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Demographic Transition and Economic Development in Korea

Sung Yeal Koo

Decomposition of the demographic factors behind Korea's rapid demographic transition show, that decline in marital fertility reduced CBR by 0.7~0.6% point for each of the last three decades. Higher age at marriage explains additional 0.44% and 0.48% point of the decline in CBR during the 1960's and the 1980's. The empirical hypotheses taken by the main stream economic theory of fertility seem to fit well the Korean situation. Family income over the last 30 years has been rising rapidly, while prices of other goods and services had become relatively cheaper. Both consumption for adults and child quality seem to have increased substantially while fertility declined very rapidly.

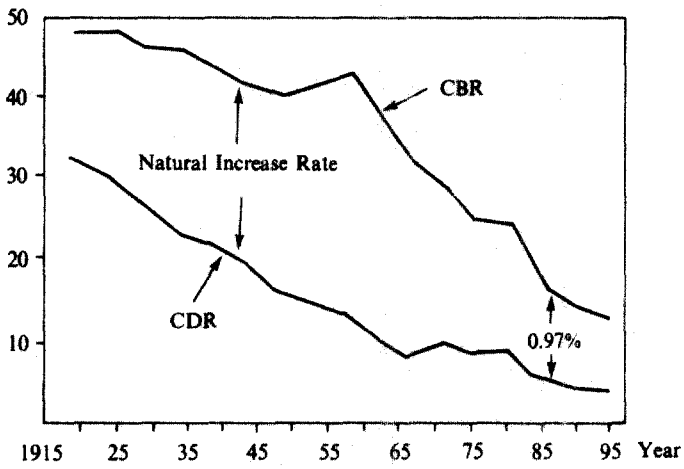
I. Demographic Transition in Korea: Trend and Factors

1. Trend of Demographic Transition

During the period of Yi dynasty(1392~1910), growth of population in Korea had been stagnant at about 0.2% per annum. Although crude birth rate was high around 35~40, crude death rate was nearly as high, around 32~37 per thousands. Korean population was under the traditional stage of demographic transition where the Malthusian check of war, hunger and disease appeared periodically. The population of Korea grew from 5 to 13 million during the half millenium.

Department of Economics, Yonsei University, Seoul, 120-749. A preliminary version of this paper was presented in the ADIPA Tenth General Meeting, Colombo, Sri Lanka, 5-8 October 1993.

〈Figure 1〉 Demographic Transition in Korea



It was during the Japanese colonial period of 1910~1945 that Korea experienced a major decline from 35 to 23 of crude death rate. which is considered as the beginning of the first phase of demographic transition(Kim [2]. Koh [3]). Crude birth rate, on the other hand, remained high until the early 1960's. The period between 1945 and 1960 in Korea was one of the socio-economic and political turmoil. Growth and structure of population had been seriously affected. The division of nation and the subsequent internal war resulted in a massive flow of migration, both internal and international, massive war casualties and the baby boom. Despite these, population of the South Korea increased from 16.1 million in 1945 to 20.2 million in 1949 and then, despite the war, to 25.0 million in 1960.

From the early 1960's, however, Korea began to enter the second phase of demographic transition in which crude birth rate fell from 42.0 in 1960 to reach 15.6 in 1990(Figure 1). Although CDR declined steadily from 13.0 to 6.5 during the same period, the rapid decline of fertility dominated and as the result, population growth rate in 1990 dropped to less than 1%. The speed of demographic transition that Korea experienced is comparable only to those of Hong Kong, Singapore and Taiwan, which are much smaller in size.

If the current structure of fertility and mortality holds continuously, Korea will experience zero population growth in about 30 years. With the current total fertility rate of 1.6, an early arrival of ZPG is inevitable. Although the age composition and improvement in mortality will work in favor of the opposite direction for growth of

〈Table 1〉 Decomposition of the Decline in CBR

	1960~1970	1970~1980	1980~1990	1960~1990
Change in CBR	−0.0137	−0.0060	−0.0081	−0.0278
15~19	−0.0008	−0.0004	−0.0002	−0.0015
20~24	−0.0053	0.0017	−0.0048	−0.0084
25~29	−0.0023	−0.0000	−0.0016	−0.0040
30~34	−0.0017	−0.0037	−0.0009	−0.0063
35~39	−0.0027	−0.0023	−0.0005	−0.0054
40~44	−0.0008	−0.0009	−0.0001	−0.0018
45~49	−0.0000	−0.0003	0.0000	−0.0003
due to change in Martial Fertility	−0.0072	−0.0076	−0.0059	−0.0224
15~19	0.0004	−0.0002	0.0002	0.0005
20~24	−0.0001	0.0011	−0.0009	−0.0002
25~29	−0.0006	−0.0012	−0.0026	−0.0048
30~34	−0.0026	−0.0035	−0.0018	−0.0089
35~39	−0.0031	−0.0023	−0.0005	−0.0064
40~44	−0.0010	−0.0011	−0.0001	−0.0022
45~49	−0.0000	−0.0003	0.0000	−0.0003
due to change in Marriage rate	−0.0044	−0.0025	−0.0048	−0.0120
15~19	−0.0013	−0.0003	−0.0004	−0.0021
20~24	−0.0039	−0.0018	−0.0034	−0.0090
25~29	−0.0002	−0.0004	−0.0010	−0.0017
30~34	0.0006	−0.0000	−0.0001	0.0003
35~39	0.0003	0.0000	−0.0000	0.0002
40~44	0.0001	0.0000	0.0000	0.0002
45~49	0.0000	0.0000	0.0000	0.0000
due to change in Age composition	−0.0022	0.0041	0.0025	0.0066
15~19	0.0001	0.0001	−0.0000	0.0001
20~24	−0.0012	0.0025	−0.0006	0.0008
25~29	−0.0015	0.0017	0.0020	0.0026
30~34	0.0003	−0.0002	0.0010	0.0022
35~39	0.0001	−0.0000	0.0001	0.0007
40~44	0.0001	0.0001	0.0000	0.0002
45~49	0.0000	0.0000	0.0000	0.0000

Data Source :
Fertility : Korea Institute for Health and Social Affairs [4], 1991. 6, p. 699.
Population : Statistical Office [7], pp. 38~39.

population, they will not be sffficiently large to outweigh the effect of such a low fertility rate.

2. Decomposition of the Decline in CBR

What are the underlying factors for the demographic transition in Korea? In order to answer the question, let us analyze the compositional change in CBR and CDR over the last 30 years.

As the following definitions show, CBR is composed of 3 components; the marital fertility rate, the marriage rate(spouse presence) and the relative proportion of fecund age(15~44) women over the total population. CDR is composed of the age specific mortality and the age composition of population.

$$CBR = \frac{B}{P} = \frac{1}{P}\sum_{a=15}^{49} B_a = \sum_{a=15}^{49} f_a \frac{M_a}{W_a}\frac{W_a}{P} : f_a = \frac{B_a}{M_a}$$

$$CDR = \frac{D}{P} = \frac{1}{P}\sum_{a=1}^{w} D_a = \sum_{a=1}^{w} m_a \frac{P_a}{P} : m_a = \frac{D_a}{P_a}$$

B = number of birth, P = population, a = age, f_a = age specific fertility rate

M_a = number of married women, W_a = number of women

D = number of death, m_a = age specific mortality rate

The factors behind the decline of CBR since 1960 are decomposed in Table 1. According to the table, the decline of marital fertility had been the major factor for the decline of CBR over the last 30 years. It reduced CBR by 0.7% point in the 1960's and 1970's and by 0.6% point in the 1980's. Initially, the decline of marital fertility was led by 30~39 age group but later in the 1980's by 25~34 age group.

Decline of marriage rate also worked favorably for the decline of CBR. It explains 0.44% and 0.48% point of the decline in CBR during the 1960's and the 1980's. Especially in the 1980's, its importance in explaining the decline of CBR is almost equal to the marital fertility factor. It is noteworthy that while in the 1960's, 15~24 age group led the effect, 20~29 age group began to lead it in the 1980's. That the age of the leading group rises means that age at marriage had been rising.

Age composition factor, by having a smaller proportion of fecund age(20~29) women, had also contributed to give an initial momentum to demographic transition in the 1960's. However, from the 1970's when the baby boom generation began to enter the fecund age, it began to work as a drag to demographic transition.

In sum, CBR began to decline from the 1960's as marital fertility, marriage rate and age composition all worked favorably. The former two factors provided continuous momentum to the demographic transition. Major change in all this had been led by the age groups of the younger 20's and the 30's.

3. Decomposition of the Decline in CDR

Analysis of the factors behind the decline of CDR(Table 2), on the other hand, shows that the decline of CDR over the last 30 years in Korea is attributable to the overall decline in age specific mortality rates. Especially important was the mortality decline of the youngest age(below 10) group. Change in age composition also worked favorably for the decline of CDR but its importance is negligible compared to the age specific mortality factor.

〈Table 2〉 **Decomposition of the Decline in CDR**

	Mortality Factor		Age Composition Factor	
	male	female	male	female
Total	−0.00465	−0.00408	0.000105	−0.000473
0~4	−0.00189	−0.000134	−0.000065	−0.00051
5~9	−0.00034	−0.00026	−0.00011	−0.00008
10~14	−0.00016	−0.00012	−0.00002	−0.00001
15~19	−0.00018	−0.00013	0.000006	0.000009
20~24	−0.00026	−0.00016	0.000024	0.000010
25~29	−0.00023	−0.00018	0.000061	0.00030
30~34	−0.00022	−0.00019	0.000106	0.00048
35~39	−0.00021	−0.00017	0.000065	0.00027
40~44	−0.00017	−0.00015	0.000055	0.000023
45~49	−0.00015	−0.00012	0.000054	0.000025
50~54	−0.00015	−0.00014	0.000082	0.00047
55~59	−0.00014	−0.00014	0.000105	0.000069
60~64	−0.00013	−0.00018	0.000035	0.000050
65~69	−0.00010	−0.00019	0.000086	0.00082
70~74	−0.00012	−0.00019	0.000043	0.000061
75~79	−0.00006	−0.00015	0.000088	0.000179
80~	−0.00004	−0.00018	0.000081	0.000428

Data Sources;.
Age Specific Mortality Rate:
Tai Hwan Kwon [5], p. 34.
Korea Institute for Health and Social Affairs [4], p. 699.
Age Specific Population:
Statistical Office [7], 1992. 12.

II. Economic Factors behind Demographic Transition

Economists assume that family size is determined in a process of maximization of utility subject to the budget constraint.
That is,

$$\text{Max } U(n, q, s)$$
$$s.t\ y = nq + ps$$

where n = number of children,
q = quality of(or investment in) children per capita,
$s(p)$ = consumption(and price) of goods and services, which are not related to children.
and y = potential lifetime family income.

The result of optimization is a set of demand functions where each endogenous variable is defined as the function of income(y), the price of other goods(p) and other endogenous variables.

$$n = n(y, p; q, s)$$
$$q = q(y, p; n, s)$$
$$s = s(y, p; n, q)$$

Although the theoretical effects of the explanatory variables in each equation are not clear, economists(Willis [6], Becker [1]) make the following empirical hypotheses:

(i) as income rises, both n and q rise initially. But since income elasticity of n is smaller than that of q, the initial increment of n is smaller than that of q.

(ii) n and q work as price of each other. That is, n is the price of q and vice versa. Therefore, as q increases more than n, n becomes more expensive. The result is a smaller n, which in turn makes q relatively cheaper than n and there by reduces n so much more. The result of this interaction is that income may have a negative overall effect on the number of children.

(iii) q and s are complements while n and q are substitutes. Therefore, as p rises, n increases while q decreases.

The above empirical hypotheses seem to fit well the Kyorean situation. Family income over the last 30 years has been rising rapidly, while prices of other goods and services(p) had become relatively cheaper. Both consumption for adults(s) and child quality(q) seem to have increased substantially while fertility(n) declined very rapidly.

The following is trends over the last 30 years in key variables defined above.

1. Growth and Distribution of Family Income.

Average annual growth rate of family income can be estimated in the following way:

$$\tilde{y}_f = \tilde{Y} - \tilde{n} = \tilde{y} - \tilde{f}$$

where $\tilde{y}_f$ = growth rate of family income
$\tilde{Y}$ = growth rate of GNP
$\tilde{n}$ = growth rate of number of households
$\tilde{f}$ = growth rate of family size
$\tilde{y}$ = growth rate of per capita income

$\tilde{y}$ was about 7% a year while $\tilde{f}$ was 4.6%, assuming that $\tilde{f}$ = growth rate of TFR and TFR dropped from 6.0 in 1960 to 1.6 in 1990. Therefore, $\tilde{y}_f$ was about 2.4%, at which it would double in 30 years.

Distribution of family income aggravated up to 1980 but since then it improved to recover the earlier levels of Gini coefficient and decile index as the following statistics show:

	Gini coefficient	Decile index (Share of low 20% / Share of upper 20%)
1965	0.344	0.463
1970	0.332	0.472
1976	0.391	0.439
1980	0.389	0.354
1985	0.345	0.443
1988	0.336	0.466

2. Investment in (Quality of) Children

Investment in (quality of) children is, conceptually, devided in two parts; direct cost and indirect(or opportunity) cost of children. Direct cost of children includes food, clothing, housing, education and other costs. But most important of all is the cost of education. Indirect(or opportunity) cost of children is defined as the family income forsaken because of the presence of children. Among others, opportunity cost of housewives is most important since most of their time is allocated to the rearing of children.

Trends of educational expenses and opportunity costs of women are discussed as follows:

1) Educational Expenditure for Children

Aspired level of education for children(Table 3) has risen over time. In 1977, 56% (34%) of the Korean parents wanted to have their sons(daughters) educated at college and advanced level. In 1990, the proportion rose to 86% and 76% respectively for sons and daughters.

As the resut of the rising educational aspiration, school enrollment ratio has actually risen substantially over the last 20 year period. Enrollment in primary school has reached 100% before 1970. Enrollment ratio for middle school level(12~14 ages) had been 57%(65.1% for boys and 46.5% for girls) in 1970 but it rose to 99.2% (99.4% for boys and 99.0% for girls). High school level(15~17 ages) was no exception, for which enrollment rate had risen from 30.5%(36.7% for boys and 24.1% for girls) to 97.2%(96.8% and 97.5% for boys and girls) during the same period.

The rate of advancement to college among high school graduates rose from 35.9% in 1970 to 44.9% in 1990 and to 50.7% in 1992. Rate of advancement to postgraduate level education also rose from 13.1% in 1970 to 21.3% in 1990.

The result of higher aspiration for children had been the increase of educational expenses for both the public and the private sectors. The share of education in the governmental budget rose from 16.2% in 1965 to 22.7% in 1992. Share of the educational over the total household expenditure rose from 5.4% in 1965 to 8.5% in 1991 among non-farm households: and from 4.5% to 10.6% among farm households.

All these facts indicate that although the average Korean households experienced higher family income over the last 30 years, increasingly higher proportion of their

〈Table 3〉 Aspired Levels of Education for Children by Parents' Educational Attainment(%)

	Son				Daughter			
	Middle School	High School	College & University	Graduate School	Middle School	High School	College & University	Graduate School
1977								
Total	7.5	36.2	55.5	0.8	23.7	42.7	33.3	0.3
Primary School	13.6	51.0	35.2	0.2	37.6	47.2	14.7	0.5
Middle School	3.2	30.1	66.1	0.6	13.8	48.9	37.2	0.1
High School	0.9	16.8	81.2	1.1	5.4	38.3	55.8	0.5
College, University	0.1	3.3	92.8	3.8	0.8	11.9	85.0	2.3
1987								
Total	1.6	13.9	60.5	24.0	4.0	25.6	55.1	15.3
Primary School	4.4	33.1	56.3	6.3	11.4	51.3	34.7	2.6
Middle School	0.3	8.5	74.4	16.8	1.0	23.9	65.6	9.4
High School	0.1	3.4	64.3	32.2	0.2	10.3	68.5	21.0
College, University	0.0	0.8	39.9	59.3	0.0	2.7	54.7	42.6
1990								
Total	1.6	12.1	61.9	24.4	3.9	20.4	61.3	14.4
Primary School	5.2	32.1	56.6	6.1	12.5	46.4	38.6	2.5
Middle School	0.4	8.7	74.1	16.8	1.1	20.5	70.1	8.3
High School	0.1	3.1	66.6	30.2	0.3	8.1	74.0	17.6
College, University	0.0	0.5	45.5	54.0	0.1	1.8	62.0	36.1

Source : Statistical Office [8], p. 171.

income was allocated to education of their children. The outcome is that average Korean households feel substantial burden from this. As of 1990, 25.1%(24.2% among urban and 27.9% among rural households) of the households answered that they feel the burden very heavy and an additional 41.3%(43.2% among urban and 35.5% among rural households) felt the burden moderate.

2) Opportunity cost of women

The amount of opportunity cost for raising of children depends on three factors : ① time intensity, ② job availability and ③ wage rate of employed woman. In what follows, job availability and wage rate of women are discussed.

Labor force participation rate of women rose from 37.2% in 1965 to 47.3% in 1991, a substantial increase compared to the trend of male participation rate, which

decreased from 78.9% in 1965 to 74.7% in 1991. Employment rate which shows an increasing trend, moved within 96.5% for women(93.8% for men) since 1970.

Percentage of employees among total employed person rose from 38.2% in 1965 to 63.1% in 1991 for male and from 20.9% to 57.4% for female workers. Among employees, proportion of regular employees rose from 68.4% to 86.5% for male and from 65.2% to 79.5% for female employees during the same period.

Trend in sex composition of occupations shows that female workers gained their jobs in white color occupations. Following is the composition of female workers for each occupation:

	1970	1991
Professional, technical and administrative	18.4	37.1
Clerical	13.4	41.9
Sales	42.6	47.4
Service	56.7	61.1
Agriculture, forestry and fishery	42.3	45.2
Production and transportation	23.3	28.7

From 1985, at least, the majority of female workers are married women. Between 1985 and 1991, single(never married) woman occupied about 25% of female workers; married with spouse present 62%; widowed and divorced 13%.

Gradually, the length of work experience of women also rose over time. As of 1980, female workers who had more than 5 years work experience occupied 6.5% only, but the ratio rose to 16.3% in 1990. Educational attainment seems to be important factor for the length of work experience. As of 1990, among female workers with less than middle school education, 16.1% had more than 5 years work experience whereas among their college level counterpart, 25.2% had the equivalent experience.

Recent social statistics survey shows that increasingly higher proportion of women are getting employed in order to utilize their ability and to get experiences, rather than to support family income or family works. This tendency is especilly high for higher educated women. While nearly 90% of those women with primary and middle school education suggest family income or family works as their reasons for work, 70% of the college graduates suggest ability and experience as their reasons for work.

Between 1970 and 1991, real wages increased nearly 5 times, from 113.6 thousand to 528.5 thousand wons. At the same time, the female/male wage ratio incrased from 42.2% in 1975 to 54.1% in 1991, reducing the male-female wage gap substantially. The result of this is that out of the monthly earned household incomes, the proportion of head's income declined from 91.1% in 1970 to 84.1% in 1991.

3. Factors behind Mortality Decline

Between 1970 and 1989, life expectancy at birth increased from 59.8 to 66.9 years for the male and from 66.7 to 75.0 years for the female population. Infant mortality rate declined from 60.0 to 12.8 per thousand between 1966 and 1991. Younger generations have more height and weight compared to their elder ones. For example, average height and weight of 14 year old male students grew from 153.9 cm's and 43.9kg's in 1975 to 163.2 cm's and 52.7kg's in 1991. Prevalence of T. B declined from 3.3% in 1975 to 1.8% in 1990 and rate of parasitic infection from 7% in 1975 to 0.5% in 1991.

Recent statistics shows that the major causes of death in Korea are composed(in percentage) of:

	1988	1991
Infectious & parasitic diseases	3.2	2.6
Malignant neoplasm	18.2	19.2
Circulatory system	30.0	28.7
Respiratory system	4.1	3.9
Digestive system	8.4	7.8
Ill defined condition	17.4	14.6
Injury & poisoning	13.8	15.7
Others	4.9	7.6

The improvement in health of the Korean people can be attributed in part to better nourishment and health care. Daily calorie and protein supply per capita increased from 2189Kcal and 57.7g in 1965 to 2858Kcal and 89.4g in 1990. Consumption of beef, pork and eggs all rose steadily from 2.5, 5.2 and 4.5g's respectively in 1965 to 14.1, 32.3 and 26.7g's respectively in 1991 while consumption of rice began to decrease from 1978 in non-farm(1985 in the case of farm) households. Recent

statistics shows that between 1986 and 1992, number of visitors to M. D(per 1000) increased from 57.5 to 97.1 and number of days of medical treatment from 4.5 to 4.7. Number of persons per physian decreased from 2645 in 1965 to 951 in 1991 while number of persons per hospital bed decreased from 1661 in 1975 to 404 in 1991.Despite the increase of hospital beds, bed utilization ratio increased from 56. 6% to 78.8% between 1965 and 1991. Morbidity rate increased from 12.5% to 18. 5% between 1986 and 1992 but number of days in bed declined from 2.0 to 0.9 days during the same period.

Increase in health care led to the increase of health expenditure, the share of which over the total household expenditure rose from 2.4% to 5.3% in the case of urban households and from 2.9% to 6.4% in the case of farm households during the period between 1965 and 1991.

Ⅲ. Demographic Impacts on Future Economic Development

1. Demographic Effects on Economic Development in the Past

Korea in the 1960's was characterized as a resource poor but labor rich country. Per capita income was less than $ 80. Economic growth was slow(4.4%) with high inflation(above 20%) and massive unemployment(8%). Agricultural sector occupied 37% of GNP and 63% of employment. Investment rate was low(10%) and its finance relied on foreign savings, mostly U. S aid(60%).

By 1992, after thirty years of rapid economic growth with average annual growth rate of 9%, per capita income grew to $ 6749. Economic growth rate in 1992, although lowest since 1981, was 5.2%. Inflation rate, checked within one digit since 1982, was 6.2% and unemployment rate 2.4%. The share of agricultural sector in terms of GNP(employment) declined to 7.6%(16.0%) while that of manufacturing and construction sectors, which became the leading sectors of economic growth, increased to 42.5%(33.9%). Investment rate was 36.1%, of which 1.5% was financed from abroad. Exports of goods and services, which had been negligible in the early 1960's, grew explosively to become 39% of GNP.

It is needless to say that demographic factors facilitated Korea's economic development. The size of population grew from 25.8million in 1961 to 43.7million in

1992. With fertility declining rapidly to dominate the slowly declining mortality as described above, the annual growth rate of population declined from 3.0% in 1961 to 0.9% in 1992. As a result, proportion of younger age(below 14) population declined from 43% to 25% during the same period. Dependency ratio declined from 84.7% to 43.7% between 1961 and 1991.

However, thanks to the population structure on the one hand and mobilization of the unemployed, the underemployed and the female population on the other, the size of economically active(employed) population grew at the average growth rate of more than 2% to reach 19(18.6) milion in 1991 from 8.2(7.6) million in 1963.

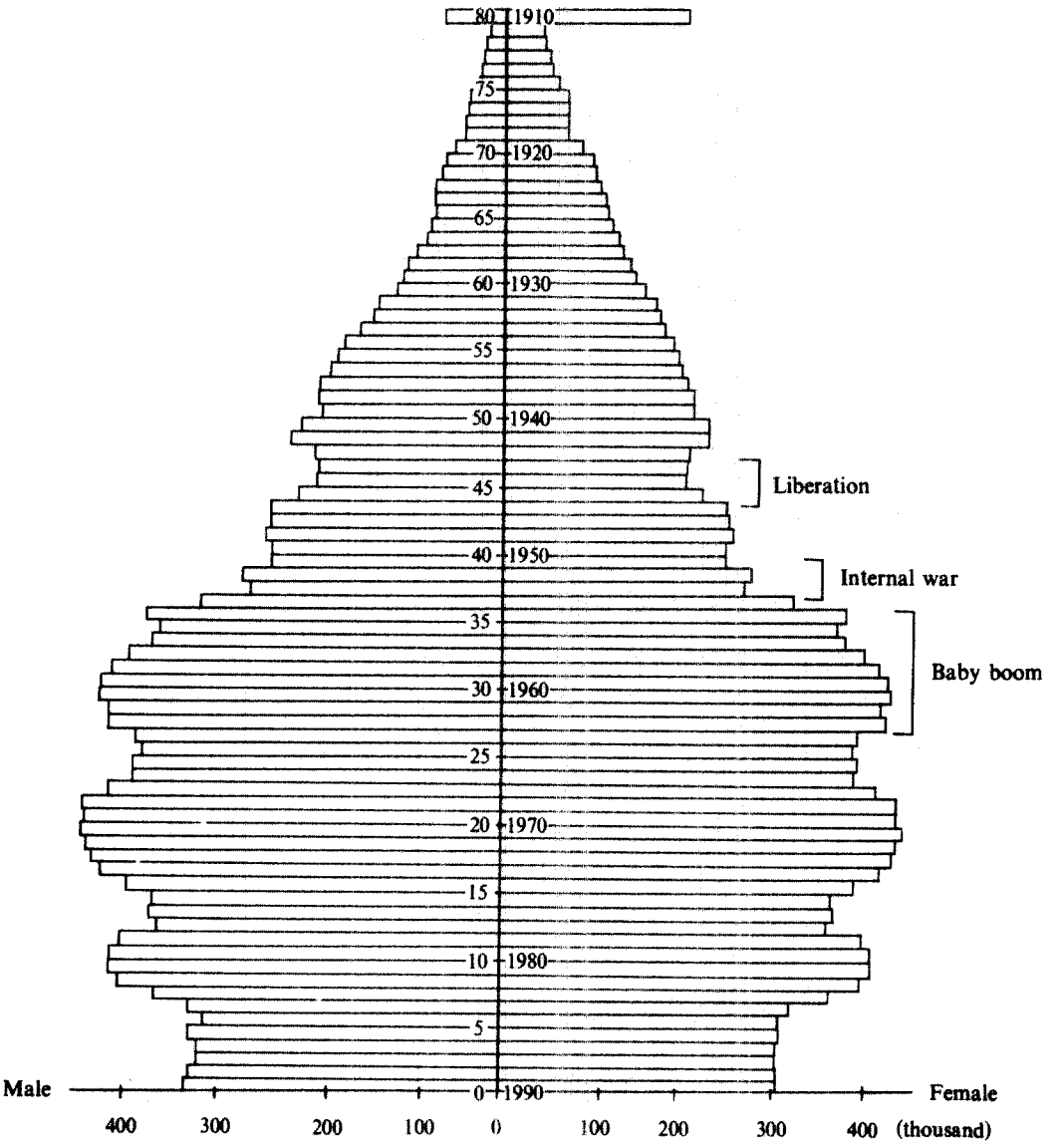
While the growth of labor supply declined gradually, educational attainment of the Korean population increased drastically. As of 1966, 74.5%(88.6%) of the male (female) population aged 6 and above had less than primary school education. Only 11.7%(4.1%) of the male(female) population had above high school education. By 1990, however, while only 21.8%(38.2%) of the male(and female) population had less than primary school education, 61.4%(42.9%) of them had above high school education. Proportion of the population with college education reached 18.1% and 8.9% respectively for male and female population.

These changes in demographic factors, i. e., slower population growth, lower fertility, lower dependency and older age structure, higher educational attainment etc. should have been all conducive factors for higher economic growth, less unemployment and lower inflation, higher savings rate, earlier industrialization, better income distribution etc. Comparative advantage in international trade had also been shifted from labor intensive to capital and skill intensive industries.

2. Prospects of Demographic Transition

Recent statistics shows that total fertility rate is staying at a historical level of 1.6 to bring in a low CBR of 1.58%. The Statistical Office projects the total fertility rate to stay at 1.7, which is well founded by the facts that Korean women tend to complete child bearing in their 20's, that age specific fertility rate is low for all age groups, and that births ordered within the second occupies 93% of all the birth. The Statistical Office also projects that life expectancy at birth will rise from 66.9 to 69.3 for male and from 75.0 to 76.2 for female population between 1989 and 2000. The office also assumes that net outmigration rate will be around 0.08~0.09%.

〈Figure 2〉 Population Pyramid of Korea(1990)



Source : Statistical Office, Population Projection of Korea : 1991~2001, 1991. 4, p. 8.

Based on the above assumptions, population growth rates between 1992 and 1996 are projected as follows:

Crude birth rate	1.62~1.57
Crude death rate	0.58~0.60
Rate of natural increase	1.04~0.97
Population growth rate	0.96~0.89

The structure of population is expected to become older. The size of women in the fecund age of 15~34 will decline slightly from 8.3 to 8.2 million during the first half of the 1990's. School age population is also expected to decline; especially for primary(6~11) and high school and college(15~21), which will decline from 4.8 to 4.0 million and from 6.3 to 5.6 million respectively. However, due to the irregularities in the shape of population pyramid(Figure 2), those in middle school age(12~14) would maintain about 2.4million.

3. Demographic Impacts on Economy in the 1990's

The above demographic prospect is expected to have substantial effects on the economy through its impacts on labor supply, savings and expenditure pattern, and income distribution.

1) Labor supply

The size of economically active population depends demographically on age structure and size of working age(15 and above) population, as the following definition shows:

$$EAP=\sum l_a \frac{P_a}{P_{15+}} P_{15+}$$

where EAP = economically active population
l_a = age(a) specific labor force patcipation rate
P_a = age(a) specific population, and
P_{15+} = working age population

Working age(15 and above) population is expected to grow at 1.6% annually for 5 years until 1996, as compared to 2.0% during the previous 5 years. Its age composition is somewhat favorable for increase(by about 0.4% point a year) in labor supply, since hi-teens(15~19) whose labor force participation rate is low will decline at 1.8% annually. Thus, considering demographic factors alone, the size of

economically active population will grow at 2% between 1992~1996, down from 5% between 1987~1991.

School enrollment rate will rise further since while the eligible age population declines(at 3% in the case of college level of 18~21), the admission quota to college and universities would rather be increased. Therefore, educational attainment of population will rise generally over all age groups. Among ages between 15 and 64, the proportion of those who have more than high school education will rise from 57.5% In 1991 to 62.8% in 1996.

2) Savings and expenditures

Between 1991 and 1996, younger age dependency(0~14 age/15~64 age population) ratio will decline from 36.1% to 31.3% while older age dependency(65 and above/15~64 age population) ratio will rise from 7.1% to 8.0%.

The overall decline in dependency ratio will raise the domestic savings rate. Since younger age dependency gives relatively more burden to private sector while older age dependency gives relatively more burden to the public sector, private sector will contribute more to domestic savings.

Expenditure pattern will also be affected by the changing demographic prospect. Especially, housing investment will be substantially affected by the growth and composition of the adult population. Although the working age(15 and above) population is expected to grow at 1.6% anually until 1996, the relative share of older age(35 and above) population increases while younger age population decreases not only relatively but also absolutely. In sum, assuming age specific headship rate constant, number of households will increase annually at 2.3% on the average until 1996, a drop by 0.4% point from the average rate during 1987~1991.

3) Income distribution

The process of aging and higher education of the labor force will improve the functional distribution of income in favor of the labor income.

Size distribution of income, personal or household, will be also improved by the demographic factors. Distribution of personal income will be improved as the baby boom generation, born in the latter half of the 1950's, reach the prime age while younger age population, especially the hi-teens, enters the labor market with significantly smaller cohort size.

Distribution of household income depends on the factor which causes the reduction in the family size. If it is fertility decline, it will improve the distribution of household income(per capita) assuming that the fertility decline occurrs mainly to poorer households. If the family size is reduced by migration of adult(working age) members, distribution of household income(per capita) may worsen since migration occurrs to poorer families. In sum, distribution of household income(per capita) will improve since urbanization rate is already at 75% level.

IV. Summary and Conclusion

Demographic transition can be understood as a transition from the quantity to the quality of labor. During the last 30 years, Korea was transformed from a labor abundant to labor scarce country. Instead, it has a lot of people educated. In the past, industrialization and demographic transition in Korea moved very harmoniously hand in hand. The current situation in Korea is that Korea failed in harmonizing the two transitions.

While it suffers immediately from the lack of amount, the Korean economy was not able to link its relatively abundant resource(educated people) to actual productivity. Import of foreign labourer is one issue and unemployment and underemployment of college graduates is another.

Because of the change in factor endowment, not only will its potential growth rate be lower from now on, the Korean economy will have to undergo fundamental restructuring in industrial production and international trade.

Potential growth rate will be lower because of slower growth of population and labor force and because of slower growth of productivity. The latter is due to the failure in the linkage between education and employment as well as to the difficulties of own development of technology.

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