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Korea's Rapid Population Aging: Impact and Policy Suggestions

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I. Introduction

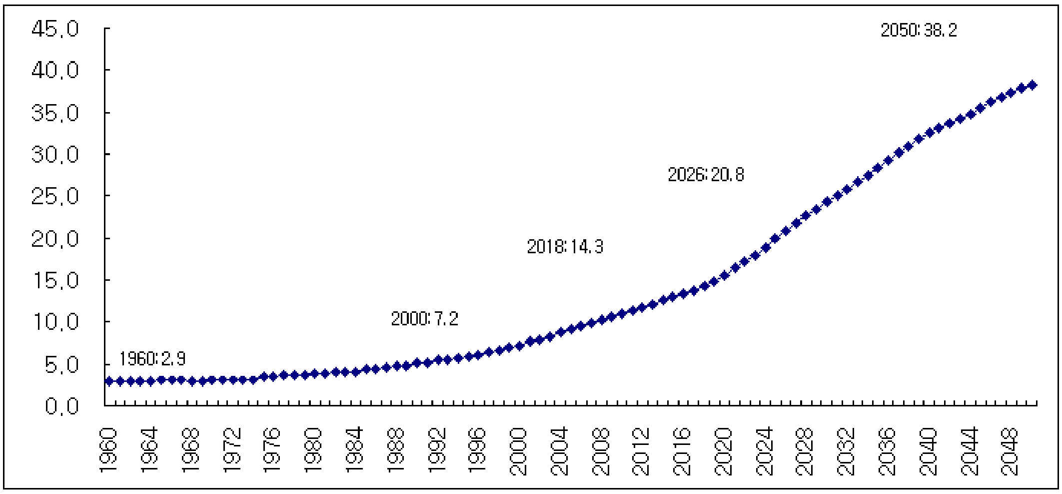
Korea is the fastest aging nation in the world – and the pace shows no signs of changing soon. Within the next 10 years, it is set to progress from its current “aging society” classification (7% of population aged 65 or older) to “aged” one, when the national population is expected to peak at 49.34 million. And in 2026, Korean society will become “super aged.” At each stage, the share of the population aged 65 or older will progress to 14.3% in 2018 and then 20.8% in 2026. Barring a major reversal, 38% of the population will be senior citizens in 2050. No nation in the past or in the projected future will have aged as fast as Korea.

The demographic transformation, as seen in aging industrialized nations, is due to a combination of low fertility rate and longer life spans. In 1960, the average Korean woman gave birth to six children and the nation’s population was 25 million with 3% annual growth. The government, figuring that the high birth rate combined with rising longevity would be a drag on economic growth, vigorously promoted the nationwide birth control as the nation tried to catch up to the rest of the world. In 1983, the birthrate had fallen to 2.1, which is the “replacement rate” needed to prevent population shrinkage. From there, the birthrate hovered between 1.5 and 1.7 until the mid-1990s, when it resumed its sharp drop. In 2006, the birthrate was 1.13, the lowest level of any country.

The nation’s total population is expected to peak at 49.34 million people in 2018 Thereafter, the nation’s total population is likely to have zero or negative growth, falling 14% to 42 million people in 2050 (20.73 million men and 21.61 million women), when population growth is projected at minus 1.1%.

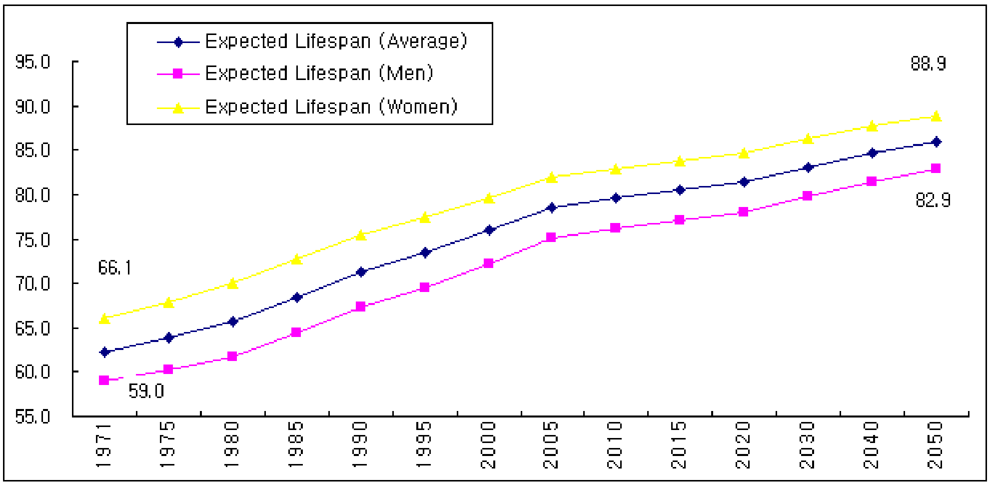
Naturally, the percentage of children aged 14 and under has plummeted since 1960, when it was 42.3%, amid Korea’s short postwar baby boomer era (1955-63). The estimate for 2020 is 12.4% and then 8.9% in 2050.

Figure 1. Trajectory of the Share of People 65 and Over Among the Total Population



The leap in life spans has been no less astonishing as the speed in which the birth rate fell. Between 1971 and 2005, the average lifespan jumped 16 years to 78.6. Looking back to the end of the Korean War, it has risen nearly 30 years, the result of better healthcare, nutrition and sanitation as Korea transformed itself into the 11th largest economy in the world. By 2050, the average longevity is expected to be 86.0, with men at 82.9 and women at 88.9.

Figure 2. Trajectory of Expected Lifespan and Outlook



Source: National Statistical Office, KOSIS DB

Aging of the population is commonly seen in industrialized countries, along with declines in fertility and a rise in the average lifespan resulting from improvements in nutrition and health care. A large number of industrialized countries have already become "aged societies," where the elderly account for more than 14% of the total population. Given such circumstances, population aging may not be a crisis per se.

What makes Korea's aging process is its rapid pace, which magnifies the potential negative effects and the urgency to prepare for them. It took France 154 years to move from "aging society" status as defined by the United Nations to "aged society" (at least 14% of the national population 65 or older). The US will do it in 73 years. Japan, which held as symbol of a rapidly aging nation, did it in 24 years. Korea will do it in 18 years. Moreover, Korea will transform from being an "aged society" to a "super-aged" one just eight years later, or two to four times faster than US and West European nations.

Table 1. Pace of Aging by Country

Classification	Year reached			Years spent	
	7%	14%	20%	7%→14%	14%→20%
Japan	1970	1994	2006	24	12
France	1864	1979	2018	115	39
Germany	1932	1972	2009	40	37
Italy	1927	1988	2006	61	18
US	1942	2015	2036	73	21
Korea	2000	2018	2026	18	8

Source: National Statistics Office, Estimates on the Population of the Future, November 2006

Presently, the Korean government is busy with countermeasures aimed at boosting the fertility rate up to at least the average OECD level of 1.6 by 2020. To achieve goals of major programs adopted in 2005 and 2006, the government earmarked about 32 trillion won for 2006 through 2010. However, there is no quick panacea.

Obviously, the rapidly aging population raises a host of fundamental concerns about the economic future of Korea. This paper looks at the economic impact of the population aging and what the private and public sectors should do to buffer against the negative effects. Particular attention is paid on labor policies and public retirement plans and health care.

II. Macroeconomic effects of population aging

1. Workforce shrinkage

The absolute shrinkage of the gross population aside (which is estimated to peak at 49.84 million in 2018 into a decline thereafter), the most pressing issue is the share of the elderly in the Korea. Within the next ten years, the proportion of those 65 and over will exceed that of children 15 years old and under. In 2050, the estimated proportion of elderly will be 38% of the Korean population from less than 10% in 2006. This means that the decline in the economically productive population will outpace the decline in the overall population.

Table 2. Estimated Change in Population and Aging of the Population (2000-2050)

	2000	2005	2010	2020	2030	2050
Population Total (Unit: 1,000 people)	47,008	48,138	48,875	49,326	48,635	42,343
Share of young population	21.1	19.2	16.2	12.4	11.4	8.9
Share of aged population	7.2	9.1	11.0	15.6	24.3	38.2

Note: The share of young population refers to the population aged 0 to 15, while the aged population refers to those aged over 65.

Source: National Statistics Office, Estimates on the Population of the Future, November 2006

A decline in population will also lead directly to a decline in the number of working-age population, together with the aging of his population per se. The number of working-age population (those aged 15 to 65) is forecast to fall to 22.42 million people in 2050, after peaking at 36.19 million people in 2016. Among them, the share for people aged 25 to 49 is expected to slide on a gradual basis to 44.4% in 2050 after peaking at 59.6% in 2005. In contrast, the share of people 50 and over will increase to 40.9% in 2050 from 20.5% in 2005. In other words, six out of 10 economically productive people are in the 25-49 age group, with only two over 50 as of 2005. In 2050, however, only 4.4 out of 10 economically productive people will be aged from 25 to 49, while 4.1 will be over 50. As shown in Table 3, the gap between the two age groups will narrow faster as time goes by, indicating that the aging of the economically productive population will accelerate.

Table 3. Estimates on the Change in Structure of the Working-Age Population (2000-2050)

	2000	2005	2010	2020	2030	2050
Total (1,000 people)	33,702	34,530	35,611	35,506	31,299	22,424
Share of the 15-24 aged people (%)	22.8	19.9	18.3	15.6	13.1	14.7
Share of the 25-49 aged people (%)	58.8	59.6	56.7	50.9	49.5	44.4
Share of the 50-64 aged people (%)	18.4	20.5	25.0	33.5	37.4	40.9

Note: The share of each age population is calculated based on the economically productive population

Source: National Statistical Office, Estimates on the Population of the Future, November 2006

2. Decreasing consumption and investment

1) Contraction in consumption and investment

Population aging is likely to bring about a contraction in both consumption and investment. Over the lifetime of an individual, personal consumption growth is likely to decline by 2% points per year due to the extension of the average lifespan.

Moreover, gross savings are also likely to fall. It is because that despite a 0.8% increase in savings per year of additional expected lifespan, the savings rates of both the elderly and the young are far below that of the economically productive. Indeed, it has been suggested commonly in various studies that population aging leads to a decline in the gross savings rate.[1]

Furthermore, government deficits are expected to widen further due to increased financial burdens from pensions and medical insurance systems, leading to a further plunge in real net savings. Along with the increase in cost factors like employee pensions and increases in wages for elderly workers, businesses are likely to reduce R&D and investments, while the decline in the gross savings rate will also prompt a decline in corporate investments.

2) "Silver market" emergence

Amidst a rapid change in demographic structure, a string of new niche markets are likely to emerge, with a variety of new products tailored for "senior citizens." Most of all, one noticeable trend is that senior consumers appear to appreciate higher-priced goods more than their younger counterparts. Accordingly, high-priced, health-related products are already enjoying rising popularity. In TVs, the demand for large LCD and plasma displays is growing at a rapid pace. Even in the category of foods like rice, fishery, and meats, organic products are setting the pace in the high-end food market. As consumers drift toward these high-end markets, they're likely to become a more vivid phenomenon in the future.

Markets for housing & construction materials and furniture will also expand. An increasing number of elderly people will spend more to buy houses in rural areas and to remodel their old houses after retiring, thus contributing to increasing demand for construction materials and furniture. The service industry is likely to benefit more than the manufacturing industry. Among services that are enjoying rising demand from the silver generation are long-term nursing services, medical services, "life care" services, leisure and entertainment, and personal financial services.

Furthermore, as medical costs increase from the hike in the senior population, generic drugs will also emerge as a promising new industry. Generic drugs offer a cost saving of up to 50% compared to original products with expired patents. Besides, the government is already encouraging the development of generic drugs to help individuals cope with medical inflation. Given that generic drugs account for about 50% of the drug market of the US and Europe, the share of generic drugs in Korea is expected to grow at a robust pace in the future.

[1] Cutler et al. (1990), Hurd (1993), Lee et al. (2000)

3. Reduced potential growth rate

The change in demographic transformation will influence the whole spectrum of society by altering the economic behaviors engaged in by each age group. The "life cycle" hypothesis holds that children and juveniles need intensive investment for health and education, while adults in the economically productive age group supply labor and savings. The elderly, on the other hand, need medical insurance and pension incomes. As such, each age group exhibits different patterns of income and consumption. The decline in the economically productive population accordingly leads directly to a drop in labor inputs, thus slowing down economic growth. The hike in the share of the dependent population, on the other hand, increases the burden for breadwinners, thus leading to a decline in overall savings, and hampering capital accumulation and growth.

Kim Ki-ho[2], an economist at the Bank of Korea's Institute for Monetary and Economic Research, predicted that the nation's economic growth rate is likely to average around 2% from 2030-2050, when the aging of the population will proceed rapidly. This is much lower than the 5% recorded in 2000-2005.

Table 4. Estimates on Economic Growth Trends (2006-2050)

2006-2010	2011-2020	2021-2030	2031-2040	2041-2050	2006-2050
4.12	3.43	3.33	2.64	1.45	2.87

Source: Kim Ki-ho, "Impact of Population Aging on Economic Growth," Institute for Monetary and Economic Research, Bank of Korea, 2005

The decline in fertility rates will have a direct influence on slowing down growth in both the size of the economically productive population and the number of employed workers. This will play a key role in slowing down the nation's economic growth. Moreover, the change in demographic structure, another symptom of population aging, will also have a substantial influence on the average human capital of employed workers. In addition, the increase in the share of the dependent population will lead to a decline in savings, thus contributing to slowing down the speed of capital accumulation and weakening growth potential.[3]

4. Impact on the housing market

The full-scale advent of the era of the "aged society" will be felt particularly in housing. Over the long term, an aging population can be a factor in lowering demand and prices in the traditional housing market. However, deaths of spouses, divorces and more and more sparse number of parents living with their children will produce the need for housing complexes for senior communities and single-person units for the elderly.

Among the elderly, income polarization is expected to grow as the owners of high-

[2] Kim Ki-ho, "Impact of Population Aging on Economic Growth," Institute for Monetary and Economic Research, Bank of Korea, 2005

[3] Moon Hyung-ho et al, "Population Aging and Macroeconomy," Korea Development Institute

priced homes without any income may have no option but to move to cheaper areas in order to avoid Korea's high property taxes of up to 3% of house market value. In particular, in consideration of the insufficient scope and coverage of the social safety net, coupled with a possible decline in family support, the issue of whether the elderly can achieve a stable residence and standard of living will depend on their usage of things like "reverse mortgage systems." The reverse mortgage system was introduced in 2007. However, its popularity has been weak overall.

III. Effects on the financial market

1. Impact on financial assets

How will financial assets change as Korean society ages? It is unlikely that there will be any drastic contraction of the financial asset market at least until 2018.[4] This estimate is based on the comparatively low share of financial assets (i.e. stocks, bonds etc.) in Korean individuals' total asset portfolios, as well as the likelihood that the share of such assets will grow at only a modest pace for the time being. At present, financial asset holders tend to increase their share of financial assets after turning 50, supporting the general trend of people's investing in stocks and bonds only after purchasing homes.

Asset demand, however, is forecast to decline on a gradual basis from 2020. In the initial stages of population aging, the overall size of the asset market tends to expand as the weight of retirement-aged people selling assets for consumption expenditure is smaller than that of young and middle-aged people opting to accumulate assets for their retirement life. With populating aging accelerating, however, the size of the asset market will contract as the weight of retirement-aged people exceeds that of young and middle-aged people. In particular, as the mortgage market develops, people may use only some of their assets to purchase homes, while holding the remainder in the form of financial assets. In this case, the elderly may have a higher share of financial assets even before their actual retirement. If they start reducing their portfolio of financial assets after retirement, the contraction of the financial asset market will proceed at a faster rate.

2. Polarization of financial assets

The aging of the population is generally accompanied by an increase in the number of wealthy senior citizens. The general asset accumulation trends for Koreans also show that individuals' total assets increase until they reach their 50's.

Since the 1997 financial crisis, however, asset polarization between the rich and the poor has widened. In 2006, 85.7% of elderly parents of households with less than 1 million won in monthly earnings lived separately from their offspring.[5]

To prevent income polarization from escalating, a virtuous circle needs to be

[4] Considering the current demographic structure, a drastic change in the asset market is expected to begin from 2020 when the baby boomer generation, or the current economically productive population, will retire. For more details, see the Financial Research Vol. 19, "The Response of the Financial Sector to the Population Aging" written by Choi Kong-Phil et al. (2005).

[5] National Statistical Office (2006), Social Statistics Survey in 2006

established, in which economic growth leads to the creation of more jobs, and eventually, hikes in individual earnings. With the era of double-digit economic growth in Korea now only a memory, income polarization is expected to continue.

3. Impact on real assets

Housing demand is likely to continue to increase mainly due to the increase in middle-aged people in their 40's-50's, the age group with the strongest influence on housing demand. But the housing demand is likely to take a downturn from 2025. Given that the nation's housing distribution rate has already exceeded 100% (102.2% as of the end of 2004), we can safely say that housing supply/demand is balanced from the national perspective. However, when compared with industrialized countries where homeownership is at 400 homes per 1,000 people, Korea lags behind with 290 homes per 1,000, indicating that housing is still undersupplied.[6]

All these mean that discrepancies will continue to persist between housing supply and demand according to region and housing type. Housing will continue to fall short of demand in areas that are positioned at the central axis of development and that are equipped with a sound educational and cultural environment. In contrast, supply will exceed demand in less-developed areas with a poor educational and cultural environment.

Meanwhile, the share of 1-2 member households among the total population is forecast to exceed 40% in 2018 when Korea is likely to become an aged society, indicating that the demand for small-sized homes will increase. Accordingly, the development of new housing targeting 1-2 member households is expected to be further encouraged, including newer forms of housing like serviced residences [7]and small-but-high-end homes.[8]

4. Expansion of new markets

1) Asset management services

Elderly people tend to allow financial experts handle their assets rather than attempt to do it themselves. In Korea, financial institutions like banks, securities firms and insurance companies have been offering private banking services targeted towards VIP clients since 2002. The second round of asset management service competition among financial institutions will take place in 2009 when the "Capital Market Consolidation Law" removes many limitations on the type of services that financial institutions may offer. In short, the industry paradigm will shift to a "negative system" and "positive system,"[9] thereby contributing to facilitating the development

[6] Lee Keon-Young et al., "How to Solve Housing Problems", October 2005

[7] "Serviced residences" refers to housing that combines the strengths of hotel service and residential homes

[8] Kwon Oh-Hyeon and Choi Min-Soo (2004) 「Mid- and Long-Term Market Outlook by Construction Product」, The Construction & Economy Research Institute of Korea

[9] A "positive system" refers to enumerating the kinds of businesses a financial institution can legally pursue. The addition of a new financial business is feasible only after having it listed legally or garnering approval from the financial authorities concerned.

of a more diverse range of financial products.

Banks in general, are expected to specialize in comprehensive asset management services like inheritance, gift and tax savings plans targeting wealthy people who are relatively conservative and tend to pursue stability. Securities firms and asset management companies, however, are expected to focus on more active investors with expanded portfolio services. Large insurance companies are likely to offer asset management services based on the concept of “life cycles,” placing emphasis on providing lifelong services for long-term asset allocation and a better life in old age.

2) Reverse mortgages

The reverse mortgage market, although not active yet, has a bright future since demand is already sufficient. This is all the more relevant in light of the fact that incomes show a declining tendency after people turn 50, meaning that the senior citizens are squeezed as they are more aged. The incomes of single member households in particular decline when their age exceeds 40 and plummet when they reach their 60s.

There is thus an increasing need for new financial products that can provide liquidity to people.

IV. Effects on corporate management

1. Aging of the population: New business opportunities

The “senior industry” or “silver industry” refers to industries which provide goods and services to seniors according to market principles. These businesses specialize in catering to the health, convenience, and safety needs of elderly and middle-aged people in contrast to non-profit welfare activities offered by the government or civil organizations to disadvantaged or socially marginal groups.

The baby boomer generation, or those born after 1953, will be Korea’s first generation who has to prepare for old age.[10] They play a pacesetting role in today’s consumer market and will be the first generation to receive retirement pensions – state-run or private - after retirement. Given that the first baby boomers will start retiring from 2010, it will be a milestone year for the establishment of the foundation for senior market. The baby boomer generation presently accounts for about 21% of the nation’s total population. Baby boomers will start retiring from 2010 and form a huge market for the silver industry in 2020, playing a key role in the expansion and development of industries. Under these circumstances, the nation’s silver industry is expected to start blossoming within the next 2-3 years. The size of the silver industry stood at roughly 6.4 trillion won in 2002, growing to 31 trillion won in 2010, and 116 trillion won in 2020.

2. Human resources management

[10] The Presidential Advisory Committee on Population Aging and the Future Society (2005)

1) Aging of employees

The aging of the overall population has inevitably been accompanied by the aging of employees. Since the 1980s, the weight of workers in their 20s has declined with those in their 30s and older have climbed gradually. In 2005, the average age of an employee was 37.7 compared to 34.3 in 1993. During that period, the weight of workers in their 40's in particular jumped by about 10 percentage points to 38.2% from 28.3%. The weight of workers aged 50 and above increased by 3.4 percentage points to 14.2% from 10.8%.

Although the average age of workers in large companies is still lower than in SMEs, large companies are showing faster growth in the weight of elderly workers, indicating that large companies may feel the aging of employees more keenly than SMEs. The weight of workers aged 50 and over in SMEs hiring 100 to 299 employees, for example, stood at 16.2% in 2005, higher than the 10.8% recorded in businesses hiring more than 500 employees. However, compared to the 1993 level, large businesses saw 66% growth in their number of senior workers aged over 50, far higher than SMEs' 40%. If one includes workers in their 40's, the gap will widen even further. Large businesses saw 44.5% growth in the number of workers over 40 during the same period, while SMEs registered only 3.9% growth in this demographic.

2) Companies' adjustments to workforce changes

Traditionally, Korean companies base salaries on seniority and have a mandatory retirement age of around 55. But in handling older employees who wish to continue working past mandatory retirement a majority of surveyed companies use a merit-based wage system. In addition, an increasing number of companies are showing interest in a peak wage system. In the former, senior employees continue working past company retirement age and are paid based on hours and output. In the latter, senior employees' peak salary is reduced each year they continue to work past retirement age.

About 10% of the respondents have already adopted a system of rehiring the retired, while 12.6% of the repliers plan to introduce the system sooner or later. This indicates that businesses are looking for ways to alleviate the aging of employees on one hand, while actively hiring elderly workers on the other hand. Roughly 30% of the respondents have already adopted or are preparing to adopt a lifelong e-learning system.

V. Effects on the social security system

1. Effects on the National Pension Fund

1) Overview of the National Pension scheme

The national pension of Korea is a defined benefit plan that is supported by employee contributions and investment returns from accumulated funds. Under the scheme, launched in 1988 and revised in 1999, everyone aged 18 to 60 (except those in occupational pension plans like civil servants, soldiers, and private school teachers) must pay pension premiums.

The annual contribution is 9% of a worker's income. Employers must pay half of the employee's pension premium. Pension benefits are determined by the insured's income before retirement, the average income of all the insured, and total pension premiums received. Benefits are relatively high for those with low income, and for those who have paid premiums for a long time, but benefits remain the same for those who have been insured for more than 40 years.

Retirees aged 60 and over without any particular income[11] can receive full pension payments if they have contributed to the fund for more than 20 years, and part of their benefits if they have paid for more than 10 years but less than 20 years.

National Pension benefits are paid by the National Pension Fund which collects, accumulates and invests the pension premiums. After benefits are paid to recipients from the premiums received that year and the investment earnings, the rest is reserved in the National Pension Fund. The national pension fund is invested according to decisions made by the National Pension Fund Operation Committee. Up to late 2005, about 156.3 trillion won (19.4% of GDP) had been accumulated at the National Pension Fund, out of which 90.7% was invested in bonds and 8.0% was invested in stocks[12].

2) National Pension's funding issues

In 2005, the premium revenue of the National Pension were 18.5 trillion, far above the 3.6 trillion in benefit payments. This will be the case until the end of the 2020s, when the National Pension Fund will start to come under a heavy financial burden. By 2060, the Pension fund is expected to run out. This gloomy future for the National Pension is largely due to population aging and inadequate structure of the pension plan which imposes low premiums while providing high benefits. Due to the rapidly aging population, the demographic structure is threatening future financial solvency. After 2020, beneficiaries will outnumber payers by 20%.

3) Senior poverty

As of 2002, 9.27% (absolute poverty rate) of the elderly aged 60 and over were living on less than the minimum cost of living, while 17.35%(relative poverty rate) were living on less than 50% of the middle income level.

These figures are higher than the absolute poverty rate (8.23%) and the relative poverty rate (15.88%) in 1997 before the financial crisis hit the nation. In other age groups, absolute poverty and relative poverty are returning to pre-1997 levels, indicating that senior poverty has become more serious after the currency crisis[13].

Korea faces unique problems in that its elderly have aged with little preparation for such changes. Without government intervention, the senior poverty problem will not be appreciably lessened. Senior citizens' participation in the labor market is limited, and few people are using private pensions with which they can secure income for

[11] The insured aged between 60 and 64 who have paid pension premiums for more than 10 years can still receive 50~90% of their benefits even if they have income.
[12] Source: National Fund Service homepage (http://www.nps4u.or.kr/fund/)
[13] Choi Hyun-Soo, Ryu Yeon-Gyu, (2003), pp. 149-150, Chart 1, Chart 2

post-retirement life (corporate retirement pension was not introduced until 2005). As families become smaller in size, the traditional role of the family in senior welfare is diminishing as well.

2. Impact of aging on the National Health Insurance

1) Korea's health insurance scheme

Korea's medical service mostly depends on private medical service providers[14]. There are no restrictions on choice of medical institution to visit or the number of visits. However, Korea's national health insurance covers only the essential medical services. Other medical treatment not covered by the health insurance is priced in the market competition among medical service providers.

Korea's medical insurance is composed of two insurance plans; National Health Insurance (NHI) and the Medical Aid Program (MAP). All Korean citizens are covered by the NHI. National Health Insurance is a form of social insurance in which people pay 4.48% of their income as an insurance premium while the insurance covers 50-80% of medical expenditures of the insured.

The Medical Aid Program is a health care assistance plan for low-income earners. There are two classes in this program; Class 1 and Class 2. People in Class 1 are defined by the National Basic Livelihood Security Law[15] and are exempt from insurance premium payments. Class 2 includes people other than Class 1 who cannot afford all the medical expenses. Medical expenses for Class 1 are all covered by the government. In the case of Class 2, except for a minimum deductible that people have to pay, the rest is provided by the central (80%) and local governments (20%).

2) National Health Insurance's funding issues

The proportion of health insurance benefits to the elderly has risen from 19.3% to 24.4% over the same period. Insurance benefits for the elderly rose by an annual average of 18.8% between 2003 and 2005, which is the major cause for the 12.7% annual increase in health insurance expenses over the same period.

Premium revenue for National Health Insurance grew at an annualized rate of 15.7% between 2003 and 2005 as the government steadily raised insurance premiums. However, in the first half of 2006, premium revenue grew by only 10.7% compared to the first half of 2005, with health insurance running a deficit in the year[16]. Chart 5 shows the estimated health insurance benefits paid and insurance premiums collected, taking into account demographic changes while assuming that policy, medical technology, and market factors will remain unchanged. As seen in Chart 5-1, the financial burden of National Health Insurance will become more serious as the population ages.

[14] Medical institutes are prohibited from raising fund by issuing shares.

[15] Income assistance policy for the low-income class of Korea; households living on less than the minimum income set by law receive financial assistance after their income status is examined.

[16] National Health Insurance Corporation, "Health Insurance Finance Analysis in the first half of 2006," July 2006

Table 5. Prospects for Heath Insurance Finance in Light of Account Population Aging

(Unit: trillion won)

	Benefit Payment	Premium Revenues	Premium Revenues – Benefit Payment
2006	17.0	15.8	-1.2
2010	21.3	19.0	-2.3
2015	27.4	23.0	-4.4
2020	34.9	27.5	-7.4
2030	54.3	42.2	-12.0
2040	72.2	56.9	-15.3
2050	79.1	62.9	-16.2

The most urgent task remains the reduction of medical expenditures for senior citizens, particularly hospitalization and medication expenses. The result of a study on the livelihood of senior citizens nationwide and their welfare needs in 2004 show that 90.9% of the elderly aged 65 and over were suffering from more than one chronic illness, and 73.8%, from more than two chronic illnesses.[17] The same study done in 2005 found that 12.1%-14.8% were suffering from Alzheimer's disease or stroke requiring long-term care and assistance for personal needs[18]. Due to the frequent cases of chronic illness among the elderly, spending on hospitalization and medication is relatively high compared to other age groups. Medical treatment days per senior in 2005 were 284.2 days, 3.3 times that of the average person (86.8 days). Hospitalization days were 6.8, 3.7 times that of the average person (1.8 days).

The government has drafted two measures to slow medical costs related to the aging population. First, Long-term Care insurance for the elderly will be launched in July 2008 and is expected to separate hospitalization expenses for the elderly suffering from chronic illness from health insurance. Second, a Positive List System that selects cost-effective medicines was introduced in late 2006. This system is expected to lower expenditures not only for chronic illness treatments but for other treatments as well. The successful establishment of these two measure will somewhat lessen the financial burden of National Health Insurance due to population aging.

VI. Policy proposals

1. Macroeconomic policy

Productivity improvement is a prerequisite for the sustainable growth.

The most significant issue with respect to Korea's population aging is a decline in the nation's potential growth rate. The rapid loss of economically active people hinders productivity improvement, a prerequisite for growth. Since the population will consistently decrease and the productive population will continue to age, total

[17] Chung Kyung-Hee et al. (2005) Summary p. 23

[18] "Public Hearing on the Act to Guarantee Assistance for the Personal Needs of the Elderly," Ministry of Health and Welfare, September 15th 2005

factor productivity improvement must be the first priority. In addition, a slowdown in consumption growth and a decline in total savings caused by population aging will likely drag down potential growth.

Ways to maintain productivity improvement and subsequent economic growth thus needs to be a top priority. To do so, human resource quality must be, most of all, enhanced.

To enhance human resource quality, competitiveness of higher education must be strengthened. With about 80% of high school students going to college now, higher education, particularly, college education must be improved to enhance the overall quality of human resources. Although Korea's secondary education has proved competitive according to the Program for International Student Assessment of the OECD,[19] only three Korean colleges rank among the world's top 200 colleges, indicating that Korean colleges are not competitive.[20]

Accordingly, the government's far more active financial support is needed to be provided to colleges which try to make quality innovations. Currently, the government's support for higher education is the lowest among OECD member economies. The government should accordingly increase the public education budget to the level of industrialized countries while pursuing more effective resource distribution and stricter evaluation of performance. Also, colleges must seek to improve their curriculum and teaching systems, cooperate with the business community, and specialize themselves, taking into account social demand. Economic growth driven by the manufacturing sector will soon reveal its limitations due to a drop in the economically active population and population aging. Thus, service industry productivity improvement will be a major task in the future. In particular, Korea, which lacks productivity in its service sector, must prepare itself for population aging by making efforts to revitalize the service industry. Labor productivity in the overall service sector between 1996 and 2003 was 66.3% of that of the manufacturing sector, comparing very unfavorably with Japan where the same figure was 97.5%, and with the US where the value was 89.7%.

Over the same period, the proportion of value added and employment in the manufacturing sector and service industry was 21.7% and 70.3%, and 18.9% and 63.5%, respectively.[21] This shows that unless productivity and value added in the service sector, which takes a very large share of employment, improves, overall enhancement of productivity is simply not possible. In particular, promising industries like knowledge-based services, social services, and culture/tourism services, which have been traditionally weak, must be fostered.

Women, the elderly and foreign workers needed

In order to resolve the problem of decreasing numbers of economically active people, quantitative expansion of the economically active population is needed.

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[19] Korean students came in second after Finland on the academic skill test for 15 year olds conducted in 41 countries. OECD, *Programme for International Students Assessment : 2003, 2004*

[20] Seoul National University ranked 93rd, KAIST, 143rd, and Korea University, 184th. (*The Times Higher Education Supplement, 2005*)

[21] Korea Productivity Center, International Productivity Comparison, December 2005

Ways to fully leverage the participation of women, senior citizens, and foreign workers must be explored. Lessening the burden of child care for women while encouraging them to participate in economic activities will be the biggest challenge in leveraging the female labor force. Most women retire because of birth and childcare, and even when they come back to work, they mostly get jobs as temporary or short-term contract employees. Women have pointed out child care burdens (38.8%), social prejudice, and discriminatory practices and systems (22.8%) as obstacles for them to gaining employment[22]. Thus, family welfare policy such as expansion of child care support and facilities and extension of maternity leave will help encourage more women to participate in economic activities and have more children.

Full support for child care and guarantees of job security and stability are the necessary conditions for mobilizing more female talent. As in Norway and Denmark, an environment in which women's careers are not affected by childbirth should be created. Maternity leave and return to work after childbirth must be guaranteed not only legally (as is now) but also actually.

In the case of the aged population, conflicts will inevitably arise between companies' needs and senior citizens' desire to work. In order to deal with this issue, a network that helps coordinate demand and supply for senior workers needs to be built. The share of highly-educated people among the elderly is forecast to rise from 10.6% in 2000 to 38.7% in 2025. Currently, most elderly employees perform simple labor. The need for an appropriate allotment of human resources regardless of age is therefore becoming urgent. Accordingly, an infrastructure that supports the reemployment of middle-aged and older people should be established.

A so-called silver worknet that connects elderly job-seekers and employers should be run along with a training course for reemployment. A "peak wage system" is also an effective solution as it helps prevent companies from forcing older workers to retire while encouraging them to retain the employment of aged workers. If more older people work, the government can expect higher tax revenues, the National Pension Fund will be less pressured for adequate funding, and the younger generation will be free from the burden of supporting their parents' generation.

Finally, immigration policy should be revised. By acknowledging that immigration is crucial in terms of labor supply, policy measures to make this nation attractive to foreigners along with efforts to change Korean people's perspective on immigration are needed. If Koreans continue to treat foreigners in a hostile manner by insisting on "pure-blood nationalism," this will run counter to worldwide trends towards increased global interaction as well as serious demographic problems in the workforce. Accordingly, laws and regulators that hinder the movement and residence of foreigners in Korea should be revised. In particular, the prevailing practice of identity verification using resident registration numbers at banks, schools, and on the Internet functions as one of the biggest stumbling blocks to foreigners in performing economic activities in Korea. Other regulations, including the one that stipulates that the number of foreign workers at a manufacturing worksite must be fewer than half of the number of domestic workers, are overdue for abandonment.

[22] Korea National Statistical Office, Social Statistics Study Report of 2002.

The current short-term "industrial trainee" system should be changed into a long term work permit system to protect the basic human rights of foreign workers.

2. Financial policy

Regulatory changes needed for retirement savings methods

The government must anticipate the impact of population aging on the financial market, revise existing policies, and come up with new measures.

First, of course, the scale and scope of the capital market will need to be expanded. This will allow financial institutions to come up with a variety of financial products which have different holding periods and risks, providing more choices for consumers.

In the meantime, current home loans, which are mostly short-term loans, should be shifted to long-term mortgages. Mortgages can offer access to long-term home finance with low interest, while allowing financial institutions to resolve discrepancies between the time of fund raising and the operation thereof. Mortgage loans can be promoted in several ways; for example, payments on mortgage loans can be deductible from individuals' taxable income, or the government can provide partial guarantee to mortgage loans. The market for MBS or mortgage-backed-securities also needs to be expanded by encouraging both supply of and demand for long-term bonds.

Secondly, population aging must be taken into account in housing policy. Demand for housing, influenced by demographic changes, is expected to begin to drop after 2025. However, as the population ages, housing demand will be increasingly affected by the increase in nuclear families and one-person households. Accordingly, housing policy must consider the changing characteristics of households rather than just issues of supply. Demand for commercial and residential complexes with convenient facilities in urban areas will continuously increase, while demand for smaller residences and one-person households is also expected to rise. At the same time, specialized residences for the elderly must be seriously considered. Presently, residences for senior citizens are not being built, since their profitability is low vis-à-vis the investment required. However, given the rapidly aging population, demand for such residences is likely to greatly increase among middle-class senior citizens. Thus, local governments should play a leading part in building senior oriented residences and provide policy support for construction companies to participate in this market via tax incentives, etc.

Third, various financial products should be introduced and related laws should be streamlined so that people can prepare for their post-retirement life in accordance with their income and assets. Since elderly people with high income and assets have great demand for asset management, demand for tax consultations and estate planning services will likely increase. Related regulations will accordingly need to be loosened to allow the further development of the relevant financial products. Current human resources and financial products, however, have serious limitations in providing services that meet the needs of the middle and upper class. Middle class and lower-middle class retirees who have a house but no fixed income are likely to feel highly insecure about their future. To help relieve this insecurity, the authorities should devise ways to encourage consumption among the elderly through promotion of a “reverse mortgage” market. Developing reverse mortgage products targeted towards eligible homeowners, can induce more participation from people who have been heretofore reluctant to use bank loans due to perceived insecurity and risk. Finally, systemic support is needed for the low-income elderly in terms of social security. Low-income senior citizens are ill prepared for later life and are vulnerable to unemployment and illness, adding to the burden on the society and the nation. Accordingly, tax codes that pay (unpaid) tax returns to low income earners can help strengthen support for asset formation for the low-income elderly. Also, for physically vulnerable older people, low-cost residences for the elderly will need to be built.

3. Policy tasks for the National Pension System: Healthier finance

1) Reform of the National Pension System: Fewer benefits

It is inevitable that benefits will be cut in order to float on the national pension system. Cutbacks in benefits should be offset with personal and corporate retirement accounts. To encourage the spread of personal/ corporate retirement accounts, the national pension scheme should be restructured into a complete income-linked system. This will ensure that the national pension benefits do not exceed income from personal retirement accounts.

The current national pension system serves as a way to redistribute income and provides more benefits to lower income retirees than they have paid. If this trend continues and people consider it as a subsidy after retirement, people will begin to save less than they should. Even putting aside the income redistribution aspects of the current scheme, if the national pension provides more income than financial markets, individuals will begin to save less.

It is more reasonable for private financial institutions to manage a portion of the pension fund portfolio. While they have the capability to deliver higher returns, investments in capital markets also carry higher risks.

To supplement income generated by the government and financial firms, the government should set up a defined contribution plan for individual accounts. Of course, these personal accounts also would be exposed to the risks and rewards of the financial markets and inflation. Hence, the government could provide a buffer with tax adjustments and public bonds that are adjusted to the inflation rate. It also will need to provide provisions to provide low income senior citizens with at least the bare minimum of financial security.

2) Complementing pension reform schemes

If the government wishes to change the pension scheme to an income-linked defined benefit plan and personal investment account, it will need to introduce measure targeted towards low income retirees. As shown above, the current national pension benefit disproportionately benefits the low income elderly. Accordingly, simply changing the current system without taking any additional measures would be accompanied by high risks, and those risks have been a major stumbling block against making any reforms.

In this respect, the government needs to push for early introduction of a basic pension scheme that would be through taxation and guarantee elders a certain amount of financial support. This plan would work as an alternative to national pension benefits which will alleviate the political disagreement of interested parties. Over the long term, however, this basic pension plan may prove to be a disincentive for younger people to save and diminish the desire for retirement investment products. Therefore, the basic pension system should accordingly be provided to all seniors until 2040, and then limited to only low income retirees after 2040.

Reform of the national pension system via retirement and personal pensions for younger and middle aged people should also begin simultaneously.

As for early engagement of retirement pensions, the government must enforce high risk pooling businesses with over 100 people to sign up for retirement pension programs. To ease the worries of workers regarding defined contribution pension programs, the government must lead businesses to guaranty minimal returns. The government should also give some tax related benefits to businesses' expenditures while guaranteeing minimal returns so businesses will not be unduly burdened by the new pension scheme.

4. Policy tasks concerning National Health Insurance

The aging society has brought about an increase in sales of both medical equipment and drugs as well as an increase in hospitalization. The government has coped with such changes by introducing a positive list system that identifies cost-effective drugs to be covered by insurance and a long term care insurance system (to help seniors). If these two policies are successfully implemented, it is likely that the government will be at least somewhat less burdened with health insurance payments.

As society ages, seniors will have more political say which will result in smaller premiums of health insurance with wider clinical benefits. Since 2002, the number of medical institutions has been in decline. Further lowering medical charges may result in shortages of medical service providers. Thus in the future, health insurance will cover more and medical charges will go up to more realistic levels. As society ages, health insurance's financial scrutiny will therefore worsen naturally unless the government steps up measures to hold back medical expenditures.

The government, therefore, should push medical service providers to find ways to cut medical charges, such as Diagnosis Related Groups, and caps and restraints on total expenditures and swiftly implement them as soon as possible. Since the second half of 2003, public medical institutions have already adopted Diagnosis Related Groups for seven types of disease groups. This will make it easier for the government to expand the system to the nationwide scale. (Ministry of Health and welfare, 2003a)

In addition, if the overall health of people improves and people live to a healthier old age, worries of skyrocketing health insurance charges could ease. Some 62% of Korean males in 2004 smoked, the highest percentage of any OECD member countries. Healthier living habits may bring a huge boost in alleviating financial burdens in the health insurance program. In this sense, strengthening health education by local governments is an urgent task.

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