

# 65+ in Korea: Findings from the Census 2000 and Projections of Future Growth

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## 1. Introduction

Over the last several decades, Korea's population has continued on its remarkable transition path from a regime of high levels of mortality and fertility to low levels. Compared to our counterparts in the 1970s, we are living almost 14 years longer; marrying 5 years later; and having children much later and only one-third of them in number. More changes are anticipated over the next 30 years. The Census 2000 counted nearly 3.4 million people 65 years of age or older, about one in every fourteen Koreans (KNSO, 2001a). By 2050, Korea National Statistical Office (KNSO) estimates that nearly one in every three Koreans will be aged 65 or older (2001b). This growth is in stark contrast to the relatively slow elderly population growth in the western societies.

This paper briefly reviews the age and sex profile changes that have occurred in Korea over the past three decades, presents the socio-demographic profile of older Koreans based on the result of the Census 2000, and projects the effects of altering assumptions of population projections on the ageing of Korean population for next five decades.

## 2. Changes in Korean Age and Sex Profiles

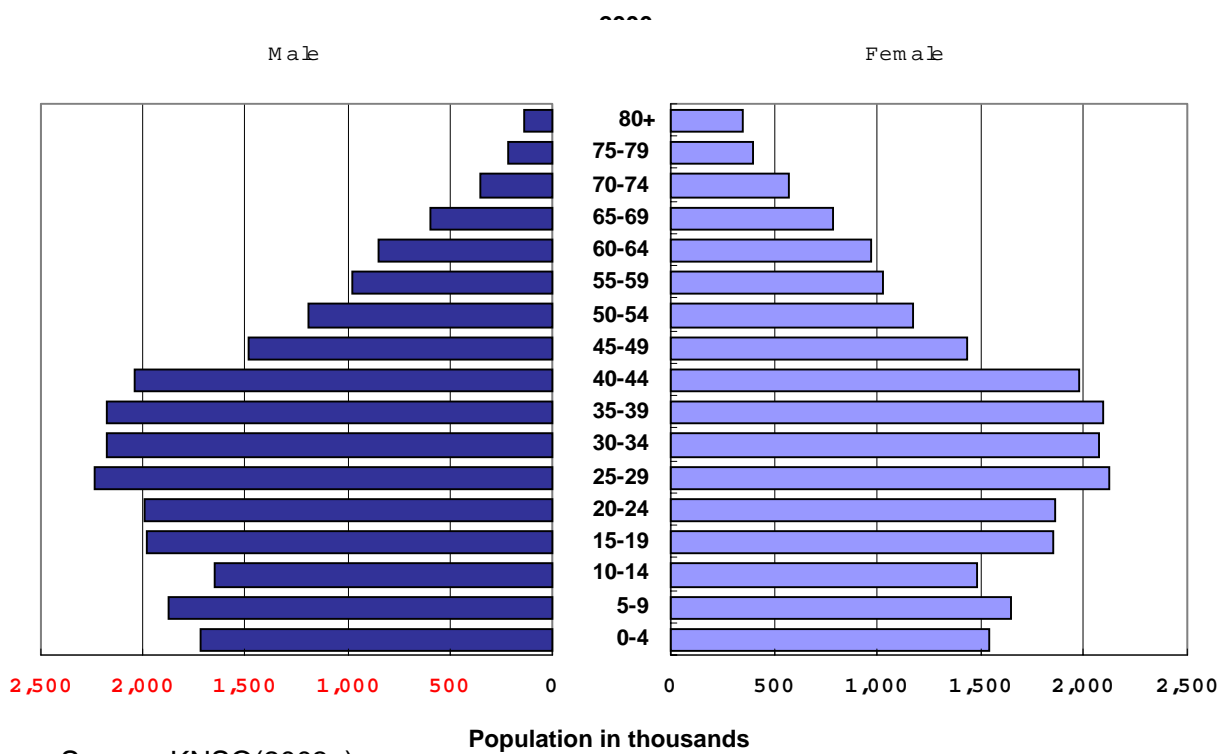
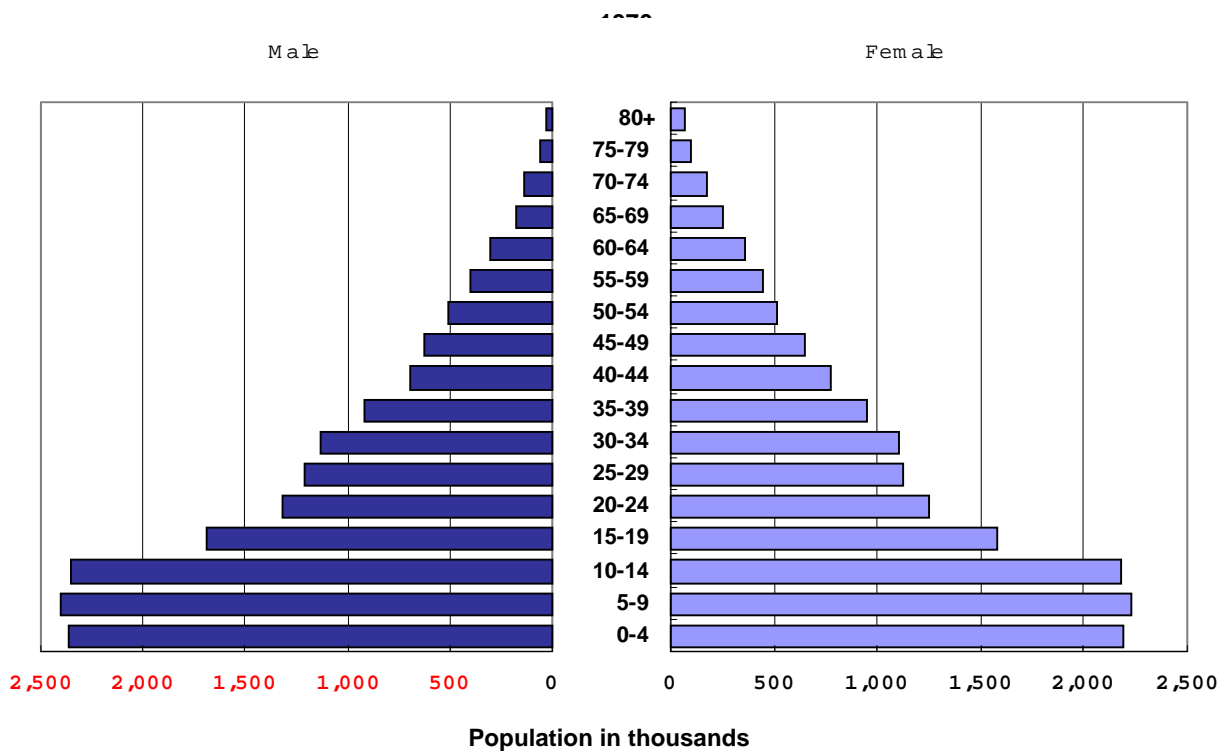
Between 1970 and 2000, more than 15 million people were added to Korea, but population growth has slowed: 1.69 percent per 1970s, 1.18 percent per 1980s, and 0.93 percent per 1990s (KNSO, 2003a). The Korean population is undergoing demographic changes not only in its number but in its shape.

As illustrated by Figure 1 which shows the proportion of each age and sex group in the population. In 1970 when Korea still had high mortality and fertility, the age and sex profile shows a typical population pyramid, with a broad base of a young population and a small elderly population. The population pyramid in 1970 reveals that only 3.1 percent of Korean were aged 65 or older, while more than 42 percent of Koreans were aged under 15. The Korean baby boomers, who were born in 1955-1963, created a bulge in the 1970's age-sex pyramid.

Since the 1970s, Koreans were slow to marry and to start families in greater percentages than they had in the 1960s. The pyramid shape transformed by a drop in birth rates, the baby boom and baby bust, and declining mortality. The average age of the population started to climb as the large baby boom generation moved into adulthood. The Korean age pyramid in 2000 shows a bulge in the population ages 20 to 44, corresponding with the baby-boomers. About 21 percent of Koreans were under age 15, and more than 7.2 percent of Korean were aged 65 or older. The age distribution will be heavily skewed toward older ages during the first half of this century because of the entry of baby-boomers into old age.

What accounts for the recent population growth and profile change in Korea? Two demographic factors –lowering fertility and declining mortality- have been the driving forces throughout the last decades.

**Figure 1. Korea Population by Age and Sex, 1970 and 2000**

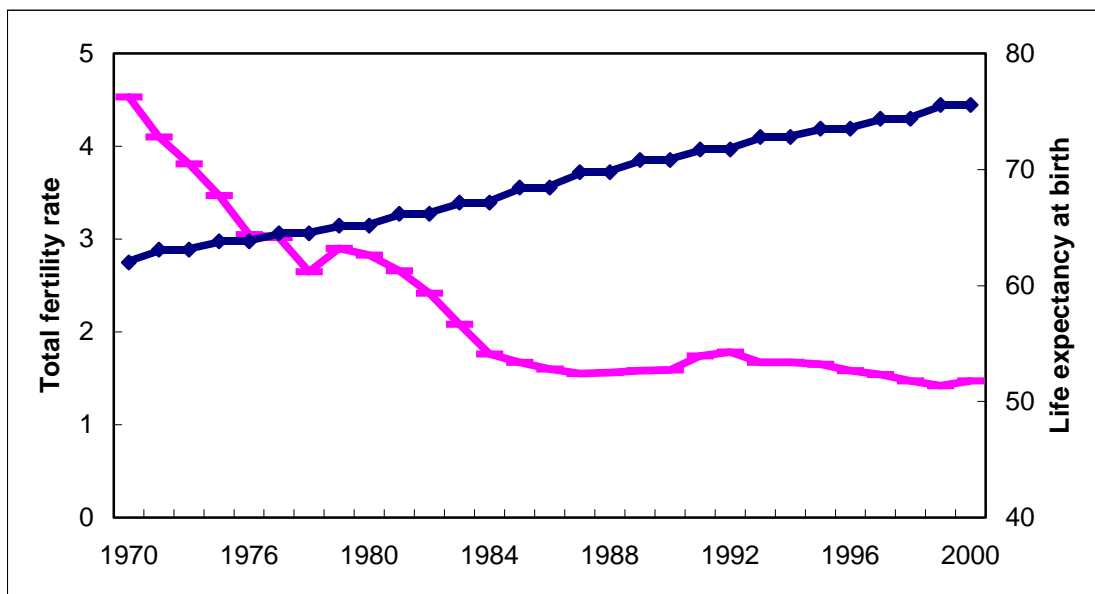


Source: KNSO(2003a).

### 3. Declining Fertility and Increasing Life Expectancy

The decline in fertility has been one of the most important demographic changes in recent years. As one can see in Figure 2, between 1970 to 2000, total fertility rate (TFR), the average number of children a woman would have in her lifetime given prevailing birth rates, decreased by almost two-third, from 4.53 to 1.47. It has experienced below the replacement level in 1983 and a persistent drop of the TFR to 1.17 in 2002. Recent Korean fertility rates imply that it will be hard to keep a stable population over time and eventually start to decline unless fertility rates rise sharply. Depopulation is expected to begin in 2023 or even earlier (KNSO, 2001b).

*Figure 2. Total Fertility Rates and Life Expectancy at Birth: 1970-2000*



Source: KNSO(2003b).

Koreans on average are living longer than ever before. It was estimated that the mortality rate in 2000 in the Korea was 5.2 per 1000 population. In the last three decades of the 20th century, the region has seen a reduction of about 35% in the mortality rate. This impressive gain has resulted from decreases in mortality at all ages, but mainly from improved survival of children and a decline in mortality for the old population because of better living conditions and improved management of disease.

Mortality rates fell faster for women than for men. Between 1970 and 2001, life expectancy at birth in Korea increased from 66 to 80 for females and from 59 to 73 for males. In general, life expectancy at birth is higher for women than for men in Korea, as it is in every world region. But the gap between male and female longevity widened from 6.9 years to 7.4 during that time (KNSO, 2003c).

The gender gap in life expectancy reflects the higher death rates for men than women at older ages. When Korean babies are born, males outnumber females as a sex ratio of 110 males per every 100 females in 2000 (see Figure 1). But higher male death rates cause the sex ratio to decline as age increases. After age 55, Korean women outnumber men at every age. At age 65 or older, there were nearly 62 men per 100 women. However, the gender gap at older ages is expected to narrow in the near future, because recently older male mortality improved faster than older female mortality (KNSO, 2003C).

#### 4. The Profile of Older Koreans

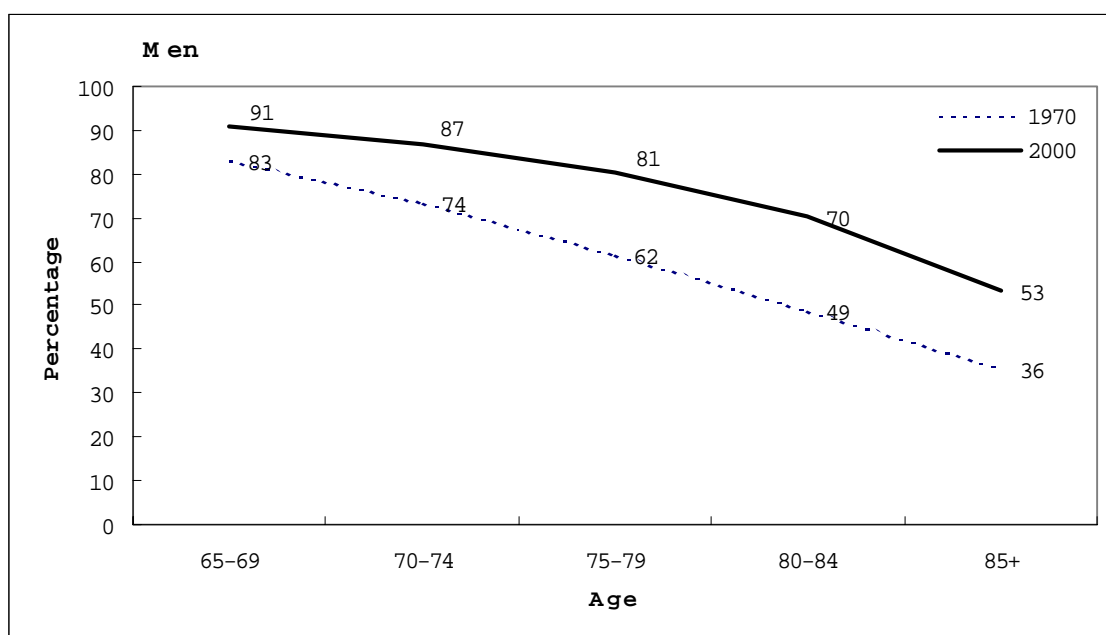
Decreasing fertility along with lengthening life expectancy has directly affected the age structure of the population by shifting relative weight from younger to older groups. The ageing in Korean population has two distinctive features. First, the tempo of ageing in Korea is more rapid than in any other OECD countries. In 1970, the number of people aged 65 or older were less than one million, but thirty years later, it reached 3.3 million. This population has been dramatically increased and will continue to grow in the future. The growth of the elderly population within the next two decades will be propelled by the entry of baby-boomers into the old age groups.

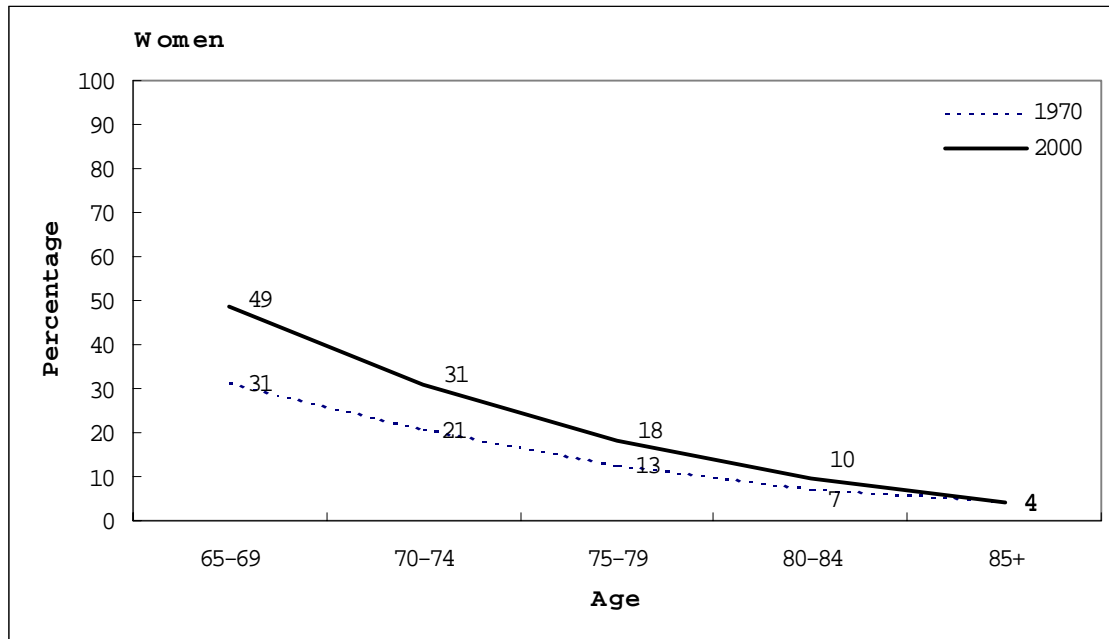
Second, there are radical changes in the structure of families accompany the growing diversity within elderly Koreans. The elderly in 2000 had quite different experiences than did older Koreans thirty years ago. They would be living longer than ever, enjoy more later life with their spouses, lived with fewer family members, and a greater number continued work in the labor force.

##### *Marital status and living arrangements*

Improved health care and decline in mortality at older ages has caused an increase in the percentage of older people living with their spouses. The percentage of currently married people has increased from 41.6 percent in 1970 to 52.0 percent in 2000. However, most elderly men are still married and living with their spouses, while elderly women are not. As figure 3 shows, in 2000, about 85 percent of men age 65 or older were currently married, compared with only 31 percent of women age 65 or older. Since death rates for older men were higher than women and the proportion living with their spouse decreases with age, older women are much less likely to be currently married than older men. Only 18 percent of women age 75 to 79 were living with their spouses, compared with 81 percent of men at the same age. (Kim, 2002) This gender gap in marital status will be somewhat lessen as the sex differential in mortality diminishes. But, if low marriage rates and increasing divorce rates persist in future, more older women face the challenges of later life alone.

**Figure 3. Percentages of the Currently Married Older Men and Women, 1970 and 2000**





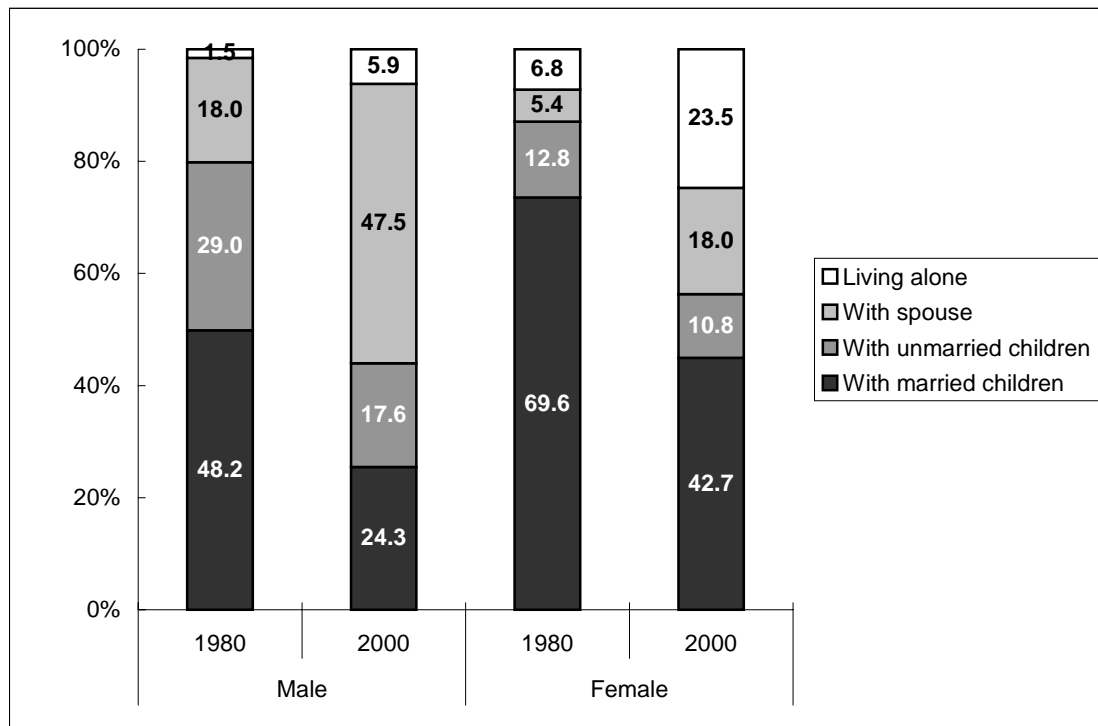
Source: KNSO(2003a).

Living arrangements are closely related to marital status, economic status, and cultural values in a society. The family has been a critical institution for the Korean elderly. Of course, Korea has public pension and health systems to support the elderly, but current availability of government and social supports are not enough for all the elderly. Because of this shortage of public support for older people they are forced to rely heavily on the family for their well-being.

Korean families become more nuclear and smaller. Changes in the structure of family would be well reflected in the change in living arrangements of the elderly. There are two major features in the trends of living arrangements: increasing elderly living alone and decreasing elderly living with their children. Recently the percentage of older people living with their married children has significantly declined: 61.7 percent in 1980, compared with 35.7 percent in 2000. At the same time, the percentage of older people living with only their spouses increased about 2.9 times (10.1% to 29.2%) and the percentage of older people who lived alone increased about 3.5 times (from 4.8% to 16.8%) between 1980 and 2000. As a result, older people are much more likely than other people to live alone. In 2000, only 15.6 percent of all individuals of 15 years and older live alone, while 33.7 percent of elders do so (Kim, 2002).

The gender difference in marital status is also reflected in the types of living arrangements among elderly Koreans (see Figure 4). In 2000, older men were less likely to be living with their married children than older women (24.3% for men, compared with 42.7% for women). The proportion living with their spouse was about two and half times higher for older men than women (47.5% versus 18.0%). Older women are more likely than older men to live alone, because most elderly women outlived their spouses and less likely to remarry. Only 6 percent elderly men were living alone, while nearly one-quarter of elderly women were alone.

**Figure 4. Living Arrangements of Men and Women Age 65 or Older, 1980 and 2000**



Source: KNSO(2003a).

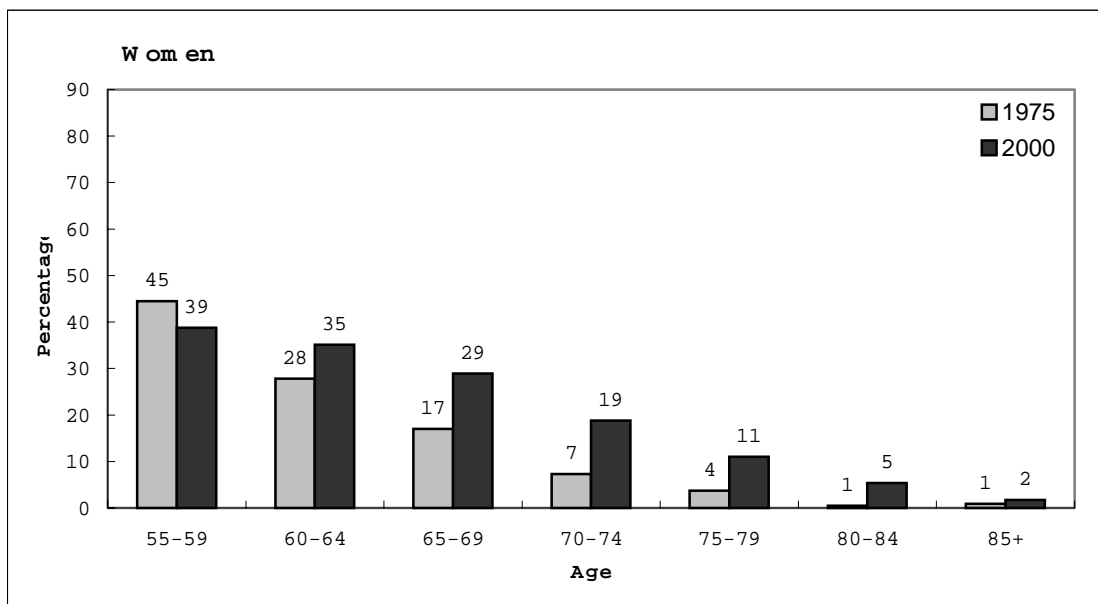
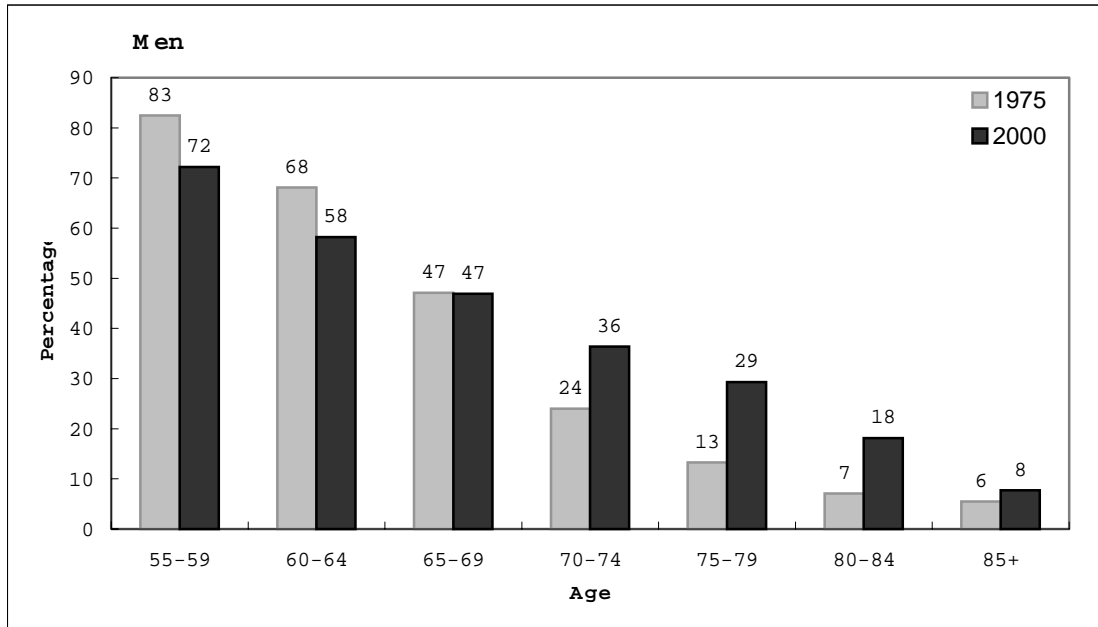
### **Employment**

Changes in the Korean economy have had critical effects on employment rates. Although early retirement has become a very popular way to reduce corporation's labor costs in recent years, unlike other western countries, during the last decades, the overall proportion of elderly Koreans who worked in the paid labor force has not decreased much.

The percentage of employment varies by age and sex. As one can see in Figure 5, as age increased, the number of elderly who worked in paid labor force decreased. In 2000, more than two-third of men aged 55 to 59 were in paid employment, slightly less than one-half of men of aged 65 to 69 were, and less than one-third of men aged 75-79 were. Between 1975 and 2000, older men's participation in paid work has declined i.e. those in their late 50s and the young-old, while it has significantly increased at the middle-old and the old-old. This trend may have resulted for two reasons: the reentry of retired people into the paid work force and the presence of overrepresented agricultural workers among elderly Koreans (Park, 2002).

Employment rates for older men and women have moved in opposite directions. Although women's employment rates are far below that of men, the percentage of older women's employment has increased at all ages except those in their late 50s since 1975. Women aged 55 or older who worked in the paid labor market increased about 11.8 percent between 1975 and 2000, while men of the same age who were in the labor market decreased about 10.1 percent. More women may become active participants in labor market.

**Figure 5. Percentages of Employment Who Aged 55 or Older by Sex, 1975 and 2000**



Source: KNSO(2003a).

**Geographic distribution**

Older people have relatively low migration propensity compared to other age groups. Between 1999 and 2000, 9.5 million Koreans moved, about one in every five people migrates to a

different administrative division<sup>1</sup>. About 11 percent of people age 65 or older moved and they represented less than 5 percent of all movers. Among the elderly, increased age migration rates slightly increased because of declining health or the death of spouse (KNSO 2003a).

**Table 1. Major Civil Divisions Ranked by Percentage Age 65 or older, 2000**

Rank	Major civil divisions	Total resident population	Percent of population age 65+
Total		45,985,289	7.3
	Rural	9,342,841	14.7
	Urban	36,642,448	5.5
Rank			
1	Jeollanam-do	1,994,287	13.6
2	Gyeongsangbuk-do	2,716,218	11.6
3	Chungcheongnam-do	1,840,410	12.1
4	Jeollabuk-do	1,887,239	11.2
5	Gangwon-do	1,484,536	9.9
6	Chungcheongbuk-do	1,462,621	9.7
7	Gyeongsangnam-do	2,970,929	9.0
8	Jeju-do	512,541	8.4
9	Busan	3,655,437	6.2
10	Daegu	2,473,990	5.9
11	Gyeonggi-do	8,937,752	5.8
12	Gwangju	1,350,948	5.6
13	Incheon	2,466,338	5.5
14	Daejeon	1,365,961	5.5
15	Seoul	9,853,972	5.4
16	Ulsan	1,012,110	4.0

Source: KNSO(2003a).

Table 1 reveals several features in the geographical distribution of older people. Rural areas generally have a higher proportion of older persons in their total population than urban areas<sup>2</sup>. Korea has experienced remarkable urbanization for several decades. According to the 2000 census, one out of every five Koreans (20.1%) can be classified as urban residents, but two of every five elderly Koreans lived in rural areas. Putting it another way, the elderly constitute nearly 14.7 percent of the rural population and only 5.5 percent of the urban population. Rural areas are aging rapidly. Although two major forces of population ageing-fertility decline and improved health- are typically more advanced in urban areas than rural areas, rapid urbanization owing to young adults' rural-to-urban migration has resulted in rapid rural ageing.

In 2000, about 15.8 percent of elderly Koreans live in Seoul metropolitan areas, but a province with a large elderly population does not always mean it is an ageing place. Seoul has a younger age profile with the greatest number of elderly residents: about 16 percent of all elderly population were Seoul residents but they occupy only less than 5.5 percent of the total of Seoul

<sup>1</sup> There are three levels of administrative divisions in Korea. At the highest level, divisions include seven metropolitan cities (*Si*) and nine provinces (*Do*). At the next level, provinces consist of small urban cities (*Si*) and rural counties (*Gun*). Finally, small cities are subdivided into towns (*Dong*) and rural counties consist of several towns (*Eup* and *Myeon*).

<sup>2</sup> Places with 50,000 or more inhabitants are usually considered urban in Korea. However, the census results are composed in the basis of the lowest administrative divisions such as "*Dong*" and "*Eup*" and "*Myeon*" rather than urban and rural areas.

residents. Ulsan is the youngest of places, about 4 percent of the population were age 65 or older. In contrast, five provinces had greater than 10 percent of the population being old: Jeollanam-do (13.6%) Chungcheongnam-do (12.1%), Geyoungsangbuk-do (11.6%), and Jeollabuk-do (11.2%). These provinces have relatively older age profiles (KNSO, 2001a).

### *The Structure of elderly dependency*

Ageing normally involves a weakening of socio-economic and health status. Such declines increase an elderly persons' dependency. There are three types of dependency : social dependency, economic dependency, and dependency for personal and health care. In the census 2000, the long form questionnaires collect data on the old population through four questions which assess the structure of dependency for the Korean elderly: the place of children's residence, the means of living, the main financial supporter, and the limitation of everyday activities. .

Since the availability of family members care for the elderly has important implications for public policy, the census question asked geographic proximity to their children (See Table 2). Many Korean adult children lived with their parents in the same house or lived in places nearby. According to the result, nearly one of every two Korean elderly lived with their children in the same house. Only 18 percent of Korean elderly lived in different provinces from their children. However, the proportion of co-residence of the elderly with their children increases with age, because of growing health problems and personal care needs.

**Table 2. Children's Residential Places of Korean Elderly, 2000**

Ages	Same house	Different place				
		Within same town	Within same city/county	Within Same province	Different province	Abroad
Total	50.2	10.7	12.6	7.6	18.5	0.4
65-69	44.9	11.1	14.2	8.7	20.7	0.4
70-79	49.3	11.2	12.7	7.7	18.7	0.4
80-89	67.1	8.0	7.5	4.5	12.3	0.3
90+	83.2	4.4	3.3	2.8	6.0	0.2

Source: KNSO(2001a).

The Census 2000 asked for financial resources of the elderly and categorized them as three types: independent, semi-dependent, and fully dependent resources. Independent resources refers to the elderly taking care of most of their own living expenses through their earnings from work or savings or other forms of support such as pensions. Table 3 indicates that 32.5 percent of the Korean elderly are financially independent, 45.4 percent are fully semi-dependent, and 22 percent are dependent. The types of financial dependency of the elderly vary by age and sex. As ages become older, the elderly become more financially dependent. Because many of elderly women are in low-paid employment or have relied upon their children, women tend to have higher financial dependency than men. Slightly more than three out of every four old women are semi- or fully dependent, compared with slightly less than two out of every four old men.

Who is the main source of financial support for the financially dependent or semi-dependent elderly? Figure 6 indicates that about 89% of financially semi- dependent and dependent people are in the care of their children. Although many family members may share caregiving tasks, the first sons and daughters-in-law tend to occupy the position of primary financial supporter for the elderly more often than other children (56% of the first sons and daughters-in-law, compared with

23% of other sons and daughters-in-law or 10 % of daughters and sons-in-law). About 9 percent of financially dependent or semi-dependent elderly receive support from government or social services.

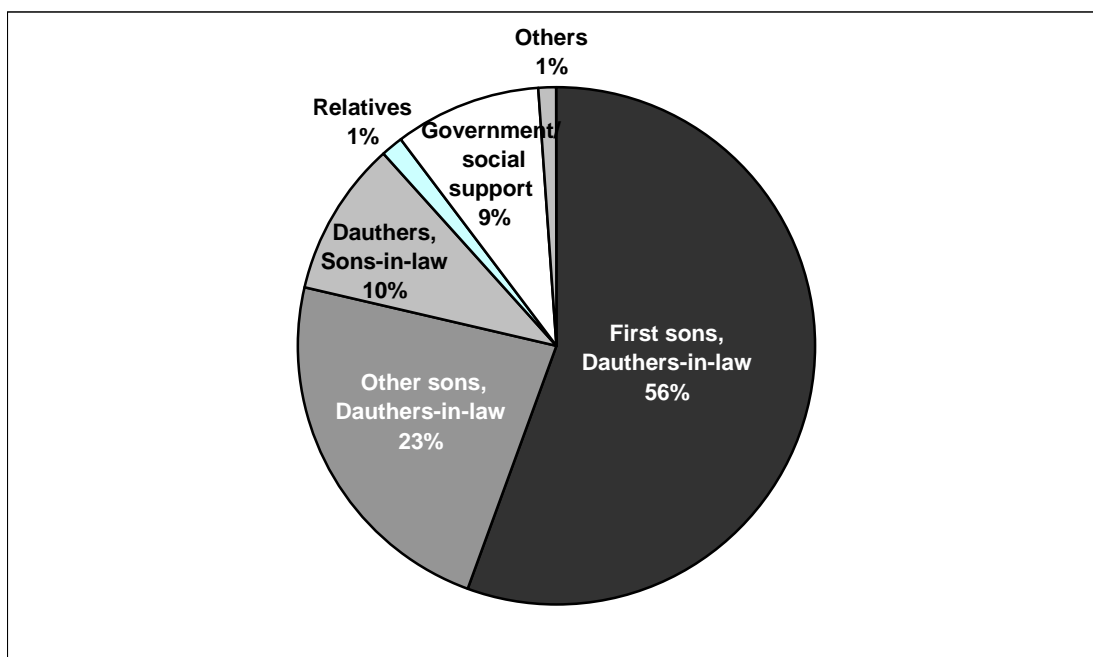
**Table 3. Types of Financial Dependency by Sex and Age Among Elderly Korean, 2000**

<b>Ages</b>	<b>Independent</b>	<b>Semi-dependent</b>	<b>Fully dependent</b>
Total	32.5	45.4	22.0
Sex			
Male	48.0	37.1	14.8
Female	23.0	50.6	26.4
Age			
65-69	47.7	37.6	14.7
70-79	26.4	49.2	24.4
80-89	8.9	56.0	35.0
90+	3.1	56.4	40.4

Source: KNSO(2001a).

These results indicate that compared with other western societies, the financial well-being of many Korean elderly is closely tied to their children and other forms of social and government support were very limited. Children have been responsible for providing health care and economic support to their old parents. However, along with rapid modernization, growing nuclear families and individualism have weakened the traditional strong family support system for the elderly. Since there is a growing recognition of the need to develop a comprehensive public system for elderly care , the role of the government and social supports for the well-being of older Koreans may have to be expanded in the future.

**Figure 6. The Main Source of Financial Support for Elderly by Sex and Age, 2000**



Source: KNSO(2001a).

Only small a portion of elderly Koreans report difficulty with everyday activities such as limitations to get out side and problems with walking and bathing. In the Census 2000, 7.4 percent of respondents age 65 or older said that they had limitations with in-door and/or out-door daily activities. The data showed that the need for personal assistance with every day activities substanitally increases with age. The proprotion requiring personal assistance ranged from 3.3 percent for those 65 to 69 years old, to 19.4 percent for those 80 to 89 years old. Women were slightly more likely to need assistance than men: 8.4 percent of women needed help, compared with 6.4 percent of men reporting difficulties with activities. Since people will be living longer than ever, the relationship between the years gained in their later life and the age-related disabilities will become a more important issue in the future.

## 5. Projections by Altering Levels of Fertility, Mortality, and Migration

What does the current population trend suggest about the Korean elderly population in the next decades? Population ageing is common to all modern societies and the growth in the number and proportion of older persons seems to be an irreversible phenomenon in the near future. However, how much and how fast? Population projections are based on the future rates of three demographic variables that assumed to follow historical patterns and trends. Answering the above question requires a look at the effects of altering levels of fertility, mortality, and migration on the population ageing in Korea.

This study examines the relative importance of varying levels of each demographic variable on population ageing. Six projection scenarios which assume the same set of two demographic variables but differ in its level of the other variable are presented.

### *Basic projection*

The official projections in 2001 made by KNSO are used as a basic projection in this study

and all projections are followed by the KNSO's projection methodology (see more detail KNSO, 2003b). The population projection based on the component method by using the 2000 census population as the starting point of the projection. This method looks first at five essential components of population change: base population, future survival rate, future fertility rate, future sex ratio at birth, and future international migration rate.

The basic projection is based on the following assumptions.

- As for the sex ratio at birth is 110.2 males per 100 females in 2000, gradually declined as 106.0 in 2025, and remains consistent from 2026 onward.
- The TFR falls from 1.47 children per woman in 2000 to 1.40 children per woman by 2035. After this, fertility remains constant.
- The life expectancy at birth, 75.87 years for both sexes (72.06 years for males and 79.50 years for females) in the year 2000, is expected to extend to 83.02 years for both sexes (79.95 years for males and 86.24 years for females) in 2050.
- For the past trend of international migration, the age-specific net (entries minus exits) number of international migrants by sex was assumed a continuation of 1995-2000 number as -23,350. It means that the number of Korean departures had exceeded that of arrivals from over-sea countries.

According to the basic projection, the population is expected to gradually increase in subsequent years since 2000, the total population of Korea will be, reaching its peak of 50.6 million in 2023, drop to the current size by 2040, then decrease to about 44.3 million in 2050. By 2010, there will be about 5 million older persons, about one in every ten Koreans. This growth will fast somewhat during 2020s, because of the nearly 7million baby boom cohorts move toward the elderly life stage. By 2030, there will be about 11.6 million old persons, more than one of every five Koreans. The older population will reach 15.2 million or 34.4 percent of total population.

### ***Altering assumptions***

To examine the effects of differing levels of fertility, mortality, and migration assumptions on the ageing population, six different projections are presented. In the third column in Table 1, two fertility assumptions are compiled. In the low variant projection, the TFR falls to 1.1 children per women between 2000 and 2035 and remains at that level then. In the high variant projection, the TFR increases to 1.8 until 2035 and then remains constant.

By 2050, the life expectancy at birth (LEB) for both sexes will amount to approximately 5.3 years (81.1 years) in the low variant, while it will be 9.1 years in the high variant.

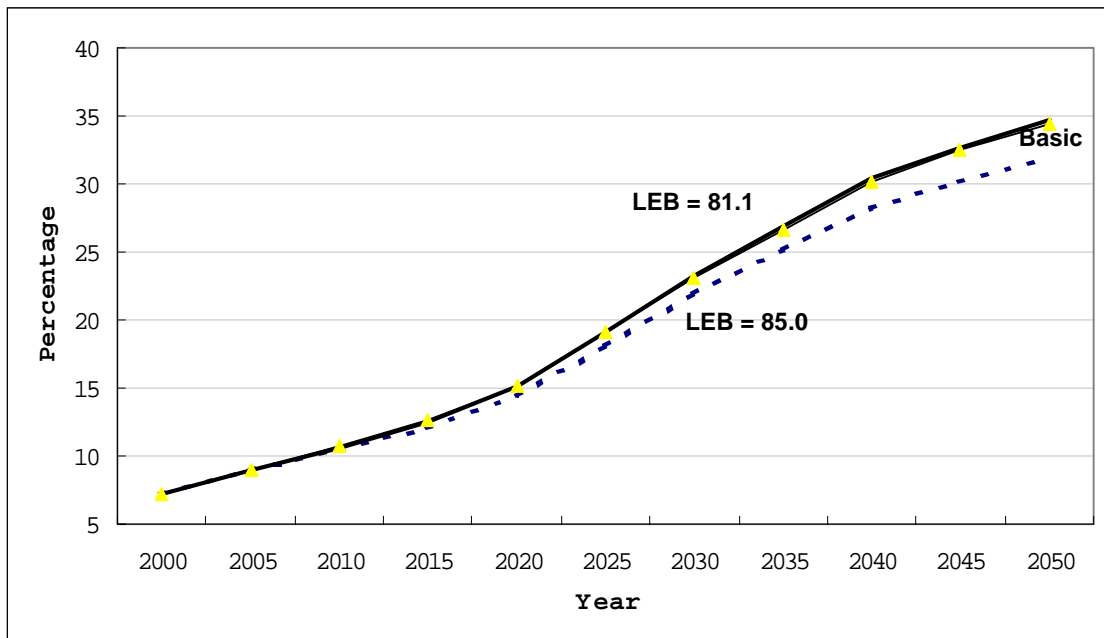
As far as international migration is concerned, two variants of net emigration have been considered. In the low variant, by 2010 net number of migrants (NNM) will accumulate to reach a volume of 11,675, which is one-half of the 1995-2000 number, and then remain constant. In the high variant, net emigration will reach 46,700 which is twice that of the 1995-2000 number, in 2010 and then remain constant.

### ***Results***

Figure 7 to 9 represent how varying levels of fertility, mortality, and migration may contribute to the change in the proportions of the population that would be aged 65 years and over. Figures indicates that substantial ageing of the population will occur over the next 50 years whatever the levels of fertility, mortality, and migration.

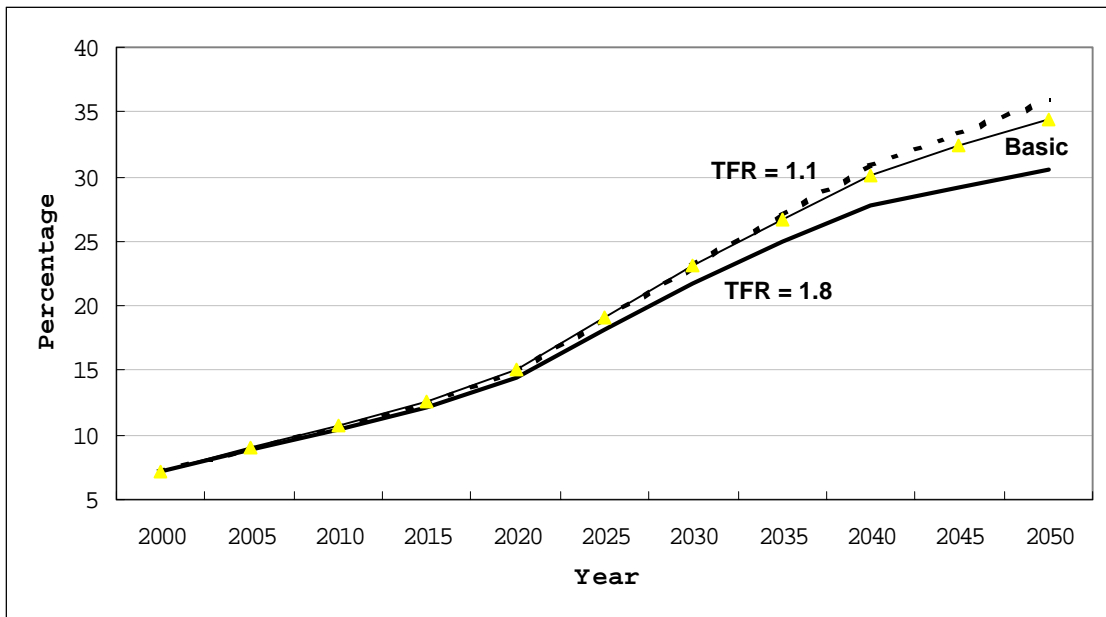
During the first quarter of the 21<sup>st</sup> century, when compared with the difference in ageing effects of the high variant projection and the low variant within a variable, the altering level of increasing life expectancy makes the largest variance in the aging trend (see Figure 7). Within three decades, a difference of 1.3 points is seen between the low variant projection in 2030 (21.9%) and the high variant (23.2%).

**Figure 7. Projected Population of the Aged 65 and Over by Mortality Variants, 2000-2050**

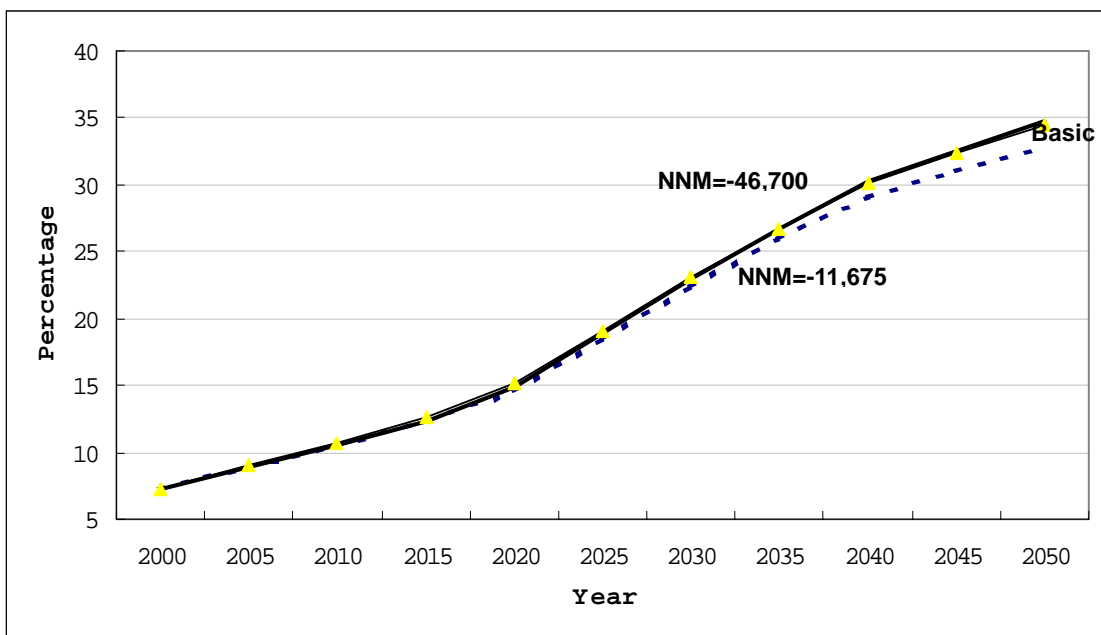


After the early three decades, the largest variance is made by differing levels of fertility. A difference of 2 points is seen between the low variant projection in 2035 (27.0%) and the high variant projection during the same period (25.0%). This difference shows the impact that the future fertility rate has on aging. The difference in the aging level grows wider as the years go by, and in 2050 the high variant is 30.5%, whereas the low variant is 35.9%, the difference being 5.4 points. Hence, the longstanding low fertility rate in society has a relatively strong effect on the level of the ageing population during the second half of this century.

**Figure 8. Projected Population of the Aged 65 and Over by Fertility Variants, 2000-2050**



*Figure 9. Projected Population of the Aged 65 and Over by Migration Variants, 2000-2050*



The migration variable produces the lowest variance for the percentage of old population. The variance does not differ significantly for the next thirty years, but after then it becomes substantial and finally makes a difference of 2.0 points. Since migration is primarily a matter of policy concern rather than other socio-demographical forces, the amount and the pattern of international migration are difficult to measure and hard to predict. However, Korea would need to consider international migration as an agent of demographic change as well as economic and political.

## 6. Conclusion

This study examined changes in Korean age and sex structure over the past 30 years,

analyzed the various demographic profiles of elderly population based on the censuses, and assessed how fertility, mortality, and migration will play a determinant role in increasing age 65 or older Koreans in next five decades. .

The rapidly declining fertility and improving health of adults in Korea during the past years have also set the scene for a remarkable increase in the elderly population. The tempo of ageing in Korea has been more rapid than in any other developed countries and it will accelerate. According to censuses, the elderly in 2000 had quite different experiences than their counterparts in 1970: they would be living longer than ever, more lived with their spouses, and more worked in the labor force.

The Census 2000 tried to assess the structure of elderly dependency at different aspects: geographical proximity to children, the type of financial dependency, the main financial supporter, and the limitation of everyday activities. Results showed that the well-being of elderly Koreans was closely tied to their children. Families are still the main source of personal care and financial support for the Korean elderly, even though the tradition of family support for the elderly has weakened somewhat over times.

The future is partially predictable in the outlines of its current age and sex profile and the expected trend of the three variables (fertility, mortality, and migration). What did several population projection scenarios in this study suggest about the future 65+ population in Korea? The major findings in this study have shown that substantial ageing of the population will occur over the next 50 years whatever the levels of fertility, mortality, and migration. Surging old population, attributable to the increasing longevity and continuing low fertility combined with the increase in young emigrants, will age the population more rapidly than ever before.

However, the critical impacts of three demographic variables on population ageing vary by time. The variance in population ageing made by differing levels of life expectancy will be greater than any other demographic variables in the next 25 years, but beyond that time, the differences between fertility levels will begin to be the most dominant factor influencing population ageing in the second half of this century.

Finally, although this is a theoretical exercise, all simulations suggest that the population of Korea will not experience significant growth anymore, because the Korean old age structures and extremely low fertility rates have set the stage for depopulation. Anticipated changes in both extents and characters of age 65 + population in Korea (the entry of baby boomers into old age and the growing diversity within the elderly population) will have unprecedented implications for family, health, workplace, and the economy in the future. The government has showed concern for this low fertility and population ageing situation, but policy makers need to learn more about the consequences of current demographic processes and guard against the negative effects of future population growth and change.

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