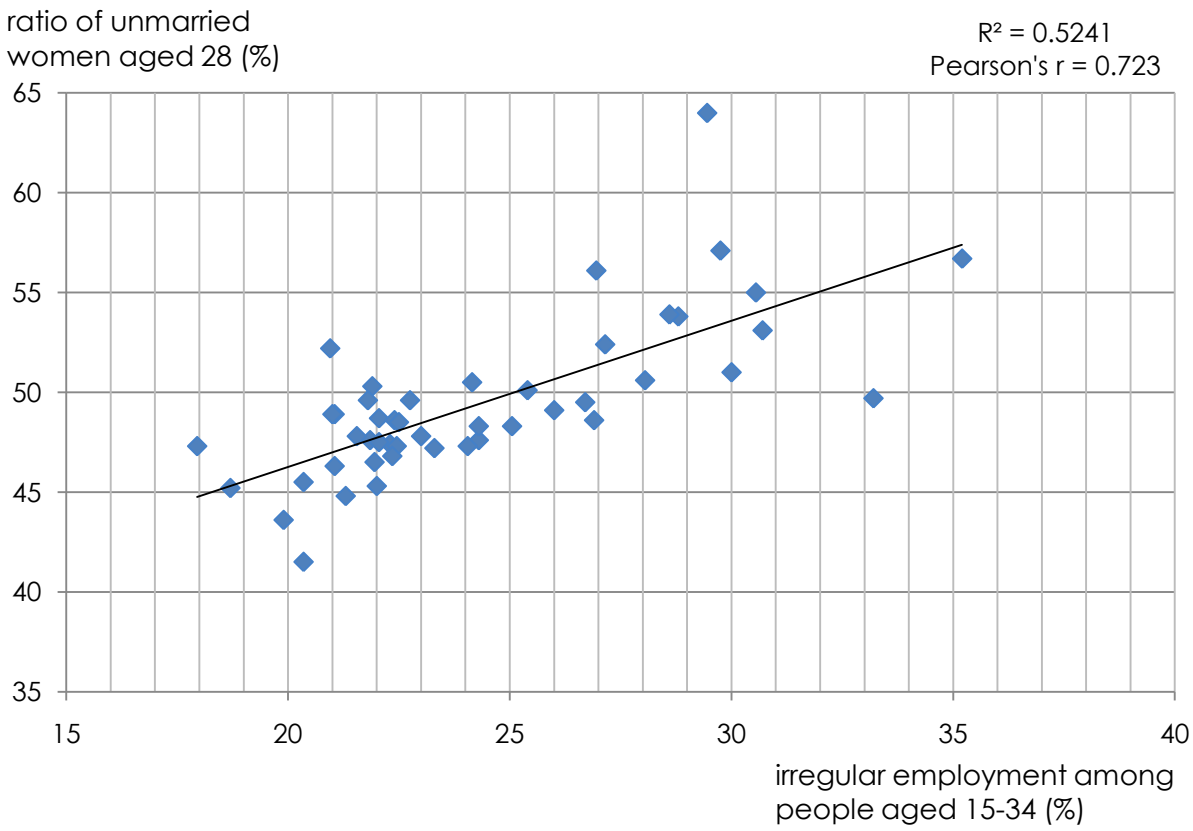


Source:
- TFR: MHLW, *Demographics Survey* ,2007;
- Irregular employment ratios: Cabinet Office, *Basic Employment Structure Survey*, 2007
* Note: every dot in the graph represents one of 46 prefectures of Japan. Okinawa is excluded from this analysis as an outlier

This finding supports the assumption already discussed in Chapter 4 that labor dualism contributes to aging by boosting anxiety among young people. As the level of birth-rates and marriage rates is significantly higher among men who are in regular employment, employment inequality should be considered as one of the main causes of falling birth rates in Japan. On the other hand, aging within enterprises reduces employment opportunities for the young as discussed in Chapter 4, creating a vicious cycle.

As only about 2% of children are born outside of wedlock, it is worth considering the relation of irregular labor and marriage rates (Fig.7.4).

Figure 7.4: Correlation of Irregular Employment of People Aged 15-34 and Ratio of Unmarried Women at Age 28

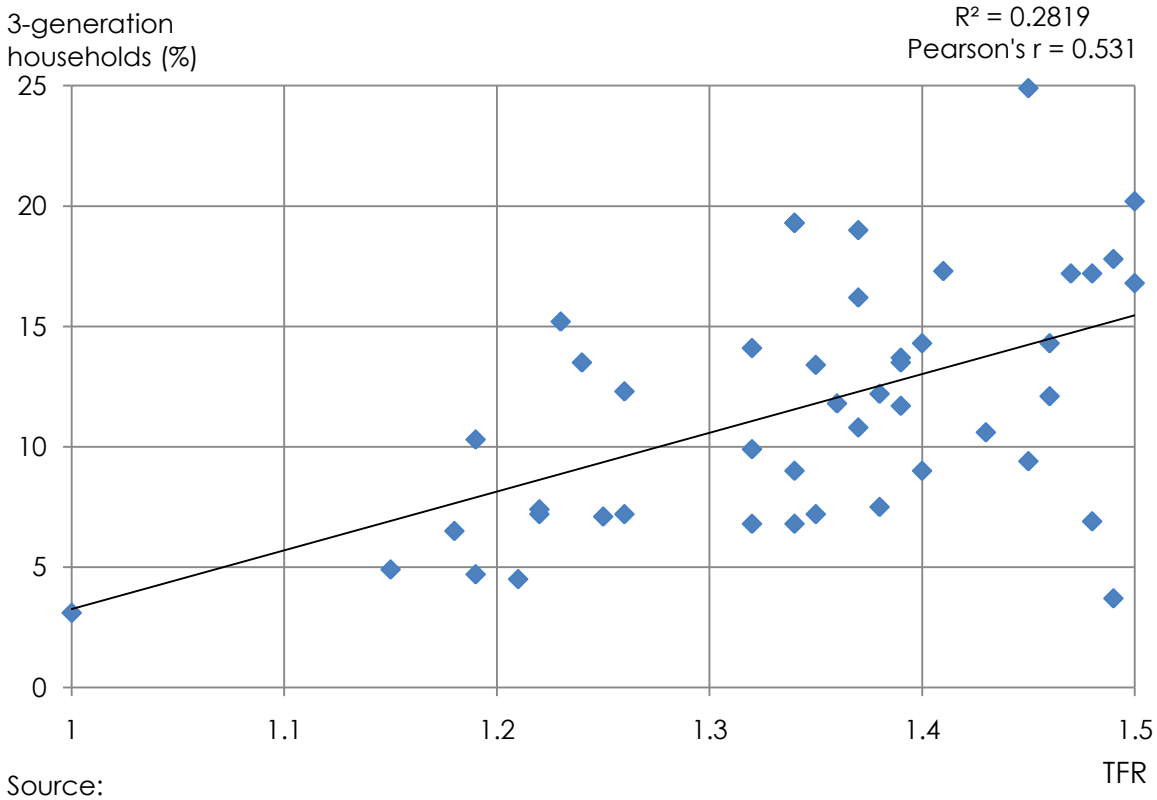


Source:
- Unmarried women ratio: MHLW, *National Cencus,* 2005;
- Irregular employment ratios: Cabinet Office, *Basic Employment Structure Survey* , 2007

It is clear from the graph above that more irregular labor is strongly associated with lower marriage rates and thus lower fertility.

One more interesting thing is that TFR is positively correlated with the ratio of 3-generation households (Figure 7.5). Again, in this case Okinawa seems to be an exception to the rule.

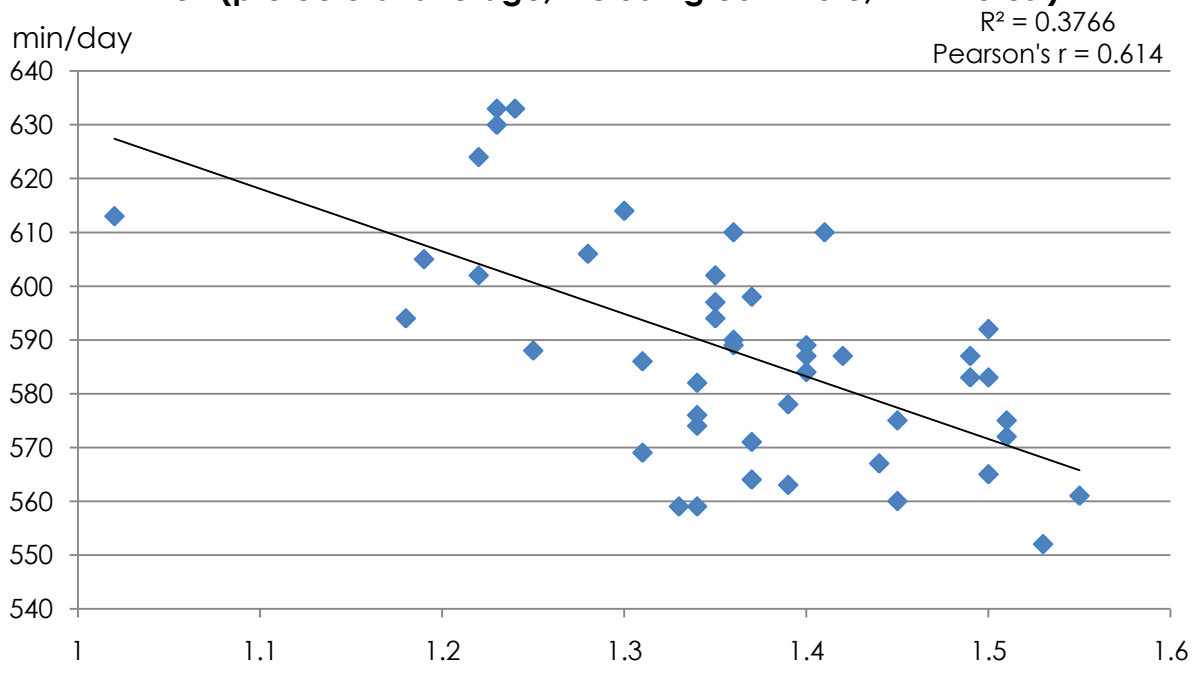
Figure 7.5: Correlation of TFR with Ratio of 3-generation Households



Source:
- 3-generation households: MHLW, *National Cencus,*2005;
- Irregular employment ratios: Cabinet Office, *Basic Employment Structure Survey* , 2007
* Note: Okinawa is excluded from this analysis as an outlier

One more significant factor that was found to be in negative relation with the birth rates is the average number of hours men spend at work.

Figure 7.6: Correlation of TFR with Average Time of Work for Men (prefectural average, including commute; in minutes)



Source:
- TFR: MHLW, *Demographics Survey,* 2006;
- Average time spent at work: MHLW (2006g), *National Livelyhood Survey*
** Note: Okinawa is excluded from this analysis as an outlier

In Japan, the amount of time spent at work is the highest among developed countries. Long working along with short holidays, hours is one of the factors that prevent people from balancing their work with private lives, and child rearing in particular (MHLW 2006e, McDonald 2008).

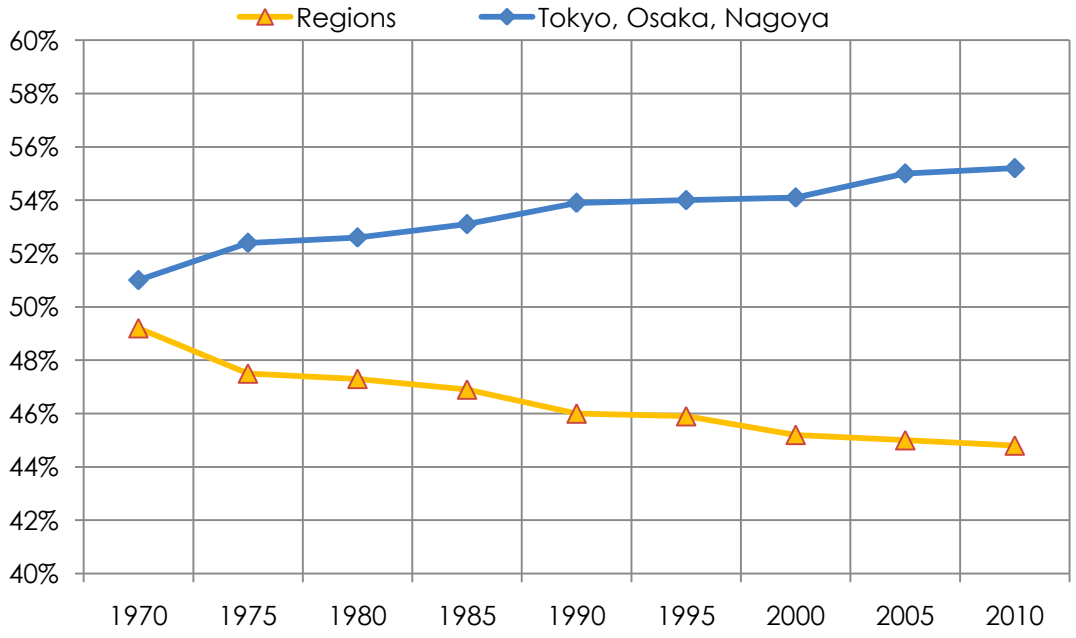
It is obvious that there are many more possible reasons for the decisions of young people regarding marriage and having children. This may include availability of child-care services, education costs, people's personal values (McDonald 2005). However, from the analysis above we learn general trends observed throughout the country. The difference in birth rates among Japan's prefectures is significantly related to 1) employment stability (increased irregular employment is associated with lower birth rates); 2) increased irregular labor also is related to lower

marriage rates of women of child-bearing age; 3) Household types (ratio of 3-generation households seems to be positively associated with birth rates); 4) Work-life balance (the longer is the time spent at work the lower are the birth rates). Indeed, prefectures with the lowest birth rates Tokyo, Osaka, Hyogo have long working hours, lowest ratio of 3-generation households, and highest ratios of irregular labor among young people.

7.3 Why Population is Still Growing in Certain Regions? – Subsidizing Tokyo, Osaka, Nagoya

Aging is strongly correlated with shrinking of the population (Hattori 2009, Nishioka et al. 2010c). At first glance, this is too obvious to even mention, because mortality among older people is higher and older people are unlikely to bear children. However, closer analysis shows that it is not that population is shrinking in regions with higher ratio of older people because the mortality is so high and birth rates so low, but because people just move from such regions. Although, the population of Japan started declining in 2005, the population of three metropolitan areas around Osaka, Tokyo and Nagoya is still one the rise due to migration (Figures 7.7-7.8).

Figure 7.7: Distribution of Japan's Population between 3 Metropolitain Areas and Other Regions %



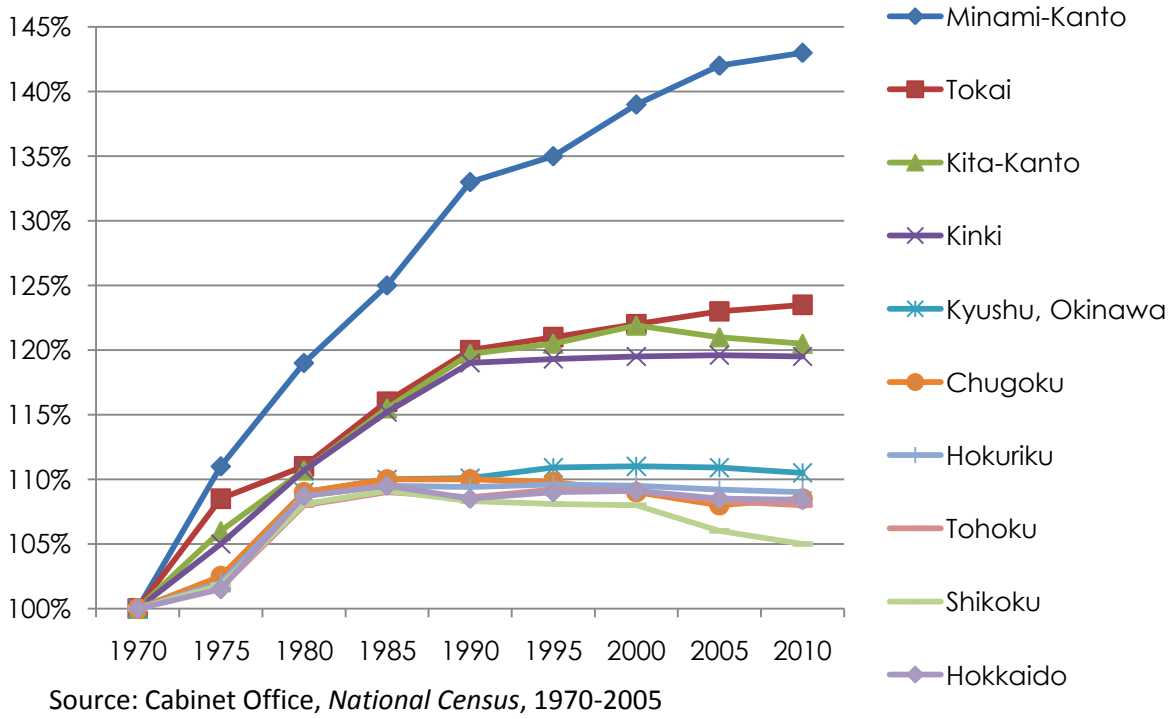
Source: Cabinet Office, *National Census*, 2005

The Figure 7.7 above represents a general trend of urbanization. Urban population has been growing and rural or regional population has been declining since 1970. Migration to metropolitan areas is so important that their population continues to grow despite the fact that overall population started declining in 2005.

More detailed trends in population growth are presented on Figure 7.8. It is clear that most densely populated areas are becoming even more densely populated. On the other hand, least populated areas are becoming even more depopulated (see also Appendix, Map1, 2). The argument expressed by some researchers that low birth rates are good because they will allow for overcrowded Japan to have more space and thus improve living standards does not hold when one consider this unequal distribution of the population. Overall population growth has

nothing to do with population density in Tokyo and other metropolitan areas. It seems like all rural areas have to be completely depopulated for population of Tokyo to decline.

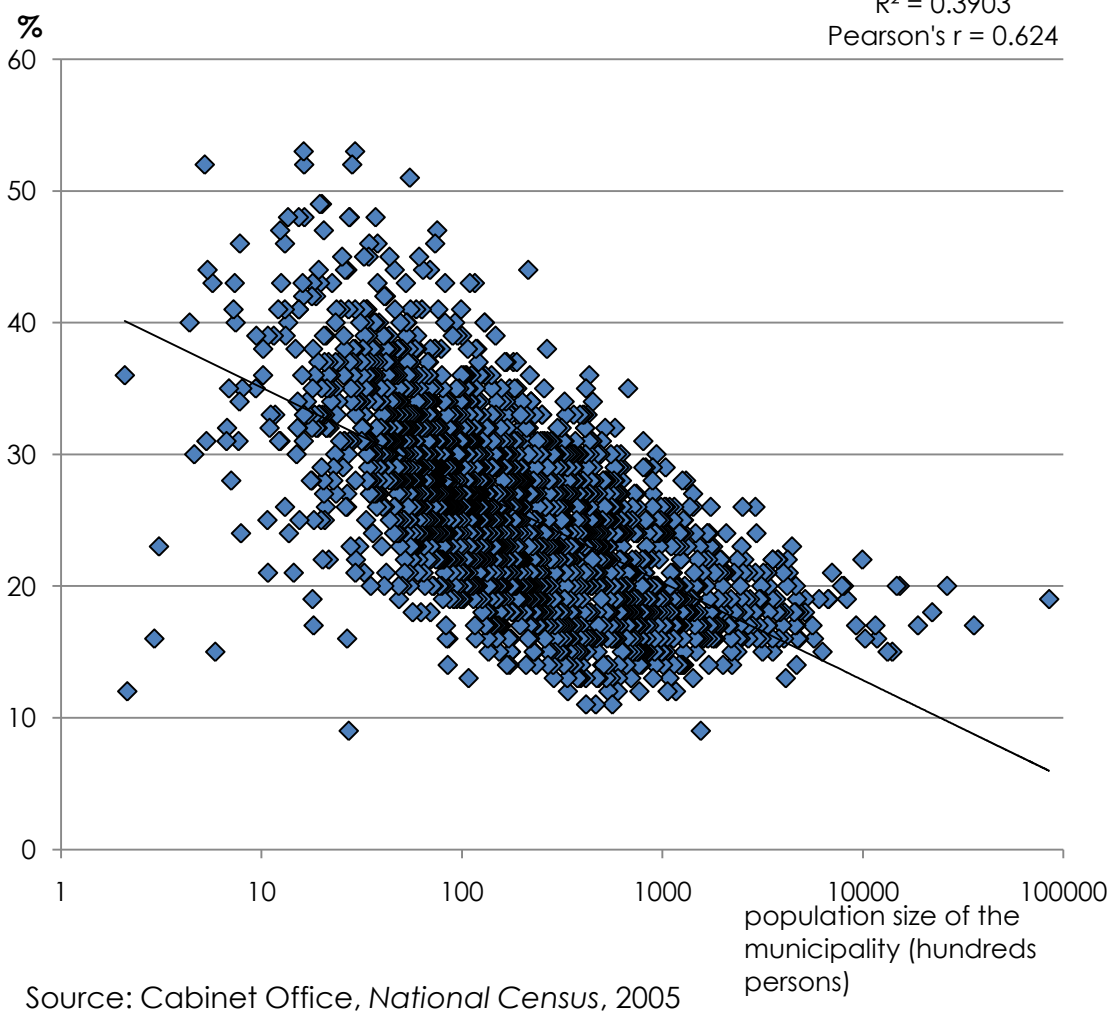
Figure 7.8: Population Growth Across Regions. 1970 = 100%



Source: Cabinet Office, *National Census*, 1970-2005

There is a significant negative correlation between city and level of aging expressed by the ratio of citizens over 65 years old (Figure 7.9). My interpretation of this data is pretty straight forward – rural areas with above-average birth rates still send their young people to metropolitan areas. This data confirms that big cities like Tokyo, Nagoya, and Osaka benefit from population inflow.

Figure 7.9: Municipality Population Size vs Aging Ratio (% of people older than 65)



Source: Cabinet Office, *National Census*, 2005

Meanwhile prefectures like Shimane, Fukui, Kagoshima, Fukushima and others that send their youth to big cities continue to age rapidly. The situation is even more serious for prefectures that already have high ratios of older people and low birth rates, such as Tokushima, Akita, Kochi and Hokkaido. The policies to alleviate the situation rarely seek global solutions. Instead they are often focused on things like attracting tourists and migrants to live. Advocates of "natural selection" both in Japan and outside suggest that there is no problem with letting the unattractive

regions deteriorate and disappear, because it is natural for strong economies to survive and for weak ones to die out. (Herve le Bras 1998; Akagawa 2004; Wada 2007). However, such ideas do not take into account one very important thing – that "economically healthy" regions draw human resources from "economically ill" and aging regions. If the regions with above average birth-rates are allowed to fail, there will be no migration boost for Tokyo, Saitama and Osaka populations as their TFRs are far below national average – 1.0; 1.22; 1.22 respectively.

7.4 Concluding Remarks

As discussed in Chapter 4, aging of the labor force is associated with higher labor costs. Therefore, enterprises try to cut labor costs by relying more heavily on irregular workers. So it can be assumed that prefectures with higher levels of aging would also have higher levels of irregular workers. But relationship is not that simple. The motivation to hire more irregular workers is stronger at enterprises where the share of older employees among regular employees is high. Consequently, the fact that aging contributes to increase in irregular labor is a matter of demand for young full-time employees on the enterprise side. This explains why the prefectures with relatively young populations have highest ratios of irregular workers and lowest birth rates. Young people move to metropolitan areas in hope to find a job, but often settle for irregular employment and this decreases their chances to have family and children.

The demographics of Japan differ significantly on the regional level. There are prefectures with relatively young urban populations but most of them have the lowest birth rates as well. They maintain their population growth at the expense of "donor" prefectures that have higher than

average birth rates. The problem with migration is that young people migrate to densely populated areas not well-suited for child-bearing/rearing. Increasing instable employment patterns and absence of day-care services make the birth rates plummet in places where there are a lot of young people of child-bearing age.

Obviously, the differences in old-age dependency ratios will cause differences in regional tax rates, number of schools, tax revenue levels, welfare and regional development (NIPSSR 2008a, 2008c, Nishioka et al. 2010c). Regions with larger old-age dependency ratio will have to spend more of their smaller budgets on support rather than development. The way to change the situation – government supported incentives and promotion of regions – seems to be a rather difficult issue in Japan. So far, governmental initiatives for offsetting rural-urban differences have not given significant results.

Chapter 8

Conclusion

Japan has entered the era of hyper aging society. The speed and the extent of demographic change experienced by Japan were never seen anywhere else before. It is obvious that the changes in population structure are going to affect Japan's economy and position in the international arena for quite a long period. It is thus important for Japan's government to find its own solutions to the new challenges.

8.1 Summary of Thesis Findings

In this paper I have analyzed four important aspects of social change that to more or less extent were caused by aging population. First of all, the population aging is caused by longer life expectancy and lower birth rates. Up until the 1960s falling birth rates as a result of second phase of demographic transition played most important role. Later, during 1960-1980s the situation changed and increasing life expectancy became an important contributing factor. Since then, the role of the falling birth rates has been increasing again. This is an important issue for Japan, because unlike increased life expectancy, low birth rates contribute to aging without a corresponding increase in physical ability to contribute to the economy for longer periods. Furthermore, population aging caused by low birth rates squeezes the population pyramid and changes the household patterns, so that more people are likely to live alone, especially when they reach old age. Therefore population aging caused by low birth rates has more ramifications and is a more pressing issue than population aging caused by longer life expectancy. A crucial task for Japanese society in the near future is to make sure the welfare system, including pensions, old age care and health care systems remain sustainable. The task for a longer period is to ensure sufficient work-life balance and family

support, to make it possible for everyone who wishes to create a family and have children to be able to so. In the very beginning of the paper I described the growing importance of low birth rates. As the government considers various schemes to deal with aging population, it is important to slow down the speed of societal aging by promoting family friendly policies.

The next important issue addressed in this paper is the influence of demographic change on labor environment. In Japan's particular case, partly due to its age seniority system, aging society did not increase demand for young workers and did not solve the problem of unemployment. Instead, as skewed population structure caused an increase in labor costs, the demand for young workers in large enterprises decreased. It was confirmed that the more aged workers employed by the enterprise, the less likely the enterprise is to employ new younger workers and more likely to employ irregular workers. Consequently, population aging is responsible for labor dualism – a situation when people are very unequally rewarded for doing basically same amount of work. Japan's age seniority system with a high degree of protection for regular workers became an unsustainable pyramid scheme due to demographic change and caused the labor environment to be polarized. The enterprises being unable to change the rules of employment of permanent workers addressed the issue of rising labor costs by lobbying for deregulation of labor laws and hiring more irregular employees. The enterprises also do whatever is possible to cut the older employees, and this fact also contributes significantly to deepening the gap between those who worked till they are 65 and those who were dismissed at the age of 55. As a result, the new demographics of Japan contributed

significantly to establishment of a new class division – the class of regular and irregular workers and those with and without retirement benefits.

The reverse aspect of interaction between employment and demographics is no less important. As demographics influence the labor market, unstable employment also influences the demographic behavior. It was confirmed that men who are in irregular employment are less likely to get married and have children than those with stable employment. Thus, labor market dualism contributes to demographic aging by depressing the chances of people to create families.

From the life-course perspective, aging population caused the period people spend living alone to increase. There are 2 factors I have considered. First is that as people are less likely to get married and have children, naturally, the size of the household they belong to is smaller. More people end up living alone, especially when they reach old age. Second factor is migration to metropolitan areas. While the role of demographics is not obvious at the first glance, I suggest that demographic aging is also responsible for migration to some extent, as people tend to move from places with older population to places with younger population. The traditional family-based social security system has been modified significantly as a result of demographic change. As the number of persons in a household decreases drastically, people no longer feel like they can rely on their relatives for support in case of illness or when they reach old-age. Furthermore, as family played a role of a basic network to create new social ties, decreasing number of family members decreased the number of starting points for an individual to build new social ties. The government had to assume the responsibility of caring for the elderly, but the expenditures on social security are a heavy

burden. While the government is struggling with the problem of elderly support, the problem of child care support seems to be overlooked. Therefore, the inequality of living standards between people who have children and those who do not is expected to increase.

How is the change in population age-structure affecting the situation in old-age care? The number of persons eligible for care services is growing much faster than the number of the facilities and services. Furthermore, along with life-expectancy increases, the average period of care giving increases as well at a rapid pace. The discrepancy between demand and supply of old-age care services creates a number of urgent issues. Government and NPO-run homes for the elderly are overcrowded and waiting lists are so long people have to wait for several years to receive the services they paid for during the years they participated in the Long Term Care insurance system. On the other hand, the fact that the government fails to satisfy the demand for old-age care services creates a niche for private sector. Privately run elderly homes are often so expensive that vast majority of the citizens are not able to afford the services they offer. Other un-registered elderly homes provide more affordable but low-quality solutions, and at times even put the heath and lives of their clients at risk. The division of private-run elderly homes into very expensive and very bad reflects inequality of income and wealth among the older cohorts. As a result of this ill supply-demand relation in Japan many people started to look for solutions to their problems abroad. A lot of elderly move from Japan to South-Asian countries to avoid bankruptcy or to have a better living than they can afford in Japan or just to keep more of their savings for their children.

Although the problems discussed are affecting all territory of Japan, the extent to which they influence social life differs across the regions. How do the demographics differ around the country? There are prefectures with relatively young populations that are still growing despite below replacement level of the birth rates. These prefectures are young due to migration. Other prefectures have older populations. The problem here is that the older a municipality is the faster its population ages. The youth moves from depopulating rural areas to metropolitan areas. Birth rates in densely populated areas tend to be significantly lower, despite younger population. Fast rural depopulation is not only an urgent problem because of shrinking economies and abandoned municipalities in those areas but also because rural areas are the main source of migrants who maintain the populations of the large cities. Take that away, and the populations of Tokyo, Osaka, Nagoya and surrounding areas will age at even faster pace than rural areas did.

8.2 Aging Population in Japan and Demographic Theories

From the theoretical perspective, Japan's experience offers a lot of information and evidence for verifying how existing population doctrines and theories relate to modern world. Perhaps the most important lesson that we can learn from Japan, is that the focus of demographic theories should be shifted from population size to population structure. That is to say, the case of Japan is the best illustration of the fact that sustainable population theory is irrelevant in the modern world unless the population structure and distribution is considered. Furthermore, the fact that the most overcrowded regions of Japan have lowest birth-rates may suggest people themselves make unconscious decisions about the "sustainability" just as it happens in natural world. The problem is that those decisions are made on the basis of what is good for an individual or his/her offspring.

The right decision for an individual (for example to sacrifice family for the career) may, however, turn to be a harmful one for the society as a whole (aging because of low birth-rates). Japan's experience teaches that in order to understand the influence of various demographical processes on a given society, we need a theoretical approach that would consider not only size of the population, but population structure, structural changes over long periods of time, and the demographic determinants behind such changes (as attempted in chapter 3).

Some of the existing theories of population can and should be modified in order to include and explain the new realities we now observe in Japan. Demographic trap theory should expand its focus from youth bulges to theoretical explanations of what is happening when the ratio of individuals in a given age group is growing or decreasing rapidly.

Perhaps the newest concept that Japan's experience brings to the population theory is the understanding that not only the population itself with its size and structure, but also population distribution should be variable that receives a lot of attention.

The mechanism of some processes caused by demographic shift is already clear today. Demographic aging, if caused by low birth rates, may lead to economic downturn due to low demand and shrinking ratio of economically active population. It is a nature of human being to do his/her best to keep the present amount of wealth, no matter what are the economic conditions. As a result people of all social backgrounds spend more time and efforts so that the effect of the economic downturn on their financial situation is minimal. However, higher classes are in a better position to defend their financial situation than others.

Consequently, the burden of the economic downturn will lie down on the shoulders of the lower class, thus increasing inequality.

Natural population shrinking is a recent phenomenon. For centuries humanity accumulated experience and knowledge about development and urban planning under the conditions of population growth. It has become a tradition in many cultures for younger generations to care for the old. Temporary population declines due to wars or disease are known, but such events did not turn the population pyramid up-side down. Population decline is very new, and a little is known how it could change living arrangements. Thus, it is important to monitor the changes and draw from Japanese experience to learn how aging and population shrinking changes the society.

8.3 Reforming the Society: What can or should be done?

First, it is obvious that Japan has to find policies to adequately deal with aging and decreasing population. The current social system is premised on a pyramid that can only be maintained under conditions of high economic and population growth. Currently the government is considering partly financing public pensions through taxes, because the pension funds are dwindling. Similar to pensions, health insurance depends on newcomers. It is just a matter of time before aging and shrinking population cause collapse of such systems. Japan has already taken measures to alleviate the situation by gradually increasing pensionable age to 65 and, reforming pension and insurance system. However, these are only temporary solutions, and unless population aging does not stop, other measures will be necessary.

Unfortunately, many government policies designed as remedies for aging population burden the most vulnerable members of society. Recent examples are: The New "Medical care system for the elderly", which means less medical care for more money for persons aged over 75 years old, Postponing retirement age (Takayama 2004), possibly increasing the consumption tax.

Finally, perhaps the most important issue is stratification of Japanese society. Both, the pressure to conserve and the pressure to change the age-seniority and life-time employment principle are so strong, that enterprises decided to keep it for some people and changed it for others. This created 2 separate classes – regular and irregular workers. This stratification deepened as many new types of irregular workers (arubaito, contract-workers, part-timers, dispatched workers etc.) were invented. Breaking the working class into smaller classes suppresses class consciousness and makes it much more difficult for people to stand for their rights. It is perhaps fair to say that aging was used by the state and enterprises as an excuse to do what they wanted to do – reduce labor costs and justify shrinking the welfare state.

The key to reducing inequality caused by aging population is to treat it as a problem rather than as an excuse to sacrifice the welfare state and social justice. Instead of dividing society into winners and losers (read regular and irregular workers) and designating a part of society as shock absorbers, it is necessary to create an environment where anyone willing to work could exercise his or her potential. A possible solution to increasing labor dualism and inequality is to grant the same social security protection (including minimal wage, health insurance, maternal/paternal leave and holidays) to every employee regardless status. Similar policies were

implemented in Netherlands that granted all workers same social security rights as full-time workers. At the same time, full-time working hours were made more flexible, which narrowed the gap between full and part time workers (Bleijenbergh, Bruijn, Bussemaker 2004). The results were reduced unemployment and increasing birth rates.

Japan has a long way to go in improving childcare services and work-life balance – most important issues related to low birth rates. It is necessary to draw attention to people's feelings and aspiration for life. People do not make their life choices based on statistics, but in comparison with others around them. If one sees people having a hard time raising children and working, one is less likely to have children. On the other hand, if one sees other happy families with children, who are able to balance work and childcare regardless of their status, then it is very possible that many people who wish to have children will do so.

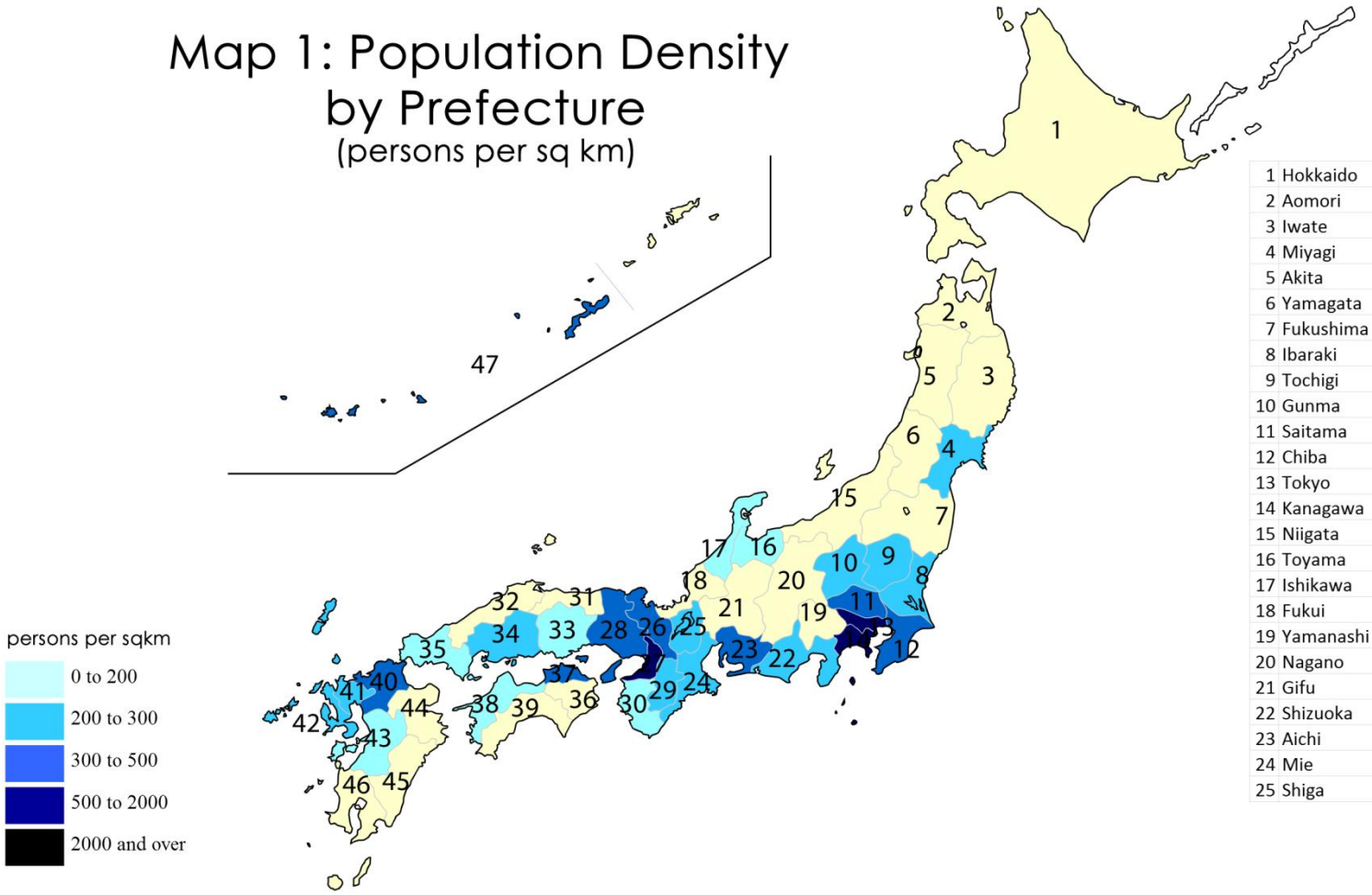
Despite the fact that the situation is very serious, Japan has all the resources and means to deal with all the challenges caused by demographic change. Ensuring better child care and improving work-life balance would make it possible to boost the birth rates, so that speed of demographic change is reduced. Although, allowing people to have more children will not have an immediate effect, this will be important for Japan's economy in the long run. Improving the gender equality will allow more female labor participation, which will boost the economy. As the experience of European nations proves, under condition of gender equality, female labor participation does not cause decreases in birth rates. Finally, ensuring development of regional economies will allow increasing living standards for Japanese families and remove the regional disparities that currently exist. It will not be easy for Japan to deal with all

the challenges caused by demographic aging, but later, Japan has all chances to become a mentor and an example for other countries with aging populations.

APPENDIX:

Demographic Atlas of Japan

Map 1: Population Density by Prefecture
(persons per sq km)



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2	Aomori	27	Osaka
3	Iwate	28	Hyogo
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5	Akita	30	Wakayama
6	Yamagata	31	Tottori
7	Fukushima	32	Shimane
8	Ibaraki	33	Okayama
9	Tochigi	34	Hiroshima
10	Gunma	35	Yamaguchi
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12	Chiba	37	Kagawa
13	Tokyo	38	Ehime
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15	Niigata	40	Fukuoka
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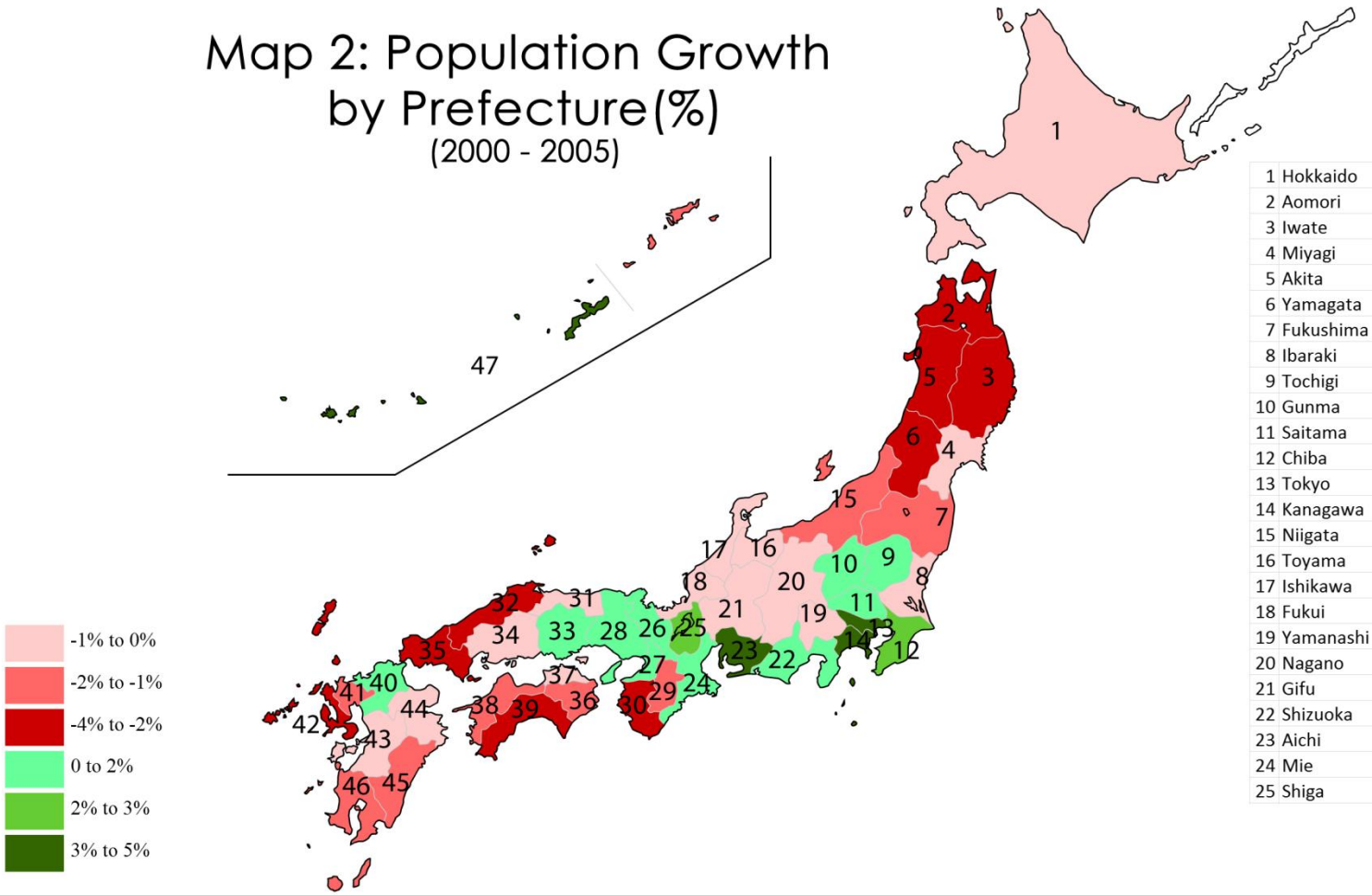
17	Ishikawa	42	Nagasaki
18	Fukui	43	Kumamoto
19	Yamanashi	44	Oita
20	Nagano	45	Miyazaki
21	Gifu	46	Kagoshima
22	Shizuoka	47	Okinawa
23	Aichi		
24	Mie		
25	Shiga		

Source: Author's calculations based on data from MIAC, National Census, 2005

Map 2: Population Growth by Prefecture(%)
(2000 - 2005)



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7	Fukushima	32	Shimane
8	Ibaraki	33	Okayama
9	Tochigi	34	Hiroshima
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14	Kanagawa	39	Kouchi
15	Niigata	40	Fukuoka
16	Toyama	41	Saga
17	Ishikawa	42	Nagasaki
18	Fukui	43	Kumamoto
19	Yamanashi	44	Oita
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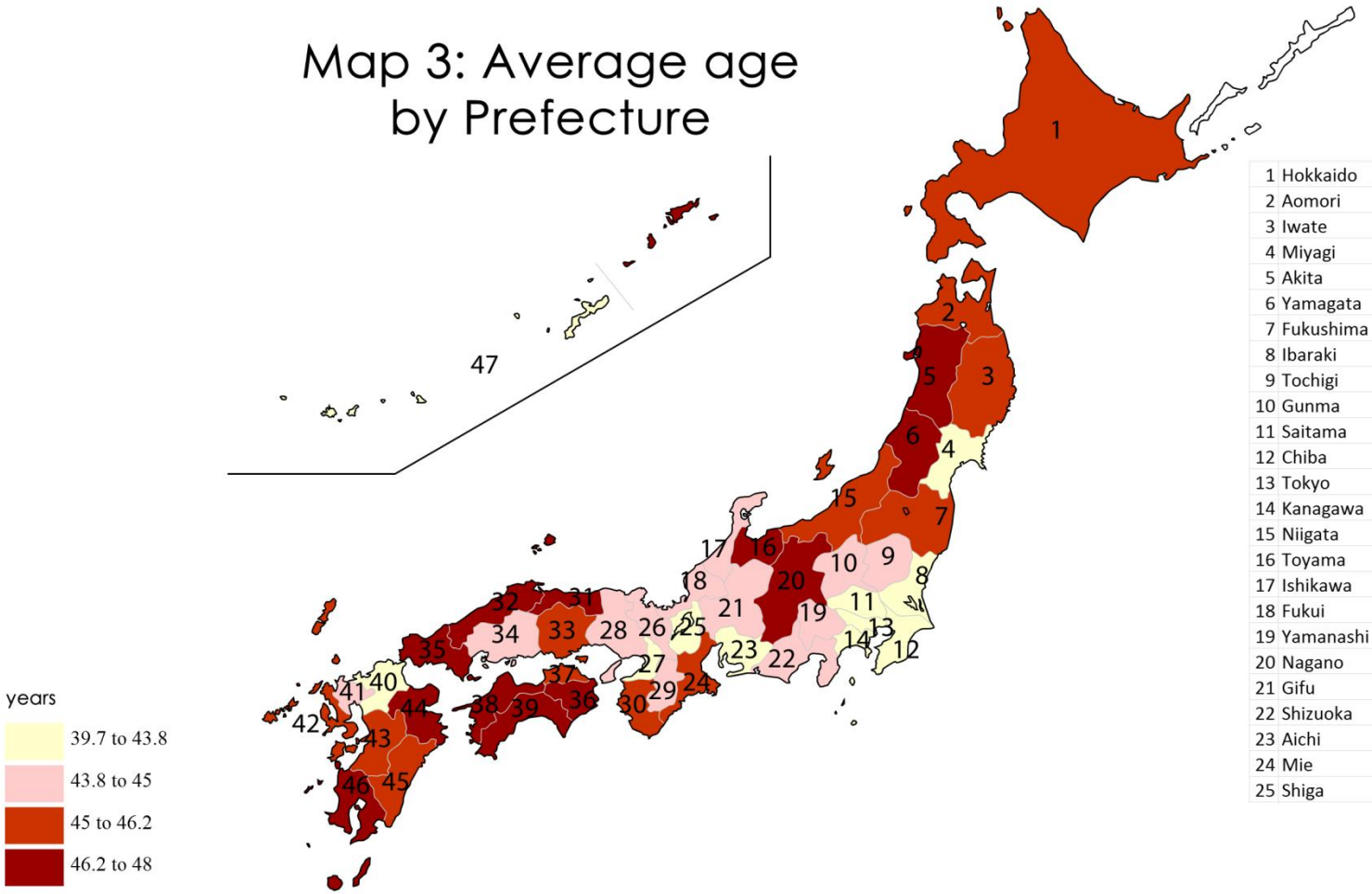
21	Gifu	46	Kagoshima
22	Shizuoka	47	Okinawa
23	Aichi		
24	Mie		
25	Shiga		

Source: Author's calculations based on data from MIAC, National Census, 2005

Map 3: Average age by Prefecture



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7	Fukushima	32	Shimane
8	Ibaraki	33	Okayama
9	Tochigi	34	Hiroshima
10	Gunma	35	Yamaguchi
11	Saitama	36	Tokushima
12	Chiba	37	Kagawa
13	Tokyo	38	Ehime
14	Kanagawa	39	Kouchi
15	Niigata	40	Fukuoka
16	Toyama	41	Saga
17	Ishikawa	42	Nagasaki
18	Fukui	43	Kumamoto
19	Yamanashi	44	Oita
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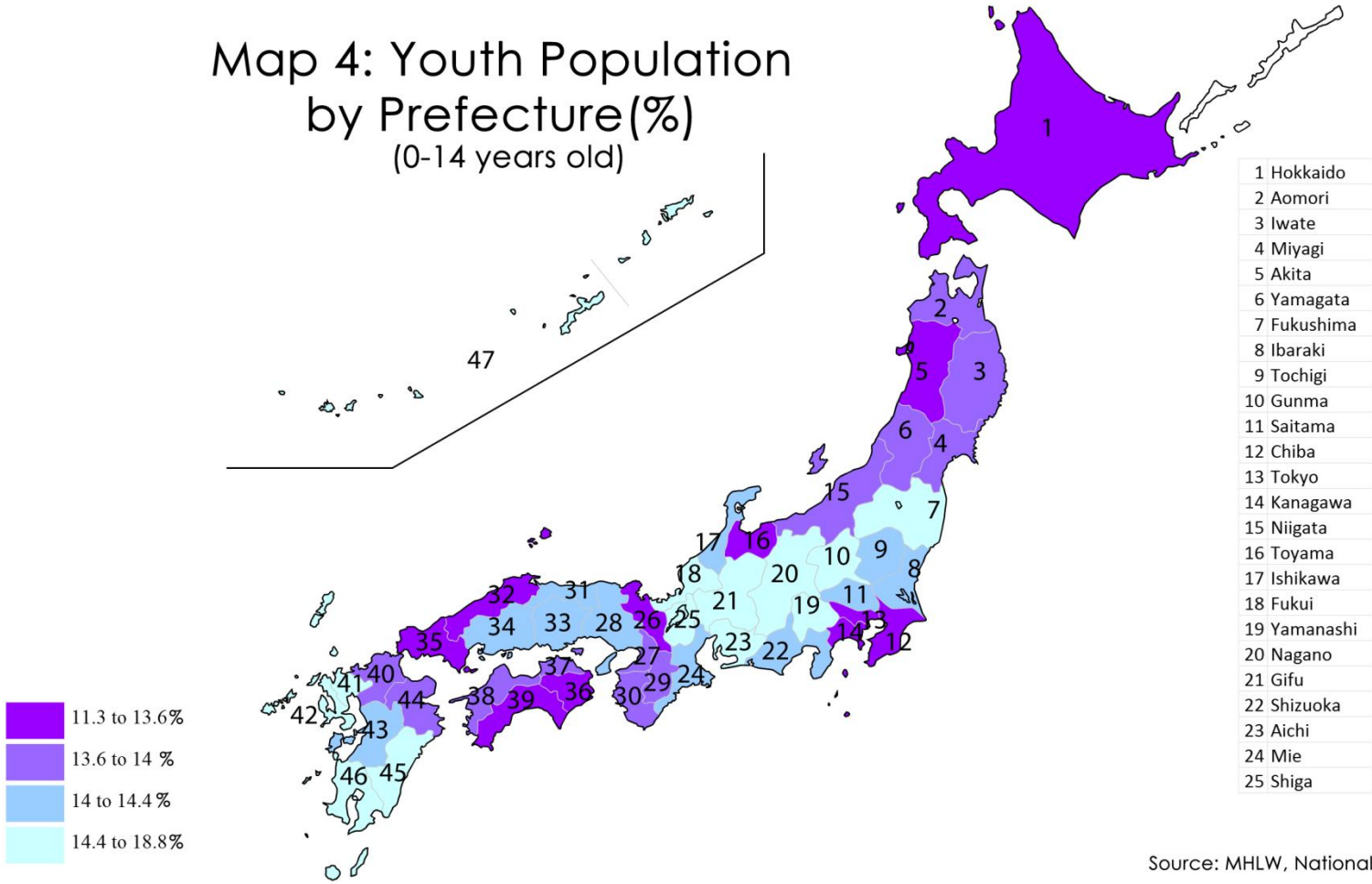
22	Shizuoka	47	Okinawa
23	Aichi		
24	Mie		
25	Shiga		

Source: Author's calculations based on data from MIAC, National Census, 2005

Map 4: Youth Population by Prefecture(%)

(0-14 years old)



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9 Tochigi	34 Hiroshima
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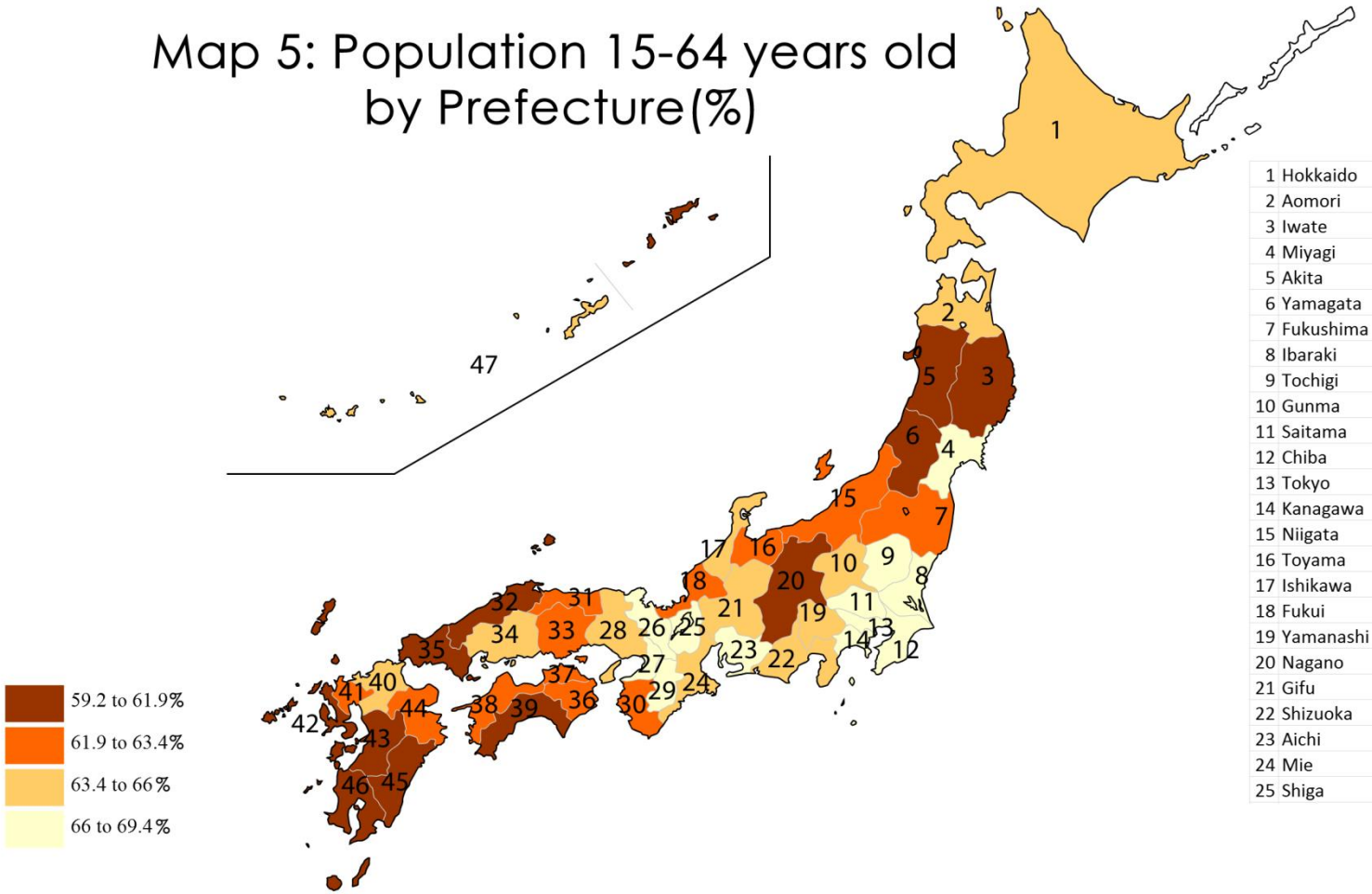
11 Saitama	36 Tokushima
12 Chiba	37 Kagawa
13 Tokyo	38 Ehime
14 Kanagawa	39 Kouchi
15 Niigata	40 Fukuoka
16 Toyama	41 Saga
17 Ishikawa	42 Nagasaki
18 Fukui	43 Kumamoto
19 Yamanashi	44 Oita
20 Nagano	45 Miyazaki
21 Gifu	46 Kagoshima
22 Shizuoka	47 Okinawa
23 Aichi	
24 Mie	
25 Shiga	

Source: MHLW, National Census, 2005

Source: Author's calculations based on data from MIAC, National Census, 2005

Map 5: Population 15-64 years old by Prefecture(%)



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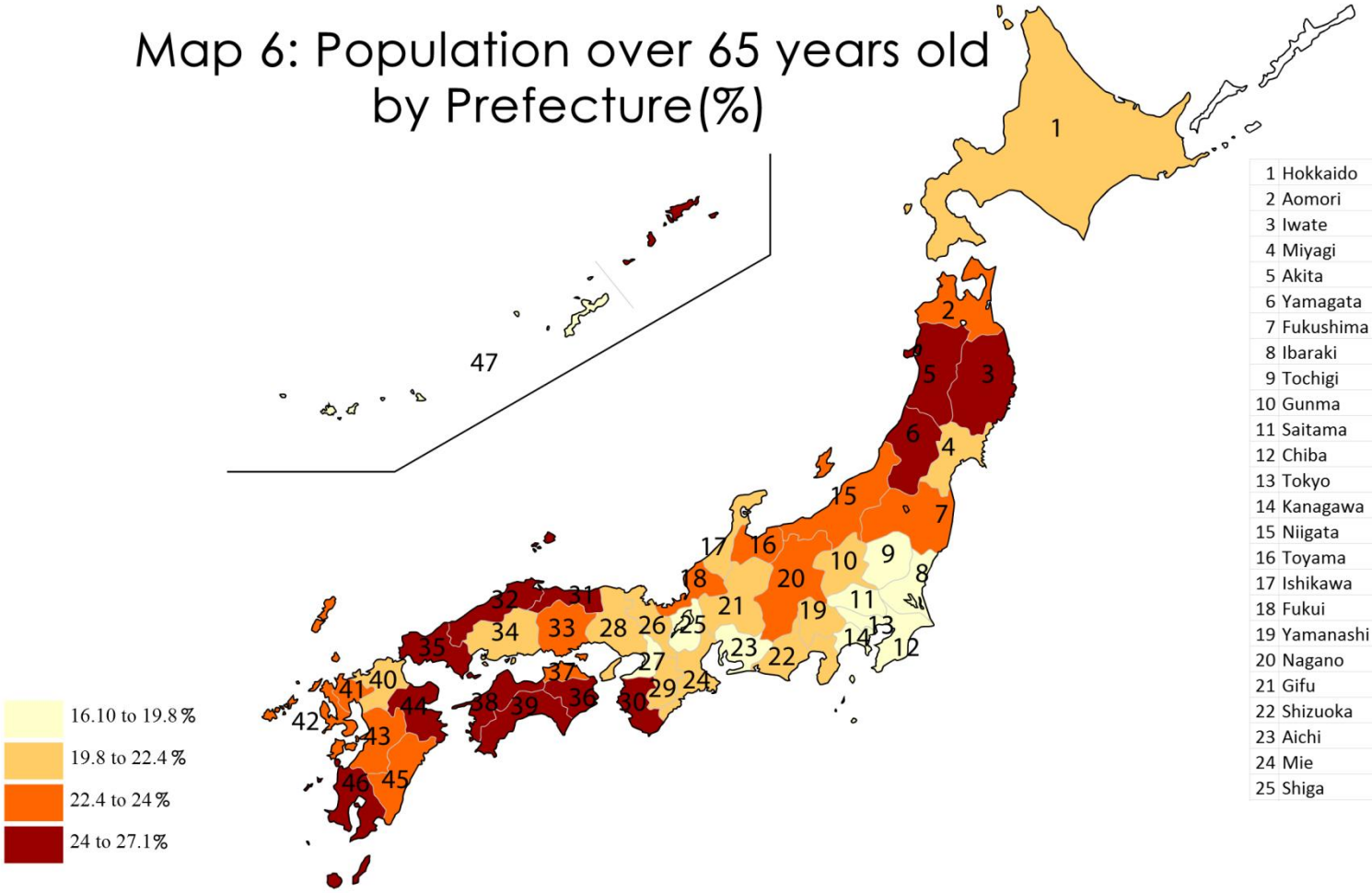
23	Aichi		
24	Mie		
25	Shiga		

Source: Author's calculations based on data from MIAC, National Census, 2005

Map 6: Population over 65 years old by Prefecture(%)



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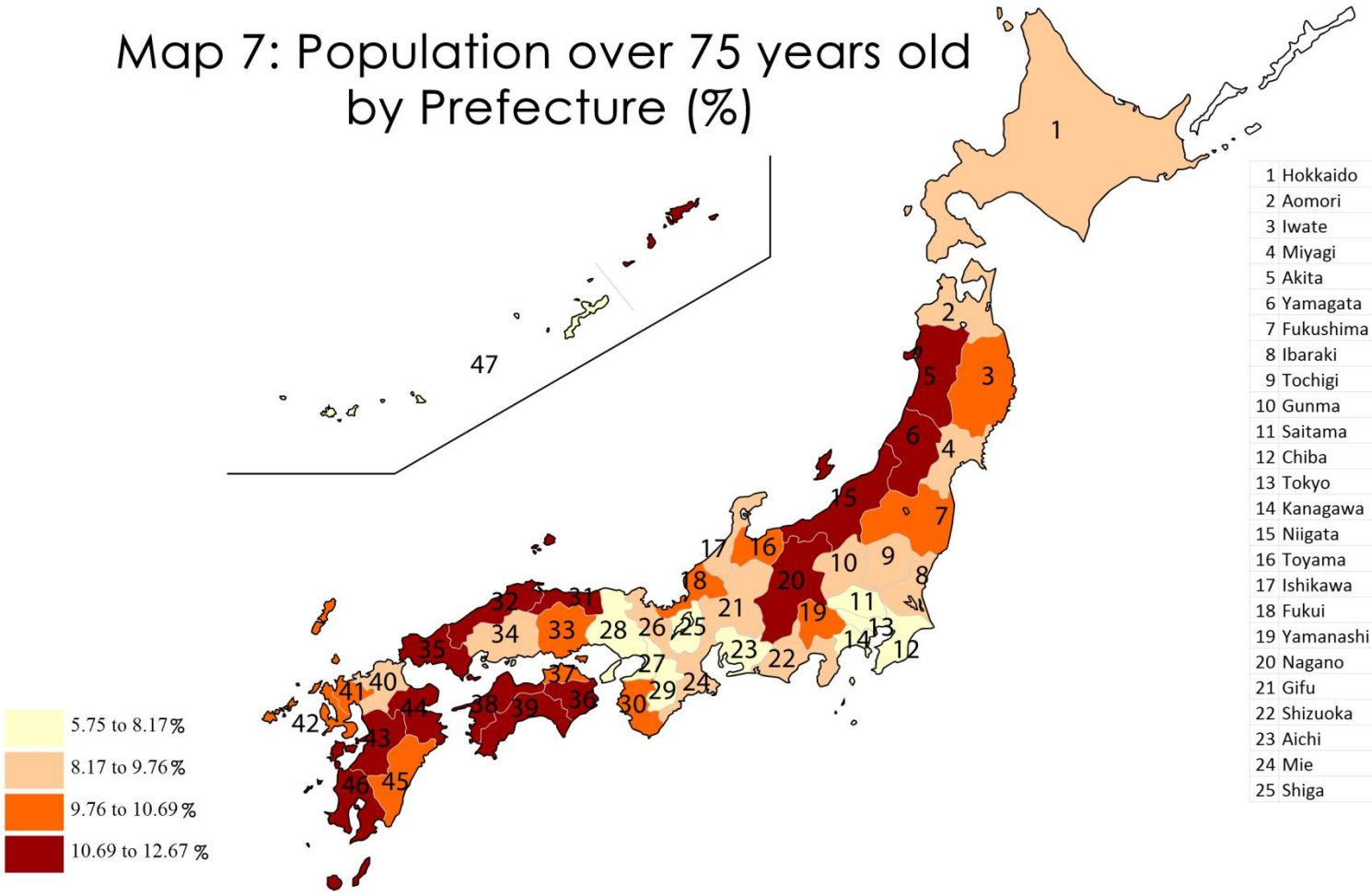
24	Mie		
25	Shiga		

Source: Author's calculations based on data from MIAC, National Census, 2005

Map 7: Population over 75 years old by Prefecture (%)



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22	Shizuoka	47	Okinawa
23	Aichi		
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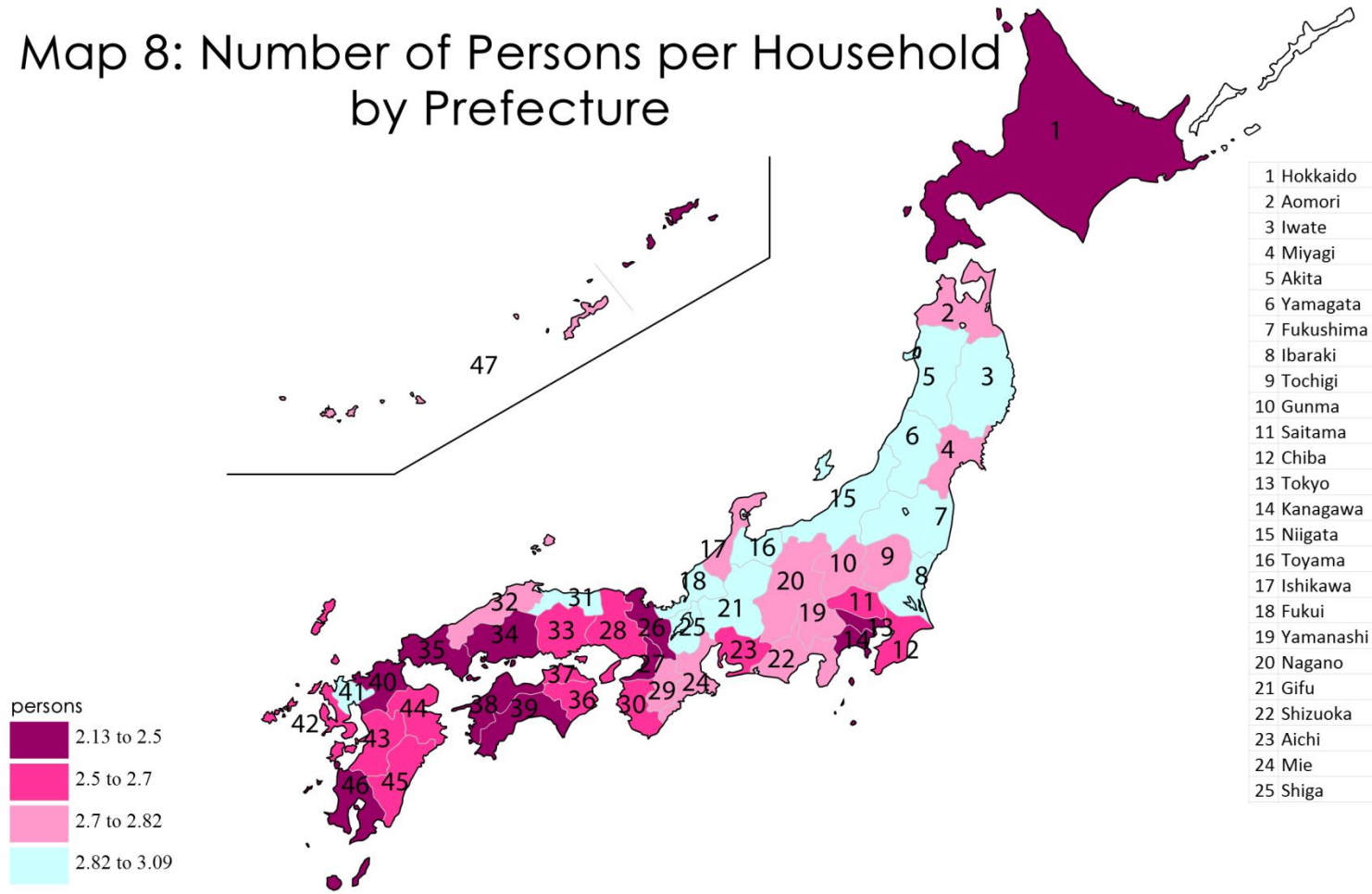
25	Shiga		

Source: Author's calculations based on data from MIAC, National Census, 2005

Map 8: Number of Persons per Household by Prefecture



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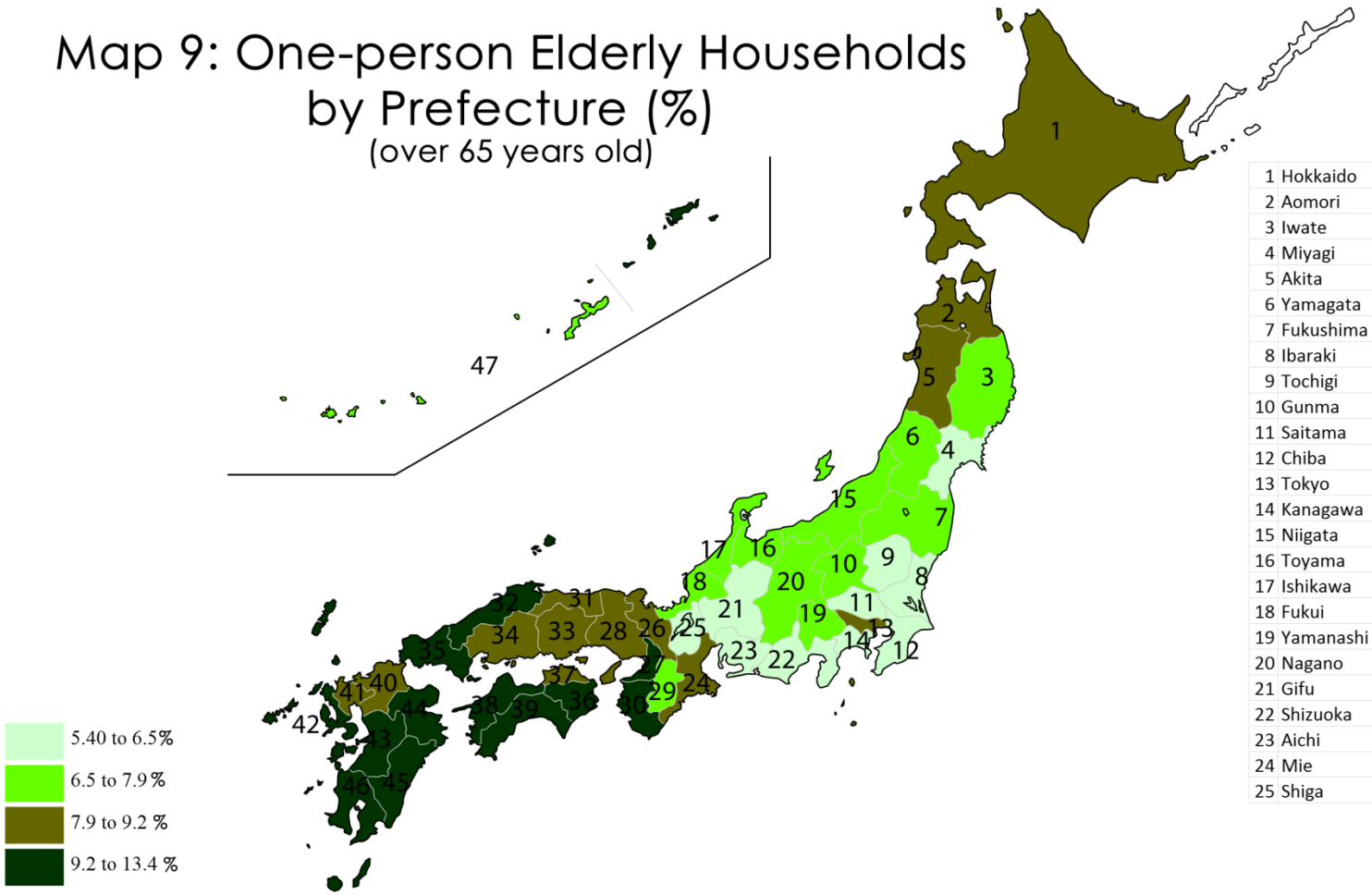
23	Aichi		
24	Mie		
25	Shiga		

Source: Author's calculations based on data from MIAC, National Census, 2005

Map 9: One-person Elderly Households by Prefecture (%)

(over 65 years old)



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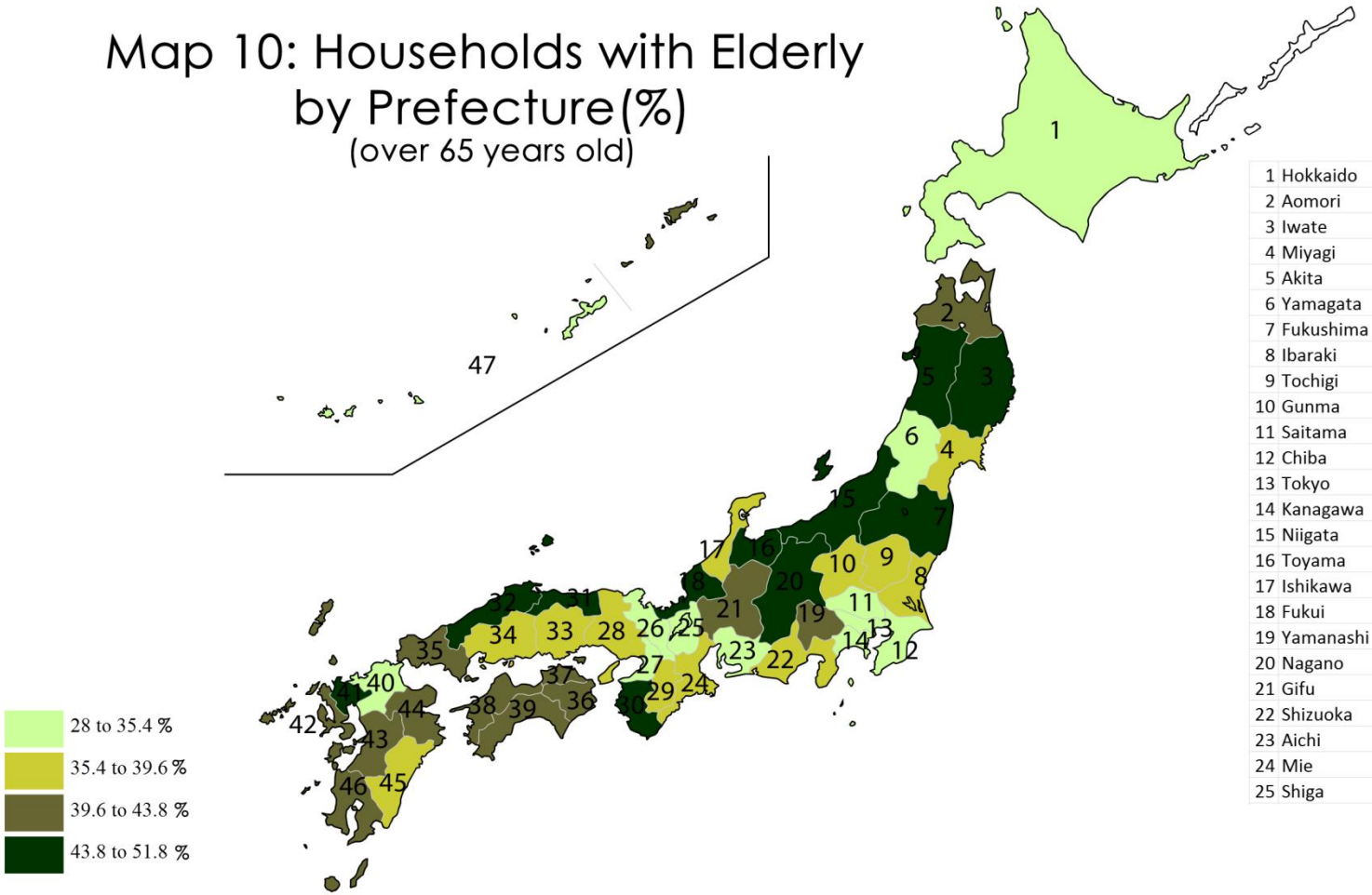
25	Shiga		

Source: Author's calculations based on data from MIAC, National Census, 2005

Map 10: Households with Elderly by Prefecture(%)
(over 65 years old)



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23	Aichi		
24	Mie		
25	Shiga		

Source: Author's calculations based on data from MIAC, National Census, 2005

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