POPULATION AND FAMILY PLANNING IN KOREA

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Chapter 1

CURRENT STATUS OF THE NATIONAL FAMILY PLANNING PROGRAMMES AND ITS FUTURE DIRECTIONS IN KOREA

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CURRENT STATUS OF THE NATIONAL FAMILY PLANNING PROGRAMME AND ITS FUTURE DIRECTIONS IN KOREA

I. INTRODUCTION

It is commonly recognized that population and socio-economic developments are interrelated. Changes in population size and structure affect various economic and social factors pertaining to output, per capita income, employment and education. On the other hand, demographic factors such as fertility, mortality, and migration are affected by changes in socio-economic conditions. In view of these relationships, the government of the Republic of Korea established an explicit population control policy in 1961 and from the following year the establishment and operation of the national family planning programme was included as a component of Five-Year Economic Development Plans since then.

With successful implementation of a series of economic development plans and population policies, there has been a great reduction in populatin growth and fertility rates during the corresponding period. The total fertility rate stood at 6.0 in 1960, which declined to 1.6 level in 1988, and the population growth rate declined drastically from 2.9 percent per annum to 0.97 percent during the same period. Infant and maternal mortality rates dropped to 12 per 1,000 and 9 per 10,000 live births respectively(1987), and Medical Insurance System covered the whole population from 1989. As of 1990, the per capita GNP was US$5,569, and average life expectancy was 71.3 years. Mean age at first marriage of women increased from 21.6 years in 1960 to 25.1 in 1990.

This demographic changes imply that Korea has completed the demograhic transition in a short period of time. It is estimated that if the current fertility rate continues, the nation's population will increase from 42.9 million in 1990 to 50.6 million in 2021, and then switch to a negative growth which leads to an aging and labor force problems due to sudden change in the population structure. This socio-economic and demographic changes suggest that the new population policy directions and measures for the 1990's have to be sought with careful deliberation in order to avoid the socio-economic problems that are bound to come as a consequence.

II. PROGRAMME IMPLEMENTATION AND PERFORMANCE

A. Programme implementation

The Ministry of Health and Social Affairs(MOHSA) has been responsible for overall execution and implementation of the

national family planning programme, while its Family Health Division executes all activities related to family planning and maternal and child health(FP/MCH). At the initial stage, the FP/MCH programme concentrated on contraceptive services through authorized private doctors with education and motivation acitivities through home visits by health workers stationed at health centers. All contraceptives are distributed free of charge by the government. The authorized private doctors who provide clinical methods(tubectomy, vasectomy and IUD) are paid service fees.

In 1970s, social support policy measures were initiated to encourage couples to accept small family norms. Incentives such as income tax exemption, priority for public housing allocation, various loans, and medical benefits for children were offered to sterilization acceptors with two or less children. Family Law was amended in 1977 to improve the status of women, including inheritance and household headship.

Population education was also introduced in late 1970s to primary, middle and high school text books. The various training centres and social institutions have been providing assistance in population education and family planning since 1977. The information, education and communication(IEC) activities have been promoted by the Planned Parenthood Federation of Korea(PPFK), utilizing private and voluntary personnel and organizations.

B. Programme performance

For the period 1962-91, a total of 17.7 million acceptors had used contraceptive services from the national programme: 39 percent on IUD, 23 percent on sterilization, 23 percent on condom and 16 percent on pill (Table 1). When the programme began, IUD was the main method until 1976 when female sterilization was introduced. Since then, sterilization dominate the scene. For the period 1977-91, 39 percent of the acceptors adopted male and female sterilization, 33 percent, IUD, 17 percent, condmx, and 11 percent, pill (see Table 1). In recent years, the number of sterilization acceptors dropped sharply due to the reduction of sterilization target for the government programme.

While service statistics provide programme performance analysis above, the 1988 National Fertility and Family Health Survey presents data to assess the impact of contraceptive use on fertility and quality of programme service statistics. Table 2 displays the trends of current contraceptive prevalence practice rates for the period of 1979 through 1991. The current contraceptive prevalence for married women aged 15-44 rised substantially from 55 percent in 1979 to 79 percent in 1991. The prevalence for the permanent method (sterilization) had increased sharply from 20 percent in 1979 to 47 percent in 1991 while the reversible methods did not vary their practice rates much. This phenomenon is made probably the consequence of the programmes

emphasis on sterilization of the main method of contraception for lowering fertility.

The current practice rate does not vary by residence. In 1988, more than 85 percent of married women aged 30-40 were currently practicing contraception while more than 90 percent of married women aged 15-44, were currently practicing contraception when they had two or more children(Table 2).

C. Problems associated with contraceptive use

Though the family planning programme has been successful in reducing fertility, there are a few problems that prevent improvement of programme quality. The programme by way of target system had induced most contraceptive users to practice family planning for fertility termination rather than birth spacing. For example, the national survey data show that 90 percent of contraceptive users practiced contraception for limiting births.

The number of women who have their first live births during first year of marriage has increased over the years. For example, 1988 KIPH study shows that between the cohort of women married in 1956-60 and that of 1981-85, the proportion having their first births during the first year of marriage increased from 25.2 to 66.5 percent. This quickened fertility tempo has negative effect of demographic impact and family development. The reversible methods such as IUD, pill and condom have high discontinuation rates, implying insufficient supervision of workers to conduct follow-up services.

Evidence from the 1991 survey data indicates that preference for sons continues to be strong: 69.6 percent of couples with two sons are practicing sterilization compared with 35.2 percent having two daughters. The vital registration data show increased son preference: sex ratio of the third parity increased from 109 in 1982 to 170 in 1988. While for the fourth parity and above, the figures were 114 and 199 respectively. This implies that the parents with no sons or heirs would continue with next births until they have their son, this raising the sex ratio. To overcome this problem, the medical law was amended in 1987 to seriously penalize the physicians who render any service relating to biased selection.

Despite legal, social and ethical constraints as well as extensive contraceptive services available, the induced abortion experience rate of married women aged 15-44 increased from 30 in 1973 when the MCH law was enacted to 53.9 percent in 1991. To a larger extent, the induced abortion rate per married woman increased more than four times from 0.7 in 1963 to 2.9 in 1978 but then dropped to 1.6 in 1987 due to higher contraceptive use (especially, sterilization). However, the total induced abortion rate in recent years shows an increasing trend in the young age women of 20s. Although induced abortions had played a role in

reducing fertility in the past, the recent situation that the younger age group(20-29) were practicing less contraception but using more induced abortions, need serious attention.

III. FUTURE POPULATION GROWTH AND PROBLEMS

The population of Korea would increase from 42.9 million in 1990 to 50.6 million in 2021, and then there would be negative growth. Growth rates were 0.93 percent in 1990, would be 0.79 percent in 2000 and zero percent in 2021. Consequently, the population will age; and the percentage of the 0-14 age group would go down from 26 in 1990 to 16 in 2021, while the corresponding percentage of population aged 65 and over would increase from 5 to 13. If the trend continues, Korea will soon face population aging problems.

Fortunately, the economically active population, aged 15-64 years will rise from 69 percent of the total population in 1990 to 71 percent in 2021, but this high proportion, which will reduce the dependency ratio, will decrease when the population ages rapidly as shown by the Japanese population. For example, in Japan in 2020, the economically active population will account for about 60 percent of the total, the 0-14 age group will be 16 percent and the over 64 age group will be of the total 24 percent of the total ((Table 3 and 4).

Since the 1980s, the sex ratio at birth has been on the increase, 107 in 1982 and 114 in 1988. This increase in even greater for the third and fourth birth, from 109 in 1982 to 171 in1988 for the third birth, and from 114 in 1982 to 199 in 1988 for the fourth birth. This is attributed to the fact that sex selection procedures were used by a large number of parents. This trend may stop with the introduction of a revised law on medical services in 1986 in which the identification of the sex of an unborn child is strictly forbidden except in limited circumstances. The existing social prejudice for one gender against the other could be eradicated by the revised family law emphasizing female rights and improved female education.

Concomitant with the social-economic development, there will be changes in the patterns of consumption, employment, housing, transportation, and a rapid formation of nuclear family resulting from the unprecedented industrialization and modernization process. In a situation as Korea where natural resources are scarce and the arable lands are severely limited, the current population growth would continue t exert heavier burden such as foodgrain, energy, housing, etc.

In addition, as the fertility level decreases, life expectancy increases and the public health standard usually improves, but the fertility decline is also inevitably accompanied by population aging, an increase in medical costs for the aged due to an increase in the population suffering from chronic diseases. In 1985, about 5.7 percent of urban household income and 5.2 percent of rural household income were spent on medical expenses, but the proportion spent on medical costs is expected to increase in 2000 to 9.0 percent in urban households and to 7.3 percent in rural households. As population aging continues, medical expenses will soon account for over 10 percent of total household expenses. Furthermore, the increase in the young population and so the number of new entrants into the labor force will go down noticeably due to the declining fertility and increasing school enrollment.

A recent study shows that the contraceptive practice rate as of 1991 stood at 79.4 percent, the total fertility rate has maintained far below the replacement level of 1.6 since 1987, and 98.6 percent of all births were delivered at hospitals and clinics, whereas in 1972 only 13.2 percent of all births were at these places. The tuberculosis prevalence rate is reported to have declined from 4.9 percent in 1966 to 1.8 percent in 1990. Public health is expected to improve further with the implementation in July 1989 of the national medical insurance system to cover the whole population.

Though the nation's family planning programme was the major force that helped achieve the current fertility level, which is as low as that of the developed countries, it still has many problems to solve, some of them related to the contraceptive choice/mix and with contraceptive effectiveness/efficiency. That is, currently over 89 percent of contraceptive users were practising contraception primarily for fertility termination rather than birth spacing. Due to the high contraceptive discontinuation rates of temporary methods, the induced abortion is used extensively as shown by its extremely high rate. It is sad to note that yearly number of induced abortions is greater than the number of children born per year, in spite of the high contraceptive prevalence rate in Korea.

The primary reason for the high discontinuation rate and the high induced abortion rate has to do with the fact that in Korea, the family Planning programme started as a population control policy, unlike the family planning programmes in some developed countries where the family planning programme was designed to help improve the maternal and child health care programme. The Fertility Survey of KIHASA in 1988 shows that the 12 month discontinuation rates for IUD and the pill werr: 47 percent and 66 percent, respectively in 1976 and 46 percent and 72 percent, respectively in 1985. This high termination rate may be attributed to the shift from a temporary method to sterilization and induced abortions, the inflexible programme target system for health workers, inadequate

follow-up services for temporary contraceptive users, and other factors including side-effects and the inconvenience of temporary methods.

In addition, the total abortion rate for married women increased more than 4 times from 0.7 abortion per woman in 1963 to 2.9 in 1978, but it fell to 1.6 in 1987, but recent survey data show that the total abortion rate showed an increasing trend to 1.9 in 1991, particularly in the young age women in the 20s. This means more attention should be given to motivating these young women to use contraceptives for spacing purpose.

The future emphasis of family planning programme should, therefore, be placed, not on an increase in the contraceptive practice rate and decline in the fertility level, but on improvement of maternal and child health care through prevention of unwanted pregnancies and induced abortions. Accordingly, there is a need for future family planning programme to be integrated with other health programme including maternal and child health care programme.

IV. FUTURE POLICY AND PROGRAMME DIRECTIONS

With the completion of demographic transition in Korea, population policies programme directions in recent years have been gradually shifted from the current quantity-oriented policy which focuses on fertility reduction to a quality-oriented policy which stresses childspacing, child/family development and care of the elderly. That is, instead of accelerating the fertility decline, future policy directions aim at maintaining the current level of population growth, as long as possible to avoid rapid population aging problems including a shortage of economically active and young population as well as to allow time to monitor fertility, mortality and population growth and trends for fine-turning policy measures and directions. The following areas are the policy directions for the family planning programme in 1990s.

A. Shift of free contraceptive services to a self-paying system

In recent years, the free contraception services including sterilization and reversible methods has been gradually shifted t a self-paying system, except for low income couples who would be provided free services. This will improve programme and service quality as well as relieving the government's financial burden. In line with this policy direction, the government has been reducing its support for contraceptive supply services to encourage the private organizations to take over family planning services as well as reducing financial assistance and resources to implement provincial and county family planning programmes.

For example, the government has greatly reduced its annual programme budget from US$45.4 million in 1986 to $12.6 million in 1991, and government-supported sterilization target has been decreased from 300,000 to 60,000 acceptors during the same period. Future contraceptive services including sterilization and intra-uterine device services are to be conducted through the national medical insurance system in which the clients, except for those from the low-income group, would have to cover part of the costs incurred by the services they receive. The government revised the Medical Insurance Law in 1982 to provide contraceptive services including male and female sterilization and IUD, in order to increase the self-paid contraceptive users.

B. Strengthening the family planning programmes for unmarried population

The past family planning target population had to be limited to married couples, as its primary objective was to lower the fertility level, but recent socio-economic, and cultural developments have brought with them a series of social problems involving unmarried men and women. A recent survey by the KIHASA has revealed that as much as 28 percent of the induced abortions carried out in 1979 were on unmarried females, which increased t 33 percent in 1990. That is, as the age at first marriage increases, a greater number of unmarried men and women are being exposed to a variety of sexual stimulations for a longer period of time, resulting in a greater number of induced abortions.

Future family planning programme policy should, therefore, cover not only married couples but also unmarried men and women ot prevent pre-marital pregnancies. The PPFK, a private organization has demonstrated that its counseling services on sex education for the unmarried population in industrial complexes has been successful.

C. Revisions of Family Law

In an effort to improve women's status and at the same time to ameliorate the still strong son preference attitude, the government introduced a revision to the current family law in December 1989. According to the revision that went into effect in January 1991, daughters are allowed to assume household headship, and daughters are allowed to claim an equal share of their parent's inheritance, regardless of birth order. In the past, sons were allowed to claim a greater share of their parental inheritance than daughters.

D. Integration of family planning with other health programmes

Although the government took an action in 1985 to integrate three types of health workers(FP, MCH and TB) in rural area into multipurpose health workers who will provide all primary health

services, family planning programme has been independently implemented without close coordination and cooperation with other health programmes. To have a successful integrated system, it is essential that organizational and functional integration within the public health programmes must be accomplished, with special efforts directed to 1) unifying the existing health programme network, 2) reestablishing the role and functions of health workers, 3) improving the workers' capabilities for integrated tasks through retaining programmes, 4) developing integrated management information system for monitoring and evaluation of programme performance as well as to retard the accelerating fertility decline.

E. Retraining programmes for the elderly

The aging of the population, which resulted from low fertility and low mortality as well as longer life expectancy, suggests that a major shift of expenditures should be made from education, and other social welfare provisions to health care, support and welfare for the elderly. It also means that employment policy will have to shift from new job creation for young entrants to development and retraining programmes for older workers.

Though the relatively young age structure in Korea will generate an older age structure in an eventually stationary population in about 30 years, its policy and programme implications must be given serious considered now, to avoid the situations now faced by developed countries which have zero or negative population growth rates.

V. CONCLUSION

As Korea has achieved its demographic transition with a low mortality rate and a below replacement fertility level, there has been a strong need to change its role to accommodate recent population policy and programme changes as well as design and develop future population policy and programme directions in accordance with its emerging socio-economic and demographic conditions. Taking into account of the demographic and socio-economic situations of Korea, the government set up its new policy and programme directions to maintain the low fertility level and postpone the achievement of a zero population growth rate, to invigorate the population with more economically active individuals for greater economic development and improvement of the quality of life.

However, if the current reduction in government support and commitment to the family planning programme in terms of funds and resources will continue, the contraceptive practice rate will drop substantially and the induced abortion rate increase significantly.

This will result in a higher population growth rate, over than one percent, and an increased total fertility rate.

That is, the qualitative aspects of the programmes and services should be more substantially emphasized than the quantitative aspects as in the past. The improved programme and service quality will not only drastically reduce harmful induced abortions but also facilitate the achievement of such future population policy and programme directions as maintaining a low fertility level and postponing the realization of a zero population rate to a much later date.

In view of the complexity involved in implementing future population policy and programme management including programme planning, monitoring and evaluation, relevant research and evaluation activities should be strengthened so that it can play a more dynamic and effective role in providing technical assistance to the pertinent governments and programme agencies.

Table 1. Percent Distribution of Acceptors Utilizing Government Contraceptive Services: 1962-91

Unit: %

Period	IUD	Male & Female Sterilization	Condom	Oral Pill	Total %	Total Number
1962-66	47.9	5.5	46.6	-	100.0	1,514.0
1967-71	52.3	3.1	27.2	17.4	100.0	2,795.4
1972-76	42.3	5.7	22.4	29.4	100.0	3,832.0
1977-81	33.2	33.9	13.9	19.0	100.0	3,216.6
1982-86	27.6	47.0	16.1	9.3	100.0	3,686.6
1987-91	39.4	33.1	22.9	4.5	100.0	2,705.6
Total	39.2	23.1	22.5	15.2	100.0	17,750.3

Source: Ministry of Health and Social Affairs, Monthly FP Service Statistics: 1962-1991

Table 2. Percentage of married Women who were currently practicing Contraception by their selected Characteristics: 1979-91

Unit: %

Women's Characteristics		1979	1982	1985	1988	1991
Prevalence/Practice rate		54.5	57.7	70.4	77.1	79.4
Method:						
	Pill	7.2	5.4	4.3	2.8	2.9
	Condom	5.2	7.2	7.2	10.1	7.0
	IUD	9.6	6.7	7.4	6.7	9.0
	Tubectomy	14.5	23.0	31.6	37.2	35.3
	Vasectomy	5.9	5.1	8.9	11.0	12.0
	Others	12.1	10.3	11.0	9.3	13.2
Residence:						
	Urban	55.1	58.7	71.5	77.7	79.3
	Rural	53.6	55.7	67.7	75.5	80.0
Age of wife:						
	15-24	18.3	22.3	35.8	44.4	45.6
	25-29	40.9	44.4	60.8	65.4	61.4
	30-34	68.5	71.6	84.2	86.8	84.5
	35-39	71.9	79.9	87.2	89.6	93.7
	40-44	53.3	62.5	69.6	81.6	87.2
Parity:						
	0	7.0	11.0	13.8	21.0	20.4
	1	20.7	24.3	44.7	58.1	61.8
	2	58.7	66.7	82.5	89.3	91.4
	3	69.0	76.4	84.5	90.5	92.8
	4+	68.9	70.8	80.1	87.6	84.7

Source: KIHASA, National Fertility and Family Health Survey, 1976-1991

Table 3. Population and selected Vital Rates: 1985-2021

Unit: Thousand

Year	Total Pop.	CBR	CDR	PGR(%)*
1985	40,806	1.64	0.62	0.93
1990	42,869	1.56	0.58	0.93
1995	44,851	1.52	0.59	0.93
2000	46,789	1.42	0.61	0.77
2010	49,683	1.13	0.72	0.37
2021	50,586	1.00	0.97	- 0.01

* Included international migrants.
Source: National Statistical Office(NSO), New Population Projection: 1990-2021, 1991

Table 4. Changes in Population Structure: 1960-2021

		Age Composition				Dependency
Year	Total Pop.	0-14	15-64	65+	Total	Ratio
1960	25,012	42.4	54.8	2.9	100.0	82.6
1985	40,806	30.1	65.6	4.3	100.0	52.5
1990	42,869	25.8	69.2	5.0	100.0	44.5
2000	46,789	21.2	72.0	6.8	100.0	38.8
2010	49,683	19.1	71.5	9.4	100.0	39.9
2021	50,586	15.8	71.1	13.1	100.0	40.6

Source: NSO, Results of 1990 Population Census and New Population Projection, 1991

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Chapter 2

DEMOGRAPHIC TRANSITION IN KOREA

Contents

I. Introduction

II. Fertility Levels in the ESCAP Region and Korea

III. Factors Accounting for Fertility Decline in the Case of Korea

IV. Consequences of Demographic Transition

V. Conclusion

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I. Introduction

The demographic transition theory describes the changes that take place in birth and death rates as a population passes from traditional, or premodern, social and economic conditions to an urbanized modern society. In other words, every industrialized nation goes through a demographic transition from a predominantly rural, illiterate society with high birth and death rates to a predominantly urban, educated society with low birth and death rates. But because the decline in mortality precedes the reduction in fertility, populations tend to increase several fold during the transition. The term "demographic transition" was first used by Frank W. Notestein in 1945 in reference to the demographic history of Western Europe, but it has since been applied to the actual or predicted experiences of developing countries as well.[1/]

The demographic change in the countries of East and South East Asia has been remarkably fast compared with that of the West. The countries of East and South East Asia, whose combined populations comprise 1.8 billion persons, one third of the world's total, have completed or are nearing completion of a quite remarkable revolution in reproductive behaviour. That is to say, among leading Western industrial nations the transitions required well over a century ; whereas in Japan, Korea, Taiwan, Thailand, Singapore and Hong Kong, the transition is taking place in barely more than a decade or two.

This revolution in terms of reduced childbearing, increased life expectancy, slower population growth and rapid urbanization is having a pervasive influence on the Region's economy. Korea is no exception in these aspects.

Therefore, this paper outlines fertility trends and their determinants in Korea and considers the probable consequeces of fertility and mortality decline.

1/ Ross, J. A. (1982), International Encyclopedia of Population, The Free Press, New York

II. Fertility Levels in the ESCAP Region and Korea

Rapid population growth has been a product of three factors : low mortality, high fertility and a heavy concentration of women at the childbearing ages. But throughout Asia, childbearing has declined in response to reduced child mortality, increased education and the expansion of family planning programmes.

The extent of the decline has varied widely from country to country as shown in Table 1. In Pakistan, Bangladesh, Laos and Nepal, the total fertility rate is about six births per woman. In India, Vietnam and the Philippines, women are now averaging between four and five births during their childbearing years.

Women in East Asia and many South-East Asian countries have reduced their childbearing at a remarkable pace. In Indonesia and Thailand women now average slightly more than three births each, while in Taiwan the total fertility rate recently dropped below two births per woman. The most recent surveys of child bearing in Korea show that women there are averaging only 1.6 births, fewer than in all but Hong Kong and a half a dozen European countries.

Even though fertility increased substantially in 1987 and 1988, women in Singapore are still averaging fewer than two births apiece. Fertility decline in China has also been as rapid as that of Korea : in the past 25 years, total fertility rate has dropped from about six births per woman to only 2.4 births at present.[2/]

Among Asian countries, Japan was the first to reach replacement fertility in the late 1950s. Since then, the total fertility rate has further dropped to reach 1.53 in 1990.

2/ Bauer, John and Andrew-Mason (1990), Asia 2010 : The Power of People, Reprints of the East-West Population Institute, Number 257.

Thus, we can notice that countries in the Region can be classified into three categories in terms of the timing of a significant fertility decline : not yet begun by 1990, begun between 1950 and 1990, begun before 1950. These three groups are called "pre-initiation countries", "late-initiation countries" and "early-initiation countries", respectively.[3/]

Considering the Korea's situation, the country is believed to belong to the group of "late-initiation countries". The Korean population has experienced all stages of demographic transition since the 1920s, before which it had stayed at pre-transitional stage characterized by high level of fertility and mortality.

The overall process of demographic transition in the Korean population is divided into three phases. The first period termed as early transitional stage lasted from the 1920s to the early 1960s. During this period, constant high fertility and continuously decreasing mortality prevailed.

The second phase started in the early 1960s with overall modernization and lasted up to the mid 1980s, showing a rapidly decreasing fertility level and gradually improved mortality condition. The third phase started in the mid 1980s, characterized by stable fertility below the replacement level.

That is to say, Korea is believed to be in the process of going beyond the domographic transition. In other words, reproduction in Korea is under almost complete control except for within some groups of women.

3/ UN (1991), Ppulation Situation in 1991, pp.1-2

In the future, the current low level of fertility will continue with the total fertility rate(TFR) of 1.6. More broadly, TFR will fall within the range of 1.5 to 2.0. It also appears certain that a return to large families is unlikely.

The rate of population growth showed a gradual and steady downward trend. The rate decreased from 3 percent in 1960 to 2 percent in 1970 and to one percent in 1986. The trend of demographic transitions which Korea has experienced is shown in Table 2. On the basis of new population projection made by NSO in April 1991 and taking account of the above facts, one percent level of population growth rate is expected to continue for the time being. Finally, zero population growth rate will be attained in the year 2021, when the population will be 50,586 thousand.

Assumptions behind this population projection are as follows : 1) the TFR level of 1.63 observed in 1990 will be continued ; 2) the life expectancy at birth will increase by 0.5 years per annum when it reaches 70 years and by 0.25 years when it exceeds 70 years, and the ultimate life expectancy will be 75 years for males and 80 years for females ; and 3) the number of emigrants will be 20,000 per annum.

Table 1 : TFR Level and Year of Attaining Replacement Level of Fertility in Selected Countries of the Region

	1960 ~ 65	1990 ~ 95	Year of attaining replacement level
Japan	2.0 ('60)	1.53 ('90)	1957
Singapore	4.7 ('65)	1.79 ('89)	1975
Hong Kong	5.2 ('61)	1.36 ('88)	1979
Korea	6.0 ('60)	1.63 ('90)	1984
Taiwan	5.8 ('60)	1.68 ('88)	1984
China	5.9	2.25	1995 ~ 2000
Thailand	6.4	2.20	1995 ~ 2000
Sri Lanka	5.2	2.47	2000 ~ 2005
Indonesia	5.4	3.10	2005 ~ 2010
Malaysia	6.7	3.50	2005 ~ 2010
Viet Nam	6.1	3.70	2010 ~ 2015
Philippines	6.6	3.91	2015 ~ 2020
India	5.8	4.10	2015 ~ 2020
Banglaesh	6.7	5.13	Beyond 2025

Sources : 1) Statistical Yearbook of each country
2) UN, 1990 World Population Prospects, 1991

Table 2 : CBR, CDR and NI in Korea

(per thousand population)

	CBR	CDR	NI
1916 ~ 20 [1])	47.5	31.6	15.9
1921 ~ 25 [1])	48.0	29.5	18.5
1926 ~ 30 [1])	45.9	26.4	19.5
1931 ~ 35 [1])	45.5	23.3	22.2
1936 ~ 40 [1])	43.3	21.4	21.9
1941 ~ 45 [1])	42.1	19.5	22.6
1946 ~ 50 [1])	39.9	15.8	24.1
1951 ~ 55 [1])	41.0	14.3	26.7
1956 ~ 60 [1])	43.0	12.8	30.2
1960 [2])	42.1	12.1	30.0
1970 [2])	29.9	9.5	20.4
1980 [2])	23.4	6.7	16.7
1985 [2])	16.4	6.2	10.2
1990 [2])	15.6	5.8	9.8
2000 [2])	14.2	6.1	8.1
2010 [2])	11.3	7.2	4.1
2021 [2])	10.0	9.7	0.3

Sources : 1) EPB, A Comprehensive Study on 1966 Census, 1970, p.30
2) NSO, Population Projection for 1990~2021, 1991

Table 3 : Mean No. of CEB

(per ever married woman)

Country	Year	15 ~	20 ~	25 ~	30 ~	35 ~	40 ~	45 ~ 49
Korea	1966	0.50	1.10	2.31	3.78	4.85	5.53	5.66
	1990	0.47	0.75	1.31	1.91	2.37	2.84	3.45
Japan	1950	0.49	0.94	1.69	2.74	3.76	4.49	4.76
	1960	0.32	0.70	1.41	2.23	2.76	3.29	3.93
	1987	-	0.73	1.29	1.95	2.13	2.16	2.20
Taiwan	1966	0.7	1.4	2.6	4.0	4.9	5.4	5.7
	1990	0.75	1.14	1.68	2.32	2.69	2.99	3.39
Thailand	1980	0.69	1.43	2.32	3.28	4.26	5.05	5.52
	1987	0.52	1.15	1.83	2.52	3.34	4.18	5.18
Indonesia	1987	0.57	1.47	2.45	3.51	4.41	5.25	5.69
Sri Lanka	1987	0.6	1.3	2.8	2.8	3.3	4.3	5.1
U.S.A	1987	0.63	0.93	1.40	1.97	2.57	3.11	-
	1988	0.56	0.94	1.34	1.77	2.09	2.28	-

III. Factors Accounting for Fertility Decline in the Case of Korea

As mentioned in the previous section, Korea has experienced a rapid decline in fertility within a short time span. What are factors for this rapid decline in fertility? There are indeed many research findings reported by population studies about the determinants of levels and differences in fertility. Generally, the levels, patterns and trends of fertility are found to be influenced by a wide variety of factors, many of which are intricately interrelated. The relationship between the level of fertility and specific factors is well documented by Freedman's model and Easterlin & Crimmin's framework as shown in Figure 1.

The latter reported that fertility is determined by the interaction of three variables, namely, demand, supply and regulation costs. This framework seeks to explain fertility decline in the light of more general societal transformation, usually referred to as the modernization process.

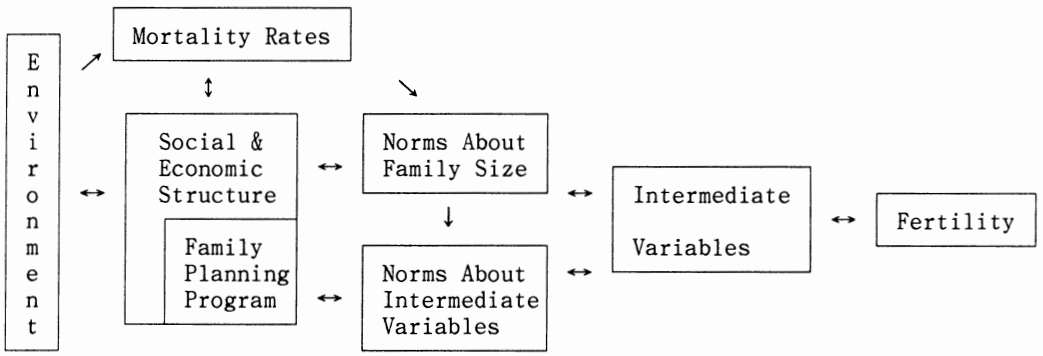
The application of these models with reference to the case of Korea was done by Choi. Adopting the decomposition method and the multiple classification analysis, he asserted that increase in the contraceptive use, induced abortion, increase of women's educational attainment, decrease in the preference for son, urbanization, and decrease in child mortality have inter-dependently played an important role to decrease the level of fertility during the last three decades in Korea.[4/]

Another finding in his study is that the gaps in fertility differentials among various socio-economic groups have narrowed owing to rapid modernization in Korea. This implies that the effect of socio-economic factors on fertility trends will become minimal in the future.

4/ Choi, Bong-Ho (1991), Fertility Change and Its Determinants in Korea, Unpublished M.Phil Thesis, Cairo Demographic Centre.

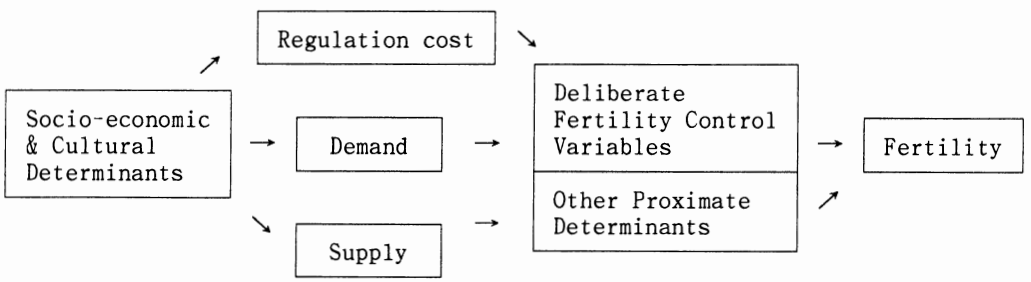
Figure 1 : Framework for Fertility Analysis

Freedman's Model



Source : Freedman, R.(1975), The Sociology of Human Fertility : Annotated Bibliography

Easterlin and Crimmins' Framework



Source : Easterlin and Crimmins(1985), The Fertility Revolution : A Supply-Demand Analysis

In other words, the three groups of determinants such as demographic factors, contraceptive use and governmental policy are becoming more important factors. Periodic fluctuations in the measure of fertility will be caused mainly by alternations in the age composition of the population, changes in nuptiality, changes in the tempo and the quantity of chidbearing. Also, the use of effective means of contraception will help to reduce the number of births through prevention of unwanted pregnancies.[5/]

5/ UN, World Population Trends and Policies : 1979 Monitoring Report, Vol. 1, 1980, pp. 60-62

IV. Consequences of Demographic Transition

The change in fertility and mortality levels in the countries of the Region will have an important bearing on several features of these countries. Included are their age structure, their investment in schooling, the size and productivity of their labor force, the level of savings, and the growth of per capita and total product. The relationships between the demographic change and its consequences are well identified by the following two studies.

One is the study done by McNicoll. In his article, he developed a simple analytical scheme showing the population growth effects on the wider economy and society.[6, 7/] He also described, in great detail as well as in a comprehensive fashion, the consequences of population at various levels, i.e, household, village, and national levels(Figure 2).

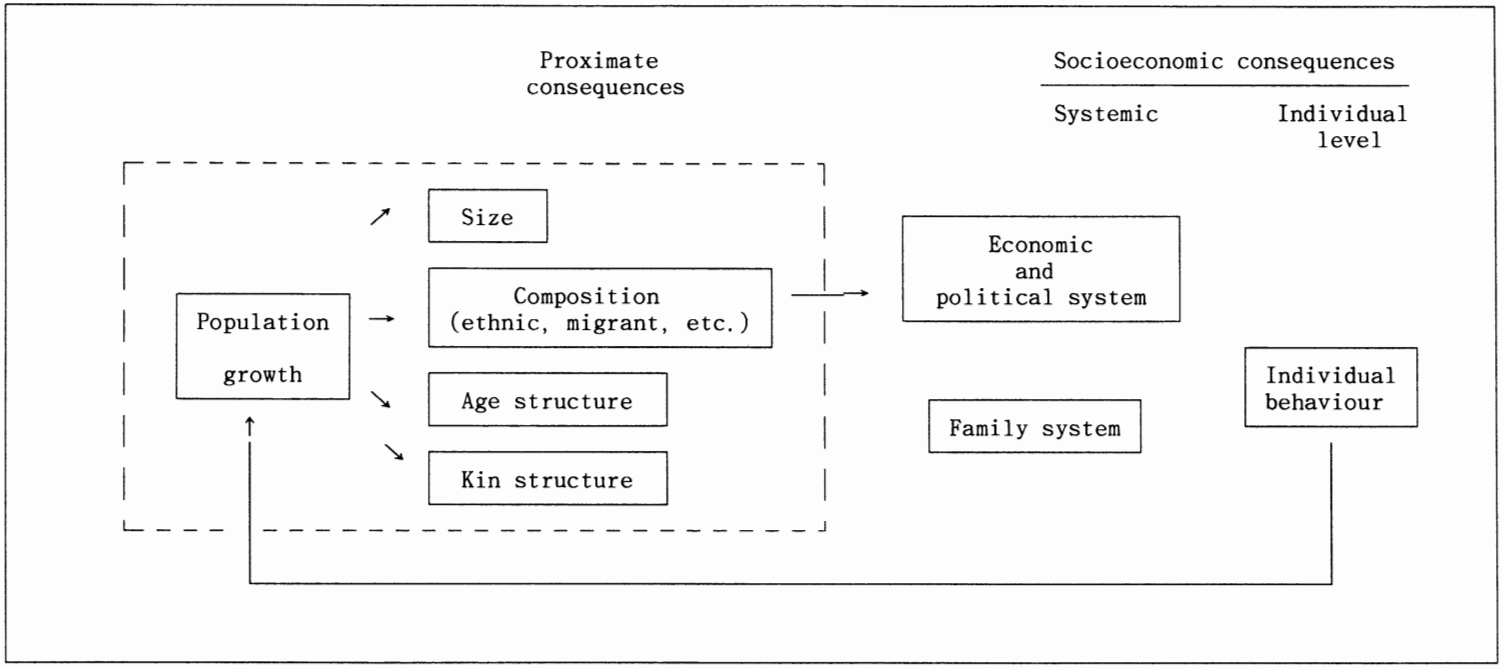
The other is the Demographic-Economic Model developed by Suits and Mason.[8/] This model, as shown in Figure 3, is a highly schematic representation of the structure of economic development and demographic change. In this model, we see that fertility and mortality combine to determine the rate of increase in population, its size and its age structure. The figure also shows that demographic changes have an influence on three key components of economic growth : labor force size, labor force quality and investment.

6/ McNicoll, Geoffrey (1984), Consequences of Rapid Population Growth : An Overview and Assessment, Population and Develpment Review, Vol. 10, No. 2, pp. 177-240

7/ Ogawa, Naohiro (1989), Consequences of Population Change : A Household Level Approach, Asian Population Studies Series No. 102, ESCAP, pp. 121-141

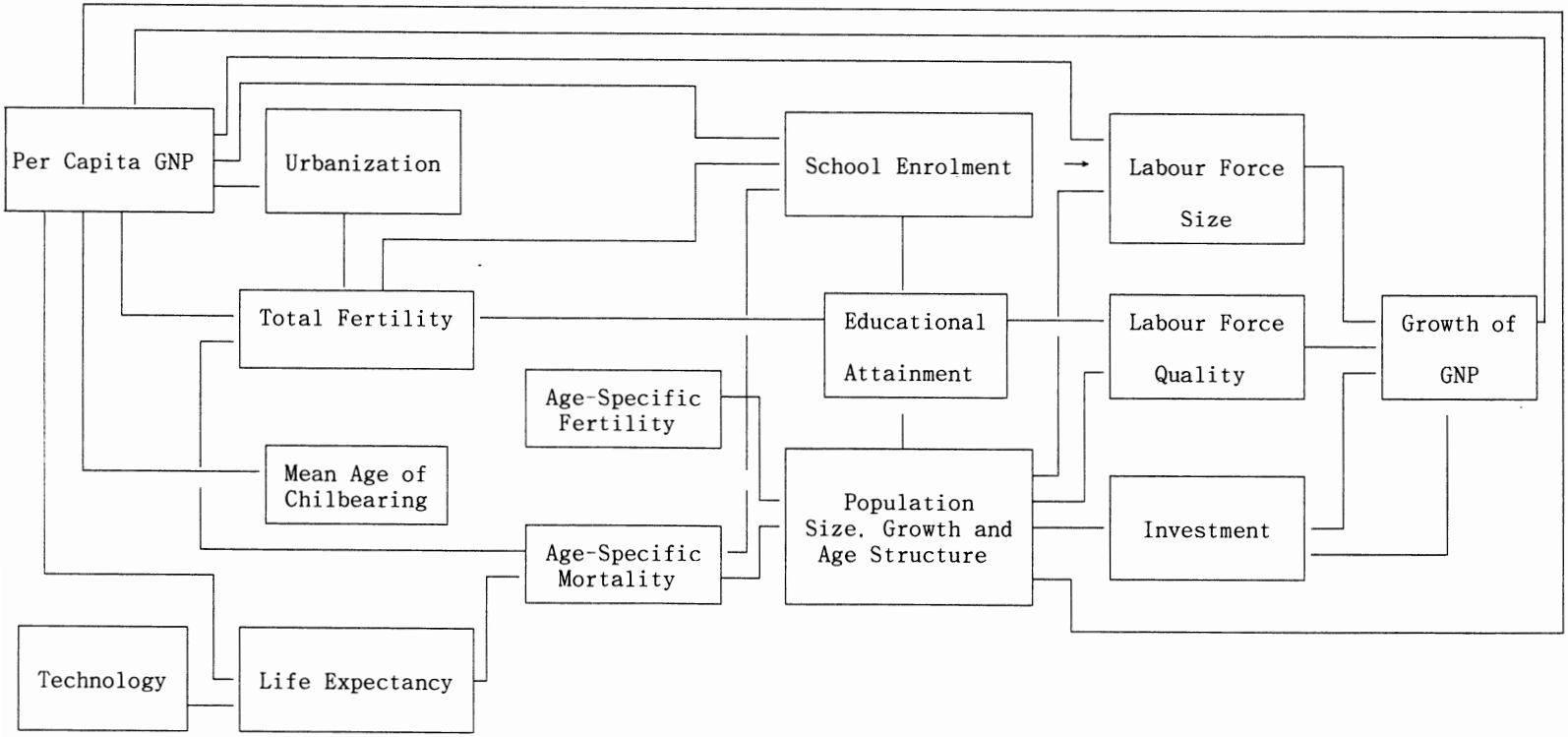
8/ Mason, Andrew, et al. (1986), Population Growth and Economic Development : Lessons From Selected Asian Countries, Policy Development Studies No. 10, UNFPA.

Figure 2 : Schematic Chart for Analysis of Population Growth Consequences by McNicoll



Source : McNicoll (1984), p.179

Figure 3 : Flow Chart of Suits and Mason Demographic-Economic Model



Both models reveal that the change in fertility and mortality levels has a great impact on various aspects of the society and economy. However, the magnitude of consequences can be varied according to the timing of the onset of a sustained fertility decline.

Among Asian countries, the population of South Asia whose fertility is still high will increase over the coming decades. This increase will entail continued high government expenditures to improve levels of education and health. Moreover, the growth rate of the labor force of South Asia will be at least as high as that of the population over the coming two decades. Even if fertility starts to decline rapidly, the initial effect will be on the primary school population, and there will be no short-term deceleration in the growth of the labor force. Efforts to provide employment, raise wages and reduce dependence on agriculture will be hampered as a result.

At the end of the demographic spectrum is Japan where the replacement level of fertility was already attained in 1957. Demographic change there presents economic challenges of an entirely different nature. Decelerated population growth will mean even higher wages, reduced investment opportunities at home, and further shifts out of labour-intensive industries. An ageing population may strain the welfare system and reduce rates of savings.

Meanwhile, in Korea, Taiwan, Hong Kong and Singapore, the population problems are found to be different from those of South Asian countries. These countries are the New Demographic Leaders(NDLs) of Asia, so called because each of them has experienced particularly rapid improvements in mortality and steep declines in fertility during the last two decades.

Examples of demographic changes in NDLs are declining population growth, ageing population and rapid increase in the number of households. These demographic changes will have an enormous impact on the economies of the NDLs- not to mention their polities. Especially, the impact on consumer spending, household savings and the labor force is apparent.

The pattern of change resulting from rapid fertility decline as experienced by Korea is typical.

In Korea, the economically-active population(15-64 years) will account for 71 to 72 percent of the total population up to the year 2021. In 1990, 69.2 percent of the total population was accounted for by this economically active population, a seven point increase over the 1980 level. In terms of absolute numbers and growth rates, the economically active population increased by 5.9 million and 2.3 percent on an annual basis over the last ten year period.

However, the portion of economically active population within the 15-24 age category, which was 22.6 percent of the total population in 1980, has declined to 20.4 percent in 1990.

The annual growth rate of the young work-force aged 15 - 24 years also showed a rapid decrease from 4.0 percent in the 1970-80 period to 1.6 percent in the 1980-90 period.

Such slower growth in the number of young working-age people is contributing to severe labor shortages, which have in turn increased labor costs and encouraged the expansion of production abroad. The trend will continue as the portion of the work-force aged 15-24 years among total population is expected to decline to 16.5 percent in 2000 and further to 12.7 percent in 2021.

Korea will also have to face in the not so distant future the many problems likely to arise from the rapid pace at which her population is growing old. At present, Korea's population is in the mature population stage, since in 1990 only 5.0 percent of her population is represented by those aged 65 years and over. However, by the year 2005, Korea will certainly enter the aged population stage, as 8.2 percent of her total population will then be accounted for by those aged 65 years and over.

The implications of the change in fertility on the age structure of Korean population can be summarized as follows : First, the number of young population aged below 15 years will continue to decrease ; Second, the number of older population aged 65 years and over will rapidly increase ; Third, the number of reproductive population aged 15-64 years will continue to increase.

Consequently, Korea is believed to have the sufficient stock of manpower for the coming 30 years. This implies that continuous creation of job opportunities is required to absorb the manpower.

In this context, after Korea reaches the stage of post demographic transtion, more efforts should be given to the qualitative aspects of population policy.

It is urgently needed to prepare systematic and comprehensive measures and programmes for upgrading the quality of population based on elaborate studies on demographic and socio-economic factors with an integrated approach to human development taking into account the relationship between population and development.

Table 4 : % over 65, Median Age and Dependency Ratio in Selected Countries of the Region

	1960	1990	2020
Japan			
· % over 65	5.7	11.7	23.7
· Median age	25.5	37.2	44.8
· Dependency ratio	56.1	43.2	63.9
Singapore			
· % over 65	2.2	5.6	15.4
· Median age	18.8	29.7	40.8
· Dependency ratio	82.8	40.7	47.7
Hong Kong			
· % over 65	2.8	8.8	18.4
· Median age	23.1	31.5	45.6
· Dependency ratio	77.6	41.9	47.2
Korea			
· % over 65	2.9	5.0	13.1(2021)
· Median age	19.0	26.9	41.2
· Dependency ratio	82.6	44.5	40.6
Taiwan			
· % over 65	2.5	6.1	13.9(2021)
· Median age	16.6	27.3	39.5
· Dependency ratio	92.0	49.6	47.7
China			
· % over 65	4.8	5.8	11.3
· Median age	21.8	25.7	36.7
· Dependency ratio	77.7	47.7	42.1
Thailand			
· % over 65	2.7	3.9	8.4
· Median age	17.9	22.9	34.3
· Dependency ratio	90.3	57.6	43.9

Table 4 (Continued)

	1960	1990	2020
Sri Lanka			
· % over 65	3.6	5.2	9.0
· Median age	19.1	24.2	34.0
· Dependency ratio	84.1	60.7	48.6
Indonesia			
· % over 65	3.3	3.9	7.8
· Median age	20.0	21.6	31.7
· Dependency ratio	77.0	65.6	44.6
Malaysia			
· % over 65	3.4	3.7	7.3
· Median age	17.6	20.9	30.8
· Dependency ratio	94.9	72.0	44.8
Viet Nam			
· % over 65	4.2	4.4	5.2
· Median age	21.6	20.0	28.7
· Dependency ratio	75.1	77.9	44.1
Philippines			
· % over 65	3.0	3.4	5.8
· Median age	17.6	19.7	28.1
· Dependency ratio	91.0	77.0	48.1
India			
· % over 65	3.4	4.5	7.2
· Median age	20.4	21.8	28.9
· Dependency ratio	76.1	69.5	47.8
Bangladesh			
· % over 65	3.7	2.9	3.8
· Median age	19.8	17.7	24.9
· Dependency ratio	80.8	87.9	50.1

Table 5 : Population by Age Group in Korea

	Total Population	0 ~ 14	15 ~ 24	25 ~ 44	45 ~ 64	15 ~ 64	65 +
1960	25,012	10,588	4,741	5,985	2,973	13,698	726
1965	28,705	12,578	4,984	6,999	3,263	15,246	881
1970	32,241	13,709	5,838	7,908	3,794	17,541	991
1975	35,281	13,614	7,409	8,810	4,230	20,449	1,217
1980	38,124	12,951	8,613	10,050	5,050	23,717	1,456
1985	40,806	12,305	8,682	12,002	6,075	26,759	1,742
1990	42,869	11,077	8,753	13,894	7,000	29,648	2,144
1995	42,851	10,400	8,378	15,522	8,008	31,908	2,543
2000	46,789	9,917	7,721	16,842	9,142	33,705	3,168
2005	48,434	9,841	7,017	16,633	10,987	34,636	3,956
2010	49,683	9,510	6,493	16,144	12,868	35,505	4,668
2015	50,346	8,790	6,583	15,108	14,455	36,146	5,410
2021	50,586	7,989	6,413	13,853	15,707	35,972	6,625

Source : National Statistical Office (1991), Projected Population for 1990~2021, Seoul

V. Conclusion

Some countries of the Region, including Korea, have reached the point where the fertility rate is below replacement level. Although such sub-replacement level of fertility does not imply immediate stationary populations, the prospect of a stationary population within the next three decades has become a real possibility in these countries. In the case of Korea, it will be attained in 2021 if the current level of fertility continues.

In this context, some countries of the Region such as Korea, Taiwan, Hong Kong and Singapore are believed to be in the process of going beyond the demographic transition. In other words, reproduction in those countries is under almost complete control except for within some groups of women.

In the future, the current low level of fertility will continue. It appears certain that a return to large families is unlikely in those countries as was evidenced by Japan. This continuing low level of fertility will inevitably bring about a pervasive influence on many aspects of the society such as labor force supply and ageing population.

It is, therefore, suggested that more efforts should be given to the qualitative aspects of population policy at the stage of post demographic transition.

Prepation of systematic and comprehensive national measures and programs for upgrading the quality of the population based on elaborate studies on demographic and socio-economic factors is urgently needed. In doing so we should adopt an integrated approach to human development by taking into account the relationship between population and development.

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Chapter 3

FAMILY CHANGES AND AGING IN KOREA

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I. Introduction

II. Changes in Family Structure

III. Demographic Aspects of Aging

IV. Family Aspects of Aging

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VI. Conclusion

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FAMILY CHANGES AND AGING IN KOREA

I. INTRODUCTION

The Republic of Korea has experienced dramatic changes in terms of economy and social life during the last several decades. In other words, due to consistent governmental effort to industrialize the Korean economy, Korea has been rapidly transforming from rural-oriented economy and social life to urban-oriented economy and social life. In the process of industrialization, people concentrated in urban areas to look for better opportunities to improve their economic situation or for further education. These processes of industrialization and urbanization have significant impact on every aspects of Korean life.

Particularly, the urbanization process has had significant impact on structure of the Korean family due to the selective nature of rural-to-urban migrants. As a consequence, there are emerging differences in family structure between urban and rural areas. As the Korean society becomes industrialized and urbanized, family system in Korea also undergoes change.

During the process of industrialization and urbanization, efforts to deal with population problems in Korea have been focused largely on the reduction of population growth. The national population control program has been a major means of achieving this goal. Between the early 1960s and 1985, survey evidence indicates that the percent of current use of contraception rose from about 12 percent to 77 percent, and in 1988 the total fertility rate fell to 1.6, representing one of the most rapid fertility transitions in the developing world. In conjunction with this rapid reduction in fertility, mortality also improved significantly during this period. Thus, Korea has virtually completed the demographic transition from high birth and death rates to low birth and death rates during the same period.

The aging process in Korea has been accelerated by the rapid reduction in fertility. In this context, there has been growing concern over potential problems and needs that may arise from the increase in the number and proportion of the elderly population as related to the rapid socio-economic changes experienced during the past three decades. In this sense, the main purpose of this paper is to review the relationship between family change and aging phenomenon in Korea. To achieve this purpose, changes in family structure will be reviewed in the following section. Based on this, demographic and family aspects of aging in Korea will be discussed.

II. CHANGES IN FAMILY STRUCTURE

As the Korean society becomes industrialized and urbanized, the family as a social unit undergoes change in their structure. Traditionally, family system in Korea were affected by the Confucianism. Some characteristics of the Confucian philosophy related with marriage and the family are universality of marriage; prevailing custom of early and arranged marriage; strong social pressure for having sons; low status of women, etc. However, as the Korean society have experienced rapid transformation from traditional agrarian society into modern industrializing society, every aspects of Korean life becomes dramatically changing, including family life. Three major trends in structure of the family were observed during the last several decades, namely, smaller size of household, increasing trend of nuclear family, and, finally, increasing trend of one generation household.

First of all, reduction in number of household members is observed. As can be seen in Table 1, average number of household members in Korea were as high as 5.6 persons per household in 1966. Household in rural area has revealed relatively larger in household size compared with that in urban areas. However, household size continue to decrease to 3.8 in 1990; and there is no difference between urban and rural areas by 1990 (NSO, 1991). Therefore, declining household size as a whole and reduced gaps in household size between urban and rural area are important trends observed during the last three decades.

Second, proportions of nuclear families were dominant type of household regardless of residence. However, proportions of two generation families were higher for urban areas and those of three generation families were higher for rural areas. The table reveals that proportions of two generation families were slightly increased from 74.3 percent in 1966 to 76.5 percent in 1985 for urban areas and from 64.1 percent in 1966 to 67.0 percent in 1985 for rural areas.

However, proportions of three generation families were slightly declined from 15.9 percent in 1966 to 12.9 percent in 1985 for urban areas, whereas those of three generation families were rapidly declined from 28.5 percent in 1966 to 21.4 percent in 1985 for rural areas. These figures suggest that nuclear family type is dominant and increasing trends for both urban and rural areas, while extended family type were decreased. Therefore, nuclearization in family type is another aspect of changing patterns in the family structure.

Third, as can be seen from the same table, proportion of one generation families in both urban and rural areas reveals increasing trend. However, those of one generation families increased more rapidly for rural areas. The proportions were increased only 2.2 percent point for urban areas, whereas those were more than doubled for rural areas. Choi (1990) also report that about 11 percent of households in urban areas and about 13 percent of households in rural areas were one person household.

Furthermore, he also report that couple-only-household in rural areas were more than double of those in urban areas. Therefore, increasing trend of one generation families, particularly in rural areas, reveals changing patterns in family structure in Korea.

III. DEMOGRAPHIC ASPECTS OF AGING

There has been a significant increase in the number and proportion of the elderly population during the last three decades. Those aged 65 and over increased from 0.7 million (2.9 percent of the total population) in 1960 to approximately 2.1 million (5.0 percent of the total population) in 1990, which means an increase of about 1.4 million elderly people during the last three decades. Moreover, it is projected that an additional 4.2 million will be added by the year of 2020 so that the number of the elderly will reach approximately 6.3 million and the proportion will be 12.5 percent of the total population by that year (Table 2).

As can be seen from the table, the growth rate for the elderly population is much greater than for the young, working age population (aged 14 and less), whose growth rate will be negative, reflecting the influence of the rapid reduction in fertility. The growth rate for the working age population (aged 15 to 64) will also continue to decline, but unlike the other age groups, the annual growth rate for the elderly is relatively constant at about 4 percent, indicating that the elderly population is expected to increase rapidly in the near future.

Even though the total dependency ratio is expected to decrease, due mainly to the rapid decline in the young dependency ratio, the old dependency ratio is expected to increase steadily. As a result, the index of the aging, which is the percentage of those 65 and over in relation to those under 15, will increase significantly. As can be seen in the table, while the elderly population was only about one-fifth of the young population in 1990, the elderly population will increase to about four-fifths of the number the young population by the year 2020. This suggests that taking care of elderly dependents will become a heavy burden for the working age population in the near future.

The aging of the Korean population, which did not begin with the initial decline of fertility in the early 1960s when the birth rate declined slowly, seems to differ from that experienced in Western countries. The effect of the decline in the birth rate during that period was offset by the decline in mortality so that the age structure remained more or less stable. It was only after the late 1970s that aging process of the Korean population was initiated by the drastic decline in fertility which occurred after the baby boom cohort passed its active childbearing period.

Unlike the Western experience, the aging process, once begun, proceeded more rapidly. It took about a century for Western countries to increase their proportion of older people from around 5 to 12 percent, but Korea will increase its proportion of older people to the same level in less than half that time, that is only in the 30 years from 1990 to 2020. In this sense, Korea can be identified as one of the 'nascent' aging countries (Choe, 1989).

IV. FAMILY ASPECTS OF AGING

Traditionally, the aged in Korea are supplied with economic and emotional needs by their families as a result of the high value placed on filial duty in the past and they exerted absolute authority over the younger generation based on Confucian philosophy. As Korean society becomes industrialized and urbanized, the family as a social unit is undergoing structural changes. Also the traditional, family value system, i.e., familial duty and family care for the elderly, is gradually disappearing. Related with these social changes, the elderly in Korea are losing power over their children and becoming less able to adjust to the rapidly changing socioeconomic environment. In this section, several dimensions of the family aspects of aging in Korea are briefly reviewed.

A. Family Life Cycle

Due to the reduction in fertility, improvement in the mortality rate, and socioeconomic development, the Korean family life cycle experienced dramatic changes (Park, 1987), i.e. the time interval between the marriage of the last child and the death of the husband has been increasing over the last 40 years. For example, the cohort of women married during the 1935-45 period experienced the death of their husbands 5.8 years before the marriage of their last child, and women were expected to die almost at the same time as the last child married, but due to the decline in fertility and the development of medicine and, hence, improved mortality, the time intervals have lengthened. It is expected, therefore, that the recent cohort of women will experience a longer empty nest stage than those in the earlier cohorts. In this sense, special attention should be paid to the elderly who are in the empty nest stage.

B. Living Arrangements

Weakened traditional family functions in caring for the elderly parallel with changes in the family structure have been observed recently in Korea. Owing to the fertility decline and the prevailing nuclear family system, the average number of household members has decreased, and due to urbanization and industrialization, more women are participating in the labor market

outside of their homes, reflecting further problems in caring for the elderly, because women played a significant role as the primary providers of care for the elderly at home. The prevalence of the nuclear family system has increased the number of elderly-only households, accounting for 5.2 percent of the total households in 1990.

As Table 3 shows, about two-fifths of the elderly aged 60 and over in 1984 maintained a traditional stem family system by living together with their eldest son's family, but about one-third of the elderly population co-reside with sons other than the eldest or maintain independent living arrangements. This means a digression from the traditional concept that one's eldest son is obliged to reside with his parents. The proportion of the elderly living with their eldest son was found to be the lowest in metropolitan areas and the highest in rural areas. This indicates that modernization and urbanization may have a significant impact on the elderly' living arrangements.

Even though an increasing number of the elderly may maintain non-traditional type of living arrangements, about 76 percent resided with their off-spring in 1984. The elderly expressed the opinion that the most desired type of living arrangement is the extended family system, indicating that strong familism among the elderly still prevails in Korea. Actually, about 83 percent of the elderly desired that "the whole family to live together" in 1981 (Gallup Polls, 1984), but this wish for co-residence with family members changed a lot during the 1980s and the proportion had declined to 61.4 percent in 1990 (JARC, 1991), reflecting the fact that attitudinal changes were occurred in the pattern of co-residence with children. More and more elderly want to maintain independent living arrangements as long as they can afford them.

As young people moved massively into urban areas, the elderly left behind in rural areas have suffered from a shortage of farm hands and a feeling of alienation. The elderly in urban areas have also suffered from a loss of social roles in their homes and communities, and hence, feel alienated. The alienation among the elderly usually comes from a loss of social roles and familial care. They usually spend their time in public houses for the elderly, which do not provide sufficient social services to eliminate the feelings of alienation.

C. Marital Relations

Given the sex differentials in mortality levels and age at marriage, elderly women experience a very high risk of being widowed. In Table 4, about 86 percent of the male elderly aged 60 and over reside with their spouses, whereas only about 30 percent of the female elderly reside with their spouses. As the age of the elderly increases, the female elderly are increasingly less likely to have spouses compared with their male counterparts. More than 40 percent of the male elderly aged 80 and over still had their spouses, only 3 percent of the same aged females had

spouses. This inequality in the marital status by sex may, therefore, affect the quality of elderly life, particularly that of the females by affecting their adaptability to their environments. This phenomenon may explain why the female elderly show a greater tendency to depend on their children than their male counterparts.

D. Intergenerational Relations

As Korean society becomes industrialized and urbanized, the elderly may not have the same power they enjoyed previously, but they are still very important members of their families and play a significant role in their families. They may help with the household work, look after grandchildren, talk to and consult with or lead the family as a financial supporter and head of the household.

Given that more than 76 percent of the Korean elderly reside with their offspring, many elderly encountered problems in intergenerational relations within their families. According to Lim et al. (1985), about 40 percent of the aged had experienced conflicts with their sons and another 40 percent had experienced conflicts with their daughters-in-law. A major reason for the conflict among the male elderly is economic, while that of the females is due to personality differences. This intergenerational conflict reflects the fact that the traditional authority and decision making power in the household affairs of the elderly is threatened by their sons or daughters-in-law.

E. Family Support

Most aged Koreans, except those who can support themselves, are expected to be supported by their families, particularly their children, and the family can provide emotional as well as economic support. Traditionally, this relationship has been considered the norm according to Confucian philosophy.

According to the survey results conducted by JARC in 1990, unlike other countries, the aged in Korea are in favor of co-residing with children who are the most desirable caretakers when the elderly are bedridden due to illness, while children living separately are favored next. This result indicates that the Korean elderly consider that children are the most important sources of help when they need care.

As a consequence of industrialization and urbanization, the function of the family in caring for the elderly within the household has weakened. Generally, the elderly in Korea are retired from the private or public sector at about the age of 60 and very few of them receive any kind of pension. The loss of the income to maintain themselves becomes the most distressing factor for the elderly, so weakened support from the family and an inadequate pension system, results in a poor quality of life for the elderly.

F. Relations with Friends and Neighbors

In addition to intergenerational family relations, friends and neighbors may play an important role in the lives of elderly people. About 60 percent of the Korean elderly have close friends of the same sex to consult with or to be taken care of, but the remaining one-third do not have close friends. The proportion of female elderly who do not have close friends is higher than that of the males.

Concerning the frequency of friendly talks with people in the neighborhood, more than half of the Korean elderly respond that they talk with their neighbors every day, which is the highest among the surveyed countries (JARC 1991). Among the Korean elderly, giving advice and enjoying tea and meals together are reported as the most frequent associations with their neighbors.

G. Attitude about co-residence with their children

The majority of the elderly aged 60-64 (males, 53.7 percent; females, 69.8 percent) wanted to live with their children. As they get older, the desire for co-residence with their children increases to 66.7 percent for males aged over 65 and 81.5 percent for females, which means that the majority of the elderly still prefer to co-reside with their adult children, particularly the female elderly.

H. Attitude about cost of living in later life

The attitude about dependence on adult children for their living in the near future differed remarkably by sex. About 43 percent of the female elderly responded that they should depend on their children while only about 28 percent of the male elderly expressed the same wish. Only 2.4 percent of the elderly said that their living costs should come from the government. The remaining 60 percent responded that their living costs should come from savings or other sources which they had established themselves, so the majority provided for themselves or were provided for by family members; and only a limited number expect government aid, reflecting that aid from the government is inadequate to cover the living costs of later life, so government support for the needy elderly requires special attention.

V. FAMILY CHANGE AND AGING

The above mentioned changes in family structure affect roles and functions of family system in Korea. Related with reduction in family size, function of the family on bearing and rearing of child were weakened compared to those of traditional extended family system. However, desire to provide more

opportunities in terms of economical materials or emotional affections to their children were even increasing; resulting social problem of over-protection of children.

Contrast to these over-protection of children, the elderly who were not living together with their adult children were generally neglected from formal and informal support system. This becomes another social problems in Korea regarding how to care and support of the needed elderly, since extension of life expectancy at birth has changed age structure of the Korean population because more elderly can be survived into older years. Traditionally, care of the elderly were one of major responsibility of the families. However, as society become urbanized and more families were comprising nuclear family type, norms and values of caring of the elderly within the family become slowly changed, requiring more formal support from Government.

Problem of caring of the elderly were hampered by rising proportion of married women who work outside household. Traditionally, support of the elderly were responsibility of daughter-in-law. However, process of modernization and urbanization affect proportion of married women who work outside of their household. This trend is expected to be further increasing. Therefore, this rising trend of women's participation in labor market affect significantly in changes of roles and functions of the traditional family.

The elderly living with their adult children become losing their authority on decision of the family matters because, generally, adult children has financial power in the family, whereas the elderly generally lack economic power due to retirement or inheritance to their son. In this sense, the elderly become mere liability in the family and whose role is generally confined to take care of the grandson or to provide household chores. These changes in roles and functions of elderly in household can explain increasing trend of one generation elderly household, because the elderly prefer independent living arrangement until they have means to live independently to avoid conflict with their adult children.

VI. CONCLUSION

The burden of taking care of the aged is becoming pressing due to the rapid increase in the number and proportion of the elderly in Korea's population. These increasing numbers and proportions may be classified in the empty nest stage or the living alone stage. The majority of the aged in Korea prefer support to be rendered by their families. Among the aged who need care, the family is still one of the primary concerns in Korean society. This tendency was reinforced because of the inadequacy of the social support system.

As a result of the rapid socioeconomic development and urbanization, however, increasing attitudinal gaps between the young and the aged are observed. This brings about care problems and psychological conflicts. Due to rapid industrialization and urbanization, the elderly in Korea are experiencing changes in the family structure, the loss of their economic and social status, and emotional dissatisfaction because of the deterioration of their relationships with their families. Another emotional problem could be a conflict stemming from inter-generational relations. These attitudinal changes and conflicts between generations lead to potential problems in the care of the elderly the majority of whom need help to maintain decent lives in later years.

Given that the elderly in Korea played a significant role in rapid economic development, they deserve to be supported by the Government as well as by their families, so even though the primary obligation for care of the elderly still belongs to the families of the aged; more adequate social support is needed.

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Table 1. Changes in Family Structure by Residence

Year Residence	Household Type				Nuclear Family* (%)	Household Size
	1	2	3	4		
1966						
Whole Country	5.7	67.7	24.0	2.6	66.8	5.62
Urban	8.1	74.3	15.9	1.7	72.4	5.27
Rural	4.3	64.1	28.5	3.1	63.7	5.81
1970						
Whole Country	6.8	70.0	22.1	1.1	71.5	5.24
Urban	9.2	75.4	14.9	0.5	76.9	4.88
Rural	5.0	66.0	27.4	1.6	67.5	5.60
1975						
Whole Country	7.0	71.9	20.1	1.0	70.7	5.22
Urban	8.7	76.3	14.5	0.5	73.8	4.99
Rural	5.4	67.6	25.6	1.4	67.6	5.44
1980						
Whole Country	8.8	73.1	17.6	0.6	72.9	4.76
Urban	9.7	76.5	13.5	0.3	74.6	4.63
Rural	7.6	68.3	23.2	0.9	70.3	4.93
1985						
Whole Country	10.5	73.3	15.8	0.5	75.3	4.53
Urban	10.3	76.5	12.9	0.3	76.7	4.30
Rural	10.8	67.0	21.4	0.8	72.4	4.44

Source: Seventh Socioeconomic Development Plan (1991).

* Nuclear family refers those of couple only, couple and unmarried child(ren), and single parent and unmarried child(ren).

Table 2. Trends of Major Population Indicators for Aged Population in Korea

	1960	1970	1980	1990	2000	2010	2020
Total Population ('000)	25012	32240	38124	42869	46789	49683	50578
Proportion	100.0	100.0	100.0	100.0	100.0	100.0	100.0
0-14	42.3	42.5	34.0	25.8	21.2	19.1	16.0
15-64	54.8	54.4	62.2	69.2	72.0	71.5	71.5
65-	2.9	3.1	3.8	5.0	6.8	9.4	12.5
Annual Growth Rate (%)							
Total		2.6	1.7	1.2	0.9	0.6	0.2
0-14		2.6	-0.6	-1.6	-1.1	-0.4	-1.6
15-64		2.5	3.1	2.3	1.3	0.5	0.2
65-		3.2	3.9	4.0	4.0	4.0	3.1
Dependency Ratio							
Total	82.6	83.8	60.7	44.5	38.8	39.9	39.9
Young	77.3	78.2	54.6	37.3	29.4	26.8	22.4
Old	5.3	5.7	6.1	7.2	9.4	13.1	17.5
Index of Aging	6.9	7.2	11.2	19.4	31.9	49.1	78.2

J.J. Yoon (1991)

Table 3. Elderly Living Arrangement in Korea, 1984

	Total	Metropolitan	Other City	Rural Area
Total	100.0	100.0	100.0	100.0
Independent State	22.6	17.0	20.6	25.3
Eldest Son	38.4	34.7	39.0	39.8
Other Son	12.4	11.0	9.9	13.6
Unmarried Children	23.0	31.0	25.8	19.0
Daughter	2.4	5.0	3.5	1.1
Other	1.2	1.3	1.2	1.2

Lim et al. (1985)

Table 4. Marital Status of Elderly by Age Group in Korea, 1984

(Unit: Percent)

Male Age Group	Female			
	W/ Sp.	W/O Sp.	W/ Sp.	W/O Sp.
Total	86.3	13.7	29.5	70.5
60-64	93.9	6.1	46.4	53.6
65-69	92.5	7.5	31.9	68.1
70-74	82.5	17.5	22.2	77.8
75-79	66.0	34.0	15.3	84.7
80-	42.6	57.4	3.0	97.0

Source: Lim et al. (1985)

Chapter 4

CHANGES IN WOMEN'S STATUS AND THEIR ROLES IN KOREA

Contents

I. Introduction

II. Population, Household and Family

III. Women's Status in Education

IV. Women's Status in Employment

V. Women's Status in Public Affairs

VI. Women's Status in Welfare

VII. Conclusion

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Introduction

In the traditional Korean society, women's role was confined to the home. Women were simply required to learn the Confucian virtues of subordination and endurance, while being denied opportunities to participate in social and political functions. Women's major role was to give birth to offspring, especially sons to preserve the family line and women served to maintain the order of the family under the extended family system. In terms of the social status and hierarchy, women were dependent to men. Regardless of social stratum, they belonged to social institutions and the custom of avoiding the opposite sex after the age of seven did not permit women to be involved in non-family affairs.

Since the 1880s, the situation has begun to improve slowly, thanks to the education of women which followed the opening of the country to the outside world. With the help of enlightening movement, the self-awakening of women led to their national awakening under the Japanece rule, and women took part so actively in the Independence Movement. A woman's liberation movement calling for human rights for women also began to emerge.

The Constitution of the Republic of Korea, promulgated in 1948, guaranteed respect for the dignity of individuals and equality between men and women as a guiding principle under the initiative of democratic legislative measures. Based on this principle, various legislative reforms have been implemented and the status of Korean women has undergone enormous changes. Having been given to the franchise to vote, to be elected and to assume public duties. Women were able to participate in the country's major decision-making.

In accordance with the successful implementation of 5-year economic development plans since the 1960s. Korea has achieved remarkable economic growth. Export-oriented industries required a large female labor force. As the result of the country's industrialization, there has been a drastic change and development in the various fields of the society. The impact of the social transition has been especially strong on Korean women, who have experienced role expansion through the changes in the traditional family structure, value system and the employment structure. In addition, the expansion of the educational opportunities for women has contributed to developing women's capability and to raising their consciousness.

The International Women's Year in 1975 and the subsequent UN Decade for Women (1976-1985) brought about significant advancement in the status of Korean women. The adoption of the Convention of Elimination of All Forms of Discrimination Against Women by the UN General Assembly in 1979 had greatly changed public attitude in Korea towards sexual equality and the concept of women's advancement.

The Korean Government had taken positive steps to enhance women's status on both governmental and private levels. Among the outstanding results were; 1) the revision of the Labor Standards Act in 1982, 2) the signing in 1983 and ratification in 1984 of the Convention on the Elimination of All Forms of Discrimination Against Women, and 3) the establishment of the Korean Women's Development Institute in 1983 (KWDI) which deals exclusively with women's issues on a national level. In the same year, the Korean Government established the National Committee on Women's Policies under the authority of the Prime Minister's Office. This was another step towards faithfully implementing the provisions of the convention of deliberating on and coordinating national policies of women.

To ensure women's participation in social and economic activities, the Korean Government, for the first time, included the Women's Development Sector in the sixth 5-year National Socio-Economic Development plan (1987-1991). The Ministry of Political Affairs (2) was established in 1988 to deal with women's affairs in general at the ministerial level. Women's Welfare Division in 9 provinces and 6 cities were upgraded and expanded into Bureaus of Family Welfare. The Equal Employment Opportunity Act was enacted in 1987 and revised in 1989. The Family Law was revised in 1989 and went into effect in 1991 after a three-decade-long struggle by women's organizations and women leaders. Women's Vocational Training Center was set up and began to recruit trainees from 1991. The Childcare Act was legislated and went into effect in 1991.

The Seventh 5-year National Socio-Economic Development plan includes a new women's development plan for the period of 1992-1996 with special emphasis on education, employment, cultural and social activities, welfare and international cooperation.

Development and changes in the economy and society in the last 30 years have resulted in significant changes in the lifestyles of women. Some of these are; a longer life expectancy for women, a drop in the birth rate, an improved standard of education, more nuclear families, changes in family life resulting from a raised consciousness, less of a burden from household responsibilities due to the availability of electrical appliances, etc. All these factors combined have brought about a steady increase in the number of women engaging in various social activities and the number of those wishing to do so.

In the following chapters, I will briefly introduce the Korean women's present status in the sectors of education, employment, public affairs, and welfare with the latest data.

Population Structure, Household and Family

Female Population

As of 1991, Korea has a population of approximately 43,520,000, of which some 21,615,000 or almost 49.8% are women.

Breaking the female population down by age in 1990, the 0-14 group accounted for 24.9%, the 15-64 group for 68.8% and the 65-and-over group for 6.3%. Compared to 1985 statistics, the 15-64 group and the 65-and-over group showed an increase. Thus, the aging of Korean society is advancing at an unprecedented pace.

Comparing the composition of males and females, among the 0-14 and the 15-64 age group, the female ratio accounted for 48.0% and 49.4% respectively. But among the 65-and-over age group, the female ratio was 62.3%. This shows a significant increase of the percentage of the aged female.

Looking at the status of economic activities, women over 14 totalled 15,715,000 as of 1989 and the economically inactive female population was 9,157,000. Of the total female population over 14, 40.8% were employed, 36.6% engaged in domestic work, 12.6% attended schools, 9.1% were inactive and 0.9% sheerly unemployed. Meanwhile, 8.4% of the economically inactive females over 14 years of age wanted jobs even though they did not seek them.

Internal Migration

As the wave of industrial modernization since the 1960s has brought about rapid changes in rural life and the rural economy, population concentration in urban areas has taken place.

The urban population ratio sharply increased from 28.0% in 1960 to 74.4% in 1990.

The 15-29 age group accounted for most of the internal population migration.

Due to the lack of new economic opportunities in rural areas, the disintegration of family structures, and aspirations to earn higher incomes, many young people and unmarried women have migrated to urban areas leaving only elderly married women and children behind in rural areas. Therefore, married women in rural areas have not only performed domestic work and raised children, but also farmed and managed the rural economy.

Household Type

The total number of households in Korea has been increasing since 1966. In 1985 the number of households reached 9,571,361, an increase of 3,204,361 or 30.3% over 1975.

In terms of household type in 1985, two generation households accounted for 67.0%, three generation households 14.4%, one generation households 9.6%, and one person households 6.9%.

Changes in household types are characterized by a further trend toward nuclear families as well as a growth in the number of one person households.

Among two generation households, the number of single-parent households has increased as follows: 592,000 in 1970, 642,000 in 1975, 743,000 in 1980, and 848,000 in 1985. Fatherless families occupied 98.0% of these single-parent households.

Average Number of Household Members

The average number of household members recorded an overall decline from 5.5 persons in 1966 and 4.6 in 1980 to 3.8 in 1990. This trend is a result of the decline in the average number of births per woman.

Marital Status

According to the 1985 Population and Housing Census Report, the number of women never having been married accounted for 28.1% of the female population over 15 years old, while married women were 58.7%, widowed women 12.5% and divorced women 0.7%. Compared to 1980 statistics, the rates of women never having been married and widowed women decreased 0.6% point and 0.9% point respectively. The rate of married and divorced women increased 0.3% point and 0.1% point respectively.

Age at First Marriage

The average marriage age has been pushed upward by an increase in the number of years women spend in school. Women's average age at the time of their first marriage has increased from 21.6 in 1960 to 25.3 in 1988 while men's average age increased from 25.4 in 1960 to 28.4 in 1988.

Trends of Marriage and Divorce

In 1988 there were 409,000 marriages recorded, and the marriage rate was 9.85 per 1,000 persons. The number of divorces in 1988 was 44,000 and the divorce rate was 1.05 per 1,000 persons.

Birth and Death Trends

In 1988, the number of births registered 665,000. The birth rate stood at 15.8 births per 1,000. Both the number of births and the crude birth rate had declined until 1987, but in 1988 14,000 more births or 0.3 births per 1,000 was recorded.

In 1988, the number of deaths registered 248,000. The crude death rate stood at 5.9 deaths per 1,000.

Life Expectancy

In Korea, the population is aging as evidenced by the fact that the percentage of those 65 years of age and above in the total population has increased from 5.4% in 1985 to 6.3% in 1990. The proportion of elderly women is about two times that of elderly men.

Furthermore, with a decline in the death rate resulting from improved sanitary standards and advanced medical technologies as well as from economic growth, the average life expectancy has been increasing. It reached 67.4 years for males and 75.4 years for females in 1990.

Since women are generally expected to live a longer life, problems related to old age are matters of serious concern. The Government should develop measures to ensure the stability of women's lives in their old age.

Family Life Cycle

A decline in fertility (the total fertility rate decreased from 6.0 births per woman in 1960 to 1.6 births in 1989), marrying at a later age, the longer life expectancy has brought about changes in the life cycle of women.

A comparison of the 1935-1944 marriage cohort and the 1975-1985 marriage cohort shows the following changes in the life cycle: the average length of married life changed from 44.5 years to 51.8 years; the first birth interval decreased from 4.1 years to 1.2 years; the length of the family expansion period decreased from 15.5 years to 2.2 years;the length of time between the birth of the last child and the time the first child leaves home increased from 9.3 years to 24.0 years; the empty nest period (from the time the last child leaves home until a parent dies) increased from 5.8 years to 15.0 years; and the length of widowhood increased from 5.9 years to 7.2 years.

Women and Education

Facts

1) School Education

Before this century no formal education for women existed.It was after the political reforms of 1884 that Korea established public schools under a new educational system. The 1884 Reform Movement recognized the need for educating women, but the school decree had provisions for male-only schools.

In 1908, the Government promulgated the Girls' High School Decree which stipulated as its objective, "to teach high school education, skills, and arts essential for women." This was the first legal provision for women's education in Korea.

The Constitution of the Republic of Korea prescribes that "all citizens shall have the right to receive equal education in accordance with their capabilities." Thus, one of the basic rights of citizens is to be accorded educational opportunities irrespective of sex, age or class. Every citizen has the right to be educated regardless of sex or age. Such an expansion of educational opportunities to the general public resulted in a compulsory education system, which was then accompanied by an increase in female enrollment at every level of education. However, there still remains a serious gap between the sexes and female enrollment rates are lower at higher levels of education. The existing inequality in school education for males and females has been partially responsible for maintaining traditional inequalities between the sexes.

Average Years of Educational Attainment

The average years of educational attainment in 1985 registered 9.66 years for males and 7.58 years for females. Comparing the figures of 1960 (4.78 years for males and 2.92 years for females) and 1985, there is a 4.88 year increase for males and 4.66 year increase for females. This shows that the average number of years of educational attainment for both males and females has increased over time, but the gap between the sexes has not diminished.

School Enrollment and Advancement Rates

A six-year primary school course has been compulsory since 1948 when the Education Law was adopted. More than 90 percent of all children, boys and girls, eligible for schooling were enrolled in primary schools as early as the 1960s.

As of 1990, 99% of boys and girls attended primary school. At the middle school level, 96.9% of boys and 97.0% of girls are enrolled. In high schools, enrollment rates are 90.0% for boys and 85.0% for girls. In colleges and universities, the enrollment rates are 50.4% for males and only 23.8% for females.

Overall, there seems to be no significant disproportion in enrollment by sex except at the college and university level.

The percentage of primary school graduates advancing to middle school was 99.5 for girls and 99.7 for boys in 1990. The percentage of middle school graduates advancing to high school in the same year stood at 88.1 for girls and 94.5 for boys, showing a slight difference between males and females. The percentage of high school graduates entering colleges and universities in 1990 was 40.3 for females and 65.3 for males. Of total enrollments in colleges and universities in 1990, women accounted for 28.5 percent.

Co-education

Co-education is currently widely practiced. All primary schools are co-educational, 54.3% of all middle schools are co-educational, and 38.7% of the total number of high schools include boys and girls as of 1990.

Educational Curricula

Textbooks are an important tool of education through which major social norms, values and knowledge are transmitted to students.

The contents of textbooks began to be revised in 1988 to reflect by the principle of equality between the sexes. Also, technical crafts for males and home economics for females were merged into one subject. This merged format has been available in theory to both boys and girls in middle and high schools since 1987. However, few schools select an integrated textbook of home economics and

technical crafts, and most schools require home economics for girls and technical crafts for boys.

Distribution of Major at the University Level

In regard to the selection of majors, males and females show different trends. A large number of male students major in social science and engineering, while most female students major in humanities, education, and social sciences at universities.

Among students taking four-year college courses, subjects preferred by women are different from those chosen by men. Majors preferred by female students in 1990 were, in the order of preference: linguistics, social science, teaching, arts, natural science, and home economics.

Among male college students' preferences were: social science, engineering, natural science, and linguistics. These trends have remained unchanged in recent years.

Vocational High School

As of 1990, female students accounted for 47.0% (1,073,179 persons) of the total 2,283,806 high school students. The female ratio was 43.8% for general high schools and 52.8% for vocational high schools.

In an effort to meet the increased demand for skilled labor in the wake of the industrialization of the 1970s, vocational high schools provide education and training in more than 90 courses.

There is a significant enrollment gap between the sexes according to the educational curricula of vocational high schools. Male students constitute the majority majoring in engineering, agriculture and science, while females are highly represented in commercial high schools. Girls account for 52.8 percent of the enrollment in vocational high schools. The proportion of girls enrolled was only 1.7 percent in technical high schools, while in commercial schools they were 79.4 percent of the total in 1990.

These figures show that there still are traditional prejudices against female students seeking to choose technical courses and master new technologies.

Number of Teachers

When considering the relative status and ratio of female teachers, the number of female teachers has generally been on the increase although the percentage decreases as the level of education goes up. In 1965, female teachers accounted for 15.5% of all teachers in primary schools, 5.7% in middle schools, 8.9% in high schools, and 11.0% in colleges and universities. In 1990, they were 50.1% in primary schools, 46.5% in middle schools, 22.9% in high schools, and 19.2% in colleges and universities.

When looking at the status of women, as of 1990, 399(3.6%) out of the total of 10,975 school prinicipals were women and 525(4.3%) out of the total of 12,139 vice principals were women. In colleges and universities, 21(8.1%) out of 260 college and university presidents were women.

In the Ministry of Education, women are 4.9% (6 persons) of the total of 123 officers that are in charge of educational administration. The number of female teachers has increased, but their relative status has not, and females do not exercise significant influence in the decision-making process.

2) Non-Formal Education

Women are expected to demonstrate their potential and abilities fully, and it is critically important to provide them with learning opportunities which meet their diverse needs throughout every stage of their lives. With the improvement of educational standards for women, changes in life cycles, and an increase in their free time in particular, the role of non-formal education is continuously expanding.

To cope with rapid changes taking place in an industrialized society and recognizing the limits of formal education, life-long education has been promoted in recent years. Non-formal education was institutionalized under the Non-formal Education Law which provided for life-long opportunities for education so that all may improve their capabilities and skills.

A variety of continuing educational programs for women are conducted as part of life-long educational programs that include: quasi-school classes, technical and vocational training, cultural education, privately-run training courses in foreign languages, dress design and other skills, and agricultural extension programs for rural women.

The most popular non-formal education for women in urban areas is general education. Various institutes are engaged in such education for women. They include educational facilities attached to women's organizations, public welfare facilities, educational institutes operated by the media, college institutes and primary schools.

Generally, secondary schools, community development centers and institutes are annexed to public libraries. Non-formal educational programs for women consist of skills, population and family life languages, national spirit and culture, and service for others.

Women's welfare centers in some cities and provincial capitals which are financed and supported by the Ministry of Health and Social Affairs, conduct various programs designed to improve the education of women so that they may elevate their social standing and contribute more to societal development. Since 1975, the Ministry of Labor has been operating educational programs for working women in industrial complexes with large numbers of workers. Programs such as Korean, English, Korean history, music, labor law, the new community movement, and culture have been taught. Educational programs designed to raise the social consciousness of women also are provided by specialized organizations and religious groups.

Non-formal education for women in rural areas centers on women's guidance programs. Educational activities conducted in rural areas emphasize subjects designed to teach women farming techniques, solve rural problems, improve the quality of life, provide family planning instruction, and develop better sanitation methods. Guidance for such activities is provided by the Ministry of Health and Social Affairs, the Office of Rural Development, National Federation of Agricultural Cooperatives, and Family Planning Society.

Problems

The goals of education are to provide each person who has potential with opportunities to cultivate their abilities and help them to grow into an integrated person. But in reality, the socialization of human beings consists of introducing them to the rules and norms of behavior, the social expectations by which they can make sense of how others act toward them, and how they should behave. The extent to which women and men conform even partially to the stereotypes of gender-appropriate behavior, depends in part upon their successful socialization or in other words, the degree to which they have internalized the cultural pressures to conform.

Education is one of the major elements which shapes the socialization of children and adolescents. Whether formal or informal, it functions as a transmitter of societal norms and morals from one generation to the next.

Therefore, education is the basis for the full promotion and improvement of the status of women. It is the basic tool that should be given to women in order to achieve their role as full members of society.

But through school curricula and teachers' sex role concepts and attitudes, sex role stereotypes have frequently produced rigid and mutually exclusive conceptualizations of appropriate abilities and behaviors for male and female students.

Textbooks are an important media of education which transmit the main social norms, values and knowledge to the student. In many textbooks traditional sex role stereotypes are emphasized.

Schoolgirls are socialized to be passive, obedient and dependent; whereas boys are socialized to be active, directive and independent. These differences result from different social expectations for each sex rather than actual differences in abilities between the sexes.

Therefore, the gradual attainment of a state of equality between the sexes is impossible without a good education system. Because concepts and attitudes are not formed overnight, continuous efforts should be made to

promote equality between the sexes. Although significant efforts have been made to change the roles and other cultural biases with respect to men and women, the effect on their acceptance and outcomes remains to be seen. An effective strategy for inculcating positive sex-role concepts among adults should complement the curricular innovations being introduced in schools.

Strategies for the Future

In order to promote the status of women in education, strategies for the coming decade should be formulated as follows:

- In order to modify the status of women in education, textbooks should be changed to eradicate sex discrimination projecting females as the weaker sex.

- In order to realize the goal of achieving equality in educational opportunities, it is essential to provide equal educational environments and experiences to all members of society.

- It will be difficult for females to adapt to innovations in science and technology if they are alienated from these major. Therefore, it is necessary to encourage female students to major in science and technology through career guidance programs.

- It is desirable that more women be promoted to administrative positions of responsibility, measures be worked out to reduce current male dominance at higher educational institutions, and sexually discriminative contents and expressions in curricula be eliminated. Efforts must be made to provide both sexes with equal opportunities in education and employment. To meet these requirements, the Ministry of Education should direct the School Curriculum Study Council to eliminate sexual prejudices in curricula.

- The role of teachers in the formation of new value systems promoting equality between the sexes is another area which cannot be overemphasized. Hence, a more expansive orientation regarding the status and role of women should be given to teachers (ultimately to be passed on to their students) from the elementary level to higher levels of education. Teachers and teachers' organizations should undertake activities that will increase awareness of women's issues.

- Women and men have to be re-educated to the idea that full human development requires that gender role differentiation be transcended. Education, be it formal or non-formal, should be expanded to accommodate goals that will guarantee women's participation in the family, as well as in civic and public affairs as equal citizens and partners in rebuilding and maintaining Korea as a worthy member of the world community of independent and self-reliant nations.

- The Government should strengthen the participation of women at all levels of educational policy and in formulating and implementing plans, programs and projects. Special measures should be taken to increase access to scientific, technical and vocational education, particularly for young women.

- Educational opportunities for adults and continuing education for women should be developed in order to eliminate sex discrimination in the field of education. The educational programs for adults and continuing education for women should also be diversified.

Women and Employment

Facts

The participation of women in activities today is at a higher level than ever before, especially in economic fields. It is a well-known fact that the remarkable economic growth which has been achieved in the past two decades in Korea is due in large part to the female labor force in the manufacturing sector. Women are expected to make an even greater contribution to future economic development in view of the changing structure of industry and employment.

Labor Force Participation

The economically active rate among the female population 15 years old and over showed a sharp increase from 26.8% in 1960 to 45.7% in 1975, but fell to 38.6% in 1980. Then it moved up to 47.2% in 1990. The decline in women's participation in economic activities in the latter half of the 1970s was attributed to the economic recession in the wake of the oil crisis.

Employed Women by Industry

In addition to the quantitative increase in women's economic activities, there has been a structural change in female employment. In 1960 it was 69.6% in agriculture, forestry and fishing, 6.4% in mining and manufacturing, and 24.0% in indirect capital and social service industries. But as of 1990 these rates have changed to 20.4%, 28.1%, and 51.5%, respectively. The female proportion engaged in primary industry (agri., for. & fishery) has sharply declined in recent years in contrast with an increase in secondary (mining & manufacturing) and tertiary sectors (soc. & other services).

Employed Women by Occupation

As to the distribution of female workers by occupation, the distribution has gradually moved away from a heavy concentration in farming to production, sales and service occupations.

The clerical area has shown a conspicuous increase in women workers in the past two decades. Women in clerical occupations accounted for 12.8% of the whole female work force in 1990 in comparison with 1.9% in 1966. These jobs, however, seem to continue to be dominated by young, unmarried women workers since unmarried women constitute an absolute majority in clerical work.

The proportion of female employees in professional, technical and administrative jobs increased from 1.9% in 1966 to 7.7% in 1990. This tends to indicate that the level of education acquired by women has been upgraded due to increased educational opportunities. However, the rate of increase needs to be accelerated in order to respond to the increasing number of women graduates from schools of higher education.

Employed Women by Status

Looking at the status of employment, unpaid family workers accounted for 60.5% of female workers in 1960 and decreased to 25.5% in 1990. Own-account workers were 60.5% in 1960 and decreased to 16.6% in 1990. Employees were 16.1% of the work force in 1960 and increased to 55.3% by 1990. Although the ratio of paid workers is on the increase, the ratio of unpaid workers such as the self-employed and unpaid family workers is still high.

Employed Women by Age Group

As for the distribution of women workers by age, the percentage of younger female employees in the 14 to 19 age group and those in the 20 to 29 age group declined because of an increasing number of females entering institutions of higher education. On the other hand, the number of those 30 years old or older, most of whom have passed their child-rearing period, increased. Their rate rose from 54.9% in 1980 to 67.9% in 1990.

Employed Women by Marital Status

The participation of middle aged women in economic activities has shown a gradual upturn. A number of factors are believed to be responsible. First, women are receiving education for more years than before so they are not starting to work as early and the gap is filled by middle-aged women. Second, increased living standards and educational expenses for children prompt housewives to earn money to supplement their husbands' incomes. Third, women have a stronger desire to take part in economic activities and are able to adapt themselves to careers more readily than their predecessors.

As the the number of middle-aged and older workers increased as described above, the composition of female employees when viewed by marital status, also changed. The ratio of married female employees (total number of female employees with spouses compared to those whose spouse is absent due to death or divorce) increased, registering 36.9% in 1970 and 46.8% in 1990.

Employed Women by Educational Attainment

As the rate of enrollment in institutions of higher education increased, the share of female employees with higher education has increased. In 1990, the composition of female employees in terms of educational background was as follows: those with less than a primary school education 40.6%, middle school education 20.0%, high school graduation 31.1%, and college and university degrees 8.3%.

Monthly Income

Employment conditions for women are still considerably inferior to those for men. In 1989 the average monthly payment of female workers was 277,610 won, which was 54.1% of that of male workers. The average monthly payment of female workers increased 23-fold during the two decades, but the gradient in the income levels of males and females has not been significantly lessened. This gap of average income clearly reflects discrimination against women.

Monthly Working Hours

The average number of working hours per month for female employees is 220.4 hours, which is 1.5 hours longer than that for male workers.

Problems

As a result of industrialization, women have become actively involved in economic activities. The level of education acquired by women at work shows great improvement in recent decades. However, social and cultural conditions are still unfavorable for even women of higher education in regard to participation in economic activities.

The rate of unpaid workers is still very high, and women are concentrated in low-wage fields. This means that the economic status of women remains low.

Most of the increase in female employment has come in simple and unskilled work. Increases in female employment in professional and skilled jobs, and in administrative and supervisory positions are smaller than those for males. As more women receive higher education and as they are better motivated to engage in economic activities, it is anticipated that an increased number of educated and experienced women will engage in professional and skilled work, will take administrative and supervisory posts, and that the rate of such increases will be accelerated.

Official statistics indicate that women workers are still facing sexual discrimination in the labor market such as: restrictive recruitment practices, sexual wage gaps, limited opportunities for promotion, low wages, long working hours, unstable employment, lack of childcare centers, and dangers of industrial injuries.

In an effort to alleviate such discrimination, the Equal Employment Opportunity Act was established in 1987, and went into effect on April 1, 1988. The Act guaranteed equality between men and women in employment, and special provisions were made for pregnancy including a 60-day paid maternity leave and one-year childcare leave. The Act also imposes the duty upon employers to provide childcare facilities. However, employers have not abandoned many discriminatory practices.

Social-cultural biases and rigid attitudes of both men and women continue to limit opportunities for women to occupy higher positions of responsibility. Employers still consider women as secondary income earners. Even when their income is greater, married women consider their husbands as household heads. Moreover, since women carry the double burden of responsibility at home and at work, their productivity frequently suffers because of absenteeism which inevitably occurs as a result of their attempt to harmonize their roles of worker and mother.

Inadequate implementation of labor policies continues to deter women's full participation. Due to insufficient funds and inadequate information about actual working conditions, enforcement agencies find it difficult to monitor compliance by companies.

The other side of the problem is women's lack of awareness of their rights as workers. Improvement in this area is slow because of generally low educational attainment and limited outreach of legal educational programs. The occupational structure for Korean women by age shows a pattern closely related to childcare. Working women with infants are burdened with dual duties of job and home. To maintain female employment without interruption and to ease the burden on married women employees, it is necessary to expand child-care facilities at the job site as well as in the community.

Strategies for the Future

In order to solve these problems, it is necessary to:

- strengthen vocational guidance and training for occupations of all kinds, especially traditionally male-dominated occupations
- expand vocational training for new production activities and technology
- develop new occupations for women
- complete the statutory framework for equality
- create subsidies for the employment of women

- make social security provisions for family members assisting, unpaid, in family businesses

- activate the functioning of women's employment information centers

- expand childcare centers

- combat traditional attitudes surrounding the participation of women in employment

- review existing educational and labor development policies to make them more responsive to labor demands. This would include reviewing school curricula and textbooks to eliminate sex-role stereotyping, as well as confronting the media's portrayal of the images of women.

- give women the opportunity to take part in agricultural technology and management training. This could do much towards overcoming traditional barriers thus enabling them to view their participation as equal partners with men and not merely as their auxiliaries.

Women and Public Affairs

Facts

In Korea, Confucianism was the ruling ideology in the past and under its tenets women were excluded from social activities. Since the enactment of the Constitution in June 1948 in which equal rights for both sexes was declared, women have enjoyed equal rights with men before the law. Thus, granting women the right to vote, to be elected, to assume public duties and to affiliate with political parties.

1) Participation of Women in Public Affairs

National Assembly

When considering the situation of women's participation in the legislative branch of government there have been 61 women legislators out of the total of 3,034 legislators since independence. Among them only 16(28%) have been elected through direct elections, 45(72%) have been appointed under the proportional representation system. In the 13th (1988-1992) National Assembly elections, just 6 female legislators(2.0%) were elected through proportional representation.

Local Council

The first local council elections were held in March and June of 1991. Women's participation in the election was very important, and marked a turning point in the political status of Korean women.

The total number of female candidates for the small-unit local councils was 122, and 40 were elected to local councils. Considering that 4,303 small-unit local council members were elected across the nation, 40 women accounted for only 0.9% of them.

A total of 63 female candidates ran for the large-unit local elections in which only eight were successful. 866 large-unit local council members were elected, and women accounted for only 8(0.9%) of them.

Civil Service

Women have been alienated from public policy-making because they are not represented in the formulation and implementation process.

Eight women have so far been appointed as cabinet members since the inauguration of the Republic of Korea in 1948.

In the executive branch, 92.1% of women are concentrated in the lower levels of seventh grade or below, and 26.4% of all female civil servants are in the lowest ninth grade. Among the higher levels of five and above, only 1.1% are women.

Women are usually in special posts such as counseling and health care which have limited opportunities for promotion. Out of a total of 801,870 civil servants in 1991, 24.2% were women, of whom 59.8% were teachers in public schools.

In the judicial branch, women account for 2.5% (27 persons) of the total of 1,045 judges. There are 27 women judges, 1 prosecutor, and 19 lawyers altogether as of 1991.

Women's Organizations

Women's participation in interest groups is also a good indicator of the political status of women. Women's NGOs can exercise influence on political decision-making and mobilize public opinion on women's issues.

Registered women's organizations to the Government numbered more than 70 in 1990. It is believed that the number surpasses 100 with the inclusion of unregistered organizations.

Women's organizations are engaged in a wide range of activities in accordance with the objectives of their establishment. Included among them are: the education of adult women to develop their abilities and make constructive use of their leisure time, social campaigns aimed at reinforcing the consciousness of women and improving their social standing, counseling designed to resolve women's problems arising from family conflicts, revision of The Family Law which contains sex-discriminating provisions, and consumer protection drives which tackle problems that arise through the process of industrialization and economic development.

While some organizations have been successful, most organizations suffer from financial difficulties and organizational problems. As of 1990 there were 17 organizations that received financial assistance from the Government. In the future, women's organizations need to overcome problems in organization, finance and programs. They must make concerted efforts to reinforce their role as pressure groups, press for increased participation by women in the decision-making process of national policies, and become active agents of social change.

2) National Machinery for Women's Affairs

National Committee on Women's Policies

The National Committee on Women's Policies was established in December 1983 under the highest committee of the Government on women's affairs. It focuses on providing basic plans and integrated policies for women's development, and coordinates the policies of various administrative organizations concerning women.

It also assesses government policies aimed at increasing employment for women, expanding women's social participation and promoting the general status of women.

The Prime Minister presides over meetings of the committee. Half the members are permanent as ministers of relevant departments and the president of the KWDI. The rest are chosen as recognized experts on women's issues.

In 1984, the committee asked the KWDI to carry out two basic and long-range projects: a Master Plan for Women's Development, and Guidelines for the Elimination of Discrimination Against Women. The KWDI accomplished the projects and the committee adopted them as government policies.

Thereby, a channel was opened for the first time for women to reflect their interests and needs in policy-making at the national level. However, its decisions are not as binding as the administrative rules.

Ministry of Political Affairs (2)

The Ministry of Political Affairs(2) was established under the 6th Republic in February 1988 to take charge of the issues concerning women, children, youth, elderly, and culture and arts. At the present time it is mainly in charge of women's affairs, particularly those related to women's participation in various social, economic, and political activities.

The Ministry surveys public opinion and makes policy recommendations concerning the status of women. The Ministry liaises with relevant departments for the coordination and implementation of various programs, and holds discussions prior to any legal amendments or policy formulation which may affect the status of women.

Under the Sixth Republic, government policies for women have placed emphasis on systematically ensuring women's participation in social and economic activities and on expanding welfare facilities for women. These policies include the revision of The Family Law to eliminate discrimination against women, the implementation of The Equal Employment Opportunity Act, vocational training and job development for women, the enactment of The Welfare Act for Fatherless Families, and the expansion of childcare facilities.

Korean Women's Development Institute

The Korean Women's Development Institute(KWDI), an autonomous and non-profit organization, was established on April 21, 1983 as a national mechanism for dealing exlusively with women's affairs.

Since the 1970s, there has been worldwide recognition that women's full and equal participation is essential to world development and peace. This is evidenced by the United Nations declaration of the International Women's Year(1975) and the United Nations Decade for Women (1976-1985). The United Nations not only publicized the inequalities affecting women but also recommended that governments all over the world guarantee the rights of women, exert every effort to remove barriers in developing women's potential, and help women enjoy the fruits of development equally with men.

Korean women who had shared this view emphasized the need for a national machinery which could speak authoritatively on behalf of women and work exclusively on women's affairs. It was against this backdrop that the National Assembly enacted legislation establishing the KWDI in December 1982.

The KWDI undertakes comprehensive research projects relating to women, provides education and training programs to raise women's consciousness and develop women's potential, and initiates various action-oriented programs concerning women. It supports women's organizations, participates in international efforts to implement a world strategy on women, and collects and disseminates information on women's issues. It also makes recommendations to the Government so that its findings can be reflected in governmental policies.

Problems

Women's participation in public affairs is essential to their advancement. Without their voices being heard at the decision-making level, women can not get the changes they need in education, employment, law, welfare, etc. However, the level of participation by women in politics and decision-making during the past decade has not changed significantly. Although there are no legal impediments to the enjoyment of their civic and political rights, women are still far from making their united voice heard and being duly recognized in appointive and elective positions. Although women in Korea today in the area of public rights do not face formal discrimination, discrimination still exists as shown by the limited opportunities for participation and development in public life. Very poor representation in decision-making positions in government is still traceable to these traditional attitudes.

On most occasions, the appointing authority is a male or represents male-dominated top level management, which is likely to harbor discriminatory perceptions making it more difficult for aspiring women. With regards to the dual roles of women as wife/mother and worker, and of them being only a secondary breadwinners, appointing persons do not easily consider women for top positions in order to minimize role conflicts. They tend to give the better positions to men

who are supposed to be heads of families. This is due to the continuing patriarchal mentality and structure of the family. The male-oriented mentality, particularly in public life, continuously perpetuates itself. As a result many women start a career, few continue, and even fewer reach the top. Increased female participation in the production process particularly in political, economic and social life, as well as the promotion to decision-making levels institute a need for a social policy in this area.

Strategies for the Future

Much remains to be done to improve the situation of women in decision-making. To ensure continuing improvement of the situation, the following measures and strategies are envisioned for removing obstacles women face in politics and decision-making positions.

- Strategies to improve the participation of women in politics could begin with developing positive attitudes towards women.

- Women themselves have to do much to increase their participation in political activities. They should form women's caucuses to present qualified women candidates whom they could support for election.

- Promote early development of healthy attitudes among the electorate through schools and more specifically, eradicate the traditional belief and myth that politics is "for men only". Eliminating sex biases may also be achieved by the media portraying positive images of women.

- Women should actively campaign for political parties to include deserving qualified women candidates on their tickets, and systematically organize to provide legal, financial and tactical support to female candidates and those male candidates who are sympathetic to women's concerns.

- Women should concentrate on revising the election law through a systematic campaign and discuss adopting a quota system for nominations by the parties to increase women's participation in local council. It is important to recruit women who are willing to participate politically and to train them in order to encourage women to be politicians.

- Give due recognition to women already in politics and promote them to leadership and decision-making positions when qualified.

- Women NGOs and government agencies concerned with women's welfare could activate women's organizations to focus or highlight women's achievements and contributions in different fields, thereby influencing male decision-makers of the active and potent force of women.

- Continuously monitor the full and effective implementation of policies and laws relevant to women's advancement in decision-making organizations such as the UN Convention on the Elimination of All Forms of Discrimination Against Women.

- Disseminate informational and educational materials on development and training of women in all types of skills especially executive, administrative, managerial, and other leadership skills, in a consistent and intensive manner.

- It is necessary to introduce a quota system for high level civil servants in order to encourage women to apply for examinations to enter the executive branch.

Women & Welfare

Women's welfare policies have so far been based on a selective or residual policy, where the State intervenes only when the family and the market do not function smoothly or when the individual does not function very well in the family and the market. This is based on the assumption that the needs of the individual can be fully met by the family and the market. Due to the fact that the Korean social welfare system is based on selectivism, women's welfare programs are focused on childcare and the underprivileged, such as fatherless families, unwed mothers, and prostitutes.

Future women's welfare policies should be based on institutionalism while employing step-by-step universalism or positive selectivism where welfare measures are expanded from the low-income strata to women of all strata, according to the Government's financial situation.

In this chapter, the welfare system as it relates to special target groups (e.g. fatherless families, unwed mothers, prostitutes), childcare, and health will be reviewed.

1) Fatherless Families

Facts

The Government has put special emphasis on the protection of fatherless families. In April 1989, The Maternal-Child Welfare Act was enacted to support fatherless families and unwed mothers, and went into effect in 1991.

In 1989, fatherless families in urgent need (75,899 households) constituted 0.69% of all households in the nation (10,991,910 households).

Of these fatherless families, 75.0% resulted from the death of the father, and 13.4% from divorce, separation and abandonment.

In the majority of these cases mothers assume the responsibility for childcare. In 88.0% of these fatherless families, mothers have jobs, but the majority of them are employed in unstable occupations.

Many mothers in fatherless families suffer from ill health, and a good number of them, especially those who are divorced, cite problems related to housing and educating of their children.

In 1990 there was no budget allocated to provide housing for fatherless families. However, these families may have been entitled to public assistance (livelihood aid, funeral aid and occupational aid). There are 37 centers for the protection of fatherless families in the nation.

Problems

The public assistance program does not guarantee minimum living standards. It is also difficult to survey the income source of beneficiaries, because the amount of income and income sources are determined by community officers and leaders. As for service facilities, there is a lack of protection facilities, and the existing ones are old and unsatisfactory. These are managed by amateurs and the living space per household is too small. There are no measures for promoting self-reliance after fatherless families leave the centers, and there is no policy to encourage the formulation of an informal supportive network such as family, relatives, neighbors, and churches.

2) Unwed Mothers

Facts

Unwed mothers have been a taboo topic in Korean society. Only in recent years have unwed mothers been recognized as an important area for social policy.

It is difficult to estimate the number of unwed mothers. However, the number of unwed mothers seeking assistance from social welfare centers has noticeably decreased from 10,383 in 1985.

There is no law that solely deals with unwed mothers, but there are welfare services for unwed mothers such as pre- and post-natal care, vocational counseling, adoption, and child protection.

The Ministry of Health and Social Affairs focuses on the prevention of unwed motherhood and not on the promotion of social welfare programs for them.

Problems

There is no legal basis for unwed motherhood. Programs for the prevention of unwed motherhood, and provisions for help after childbirth are not implemented smoothly.

Vocational training for unwed mothers only consists of a three-month period of hobby activities such as knitting and sewing. Therefore, vocational training for unwed mothers is of little use to them in becoming self-reliant.

3) Prostitutes

Facts

It is impossible to accurately determine the current number of prostitutes. However, it is estimated that the number of prostitutes is gradually on the increase, and new kinds of prostitution have appeared such as hostesses, call girls, shaving girls, massage girls and male prostitutes. The root conditions causing prostitution to occur are poverty and powerlessness which leave many women without any other option for survival while facing severe social, economic and political crises. Prostitution is a probable outcome for women swept up in the great rural-urban migration. Lured to the cities by dreams of higher living standards, rural women can only find low-paying jobs in factories or as maids, and resort to prostitution to make ends meet.

Women are not only drawn into prostitution with dreams of escaping poverty, but also lured by promises of honest employment, good pay, and benefits by recruiters.

The Prostitution Prevention Act was enacted in 1961 and is still in effect. As of 1991 there are 101 Women's Counseling Centers, including 79 simplified ones in major cities. These provide vulnerable women, as well as women already engaged in prostitution with counseling. There are 26 vocational guidance centers providing prostitutes with vocational training and awareness education for their social reintegration.

Problems

The Prostitution Prevention Act aims at preventing female prostitution, but ignores more serious and important problems such as the act of selling and buying sex, and the acts encouraging and exploiting such behaviors.

There are only a few guidance centers for prostitutes, and the content of education is mostly skills and simple labor. It must be pointed out that these programs are not very effective in preventing prostitution.

There is a significant lack of experts for counseling the prostitutes and the facilities are unsatisfactory.

The social stigma attached to prostitutes as "fallen" women prevents other women from identifying with them or extending help.

4) Childcare

Facts

The industrialization of society has brought many changes in social and economic structures. One of these changes is that more and more women in middle and lower classes have entered the paid labor force.

However, childbearing and childrearing continue to be the core functions of women and the care of children remains the most important family responsibility carried by women. It means that the childcare needs of married women workers with young children has become a serious social problem. If women are to bear and rear children while participating in the labor force, the traditional idea of women being solely or primarily responsible for childcare and child rearing becomes increasingly untenable. Even though there is more shared responsibility between husbands and wives, the pressures on time and energy of working parents increasingly demonstrates the need for some sort of response and adaptation by society. Therefore, childcare should be considered as a social problem requiring social solutions. According to a population estimate by the Economic Planning Board in 1988, the number of children between 0-5 years of age was estimated at 4 million, and among them 1.5 million children had working mothers. Of those, the number of children needing childcare services were estimated to be 820,000, excluding those children who could be taken care of by family members.

However, currently there are too few childcare facilities to meet these requirements. There are only 2,324 childcare centers accommodating 73,300 children, which is only 8.7% of those who need childcare.

Problems

Current childcare services are based on the Enforcement Ordinance, which can be revised by the government at any time. There is a danger of childcare centers being abolished and changed by a cabinet meeting if a change in welfare and childcare policies occurs. There is an absolute lack of childcare facilities, especially for children under 3 years of age, as well as financial assistance for these facilities. Also, there are problems in the qualifications of users of the facilities and irrational standards for classifying the facilities.

It is difficult if not impossible to estimate the number of children who need childcare facilities. Childcare hours are too short to be of practical help to working mothers, and facilities are not adequate to provide quality childcare. There is no agency solely in charge of childcare centers.

5) Health

Men and women in Korea have equal opportunities and access to health care services, including those related to family planning. The Constitution provides that the health of all citizens shall be protected by the State. Women's health and the involvement of women in health care are essential to everyone's health. This is because, quite aside from their own special health problems and the major challenges they face during pregnancy and childbirth, women also customarily are engaged in caring for family members and their health. For women, being healthy is essential to their full participation in the development of their roles as workers, mothers, and family and community members. In modern society, with the increased participation of women in the labor force, the issue of maternity protection is emerging as a significant concern for government, employers and trade unions.

Due to the Maternal and Child Health Act, the Government is also improving pre- and post-natal care, systems of delivery, and health care for infants and children. The Government has constructed MCH Centers to improve the health of mothers and children by increasing institutional delivery. These currently number 97. They are in charge of medical services for delivery, emergency treatment, family planning, and pre- and post-natal care.

Since 1987, the Government has issued a Maternal and Child Health Care Handbook to expectant mothers to promote maternity health care on a nationwide scale. The Government aims to offer free pre- and post-natal care to prevent birth defects and to lower infant mortality. It also strives to provide free vaccinations to children up to age 3.

The average life expectancy for women, an indicator of women's health has increased from 66.7 years in 1970 to 75.4 years in 1990. Likewise the average life expectancy for men has increased from 59.8 to 67.4 years.

The infant mortality rate has been reduced from 38.5 per 1,000 in 1978 to 12.0 in 1990. Maternal mortality has been reduced from 4.3 per 10,000 in 1978 to 3.0 in 1990.

The clinical delivery rate increased from 32.0% in 1977 to 85.8% in 1986, while home delivery dropped from 64.3% in 1977 to 12.9% in 1986.

The amount of prenatal care has increased from 57.2% in 1977, to 93.8% in 1986, and the average number of visits for prenatal check-ups has increased from 4.2 in 1977 to 5.9 in 1986.

Since the population policy of Korea evolved primarily in response to problems caused by the high population growth late in the 1950s and early 1960s, it has historically focused on the reduction of fertility through family planning programs. The national family planning program has been carried out as an integral part of economic development plans since 1962.

Thanks to innovative population control policies, contraceptive use rate for married women aged 15-44 sharply increased from 54.5% in 1979 to 77.1% in 1988. This is a 22.6% points increase. Comparing the rate of usage by contraceptive method, sterilization increased drastically from 20.4% in 1979 to 48.2% in 1988, while usage rates for other methods did not change much during the same period.

This phenomenon is attributed to the Government's strategy on contraception which has emphasized sterilization since 1976.

Strategies for the Future

Fatherless Families

- The Government should take the necessary measures concerning employment and welfare to enable fatherless families to be self-supporting and to enjoy economic security.

- The Government should strengthen measures to make fatherless families economically independent.

- The Government should pursue measures for housing fatherless families while improving the facilities and location of centers for them.

- The Government should work toward ensuring that fatherless families can enjoy greater security as a part of over-all welfare improvement measures.

- The Child Allowance System should be introduced, and home protection measures provided by The Welfare Act for Fatherless Families should be implemented.

- More fundamental and long-term measures should be provided so that families in need can be self-reliant after they leave the institutions.

- Measures should be sought to provide emotional support as well as to utilize informal sources for mutual help. Family, relatives, neighbors, self-help groups, churches, and other religious organizations should be encouraged to assist with emotional stabilization and the development programs for fatherless families.

Unwed Mothers

- The legal bias in the Maternal and Child Health Act should be strengthened to prevent unwed motherhood.

- Effective measures to reduce unwanted pregnancies and childbirths, and preventive educational projects such as family planning, abortion, and intensive sex education should be strengthened.

- Activities of welfare institutions and services for unwed mothers should be publicized.

- Health and medical services for unwed mothers should be improved to ensure safe childbirth and pre- and post-natal care.

- Vocational training services for unwed mothers in cooperation with existing vocational training centers in local communities should be established.

Prostitutes

- Measures for the prevention of prostitution and assistance in professional, personal, and social reintegration of prostitutes should be established.

- The title and purpose of the Prostitution Prevention Law should be revised. Dual standards for different sexes should be eliminated, and a new provision for the responsibilities of the State and the people should be introduced.

- Preventive measures should be strengthened through Guidance Centers and Vocational Guidance Centers. The preventive healthcare system which also detects and treats sexually-transmitted diseases should be intensified. The human rights of prostitutes should also be protected.

Childcare

- In establishing a national policy for childcare, the number of working mothers with preschool children should be calculated, the number of childcare facilities, especially those for children under one year of age, should be increased.

- There should be comprehensive, legal and objective standards for childcare facilities. For governmental assistance to be effective, there should be a clearly defined long-term standard of poverty. Also minimum quality standards for these facilities are needed.

- Childcare facilities sponsored by the Government should be established in low-income areas. Various childcare programs should be developed to suit children's ages, working mothers, socio-economic conditions and regional characteristics.

- Measures should be made to encourage the establishment of childcare facilities in work places and also in family daycare.

- Measures should be made to provide financial support for the management of family daycare, and tax incentives should be given to industries that establish childcare centers at work.

- There should be a change of the conventional perception that childcare facilities are only for low-income families. It should be recognized childcare services are not only the responsibility of the individual but also of society.

- Education and re-education programs should be developed for childcare workers at proper institutions. It is only possible to secure competent staff by providing reasonable payment and working hours, a good environment, and respectable treatment.

Health

- The vital role of women as providers of health care for their families and others should be recognized.

- Appropriate health facilities should be planned, designed, constructed, and equipped to be readily accessible and acceptable. Services should be in harmony with the timing and patterns of women's work, as well as with women's needs and perspectives. Maternal and childcare facilities, including family planning services, should be within easy reach of all women.

- Appropriate gender-specific indicators for monitoring women's health should be developed.

- Functions of Mother and Child Health Centers should be expanded to provide more comprehensive pre- and post-natal care, family planning, counseling for unwanted pregnancies, as well as measures to prevent unwanted pregnancy.

- The existing family planning policy which is aimed at suppressing the population increase should be changed to emphasize maternal protection.

Conclusion

In spite of the above-mentioned advances and changes, the unemployment rate of women in higher academic careers still remains high. Most female workers are still engaged in low-wage jobs where they are subject to employment or wage discrimination. Although the participation of married women in economic activities is continuously increasing, the supply of public childcare facilities for children of low-income female workers falls short of the sharply growing demand. These problems have continued to increase despite the Government's implementation of economic and social development plans.

Improvement of women-related laws and systems have failed to yield substantial results or to enhance the position of women. Though it is difficult and thus time-consuming to completely eliminate entrenched traditions of discrimination against women, and to fully realize equal participation of women in every field, the Government must work to promote conditions in which women can improve improve their status. This must be done not only at the de jure level but also at the de facto level. Only in this way women can fully demonstrate their capabilities and contribute to society on an equal footing with men. Specifically, the Government must eliminate persistent, stereotyped concepts based on traditional sex roles and provide a climate conducive to women's full participation in society.

In the future, various efforts should be exerted to implement the plans in the Long-Term Perspective on National Development Toward the Year 2000. This would be in accordance with the guidelines suggested by the United Nations in the Nairobi Forward Looking Strategies for the Advancement of Women, which promotes the development of women's capacity, the utilization of women's resources, and a more healthy family life.

Chapter 5

INTERNATIONAL COMPARISON OF TECHNOLOGY MANPOWER SUPPLY SYSTEMS AND PROPOSALS FOR IMPROVEMENTS IN KOREA

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INTERNATIONAL COMPARISON OF TECHNOLOGY MANPOWER SUPPLY SYSTEMS AND PROPOSALS FOR IMPROVEMENTS IN KOREA

I. INTRODUCTION

The rapid growth of the Korean economy during the last thirty years can be largely attributed to Korea's well educated and trained manpower. The Korean economy has been heavily dependent upon exports, and the remarkable export growth was in turn heavily dependent upon Korea's abundant and skilled human resources. However, the education system has failed to match the supply of educated manpower with rapidly changing industrial demand.

Business firms face a severe shortage of technicians and high-tech engineers. This is because the government has failed to make sufficient investment in education in the vocational high school, junior college, university and college, graduate school and vocational training institute levels, and also because the major burden of higher education costs have been left to the private sector.

Most universities in Korea are privately run, under strict controls by the government, but the government provides almost no financial support to these private schools. As a result, according to some indicators, the quality of education has been deteriorating in higher education in general and in engineering schools in particular. Many college graduates face unemployment. For example, in recent years, 50 percent of college graduates were still unemployed two months after graduation.

This paper describes enrollment and advancement ratios by the levels of education in section II, and stock and supply of science and technology manpower in section III. And in section IV we will turn our attention to mid-term plan to counter the technological manpower shortage and in section V to changes needed in the educational system to produce technicians and engineers. Finally in section VI we shall discuss the need to establish special training schools and to support miscellaneous technical schools.

II. ENROLLMENT AND ADVANCEMENT RATIOS BY LEVEL OF EDUCATION

The enrollment ratio in higher Educational Institutions in Korea is one of the highest in the world as shown in Table 1. Since 1975 the advancement ratios of middle and high school graduates have been rapidly increasing and in 1988 thirty five percent of high school graduates advanced to higher educational institutions (see Table 2). Only 36.2 percent of middle school graduates went to vocational high schools whose graduates have a 79.6 percent employment rate while 63.8 percent went to general high schools.

About a half of the graduates of the general high schools were able to enter higher educational institutions. 69.4 percent went to universities and colleges(four years); 27.4 percent to the junior colleges(mostly two years) which offer mainly vocational courses while only 19.5 percent of the general high school graduates found jobs. The most worrisome figure is the low employment rate of 50.6 percent of university and college graduates two months after graduation which is one cause of the serious social unrest (see Table 3).

Table 4 shows the labor supply by level of education. The non-entrants to the higher schooling by the graduates of the middle school or below it have been declining rapidly whereas non-entrants to the higher schooling among the general high school and university and college graduates have been rapidly increasing. The latter faces a difficult time finding employment. Thus Korea urgently needs to expand vocational education and training programs.

Table 1. Enrollment Ratio by Level of Education in Selected Countries (Unit:%)

	Year	Elementary Education	Secondary Education	High Education
Korea	1986	100	92	36.8
U.K.	1982	101	86	20.3(1983)
Japan	1984	100	95	29.6
France	1983	108	90	26.8
USA	1984	101	95	57.3
USSR	1984	106	100	21.4

Source: UNESCO, Statistical Yearbook, 1986

Table 2. Advance Rate of Graduates to Higher School Level (Unit: %)

	Primary School graduates	Middle School graduates	High School graduates	University graduates
1970	66.1	70.1	26.9	4.6
1975	77.2	74.7	25.8	6.5
1980	95.8	84.5	27.2	12.2
1985	99.2	90.7	36.4	10.4
1988	99.5	93.5	35.0	7.4

Source: Ministry of Education, Statistical Yearbook, 1970-1988

Table 3. Advance and Employment Rates of Graduates of Each Level of Schools(1988)[1] (Unit: %)

Schools	Application ratio	Advance ratio	Employment ratio
Primary school graduates		99.5	
Middle school graduates		93.5	
To General high school		63.8	
Vocational high school		36.2	
General high school graduates	83.7	50.2	19.5[2]
Vocational high school graduates	22.1	10.2	79.6
Out of General high school graduates who advanced to			
Univ. and Colleges		69.4	
Junior colleges		27.4	
Other schools		3.2	
Univ. and College graduates		7.4	50.6
Junior college graduates		7.6	76.3
Graduate school graduates		8.9	78.7

Source: Ministry of Education, Statistical Yearbook, 1988
Note: (1) April, 1988
(2) The 41% of the employed high school graduates entered the manufacturing sector.

Table 4. Labor Supply by Level of Education-Nonentrants to Higher Schooling by the Level of Education (Unit: 1,000 persons, %)

	1972-76 average	1986	1988
Middle school or below	371(63.0%)	83(11.8%)	72(8.4%)
High school	177(30.1)	425(60.4)	446(60.7)
General	NA	180(25.6)	212(28.8)
Vocational	NA	245(34.8)	234(31.8)
Junior college	10(1.7)	69(9.8)	77(10.5)
Univ. and Colleges	31(5.3)	127(18.0)	150(20.4)
Total	589(100.0)	704(100.0)	735(100.0)

Source: Ministry of Education, Statistical Yearbook, 1972-1988

III. STOCK AND SUPPLY OF SCIENCE AND TECHNOLOGY MANPOWER[1]

Science and technology manpower includes scientists, engineers and technicians. In 1983, there were 51,610 scientists, engineers and technicians[2] engaged in Research and Experimental Development in Korea, 8.8 percent of the Japanese number (see Table 5).

Table 5. Number of Scientists, Engineers and Technicians Engaged in Research and Experimental Development

(Unit:persons)

	Total	Scientists and Engineers	Technicians
Japan(1983)	589,471	496,145	93,326
Japan(1984)	628,686	531,612	97,074
W. Germany(1981)	243,680	128,162	115,518
France(1979)	230,766	72,889	157,877
UK(1978)	163,100	86,500	76,600
USA(1983)	NA	728,600	NA
Korea(1983)	51,610	32,117	19,493

Source: UN, Statistical Yearbook, 1985/1986
UNESCO, Statistical Yearbook, 1985/1986

Table 6 shows scientists and technology manpower engaged in industries and research institutes by education level in Korea and Japan in 1980 and 1985. The total science and technology manpower in Korea is about one tenth of that of Japan in the all education levels. However, the distribution of manpower in the different levels of education in Korea in 1985 is very similar to that of Japan in 1980.

The R & D manpower in science and technology in Korea in 1986 is 11.3 persons per 10,000 persons. This is in sharp contrast with 33 persons in the USA(1985), 31 persons in Japan(1985), 19 persons in West Germany(1981), and 18 persons in France(1984). A comparison of the ratios of science and engineering majors in the higher educational institutions in Korea, Japan, and Taiwan shows that Korea's ratio compares favorably with the ratios found in Japan and Taiwan.

1. Technology manpower means engineers and technicians. Sometimes engineers are divided into engineers and technologists who are less skilled than general engineers.
2. Scientists and engineers are those who have completed education at the third level leading to an academic degree or those with training equivalent to the above. And technicians are those who have completed the second stage of the second level education or those with training equivalent to the above. Medical doctors and related workers are not considered here to be scientists and technicians although they may perform medical research.

Table 6. Science and Technology Manpower of Graduates of Each Education Level in Industries and Research Institutes
(Unit: 1,000 persons, %)

	Total	High school or below	Junior College	Univ. & College, Graduate school
Korea				
1980	98.9	40.2	10.2	48.7
	(100.0)	(40.7)	(10.1)	(49.2)
1985	149.5	61.4	20.3	67.8
	(100.0)	(41.0)	(13.6)	(45.4)
Japan				
1980	1,005.4	409.3	131.9	464.2
	(100.0)	(40.7)	(13.1)	(46.2)
1985	1,575.0	NA	NA	NA

Source: KAIST, Long-term demand prospects toward 21st century for the science and technology manpower, 1989.

For example, in 1988 in Korea, 30.7 percent of university students were natural science or engineering majors(6.3 percent natural science, 24.4 percent engineering); while in Japan, 23.3 percent were natural science or engineering majors(2.8 percent natural science, 20.5 percent engineering); and finally in Taiwan, 37.8 percent were natural science or engineering majors(8.5 percent natural science, 29.3 percent engineering).

The Korean ratios are much lower than those of Taiwan, but higher than the Japanese ratios. Especially, the ratio of engineering students in Taiwan is higher by nine percentage points than the ratio in Korea(see Table 7,8 and 9). The next chapters will examine in detail the supply of engineers and technicians.

Table 7. Total Enrollment, Engineering and Natural Science Students in Higher Educational Institutions in Korea(1988)
(Unit: persons, %)

	Total enrollment	Engineering students
MA, PhD courses	75,117	12,463(16.6%)
MA	63,254	10,334(16.3)
PhD	11,863	2,129(17.9)
Univ. and College	1,003,648	216,449(21.6)
Junior college(2,3 years)	266,844	105,754(39.6)
Total	1,420,726	347,129(24.4)
		Natural science field(1)
		89,278(6.3%)

Source: Ministry of Education, Statistical Yearbook, 1988
Note: (1) Natural Science excludes Engineering, Medical and Pharmacy, Agriculture and Forestry, and Fishery and Marine.

Table 8. Total Enrollment, Engineering and Natural Science Students in Taiwan(1988-89 school year)

(Unit: persons, %)

	Total Enrollment	Engineering Students
MA, PhD course	17,341	5,639(32.5%)
MA	14,119	4,391(31.1)
PhD	3,222	1,237(38.4)
Univ. and College	207,479	35,894(17.3)
Junior college(2 years)	72,541	36,416(50.2)
Junior college(3 years)	29,834	3,878(13.0)
Junior college(5 years)(1)	67,734	33,528(49.5)
Total	394,929	115,548(29.3)
		Natural Science Field(2)
		42,189(8.5%)

Source: Ministry of Education, Educational Statistics of the Republic of China, 1989

Note: (1) Junior college(5 years) has 3 year high school and 2 year Junior college course. Thus the figures include only the 4th and 5th grade students.
(2) Natural science includes Mathematics and Computer

Table 9. Total Enrollment, Engineering and Natural Science Students in Japan, 1988(1)

(Unit: persons, %)

	Total enrollment	Engineering students
MA, PhD course	82,476	29,167(35.4%)
MA	56,596	25,528(45.1)
PhD	25,880	3,639(14.1)
Univ. and college	1,861,306	368,207(19.8)
College of technology	52,000	52,000(100.0)
Junior college	444,808	23,412(5.3)
Total	2,440,590	501,953(20.5)
		Natural science field(2)
		67,747(2.8%)

Source: Statistics Bureau, Japan Statistical Yearbook, 1989.

Note: (1) Special Training Schools and Miscellaneous Schools are excluded.
(2) The number here includes only those at the college level in 1989: the last two years students of five-year colleges of technology and also those in national schools for training engineering teachers.

IV. MID-TERM PLAN TO COUNTER THE TECHNOLOGICAL MANPOWER SHORTAGE

Facing the very severe shortage of the technological manpower the Ministry of Education announced the plan to increase the ratio of the number of students in the vocational high schools to that of the general high schools annually from 37 to 63 percent in 1988 to 50 to 50 percent in 1995. Then the number of students in the vocational high school will exceed one million. It will be done by setting up new vocational schools expanding current vocational schools and transforming part of general classes into vocational classes in the existing general high schools.

The number of enrolled students in the junior engineering colleges will increase by 9,000 persons annually in the period, 1992 and 1995. And the junior nonengineering colleges will also have the annual increase of 6,000 enrolled students in the fields of industrial design, jewel processing and information processing and so on in the same period. As the result the total number of students enrolled in the engineering and its related fields in the junior colleges will increase by 60,000 by 1995.

The government is planning to establish a dual educational system by introducing a technology educational system into the current system as in the European countries. The current single educational system is as follows: primary school(6 years) -- middle school(3 years) -- high school(3 years) -- junior college (2 years) and university(4 years) -- graduate school. In addition to the above system the technology school(5 years) -- university of technology(2 or 4 years) -- technology graduate school. This line of new system will absorb and train the youth who do not proceed to the university as the technological manpower.

It is planned that nine sets of technology schools and universities of technology will be set up in the nine major industrial estates. Each set will be specialized in the different fields such as machinery, electronics, computer science, automobile, semiconductor, new material and so on.

About 6,500 technicians and intermediate level engineers are expected to be produced annually from the above institutions. And about 0.2 billion dollars is estimated to be needed to complete the needed system within the coming five years. The establishment and operation of the new schools will be left to the business sector.

The four-year universities will also be allowed to increase their enrollment by 4,000 every year from 1992 to 1995 in the natural sciences and engineering; 1,000 in the natural sciences and 3,000 students in the high-tech engineering fields such as electricity, electronics, machinery, chemical engineering and so on. And the private universities will be able to obtain subsidies from the government for the part of the costs involved when they establish the high-tech engineering departments.

The increasing number of large business is setting up the college- and graduate- level education programs within their plants. And the expansion of vocational training programs is also being planned by the national Industrial Manpower Management Corporations.

One of the most important reasons for the shortage of manpower in the mining and manufacturing sector is that the employment in the service industries is growing very fast.

In 1990 the government shortened the opening hours from 4 a.m. of the following day to midnight of every day in the liquor drinking industry such as night clubs, cafes and room salons, and raised tax rates on their businesses. The effects of the above measures on the liquor drinking industry were quite visible and strong. The service industry, however, expands at the rapid speed due to the booming construction activities and relatively high wages in the service industries.

In order to increase labor supply to the mining and manufacturing sector the larger number of workers working in those industries than before is exempted from the military duties. And labor imports from abroad are also allowed to the limited extent. On the side of businesses automation facilities investments are rapidly expanding both in the large and medium and small sized businesses, and firms are more willing to hire women and part-time workers than ever before. In Korea the woman labor participation rate is still much lower than those in the advanced countries.

In spite of all the above efforts by the government and business the labor shortage problem in the mining and manufacturing sector is expected to be very serious in the 1990s mainly due to the lack of investments in the education and manpower training.

V. CHANGES NEEDED IN THE EDUCATIONAL SYSTEM TO PRODUCE TECHNICIANS AND ENGINEERS

A. Industrial High Schools

The supply of technicians and technical manpower in the high-tech fields is far short of industrial demand since the supply system is very rigid compared to the rapid changes that have occurred in the industrial structure. On the other hand, the employment rates of recent graduates of universities and colleges (henceforth called universities) are below 50 percent in general and are becoming worse-inflaming severe social unrest.

According to the survey of 4074 small and medium size firms (henceforth called SMFs) on the availability of technical manpower by the SMF Cooperative Association in 1989, the shortage rate of the technological manpower is 29.3 percent and that of the technicians 15.2 percent.[3]

The shortage has arisen because: first, a lack of adequate numbers of industrial high schools(HSs) and industrial departments of the junior colleges; second, a lack of adequate vocational training by the training institutes and within-plant vocational training; third, the number and size of SMFs have been increasing rapidly in recent years; fourth, a decline in the number of the agricultural workers moving into the urban workforce causing increasing demand for the graduates of vocational HSs; fifth, firms have been moving from production of low value added goods, to production of high value added goods because of the large won appreciation and the rapid rise in wages. Thus firms are seeking more skilled workers instead of unskilled workers. Sixth, technological workers prefer to work for larger business.

The number of graduates of the general HSs increased 74 percent from 1978 to 1988 whereas that of the vocational HSs increased 37 percent in the same period and that of the industrial HSs declined in the period, 1980 to 1988. Furthermore, the ratio of the enrolled students of the vocational HSs to those of all HSs continuously decreased from 60 percent in 1975 to 45 percent and 36.6 percent in 1980 and 1988. Since 1987 the absolute number of vocational high HSs has been below that of 1986(see Table 10).

Table 10. Number of Students in the General and Vocational High Schools

(Unit: 1,000 persons, %)

	1978	1980	1982	1984	1986	1988
General	840	933	1,069	1,200	1,345	1,458
	(57.7)	(55.0)	(55.6)	(57.4)	(59.5)	(63.4)
Vocational	615	764	853	892	917	843
	(42.3)	(45.0)	(44.4)	(42.6)	(40.5)	(36.6)
Total	1,455	1,697	1,922	2,092	2,262	2,301
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Source: Ministry of Education, Statistical Yearbook, 1978-1980.

This is surprising considering the fact that the employment rate of the vocational HS graduates has been improving significantly from 58.3 percent in 1981 to 61.2 percent, 78.5 percent, 82.1 percent in 1986, 1988 and 1989 respectively which are much higher than those of the university graduates. On top of this the employment rate of the industrial HS graduates has been increasing steadily from 69.7 percent in 1980 to 93.3 percent in 1988 which are even higher than that of the vocational HSs (see Table 11).

3. Technological manpower used here includes technologists, grade 1 engineers, grade 2 engineers, and graduates of engineering colleges or above. Technicians mean chief technicians, grade 1 technicians, grade 2 technicians, assistant technicians and graduates of technical high schools.

Table 11. Number of Statistics in the Industrial High Schools and the Employment Rates

(Unit: persons, %)

	198	1984	1986	1988
Number	200,367	200,794	202,730	197,731
Employment rates(%)(1)	69.7	75.8	81.7	93.3

Source: Ministry of Education, Statistical Yearbook, 1980-1988
Note: (1) Employment rates, as of April 1 each year, of graduates of February of the same year.

One of the main economic reasons for the decrease in the number of students of vocational and industrial HS is the large wage gap between the HS graduates wages and the university graduates. The second reason for the decrease in the number of industrial HS students in that the government did not invest much in the industrial HSs and the private sector also avoided large investments in the high-cost industrial HSs.

If the facility costs in the commercial HSs is 100, the facility costs in the industrial HSs is 643. Thus a significant increase in the numbers of industrial HSs seems to be very difficult without large investments by the public sector. The facilities for experiments in vocational HSs met only 55.4 percent of the requirements set by the Ministry of Education in 1989. The ratio of students of private industrial HSs to total students in the industrial HSs is 49 percent, while that of the students of private commercial HSs to total students in the commercial HSs is 78 percent.

In Taiwan the weights of vocational and industrial HS education is conspicuously higher in Korea. In Korea the ratio of vocational HS students to total HS student is 36.6 percent, and the proportions of industrial HS students in vocational HS students is 23.5 percent in 1988. On the other hand, in Taiwan, the ratio of vocational HS students is 71 percent and the proportion of industrial HS students in vocational HS students is 47.2 percent (see Tables 12 and 13). In Japan the ratio of vocational HS students is 26.4 percent and the proportion of the industrial HS students in vocational HS students is 34.7 percent in 1988.

The lack of investment in vocational high schools brought forth the keen competition of 4 to 1 in the entrance examinations for the universities and colleges. Only 24.9 percent of the applicants were able to enter universities and colleges(4 years) and 14.3 percent could enter junior colleges in 1988. Most of the rest were waiting for another try.

Table 12. Composition of Students in the Senior Secondary Education in Taiwan:1988-89

(Unit: persons, %)

	No. of students(%)
General	208,994(29)
Vocational	514,872(71)
(Industrial)	(243,124)(33.6)
Total	723,866(100)

Source: Ministry of Education, Educational Statistics of the Republic of China, 1989

Table 13. Composition of Students in the Vocational High School in Taiwan

(Unit:%)

Total	Industry	Commerce	Agriculture	Home Econ.
100.0	47.2	33.5	4.4	14.9

Source: Ministry of Education, Educational Statistics of the Republic of China, 1989

According to the February 1990 Korea Chamber of Commerce and Industry survey of 1,753 firms on the wage structure of 1989, the wage gap between new university graduates and HS graduates with four year work experience at the same firms has disappeared finally due to the rapid increase in wages of the graduates of the secondary educational institutions. Therefore, if the government invests large amounts of resources by itself into the vocational and industrial HSs, and provides appropriate incentives to the private sector for inducing large investments in them, the supply of technicians from the HSs can be significantly increased.

The government announced that vocational classes will be combined within the general HSs in 1990. It seems to be more desirable than the government plans to make vocational HSs annexed to existing HSs as in Taiwan and to set up new independent vocational and especially industrial HSs. The reason is that the vocational classes will have lower morale if they sit next to the general classes preparing for the college entrance examinations than if the vocational classes are placed in different buildings with proper facilities and equipments.

B. Engineering Junior Colleges

The slow growth of the junior colleges relative to the universities and colleges is one of the causes of the lack of the technological manpower experienced by small and medium sized industries. The number of the enrolled students in the universities and colleges increased 2.5 times in the period, 1980 to 1988

whereas that of students in the junior colleges increased 1.6 times(see Table 14).

The composition of the junior college students by major fields and the employment rates of all junior college graduates and industrial junior colleges are shown in Table 15 and 16. About 40 percent of the students belongs to the engineering schools. In Taiwan about 43 percent of junior college students are majoring in engineering(see Table 8).

Table 14. Number of Students in the Higher Education[1]: 1988

	Junior College[2]	Univ. and College	Graduate School
1970	33,353	146,414	6,640
1975	62,866	208,986	13,870
1980	165,051	403,989	33,939
1985	242,117	931,884	68,178
1988	266,844	1,003,648	75,117

Source: Ministry of Education, Statistical Yearbook, 1970-1988
Note: (1) Teachers College and Miscellaneous schools are excluded.
(2) Junior colleges are two-year course except the college of Nursing and Marine of three years.

Table 15. Composition of Junior College Students by Major Fields
(Unit: %)

	Total	Linguistics, Literature	Social Science	Natural Science	Engineering	Others
1984	100	1.4	16.9	0	39.5	42.2
1986	100	1.9	18.9	0	39.5	39.7
1988	100	2.8	17.1	0	39.6	40.5

Source: Ministry of Education, Statistical Yearbook, 1984-1989

Table 16. Number of Junior College Graduates and Employment Rates[1]
(Unit: persons, %)

	No. of graduates	Employment rates	Employment rates of Engineering graduates
1981	57,578	27.0%	NA
1983	74,476	54.0	NA
1985	72,616	66.8	73.3%
1986	76,814	70.4	78.6
1987	81,083	74.7	84.8
1988	82,409	76.3	86.5
1989	83,855	79.4	87.7

Source: Educational Council for Junior Colleges
Note: (1) As of July 1 of each year.

The employment rates of the graduates of the junior colleges have been far higher than those of the universities and colleges. Especially, the engineering junior colleges have had much higher employment rates than all the junior colleges. 91 percent of students in the junior colleges are enrolled in private schools[4] which have severe financial problems, poor facilities and experiment equipments and lack teaching personnel. It is desirable that the government establishes more industrial junior colleges and encourages large businesses to donate more funds to the industrial junior colleges.

C. School of Engineering in the Universities and Colleges (Four Year Course) and Graduate Schools

The number of enrolled students in the junior colleges(two or three years) and universities and colleges(four years) has increased dramatically 5.8 times from 239,000 in 1975 to 1,387,000 in 1988. And the number of the high education students per 10,000 inhabitants has increased from 68.8 in 1975 to 325.7 in 1988 which is the highest next to USA and Canada (see Table 17).

Table 17. Higher Education Students per 10,000 Inhabitants

(Unit: persons)

	1975	1980	1984	1985	1988
Korea	68.8	160.9	294.1	310.3	325.7
Japan	201.7	206.5	200.6	NA	NA
USA	517.9	531.3	518.5	NA	NA
W. Germany	168.4	198.7	249.2	254.6	NA
France	197.1	200.5	231.0	236.2	NA
UK	130.8	184.8	157.1	NA	NA
Canada	360.0	368.8	483.7	509.2	NA
USSR	191.6	197.2	194.6	194.7	NA

Source: Ministry of Education, Statistical Yearbook
UNESCO, Statistical Yearbook, 1987.

The advance rate of HS graduates to the higher institutions in 1987 is 36.7 percent which is higher than 36.1 percent of Japan and 33.7 percent of the USA(1985) (see Table 18). The admitted students to the higher education institutions amount to 305,109 persons in 1988, 32.9 percent of the 18 years old population. 63.5 percent of the admitted students advanced to the universities and colleges and 36.5 percent went to junior colleges.

In 1988, the students in the engineering schools of universities and colleges accounted for 21.6 percent of the total university students.

4. In Korea private universities and colleges are financially weaker than national and public universities and colleges of the same region.

This ratio is higher than the 17.3 percent of Taiwanese students but slightly lower than 21.9 percent Japanese students. In Japan technical college students at the four year course are added to the university and college students (see Tables 7, 8 and 9).

Table 18. Admission Rates to Higher Education Institutions[1]

	1980	1981	1985	1987
Korea	23.7%	35,3%	36.4%	36.7%
USA	31.6	32.6	33.7	NA
Japan	37.4	36.9	37.6	36.1

Source: Min Won Suh, Statistical Indicators of Korean Higher Education, Korean Council for University Education, Jan. 1989
Note: (1) In Korea: Number of Entrants to HE Institutions/High School Graduates.
In Japan: Entrants to College and Universities/Middle School Graduates three years ago

However the portion of the graduates students(MA and PhD courses) in engineering to total graduate students in Korea is 16.6 percent compared to 32.5 percent in Taiwan and 35.4 percent in Japan. And one of the differences in the graduate schools in Korea is that the absolute number of total graduate students in all major fields in Korea is very high relative to that of the other two countries (see Tables 7, 8 and 9).

The employment rates of the graduates of the graduates schools and the natural science(including engineering) graduate schools are 78.7 percent and 73.4 percent respectively which are much higher than those of the graduates of undergraduate colleges.

When we count all the students in the higher education institutions including universities and colleges, graduate schools and junior college the ratios of the engineering students to the total students are 24.4 percent, 29.3 percent and 21.9 percent in Korea, Taiwan and Japan respectively in 1988 (see Tables 7, 8, 9). Considering the fact that existing engineer stock in Korea is very low compared with that of advanced countries and the employment rate of the engineering students is much higher than that in the other areas it is desirable to have a higher proportion of engineering students to total university students. Especially engineering schools of the graduate level need to be expanded to a large extent(see Tables 19, 20, 21).

One of the quality important issues in engineering is the quality of education. The business circles claim that there is a severe shortage of engineering graduates in the high-tech fields and that the high ranking universities in Seoul should be allowed to increase their quotas for entrants in those fields.

Table 19. Composition of University and College Graduates
(Unit: %)

	Total	Humanities	Social Science	Natural Science	Engineering	Others
1970	100	12.1	24.4	9.1	15.9	38.5
1975	100	9.9	17.9	7.3	21.3	43.6
1980	100	11.0	21.2	8.4	26.1	33.4
1985	100	16.0	27.7	9.5	21.4	25.4
1988	100	15.7	28.4	10.5	21.6	23.8

Source: Ministry of Education, Statistical Yearbook, 1970-1988

Table 20. Employment Rates of University and College Graduates by Major Fields[1]

	Total	Humanities	Social Science	Natural Science	Engineering	Medic. Pharm.	Others
1975	71.8	65.2	68.1	58.7	76.4	76.2	72.5
1980	73.0	70.9	78.7	57.6	83.8	85.6	65.2
1984	63.5	53.3	71.8	41.8	73.3	86.4	53.3
1986	45.7	32.7	52.9	50.3		88.4	34.0
1988	50.6	40.8	55.4	56.5		84.5	36.5

Source: Ministry of Education, Statistical Yearbook, 1975-1988
Note: (1) As of April 1 of each year

Table 21. Composition of Graduate Students(MA and PhD courses)
(Unit: %)

	Total	Humanities	Social Science	Natural Science	Engineering	Medic. Pharm.	Others
1986	69,962	8,392	21,681	5,270	11,023	6,368	14,824
	(100.0)	(12.0)	(31.0)	(7.5)	(15.8)	(9.1)	(21.2)
1988	75,117	8,682	21,228	4,800	12,463	6,876	21,068
	(100.0)	(11.6)	(28.3)	(6.4)	(16.6)	(9.2)	(28.0)

Source: Ministry of Education, Statistical Yearbook, 1986-1988

The universities and colleges in the provinces suffer from very low employment rates even in the electronics and electricity engineering fields. This shows that academic ability of the graduates of the provincial engineering schools is evaluated to be very low by business. It is more conspicuous in the private schools in the provinces. The problem of double structure in the universities and colleges(henceforth called universities) can be alleviated only when a large amount of investment is devoted to engineering schools in the private universities and especially in the provincial private universities.

The numbers of engineering students by public vs. private schools are shown in the Table 22.

Table 22. Number of Students in the 4 year Universities and Colleges by Founders in Korea

	All University & College	Engineering Students
All	573,000(100%)	130,795(100%)
National, Public	158,075(27.6)	25,935(19.8)
Private	414,945(72.5)	104,860(80.2)

Source: 1. Korean Council for University Education, Evaluation on the Private Engineering Schools of 1983, Research Report No. 83-4-14, Seoul, April 1983.

The share of the students in the private universities compared to all universities is 72.5 percent, but it is 80.2 percent among engineering majors. It means that engineering schools have more severe financial problems than other schools. And due to the costs of various equipment for experiments the education costs born by the private engineering universities is excessively high. The quality of education in engineering has been getting worse; the number of engineering students in the national and public universities increased 1.6 times from 1978 to 1983 but that in the private universities 2.5 times in the same period.

In Taiwan and Japan the public vs. private story is the way around as shown in Table 23 and 24. The ratio of national and public ownership is much higher in engineering than in all the universities in both countries. In the Japanese junior colleges(2 years) in which the share of female students is 91 percent and the share of the engineering students is only 5.3 percent, the 91 percent of students are enrolled in private junior colleges. The above statistic offers a good guideline for the future of the Korean engineering schools.

Table 23. Number of Students by Founders in Taiwan: 1987/88

	University & College	Engineering Students
All	100.0%	100.0%
National, Public	44.3	59.3
Private	55.6	40.7

Source: Ministry of Education, Educational Statistics of the Republic of China, 1989.

Table 24. Number of Students in Public vs. Private Schools in Japan: 1988

	All	National, Public	Private
University & College(4 years)	100%	25	75
(Engineering)	100%	32.9	67.1
Technical Colleges	100%	93.5	6.5

Source: Ministry of Education, Educational Statistics, Japan, 1989

In order to enhance the quality of the high cost education and to provide adequate number of high-tech related manpower of a high quality in the engineering field, national and public engineering schools or schools of large business groups should be expanded or increased and private engineering colleges with poor educational and financial conditions should be curtailed.

Now we will examine some criteria of educational quality. We looked at students-faculty ratios, the number of students per lecture classroom, and the number of library seats per students as indicators of educational conditions in universities and engineering schools. The students-faculty ratio in Korea in 1986 is 37.5 which is more than double the ratios in advanced countries and three times those in Hong Kong, Argentina and USSR(see Table 25).

Table 25. Number of Students Enrolled per Academic Staff in Higher Education

	1975	1980	1984	1985	1986
Korea	20.9	28.8	37.0	37.7	37.5
Japan	19.8	18.5	17.4	17.1	17.2
USA	16.7	NA	15.5	15.6	NA
W. Germany	8.1	8.1	9.8	NA	NA
France	20.0	NA	21.7	21.6	NA
UK	7.5	7.4	11.1	NA	13.9
Canada	17.8	19.0	21.0	21.3	NA
HK	14.6	12.5	13.0	NA	NA
Argentina	13.2	10.6	10.5	12.0	NA
USSR	15.3	14.3	14.0	13.6	NA
Taiwan	21.3	20.8	20.6	20.6	20.3

Source: - Min Won Suh, Statistical Indicators of Korean Higher Education, Korean Council for University Education, Jan. 1989
- Statistical Yearbook of the Republic of China, Executive Yuan, ROC, 1988

Note: (1) In Japan: Students of University and College + Academic Staff of University and College
(2) In UK: Students of University(4 years)/Academic Staff of University(4 years)

The engineering schools in Korea has much higher ratio that the average ratio of all universities. This is mainly because private engineering schools have very high ratios which have been continuously increasing(see Table 26). This is in sharp contrast with the situation in the other advanced countries. For example, in the US the students-faculty ratio in the engineering schools in 1983 is 12 which is far below the average of all universities in the US. The number of students per lecture classroom increased more than three times from 1970 to 1987 and the classrooms of the private schools are more crowded.

Table 26. Students-Faculty Ratio in the Engineering Colleges

	1978	1979	1980	1982	1983
Engineering Schools	40	39	39	42	42
National, Public	40	32	27	31	31
Private	40	43	43	47	47

Source: Min Won Suh, Statistical Indicators of Korean Higher Education, Korean Council for University Education, Jan. 1989

Note: Graduate Schools are excluded.

And the university libraries had on average 0.2 seats per student from 1965 to 1988. Such a lack of university facilities also applies to the facilities in the engineering schools.

One of the ways to improve the quality of education in graduate schools is to transform a few leading universities into those with graduate programs as the main programs. In order to expand the graduate schools and to improve the quality of education both in graduate and undergraduate schools, the research and development functions of universities should be strengthened. The ratio of R&D expenditure to the GNP is 1.93 percent in 1987 which is far below that found in Japan(2.51 percent, 1976); the USA(2.77 percent, 1986); and West Germany(2.83 percent, 1985). And the technology-related budget of the government was 0.7 billion dollars in 1987. It is 1.3 percent of the USA, 5.6 percent of France and 6.3 percent of Japan.

The share of the use of the universities in the total R&D expenditure is 10.5 percent in 1987 which is less than the USA (12 percent), 1986); Japan(15.6 percent, 1985) and France(14.7 percent, 1984).[5] However, the universities have 34.1 percent of the total R&D manpower engaged in science and technology areas; businesses have 48.7 percent and research institutes have 16.2 percent.

5. KAIST, Prospects for the Long-term Demand up to 21st Century for the Science and Technology Manpower, 1983.

VI. SETTING OF SPECIAL TRAINING SCHOOLS AND ASSISTANCE OF NON-GOVERNMENTAL ORGANIZATIONS

A. Setting of Special Training School

Korea needs to introduce the special training school (henceforth called STS) system which has grown very successfully in Japan. STSs were introduced as a new kind of the education system in Japan in 1976. They offer vocational training, professional technology training and wide areas of general education. They have three levels of courses: senior high school courses, college courses and general courses open to all.

College level courses are called Special Training Colleges which offer one or two-year courses. The minimum number of education hours for a year in a special training college is 800 hours and the minimum number of students is 40. Regulations governing STSs are loose compared with those for universities and they can be set up by a government body or a private party.

As a May 1988 12.6 percent of graduates of the secondary high schools advanced to the special training colleges, while 12.3 percent advanced to the junior colleges. The number of students enrolled in the special training colleges was about 520,000 which exceeded the number of those in the junior colleges, 450,000 in 1988. The total number of STSs including those below the college level was 3,191 in 1988 and the total number of students was about 700,000 out of which 404,000 students were the first-year students. The government began to authorize SPSs which were operated outside the official education system but met regulations stipulated by the government.

The number of those who graduated from college courses of engineering programs of STSs in 1978/88 was as high as 51,693. This is 2.1 times the figure for 1979 and 24.5 percent of that for all the students graduating form STSs in 1987/88.[6] In addition, the number is almost half of those who became engineers after having graduated from junior colleges or above.

According to a research conducted by the National Institute of Employment and Vocational Research, the ratio of those who took engineering programs at advanced courses of STSs and were hired as engineers to the total of such graduates who became workers was 55 percent. And their employment conditions are equivalent to those for graduates of junior colleges and colleges of technology. The reasons why they were hired were that personnel with professional skills and knowledge was required(70%), that they were already prepared to perform the tasks(50%), and that it was difficult to hire enough number of university graduates(25%).[7]

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6. Enrollment is the largest in engineering, next areas are medical treatment, commerce, home science, sanitation, and culture, humanities in the descending order in the special training schools.

The supply and demand relationship of labor force is relatively well reflected in the number of students of STSs. The sharp increase in the number of students in STSs offering engineering oriented programs implies that the supply shortage of graduates of engineering programs at the universities and graduate school levels is very serious and that the graduates of STSs are in great demand.

STSs are part of miscellaneous schools which have complied with the requirements of the government. Currently STSs are enjoying growing popularity because they offer education and training directly related to skills and knowledge required at work place.

B. Assistance to Nongovernmental Organization

In addition to encouraging large businesses to establish vocational and engineering schools, it is very important to encourage the private sector to set up miscellaneous private vocational and technical schools and training institutes such as computer, foreign language, and construction workers training schools. These schools should have an easy access to bank loans and tax reduction or tax exemption incentives.

At present a computer school, as an example, is treated as one of firms in the service industry and does not even have access to bank loans due to the credit rationing scheme of the government.

It is essential for the market forces to play a role in the supply of and demand for trained labor. The regular educational system is strongly controlled by the government in deciding the number of accepted students and tuition. Thus the supply of the skilled labor is very rigid especially in the short run. If the establishment of nongovernmental organizations is easily permitted and financial incentives are provided the supply of the skilled labor will become much more flexible.

VII. CONCLUSION

Facing the growing shortage of high-tech and technological manpower, it is urgently needed that the supply system of technological manpower should be improved in Korea. The technological education system needs to be more diversified and technical schools in the secondary education level and junior colleges should be expanded to a large extent. At the university level and above the improvement in the quality of education is more important than anything else.

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7. Hiromitsu Muta, Technology Manpower Supply and Education in Japan, Presented at the International Conference on Technological Manpower Policy, KIET and the Economic Research Institute, Chung-Ang University, Seoul, Feb. 1990.

Since the supply of the technological manpower in the formal education system does not meet the fluctuating demand for it adequately, the special training school system needs to be introduced in Korea and Taiwan. And various miscellaneous technical schools should be supported by the financial and taxation incentives in Korea.

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Chapter 6

POTENTIAL MANPOWER RESOURCES IN KOREA

Contents

I. INTRODUCTION

II. INDUSTRIAL DEVELOPMENT AND LABOR SUPPLY IN THE PAST

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POTENTIAL MANPOWER RESOURCES IN KOREA

I. INTRODUCTION

Korean economy in early 1960s suffered from high rate of unemployment(8%) and rapid growth of population(2.8%). Forty three percent of the population belonged to age below 14. Among the working age(14 and above) population, 55% participated in the labor force, with the male population participating(76%) twice as much as the female population(36%).

Under these circumstances, Korea took export promotion policies based on the relative abundance of the human resources. The result was very rapid economic growth and absorption of surplus labor. In addition, thanks to the population policy, population growth rate declined and so did the size of future labor force.

In this paper, we will review the trend of industrial growth (and labor absorption) and labor supply in the past. We will then evaluate the recent imbalances in labor supply and demand and then try to estimate potential manpower resources in Korea.

II. INDUSTRIAL DEVELOPMENT AND LABOR SUPPLY IN THE PAST

Since 1960, Korean economy grew at 9% per annum on the average. The growth was led by export from the demand side and by the manufacturing and construction industry from the supply side. Export grew so fast that the proportion of export over GNP rose from a negligible 4.1% (1960) to 41.3%(1988). Manufacturing and construction industries grew at such a rate that the share of the manufacturing sector increased from 14.7%(1963) to 31.6%(1988) in terms of GNP and from 8.0% to 27.7% in terms of employment. Within the manufacturing sector, the share of heavy manufacturing industries rose from 29.7% to 58.8% in terms of GNP. The share of SOC(construction) sector also rose from 3.9% to 10.9% during the same period.

Looking at the sources of industrial growth, manufacturing sector had been relying more heavily on labor supply than any other sectors. Employment grew more than two times as fast in manufacturing sector although it is on a decelerating trend recently.

Data on the labor supply in Korea shows that the past economic growth led to more intensive utilization of human resources. For the last 30 years, the growth rate of population dropped from 3 to 1%. But the growth rate of working age(14 and above) population, reflecting the past trend in the growth of population, remained above 3% until 1980 and dropped to 2.4% only recently. The size of economically active population, on the other hand, grew at a rate higher than 3% except for the period of 1980-85. The size of employment grew at a rate higher than that of the size of economically active population. Thus the trend shows clearly an increasing tendency of manpower utilization.

That is,

$$G(P) < G(WAP) < G(EAP) < G(E)$$

where G=growth rate, P=population,
WAP=working age population,
EAP=economically active population and
E=employed population.

The gap between G(EAP) and G(E) is explained by the decreasing trend of unemployment rate, which dropped from a high level of 8% in 1963 to a level below 3% in 1989.

The gap between G(WAP) and G(EAP) can be explained by the rising labor force partiicipation of female population. Despite the substantial increase in school enrollment, Korean women have been, over time, more actively participating in the labor force, which may have been due to better employment opportunities, late marriage, and reduction of fertility. Male population, on the other hand, shows a decreasing trend of labor force participation due mainly to the increase in school enrollment. Thus, the composition of EAP shows a relative increase of female population over time.

The gap between G(P) and G(WAP) can be explained by the decline in growth rate of population from 3 to 1%. Since the decline was due mainly to the reduction in birth rate, the future inflow of the working age population will be so much reduced.

Employment grew at the rate of 3.4% per annum on the average until 1980 and then at 2.6% in the 1980s. Manufacturing and construction had been absorbing increasingly more employment (at the rate of 8.4% and 5.5% until 1980) so that the share in employment rose from 8.0% to 27.7% for the manufacturing sector and from 3.9% to 10.9% for the SOC sector. This was possible through farm nonfarm migration and labor shortage in rural areas became "chronic" since the mid 1970s.

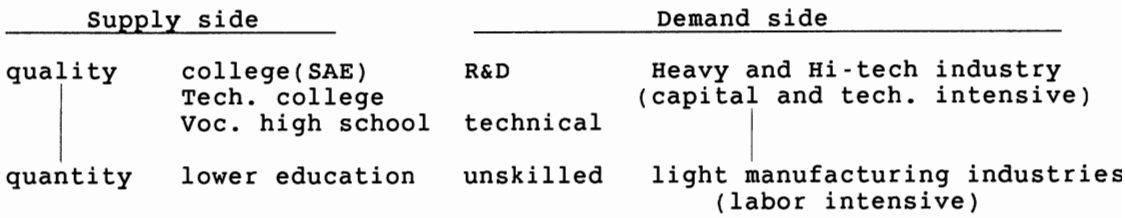
III. RECENT IMBALANCES IN SUPPLY OF AND DEMAND FOR LABOR

Recent trend shows a tendency toward higher education, less working hours and higher wage. Enrollment rate for primary school reached 100% level as early as in 1970. Enrollment rate for the middle school increased drastically from 51%(for the male) and 33%(for the female) in 1966 to reach 100% level(for both) in 1985. As of 1985, high school enrollment rate stood at 82% for the male and 75% for the female population.

The number of college students increased 14 times from 100 thousands in 1965 to 1.4 million in 1987. The share of students in the field of Science and Engineering(SAE) increased from 26% in 1965 to 32% in 1987 producing, each year, more than 100 thousand of graduates. However, since 1975, the proportion of engineering students is on a decreasing trend.

The average educational attainment of population rose from 6(for the male) and 4 years(for the female) in 1966 to 10 and 8 years in 1985. Moreover, there exists little sex differential in educational attainment for the younger age population(below 30).

Trend in labor demand shows a shift from quantity to quality (and skill) of labor as the economy moved from light manufacturing industries to heavy manufacturing and to high-tech industries. That is, as the result of industrialization, there is increasingly more demand for technical and technological instead of unskilled manpower as is depicted in the following diagram.



With the general trend toward higher educational attainment, there are some short run issues for industrial employment in more recent years. First, employment in manufacturing sector began to decline not only relatively but absolutely for some period of time since 1990. The share of manufacturing sector in employment had been 27.7% in 1988 but since then declined to 26% level by the second quarter of 1990.

The problems concerning the manufacturing employment are mixed, depending on the type of labor in question. For unskilled labor, the supply of new entrants is declining absolutely due to higher education. For technical workers, the problem lies in education and training system: government neglected vocational school and science and engineering fields and business firms neglected on-the-job training. Only four engineering high schools had been established during the last 10 years compared to 304 new general high school.

Each year, there are 350 thousand college graduates in the fields of science and engineering but the better half of these graduates are not available for the business firms. The best 10% is enrolled to post graduate studies and 40% to non-manufacturing industries.

Construction and manufacturing sectors seem to be suffering most from the structural imbalances in the supply and demand for labor, which may be characterized as follows:

	Change in employment		Vacancy/job search ratio			
	manufac.	soc,svc(const.)	tech.	cleri.	sales	produc.
89.1/4	302	469(123)	0.8	0.9	4.0	4.1
90.1/4	-123	711(181)	0.8	1.2	3.4	5.0

The prospects for the 1990s show a further decline in the growth of working age (15 and above) population, reflecting the past growth trend of population at 1-2% for the 1970s. With the labor force activity rate the same, labor force is expected to grow from 18.5 million in 1990 to 22.7 million in 2000.

Under the current trend of school enrollment, nearly all of the new entrants in the labor force will be high school graduates. Therefore, the supply of unskilled(production) workers will be reduced further. Technical workers will be in great shortage unless we increase the number of vocational school substantially.

Demand side prospect calls for a continuous industrialization toward heavy manufacturing and hi-tech industry. Assuming the 30% share in employment as the target for the manufacturing industry, there should be continuous demand for industrial manpower. Growth in demand will be especially noteworthy for technological and technical workers.

In sum, under the current system of education and industrial incentives, there will be chronic shortage not only for the production workers but also for technological workers in spite of the rising educational attainment for the population in general. The prospect for the shortage and imbalance in industrial labor supply may be summarised as:

technological(college level): (-) unless structural imbalance eliminated
technical(vocational high school): (-) unless supply enlarged.
unskilled: (-)

Setting up measures for the above prospect calls for a comprehensive plan which is not only limited to the industry in question but includes the whole perspective of the economy. An example in this line is provided by the government measures prepared recently for industrial manpower shortage (Economic Planning Board 1990.7.7), which include:

- increased supply of engineering(technical) workers by 94100 from 1995 through enlargement of engineering high school.
- increased supply of technological workers through doubling the college quota for the science and engineering from 37 to 66 thousands between 1990 and 1995.
- increased supply of production workers through encouragement of female labor force including the reemployment of married women.

IV. POTENTIAL MANPOWER RESOURCES

We can identify the potential sources of labor supply in Korea as the following groups of population:

- unemployed population.
- underemployed population especially in the service sector
- not active population; women, students, retired, disabled.
- noncivilian(institutional) population.

Since employment rate stays currently within near to full employment level (97%), the unemployed can not be a significant source of labor force. On the other hand, those who are underemployed, especially in the service sector, can be significant source. Among those who are not economically active, retired people may be some significant source of additional labor supply. More efficient utilization of the institutional population can be some significant source of additional supply, too.

But among all others, women are the most significant potential source of additional labor supply. In this paper, I will estimate the size of the potential female labor force who can be mobilized in the labor force. Let us classify the female population into three categories according to their marital status and the presence of children; that is, single, married but no children, married and some children.

A. Mobilization of single married women by eliminating discrimination due to sex

Let us denote l as the labor force participation rate and e as the school enrollment rate. Then the sex differential(m as male and f as female) in l of the single population(s) can be calculated as:

$$l_m(e_m) - l_f(e_f)$$

In the above, l is defined as the function of e because l and e are not compatible. Therefore, sex differential in l of the single population depends on sex differential in e of the single population.

Let us focus on the sex differential in l when e is the same for both sex. Then the sex differential in l of the single population allowing for the differential in e can be calculated as:

$$l_m(e_f) - l_f(e_f)$$

If we approximate the above function linearly, as in the following:

$$l_m(e_f) = a_1 + b_1 * e_f$$
$$l_f(e_f) = a_2 + b_2 * e_f$$

then the sex differential in l of the single population allowing for the differential in e appears as:

$$l_m(e_f) - l_f(e_f) = (a_1 - a_2) + (b_1 - b_2)*e_f$$
$$= \alpha_1 + \beta_1 * e_f$$

In the above, $\beta_1 * e_f$ measures the sex differential in l due to sex difference in job-school compatibility, and seems to be relatively insignificant nowadays. In comparison, 1 measures the sex differential in l due to factors other than sex difference in job-school compatibility and enrollment rate. These factors may include not only the sex differential in wage and reservation wage but also some social discrimination against women in terms of labor supply.

α_1 can be estimated, approximately, as the sex differential in l for the single population of 30-34 ages. As of 1980, the relevant data show that:

	single male 30-34 ages	single female 30-34 ages	single female all ages
population	93,982	32,685	3,582,879
L.F.participant	82,619	19,854	1,758,475
LFPR	87.9	60.7	49.1

$\alpha 1$ is estimated to be 0.272 and multiplying 3,582,879, we get 974,543 single female population as the additional potential labor supply who can be mobilized if the sex differential in wage (compared to reservation wage) and labor market entry is eliminated properly.

B. Mobilization of married women by eliminating discrimination due to marital status

The differential in l between single female population (fs) and married (but without children) female popuation (fm) can be calculated similarly as:

$$l_{fs}(e_{fs}) - l_{fm}(e_{fm})$$

Focusing on the sex differential in l when e is the same for both group of population, the sex differential in l between single and married female population can be calculated as:

$$l_{fs}(e_{fm}) - l_{fm}(e_{fm})$$

Approximating the above function linearly, the sex differential in l between single and married female population appears as:

$$l_{fs}(e_{fm}) - l_{fm}(e_{fm}) = (a_3 - a_4) + (b_3 - b_4)*e_{fm}$$
$$= \alpha 2 + \beta 2 * e_{fm}$$

$\beta_2 * e_f$ measures the marital status differential in l due to

difference in job-school compatibility, and seems to be insignificant. α_2 measures the marital status differential in l due to factors other than job-school compatibility and enrollment rate. These factors include not only the marital status differential in wage and reservation wage but also some social discrimination against married women in terms of labor supply.

α_2 can be estimated, approximately, as in the following. As of 1980, the relevant data show that:

	single male 30-34 ages	single female 30-34 ages	single female all ages
population	93,982	32,685	3,582,879
L.F.participant	82,619	19,854	1,758,475
LFPR	87.9	60.7	49.1

α_1 is estimated to be 0.272 and multiplying 3,582,879, we get 974,543 single female population as the additional potential labor supply who can be mobilized if the sex differential in wage (compared to reservation wage) and labor market entry is eliminated properly.

	single f. 30-34 ages	married f. 30-34	f. in two person family	all married women
population	32,685	1,155,481	250,628	7,218,430
L.F.participant	19,854	363,410	141,893	2,597,900
LFPR	60.7	31.5	56.6	36.0

f. = female

$\alpha 2$ is estimated to be 0.041 and multiplying 7,218,430 we get 295,956 married female population as the additional potential labor force who can be mobilized if the difference in wage(compared to reservation wage) and in labor market entry is eliminated properly.

C. Mobilization of married women by eliminating incompatibility between employment and child raising

Let us denote r as the sector where employment and child raising are compatible and u as the incompatible sector. Actually, r means rural sector and u urban sector. Then, the difference in the labor force participation rate between two sectors when the level of fertility(c) is the same can be calculated as:

$$l_{fmr}(c_u) - l_{fmu}(c_u)$$

In the above, l is defined as the function of c because l and c are not perfectly compatible. The above function can be linearly approximated as in the following:

$$l_{fmr}(c_u) - l_{fmu}(c_u) = (a_5 - a_6) + (b_5 - b_6)*c_u$$

$$= \alpha_3 + \beta_3 * c_u$$

In the above, $\beta_3 * c_u$ measures the differential in l due to job-children incompatibility while α_3 measures the sectoral differential in l due to factors other than job-children incompatibility; factors such as the sectoral difference in wage and reservation wage and in labor market entry.
$\beta_3 * cu$ is estimated as in the following:

	b_5	b_6	β_3	c_u	p_{fmu}	$\beta_3 * c_u * p_{fmu}$
20-24	-.2156	-.3888	.1732	.845	449,949	65,852
25-29	-.0256	-.1361	.1105	1.780	884,760	174,023
30-34	-.0256	-.1091	.0835	2.040	764,373	130,203
35-39	-.0256	-.0801	.0545	2.100	618,446	70,781
all					4,108,928	440,860

We get 440,860 married female population as the additional potential labor force who can be mobilized if the job-children incompatibility is removed in urban female labor market.

D. Summary of the estimation result

Female labor supply in Korea can be increased by:

$$\alpha_1 * p_{fu} + \alpha_2 * p_{fm} + \beta_3 * c_u * p_{fmu}$$

where the first term measures the potential number of female labor force who can be mobilized by eliminating sex discrimination, the second term the potential number of female labor force who can be mobilized by eliminating discrimination due to marital status, and the third term the potential number of female labor force who can be mobilized by eliminating incompatibility between employment and child raising.

The sum of the above adds up to 1,711,359. It comprises 13.7% of the working age female population(12,535,126), 34.6% of the female labor force(4,949,369) and 12.6% of the labor force(13,555,236). It comprised 7.1% of the total working age population(23,996,443) so that the labor force participation rate would have been 63.6% instead of 56.5% in 1980.

Chapter 7

AN ECONOMTRIC ANALYSIS ON THE CAUSES OF EMPLOYMENT AND UNEMPLOYMENT IN KOREA

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Appendix (Regression Results)

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Ⅰ. Introduction

It is a widely known fact that there are two different analytical tools for finding out the determining factors of the employed and unemployed, namely, cross tabulation method and econometric analysis.

Among the three econometric approaches, Linear Probability Model, Logit Model and Probit Model, this study adopted Linear Probability Model due to computer package availability and its simplicity. This study used the 1985 Population and Housing Census of Korea as the cross sectional data.

Ⅱ. Theoretical Background

In the case of dummy variable regression, we generally assume that dependent variable Y is quantitative whereas the independent variables are either quantitative or qualitative or a mixture thereof. Here in this study we are dealing with the regression models in which the dependent variable itself can be dichotomous in nature, taking a 1 or 0 value.

Supposing that labor force participation of adult males is a function of unemployment rate, average wage rate, family income, education, etc. Now a person is either in the labor force or not. Therefore, the dependent variable, labor force participation, can take only two values : 1 if the person is in the labor force and 0 if he or she is not in the labor force.

Let us take another example. Suppose we want to study the union membership status of college professors as a function of several

quantitative and qualitative variables. Then, a college professor either belongs to a union or does not . Hence, the dependent variable, union membership status, is a dummy variable taking on values of 0 or 1, 0 implying no union membership and 1 implying union membership .

A typical feature of the above examples is that the dependent variale is of the type that elicits a yes or no response; that is, it is dichotomous in nature. How can we handle models involving dichotomous response variables? To give an answer to these and related matters we could think of three commonly exploited approaches to estimating such models : namely, ① the linear probability model(LPM), ② the Logit Model, ③ the Probit Model.

For the practical purpose, among the three different models, here we consider only the Linear Probability Model, since it is simple and easy to handle.

In order to understand the basic characteristics of the Linear Probability Model, let us take a look at the simple example :

$$Y_i = \beta_1 + \beta_2 X_i + U_i$$

Where X = family income

Y = 1 if the family owns a house

= 0 if the family does not own a house

The models which express the dichotomous Y_i as the linear function of the independent variables X_i, are called linear probability models(LPM) since $E(Y_i|X_i)$, the conditional expectation of Y_i given X_i, can be regarded as the conditional probability that the event will occur given X_i; that is, $Pr(Y_i=1|X_i)$.

Thus, in the above example, $E(Y_i|X_i)$ gives the probability of a family

owning a house whose income is the given amount X_i.

Ⅲ. Model Building and Specification

In accordance with the theoretical background, we decided to adopt the LPM for our regression analysis. Thus, in the case of the employed, the value of 1 is given while the value of 0 is given in the case of the unemployed. That is, dummy variable(1,0) is adopted as the dependent variable for this study. On the other hand, age, educational attainment, marital status, number of children, and ownership of dwellings are exploited as the explanatory variables, determining the dichotomous variable, namely, employment status(employed, unemployed). In the case of independent variables, quantitative variable as well as qualitative variables were used. As the quantitative variables, age and number of children variables were used whereas educational attainment, ownership of dwellings and marital status variables took the qualitative variables(dummy variables).

In order to find out more detailed regression results, similar methods were used for ① urban and rural areas ② 13 different provinces and special municipal cities ③ 6 different educational attainment categories ④ male and female ⑤ stepwise analysis.

Ⅳ. Interpretation of the Regression Results

Approximately over one million sample was used for the regression analysis, and therefore the R^2 value(0.4390) can be regarded as

satisfactory considering the size of the observations. And also the F value(102,210) is significantly high, thereby guaranteeing the justification of the specification itself.

More than anything else, the coefficient values of the explanatory variables are extremely high, showing remarkably high statistical confidence.

The probability of the person who is married, owning a house, 40 year old, college graduate with two children can be calculated as follows :

0.6247(INTERCEPT) + 40 x (-0.0124)(AGE) +
0.1325(DUMED3) + 0.3821(DUMMAR) +
(-0.0158)(NUMCHD) + 0.6144(HOUOWND) = 0.9611

Distinct regressional results could be summarized as follows;

i) the coefficient value of the intercept, marital status and ownership of dwellings are extraordinarily high while the sign of age as well as educational attainment variable is "-", to our surprise. The latter result could be attributable to the fact that the workers who belong to 20-29 age category are likely to be unemployed because of their high expectation to go on their studies and that in recent times, workers with the high educational attainment are having difficult times for finding jobs on account of excess supply situation.

ii) The marital status and house ownership variables seem to have most significant effect for the determination of employment status. This can be explained as follows; Normally those who are married are expected to do their best to find jobs and those who try their best for finding jobs are likely to earn enough money to buy houses.

ⅲ) The absolute values of educational attainment are decreasing in spite of their "-" signs, thereby proving the ever increasing probability for finding jobs of those with high educational attainments.

ⅳ) The "-" sign of the age variable could be attributable to the fact that in the case of the 50-59 age bracket the probability of being employed could be gradually decreased due to productivity decline.

v) The independent variable, the number of children (NUMCHD) seems to have insignificant effect for the determination of employment status.

vi) In the case of urban area, the probability of being employed is relatively high compared with that of the rural area. And the probability of being employed of the male population is clearly high compared with that of the female population. This can be explained by pointing out the phenomena that unequal treatment is widely practiced still in Korea and the fact that the probability of having an opportunity to take part in on the job training is extremely low in the case of female workers.

V. Limitations of the Study and Suggestions for further Research

This study is the first attempt to use Linear Probability Model for finding out determining factors of the employed and unemployed in Korea. In spite of the satisfactory regression results, it would be far more useful if we could experiment the model using Logit Model as well as Probit Model. And if the capacity of the computer could be extended and other computer package could be exploited, better regression results could be obtained.

(Table 1) Regression Result for the Whole Country, Rural and Urban Area

Vabiable	Whole Country	Rural Area	Urban Area
INTERCEPT	0.6247 (530.5)	0.5622 (318.5)	0.6366 (406.5)
AGE	-0.0124 (-438.6)	-0.0133 (-372.6)	-0.0117 (-288.6)
DUMED1	-0.1828 (-187.9)	-0.1990 (-146.0)	-0.1656 (-124.6)
DUMED2	-0.1548 (-151.3)	-0.1721 (-104.8)	-0.1384 (-102.4)
DUMED3	-0.1119 (-41.9)	-0.0724 (-16.1)	-0.1130 (-33.9)
DUMED4	-0.1325 (-87.4)	-0.0651 (-18.9)	-0.1327 (-71.3)
DUMMAR	0.3821 (362.7)	0.4459 (276.5)	0.3649 (265.0)
NUMCHD	-0.0158 (-55.6)	-0.0088 (-26.3)	-0.0270 (-61.9)
HOUOWND	0.6144 (641.0)	0.6740 (543.3)	0.5663 (395.5)
F VALUE	102210.525	635150.501	50042.076
R-SQUARE	0.4390	0.5812	0.3703

Note : figures in the parenthesis are t values.

(Table 2) Regression Results by Provinces and Special Municipal Cities

Variable	Seoul	Pusan	Taegu	Incheon
INTERCEPT	0.6687 (256.6)	0.6453 (146.7)	0.6150 (107.1)	0.7006 (101.8)
AGE	-0.0111 (-161.3)	-0.0116 (-101.0)	-0.0122 (-83.0)	-0.0129 (-72.9)
DUMED1	-0.1761 (-76.3)	-0.1465 (-40.9)	-0.1386 (-29.4)	-0.1651 (-29.0)
DUMED2	-0.1542 (-67.2)	-0.1239 (-32.8)	-0.1264 (-25.2)	-0.1478 (-25.8)
DUMED3	-0.1235 (-21.5)	-0.1156 (-12.4)	-0.1088 (-9.1)	-0.1267 (-8.7)
DUMED4	-0.1517 (-52.7)	-0.1342 (-23.3)	-0.1598 (-23.4)	-0.1404 (-15.5)
DUMMAR	0.3299 (145.8)	0.3563 (91.9)	0.3877 (77.0)	0.3046 (50.4)
NUMCHD	-0.0311 (-40.6)	-0.0278 (-22.4)	-0.0218 (-13.8)	-0.0230 (-11.8)
HOUOWND	0.5721 (236.8)	0.5347 (313.3)	0.5510 (102.2)	0.5871 (99.5)
F VALUE	17184.247	5870.095	3787.411	2740.373
R-SQUARE	0.3543	0.3393	0.3673	0.3830

Note : figures in the parenthesis are t values.

Variable	Kyunggi	Kangwon	Chungbuk	Chungnam
INTERCEPT	0.6783 (191.0)	0.5266 (96.6)	0.5620 (96.9)	0.5617 (141.3)
AGE	-0.0124 (-144.8)	-0.0131 (-109.0)	-0.0131 (-107.2)	-0.0132 (-148.4)
DUMED1	-0.1765 (-60.8)	-0.1743 (-40.1)	-0.1978 (-42.7)	-0.1961 (-61.1)
DUMED2	-0.1592 (-53.6)	-0.1282 (-25.9)	-0.1565 (-29.8)	-0.1668 (-45.9)
DUMED3	-0.1127 (-13.9)	-0.0191 (-1.4)	-0.1146 (-8.0)	-0.1223 (-13.3)
DUMED4	-0.1164 (-23.2)	-0.0578 (-6.5)	-0.1216 (-13.5)	-0.1166 (-19.7)
DUMMAR	0.3198 (101.0)	0.4745 (94.4)	0.4450 (84.2)	0.4488 (124.4)
NUMCHD	-0.0224 (-25.0)	-0.0189 (-16.1)	-0.0133 (-11.2)	-0.0117 (-13.9)
HOUOWND	0.6125 (214.2)	0.6550 (155.2)	0.6667 (157.4)	0.6602 (223.2)
F VALUE	10720.205	5628.778	5583.509	11836.839
R-SQUARE	0.4134	0.5006	0.5515	0.5510

Note : figures in the parenthesis are t values.

Variable	Chunbuk	Chunnam	Kyungbuk	Kyungnam	Cheju
INTERCEPT	0.5465(121.8)	0.5373(156.1)	0.5651(138.0)	0.6015(149.3)	0.5386(52.4)
AGE	-0.0134(-137.0)	-0.0128(-169.0)	-0.0130(-156.9)	-0.0128(-141.4)	-0.0112(-50.7)
DUMED1	-0.1979(-55.7)	-0.1960(-72.4)	-0.1932(-60.7)	-0.1953(-62.4)	-0.1730(-20.6)
DUMED2	-0.1657(-40.3)	-0.1676(-53.0)	-0.1544(-42.2)	-0.1407(-41.4)	-0.1279(-14.4)
DUMED3	-0.1098(-11.0)	-0.0664(-8.4)	-0.0679(-7.6)	-0.0885(-9.4)	-0.0676(-3.3)
DUMED4	-0.1250(-18.7)	-0.0793(-15.0)	-0.0542(-7.6)	-0.0735(-12.2)	-0.1201(-8.0)
DUMMAR	0.4744(116.1)	0.4773(152.5)	0.4436(119.2)	0.4110(113.6)	0.4774(51.7)
NUMCHD	-0.0059(-6.7)	-0.0076(-10.9)	-0.0092(-11.5)	-0.0123(-13.8)	-0.0104(-4.6)
HOUOWND	0.6507(194.1)	0.6385(242.6)	0.6492(223.2)	0.6288(205.2)	0.5721(71.1)
F VALUE	9639.051	15613.013	11131.263	9848.329	1416.252
R-SQUARE	0.5709	0.5605	0.5371	0.4677	0.4708

Note : figures in the parenthesis are t values.

(Table 3) Regression Results by Age Category

Variable	Age 14 - 19	Age 20 - 29	Age 30 - 39
INTERCEPT	0.3151 (81.2)	0.3800 (119.1)	0.4836 (86.4)
DUMED1	-0.2015 (-50.6)	0.0091 (2.7)	-0.0039 (-1.3)
DUMED2	-0.2672 (-67.8)	0.0244 (7.7)	0.0505 (17.2)
DUMED3	-0.3053 (-48.5)	-0.0791 (-16.3)	0.1078 (15.6)
DUMED4	-0.3137 (-65.4)	-0.1780 (-47.5)	0.0826 (21.1)
DUMMAR	-0.1078 (-58.5)	0.0146 (6.1)	0.0518 (9.5)
NUMCHD	-0.0238 (-5.9)	-0.0554 (-42.8)	-0.0470 (-50.9)
HOUOWND	0.8691 (290.0)	0.6300 (278.6)	0.4981 (213.1)
F VALUE	14980.0015	13221.550	7314.006
R-SQUARE	0.4402	0.3171	0.2542

Note : figures in the parenthesis are t values.

Variable	Age 40 - 49	Age 50 - 59	Age 60+
INTERCEPT	0.3993 (27.9)	0.2549 (9.0)	0.1527 (3.8)
DUMED1	0.0131 (4.5)	0.0250 (6.1)	-0.0370 (-6.2)
DUMED2	0.0535 (18.0)	0.0523 (12.4)	-0.0270 (-3.7)
DUMED3	0.0886 (8.6)	0.0894 (6.7)	-0.0063 (-0.4)
DUMED4	0.0835 (21.0)	0.1166 (20.6)	0.0388 (3.8)
DUMMAR	0.0349 (2.4)	-0.0388 (-1.4)	-0.1500 (-3.8)
NUMCHD	-0.0144 (-21.8)	0.0070 (11.5)	0.0138 (26.8)
HOUOWND	0.5361 (236.5)	0.6145 (224.3)	0.5898 (222.5)
F VALUE	8344.292	7505.693	7414.402
R-SQUARE	0.3381	0.4001	0.4151

Note : figures in the parenthesis are t values.

(Table 4) Regression Results by Educational Attainment Category

Variable	Elementary School	Junior High School	Senior High School
INTERCEPT	0.8281 (289.1)	0.3532 (118.1)	0.0347 (12.5)
AGE	-0.0161 (-370.7)	-0.0033 (-28.6)	0.0093 (70.3)
DUMMAR	0.2722 (97.0)	0.2153 (83.6)	0.1477 (59.5)
NUMCHD	-0.0105 (-27.2)	-0.0344 (-36.4)	-0.0551 (-61.4)
HOUOWND	0.5967 (398.7)	0.5900 (213.0)	0.5680 (270.0)
F VALUE	72142.327	12574.592	31177.863
R-SQUARE	0.5006	0.1949	0.3357

Note : figures in the parenthesis are t values.

Variable	Junior College	College or Unversity	No Education
INTERCEPT	0.2390 (24.3)	0.0870 (17.6)	0.6763 (79.3)
AGE	-0.0014 (-3.3)	0.0019 (9.1)	-0.0150 (-421.3)
DUMMAR	0.3339 (43.4)	0.4018 (99.8)	0.3830 (44.9)
NUMCHD	-0.0291 (-9.8)	-0.0317 (-22.6)	0.0047 (12.5)
HOUOWND	0.5672 (87.7)	0.4903 (151.8)	0.6156 (331.2)
F VALUE	3191.608	17454.813	68164.267
R-SQUARE	0.3884	0.4877	0.7101

Note : figures in the parenthesis are t values.

(Table 5) Regression Results by Sex

Variable	Male	Female
INTERCEPT	0.4927 (341.2)	0.8414 (517.0)
AGE	-0.0083 (-213.2)	-0.0143 (-413.2)
DUMED1	-0.0878 (-67.1)	-0.3012 (-247.9)
DUMED2	-0.0353 (-26.9)	-0.3678 (-270.3)
DUMED3	-0.0327 (-10.5)	-0.3190 (-81.6)
DUMED4	-0.0620 (-35.6)	-0.3844 (-160.4)
DUMMAR	0.5334 (415.0)	0.1543 (105.8)
NUMCHD	0.0144 (37.4)	-0.0165 (-46.8)
HOUOWND	0.3217 (251.0)	0.6995 (528.0)
F VALUE	45176.198	86213.998
R-SQUARE	0.4122	0.5658

Note : figures in the parenthesis are t values.

(Table 6) Stepwise Regression Results

Variable	1st Step	2nd Step	3rd Step	4th Step	5th Step
INTERCEPT	0.7855(968.4)	0.9352(1056.3)	0.9457(1056.9)	0.6328(455.2)	0.7023(552.6)
AGE	-0.0061(-249.5)	-0.0058(-252.4)	-0.0076(-227.2)	-0.0077(-239.0)	-0.0104(-326.0)
DUMED1		-0.2747(-235.2)	-0.2664(-227.5)	-0.2040(-177.7)	-0.2054(-187.5)
DUMED2		-0.3346(-303.9)	-0.3197(-286.1)	-0.1626(-134.7)	-0.1816(-157.5)
DUMED3		-0.2636(-81.9)	-0.2434(-75.6)	-0.0781(-24.8)	-0.1090(-36.2)
DUMED4		-0.2491(-140.5)	-0.2302(-128.8)	-0.0911(-51.0)	-0.1506(-87.8)
NUMCHD			0.0245(72.6)	0.0034(10.1)	-0.0005(-1.7)
DUMMAR				0.3564(286.8)	0.3086(258.3)
HOUOWND					0.4262(320.8)
F VALUE	62267.197	37624.372	32390.642	41703.210	52953.732
R-SQUARE	0.0562	0.1526	0.1568	0.2184	0.2885

Note : figures in the parenthesis are t values.

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Appendix (Regression Results)

ANALYSIS OF VARIANCE (Whole Country)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	108168.21	13521.02638	102210.525	0.0001
ERROR	104E4	138204.79	0.13228605		
C TOTAL	104E4	246373.00			

ROOT MSE	0.3637115	R-SQUARE	0.4390
DEP MEAN	0.6190805	ADJ R-SQ	0.4390
C.V.	58.75027		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.62469143	0.001177630	530.465	0.0001
AGE	1	-0.01239977	0.000028269	-438.640	0.0001
DUMED1	1	-0.18281895	0.000973086	-187.876	0.0001
DUMED2	1	-0.15475114	0.001022762	-151.307	0.0001
DUMED3	1	-0.11190452	0.002671972	-41.881	0.0001
DUMED4	1	-0.13246083	0.001515599	-87.398	0.0001
DUMMAR	1	0.38206015	0.001053426	362.683	0.0001
NUMCHD	1	-0.01580586	0.000284204	-55.615	0.0001
HOUOWND	1	0.61440066	0.000958437	641.044	0.0001

ANALYSIS OF VARIANCE (Rural Area)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	45339.83821	5667.47978	63150.501	0.0001
ERROR	364E3	32673.77145	0.08974560		
C TOTAL	364E3	78013.60966			

ROOT MSE	0.2995757	R-SQUARE	0.5812
DEP MEAN	0.6890079	ADJ R-SQ	0.5812
C.V.	43.47928		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.56215180	0.001765275	318.450	0.0001
AGE	1	-0.01334579	0.000035814	-372.644	0.0001
DUMED1	1	-0.19902763	0.001362849	-146.038	0.0001
DUMED2	1	-0.17208318	0.001641542	-104.830	0.0001
DUMED3	1	-0.07244095	0.004493965	-16.120	0.0001
DUMED4	1	-0.06507427	0.003434724	-18.946	0.0001
DUMMAR	1	0.44594107	0.001612523	276.549	0.0001
NUMCHD	1	-0.008784224	0.000333823	-26.314	0.0001
HOUOWND	1	0.67398396	0.001240473	543.328	0.0001

ANALYSIS OF VARIANCE (Urban Area)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	61338.18307	7667.27288	50042.076	0.0001
ERROR	681E3	104288.67	0.15321652		
C TOTAL	681E3	165626.85			

ROOT MSE	0.3914288	R-SQUARE	0.3703
DEP MEAN	0.5816775	ADJ R-SQ	0.3703
C.V.	67.2931		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.63657301	0.001566023	406.490	0.0001
AGE	1	-0.01172122	0.000040615	-288.592	0.0001
DUMED1	1	-0.16550166	0.001328653	-124.639	0.0001
DUMED2	1	-0.13841158	0.001351301	-102.428	0.0001
DUMED3	1	-0.11297525	0.003394421	-33.882	0.0001
DUMED4	1	-0.13266913	0.001861244	-71.280	0.0001
DUMMAR	1	0.36493628	0.001377085	265.006	0.0001
NUMCHD	1	-0.02700970	0.000436571	-61.868	0.0001
HOUOWND	1	0.56630277	0.001431996	395.464	0.0001

ANALYSIS OF VARIANCE (Seoul)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	21715.77683	2714.47210	17184.247	0.0001
ERROR	251E3	39671.26487	0.15796282		
C TOTAL	251E3	61287.04170			

ROOT MSE	0.3974454	R-SQUARE	0.3543
DEP MEAN	0.57321	ADJ R-SQ	0.3543
C.V.	69.33678		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.66871501	0.002606510	256.556	0.0001
AGE	1	-0.01112519	0.000068985	-161.269	0.0001
DUMED1	1	-0.17613822	0.002307031	-76.348	0.0001
DUMED2	1	-0.15423780	0.002295798	-67.183	0.0001
DUMED3	1	-0.12353775	0.005742549	-21.513	0.0001
DUMED4	1	-0.15167145	0.002878971	-52.683	0.0001
DUMMAR	1	0.32987261	0.002261873	145.840	0.0001
NUMCHD	1	-0.03112510	0.000766736	-40.594	0.0001
HOUOWND	1	0.57211498	0.002416444	236.759	0.0001

ANALYSIS OF VARIANCE (Busan)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	7519.26375	939.90797	5870.095	0.0001
ERROR	91464	14645.03426	0.16011802		
C TOTAL	91472	22164.29801			

ROOT MSE	0.4001475	R-SQUARE	0.3393
DEP MEAN	0.5877253	ADJ R-SQ	0.3392
C.V.	68.0841		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.64534654	0.004399947	146.671	0.0001
AGE	1	-0.01160381	0.000114861	-101.025	0.0001
DUMED1	1	-0.14647833	0.003585014	-40.859	0.0001
DUMED2	1	-0.12389484	0.003776491	-32.807	0.0001
DUMED3	1	-0.11558577	0.009326554	-12.393	0.0001
DUMED4	1	-0.13417176	0.005751088	-23.330	0.0001
DUMMAR	1	0.35626868	0.003874697	91.947	0.0001
NUMCHD	1	-0.02783616	0.001244631	-22.365	0.0001
HOUOWND	1	0.53466189	0.004070783	131.341	0.0001

ANALYSIS OF VARIANCE (Taegu)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	4725.02801	590.62850	3787.411	0.0001
ERROR	52187	8138.31085	0.15594517		
C TOTAL	52195	12863.33886			

ROOT MSE	0.3948989	R-SQUARE	0.3673
DEP MEAN	0.5596406	ADJ R-SQ	0.3672
C.V.	70.56296		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.61500186	0.005741991	107.106	0.0001
AGE	1	-0.01219774	0.000146900	-83.034	0.0001
DUMED1	1	-0.13855243	0.004717477	-29.370	0.0001
DUMED2	1	-0.12642318	0.005024016	-25.164	0.0001
DUMED3	1	-0.10880486	0.01198521	-9.078	0.0001
DUMED4	1	-0.15975642	0.006813019	-23.449	0.0001
DUMMAR	1	0.38766063	0.005033385	77.018	0.0001
NUMCHD	1	-0.02178157	0.001580559	-13.781	0.0001
HOUOWND	1	0.55103584	0.005390623	102.221	0.0001

ANALYSIS OF VARIANCE (Incheon)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	3256.94370	407.11796	2740.373	0.0001
ERROR	35321	5247.39256	0.14856297		
C TOTAL	35329	8504.33626			

ROOT MSE	0.3854387	R-SQUARE	0.3830
DEP MEAN	0.596377	ADJ R-SQ	0.3828
C.V.	64.63003		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.70057780	0.006881830	101.801	0.0001
AGE	1	-0.01289493	0.000177137	-72.797	0.0001
DUMED1	1	-0.16510589	0.005689960	-29.017	0.0001
DUMED2	1	-0.14783806	0.005725087	-25.823	0.0001
DUMED3	1	-0.12668543	0.01455271	-8.705	0.0001
DUMED4	1	-0.14037882	0.009038443	-15.531	0.0001
DUMMAR	1	0.30461402	0.006047345	50.372	0.0001
NUMCHD	1	-0.02295578	0.001951486	-11.763	0.0001
HOUOWND	1	0.58706330	0.005902118	99.467	0.0001

ANALYSIS OF VARIANCE (Kyunggi Province)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	11830.47938	1478.80992	10720.205	0.0001
ERROR	122E3	16784.03340	0.13794605		
C TOTAL	122E3	28614.51279			

ROOT MSE	0.3714109	R-SQUARE	0.4134
DEP MEAN	0.6218113	ADJ R-SQ	0.4134
C.V.	59.73048		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.67825802	0.003551221	190.993	0.0001
AGE	1	-0.01237923	0.000085470	-144.837	0.0001
DUMED1	1	-0.17652142	0.002901049	-60.847	0.0001
DUMED2	1	-0.15915385	0.002968698	-53.611	0.0001
DUMED3	1	-0.11271915	0.008101528	-13.913	0.0001
DUMED4	1	-0.11639286	0.005018932	-23.191	0.0001
DUMMAR	1	0.31984034	0.003165341	101.045	0.0001
NUMCHD	1	-0.02238787	0.000896092	-24.984	0.0001
HOUOWND	1	0.61249823	0.002860021	214.159	0.0001

ANALYSIS OF VARIANCE (Kangwon Province)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	5271.89728	658.98716	5628.778	0.0001
ERROR	44920	5258.99319	0.11707465		
C TOTAL	44928	10530.89047			

ROOT MSE	0.3421617	R-SQUARE	0.5006
DEP MEAN	0.6249416	ADJ R-SQ	0.5005
C.V.	54.75099		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.52658077	0.005453565	96.557	0.0001
AGE	1	-0.01308044	0.000119982	-109.020	0.0001
DUMED1	1	-0.17429234	0.004344846	-40.116	0.0001
DUMED2	1	-0.12820575	0.004951120	-25.894	0.0001
DUMED3	1	-0.01914425	0.01334972	-1.434	0.1516
DUMED4	1	-0.05781765	0.008956393	-6.455	0.0001
DUMMAR	1	0.47449658	0.005010826	94.694	0.0001
NUMCHD	1	-0.01892527	0.001178316	-16.061	0.0001
HOUOWND	1	0.65498859	0.004220891	155.178	0.0001

ANALYSIS OF VARIANCE (Chungbuk Province)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	4554.50156	569.31270	5583.509	0.0001
ERROR	36331	3704.42686	0.10196325		
C TOTAL	36339	8258.92843			

ROOT MSE	0.3193169	R-SQUARE	0.5515
DEP MEAN	0.6507705	ADJ R-SQ	0.5514
C.V.	49.06751		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.56198568	0.005797155	96.942	0.0001
AGE	1	-0.01310645	0.000122230	-107.228	0.0001
DUMED1	1	-0.19783374	0.004634046	-42.691	0.0001
DUMED2	1	-0.15652892	0.005260029	-29.758	0.0001
DUMED3	1	-0.11461789	0.01437994	-7.971	0.0001
DUMED4	1	-0.12159925	0.008977671	-13.545	0.0001
DUMMAR	1	0.44498290	0.005284007	84.213	0.0001
NUMCHD	1	-0.01331807	0.001185450	-11.235	0.0001
HOUOWND	1	0.66666244	0.004235258	157.408	0.0001

ANALYSIS OF VARIANCE (Chungnam Province)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	9805.00813	1225.62602	11836.839	0.0001
ERROR	77164	7989.81933	0.10354335		
C TOTAL	77172	17794.82747			

ROOT MSE	0.3217815	R-SQUARE	0.5510
DEP MEAN	0.6393428	ADJ R-SQ	0.5510
C.V.	50.33005		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.56166413	0.003974673	141.311	0.0001
AGE	1	-0.01320121	0.000088975	-148.370	0.0001
DUMED1	1	-0.19605962	0.003207877	-61.118	0.0001
DUMED2	1	-0.16681594	0.003635889	-45.380	0.0001
DUMED3	1	-0.12231146	0.009198192	-13.297	0.0001
DUMED4	1	-0.11656796	0.003607409	-19.702	0.0001
DUMMAR	1	0.44876190	0.003607409	124.400	0.0001
NUMCHD	1	-0.01174463	0.000843737	-13.920	0.0001
HOUOWND	1	0.66019307	0.002957851	223.200	0.0001

ANALYSIS OF VARIANCE (Chunbuk Province)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	7452.65882	931.58235	9639.051	0.0001
ERROR	57968	5602.41547	0.09664669		
C TOTAL	57976	13055.07429			

ROOT MSE	0.3108805	R-SQUARE	0.5709
DEP MEAN	0.6575539	ADJ R-SQ	0.5708
C.V.	47.27833		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.54650947	0.004488435	121.759	0.0001
AGE	1	-0.01335556	0.000097504	-136.975	0.0001
DUMED1	1	-0.19794709	0.003555049	-55.681	0.0001
DUMED2	1	-0.16566912	0.004108439	-40.324	0.0001
DUMED3	1	-0.10981122	0.009985939	-10.997	0.0001
DUMED4	1	-0.12498677	0.006691102	-18.680	0.0001
DUMMAR	1	0.47437583	0.004086492	116.084	0.0001
NUMCHD	1	-0.005925769	0.000886123	-6.687	0.0001
HOUOWND	1	0.65066701	0.003352594	194.079	0.0001

ANALYSIS OF VARIANCE (Chunnam Province)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	12183.47965	1522.93496	15613.013	0.0001
ERROR	97940	9553.32898	0.09754267		
C TOTAL	97948	21736.80862			

ROOT MSE	0.3123182	R-SQUARE	0.5605
DEP MEAN	0.6675719	ADJ R-SQ	0.5605
C.V.	46.78421		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.53732188	0.003442341	156.092	0.0001
AGE	1	-0.01284892	0.000076024	-169.010	0.0001
DUMED1	1	-0.19601120	0.002707060	-72.407	0.0001
DUMED2	1	-0.16759437	0.003160163	-53.033	0.0001
DUMED3	1	-0.06640721	0.007952627	-8.350	0.0001
DUMED4	1	-0.07932445	0.005286844	-15.004	0.0001
DUMMAR	1	0.47733130	0.003129160	152.543	0.0001
NUMCHD	1	-0.007633917	0.000701840	-10.877	0.0001
HOUOWND	1	0.63854516	0.002632096	242.599	0.0001

ANALYSIS OF VARIANCE (Kyungbuk Province)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	9092.79858	1136.59982	11131.263	0.0001
ERROR	76762	7838.07511	0.10210879		
C TOTAL	76770	16930.87369			

ROOT MSE	0.3195447	R-SQUARE	0.5371
DEP MEAN	0.6716468	ADJ R-SQ	0.5370
C.V.	47.57629		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.56511270	0.004095283	137.991	0.0001
AGE	1	-0.01304383	0.000083153	-156.866	0.0001
DUMED1	1	-0.19321149	0.003182146	-60.717	0.0001
DUMED2	1	-0.15442526	0.003055646	-42.243	0.0001
DUMED3	1	-0.06791462	0.008967921	-7.573	0.0001
DUMED4	1	-0.05421573	0.007156083	-7.576	0.0001
DUMMAR	1	0.44363283	0.003722104	119.189	0.0001
NUMCHD	1	-0.009176924	0.000799230	-11.482	0.0001
HOUOWND	1	0.64922865	0.002909005	223.179	0.0001

ANALYSIS OF VARIANCE (Kyungnam Province)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	9464.56293	1183.07037	9848.329	0.0001
ERROR	89661	10770.89019	0.12012904		
C TOTAL	89669	20235.45312			

ROOT MSE	0.3465964	R-SQUARE	0.4677
DEP MEAN	0.6559942	ADJ R-SQ	0.4677
C.V.	52.83528		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.60149635	0.004029116	149.287	0.0001
AGE	1	-0.01284948	0.000090890	-141.374	0.0001
DUMED1	1	-0.19525166	0.003127747	-62.426	0.0001
DUMED2	1	-0.14067608	0.003397630	-41.404	0.0001
DUMED3	1	-0.08853531	0.009418995	-9.400	0.0001
DUMED4	1	-0.07346237	0.006046057	-12.150	0.0001
DUMMAR	1	0.41098886	0.003618305	113.586	0.0001
NUMCHD	1	-0.01230612	0.000889110	-13.841	0.0001
HOUOWND	1	0.62878698	0.003064885	205.158	0.0001

ANALYSIS OF VARIANCE (Cheju Province)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	1330.01803	166.25225	1416.252	0.0001
ERROR	12735	1494.94737	0.11738888		
C TOTAL	12743	2824.96540			

ROOT MSE	0.3426206	R-SQUARE	0.4708
DEP MEAN	0.6683145	ADJ R-SQ	0.4705
C.V.	51.26637		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.53858230	0.01027390	52.422	0.0001
AGE	1	-0.01124138	0.000221520	-50.747	0.0001
DUMED1	1	-0.17295289	0.008376212	-20.648	0.0001
DUMED2	1	-0.12785426	0.008891505	-14.379	0.0001
DUMED3	1	-0.06761249	0.02046281	-3.304	0.0010
DUMED4	1	-0.12013639	0.01495494	-8.033	0.0001
DUMMAR	1	0.47743269	0.009232487	51.712	0.0001
NUMCHD	1	-0.01039089	0.002240219	-4.638	0.0001
HOUOWND	1	0.57206087	0.008049373	71.069	0.0001

ANALYSIS OF VARIANCE (Age 14-19)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	7	4911.07121	702.58160	14980.001	0.0001
ERROR	133E3	6246.51137	0.04683455		
C TOTAL	133E3	11157.58258			

ROOT MSE	0.2164129	R-SQUARE	0.4402
DEP MEAN	0.09214137	ADJ R-SQ	0.4401
C.V.	234.8705		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.31507149	0.003880405	81.196	0.0001
DUMED1	1	-0.20153040	0.003981459	-50.617	0.0001
DUMED2	1	-0.26723802	0.003939615	-67.834	0.0001
DUMED3	1	-0.30533131	0.006298889	-48.474	0.0001
DUMED4	1	-0.31365757	0.004797590	-65.378	0.0001
DUMMAR	1	-0.10781398	0.001842827	-58.505	0.0001
NUMCHD	1	-0.02378051	0.004043302	-5.881	0.0001
HOUOWND	1	0.86909405	0.002996699	290.017	0.0001

ANALYSIS OF VARIANCE (Age 20-29)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	7	15765.56540	2252.22363	13221.550	0.0001
ERROR	199E3	33955.01893	0.17034490		
C TOTAL	199E3	49720.58433			

ROOT MSE	0.4127286	R-SQUARE	0.3171
DEP MEAN	0.4760684	ADJ R-SQ	0.3171
C.V.	86.69523		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.37997289	0.003190554	119.093	0.0001
DUMED1	1	0.009104019	0.003379668	2.693	0.0071
DUMED2	1	0.02439117	0.003166083	7.704	0.0001
DUMED3	1	-0.07911227	0.004840192	-16.345	0.0001
DUMED4	1	-0.17796892	0.003742818	-47.549	0.0001
DUMMAR	1	0.01458425	0.002372577	6.147	0.0001
NUMCHD	1	-0.05540514	0.001294993	-42.784	0.0001
HOUOWND	1	0.62997387	0.002261209	278.600	0.0001

ANALYSIS OF VARIANCE (Age 30-39)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	7	8907.42223	1272.48889	7314.006	0.0001
ERROR	150E3	26136.62899	0.17397974		
C TOTAL	150E3	35044.05123			

ROOT MSE	0.4171088	R-SQUARE	0.2542
DEP MEAN	0.6293831	ADJ R-SQ	0.2541
C.V.	66.27264		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.48358167	0.005596480	86.408	0.0001
DUMED1	1	-0.003946338	0.003054024	-1.292	0.1963
DUMED2	1	0.05045378	0.002937000	17.179	0.0001
DUMED3	1	0.10781958	0.006899861	15.626	0.0001
DUMED4	1	0.08268297	0.003913101	21.109	0.0001
DUMMAR	1	0.05176138	0.005474377	9.455	0.0001
NUMCHD	1	-0.04696985	0.000923313	-50.871	0.0001
HOUOWND	1	0.49803816	0.002336971	213.113	0.0001

ANALYSIS OF VARIANCE (Age 40-49)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	7	8311.49895	1187.35656	8344.292	0.0001
ERROR	114E3	16273.92765	0.14229566		
C TOTAL	114E3	24585.42860			

ROOT MSE	0.377221	R-SQUARE	0.3381
DEP MEAN	0.6872044	ADJ R-SQ	0.3380
C.V.	54.89211		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.39925271	0.01429400	27.931	0.0001
DUMED1	1	0.01313771	0.002946152	4.459	0.0001
DUMED2	1	0.53516380	0.002969815	18.020	0.0001
DUMED3	1	0.08855037	0.01025969	8.631	0.0001
DUMED4	1	0.08345280	0.003974061	20.999	0.0001
DUMMAR	1	0.03494418	0.01432474	2.439	0.0147
NUMCHD	1	-0.01443037	0.000660647	-21.843	0.0001
HOUOWND	1	0.53613663	0.002267202	236.475	0.0001

ANALYSIS OF VARIANCE (Age 50-59)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F

MODEL	7	7433.72763	1061.96109	7505.693	0.0001
ERROR	78799	11149.06732	0.14148742		
C TOTAL	78806	18582.79495			

ROOT MSE	0.3761481	R-SQUARE	0.4000
DEP MEAN	0.6191682	ADJ R-SQ	0.4000
C.V.	60.75154		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.25486113	0.02826048	9.018	0.0001
DUMED1	1	0.02501199	0.004073018	6.141	0.0001
DUMED2	1	0.05234974	0.004233214	12.366	0.0001
DUMED3	1	0.08937721	0.01329062	6.725	0.0001
DUMED4	1	0.11656118	0.005667071	20.568	0.0001
DUMMAR	1	-0.03875385	0.02829000	-1.370	0.1707
NUMCHD	1	0.006985481	0.000608479	41.480	0.0001
HOUOWND	1	0.61449295	0.002739836	224.281	0.0001

ANALYSIS OF VARIANCE (Age 60+)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	7	6414.32854	916.33265	7414.402	0.0001
ERROR	73134	9038.50028	0.12358821		
C TOTAL	73141	15452.82881			

ROOT MSE	0.3515512	R-SQUARE	0.4151
DEP MEAN	0.3032047	ADJ R-SQ	0.4150
C.V.	115.9451		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.15265047	0.03984374	3.831	0.0001
DUMED1	1	-0.03704666	0.005957454	-6.219	0.0001
DUMED2	1	-0.02704638	0.007373458	-3.668	0.0002
DUMED3	1	-0.006307585	0.01614927	-0.391	0.6961
DUMED4	1	0.03880321	0.01020508	3.802	0.0001
DUMMAR	1	-0.15003906	0.03985887	-3.764	0.0002
NUMCHD	1	0.01375873	0.000512528	26.845	0.0001
HOUOWND	1	0.58983211	0.002650608	222.527	0.0001

ANALYSIS OF VARIANCE (Elementary School)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	4	25239.74825	6309.93706	72142.327	0.0001
ERROR	288E3	25177.09614	0.08746512		

C TOTAL288E3	50416.84439			
ROOT MSE	0.295745	R-SQUARE	0.5006	
DEP MEAN	0.7735967	ADJ R-SQ	0.5006	
C.V.	38.22987			

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.82809661	0.002864338	289.106	0.0001
AGE	1	-0.01610382	0.000043438	-370.781	0.0001
DUMMAR	1	0.27222323	0.002807164	96.974	0.0001
NUMCHD	1	-0.01054763	0.000387688	-27.207	0.0001
HOUOWND	1	0.59668868	0.001496701	398.669	0.0001

ANALYSIS OF VARIANCE (Junior High School)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	4	10123.24231	2530.81058	12574.592	0.0001
ERROR	208E3	41809.94594	0.20126384		
C TOTAL	208E3	51933.18824			
ROOT MSE		0.4486244	R-SQUARE	0.1949	
DEP MEAN		0.5033359	ADJ R-SQ	0.1949	
C.V.		89.13022			

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.35318397	0.002991401	118.066	0.0001
AGE	1	-0.003296107	0.000115233	-28.604	0.0001
DUMMAR	1	0.21532528	0.002576641	83.568	0.0001
NUMCHD	1	-0.03438126	0.000944858	-36.388	0.0001
HOUOWND	1	0.59001444	0.002769391	213.048	0.0001

ANALYSIS OF VARIANCE (Senior High School)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	4	20402.04024	5100.51006	31177.866	0.0001
ERROR	247E3	40375.96752	0.16359395		
C TOTAL	247E3	60778.00776			
ROOT MSE		0.4044675	R-SQUARE	0.3357	
DEP MEAN		0.4387892	ADJ R-SQ	0.3357	
C.V.		92.17809			

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.03471632	0.002781924	12.479	0.0001
AGE	1	0.009285101	0.000132060	70.310	0.0001
DUMMAR	1	0.14772964	0.002484654	59.457	0.0001
NUMCHD	1	-0.05514947	0.000898104	-61.407	0.0001
HOUOWND	1	0.56801669	0.002103974	269.973	0.0001

ANALYSIS OF VARIANCE (Junior College)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	4	1952.49903	488.12476	3191.608	0.0001
ERROR	20104	3074.70769	0.15294010		
C TOTAL	20108	5027.20672			

ROOT MSE	0.3910756	R-SQUARE	0.3884
DEP MEAN	0.501467	ADJ R-SQ	0.3883
C.V.	77.9863		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.23902911	0.009828539	24.320	0.0001
AGE	1	-0.001351343	0.000413559	-3.268	0.0001
DUMMAR	1	0.33389538	0.007693294	43.401	0.0001
NUMCHD	1	-0.02914311	0.002970595	-9.811	0.0001
HOUOWND	1	0.56716849	0.006463850	87.745	0.0001

ANALYSIS OF VARIANCE (College or University)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	4	8941.98114	2235.49529	17454.813	0.0001
ERROR	73329	9391.48612	0.12807329		
C TOTAL	73333	18333.46726			

ROOT MSE	0.3578733	R-SQUARE	0.4877
DEP MEAN	0.5006682	ADJ R-SQ	0.4877
C.V.	71.47914		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.08700831	0.004942039	17.606	0.0001
AGE	1	0.001863850	0.000204513	9.114	0.0001
DUMMAR	1	0.40181905	0.004026018	99.806	0.0001

NUMCHD	1	-0.03168091	0.001399843	-22.632	0.0001
HOUOWND	1	0.49031957	0.003229436	151.828	0.0001

ANALYSIS OF VARIANCE (No Education)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	4	18962.83050	4740.70763	68164.267	0.0001
ERROR	111E3	7742.87978	0.06954828		
C TOTAL	111E3	26705.71028			

ROOT MSE	0.2637201	R-SQUARE	0.7101
DEP MEAN	0.6006682	ADJ R-SQ	0.7101
C.V.	43.90445		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.67629907	0.008524816	79.333	0.0001
AGE	1	-0.01499161	0.000035587	-421.269	0.0001
DUMMAR	1	0.38292335	0.008526718	44.909	0.0001
NUMCHD	1	0.004739200	0.000378719	12.514	0.0001
HOUOWND	1	0.61564931	0.001858564	331.250	0.0001

ANALYSIS OF VARIANCE (Male)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	39544.93864	4943.11733	45176.198	0.0001
ERROR	515E3	56398.95316	0.10941862		
C TOTAL	515E3	95943.89179			

ROOT MSE	0.3307849	R-SQUARE	0.4122
DEP MEAN	0.7527136	ADJ R-SQ	0.4122
C.V.	43.94564		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.49272867	0.001444215	341.174	0.0001
AGE	1	-0.008339880	0.000039124	-213.166	0.0001
DUMED1	1	-0.08776376	0.001307272	-67.135	0.0001
DUMED2	1	-0.03527307	0.001312587	-26.873	0.0001
DUMED3	1	-0.03265369	0.003117663	-10.474	0.0001
DUMED4	1	-0.06200378	0.001742252	-35.588	0.0001
DUMMAR	1	0.53339188	0.001285175	415.035	0.0001
NUMCHD	1	0.01441429	0.000385384	37.402	0.0001
HOUOWND	1	0.32172141	0.001282781	250.996	0.0001

ANALYSIS OF VARIANCE (Female)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	74832.88796	9354.11100	86213.998	0.0001
ERROR	529E3	57427.41167	0.10849875		
C TOTAL	529E3	132260.30			

ROOT MSE	0.3293915	R-SQUARE	0.5658
DEP MEAN	0.4889439	ADJ R-SQ	0.5658
C.V.	67.36795		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.84144879	0.001627569	516.997	0.0001
AGE	1	-0.01428025	0.000034558	-413.228	0.0001
DUMED1	1	-0.30117920	0.001214859	-247.913	0.0001
DUMED2	1	-0.36784052	0.001361084	-270.256	0.0001
DUMED3	1	-0.31900707	0.003907230	-81.645	0.0001
DUMED4	1	-0.38441266	0.002396317	-160.418	0.0001
DUMMAR	1	0.15432284	0.001458578	105.804	0.0001
NUMCHD	1	-0.01648610	0.000352031	-46.831	0.0001
HOUOWND	1	0.69952272	0.001324740	528.045	0.0001

ANALYSIS OF VARIANCE (Stepwise 1)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	1	13857.93291	13857.93291	62267.197	0.0001
ERROR	104E4	232515.07	0.22255591		
C TOTAL	104E4	246373.00			

ROOT MSE	0.4717583	R-SQUARE	0.0562
DEP MEAN	0.6190805	ADJ R-SQ	0.0562
C.V.	76.20306		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.78552239	0.000811127	968.434	0.0001
AGE	1	-0.006083551	0.000024380	-249.534	0.0001

ANALYSIS OF VARIANCE (Stepwise 2)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F

MODEL	5	37593.79740	7518.75948	37624.372	0.0001
ERROR	104E4	208779.20	0.19983748		
C TOTAL	104E4	246373.00			

ROOT MSE	0.4470319	R-SQUARE	0.1526
DEP MEAN	0.6190805	ADJ R-SQ	0.1526
C.V.	72.209		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.93520415	0.000885353	1056.306	0.0001
AGE	1	-0.005844388	0.000023157	-252.385	0.0001
DUMED1	1	-0.27469731	0.001168016	-235.183	0.0001
DUMED2	1	-0.33461005	0.001101141	-303.876	0.0001
DUMED3	1	-0.26355498	0.003216085	-81.949	0.0001
DUMED4	1	-0.24906420	0.001772300	-140.532	0.0001

ANALYSIS OF VARIANCE (Stepwise 3)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	6	38642.19842	6440.36640	32390.642	0.0001
ERROR	104E4	207730.80	0.19883417		
C TOTAL	104E4	246373.00			

ROOT MSE	0.4459082	R-SQUARE	0.1568
DEP MEAN	0.6190805	ADJ R-SQ	0.1568
C.V.	72.0275		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.94565873	0.000894787	1056.854	0.0001
AGE	1	-0.007603374	0.000033471	-227.160	0.0001
DUMED1	1	-0.26635185	0.001170735	-227.508	0.0001
DUMED2	1	-0.31967722	0.001117459	-286.075	0.0001
DUMED3	1	-0.24336102	0.003220033	-75.577	0.0001
DUMED4	1	-0.23021458	0.001786802	-128.842	0.0001
NUMCHD	1	0.02453681	0.000337909	72.614	0.0001

ANALYSIS OF VARIANCE (Stepwise 4)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	7	53806.89232	7686.69890	41703.210	0.0001
ERROR	104E4	192566.11	0.18431912		
C TOTAL	104E4	246373.00			

ROOT MSE	0.429324	R-SQUARE	0.2184
DEP MEAN	0.6190805	ADJ R-SQ	0.2184
C.V.	69.34866		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.63277465	0.001389992	455.236	0.0001
AGE	1	-0.007703766	0.000032228	-239.036	0.0001
DUMED1	1	-0.20399585	0.001147965	-177.702	0.0001
DUMED2	1	-0.16264465	0.001207178	-134.731	0.0001
DUMED3	1	-0.07807241	0.003153373	-24.758	0.0001
DUMED4	1	-0.09111810	0.001787389	-50.978	0.0001
NUMCHD	1	0.003362469	0.000333611	10.079	0.0001
DUMMAR	1	0.35641038	0.001242564	286.835	0.0001

ANALYSIS OF VARIANCE (Stepwise 5)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	8	71079.37822	8884.92228	52953.732	0.0001
ERROR	104E4	175293.62	0.16778652		
C TOTAL	104E4	246373.00			

ROOT MSE	0.4096175	R-SQUARE	0.2885
DEP MEAN	0.6190805	ADJ R-SQ	0.2885
C.V.	66.16547		

PRAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB >|1|
INTERCEP	1	0.70225887	0.001343755	522.609	0.0001
AGE	1	-0.01038732	0.000031866	-325.965	0.0001
DUMED1	1	-0.20538279	0.001095281	-187.516	0.0001
DUMED2	1	-0.18161345	0.001153283	-157.475	0.0001
DUMED3	1	-0.10903321	0.003010176	-36.222	0.0001
DUMED4	1	-0.15055723	0.001715378	-87.769	0.0001
NUMCHD	1	-0.000530511	0.000318529	-1.665	0.0001
DUMMAR	1	0.30864926	0.001194838	258.319	0.0001
HOUOWND	1	0.42622852	0.001328445	320.848	0.0001

Tentative Program of the Twenty-Third
EWPI Summer Seminar on Population, Korea Program
28 June - 3 July 1992
Seoul, Korea

Tentative Seminar Program

28 June 1992(Sun)

15:30	Arrive at Kimpo Airport (NW 65) Check in the KWDI Dormitory
19:00-20:00	Dinner

29 June 1992(Mon)

08:00-9:00	Breakfast
09:30-10:00	Registration at the lobby of the international conference hall of KWDI
10:00-10:30	Opening ceremony - Opening address by Mrs. Young-Ja Kwon, President, KWDI - Welcome address by Dr. Dal-Hyun Chi, President, KIHASA - Congratulatory address by Mr. Pil-Joon Ahn, Minister, MOHSA - Congratulatory address by Dr. Lee-Jay Cho, Vice President, EWC
10:30-11:00	Group Photo and Coffee break
11:00-11:20	Orientation of the seminar program
11:20-12:20	Session 1: Current Status of the Korean National FP Program and Its Future Directions in Korea - Mr. Nam-Hoon Cho, Director, Research Planning Division, KIHASA
12:30-14:00	Lunch
14:00-15:30	Session 2: Demographic Transition in Korea - Mr. Il-Hyun Kim, Director-General, Bureau of Planning, National Statistical Office
19:00-20:00	Dinner

30 June 1990(Tue)

08:00-08:40	Breakfast
09:00-10:30	Session 3: Family Change and Aging in Korea - Dr. Ehn-Hyun Choe, Vice President, KIHASA
10:30-10:50	Coffee break
10:50-12:30	Session 4: Changes in Women's Status and Their Roles in Korea - Mrs. Sung-Ja Chang, Director, Resource Development Division, KWDI
12:30-14:00	Lunch
15:00-17:30	Session 5: Human Resource Development International Comparison of Technology Manpower Supply Systems and Proposals for Improvements in Korea - Dr. Yen-Kyun Wang, Professor of Economics, Chungang University Potential Manpower Resources in Korea - Dr. Sung-Yeol Koo, Professor of Economics, Yonsei University An Econometric Analysis on the Causes of Employment and Unemployment in Korea - Dr. Wi-Sup Song, Professor of Economics, Ajou University
18:00-19:30	Reception at the KWDI garden - Keynote Speech by Dr. Han-Bin Lee, Former Deputy Prime Minister of the ROKG, and Former Director of the East-West Technology and Development Institute, EWC

1 July 1992(Wed)

08:00-08:40	Breakfast
09:00-11:00	Session 6: Film Showing on FP Program Activities - Planned Parenthood Federation of Korea - Saemaul Women's Club - Sex Education for Youth

11:30-12:20	Lunch
12:20-18:00	Seoul City Tour
19:00-20:00	Dinner

2 July 1992(Thu)

08:00-08:40	Breakfast
09:00-18:00	Industrial and Cultural Field Visits, Kyonggi Province - Samsung Electronics Company - Korean Traditional Folk Village
19:00-20:00	Dinner

3 July 1992(Fri)

08:00-09:00	Breakfast
09:30-10:30	Program Evaluation by the Participants
10:30-11:00	Closing Ceremony

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