

<Table 8> Changes in Age Structure and Dependency Ratio

	Age group (%)			Youth dependency ratio (%)	Aged dependency ratio (%)
	0-14	15-64	65+		
1960	42.3	54.8	2.9	77.3	5.3
1970	42.5	54.4	3.1	78.2	5.7
1980	34.0	62.2	3.8	54.6	5.1
1990	25.6	69.3	5.1	36.9	7.4
2000	21.7	71.2	7.1	30.4	10.0
2010	19.9	70.1	9.9	28.4	14.2
2020	17.2	69.6	13.2	24.7	18.9
2030	16.0	64.7	19.3	24.8	28.8

Source: *Tonggyero bon hangugui moseup* (The Image of Korea Seen through Statistics), p.33

## **The Transition to Sub-Replacement Fertility in South Korea: Implications and Prospects for Population Policy\*\***

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### **Abstract**

This paper consists of three parts, i.e., the overview of Korean fertility transition; discussion of the transition to sub-replacement fertility in terms of Bongaarts model, and the rationale for family-based population policy for the future of Korean population. The first part interprets the Korean fertility transition, particularly the second transition in relation to “disruption” (uprooting), Chinese zodiac, mass consumerism, and improvement in female status. In the Bongaarts model, the second part discusses the mechanism about how rising age at childbearing, unwanted fertility, and the other variables suppress desired family size to influence period TFRs in the second transition (1985-2003), particularly in the recent three consecutive years. Finally, the third part argues that the rationale for family-based population policy is to repair the gap between desired family size and actual fertility. This paper concludes that a sound, sustainable family-based population policy must be the core of human capital investment and a key to the future of the Korean population.

**Key words:** Bongaarts model, age at childbearing, desired family size, disruption, family-based population policy, lowest low fertility, sub-replacement fertility,

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\*\* This paper is an update version of an earlier draft which was presented at the International Seminar on Low Fertility and Rapid Aging, hosted by the Population Association of Korea and sponsored by the Korea National Statistical Office at the Intercontinental Hotel, Seoul on October 31, 2003. The author welcomes any questions or comments for this paper, but the individual or institution wanting to cite part of this paper should get in touch with the author via his E-mail address: [jkh96@cnu.ac.kr](mailto:jkh96@cnu.ac.kr).

## Introduction

In this paper, the replacement-level fertility (RLF) approximates a TFR of 2.1 depending upon the mortality schedule of the population in Korea. On the other hand, I define the lowest-low fertility (LLF) as a TFR under 1.3 (Kohler, Billari, and Ortega, 2002), whereas the sustainable low fertility (SLF) ranges between a TFR of 1.8 and 1.9, i.e., 10-15 percent lower than the RLF threshold (Golini, 2003). The perpetuation of a SLF pattern will also bring about population aging and depopulation, but these will be more gradual, and more manageable, than these caused by the perpetuation of a LLF pattern.

Beginning in the 1970s, fertility began to undergo the transition to a sub-RLF pattern in the countries of Europe and North America. Italy and Spain were the first European countries to experience a persistent LLF pattern. At this time, the LLF countries are concentrated in the countries of Southern, Central, and Eastern Europe and small nations in the former USSR. In 2001, South Korea became one of the first East Asian countries that joined the global club of LLF countries. In East Asia, Japan currently has a TFR of 1.29, which is close to the LLF pattern, but her population has been under the influence of a sub-RLF regime for a long time since the mid-1970s.

Korean TFR had dropped very sharply from 6.0 in 1955-60 to a LLF pattern in the beginning of the twenty-first century, i.e., 1.30 in 2001, 1.17 in 2002, and 1.19 in 2003 (Kwon T-H, 1977, 1981, 1997; Cho N-H and S-S Lee, 2000; Jun K-H, 2002; Eun K-S, 2003; Korea National Statistical Office, 2004). Demographic data indicate that the period 1980-85, or more exactly, the year 1983 is the starting time for the Korean TFR to persist under a sub-RLF pattern. Thus, I use the year 1983, or the period 1980-85, as the split between the "first" demographic transition and the "second" demographic transition. I will use interchangeably the "fertility transition" with the "demographic transition" because fertility change, not the combination of mortality and fertility declines, is the direct focus of this paper.

In this paper, I will begin my discussion about some working hypotheses that might explain the reasons for Korean fertility to persist under a sub-RLF regime, particularly the transition to a LLF pattern in 2001 and 2002. The second part of this paper will be to tackle with an important question: How long will fertility remain low below a LLF pattern? In this part, I will use the Bongaarts-Feeney model that links

the desired family size (DFS) to the TFR through two intermediate variables: unwanted fertility and childbearing ages (Bongaarts, 1998, 2002). On the basis of the first and second part of this paper, the final part will focus on the prospects for the Korean population policy: why is a pronatal policy needed? Will the policy be legitimate? How effective can it be in boosting the Korean TFR from the current LLF pattern to a RLF one, or more feasibly, to a SLF one?

## The Korean Transition: An Overview

As we can read from Table 1 and Figure 1, Korea had completed her first, or classical fertility transition in the mid-1980s. The TFR was nearly 6.0 in the first-half of the 1960s, when the Korean government began to launch a state-sponsored family planning program together with a strong drive toward export-led capitalist development. In 1976, when the government shifted its momentum toward a heavy-industrial and chemical drive, TFR dropped to 3.05, namely the halving of the 1960 level. The fertility was plummeted to 2.65 in 1978, the "white horse" year of Chinese zodiac. The first transition ended with a TFR of 2.08 in 1983, although population experts had worried that strong gender preferences might delay the rapid transition to a near-RLF pattern.

After the completion of the first transition in 1983, TFR has never reached a SLF of 1.8 to 1.9 births, even for a while, until recently. Fertility hit the bottom in 1987, when it reached a TFR of 1.55, but began to surge up moderately to a TFR of 1.78 in 1992, a near-SLF pattern. However, it once more turned downward since its peak in 1992 and the tempo of fertility decline began to gain another positive momentum after 1995: The TFR of 1.65 in 1995 turned into 1.58 in 1996, 1.54 in 1997, 1.47 in 1998, 1.42 in 1999, and 1.47 in 2000. Finally, fertility once again plummeted to the never-to-return rock bottom: a TFR of 1.30 in 2001, a TFR of 1.17 in 2002, and a TFR of 1.19 in 2003.

The emergence of a LLF pattern in the latest three consecutive years is currently leading population experts to worry about the stark reality about a LLF pattern and the aftereffects on the labor force growth and rapid aging of population in the first half of the twentieth century. Korea had to spend nearly two decades in undergoing the decline of fertility from a near-RLF pattern in 1983 to a LLF one in the latest three consecutive years. On the other hand, some European countries, particularly Eastern European countries, and small republics in the

former USSR had waited for less than a decade in undergoing such a second transition. For example, Russia had reached a near-RLF pattern in 1990, but in six years moved abruptly to a LLF one. In addition to the small-child norms and attitude having prevailed in Russia, politico-economic catastrophes after the dismantling of the former USSR had most likely had severe impact on the reproductive behavior of Russian women in their prime childbearing ages. The current restructuring of fertility patterns in the former USSR must reflect the harsh aspect of everyday life and other aftereffects of various radical reforms blowing out in the transition to free market economy (Kohler, Billari, and Ortega, 2002).

Population experts interpret the emergence of a LLF pattern in Korea as part of disruption or “uprooting” resulting from the aftermaths of East Asian financial crisis in 1997 (Eun, K-S, 2003). In Korea, one of the most fundamental macro-structural changes was the restructuring of labor market, which was guided by neo-liberal bailout ideology popular with the then-IMF staffs and U.S.-Treasury government officials. At the early stage of the financial crisis, a number of large corporations and medium-sized enterprises went bankrupt, resulting in the sudden disappearance of well-paid, permanent jobs for Korean middle-class workers. Young women and men who just completed their college education attempted to enter the paid labor market but were extremely frustrated to watch that they were just on a long waiting list for a few jobs available to them. Apparently, the modest recuperation of fertility to a near-SLF pattern in the earlier 1990s has been suffocated because of the rate of unemployment and underemployment soaring up for all age groups since the East Asian financial crisis of 1997.

According to Korean popular magazines and mass media reports, a TFR of 1.17 in 2002 suggests that Korean women and men might have avoided childbearing through contraception because the year 2002 was the “horse” year of Chinese zodiac, which foreshadows the worst fortune of a legendary Japanese Empress for the baby girls born in the year. The “horse” zodiacs had influenced fertility in 1966, 1978, and 1990 (See Table 1 in more detail). In 1966, fertility dropped more sharply in Seoul and other metropolitan cities because the married couples tried to avoid childbearing in the “white horse” year (Kwon T-H, 1977, 1981, 1997). The “horse” zodiac episode was experienced when fertility dropped from a TFR of 3.02 in 1977 to a TFR of 2.65 in 1978, and then surged again to a TFR of

2.90 in 1979.

The “horse” zodiac impact on fertility in the first transition (1960-83) was essentially a quantum reduction in fertility, while in the second transition (1983-2003) the same effect was apparently more revealed by the higher distortion of sex ratio at birth (SRB). For example, the TFR of 1.59 in 1990 was not significantly different from the TFR of 1.58 in 1989, but the SRB imbalance in 1990 was one of the severest for data observed over the 34 years between 1970 and 2003. However, we might conjecture that the recuperation of fertility to a near-SLF pattern might have begun in 1989, not in 1990, if the “horse” zodiac did not label the year of 1989, since Korean people in this time had been quite optimistic about the future of their society and economy just after the successful hosting of 1988 Seoul World Olympics as well as the trade surplus and booming economy in the new international business environment. In 2002, the SRB distortion appears to be relatively mild compared with the figure for the previous five years, suggesting the drop in TFR from 1.30 in 2001 to 1.17 in 2002 should reflect the avoidance of wedding and childbearing by Korean women in their prime reproductive ages.

Socioeconomic disruption and Chinese (or Japanese) cultural elements are partly responsible for the rapid transition from a near-SLF pattern in the earlier 1990s to a LLF pattern in 2001 and 2002. In a similar vein, the transition from a TFR near 3.0 in the second half of the 1970s to a sub-SLF pattern in the second half of the 1980s and the recuperation of fertility to a near-SLF pattern in the first half of the 1990s may reflect the disruptive elements arising from the economic depression in 1978-82, the political instability under the regime of General Chun Doo-Hwan, and the booming economy and the transition to democratic governance in the first half of the 1990s. However, the problem is that the end of socioeconomic and cultural disruption does not bring it with the complete recuperation of fertility to its pre-disruption levels, probably due to the continuing momentum of fertility decline. In this regard, I believe that a variety of the socioeconomic factors other than the disruptive elements, as explicated above, must explain this momentum factor in progressing the “second” transition from a near-RLF pattern to a LLF one over the last two decades between 1983 and 2002 (Jun, K-H, 2003). The arrival of a high mass-consumption society, life-threatening struggles of survival for top position, and the conflict between women’s childbearing and their career development are some of the critical variables

that must be highlighted below in this paper.

The first is the arrival of a consumerist mass society. The Korean people's average personal income level has steadily improved since the 1980s, despite its deep troughs immediately in a few years since the East Asian financial crisis of 1997. According to the latest national opinion survey, as carried out by the Institute of Social Development and Policy Research, Seoul National University (2005), a substantial proportion of the respondents answer that they belong to the lower middle or middle classes, reflecting their economic hardships they have experienced since the East Asian financial crisis of 1997. Together with the small size of arable lands and the homogeneity of language, strata, tastes, and life styles, however, most families have color televisions and strong demands for expensive durable consumption goods such as computers, refrigerators, air conditioners, and passenger cars. In this regard, residents in the neighboring apartments and colleagues in the same corporation work as the reference group of Korean middle-class citizens; and it is nearly impossible for them to expect to rear more than one child effectively, although the two-child norm is the ideal standard cherished by themselves for a long time. Simply speaking, the perpetuation of a sub-RLF regime since 1983 and the emergence of a LLF pattern in 2001, 2002, and 2003 are no more than an expected result of the arrival of a mass-consumption society that has affected the downsizing of the desired family sizes from a near-RLF pattern to a near-LLF one in the Korean population.

Korea is one of the newly developed countries with the highest population densities in the world. The high rate of violent crimes and the wide prevalence of land speculation illustrate the extreme hardships and competitiveness of daily life among the average citizens in this country. Many people believe that the harsh aspect of struggle for survival is seen everywhere in schools, local communities, business firms, and government bureaucracy in this country. To young adults, the diploma from a prestigious university, typically Seoul National University, is a minimum requirement for reaching the top position in government and big corporations. Moreover, the high incidence of "overwork" (*karoshi*) deaths is not simply a Japanese social problem, but takes place at various workplaces in this country. According to previous surveys, frequent reasons Korean women and men end up having far below than the desired family size are high childrearing cost, physical and psychological pressures upon parenting (or

mothering), and the overcrowded condition of housing and apartments. Of course, these responses do not identify any details concerning the financial burden of private college-preparatory education, as well as the monetary and non-monetary cost for child nursery service among the dual career women, but foreshadows a conjecture that the strong ambition for success in life and the severe budget constraints on the bearing and rearing of children are one of the direct reasons for the rapid transition from a near-RLF pattern in 1983 to a LLF one in 2001, 2002, and 2003.

In recent years, population experts and policy leaders think that the perpetuation of a sub-RLF regime since the mid-1980s and the emergence of a LLF pattern in 2001 and 2002 will most likely devastate the backbone of Korean society and economy. However, some radical feminist groups that the emergence of a LLF pattern in Korea represents women's strike or even worse, the ugliest reprisal against this society's male-dominating social institutions and practices. Clearly, the feminist antinatalism is strongly associated with improvement in female education and employment in this country, and also in great parallel with the "most silent revolution" of the twentieth century, what Kingsley Davis mentioned in the sexual revolution of the United States. South Korean women's labor participation rate is lower than the corresponding rate of Western industrial countries, but it is growing moderately if not rapidly, as compared to the rapid progression of the "second" transition under the sub-RLF regime. It is noteworthy, however, that in the 1980s and the 1990s the admission to high schools and colleges has grown even more rapidly among the girls, compared to the boys, in this country. In this regard, it is safer for us to predict that but for the Korean government's any direct pronatalist involvement in population matters, the current LLF pattern will be more aggravated with the eventual convergence in female status between Korea and the nations in Western Europe and North America.

#### **The Transition to Sub-Replacement Fertility: A Transitory or Permanent Phenomenon?**

South Korea's women uses a great deal less than 10 percent of the capacity to reproduce their second generations, while they would, on average, have had 15-16 births if they had used their reproductive capacity to the full (Bongaarts and Potter, 1983, Jun K-H, 1997, 2003). It is well-known that the transition to a sub-RLF

pattern will inevitably lead to rapid aging and a marked decline in population numbers. In Korea, however, the rapid transition from an above-RLF pattern to a LLF one is leading demographers to worry more deeply about the future of Korean population. In this regard, I believe that it is very important for us to understand why fertility is so low under a sub-RLF regime and whether or not the future course of fertility will be like the perpetuation of a LLF pattern. Here, I intend to use the Bongaarts–Feeney model that attempts to explain the difference between desired family size (DFS) and the total fertility rate (TFR) through two intermediate variables: unwanted fertility and childbearing ages (Bongaarts, 1998, 2002; also see Kohler, Billari, and Antonio, 2002).

One group of demographers focuses on the perpetuation of a sub-RLF pattern as a permanent fixture of the fertility trends by citing some non-negligible countries that reached the end of the first transition (Bongaarts, 1998, 2002; Kohler, Billari, and Ortega, 2002). Indeed, the countries of Europe and North America into two demographic regimes: one having a TFR above 1.3 vs. the other having a TFR below 1.3, where 1.3 is the upper LLF limit. The former group comes from the countries of Western Europe (e.g., Britain, France), Northern Europe (Sweden), and North America (e.g., the United States), while the latter group comes from the countries of Southern Europe (e.g., Italy and Spain), Central Europe (Germany), and small republics of the former USSR. In recent years, the newly industrialized economies of East Asia (e.g., Korea, Hong Kong, Taiwan, and Singapore) joined the latter club of the LLF demographic regimes. (Lutz, 2000; Atoh, Kandiah, and Ivanov, 2001). According to this group of demographers, the future likelihood of the “second” transition from a RLF pattern to a LLF one most likely depends on the development of child nursery service, material incentive for childrearing, and other family-based population policy. In this regard, the RLF pattern is no more than a theoretical abstraction that does not provide any realistic guideline for young married couples, and in the absence of strong family support for the realization of their fertility desires, the emergence of a near-LLF pattern in the years after the East Asian financial crisis of 1997 conforms completely with the life styles and behavioral norms of young women and men living currently in this country.

Interestingly enough, Italian demographer Antonio Golini (2003) argues that a TFR of 0.6–.07, further halving of the current LLF, is plausible in any larger national population for any length of time. If 20 to 30 percent of all women

were to remain childless and the remainder would stop after having had one child, the resulting TFR would be half the current LLF pattern, that is, it would result in about 0.75 births per woman. The statistical record to date supports the idea of the existence of such a lowest floor or threshold (e.g., Hong Kong, Singapore, the former Eastern Germany). Golini feels that it is, in particular, the innate desire to be a parent, to have a family, to play the role of mother and father, which will prevent fertility from falling below it (See for similar ideas, Morgan and King, 2001). After all, so he reminds us, children and only children can satisfy that desire. Golini also makes the point that if fertility were to drop lower than that very low threshold, reactions in society would probably be so strong that a recovery of fertility would result, although he does not say much as to the precise mechanism that would create that miracle.

Some demographers hold a more optimistic view, arguing that a sub-RLF pattern, or even worse, the emergence of a LLF pattern, is merely a transitory, limited phenomenon and that prospective fears of decelerating or negative momentum of population growth caused by the sub-RLF regime are groundless in some of the countries in Western Europe and North America. This more optimistic perspective is based on the data on DFS or desired family size, which has remained near or above 2 children in all the nations where data are available. According to this view, the cohort TFR, which is near a RLF pattern, is less depressed than the period TFR; and the emergence of a sub-RLF pattern, or much worse, a LLF pattern must be largely attributable to continuing shift in the timing of childbearing in the face of numerous life-exigencies in the risk-prone, postmodern society (Beck, 1992). Thus, once the rise in childbearing ages ends up—as they believe it eventually must, the corresponding fertility-inhibiting effects of the postponement transition will stop, thus bringing fertility back up, more likely approaching the RLF pattern, or at least a SLF pattern of 1.8 to 2.1, depending upon the government’s support for child nursery service and financial incentives for the bearing and rearing of children among the young women and men in their prime reproductive ages.

The pessimistic perspective addresses the severity of budget constraints on the determination of childbearing in the absence of child support and other family-based population policy. On the other hand, the optimistic perspective appears to focus on the number of desired family size, which pertains to biological

presupposition, environment (social coercion), and rational choice. In Korea, both extremes of pessimistic and optimistic perspectives are partly valid, but as such not completely plausible in explaining the transition from a near-RLF pattern to a LLF one in the beginning of the twenty-first century. The actual ongoing situation is more complicated than it appears, and I will need a separate examination in the trends in DFS as well as in each of the two main and other residual factors linking the DFS to the changes in period TFR since the mid-1980s

**(1) Desired or Expected Family Size (DFS)** In the course of first transition under an above-RLF pattern, the potential supply of children, or biological capacity for childbearing of the couple, is one of the critical fertility determinants. On the other hand, the demand for children, or desired (or expected) family size (DFS), is one of the critical determinants in the nations that are near or have completed the end phase of the first transition. In Table 2, the period TFR was 6.0 births per woman in 1960, while the DFS averaged to 5.0 births per woman of 15-44 years. This means that the potential supply of children was 1.0 or more births larger than the demand for children.

The oversupply of children, compared with the demand for children, continued to last until 1983, the ending year of the first transition (Kwon, T-H, 1992, 1997). In this transitional situation, there was a "latent" demand for family planning needed to curtail the excess supply of children against the desired number of children. Since 1984, however, the situation is completely reversed: demand surpassed supply. In other words, the Korean women born in 1955 and 1960 had cohort TFRs that nearly approached their desired or expected family sizes, while the period TFRs have been far below than the DFS or desired family size of 2.1-2.2 children since the mid-1980s, the beginning year of the second transition. I would like to say that the recent emergence of a LLF pattern against the DFS of 2.2 children in 2001 and 2002 puts emphasis on the "latent" demand for family support as one way of repairing the gap between the desired family size and the actual reproductive performance.

Existing fertility theories—biometric, economic, sociological, or any synthetic ones—do not provide a completely satisfactory explanation of the relationship between the supply of children and the demand for children in the course of fertility transitions from a near-RLF pattern to a LLF one (Kwon T-H, 1977, 1981, 1992, 1997; Kim S-K, 1997; 2005; Bongaarts,

1998, 2002). The empirical data and statistics, as seen in the survey carried out recently by the Institute of Health and Social Affairs (1997, 2000), suggest that Korean couples in the ages of 20-44 have revealed fairly strong resistance to the DFS change to a sub-RFL pattern (typically the married couples wish to have 1 boy and 1 girl), and in this paper, I will make a fairly strong assumption that the DFS will level off at two children under a sub-RLF demographic regime or even with the recent emergence of a LLF pattern in the latest three consecutive years.

In this country, however, any media reports about the likelihood of further reduction in the desired or expected family size must not be surprising new information in view of the high cost of the bearing and rearing of children and the trends toward a high mass-consumption society and individualistic life styles. According to a recent survey carried out jointly by Chosun Daily and Gallup Poll Korea (Chosun Daily, 2003), the size of family the single women in the 20s and 30s considered as desirable was 1.14, near to the current LLF pattern of 1.17 in 2002. and 1.19 in 2003. What is more shocking, a quarter of them said that they are unwilling to have either wedding or children because they cannot balance the rearing of children with their career development in the absence of child nursery service and financial incentives for the bearing and rearing of children. Some of them pointed out that they would like to live alone in relative affluence than facing the worst economic fortune during their marital life career. Of the married respondents, about 15 percent said they would remain childless voluntarily and half of those currently having one child said they had no future plan to have additional children.

Facing the higher likelihood of rapid DFS downsizing among the young women and men, I may have to say at this time that other thing being equal, the future change in DFS from a near-RLF pattern to a near-LLF one depends on what types of social policy, particularly family-based population policy the Korean government will adopt as well as how far individualized the Korean young couples will be in their life styles and adaptation to newly emerging socioeconomic exigencies. In a sense, the government-sponsored family planning program was a *leitmotif* that had generated the fertility-depressing effects in the course of first transition (1960-1983), but the fertility-promoting effects in the course of second transition under a sub-RLF pattern (1983-2003) will depend heavily on the child-friendly social policies, particularly feminist-oriented family-based population policies with a stronger

emphasis on gender equality inside and outside home. Social and family policies, which are being newly formulated by the Korean government under President Roh Moo Hyun, will have to focus broadly on the young couple's capability to heighten the compatibility between childbearing and career development and other life chances that are helpful for them to realize the DFS as early as possible in the actual process of family building.

(2) **Unwanted Fertility ( $F_u$ )** In the later phase of the first demographic transition, the incidence of unwanted fertility continues to drop very rapidly because the individual couples depend upon effective contraceptive use and the use of fairly safe, hygienic induced abortion. In the course of the second transition under a sub-RLF pattern, this trend is more likely to continue and it will be aided by the newly developed, innovative contraceptive method. Probably, several innovative technologies will make contraceptive use more efficient and safer, thus increasing the rate of use and reducing contraceptive failure significantly. Although controversial, reliance on induced abortion will also increase as more convenient abortifacients are made more easily available in the nation where young couples have fear of the adverse consequences of surgical abortion procedures (Kwon T-H, K-H Jun, and C-S Cho, 1997). As a result, individual couple's ability to fit actual fertility with their DFS level will in all likelihood improve in the phases of the second transition and correspondingly, unwanted fertility may become a rare, anachronistic phenomenon. However, the exception to this trend is highly plausible in cases the Korean government puts a severe restriction on access to the abortion procedure, under the slogan of maternal protection and the repair of the SRB imbalances.

The quantum of unwanted fertility had dropped from 0.22 births in 1985 to 0.09 births in 2002 (See Table 4 in more detail). In recent years, the Federation of Planned Parenthood Korea (FPPK), under the leadership of Professor Lee Sea-Baik, have once argued for the continued government support of family planning that would bring about the complete eradication of unwanted fertility, which is less than 10 percent of the period TFRs registered since the mid-1980s. According to the FPPK, the emergence of a LLF pattern under the current sub-RLF regime is never a novel phenomenon we may have to panic about because of the reserved pool of labor force coming mostly from the women still working inside the home and the importation of foreign workers from China and other developing

countries in Asia and the improvement in technology, particularly newly developing mechanical electronics. The FPPK also considers the possibility of refugee inflows from North Korea in case of the national reunification. In any democratic society, however, that reproductive choice is very important for those who want to achieve their DFS as well as those who wish to avoid unwanted childbearing. Indeed, the PPFK must no longer stick to the idea about further reduction of unwanted fertility for the sole purpose of its continuing operation and be more willing to induce the government support for child nursery service and other child-friendly population policy that will repair the gap between the DFS and the continuation of a LLF pattern under the current sub-RLF demographic regime.

(3) **Age at Childbearing ( $F_a$ )** The delay of childbearing and the parity-specific progression after the birth of first child is the central aspect of understanding the emergence of a LLF pattern under the current below-RLF regime in this country. Many demographers emphasizes on the importance of childbearing ages in explaining the perpetuation of a LLF pattern in Southern Europe, Eastern Europe, and several small nations under the former USSR. The asymmetry between the reversibility of childbirth and the irreversibility of childrearing provides a strong incentive to delay the decision to have children. Fertility delay can reduce uncertainty about the cost and benefits of children, and also the uncertainty associated with the economic situation and the incidence of marital disruption in early adulthood.

According to the Korea Labor Research Institute (2002), the overall rate of unemployment in 2002 dropped to 2 percent, its lowest level since the East Asian financial crisis of 1997, while the same figure for the young generation turned out to be over 7 percent, three to four times higher than the average rate, posing a serious threat to the paid job market in this country. The number of jobless workers among the college graduates reached 75,000 or 5.1 percent in 1996 but rose up to 158,000 or 9.9 percent in 1998, and then edged down slightly to 6.7 percent or 117,000, in 2002. On the other hand, the number of jobless workers with only high school diplomas reached 263,000 or 8.6 percent in 2002, about 2 to 3 percent higher than their college graduate counterparts, after peaking at 454,000 or 13.2 percent in 1998.

As many population experts mention their ideas in academic and popular journals, the recent rises in ages at marriage and childbearing tend to be accelerated by the disruptive situation of high youth unemployment, which discourages young

workers from entering the paid labor market and causes working conditions to deteriorate toward a fraction of low-paid, temporary jobs. In addition, there is a crowding-out process in which better-educated people are displacing less-educated people from their traditional positions. Labor market uncertainty and murky economic prospects in early adulthood also tend to increase ages at marriage and childbearing by perpetuating the commonly observed behavior of staying in their parental homes until late ages.

As long as the ages at childbearing keep rising, this intermediate variable operates to depress the period TFR to a LLF pattern. In Table 3, the tempo-adjusted total fertility rates (TFR's) remove the fertility-tempo effects resulting from rises in the age at childbearing and these are fairly higher than the TFRs actually observed at different points in time. Indeed, I have to say that the current sub-RLF pattern, or the emergence of a LLF one in the latest three consecutive years, are not completely disappointing whenever I make correction for the fertility-distorting effects due to the continuing shift in ages at childbearing. According to the group of optimistic demographers, the rise in childbearing ages can persist for several decades, but eventually it will stop and at that time fertility will have to recuperate to the near-RLF pattern, or a near-SLF pattern in which TFR ranges between 1.8 and 2.1, in parallel with the unfolding of the postponement-stop scenarios. In order to experiment with the real possibilities about no further rise in ages at marriage and childbearing, the government of Korea will have to identify the pecuniary and non-pecuniary incentives for the bearing and rearing of children, differentiated adequately by the order of child birth. The ideas of social and family-based population policies needed to provide the financial and non-financial incentives for promoting early marriages and early childbearing must come from recent scholarly achievements in feminist movement and social-scientific enterprises.

In conjunction with the emergence of a LLF pattern, rising ages at first marriage are probably a combined result of interacting socioeconomic factors—some of them are disruptive, while others are adaptive. In Table 3, the mean ages at first marriages rose 0.18 years per year from 24.1 years in 1985 to 27.3 years in 2003. The sharp rise in ages at marriage has been observed since the beginning of the East Asian financial crisis in 1997: say, 0.4 years from 25.7 in 1997 and 26.1 in 1998 and 0.3 years from 26.5 in 2000 to 26.8 in 2001. In addition, maternal ages at first birth also rose 0.2 years every year

from 24.9 years in 1985 to 28.5 years in 2002. In parallel with the annual rise in age at first marriage, the annual rise in age at first birth appears to become a little sharper over time as a result of the aftereffects of the East Asian financial crisis of 1997 and the increasing rate of labor participation among the young women with better education. In spite of some differences, the ages at childbearing also rose up annually for the birth of second-order as well as the birth of third- or higher order. Evidently, the discrepancy between the actual period TFRs and the tempo-adjusted TFRs become larger in the years there are bigger increases in age at first marriage and childbearing ages at different birth orders. In this regard, it is clear that recent rises in the marriage and childbearing ages, as influenced by the murky economic prospects and psychological uneasiness since the East Asian financial crisis in 1997, contribute greatly to the TFR reduction to a LLF pattern.

Table 4 gives a brief summary about the contribution of two intermediate variables, unwanted fertility and rising ages at childbearing, that link the period TFR to DFS in the period between 1985 and 2003. The fertility-promoting effects of unwanted fertility are at a peak of 16 percent in 1985 and remain nearly constant in the range of 8 percent in 1990–2001. This is in sharp contrast with the proportion of unwanted fertility out of the total fertility being more than 20 percent over the 15 years between 1960 and 1975 (Kwon T-H, 1997; Jun K-H, 1997). Probably, if all Korean couples can achieve their DFS target through greater reliance on effective contraception and safer abortion, the fertility-promoting effects of unwanted fertility will disappear and eventually the future course of fertility will end up by further reduction of the current LLF pattern to a TFR lower than 1.0 in the near future. In this regard, the Korean government will have to make a wise decision about the future of unwanted fertility in relation to the recent emergence of a LLF pattern under the current persistence of sub-RLF regime.

In Korea, I believe, the perpetuation of a sub-RLF regime or even worse, of a LLF pattern, is a permanent phenomenon in the absence of direct government support for the realization of two-child norm and the stopping of marriage and childbearing postponement. The stronger fertility-depressing effects of rising age at childbearing become manifest provided there are significant rises in ages at marriages as well as childbearing ages at different birth orders. For example, the postponement transition due to rising ages at childbearing contributed to the DFS reduction by

20 percent in 1997 and 2003, and 30 percent in 2000, 2001, and 2002, and by about 25 percent in 1990 and 1998. The year 1990 was the “horse” year of Chinese zodiac, while the latest five consecutive years of 1998-2003 still reflects the aftereffects of the East Asian financial crisis of 1997. On the other hand, the fertility-inhibiting effects of other residual factors contributed to the DFS reduction by 26 percent in 1996 and 2001, and by 30 percent in 1999 and 2002, and by 15 percent in 2000. Clearly, this implies that the 1997 East Asian financial crisis has disruptive, but strong positive effects on the rapid transition from a near-SLF pattern to a LLF pattern, with the exception of the beginning year of the second millennium.

The original Bongaarts-Feeney model includes the residual factors that might be decomposed into the fertility-inhibiting or promoting effects of infant-childhood mortality ( $F_i$ ), gender preference ( $F_g$ ), and involuntary family limitation and competing preferences ( $F_c$ ), but I had to assume that there are no reasonable ways of measuring some of these individual factors, despite critical importance in fertility-promoting or depressing effects. I will discuss the links between desired family size (DFS) and the period TFR through three residual variables: infant-childhood mortality, involuntary factors and other competing preferences, and gender preferences.

**(1) Infant-childhood mortality ( $F_i$ )** A drop in infant-childhood mortality has been a fantastic phenomenon in most developing countries. In Korea, the infant mortality rate is below 10 per thousand, despite a little rise in recent years. The infant mortality rate is not high enough to influence the fertility rate through insurance and replacement effects. The death rates for children aged 1-4 are approximately 1 per thousand, which cannot be said to be high even when compared with those in the countries of Europe and North America. In Korea, the expectancy of life at birth has increased dramatically since the 1970s, reaching currently 71.7 years for males, 79.2 years for females, and 75.6 years for both (Korea National Statistical Office, 2004). In Korea, like in European and North American nations, only about 2-3 percent of newborns fail to reach their adulthood, and this negligible child mortality will not affect the future recuperation of the current LLF pattern to a near-RLF pattern or more humbly, a near-STF one, in the era of twenty-first century.

**(2) Involuntary factors and other competing preferences ( $F_c$ )** With the onset of the second transition to a below-RLF pattern in 1983,

the proportion of single women and the age at first births have been on a steady rise, implying the aging of fertility as well as earlier onset of sterility. The probability of having a birth within 12 months decreases with increasing ages at marriage: 0.86, 0.78, 0.63, and 0.52 respectively in the ages of 20-24, 25-29, 30-34, and 35-39. According to the Institute for Health and Social Affairs (2003), the number of sterile couples has rose up sharply from 250 thousands in 1990 to 640 thousands in 2003, as the annual number of births dropped sharply from 650 thousands in 1990 to 495 thousands in 2002. About a decade ago, the involuntarily infecundable couple constituted about 10 percent of those of childbearing ages, but the corresponding proportional figure rose up more than twice recently with rising ages in ages at marriage and childbearing. The fee for artificial insemination ranges between 2,500 and 3,000 dollars, and the probability of having a birth through this medical procedure is about 30 percent, a fairly good performance. To the extent that they do not intend to remain voluntarily childless, I believe, the government support for this artificial insemination and other needed medical benefits will certainly help them realize their desire to have one or more births during their entire reproductive career.

Divorce rate is not an exception. In recent years, about half of the annual marriages end up by divorces, making this country with one of the highest divorce rates in the world. Divorce reduces the exposure to childbearing risk, but the ever-increasing rate of crude divorce rate will likely increase the uncertainty about the plan to have children. These trends will drastically curtail the likelihood that newly married couples realize their already small DFS in the actual career of family building. In addition, informal living arrangements, like premarital contractual marriages, is gaining popularity among the young women and men. Particularly, these days, large number of young women and men decide to remain single and defer their stable sexual activities during the rest of their life. Clearly, these are not a social institution that substitutes the conventional form of marital institution, but together with the rapid rise in proportion non-married, stable maintenance of the replacement-level DFS alone does not guarantee any likelihood that the current LLF pattern will makes an rebounding transition to a RLF one, or the SLF one with a TFR of 1.8 to 2.1, implying there is a strong possibility for the perpetuation of a LLF pattern under the below-RLF regime in the first-half of the twenty-first century.

(3) **Gender preference ( $F_g$ )** Earlier in this paper, the drop in TFR due to gender preference was illustrated in the years of 1978, 1990, and 2002, all of which amounted to the “horse” year of Chinese zodiac. In 1978, the fiery “horse” impact was manifested by the 1.57 shock in Korea’s neighbor, Japan. In Korea, the fertility influence of Chinese zodiac was revealed in two ways: the quantum reduction of fertility and the increase in SRB imbalances. In general, the pure impact of gender preference on fertility is to increase the quantum of unwanted fertility, thus the sub-RLF pattern since the mid-1980s will present us with a more shocking picture in the absence of this influence. The causal variables leading to SRB distortions are categorized in two ways: (1) biological and (2) sociological. First, the biological influences are invoked before improvement in health technology brings about modification in the fetal mortality rates of boys 12 percent higher than the girls’ figures and the prenatal mortality rates of boys 130 percent higher than the girls’ figures. Second, the sociological influences refer to the family-size limitation through the use of induced abortion as a means of realizing both small-family values and strong gender preference.

In 1975, the Korean government used the slogan named “beyond family planning” in order to ease strong gender preference among the Korean women and men. Many demographers, opinion leaders, and policy makers believed that the problem of gender preference would be an insurmountable obstacle to continuing decline in fertility during the first transition since the mid-1970s. Gender preference remains still one of the serious social problems in Korea, China, and other Asian nations with Confucian tradition, but with the spread of feminist social movement in recent years, young Asian couples begin to accept the idea that they should not discriminate daughters against sons in their reproductive behavior. In Korea and other East Asian countries, however, it does not appear that son preference will be a completely anachronistic heritage even during the second demographic transition. Of course, existing studies show that sex-selective abortion practice has largely removed the influence of son preference on high fertility in Korea. The SRB distortion due to both son preference and sex-selective abortion procedure develops into one of the most serious social problems, but it is an undeniable fact that sex-selective abortion practice, together with a significant DFS reduction, is a critical factor that might have contributed to the transition to a sub-RLF pattern. As is indicated earlier, as the

Korean couples reduce the size of desired or ideal family and practice sex-selective abortions even for the first pregnancy, not to say of second- or higher one, this will bring about further depression of the period TFRs and accelerate them to 1.0 births per woman.

### **Prospects for Population Policy: Rationale, Legitimacy, and Efficiency**

(1) **Rationale** The latent demand for a national population policy comes from the undesirable consequence of current demographic trends for societal formation of the national population. The medium variant of the 2002 population projection, as carried out by the United Nations Population Division (2003), shows that the annual number of births would drop from 568 thousands in 2000-2005 to 423 thousands in 2045-2050 in Korea where TFR begins at the level of 1.41 in 2000-2005, hits the rock bottom, 1.34 in 2005-2010, and improves gradually to reach 1.85 by the year 2045-2050. This population projection over the fifty-year interval makes an assumption that the duration of a LLF pattern is a transitory one. But this overly optimistic assumption is no longer the case: Without the direct intervention of Korean government in population matters, however, the permanent depression of fertility is highly plausible to maintain the current LLF pattern. Clearly, the perpetuation of a LLF pattern will lead us to face the worst birth deficit on a massive scale.

The “inversion” of a conventional population pyramid illustrates the direct—mainly financial—consequences of the perpetuation of a LLF pattern (Chesnais, 1998, 2000). In the 1970s and the 1980s, the Korean government had experienced a high rate of economic growth with the help of “demographic dividend” resulting from a decline in fertility and rapid increase in the working-age population (Bloom and Williamson, 1997). However, the perpetuation of a LLF regime will lead this country to experience a severe shortage of the working-age population and the acceleration of population aging. The implosion of population directly relates to pension and health costs and different assumptions underlying the projection exercises do not show any tremendous differences at all in the prediction of worst scenarios. On the other hand, the indirect, less visible, and deeper consequences might be more complicated and have more to do with psychology than with the impacts of sheer numbers (Chenais, 2001). It is probably difficult for an average woman and man

to imagine what the demographic regime shaped by an "inversion of the conventional population pyramid will promise for this country's socioeconomic future. In this regard, the simulation exercises based on the western European experience will be of great use in highlighting the demographics and socioeconomic formation of future Korean population.

Firstly, the percentage of people living below the poverty line will increase among young adults and their children, whereas it will decrease among the elderly and mature, middle-aged adults. The demographic squeeze will play a certain role in this shift, particularly because the political power of young parents is on the losing side in major business corporations and government bureaucracy. But other mechanisms will be at work here, such as the economic globalization that reinforces the competition between younger generations of very different countries and continents, particularly among semi-skilled or unskilled workers, on the one hand, and the present scientific-technological revolution, on the other hand. Automation and new information technologies are massively labor saving—hence creating the huge difficulty in finding secure, long-term, permanent jobs in the global and export-oriented sectors of the Korean national economy.

Secondly, the gradual reduction in the number of young households and in the number of children will have a major adverse impact on domestic demand and economic competitiveness. Over the three decades, the growth of urban population and the expansion of consumer markets were due to the high rate of rural population growth and massive rural-urban migration; now massive rural exodus has ended and more than 85 percent of the population currently live in urban areas. According to the net-migration estimates by Professor Kwon Tai-Hwan (1977), more than 8 million had moved from rural to urban areas in the decades of 1960-1980 (913 thousand in 1960-65, 1.85 million in 1965-70, 175.4 million in 1970-75, and 2.52 million in 1975-80). Facing the problem of socioeconomic adjustment to urban life in the government's path toward export-led capitalist development, rural-urban migrants have tried their best efforts to modify their fertility behavior to that of their urban residential counterparts (Jun K-H, 1987, 1999). With little likelihood of increasing consumer population from rural areas, the demand for new housing and apartments, furniture, schools, roads, automobiles, and so forth, will be most likely to shrink in the future.

The issue of global competition is similar: the direct and indirect cost (pension, health, taxes) of labor soars up in rapidly aging societies with the perpetuation of a LLF pattern, and this seismic development will generate a permanent flight of capital and a delocalization of enterprises beyond the national boundary. As we have seen in the aftermaths of the 1997 East Asian financial crisis, foreign capital moves very precariously across the national borders, depending on its short-term profit perspective; if anything unexpected does not happen, the contraction of consumers markets and the soaring up of labor cost at the workplaces will evaporate any potential attractiveness of this country to foreign capital.

Thirdly and finally, the perpetuation of a sub-RLF regime will create stronger demand for immigration needed to balance the shortage of working-age population. In the Korean population with the current LLF pattern, the decline in TFR by 0.10 births per woman implies the annual reduction of more than 40 thousand births. In Korea, like the highly developed countries of Western Europe and Japan, new young generations have been educated in very small, overprotected, and rather affluent families, and they are no longer willing to perform the so-called 3D, dirty or demanding tasks. Since many of these jobs cannot be mechanized or robotized, employers will have to import foreign workers from China (Korean and Han ethnic groups) and the countries of Southeast Asia (Vietnamese, Indonesian, Filipino, Sri Lankan, etc.). The importation of foreign "guest" workers is usually motivated by purely economic consideration, but it raises fundamental issues concerning national identity, social cohesion, and integration of foreign workers with the local host population. In the first stage of depopulation (slow decrease) the importation of foreign workers will have a sizeable effect on numbers of the host population (it can delay or limit the population decline), but the tempo of population aging will remain intact when foreign workers stay temporarily in this country without contributing any births to the host population. I think, therefore, that the question is on how to repair, or at least rectangularize (if it is impossible to re-triangularize) the "inverted" population pyramid; this would logically, mechanically, imply a massive immigration of children without their parents/guardians; immigration should be explicitly selective by age with appropriate consideration into severity of the SRB problem and the current progression of a sub-RLF regime in this country. Since the birth deficit is much larger with the duration of a LLF regime, the

government must give more preferential treatment for the importation of younger children than older women and men. But who will dare to implement such a drastic solution in the country where people feel no shame at all about the practice of surgical abortion as a way of having a male offspring well as the continuing exports of illegitimate children and orphans to North America, particularly the United States, and Western Europe?

(2) **Legitimacy** The logic behind an antinatalist program and a pronatalist program must be essentially the same: to restore an equilibrating mechanism by repairing the gap between the desired family size (DFS) and the actual number of children, as presupposed by the Bongaarts-Feeney model (1998). In the demographic regime with the so-called natural fertility rate, say a TFR of 6.0, a latent demand for family planning will exist to suppress the fertility-promoting effects of unwanted fertility. On the other hand, in the LLF regimes, the DFS, or size of desired family, often set at around 2.0 births, is not fulfilled in many cases; there are obstacles—biological and socioeconomic—to family formation and growth, and there is a corresponding “latent” demand for family support which is needed to resolve the obstacles. I believe that the pluralistic democratic government, like the Korean government under President Ro Moo Hyun, will be better than the authoritarian government in setting up a pronatalist population policy, under the conditions (1) the government has a strong will to support it financially and politically, and (2) it is built in accordance with social demand (improvement in the welfare of working mothers, greater economic consideration for children, compensation for the cost of children: family allowance, tax exemption, tuition grants, maternal/parental leave, etc.)

In Korea, the rapid transition from a near-RLF pattern to a near-LLF one has mainly been shaped by the postponement of childbearing among young women and men. But the DFS has no significant changes over the past decade, fluctuating around a near-RLF pattern. These days, however, the degree of DFS downsizing to a LLF pattern is very impressive for the single women in their 20s and 30s: 1.14 children, near to the current LLF pattern of 1.17 in 2001 (Chosun Daily, 2003). I think that the Korean government may have to face great difficulties in coping with the disruptive elements—like the high rate of youth unemployment and the effects of Chinese zodiacs—or the sole purpose of facilitating the recuperation from a LLF pattern

to a near-RLF or a near-SLF one in the beginning of this twenty-first century. Moreover, the government will find it very hard to reverse the secular trend toward a high-level mass consumption society and the undesirable consequences of the life-threatening struggles for the most prestigious position in the country with one of the highest population density in the world.

In this regard, one of the key aspects of the new population policy, under the leadership of President Roh Moo Hyun, is to take a piecemeal engineering—not a holistic—approach: to create the child-friendly environment in which young women and men feel it unnecessary to delay their wedding and the timing of childbearing as well as to reduce the number of children they wish to have. In doing so, the Korean government and business society must do their best efforts to make women’s status more compatible with their male partners’ one. According to cross-sectional and historical statistics, there is a negative correlation between fertility and women’s status. Unfortunately, however, this is either only partially true or no longer valid at the latest stage of development, namely in post-transitional societies like Korea, Japan, and the highly countries of Europe and North America. Indeed, the relationship is most likely to be depicted by a U curve. For example, in more gender-equal societies like Sweden and Norway in Nordic Europe, the fertility rate is not so depressed as it is in the gender-discriminating societies in East Asia (Korea, Japan) and in Southern Europe (Italy, Spain).

The bearing of a child is a reversible process, but the rearing of a child is an irreversible choice, almost certainly a lifetime commitment, and it requires a tremendous amount of time, energy, and money. In this country, however, most of these efforts is made by the mother, and the sacrifice is horrendous for women who have invested more in education or skill formation than their male partners; if there is no appropriate measure to mitigate the burden—in terms of money, time, and child nursery facilities—of young mothers, most of them will stick to the one-child pattern. In this case, I think, feminist radicalism and pronatal conservatism will work together to create their own maximum benefits. In Korea, the government and private sector corporations and small- or medium-sized enterprises may have to readdress feminist concerns by the alleviation of women’s family-related burden and improvement in their living conditions in order to find ways to help fertility recuperate from a near-LLF pattern to a near-SLF pattern of 1.8 to 1.9, if not an above-RLF pattern.

A second key motivation is the public interest: the happiness of future generations will be in great jeopardy by the perpetuation of a LLF pattern under the current sub-RLF regime in Korea. At the global level of discourse, the continued existence of human civilization is also threatened, and such an argument is essential in international community that stresses a respect for cultural originality (or ethnic differences) and the value of biodiversity. In a country with an initially triangular age structure, the emergence and perpetuation of a below-RLF pattern results in the progressive extinction of new birth cohorts. However, the prolongation of a LLF pattern is more serious: the constant application of the current Korean LLP pattern to this country's population would create an exponential decrease in the number of births from 500,000 in 2000 to approximately 125,000 in 2100. This issue will be critical: the willingness to keep population constant or to avoid depopulation would imply a total renewal of the population by massive immigration. Under these circumstances, Korea's native population may degenerate into a minority of the entire population, with the crazy zeal of the country's average citizens for massive flight to other countries, particularly to Canada, the United States, and Australia. At this stage, what I would like to say about the future of Korean population is that this country's average citizens, together with their political and business leaders, will have to share their moral responsibilities for the tragic destiny of a "no-man's island", which must come to our future generation inevitably as a natural result of the perpetuation of a LLF pattern over the hundred years in one of the most populous countries in the world.

In the name of equity and solidarity, the Korean government must have a strong political will to reward, not penalize and discriminate in both public and private sectors, the informed citizens that are willing to accept the moral responsibility to have at least two children. The survival of national cultural heritage and the viability of the nation as a socio-political system are in their hands and having at least two children will deserve more than lip service by the bigmouth, chatterbox politicians. Beyond the consideration of generational equity issues, I also believe, any democratic nation has a strong moral responsibility to heighten each individual's right to choose freely. When it deals with the number of children, the freedom of choice, as we saw in the concept of "replacement fertility", is no more than theoretical abstraction: the cumulative cost of a child for his parents in terms of time, energy, and money for birth to adulthood is largely

beyond ordinary imagination. It requires a massive, sometimes unimaginable, investment in human capital. The return on this investment will also be beyond ordinary imagination. The problem is, however, that it is not returned to the investors (the parents); rather it is absorbed by their native government, private corporations, national pension funds, health insurance system, and sometimes, foreign countries allowing immigration in response to the shortage of workforce in their labor market.

**(3) Efficiency** Our traditional style of demographic thinking has many puzzles or paradoxes. One of them relates to the impact of population policies—the message that antinatalism, family planning programs are effective, well-received, and even fashionable among population experts and the international donor community. Few statisticians would dare to say that fertility decline is a matter of timing and that the government policy will not be effective in changing the final size of completed family. On the other hand, population experts who suggest certain pronatalist population programs for the future of some LLF countries regularly propose nonconformist arguments: "you will waste time, energy, and money: young couples will anticipate their family formation to take advantage of the benefits, but they will not modify their final size of completed family. This view is very popular among the policy experts, but I think believe that it is a flawed argument.

Lessons from the highly developed countries of Europe tell us that the opposite is rather true (Chesnais, 1998, 2000, Lutz, 2000, Golini, 2003). When a pronatalist population program is well planned, it must be highly effective. I will cite some famous examples, which come from the post-War experience of France, Germany, and Sweden vs. Italy (or northern vs. southern Europe). First, France was not a real victor of World War II, but the country paradoxically experienced a stronger and longer baby boom than the other continental Allied Powers. Since France had had the lowest fertility rate in the world for many decades, nobody could provide any plausible explanation but for the strength of the family-based population policy of the time. By the year of 1950, the French government had distributed 40 percent of the national social budget to the expenditures devoted to children. It might be well compared with 10 percent at the end of the last century. In the same period (1945-57), when people in the German territory of Saarland is under the jurisdiction of the French government and received benefits from a generous family-based

population policy (high family allowances, significant tax reductions), the fertility rate was the highest of all German provinces during the reconstruction period. When Saarland was returned to western Germany, where family incentives were mediocre, its period TFR dropped to the lowest level in the country as a whole.

The current experience of former East Germany is another good example. The eastern part of unified Germany is struggling with the consequences of sub-RLF fertility, heavy outmigration, and the imminent prospect of depopulation. By 1976, when the government of East Germany implemented a pronatalist family-based population policy, the TFR difference between the two parts of Germany began to increase significantly. But this policy was terminated after the reunification of two separate nations. As a result, working mothers, who were the standard norm, lost their protection and the period TFR was crashed down in half in only two years (from a TFR of 1.50 in 1990 to a TFR of 0.86 in 1992). There is nothing comparable to this episode in world peacetime history. Among the birth cohorts fully affected by the family policy from 1976 onward, like the 1955 female birth cohort, the percentage of women remaining childless was only 6 percent in eastern Germany, whereas it was 19.4 percent in western Germany; for the same birth cohort, the proportion of women having two children was 54 percent in eastern Germany, as opposite to 37 percent in western Germany.

The most persuasive lesson for the formulation of family-based population policy for the Korean government can be derived from the past experience of present Western Europe. The fertility differential between north and south that has emerged in the last two decades is linked to the contrasting status of women. In Italy, for example, girls now have higher average level of schooling than boys; the age-old division of labor between women (the housewife) and men (the breadwinner or provider) is no longer accepted. Young women wish to have their own roles in life other than that of spouse or mother, but the paid labor market is less flexible and more demanding, offering just few contingent part-time jobs in the private sectors. These younger women no longer comply with the family arrangements their mothers or grandmothers took for granted; they have invested a lot in education and have their own personal expectations and ambitions other than the bearing and rearing of children. Having experienced equality during childhood, adolescence, and early adulthood, they are

looking for financial autonomy, and they cannot tolerate any subordination to male authority. The link between these attitudes and fertility behavior is direct (the TFR in Italy had fallen to 1.2). A woman who engages in repeated childbearing runs the risk of being relegated to the roles young women struggles to flee from.

On the other hand, Sweden registers the highest level for female labor participation in the highly developed nations of Europe and North America. But about half of the jobs held by women are part-time, thus reducing the incompatibility between economic activity and family reproductive behavior. For most women in Sweden, as in other advanced societies, career and family are both important. Social arrangements help assure that these two cannot be in conflict. Paid maternal/parental leave, provided from the first child, currently replaces 80 percent of the previous wages or salary of either parent for at least one year; the access to day nursery services is nearly universal; and family allowances are relatively high. Moreover, women have a strong representation in political institutions, as reflected by the seats held by female legislators in their national and local assemblies. Empowerment of women ensures against the emergence of a LLF pattern: despite severe cuts in the social protection of families, the Swedish fertility remains higher (1.6 in 1996) than the Italian or Spanish TFR. It is the essence of the feminist paradox in the advanced societies of Europe and North America. This is also what we have to learn from the cross-national comparison of Western countries if the Korean government is ever interested in the recuperation of the current TFR below 1.3 to a RLF pattern, or at least more feasibly, a SLF one of 1.8-1.9 births.

### Summary and Conclusion

In 2001, South Korea finally joined the global club of LLF countries, which are mainly concentrated in the continents of Europe. Indeed, she has undergone a dramatic transition from the natural rate of fertility, i.e., 6.0 births per woman, to a LLF pattern under the below-RLF demographic regime. In the course of the second transition, the TFR was registered at 1.70 in 1985, 1.57 in 1990, 1.64 in 1995, and 1.47 in 2000. But it reached a near-SLF pattern in the mid-1990, but began soon to move downward to the current LLF pattern. According to recent estimate of the Korean National Statistical Office (2003), the downward movement is more dramatic or even shocking: 1.30 in 2001 and 1.17 in 2002 and 1.19 in 2003. The emergence of this current LLF

pattern is definitely influenced by not only the uprooting or "disruption" in the aftermath of the 1997 financial crisis and the animal symbol of oriental zodiac, but also the arrival of a mass-consumption society, the physical and financial cost of childrearing, and the strength of feminist movement in East Asia. Clearly, the Korean fertility is becoming more similar to that of Southern Europe, like Spain, Italy, and Greece, and lower than that of her neighboring countries, Japan and China.

In Korea, the conspicuous rise in childbearing ages is one of the main demographic reasons for the emergence of a LLF pattern and behind it there are certain disruptional elements, like the high rate of youth unemployment and the "horse"-year superstition from the Chinese zodiac, but more importantly, an increasing incompatibility between career and child care because of women's increasing level of involvement in the paid labor market. The conflict between economic activity and reproductive behavior has been aggravated by the perpetuation of gender role systems which is reflected in extremely low levels of men's involvement in household chores and childrearing. Such social situation in Korea appears to be common to that in Italy and Spain in Southern Europe and Japan and Taiwan in East Asia, regardless of their general level of economic development and general welfare provisions.

In this paper, I would like to emphasize the need to conduct in-depth studies about changes in ages at first marriage and childbearing at different birth orders as well as changes in DFS, or the potential demand for children. Since the rapid transition from a near-RLF pattern in 1983 to a near-LLF pattern in 2001 and 2002, there have been little significant DFS changes, but a consistent rise in the ages at first marriage and childbearing due to expansion in higher education and job opportunities available to the women and men in their early twenties. In this paper, I have clearly confirmed that the rising trends of ages at first marriage and childbearing will be more likely stretched into the first half of the twenty-first century. A calculation of ages at marriage and childbearing in the era of the LLF pattern indicates that there have been significant increases in two types of women, i.e., those who delay their wedding ceremonies and those who delay their fertility toward a later life stage. Clearly, these delays in marriage and childbearing at different birth orders, together with the prevalence of youth unemployment and the individualized life styles of young women

and men, will contribute more significantly to the suppression of period fertility than the suppression of cohort fertility.

In this paper, I would like to indicate that the perpetuation of a LLF pattern will be stretched into the twenty-first century unless the Korean government gives more focus on family-based population policies developed by western nations to weaken the incompatibility between career and reproductive behavior, like maternal/paternal leave and childrearing service. The rationale for a family-based population policy comes from three worst aftereffects of a LLF patterns on the entire social formation of the Korean population: (1) the increase in poverty level among young parents and their children, (2) the shrinkage of consumer markets and the evaporation of attractiveness of this country to the foreign investors, and (3) the huge demand for the importation of foreign workers and the problem of integration between them and the host population. The pronatal population programs is needed to repair the gaps between the desired family size and the achieved size of family. One of the key interests is to improve the status of women in comparison with the status of their male partners and to raise the feeling of public concerns for the welfare of next young generations in this country.

The strong, more convincing lessons for the formulation of Korean family-based population policy come from the current and historical experiences of France, Germany, and Sweden. The European countries, like Sweden and France, which had relatively stronger family-based population policies tend to have relative higher levels of both women's labor force participation and fertility. In Korea, maternal leave was extended from 2 months to three months in 2002, but it has not implemented by the government in face of the strong opposition by the Korean business firms under the weakening of global competitiveness. Moreover, since it is reported that there are some difficulties for female workers in seeking maternal leaves particularly when they have a second baby, it is needed for the government to make serious efforts to strictly enforce maternal/parental leave laws for the privately run small-sized and medium size enterprises. Although the Korean government has extended and improved child nursery services in this decade, its availability is not sufficient especially in Seoul and other metropolitan areas. Further efforts by the government and the private sectors are needed to reduce the number of children waiting for nursery day care services in these metropolitan areas.

In this paper, I argued that the logic of pronatalist programs in the LLF countries must not be different from the logic of fertility-inhibiting family planning programs in the high fertility countries. Many people do not believe that the Korean government is successful in mediating and protecting the public interests, but the government must help its people to realize their wishes and as a consequence, to reduce the gaps between the desired family size and the actual family building. We believe that the government must implement appropriate measures, as revealed recently by public opinion polls (Chosun Daily, 2003), to remove the barriers to fertility reduction or to family expansion. If these measures, as is unusually true in the realm of politics, are based on socially reasonable demands and well explained to informed citizens, they will receive wide public acceptance without any great hardships, or probably enthusiastically, particularly among the young women and men. Despite the backlash effects of globalization on each part and segment of this country, certainly this prospect is stronger in the Korean population having a deep sense of ethnic/historic identity than the other national populations having a complicated social arrangement as a source of domestic internal conflict.

In any case, I believe, the resistance motivated by the potential cost of such a family-based population policy is not appealing in the long run: it only shows stronger preference for the misery of new young generations in the twenty-first century of this country. The financial and non-financial costs of population aging, as a long-term result of the perpetuation of a LLF pattern, would be much higher than the cost of a sound family-based population policy for repairing the gap between the desired family size and the realized fertility outcome. Even in Sweden, where the protection of children is best in Europe, the proportion of social expenditure devoted to children and their working mothers represents only one-sixth of the total budget. At this time, when population experts have great fear about the possible perpetuation of a LLF pattern as another built-in fixture of her societal formations, our demographic collective conscience asks the government leaders to pay more attention to the statement that a sound, sustainable family-based population policy must be the core of human capital investment and a key to the bright future of the Korean population as a whole.

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**Table 1. TFR, Oriental Zodiac, SRB, and per capita GDP in Korea: 1970-2003**

<b>Year</b>	<b>TFR</b>	<b>Oriental Zodiac</b>	<b>SRB</b>	<b>GDP per capita</b>
1970	4.53	Dog	109.5	249
1971	4.54	Boar	109.0	286
1972	4.14	Rats	109.5	316
1973	4.10	Ox	104.6	394
1974	3.81	Tiger	109.4	540
1975	3.47	Rabbit	112.4	592
1976	3.05	Dragon	110.7	799
1977	3.02	Snake	104.2	1009
1978	2.65	Horse	111.3	1399
1979	2.90	Sheep	106.4	1636
1980	2.83	Monkey	105.3	1598
1981	2.66	Rooster	107.2	1749
1982	2.42	Dog	106.8	1847
1983	2.08	Boar	107.3	2020
1984	1.76	Rats	108.3	2190
1985	1.67	Ox	109.4	2229
1986	1.60	Tiger	111.7	2550
1987	1.55	Rabbit	108.8	3201
1988	1.56	Dragon	113.3	4268
1989	1.58	Snake	111.7	5185
1990	1.59	Horse	116.5	5886
1991	1.74	Sheep	112.4	6810
1992	1.78	Monkey	113.6	7183
1993	1.67	Rooster	115.3	7811
1994	1.67	Dog	115.2	8998
1995	1.65	Boar	113.2	10823
1996	1.58	Rats	111.6	11385
1997	1.54	Ox	108.2	10315
1998	1.47	Tiger	110.1	6744
1999	1.42	Rabbit	109.6	8595
2000	1.47	Dragon	110.2	9770
2001	1.30	Snake	109.0	9000
2002	1.17	Horse	110.0	10013
2003	1.19	Sheep	108.7	11017

Source: Korea National Statistical Office (2002b), Korea Statistical Information System (KOSIS), <http://kosis.nso.go.kr/>