

Effects of Induced Abortion and Son Preference on the Imbalance of Sex Ratio in Korea

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《ABSTRACT》

Despite the fact that the national family planning program in Korea has accomplished its primary goals of fertility reduction and universal contraceptive use, the induced abortion is still high and there has been an increasing trend in the population sex ratio at birth. It seems that the changes in the imbalance of sex ratio have originated from traditional boy preference. This indicates that much of the current family planning program can be overhauled, so that the program quality could be better controlled, by preventing the number of unwanted pregnancies and the imbalance of sex ratios. This paper aims, therefore, to examine the determinants of induced abortion through the investigation of pregnancy outcomes and their changes over time and to study the interaction between induced abortion, boy preference and the imbalance of sex ratio in Korea.

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The abortion rate had increased rapidly until the mid-1980s when there were about the same number of abortions as live births. Thereafter, the abortion rate has been maintained at this high level. By parity it shows a much higher abortion rate for a higher parity at all time. From the first parity, the sex composition of previous children stands out as the most important factor in deciding the pregnancy outcome at all time. The probability of a pregnancy ending in an abortion increases substantially when parents already had a son. The decline of the desired family size and the sustained strong son preference has made the sex of children a more important factor in the determination of the pregnancy outcome. Women's education has had consistently positive effects on the probability of a pregnancy ending in an abortion, but the effect shows a steady decline over time. The premarital pregnancy and urban residence also increase the abortion probability. This study suggests that the main concerns of the family planning program should be to strengthen the social support policies so as to weaken the son preference value leading to a balanced sex ratio and prevention of induced abortions.

I. INTRODUCTION

During the last three decades, Korea has experienced rapid decline of fertility. The total fertility rate which was about 6.0 in 1960 has dropped to 1.6, far below the replacement level, since 1987. Use of effective contraception has increased tremendously due to the changing socio-economic rationale regarding childbearing and the continuous promotion of family planning programs by government. Even so, it has been evident that induced abortion has played a significant role in reducing the fertility rate in Korea. The number of abortions in Korea has increased continuously over the last two decades. Although the absolute number of abortions has been declining recently, it is still at a very high level compared to the developed western countries. In fact, when computed as a proportion of total pregnancies, the abortion rate has not decreased so far. The live

birth pregnancy rate decreased persistently until 1977 when it leveled off at about 60 percent until 1981. Thereafter the decline resumed, reaching the minimum level at 49 percent in 1984. It has been maintained slightly higher than 50 percent since then. By the five-year average, the abortion rate increased from 21 percent among the pregnancies up to 1974, to 38, 44 and 49 percent during the period of 1975-1979, 1980-1984, and 1985-1991, respectively. In the study of fertility it has been as equally important to know how each pregnancy ends as who becomes pregnant and when.

This study examines the trend and the determinants of pregnancy outcomes in Korea during the period from early 1960s to 1990 using data from a retrospective survey of pregnancies. First, pregnancy outcomes are compared between the subsamples which are divided by the year of pregnancy and by the number of existing children. Within each subsample, comparisons are also made accord

ing to premarital pregnancy, sex composition of existing children, women's education and the place of residence. The following section focuses on the pregnancy outcomes by the contraceptive method used when one became pregnant. Finally, selective abortions and their implications on fertility and the sex ratio are discussed.

II. DATA AND METHOD

The data used in this study are drawn from the 1991 National Fertility and Family Health Survey of Korea conducted by the Korea Institute for Health and Social Affairs (KIHASA). The sample is a stratified nationwide probability sample based on the sampling framework used in the 1985 Population Census (see Kong et al. (1991) for more details on sampling). A total of 11,540 households was surveyed. The data used in this paper is based on the interviews with 7384 married women aged between 15–49. The information collected are mainly about the respondent's marriage, pregnancy and birth, family planning and work status. In particular, the woman's fertility history is recorded retrospectively, and serves as the main data for this study.

Pregnancy outcomes are studied separately according to parity, that is, number of existing children. Since the effects of socioeconomic variables may vary over time, the sample is also separated into four cohorts which are divided according to the year of pregnancy: up to 1974, 1975–79, 1980–84, and 1985 or later. There were 25,458 preg-

nancies in total after deleting the pregnancies which started less than 9 months prior to the survey: 8,475 pregnancies at parity zero, 7,947 at the first parity, 5,358 at the second parity, and 3,437 at the third or higher parities.

III. ANALYSIS OF PREGNANCY OUTCOME

Any pregnancy results in either a live birth, still birth, spontaneous abortion or induced abortion. While still births are very rare (less than one percent of total pregnancies), spontaneous abortions have not been trivial. What is surprising according to the data used in this paper, is the sharp increase in recent years in the reported proportion of pregnancies ending by a spontaneous abortion among all-girl families at the second parity. It is higher than 10 percent (41 out of 389) among the pregnancies since 1985, while it is only three percent (22 out of 718) among those with one or two male children. Considering the greater desire to have a son and to avoid another daughter among all-girl families, this differential might be due to a tendency among parents who had abortions of a female fetus (determined by a gender screening test such as amniocentesis or ultrasound test), to report these gender-selective induced abortions as spontaneous abortions. It is conceivable that due to a genuine memory loss or some personal reasons (such as embarrassment) one might report incorrectly about the pregnancy outcome, especially for still births, spontaneous abortions or induced

abortions. This is the main reason why spontaneous abortions, induced abortions and still births are included in the category of abortion in this study.

In general, the abortion rate increases with parity and time. Among the pregnancies since 1985, only 27 percent were aborted among the childless parents, while they were 46 percent among the families with one child and 81 percent among those with two children. For the pregnancies when there is no child, the abortion rate has increased from 10 percent prior to 1975 to 30 percent since 1985. This increase seems to be attributable mostly to the increased premarital pregnancies among the more recent cohorts. A more liberal social environment along with the delayed age at marriage is likely to increase the chance of an unmarried woman to be exposed to sexual activity and pregnancy.

Premarital Pregnancy

A considerable proportion of first pregnancies in Korea starts before marriage, and this proportion is likely to increase over time. By education, it shows a slightly higher premarital first pregnancy rate among the middle or high school graduates than the primary or college educated women. While more than half of the premarital pregnancies among the women with better than primary education were conceived within 4 months prior to marriage, for the primary or lower educated women the pregnancies conceived earlier than 5 months prior to their marriage are relatively more common.

The earlier the pregnancy starts prior to

marriage, the higher is the chance for a pregnancy to end by an abortion. The abortion rate among the first pregnancies is 55 percent for the pregnancies started at least 8 months before marriage, while it is only 25 percent for those started 5 to 7 months and 15 percent for those started less than 5 months prior to marriage. The abortion rate is particularly high for the pregnancies started earlier than 7 months before marriage among the higher educated and most recent cohort.

Sex Composition of Existing Children

Traditionally, Korean parents have shown strong son preferences due to various reasons, such as old-age support, provision of farm labor, carrying on the family line, and the practice of ancestor worship. Since a child's gender is not controllable, a problem facing parents at each parity is to decide what kind of contraceptive methods (or no method) to use and, when pregnant, whether to have an abortion or not. Pregnancy outcome is compared by the sex composition of existing children for each parity and cohort. More than two boys are combined into the two-boy category. Given the strong preference for sons among Korean parents, the number of boys is expected to have a positive association with the chance for a pregnancy to end by an abortion.

From the first parity, the sex composition of existing children stands out as the most important variable in the determination of pregnancy outcome. At first parity, the existence of a son increases the abortion proba-

bility by 3 percent for the earliest cohort, but it grows to 9 percent for the most recent cohort. The strengthening gender effect at low parities indicates the changing preferences toward smaller families while the son preferences are maintained. The effects are much larger at the second and third parities, and they remain substantial at all cohorts. Abortion probability is particularly high among the families with at least one son, and more so in recent years. Among the pregnancies conceived since 1985, less than 10 percent were carried to term among those with a son, while more than 40 percent of those with two daughters were given live births. At the third parity the families with two or more boys among the earliest cohort are 33 percent more likely to end the subsequent pregnancy by an abortion than those without a son. In recent years, although the high parity pregnancies are rare, there is still a large difference in abortion rate by sex composition. It seems that while high parity pregnancies are becoming scarce, the differentials in abortion rate by sex composition is becoming larger among the low parity pregnancies. If this trend continues the sex composition of children in a family is likely to become very different between small families and large families. There would be at least one boy among most families who have only one or two children, while most of the children in large families would be girls.

Woman's Education

Woman's education is divided into 4 categories; less than 9, 9–11, 12–13, and more

than 13 years of education. The negative effect of woman's education on fertility is well documented across the world (see Cochrane, 1983; Jain, 1982; Kim, 1987). This relationship is often believed to be due to the higher opportunity costs and the better knowledge of effective contraceptive methods associated with education. However, it is not obvious with the effect of education on the probability of abortion. If education improves the knowledge of effective contraception, better educated women would be less likely to have unwanted pregnancies, with therefore a lower likelihood to have abortions. On the other hand, the better educated women seem less likely to use the most effective contraception method, sterilization, therefore raising the risks of contraception failure.

Education shows different effects on the pregnancy outcome between the parity zero and the higher parities. The abortion probability at parity zero before 1975 increases by about 8 percent as the woman's education moves up from primary level to a higher level. This effect disappears during the period between 1975 and 1984. The effect returns after 1984 but the sign turns negative. The education higher than primary level reduces the abortion probability by 12 to 18 percent. Since the aborted first pregnancy is usually a premarital pregnancy, this reversal of the education effect indicates the higher likelihood of premarital pregnancy among the women with primary or less education than those with a higher education among recent cohorts.

For the pregnancies at parities beyond

zero, woman's education has significant positive effects on the probability of abortion. The effect is particularly large among the early cohorts. Among the pregnancies conceived before 1975, compared to primary or lower educated women the abortion rate is higher by 13 percent for high school graduates and by 25 percent for college graduates. Similar differences are also noticed at higher parities. However, the difference has gradually reduced over time at all parities.

The higher abortion rate among the better educated women indicates that the better educated women desire to stop their childbearing earlier or they desire longer birth intervals compared to the less educated women, but they do not necessarily use more effective contraceptive methods. In fact, the proportion who took had a surgical sterilization operation, is much higher among the less educated women. For example, among the women with two children, about 63 percent of those with less than high school education were surgically sterilized while only 47 percent of the college educated women were. Better educated women instead rely more often on less effective methods, such as condom or rhythm method, resulting in higher risks of unwanted pregnancies. Although the question why better educated women in Korea use less effective methods is an interesting issue, it is out of the scope of this paper.

Place of Residence

The place of residence has been shown consistently across the world to be an important factor which affects fertility. It is often ar-

gued that the greater knowledge and easier access to modern birth control methods in urban areas lead to a higher abortion rate in urban areas. This variable as used in this study, however, needs a note of caution since it records the residence only at the time of survey. Although a more detailed residence history is desirable, the current residence is used due to the lack of data.

In general, the residence in metropolitan areas is associated with higher chances of abortion. The difference by residence is minimal at the parities of zero and one. At higher parities the difference becomes more noticeable although the difference is decreasing over time. For example, among the pregnancies conceived prior to 1975 at parity two, the abortion rate was 20 percent higher in the metropolitan areas than non-metro areas, but the difference is reduced to 11 percent among those conceived since 1985. A similar trend is detected at the third or higher parities.

Contraception Failure and Abortion

In general, the greater the desire to avoid pregnancy, the more women will use more effective contraceptive methods. Therefore, if one becomes pregnant, the pregnancy is more likely to be aborted among the women who were using supposedly more effective contraceptive methods before the pregnancy. While the pregnancies after male or female sterilization are very rare, almost 90 percent of them were terminated by abortions. About 15 percent of the pregnancies conceived while using IUD or pill were carried to term, and

it was about 18 percent among those who were using condom, gelly or rhythm methods. On the other hand, among the pregnancies occurring while using no method, 68 percent were carried to term. The probability of a pregnancy to end in a live birth has been decreasing over time, and the decrease has been particularly large among those conceived while using IUD or pill. Among the 185 pregnancies conceived since 1985 while using IUD or pill, only 15 (or 8%) were carried to term.

Since more than 80 percent of pregnancies occurring while using any type of contraception are terminated, it is apparent that more careful use of contraception could reduce considerably the number of abortions in the Korean society. Yet, in absolute term, much larger number of abortions are practiced among the pregnancies conceived while using no method, since about 90 percent of the total pregnancies are to no-users. To reduce the number of abortions it should also focus on promoting effective use of contraception among the no-users who would have abortions when pregnant.

Selective Abortion, Fertility and Sex Ratio
The modern technology which gives parents the ability to determine the fetal gender has added a new dimension to the problem of fertility choice (Bennett and Mason 1983; Bloom and Grenier 1983; Kobrin and Potter, Jr. 1983; Ahn 1991). For parents who prefer to have children of one sex rather than the other, this ability may lead to selective abortions. Frequent abortions performed selectively on a certain sex result in a change in the

sex ratio.

One notable situation exists in Korea. According to the report of 1992 Korean Vital Statistics (National Statistical Bureau, 1991), during the 1980s the male-female birth ratio in Korea has increased dramatically. In 1990 there were 117 male births for each 100 female births. This biased sex ratio at birth is apparently due to the gender-selective abortions and can be verified by the comparisons of sex ratio by parity. For example, in 1990, among the children born of the third or higher birth orders, the male-female ratio exceeds two when it is normally less than 1.1 (that is, 1.1 males to 1.0 female).

The selective abortions seem to occur mostly at high birth orders. In general, parents seem to leave the sex of the first two children to chance. Only those who were "unlucky" in their first two births seem to be practicing selective abortion. This might be due to the high costs of screening test (or abortion) relative to income, or only a small gain from the selective abortion for the first couple of pregnancies. After the first two children, the women who are most likely to become pregnant are those with only girls. Many of the pregnant women after two daughters are likely to have a test to ascertain the gender and many women who conceive a female child have abortions. To compute the approximate number of gender-selective abortions, suppose that among the pregnancies which are tested for gender, only female feta are aborted. If the chance of any pregnancy to be a girl is 0.485 (or 106 boys for 100 girls), then in 1990 the number of

gender-selective abortions performed because of their feminine gender was about 30,000. About half of the pregnancies of female children after two living children are terminated because of their gender. Although the demographic impact of the sex ratio imbalance of the third or higher parities is relatively low, it is, however, certain that unless the gender-selective abortions are effectively controlled at the first and second parities where more than 90 percent of total births occur, there will be a serious problem in the marriage squeeze.

The sex ratio at birth is already at an unprecedentedly high level in Korea. It is likely to go up even higher as more and more gender-selective abortions are practiced at the first and second parities where more than 90 percent of pregnancies occur.

IV. BOY PREFERENCE AND IMBALANCE IN SEX RATIO

During the last 30 years for the successful implementation of the population control policy in Korea, The Korean Government and related organizations paid great attention to the study on impacts of boy preference on family size and level of fertility. Numerous researches were conducted regarding sex preference (Lee, 1987; Suh, 1992; Park and Cho, 1994; Cho, 1990). Many researches revealed that the boy preference was a barrier to reduce the level of fertility, if parents continued to have children until they reached to the desired number of children in terms of sex composition (Han and Lee, 1977; Cho,

1982; Lee, 1982; Kim et al., 1990; Lee, 1982). However, in general, couples have relatively less control over the sex of the children than they do over the number of children, since the sex of children is determined through biological rather than behavioral process. For this reason, as more couples in recent years tend to rely on sex-selective induced abortion to accommodate both boy preference and small family size norm, a new demographic phenomena of distortion of sex ratio at birth is emerging in Korea. For example, a rapidly rising sex ratio with birth order is reported in many researches (Lee, 1989; Kim et al., 1990; Park and Cho, 1994). In this part special attention is paid to find the level and trends of boy preference and its impact on the sex ratio.

Ideal Number of Children

Several surveys in Korea showed the level of boy preference by reporting the ideal number of children by sex. When the ideal number of boys exceeds the ideal number of girls, one can safely assume that it reflects the prevailing boy preference in a society. Results from the several rounds of National Fertility and Family Health Surveys conducted by KIHASA regarding the ideal number of children by sex are summarized in Table 1. The ideal number of children among Korean women in the survey conducted in 1991 was 2.1, a figure slightly higher than the 2.0 level of 1988 survey but lower than the 3.9 of the 1968 and 2.7 of the 1978 surveys, reflecting that the ideal number of children decreased from 3.9 in 1968 to 2.1 in 1991.

The four rounds of surveys selected for

this study showed that the ideal number of boys, which was 2.4 in 1968 and 1.2 in 1991, exceeded the ideal number of girls which was 1.5 in 1968 and 0.9 in 1991 respectively, though the ideal sex ratio seems decreasing from 160.0 in 1968 to 133.3 in 1991. This implies that strong son preference in Korea is still prevailing in Korea though it might be

weakened compared to the traditional Korean society. It is interesting to note that the actual level of Total Fertility Rate (TFR) was higher in 1968, and lower in 1988 and 1991 than the ideal number of children, reflecting the rapid decline in the level of actual fertility, but also the slow decline in the ideal number of children over the 1968—

Table 1. Changes in the Ideal Number of Children among Married Women Aged 15–44, 1968–1991

	(Unit: Persons)			
	1968	1978	1988	1991
Ideal Number of Children (A)	3.9	2.7	2.0	2.1
Ideal Number of Boys (B)	2.4	1.6	1.2	1.2
Ideal Number of Girls(C=A–B)	1.5	1.1	0.8	0.9
Ideal Sex Ratio (B/C*100)	160.0	145.5	150.0	133.3
Total Fertility Rate (TFR)	4.2	2.7	1.6	1.6

Source: KIHASA, Fertility and Family Health Surveys, Various Years

1991 period.

The Degree of Son Preference

Table 2 presents percentage distribution of ever-married women aged 15–49 with regard to their sex preference, in particular, the level of son necessity. According to the table, 61.0 percent of the women in 1976

responded that a son was definitely necessary and another 11.0 percent stated that it was better than no son. To the same question, 28.0 percent responded that it did not matter. The boy preference among Korean women was observed to decrease during mid–1980s. In particular, in 1988, only 29.8 percent of women responded that a son was definitely

Table 2. The Degree of Son Necessity for Ever Married Women Aged 15–49, 1976–1991

Extent	1976	1985	1988	1991
Number	6,020	7,005	6,511	7,448
Total	100.0	100.0	100.0	100.0
Definitely Necessary	61.0	38.7	29.8	40.5
Better than No Son	11.0	21.6	20.3	30.7
No Matter	28.0	38.5	49.4	28.0
Don't Know	0.0	1.2	1.5	0.8

Source: KIHASA, Fertility and Family Health Surveys, Various Years

necessary while 49.4 percent of women stated that it did not matter. However, the boy preference gained weight again in 1991; that is, 40.5 percent of women mentioned that a son was definitely necessary and another 30.7 percent stated that it was better than no son. Only 28 percent responded that it did not matter.

The degree of son necessity by characteristics of ever married women aged 15–49 in 1991 are presented in Table 3. As shown in the table, rural women reveal greater son preference than urban women. That is, 62.6 percent of rural women respond that a son is

quite necessary, while only 34.6 percent of urban women state a son is quite necessary. The reason may be that women residing in cities may be exposed to new ideas about sex equality, opportunities for women, new roles for women and freedom of women from family influence, while rural women hold the traditional values more strongly.

In the age pattern of son preference, the son preference increases with advancing age. This means that the extent of son preference increased continuously from younger age to older age women. This was apparently brought about through a drastic increase in

Table 3. Extent of Son Necessity by Characteristics of Ever Married Women Aged 15–49, 1991

(Unit : %)					
Characteristics	Total	Quite Necessary	Better than No Son	No Matter	Don't Know
Whole Country	100.0	40.5	30.7	28.0	0.8
Area:					
Urban	100.0	34.6	34.5	30.3	0.6
Rural	100.0	62.6	16.9	19.3	1.2
Age of Women					
15–24	100.0	28.0	29.6	41.4	1.0
25–29	100.0	27.7	35.3	36.0	1.0
30–34	100.0	34.1	33.9	31.3	0.7
35–39	100.0	41.3	31.1	26.7	0.9
40–44	100.0	50.4	28.4	20.6	0.6
45–49	100.0	63.1	20.5	16.1	0.3
Level of Education					
Primary School	100.0	62.5	19.8	16.9	0.8
Middle School	100.0	42.4	31.9	25.0	0.7
High School	100.0	30.7	34.2	34.3	0.8
College And Over	100.0	26.2	38.3	34.7	0.8

Source: Kong, et al., 1991 National Fertility and Family health Survey, 1992.

the proportion of women with strong son preference measured by necessity of son from 28.0 percent in age group 15–24 to 63.1 percent in age group 45–49; accompanied by a drastic reduction in no-preference, from 41.4 percent in 15–24 to 16.1 percent in 45–49. This pattern may be explained by the fact that in countries like Korea, where the societal structural transformation has been speeded up during a relatively short period, the process of modernization is more likely to have an influence on younger women since they have more opportunities to participate. Conversely, the women at later stages of the life cycle have been exposed to the preindustrial societies where they put much more emphasis on the traditional values of sons and hence they are less likely to be influenced by this process of modernization.

Son preference as an intervening factor that would affect fertility also shows the negative relation with education. In particular, 62.5 percent of women with primary schooling responded that a boy is quite necessary, while only 26.2 percent of women with college or above level of education assert that a boy is quite necessary. In this sense, it may be argued that the wife's educational attainment, as one of the most important indicators of modernization, has played a very important role in transforming the traditional value of sons.

Values of Boys

The childbearing motivations are directly influenced by the perceived noneconomic as well as economic benefit derived from having

children. For instance, rituals of ancestor worship has a very strong impact on the perceived noneconomic utility of children. Under the tradition, it has been observed that the greater value the respondents placed on the ancestor worship ceremonies, the more likely they were to perceive the utility of children.

This section examines selected values of sons that Korean parents attached to sons, which include reasons for having sons such as carrying on the family name, economic support, old age security, rituals of ancestor worship, prestige, and family harmony, etc. The reasons given for boy preference were listed in Table 4. In the table, the direct comparison of the reasons for wanting sons may be limited because some categories in different round of surveys are not consistent.

Support in old age was the most important of all values of a boy in 1960s while the family lineage was the second most important, regardless of the area. The importance of the support in old age became less important than family lineage in 1985. Among reasons for wanting sons, the most pronounced is family lineage (37.3 percent) which has been stressed as important in Korean society influenced by Confucian tradition. The provision of security in old age (26.1 percent) also appears as the next most important reason for having sons, followed by prestige (20.3 percent) and family harmony (15.6 percent). However, rituals of ancestor worship (9.1 percent) and economic assistance (6.6 percent) as functions of sons seem to lose their strong hold in Korea.

Also in 1991, the most pronounced was

Table 4. Distribution of Women by Reason for Boy Preference, 1964–1991

Reason for Boy	(Unit : %)				
	1964 Seoul ¹⁾	1965 Town ¹⁾	1966 Rural ¹⁾	1985 National ²⁾	1991 National ³⁾
Total	100.0	100.0	100.0	100.0	100.0
Support in Old Age	48.3	61.3	62.2	26.1	6.8
Family Lineage	27.9	19.3	28.2	37.3	42.2
Ancestor Worship	n.a.	1.5	5.0	9.1	n.a.
Economic Assistance	n.a.	n.a.	n.a.	6.6	n.a.
Family Harmony	n.a.	n.a.	n.a.	15.6	16.8
Prestige	n.a.	n.a.	n.a.	20.3	34.2
Others	23.8	17.9	4.6	—	—

Note: n.a. due to no specific question items available in corresponding survey.

Source:

- 1) KIPH, Population and Family Planning in the Republic of Korea, Vol. II. 1974. p308.
- 2) Lee, S.S., 1989. Determinants of Son Preference. Cairo.
- 3) Kong, et al., 1991 National Fertility and Family health Survey, 1992.

family lineage (42.2 percent), followed by prestige (34.2 percent), implying that emotional ties between generations are important in Korea. While the support in old age (6.8 percent) as value of boys seems to lose its strong hold in Korea. This finding implies that boys are wanted more likely not for economic reasons but for the emotional or traditional reasons in Korea. Therefore, it appears that the parents may consider less important the economic utility of a son with the economic development observed in Korea during the last three decades.

Table 5 presents reasons for wanting sons by characteristics of women, i.e., residential characteristics, age of women, and educational attainment in 1991. The reasons for boy preference reveal slightly different pattern by area. The most important reason for preferring boys in urban areas is emotional,

such as prestige (38.5 percent), followed by traditional reasons such as family lineage (35.8 percent), while the most pronounced reason in rural area is traditional reason such as family lineage (55.1 percent), followed by emotional reason such as prestige (25.5 percent). The economic reason such as old age security reveals only 5.4 percent in urban women and 11.6 percent in rural women.

The reasons for wanting boys by age of women reveal that the greater the age of women the higher the proportion of women who assert that a boy is necessary for family lineage, except for the 15–24 age group. Proportions of women asserting that a boy is necessary for family lineage are 38.0 percent in 25–29 age group, 36.3 percent in 30–34 age group, and 37.0 percent in 35–39 age group. However, the proportion increased to

45.4 percent among women aged 40–44 and 51.2 percent among women aged 45–49.

The reasons for preferring boys by educational attainment of women reveals that women with low education expressed the family lineage (51.9 percent) as the most important value of children, followed by prestige (31.1 percent). Women with middle or high school level of education expressed almost equal value of boys for family lineage and prestige.

However, women with college level of education or more expressed the happiness or harmony in a family (38.6 percent) as the

most important value of boys. These findings imply that higher educated women stressed the importance of boys for the happiness or harmony of family, while low educated women stressed the traditional value of family lineage.

Hence, value and disvalue differ by the socio-economic status of the parents, in particular by the residence and educational level. The more educated parents residing in urban areas tend to emphasize the emotional benefits from childbearing, while rural parents tend to be more concerned with the traditional value of children such as family lineage.

Table 5. Distribution of Ever-Married Women Aged 15–49 by Reason for Boy Preference, 1991

(Unit : %)

	Total	Family Lineage	Old Security	Family Harmony	Prestige
Total	100.0	42.2	6.8	16.8	34.2
Urban	100.0	35.8	5.4	20.3	38.5
Rural	100.0	55.1	11.6	9.8	25.5
Age of Women					
15–24	100.0	51.4	3.7	15.0	29.9
25–29	100.0	38.0	4.6	25.1	32.3
30–34	100.0	36.3	6.5	22.0	33.2
35–39	100.0	37.0	8.3	18.3	36.4
40–44	100.0	45.4	6.2	12.7	35.7
45–49	100.0	51.2	8.4	9.0	31.4
Level of Education					
Primary School	100.0	21.9	10.1	7.9	31.1
Middle School	100.0	39.1	7.0	16.1	37.9
High School	100.0	36.7	4.8	23.0	35.5
College and Over	100.0	29.0	3.4	38.6	29.0

Source: Kong, et al., 1991 National Fertility and Family health Survey, 1992.

Implications of Boy Preference

The aforementioned strong boy preference in Korea has significant impact on a wide range of social life in Korea, particularly, sex ratio at birth and marriage squeeze (shortage of brides) in the near future. In this sense, as consequences of the boy preference, the phenomena of the distorted sex ratio at birth and future marriage squeeze will be discussed.

1. Imbalance of Sex Ratio at Birth

The sex ratio at birth in Korea has been positively associated with birth order in recent years as shown in Table 6. This phenomena could be found in Korean vital statistics data over the 1980–1992 period. Sex ratio at birth in Korea was not high from the beginning. For example, the sex ratio at birth for the first child is recorded around

105.7 in 1980 and 108.7 in 1990. This level represents a slightly higher level than the accepted sex ratio of 105. And for the second child, the sex ratio records around 104.2 in 1980, 105.4 in 1982, and 107.2 in 1984.

However, after that year, the sex ratio for the second child become increased from 111.3 in 1986 to 117.2 in 1990.

For the third and fourth child, the sex ratio increased significantly, for instance, 195.6 for the third child and 229.0 for the fourth child in 1992. Considering that the ideal number of children decreased to around two children and that the total fertility rate in Korea is about 1.6 in 1991 as shown previously, majority of women in Korea may stop their childbearing activities before they get three children. Therefore, the high sex ratios for the third and fourth children may be considered as the result of boy preference.

Table 6. Changes in Sex Ratio at Birth by Birth Order, 1980–1992

	(Unit : %)						
Birth Order	1980	1982	1984	1986	1988	1990	1992
Average	103.9	106.8	108.3	111.8	113.4	116.8	114.0
First	105.7	105.4	106.1	107.3	107.4	108.7	106.4
Second	104.2	106.0	107.2	111.3	113.3	117.2	112.8
Third	102.7	109.2	116.9	138.7	166.3	191.9	195.6
Fourth and over	99.1	113.7	128.1	150.6	185.7	218.9	229.0

Source: NSO, Annual Report on the Vital Statistics, Various Years

This may imply that women in Korea tend to have boys by means of sex-selective induced abortion after checking the sex of the fetus within the range of their ideal number of children. In other words, this increasing sex ratio with birth order can be explained by as follows. If family size must be limited

in a society with strong boy preference, the female birth for over a certain number of birth must be suppressed by the sex-selective induced abortion through the sex identification test result, so that the desired number of boys may be attained within the small family size norm. This could be possible by

the development of the sex identification test technique which was widely available in clinics as well as in hospitals in Korea from the mid-1980s, when the ultrasonic equipment was mass produced in Korea.

The women who experienced induced abortion increased significantly from 16 percent in 1968 to 53 percent in 1985 as shown in Table 7.

Hong and Oh (1992) analyzed the relation-

Table 7. Induced Abortion Experience Rate and Total Marital Induced Abortion Rate, 1968–1991

(Unit : %)

	1968	1971	1976	1979	1985	1988	1991
Induced Abortion							
Experienced Rate (%)	16	26	39	48	53	52	47
Urban	26	37	46	53	55	54	46
Rural	10	19	29	40	48	47	52

Source: NSO, Social Indicators in Korea, 1993.

ship between pregnancy order and outcome of the pregnancy. The result of the analysis reveals that only 14.9 percent of first order pregnancy was terminated by induced abortion. This proportion increased significantly with order of pregnancy; that is, 48.8 percent for third order pregnancy and 54.1 percent for fourth order pregnancy and 69.5

percent for fifth and above order pregnancy as shown in Table 8. Therefore, it could be assumed that among the wide spread induced abortions, there are many of sex-selective induced abortions when the sex of the fetus is female identified by the sex identification test.

The data for the sex identification test are

Table 8. Pregnancy Outcome for 7,110 Married Women by Pregnancy Order and Year of Pregnancy for the period of 1985–1991

(Unit: %)

Pregnancy Outcome	Birth Order				
	1	2	3	4	5
No. of Pregnancy	1,693	1,739	1,302	827	919
Total	100.0	100.0	100.0	100.0	100.0
Live Birth	74.3	57.6	42.4	38.0	21.4
Still Birth	0.1	0.9	0.1	0.1	0.2
Spontaneous A.	10.8	10.3	8.7	7.8	8.9
Induced Abortion	14.9	31.3	48.8	54.1	69.5

Source: Hong and Oh, "Trends of Induced Abortions in Korea, A Special Analysis on 1991, National Fertility Survey, KIHASA, 1992.

available in the 1988 National Fertility and Family Health Survey, though the accuracy of the data may be suspected for underreporting since the test is illegal in Korea since 1987. The data are shown in Table 9. According to the table, 1.2 percent (275 pregnancies out of 22,094 pregnancies) are reported to be tested during her pregnancy. Out of the tested 275 cases in 1988, the test results reveal that 169 cases as boy, 87 cases as girl, and 18 cases were don't know because doctor did not reveal let her know

the sex of the fetus. The majority of the pregnancies tested as boy was terminated as normal delivery. However, as much as 31 percent of the pregnancies known as girl was terminated by induced abortion. Kim and Joo (1994) estimated the proportion of births which experienced sex identification test during the period of 1989–1991 as 3.6 percent, which is higher than the 1988 survey result of 1.2 percent, and argue that the sex identification test is the main cause of the distorted sex ratio in Korea recently.

Table 9. Sex Identification Test and Pregnancy Outcome of , 6,500 married women aged 15–44, 1988

Pregnancy Outcome	Total		Test Results			
	Pregnancy	Total	Boy	Girl	Twin	Don't Know
Total	22,094	275	169	87	1	18
Birth	13,650	227	154	56	1	16
Induced Abortin	6,494	31	3	27	—	1
Still Birth	157	1	1	—	—	—
Spontaneous Abortion	1,416	3	—	2	—	1
Pregnancy	377	13	11	2	—	—

Source: Moon, et al., 1988 National Fertility and Family Health Survey, KIPH

2. Marriage Squeeze(shortage of brides)

Another implication of rising population sex ratio which is caused by the strong boy preference seems to be the possible marriage squeeze in the future. If it is assumed that males aged 25–29 generally married females aged 20–24, though the most preferred age gaps at marriage between male and female is about 4 years in Korea, the future imbalance in matching can be projected. According to the Future Population Projection data published in April, 1991 as shown in Table 10,

there may be little problems in marriage market before 2000, since the sex ratio of the eligible persons for marriage are 100.2 in 1985, 104.7 in 1990, and 101.3 in 1995, implying that the number of eligible males and females are almost balanced. However, in the year of 2000, males aged 25–29 should face great difficulty in finding their mates, since 19.1 percent of males is estimated to be outnumbered their female counterparts. The situation would be worse in 2010, as males are estimated to outnumber — their female partners

Table 10. Projected Population Eligible for Marriage in Korea

(Unit: Thousand Persons)

	Male (Aged 25–29)	Female (Aged 20–24)	Sex Ratio
1970	1,207	1,254	96.2
1975	1,290	1,504	85.8
1980	1,584	2,015	78.6
1985	2,093	2,089	100.2
1990	2,181	2,083	104.7
1995	2,184	2,155	101.3
2000	2,263	1,896	119.4
2005	2,009	1,823	110.2
2010	1,946	1,513	128.6

Source: NSO, Future Population Projection, 1991.4

by 28.6 percent. Since the surplus males must find their mates from the other age groups, the marriage market in 2010 would be greatly distorted.

V. SUMMARY AND CONCLUSION

The major demographic transition in Korea took place in the midst of rapid socio-economic developments between 1960 and 1990. Many studies suggest that among the proximate determinants of fertility, family planning, induced abortion, and rising age at marriage have shared substantial responsibility for fertility decline in Korea during the last three decades. Despite the fact that the nation's contraceptive practice rate has reached 79.4 percent in 1991, the induced abortion rate is still high. This study aims, therefore, to examine the determinants of induced abortion and their changes over time by analyzing the determinants of pregnancy outcomes during the corresponding per-

iod, in an effort to suggest future policy directions for reducing the number of induced abortions, and for maintaining the balanced sex ratios.

By parity it shows a much higher abortion rate for a higher parity at all time, since most women in Korea accept induced abortion to terminate fertility. From the first parity, the sex composition of previous children stands out as the most important factor in deciding the pregnancy outcome at all time. The probability of a pregnancy ending in an abortion increases substantially when parents already had a son. The decline of the desired family size and the sustained strong son preference has made the sex of children a more important factor in the determination of the pregnancy outcome. Women's education has consistently positive effects on the probability of a pregnancy ending by an abortion, but the effects shows a steady decline over time. The premarital pregnancy and urban residence also increase the abortion probabili-

ty. This study has also found that the effect of son preference has been to increase the sex ratio of population in the Korean society. This sex ratio imbalance of the third and higher parities has been partially attributable to the selective abortions. In order to improve problems associated with induced abortion and imbalance of sex ratios, the following two areas are suggested for careful consideration in setting out future policy directions of the induced abortion.

First, the current family planning management system with its emphasis on sterilization for fertility termination should be reformulated, so that better quality services and a wide choice of reversible methods which are safe, convenient and easily affordable can be made available primarily for birth spacing. Though the total abortion rate fell after its peak in 1979, the rate keeps on increasing for married women aged 20 to 24 and the rate for those aged 25 to 29 years still remains high. The recent situation where the younger age group(20-29) was practicing less contraception but using more induced abortions, needs serious attention in the immediate future. Thus, the new contraceptive acceptors in their 20s or with low parity must be recruited for birth spacing and offered more choice of the reversible methods. Furthermore, the scope of the family planning program target population should be expanded to cover the unmarried population in order to prevent their premarital pregnancies. A recent survey has revealed that as many as 28 percent of the induced abortions in 1979 involved unmarried females, and the percentage in-

creased to 33 percent in 1990. That is, as the age at first marriage increases, a greater number of the unmarried are likely to be exposed to a variety of sexual stimulations for a longer period of time, resulting in a greater number of induced abortions.

Second, the Government's intervention to prevent selective abortion should be strengthened. The present study has found that son preference has become a very important factor in the increase of the sex ratio of population through the selective abortions, as well as in the determinants of Korean fertility. Recently, selective abortion has become a grave social, demographical, and ethical issue, and trends of sex ratio at birth in Korea in the next few years should be carefully monitored. The aforementioned strong boy preference in Korea has significant impact on a wide range of social life in Korea; in particular, sex ratio at birth and marriage squeeze in the near future. The government took action to forbid the identification of fetal sex by revising the medical law in 1987, and amended again in 1994 by strengthening the disciplinary code of the medical law. Physicians who provide such medical services would be punished with less than one year's imprisonment or fine not exceeding 10 million won, or have their medical licences cancelled. However, these legislative measures are not enough to eliminate the selective abortions and the support of the public must be gained by encouraging parents to avoid using such identification of fetal sex and selective abortion. In view of this the punishment should be equally applied to both physicians and

users of this service.

Third, the existing institutional and social support policies should be further strengthened to weaken the high value attached to sons, and to prevent selective abortions.

In particular, Korea has to reform its patriarchal family laws and traditional customs which hinder the achievement of equality of the sexes. Lastly, the information, education and communication activities should be strengthened so as to emphasize the importance of a balanced sex ratio to the people. In addition such values should be taught from earliest childhood and the formal school curricula at all levels should reflect this policy. Since son preference will not be eliminated in a short time, periodical monitoring and research on these issues will continue to be necessary.

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