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Prevalance and Strength of Son Preference in Korea*

— Abstract —

Focusing on the strength of son preference obtained from two surveys of the same area, an attempt has been made to measure the change on the IS value scale that may have occurred over the last seven-year period, the underlying assumption here being that the strength of son preference wanes in inverse proportion to the level of society's socio-economic development. Various methodological approaches have been put to test to weigh the importance of the sex preference as a dependent variable[1], as an independent variable[2], and as an intermediate variable[3]. A few methodological issues are suggested.

1. Background

Despite continuing interests among sociologists, demographers, and economists

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1) S. Winston, "Birth Control and the Sex Ratio at Birth," American Journal of Sociology, 38, (1932)
2) H. Weiler, "Sex Ratio and Birth Control," American Journal of Sociology, (Nov. 1959)
3) Mindel C. Sheps, "Effects on Family Size and Sex Ratio of Preferences Regarding the Sex of Children," Population Studies, 17, (1963)

in the effect of number and sex preference on the fertility level not only in the developing countries but also in the developed countries as well, no substantive amount of theories and methodological approaches have been advanced thus far.

Notable exceptions being the purely theoretical studies by S. Winston (1932)[1], H. Weiler (1959)[2], M. C. Sheps (1963)[3], and N. Keyfitz (1968, 1977)[4]. Weiler in his 1959 article noted above takes Winston to task for the latter's "fallacious" assertion that sex preference tends to increase, at least among the upper-class American families, the general sex ratio.

Going as far as to draw on Feller's probability theory, Weiler maintains that if families stopped further offspring if a son was born, the families with boy preference would make no more attempt to have another children. Whereas, others with no particular boy preference would make another and perhaps many more attempts before they actually end up with a boy. In a nutshell, Weiler's theory is that the families with a tendency for son preference would on the average have smaller number of children than those families with no boy preference.

In addition, Weiler also points out that assuming there exists at least a minimum level of sex preferences birth control practices would tend to decrease, contrary to what the ordinary men on the street would expect, rather than increase the sex ratio. That is, couples with no offspring or with only girls would hesitate or defer birth control while those with at least a male offspring would more likely to resort to birth control. Therefore, the boy

4) Nathan Keyfitz, Introduction to the Mathematics of Population, Addison-Wesley, Reading (1968); pp. 379-384; Applied Mathematical Demography, John Wiley, New York, (1977), pp. 335-344.

5) W. Feller, Probability Theory and Its Applications, John Wiley, New York (1952). As for the effects of practising the stopping rule by the parents in the situation where they have different probabilities of producing boys, a simple calculation of the difference between the harmonic mean of a set of positive numbers and their arithmetic mean could be made:

$$\frac{\Sigma Pi}{n} - \frac{n}{\Sigma \frac{1}{Pi}}$$ where Pi is the probability of having a boy on an ith birth and n the number of families forming a population in question. For a work related to this subject, refer to D. Smith, "Generating Functions for Partial Sex Control Problems," Demography (Nov. 1974).

preference coupled with the birth control practices would exert a downward pressure on the total number of children.

On the other hand, Sheps (1963) theorizes that the level of son preference has a positive effect on the total family size. He notes that if there were no sex preferences the smallest family size would be achieved, and the next smallest family size will be achieved when the preference is for equal numbers of each sex, and the maximum family size is reached when the couple's desire is to have at least n numbers of one sex only, either it be male or female. According to Sheps' theory, girl preference, if ever it does exist, poses a problem as much as boy preference as far as the theory is concerned, mutatis mutandis.

Moreover, he adds that in theory female preference would pose a problem greater than that would be posed by male preference, since the probability of a female birth is less than that of a male birth. At this point, however, it appears that Sheps does not take into account the fact that, with a few exceptions[6], the infant mortality rate for male is usually higher than that for female.

The implication here is that ordinarily the effect of high sex ratio at birth tends to be neutralized by the high infant mortality rate of male children within a one-year period from the birth.

To cite a case of differential infant mortality rate by sex, in Korea[7] for the period 1955-1964, the male infant mortality rate for the first born stood at 64.5 in contrast to 54.1 for the first-born female, whereas for the second to fourth-born children, the infant mortality rate stood at 62.6 for male and 42.4 for female. A similar situation obtains for the 1965-1974 period during which period for the first-born, the infant mortality rates for the male and the female dropped to 44.7 and to 27.9 respectively, which still registers a substantial difference.

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6) An extreme case of son preference is found in India where, mainly due to a high son survivorship motivation, the mortality of male children is lower than that of female children, an exceptional demographic phenomenon rarely found in other countries. For discussions related to this matter, readers are referred to Pravin M. Visaria's "The Sex Ratio of the Population of India," unpublished Ph.D thesis of Princeton University (1963).

7) B.T. Park, Infant and Childhood Mortality in Korea, Korea Institute for Population and Health, Seoul (1980). C.B. Park, B.T. Park, Infant Mortality Rate in Korea, Seoul, (1981), p. 34.

Again for the second to fourth-born children for the 1965-1974 period the male infant mortality reached the 42.8 level in contrast to the 34.1 level for the female counterpart, and for the fifth and higher-order births, the rate stood at 55.9 for the male and at 46.6 for the female. The foregoing; rather lengthy discussion pinpoints that, aside from rare exceptions[8], girl preference cannot pose a serious problem, and even if it does, its fertility impact cannot be of a serious concern because of the high male infant mortality rate[9].

Discussing the sex preference issue from the economics side, Yoram Ben-Porath et al (1976)[10] say that the fertility effect of sex preference is statistically significant attesting to the fact that the higher the proportion of surviving boys the longer are the subsequent birth intervals. However, they maintain that the relationship between the couple's fertility preferences and their family size varies, depending on whether the determinant of the fertility preferences is difference in tastes or in price. If it is tastes difference that matters and if the demand for one particular sex is price inelastic then there will be a higher tendency to go on, but if what matters to the couple is price difference and differences in the economic costs or benefits have an over-riding influence on the couple's decision on their family size, then this price elasticity for children would have a depressing effect on the resulting family size even under the condition where the prices of both sexes of children are not more equalized.[11]

Along with Keyfitz (1968), K. R. Widmer et al (1981)[12] demonstrate that where the birth control practices are prevalent, sex preference, in theory,

8) The female preference was observed among Spanish-origin women in the United States, according to a 1973 data. In parts of the Philippines and in Bogota, Colombia, a stronger girl preference has also been found--Nancy E. Williamson, "Boys or Girls? Parents' Preferences and Sex Control," Population Bulletin, Vol. 33, No. 1 (1978), p. 12.

9) Even the male fetal mortality is higher than that of the female fetus though the sex ratio at birth remains higher (104 to 107 boys to every 100 girls born). But what is crucial here is not so much the biological factors governing the sex preference as the socio-cultural contraints affecting the son preference.

10) Y. Ben-Porath, F. Welch, "Do Sex Preferences Really Matter?" Quarterly Journal of Economics, (May, 1976).

11) Y. Ben-Porath, F. Welch, "On Sex Preferences and Family Size," Research in Population Economics, Vol. 2, Jai Press, Greenwich. (1980), p. 395.

12) K. R. Widmer, G. H. McClelland, C. A. Nickerson, "Determining the Impact of Sex Preferences on Fertility: A Demonstration Study," Demography, (Feb. 1981).

decreases intended fertility only if couples avail themselves of the stopping rule at a risky point where they have to choose one but not both of the sex compositions (B + 1 or G), (B, G + 1).

Widmer and his co-workers' study reveals that for some, the sex preference results in a net increase in fertility while for others the effect is a net decrease, which translates into a generalization that at the individual level the preference effects are pervasive though at the population level the preference effects are of negligible importance.

After all the thrust and parry between those who claim that the sex preference has positive effect on the fertility level and those who assert that it exerts negative effect on the ultimate family size, we are left in a rather unpalatable situation of having to work out what the probable effects of the son preference on the fertility would be.

In the first place, even if we follow Weiler's a mere thought experiment on the negative effect of sex preference on fertility, we still face the difficult task of having to explain the psychic and the socio-cultural factors promoting the parental son preference attitude. Theories by Weiler and Keyfitz are based on the assumption that parents' biases against one or the other sex of their children (or their children to be) are strictly controlled by their rational calculations. Nevertheless, their purely theoretical claims do not take into account the diverse normative pressures to childbearing the parents are exposed to.

Undoubtedly, one cannot ignore the possibility that, on rare occasions, the parental sex preferences may cause people not to have any additional children despite the fact that current sex composition of their children is an undesirable one. In terms of a sheer probability, we may come across cases where couples stop having any more children (stopping rule) once they have achieved the sex composition of the children they desire.

But the question of primary importance is not the existence of the individual cases of those who practice stopping rule but the proportion of those who resort to the stopping rule in the total population, as against those who do not. This is not merely a thought experiment, the kind of experiment done by Weiler

in his criticism of Winston's argument that sex preference has a positive association with the family size.

What one has to look for is the prevalence of the parental son preference in a particular area, and then has to check the percentage of those who do practice, not have a favorable attitude toward, stopping rule. The point here is that there are as yet found, in many countries around the world, unbridgable gaps between attitude and behavior among the parents as far as their fertility behaviors are concerned[13].

In the next stage, one has to study whether the contraceptive methods and devices the parents use to practise the stopping rule are of a highest effectiveness. The effectiveness of contraceptive methods, whether it be the one associated with the physiological, the clinical, or the in-use efficiency, plays a vital role in that if the contraception is not effective there can be no stopping rule whatever. To repeat, even if the parents, after having achieved the number and the sex composition of the children they desire, wish to contracept, it would be of little avail to them if the contraceptive methods available are not effective.

In other words, if the sex preference is to have a depressing effect on the family size, the following two conditions should be met:

a) All those parents who have achieved the sex composition of the children they desire are assumed to resort to contraception, namely, the stopping rules are applicable to all these parents, and
b) The contraceptive methods, whether they are folk methods or surgical methods requiring sophisticated modern medical treatments, are assumed to be 100 per cent effective and free from any side effects.

Under the above two conditions can the effects of sex preference be negative to the ultimate number of children the parents will have. But are the two assumptions enumerated above viable ones even in the developed world not to speak of the developing countries? The answer appears to be apparently no.

13) One does not rule out the possibility here again that the parents' ideal number of children (attitude) may exceed the number of children they in fact have (behavior).

Take, for instance, the first condition. We are told that the degree of son preference is negatively associated with the social status of women in the society. Several researches in this field indicate that in countries like the Philippines and Thailand weak son preference is noted for the relatively high status of women. This testifies to the fact that the strength of son preference can be reduced to the degree that the couples, particularly women, can successfully oppose the normative pressure of the society prevailing. The individual couples have their own private interest. There is reason to believe that often times both the attitude and behavior which the individual couples have or take in their private interest may not have a positive result for the society as a unit.

In this instance, the individual couples either will have to adjust their private interest to the societal good or attempt to adjust the societal interest to their private interest. It would be ideal if the couples can adjust the societal interest to the best of their private interest, thus successfully overcoming the many normative societal pressures weighing heavily on them.

In the developing as well as in the un-developed countries, if not in the developed countries, it would take the individual couples an Herculean effort to resist the social pressures surrounding them. They realize that it is in the self-interest of their family not to have any more children, once they have achieved the number and the sex composition they desire, but the socio-cultural environment controlling their community and society will urge them to "go on" as far as they can, even against their own individual self-interest.

The crucial elements that enter into the individual couples' fertility decision-making originate not so much from the individual couples but, to a large extent in the developing world, from the societal goal that may or may not be the same, even if complementary to each other.

Knowing that the son preference phenomenon is socio cultural, not biological, in its very nature, let us take one or two cases depicting the social environment for son preference. In the United States, parents who want one child of each sex want[14] to have boy first and of those who desire odd number of children

14) Nancy E. Williamson, Sex preferences, Sex Control, and the Status of Women," in Junita H. Williams (ed.), Psychology of Women; Selected Readings, W. W. Norton, New York (1979) p. 303.

most answered they would rather have more boys than girls. Clare and Kiser (1951)[15] found that among U.S. wives, the sex of children was an important determinant of fertility when their first child or first two children were not of the sex preferred and that in the 1941 Indianapolis study about 48 per cent of the fathers wanted their only child to be a boy and 42 per cent of them stating no sex preference for an only child.

A representative case of son preference is that of Korea which has been well documented by Cha et al (1973)[16], Chung et al (1972)[17], Kwon (1976)[18], Williamson (1978), and Lee et al (1979a, 1979b)[19].

The intensity or the strength of son preference in Korea is evidenced by the fact that in the 1976 national fertility evaluation survey[20], as much as 61 per cent of the total 6,020 women surveyed replied that they must have at least one son, and in the rural region almost half (48 percent) of the women interviewed said that they would continue to have daughters, whatever their numbers, until they achieve the number of sons they desire. In the urban region, only 25 per cent of the urban women had the same answer.

In a 1976 survey of four fishing, farming, and mountainous villages and of a town (Kwon, 1976) it was found that in the fishing and farming villages, more than 80 per cent of the respondents were willing to have additional children after having three daughters but not a son. As much as 70 per cent of them were ready to go on to the sixth daughter to have a son, however in the

15) J. E. Clare, C. V. Kiser, "Social and Psychological Factors Affecting Fertility," Milbank Memorial Fund Quarterly, Vol. 29, (1951), p. 484.

16) J. H. Cha, C. J. Kong, U. O. Lee, "A Report on the Construction of Male Preference Scale," KIRBS Research Notes, No. 6 (SR-7), (May, 1973)

17) B. M. Chung, J. A. Palmore, S. J. Lee, S. J. Lee, Psychological Perspectives: Family Planning in Korea, KIRBS, Seoul, (1972)

18) T. H. Kwon, "Attitudes Toward Number and Sex of Children in Korean Communities," in Lado T. Ruzicka (ed.), The Economic and Social Supports for High Fertility, Proceedings of the Conference held in Canberra, Nov. 16-18, 1976.

19) a) S. J. Lee, J. O. Kim, The Value of Children, A Cross-national Study, Vol. 7 (Korea), East-West Center, Honolulu, (1979)
b) S. J. Lee, J. O. Kim, C. S. Chung, C. W. Lee, "Sex Preference Socialization-A Study on Population Socialization," (draft), KIRBS, Seoul, (1979)

20) B. T. Park.et al, The 1976 National Fertility and Family Planning Evaluation Survey, KIFP, Seoul, (1979)

town area, the son preference attitude was a little less strong than was observed in the non-town areas.

As has been described by Cha et al (1975)[21] and Williamson (1978), as recently as the mid-1950's, as much as 50 per cent of the women in the rural area interviewed in a survey reported that they would not mind if their husbands took concubines to secure a male heir. The survey also reported that roughly 25 per cent of urban women interviewed would allow their husbands to have concubines, if it is for the purpose of having a son.

Therefore, it would seem that in Korea the social and the psychological pressure a son-less woman has to suffer would urge her to continue to have children until a son is born.

As for the second condition, the contraceptive effectiveness, we would be expecting too much if we assume that every method that women resort to is thoroughly effective in the present situation where even the contraceptive availability itself is in question in most of the countries where the parental son preference is prevalent.

2. Data and Methods

The data on which this study is based come from a survey of 832 currently married women residing with their husbands. The sampled women are in the age bracket of 15-49 years and are all residents of the Kyongsang Pukto Province. Along with the 832 women, a much smaller sample of their husbands, 389 in total, were interviewed in July, 1981.

The sampling was done in such a manner that it could best capture the areas surveyed in the 1974 World Fertility Survey-Korea (WFS/K), since the research was primarily designed to gauge the amount of change in the extent of son preference prevalence in the survey area. However, it should be borne in mind that this research is not a follow-up study of those women interviewed in the

21) J. H. Cha, B. M. Chung, S. J. Lee, Male Preference in Korea, KIRBS, Seoul, (1975), p. 11.

1974 survey, indicating that care should be taken in interpreting the results of the present data in comparison with those of the 1974 WFS/K.

An initial attempt was made to do a follow-up survey of the women covered in the 1974 WFS/K, but due to the small number of the 1974 respondents that could be tracked down in the sampled area, the researcher had to, in the current study, interview not only the limited number of women who participated in the 1974 survey but also a larger number of the those residing in the same areas as the 1974 interviewees were.

The sample areas are divided into one urban region, three rural regions, and one semi-urbanized rurban region[22]. The three rural areas are selected, among other areas within the Kyongsang Pukto province, because of their ultra-conservativeness in the old Confucian tradition which is believed to be directly related to a strong son preference. The semi-urbanized area is selected from among the intermediate-size cities within the province that have achieved a form of socio-economic development and yet where the traditional Confucian mode of thought still has a strong hold. The urban region is a large city with a substantial level of socio-economic development.

Table 1. shows the age distribution of the female respondents by region.

The average mean age of the respondents in the survey was 35.5, and as Table 1. indicates in the urban region, respondents are younger than their counterparts in the rurban and in the rural regions. There is observed about a two-year difference in age between the urban and the rural areas.

To control for size difference of each sampling unit, the researcher employed the two-stage stratified sampling method. Three rural areas least exposed to urban influence, one medium-sized city and one large urban area were selected as the primary sampling units. Out of the three rural counties were then selected 12 natural villages consisting at least of 30 households. The sampling was done in a manner that all the natural villages sampled are the ones visited by the 1974 WFS/K interviewers. The medium-sized city was subdivided into five

22) The urban region is Taegu, and the three rural regions and one rurban area are Yongchon, Chongdo, and Songju and Andong respectively.

Table 1.

Age Group	Area		
	Urban	Rurban	Rural
20-24	20 (6.7)*	9 (4.7)	13 (3.9)
25-29	59 (19.7)	43 (22.4)	62 (18.6)
30-34	84 (28.0)	37 (19.3)	64 (19.2)
35-39	50 (16.7)	43 (22.4)	56 (16.8)
40-44	50 (16.7)	41 (21.4)	84 (25.1)
45-49	37 (12.3)	19 (9.9)	55 (16.5)
Total**	300 (100.0)	192 (100.0)	334 (100.0)
Mean age	34.7	35.2	36.5

sampling units whose size corresponded to the administrative unit, Dong, and the large city was subdivided into eight sampling unit of 40 households each. Again, both in the urban and semi-urbanized medium-sized city, care was taken that the sampled units are the areas covered in the 1974 national survey.

Table 2. illustrates the age distributions of the present survey respondents vis-à-vis those of the 1974 WFS/K survey for the Kyongsang Pukto province and for the nation as a whole.

In Table 2, when compared with the age distribution of the age distribution of the 1974 data for the Kyongbuk province, the 1981 survey age distribution has proportionately smaller number of women in the 20-24 age bracket, and none at all in the 15-19 age category. That is, the women in the 20-24 age group are undersampled. Again, the proportion of respondents in the 35-39 age category for the 1981 survey are also under-represented, when compared with the 1974 WFS surveys for the Kyongbuk area and for the national level.

* In the parentheses are percentages.

** Excluded from the table are 6 respondents in the rural region whose ages were either unidentified or in the bracket 15-19.

Table 2.

Age bracket	1981 survey		WFS (Kyongbuk)		WFS(nationwide)	
	number	per cent	number	per cent	number	per cent
15-19	–	–	6	0.8	55	1.0
20-24	42	5.0	82	11.2	554	10.2
25-29	164	19.7	145	19.8	1,171	21.6
30-34	185	22.3	133	18.1	1,078	19.9
35-39	149	17.9	139	19.0	1,022	18.9
40-44	175	21.1	120	16.4	867	16.0
45-49	111	14.0	108	14.7	673	12.4
Total	826	100.0	733	100.0	5,420	100.0
Mean age	35.5		34.6		34.2	

The fact that in the 1981 survey the women aged 40-44 years are over-represented is demonstrated by the higher mean age of the 1981 survey respondents. There is more than one year difference in the mean age between the 1981 and the 1974 survey. Aside from the negligible differences in the younger and older age distributions, the 1981 survey and the 1974 WFS Kyongbuk area survey do not differ from each other in terms of comparability despite that the two surveys are not of longitudinal nature.

For data analysis multiple regression analysis is used to indicate the contributions each variable makes to the explained variance in the dependent variable, namely the change in the extent of son preference among the women surveyed, and to find out how the individual contributions of each factor are modified by the addition of other independent variable(s).

One caveat should be entered here. When the variable such as Coombs scale (IS) value which is dichotomous categorical data is used as a dependent variable in the usual linear regression analysis, the results are likely to be biased since the categorical dependent variable may not be normally distributed with

the independent variable. If this is so, the resulting coefficient and standard errors will not be consistent. To obviate the difficulties arising from dichotomous categorical variable the logit model as advocated by Goodman (1978)[23] could be utilized. However, the present analysis in the main relies on the linear regression (OLS) method as a preliminary approach to the further in-depth analysis of the data to be digested with the help of the log-linear model so that the results from the present study could be compared with those to be obtained in the yet more sophisticated forthcoming log-odds analysis.

One other reason that the researcher at this stage of the analysis hesitates to utilize the logit model has to do with the fact that in the logit model, the number of variables that can be handled simultaneously is severely limited, since the cross-tabulation of the variables for each category to be entered in the equation is the very first requirement for such analysis.

An attempt is made to unravel the causal chain leading to the extent of son preference by means of the path analytic approach. The path diagram shows the main direct and indirect linkages in the sequence leading from the independent variables to the dependent variable.

3. Findings

The basic assumption underlying the parental son preference, with few exceptions, is that the parents want to have a boy carry on their family name, and this assumption at least in Korea is confirmed by the 1981 son preference study.

As much as 69.7 per cent of the total 832 female respondents answered that the most important reason for wanting a son is that a son can continue the family tradition, and 13 per cent said they want a son because they can rely on him in the old age. Over 50 per cent of them insisted they must have a son and that it is extremely important to have one boy in the house. Only negligible

23) L. A. Goodman, Analyzing Qualitative/Categorical Data: Log-Linear Models and Latent-Structure Analysis, Addison-Wesley, London, (1978).

1.2 per cent (10 out of 832) answered they do not mind even though they do not have a son.

Table 3 shows a few characteristics of the respondents in terms of the number of children ever-born, the number of children alive, and the number of boys surviving.

Table 3.

Number of children	Children ever-born		Children alive		Boys surviving	
	number	per cent	number	per cent	number	per cent
0	29	3.5	32	3.8	123	14.8
1	86	10.3	84	10.1	309	37.1
2	176	21.2	194	23.3	276	33.2
3	228	27.4	241	29.0	96	11.5
4	150	18.0	155	18.6	20	2.4
5	79	9.5	72	8.7	7	0.8
6+	84	9.6	54	6.4	1	0.1
Total	832	100.0	832	100.0	832	100.0
Mean number	3.2		3.0		1.5	

Table 4 represents the distribution of the number of children ever-born by mother's age at the time of survey.

The total number of children ever-born has been on the continuous decline since 1966 where it stood at 3.8. That figure declined to 3.7 in 1970 and again to 3.6 in 1974. The ideal number of children in this survey was 2.9, a figure slightly higher than the 2.8 level reported in the 1976 family planning evaluation survey but lower than the 3.2 level of the 1974 WFS/K survey for the whole country. Over 50 per cent (52.3) of the respondents of the present survey reported three children are ideal, whereas 28.8 per cent of them said two children are ideal and 17.9 per cent said four and more children are ideal

Table 4.

Number of children ever-born	Age category					
	20-24	25-29	30-34	35-39	40-44	45-49
0	40.5%	4.9%	0.5%	—%	0.6%	1.8%
1	42.9	27.4	6.5	2.7	3.4	0.9
2	14.3	45.7	35.1	14.1	2.9	3.6
3	2.4	20.7	38.9	41.6	28.0	9.0
4	—	1.2	13.5	22.8	31.4	28.8
5	—	—	3.8	12.1	17.7	19.8
6+	—	—	1.6	6.7	16.0	36.0
Total (N)	100.0 (42)	100.0 (164)	100.0 (185)	100.0 (149)	100.0 (175)	100.0 (111)
Mean number	0.8	1.9	2.8	3.5	4.1	4.9

for them.

Seventy per cent of the respondents (793) who gave birth to at least one child said they wanted their first child to be a boy, and 27.5 per cent wanted to try for a boy, regardless of the number of daughters that would be born in between. About 32 per cent replied they would stop trying for a boy if they have three daughters in a row with no son.

As for the intensity of their son preference compared to that of their husbands, 31 per cent reported their strength of son preference is greater than their husbands' while 21 per cent said their's is weaker than their husbands' son preference strength. When compared to the situation 10 years ago, 51.6 per cent of the respondents agreed that the parental son preference has become considerably toned down, while 25 per cent was of the opposite opinion.

To gauge the degree of son preference, the Coombs number (IN) and sex (IS) scale values were employed[24]. The Coombs scale originally developed by

24) Lolagene C. Coombs, Are Cross-cultural Preference Comparisons Possible/A Measurement-Theoretic Approach, IUSSP Papers No. 5, Liège, Belgium (1975).

C. H. Coombs, G. McClelland and L. C. Coombs at the University of Michigan has values ranging from 1 to 7[25], with the value IS 1-3 denoting girl preference, IS 4 a preference for balance, and IS 5-7 boy preference. The IS scale value 6-7 represents a strong boy preference.

Table 5 is an illustration of the IS scale value distribution from the 1981 son preference survey compared with that from the 1974 WFS/K survey for the Kyongbuk province. Also shown are the Coombs number (IN) scale values from both surveys.

The IS value for the 1981 son preference survey in Table 5 (1) shows that the proportion of those respondents whose IS scale value is 5 is about twice that of those with the IS value of 6. That is, in 1981 survey, the number of the women who prefer the one-son two-daughter combination if they cannot have two-son one-daughter combination is far greater than the number of the respondents who would rather prefer the three-son no-daughter combination if

Table 5. (1)

IS value	1981 survey	1974 survey (Kyongbuk)
1	0.7%	0.1%
2	1.0	0.3
3	1.6	1.2
4	11.7	3.2
5	53.7	41.6
6	27.4	46.0
7	3.9	7.5
Total (N)	100.0 (823)	100.0 (731)
Mean IS value	5.18	5.54

25) The original IN and IS values range from 1 to 8, but the original values 4 and 5 are collapsed into each other since the two values represent a mere difference in metric relations which is of no concern here.

Table 5. (2)

IN value	1981 survey	1974 survey (Kyongbuk)
1	0.3%	0.3%
2	8.4	9.0
3	11.8	11.2
4	33.2	22.1
5	35.4	36.0
6	9.2	16.8
7	1.8	4.5
Total (N)	100.0 (823)	100.0 (731)
Mean IN value	4.30	4.53

their first choice of the two-son one-daughter combination cannot be realized. The reverse situation obtained in the 1974 WFS/K survey for the Kyongbuk province where the respondents prefering the IS value of 5 (41.6%) were smaller in number than the respondents with the IS value of 6 (46.0%).

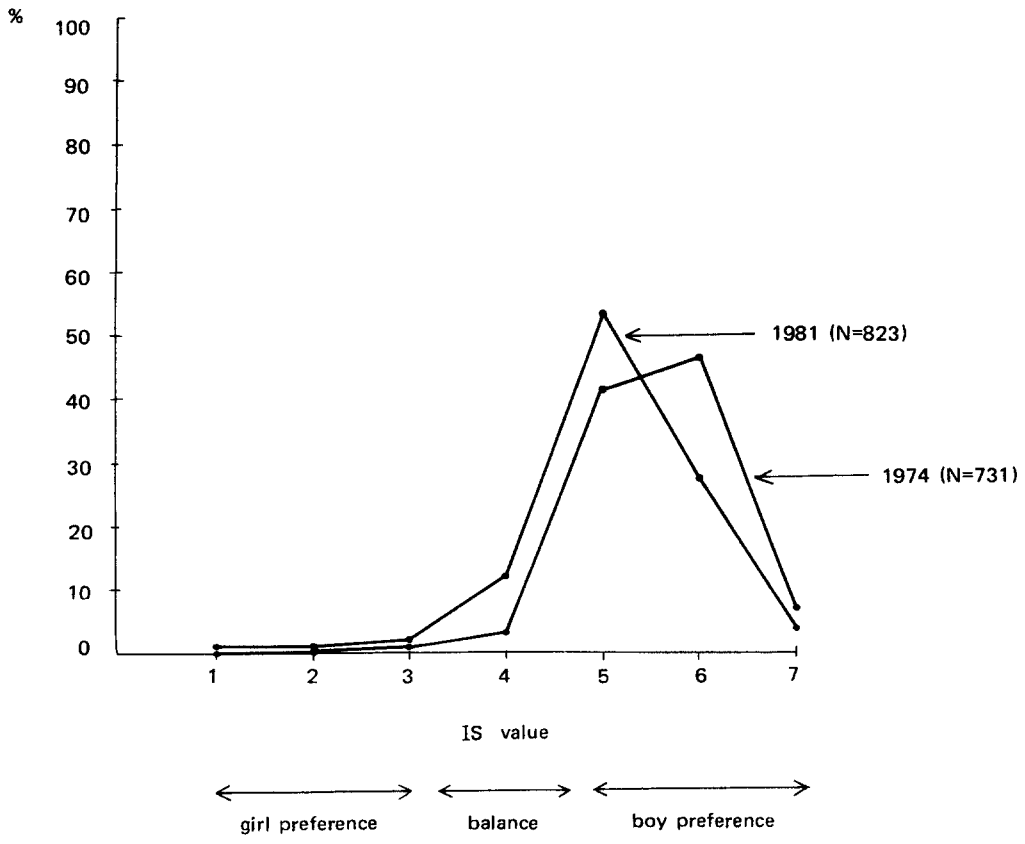
An objection may be raised here in connection with the comparability of the results from the 1981 survey with those from the 1974 Kyongbuk area survey, since the former is not a longitudinal study of the 1974 WFS survey. Nevertheless, if one takes into account the fact that the 1981 survey covered the very areas studied during the 1974 survey and parts of the interviewees for the 1981 study were the very ones covered in the WFS survey, the data from the two surveys can be compared with each other without loss of much information.

The shift toward the lesser degree of son preference as described in Table 5 (1) for the 1974-1981 period is all the more remarkable in view of the fact that the mean age of the women surveyed in the 1981 study is higher than that of the 1974 survey by a 0.9 point, almost a year difference (refer to Table 2), even if in the 1981 survey a slightly greater proportion of women aged 30-34 is sampled, as compared with the 1974 survey. It appears that the degree of son

preference is wanting primarily due to the shifts in the respondents' underlying preference as represented in Fig. 1(a).

The extent of shift in the IS value is, however, greater than that of the shift in the IN scale value when we compare Fig. 1 (a) with Fig. 1 (b). During the seven-year period from 1974 to 1981, the amount of change in the IS value amounts to some 0.36 points, whereas the amount of change in the IN value is 0.23, and in the case of the IS value, the mode is shifting from 6 to 5, but in the IN value, the mode is still found in the value 5 both in the 1974 and in the 1981 surveys. This phenomenon may be interpreted as describing the trend that the respondents' number preference attitude is changing at a pace much slower than that of their sex preference attitude.

Figure 1 (a).



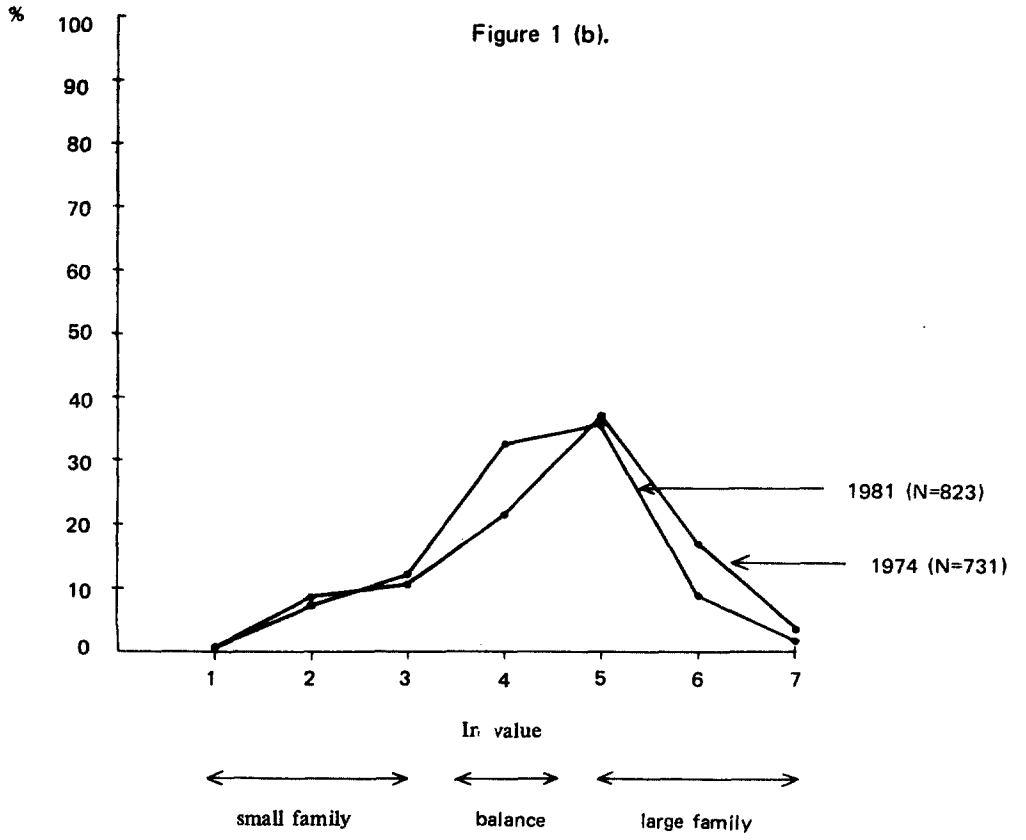


Figure 1 (b).

What all this amounts to is that the son preference attitude is undergoing an appreciable change, even if this attitudinal change has had, as some would have it, only a tenuous relation to the behavior of the respondents in terms of fertility.

According to the results from the 1981 survey, there does appear to be regional and educational differences in the extent of son preference as Table 6. indicates.

The son preference strength is stronger in the rural area than in the urban area, whereas in the rurban semi-urbanized area, the strength is the greatest. One of the important reasons that the strength is the greatest in the rurban area has to do with the artifacts in sampling, that is, the rurban area for this particular survey is the citadel of the old Confucian tradition, Andong City. One has also to take into account the relatively smaller number of respondents

Table 6 (1)

IS value	Rural area	Rurban area	Large urban area
1	0.6%	–%	0.3%
2	0.6	–	1.3
3	0.9	1.6	2.3
4	11.1	4.8	17.1
5	51.5	58.2	54.4
6	29.8	31.2	22.8
7	5.7	4.2	1.7
Total (N)	100.0 (334)	100.0 (189)	100.0 (298)
Mean IS value	5.24	5.32	4.99

Table 6 (2)*

IS value	No schooling	Primary school middle school graduates	High school** college drop-outs	College graduate school graduates
1	2.0%	0.2%	–%	–%
2	1.0	0.7	0.7	–
3	–	1.5	3.3	–
4	5.0	10.9	15.3	33.3
5	46.5	53.2	62.3	53.3
6	34.3	30.2	16.6	13.3
7	11.1	3.3	2.0	–
Total (N)	100.0 (99)	100.0 (543)	100.0 (151)	100.0 (30)
Mean IS	5.40	5.20	4.97	4.80

* Classified by wife's educational level

** High school graduates

-n interpreting the higher strength of son preference in the rurban area.

As regards the mother's educational differences in the strength of son preference, there is a negative association between the son preference strength and the educational level of the respondents. The greater the son preference, the lower the level of education. However, one has to note that as much as 66 per cent of the all respondents are either graduates of primary or middle schools.

The differentials in the son preference patterns and the probable change in the extent of the preference can be better gained if one studies the background characteristics of the respondents in the 1981 survey with those in the 1974 WFS/K survey for the Kyongbuk region in Table 7.

A number of interesting interpreations can be made from the data in Table 7. The IS scale value differences by region (current residence) point out that there is as much difference between the rural and the urban area in the 1981 survey (0.25) as the rural-urban difference in the 1974 survey (0.31). Except for the rurban region in the 1974 survey where the number of cases are too small to draw any definite conclusions, all IS values of the 1974 survey are consistently greater than those of the 1981 study in all three regions.

In terms of the wife's educational level, excluding the small of number of cases of those respondents with college education, the educational differential of the IS values for the 1981 survey (0.43) is much smaller than those for the 1974 survey (0.7). The inference here is that in the recent years, the gap in the extent of the parental son preference is getting narrower, probably due in part to the socioeconomic development of the area under study.

Both in terms of wife's education and husband's occupation (current), the IS scale values are also found to be consistently greater for the 1974 survey than are observed for the 1981 survey. Occupationwise, the largest IS value for the 1974 survey is found among those engaged in agriculture, and the largest value for the 1981 survey among unskilled workers and farmers.

Clerical workers and those in the service field have the smallest IS values in the 1974 survey, while in the 1981 son preference study, the smallest IS values are found among the professionals and skilled workers.

Table 7.

Background characteristics	1981 survey		1974 WFS	
	IS values (mean)	Total (N)	IS values (mean)	Total (N)
1. Current residence				
a. rural	5.24	(334)	5.71	(482)
b. rurban	5.32	(189)	5.34	(59)
c. urban	4.99	(298)	5.40	(181)
2. Wife's education				
a. no schooling	5.40	(99)	5.80	(271)
b. primary school	5.20*	(543)	5.45	(306)
c. middle school	–	–	5.27	(73)
d. high school	4.97**	(151)	5.10	(60)
e. college	4.80***	(30)	5.20	(10)
3. Husband's occupation				
a. professional	4.85	(65)	5.42	(53)
b. clerical	5.13	(115)	5.21	(42)
c. no work	5.43	(35)	–	–
d. agriculture	5.22	(285)	5.73	(288)
e. sales	5.17	(140)	5.46	(83)
f. service	5.10	(55)	5.21	(33)
g. skilled worker	4.93	(55)	5.39	(147)
h. unskilled laborer	5.47	(36)	5.58	(31)
i. live-stock farming	–	–	5.55	(53)
4. Number of children alive				
0	4.84	(32)	5.35	(63)
1	5.00	(84)	5.27	(99)
2	4.98	(192)	5.39	(100)
3	5.18	(237)	5.39	(141)
4	5.29	(153)	5.74	(136)
5	5.44	(72)	5.69	(99)
6	5.28	(40)	5.80	(65)
7+	5.75	(12)	5.79	(38)

* includes middle school drop-outs and graduates

** includes college drop-outs

*** includes graduate school graduates

Table 7 Continued.

Background characteristics	1981 survey		1974 WFS	
	IS values (mean)	Total (N)	IS values (mean)	Total (N)
5. Number of sons alive				
0	4.83	(123)	5.34	(118)
1	5.08	(306)	5.43	(204)
2	5.24	(271)	5.54	(229)
3	5.67	(95)	5.82	(130)
4	5.45	(20)	5.89	(37)
5+	4.93	(8)	5.64	(11)
6. Number of sons ever-born				
0	4.82	(116)	5.37	(104)
1	5.05	(296)	5.39	(180)
2	5.23	(260)	5.49	(204)
3	5.59	(107)	5.78	(153)
4	5.53	(32)	5.69	(55)
5+	5.17	(12)	5.97	(34)
7. Number of children ever-born				
0	4.83	(29)	5.37	(51)
1	4.99	(86)	5.22	(87)
2	4.95	(174)	5.36	(92)
3	5.17	(224)	5.49	(113)
4	5.27	(148)	5.58	(113)
5	5.36	(79)	4.77	(109)
6	5.54	(57)	5.75	(71)
7+	5.46	(26)	5.82	(89)
8. Contraception status				
a. currently pregnant	–	–	5.32	(72)
b. contracepting	5.10	(329)*	5.42	(193)
c. non-contracepting	5.21	(289)	5.52	(287)

* excludes those who underwent tubectomy and those whose husbands went through the vasectomy operation.

Aside from the socio-economic variables discussed thus far, the IS value differences in the following demographic variables will help shed a light on the general pattern of the change in the extent of son preference during the 1974-1981 period.

By checking the general distribution of the IS scale values for the four demographic variables (4 through 7 in Table 7) we notice that the strength of the parental son preference is on the gradual decline, both in the cross-sectional and in the semi-longitudinal (if the 1981 survey is not the exact duplicate of the 1974 survey, its results are still comparable with the 1974 WFS survey result in terms of the age distribution of the respondents and the sample size as shown in Table 2) sense.

All values in the 1974 survey are greater than those in the 1981 survey, and reading Table 7 from the top downward, one finds that the IS scale mean values increase as the number of children alive, the number of sons alive, the number of sons ever-born, and the number of children ever-born increase. At face value, one may be misled to interpret that the greater the number of children (sons) ever-born or the greater the number of children (sons) alive, the greater the strength of the parental son preference is. But apparently here, the age factor of the respondents is working as an artifact masking the extent to which the son preference attitude among the parents has been undergoing a consistent change.

Since the women in the older-age bracket at the time of survey must have a greater number of children (sons in certain cases) either ever-born or still alive, it is reasonable to expect that these older women would have stronger son preference attitude as compared with those in the younger age-category. That is, the mean IS scale values for the older women should be greater than those for the younger age group.

Only by comparing each other the results from the 1981 and the 1974 surveys both of which used exactly the same questionnaire items for the Coombs sex-bias distributions can one obtain a rough picture on the trends in the parental

sex bias[26].

Table 8 is a cross-tabulation of the 1981 IS values by the 1981 IN values, which again explains the same demographic phenomenon that the older the respondents' age (that is, the greater the number of children they have), the greater is the strength of their son preference.

Table 8.

IS values	IN values						
	1	2	3	4	5	6	7
1	—	1.6%	—%	—%	—%	2.6%	—%
2	—	1.6	1.0	1.5	—	—	—
3	—	4.7	4.1	1.5	0.7	—	—
4	—	18.8	7.2	14.3	11.6	3.9	—
5	—	54.7	67.3	58.6	51.7	36.8	13.3
6	—	17.2	20.4	21.2	32.5	46.1	53.3
7	—	1.6	—	2.9	3.4	10.5	33.3
Total (N)		100.0 (64)	100.0 (98)	100.0 (273)	100.0 (292)	100.0 (76)	100.0 (15)
Mean IS value	—	4.81	5.02	5.02	5.26	5.50	6.20

In Table 8, apparently, the parents favoring the large family size have stronger son perference, and this very fact proves that the change in the IN values goes in tandem with that in the IS values even if one does not yet know whether the one precedes the other or the two change simultaneously. As described in Tables 5 and 7, it is apparently unequivocal that the IS values do change, and did change appreciably during the 1974-1981 period when the socio-economic

26) Apparently, some confusion arises here concerning the usage of the term 'sex preference' for what should be termed 'gender preference.' Sex has to do with the reproductive or sexual behavior related to an individual biological sex, while gender is associated with socio-cultural behavior (learned but not given) based on masculinity or femininity. See, for instance, L. Davidson, L. K. Gordon, The Sociology of Gender, Rand McNally, Chicago, (1979), pp. 1-8.

development of the country had been the most rapid.

The next question is what factor or factors do contribute the most to the overall change in the IS values, and in order to find out the answer to this question, a set of multiple regressions were run with the IS value as the dependent variable.

As has been previously mentioned, we could subject the 1981 survey data to three different sets of analyses; namely, 1) Goodman's log-linear or the logit model analysis, 2) the dummy-dependent-variable regression approach[27], and finally the ordinary least squares (OLS) method with or without variable value transformations (e.g. log transformation of either the dependent or the independent variables). It is believed that when the variables entered as the dependent ones are not very skewed and the split on the dependent variable is within the 0.25-0.75 range, the additive linear regression model yields basically the same results as those of the multiplicative log-odds model[28]

But in the present yet more preliminary analysis of the IS value changes, the researcher confines the data analysis to the ordinary least squares methods in an attempt to compare the results from the current study with those from the forthcoming log-linear approach.

Eight sets of multiple regression equations were run to learn of the contribution each individual variable makes to the variables to the right of them in the path diagram. The following are the standardized partial regression coefficients for the sets of variables entered in the eight regression equations.

The variable V.3 is coded 1 for the rural, 2 for the rurban, and 3 for the urban regions, hence is the inverse relationship between V.3 and V.7, the household size V.61 is coded 1 when the wife is subservient to the husband, 2 when there is observed a minimum amount of conjugal communication as to the sex and number combination of the children to be, and coded 3 when there is

27) For a dummy-dependent-variable approach, the readers are referred to N. K. Namboodiri, "Which Couples at Given Parities Expect to Have Additional Births? An Exercise in Discriminant Analysis," Demography, Vol. 11, (Feb. 1974).

28) J. Magidson, "An Illustrative Comparison of Goodman's Approach to Logit Analysis with Dummy Variable Regression Analysis," in L. A. Goodman, Analyzing Qualitative/Categorical Data, Addison-Wesley, London, (1978), p. 51.

Table 9

Predictor variables	Criterion variables						
	V.7	V.52	V.104	V.61	V.72	V.64	V.282
V.3	-0.11*	-0.16*	—	-0.17*	-0.22*	—	—
V.7	—	—	—	-0.01	-0.09*	—	-0.02
V.72	—	—	—	—	—	0.50*	0.06
V.104	—	—	—	—	—	-0.10*	0.07
V.52	—	—	0.14*	—	—	0.05	0.06
V.61	—	—	0.02	—	0.20*	-0.01	—
V.50	—	-0.38*	—	—	—	-0.08*	0.03
V.64	—	—	—	—	—	—	0.11**
R^2 values	0.01	0.23	0.02	0.03	0.10	0.30	0.04

* $p < 0.01$, ** $p < 0.05$

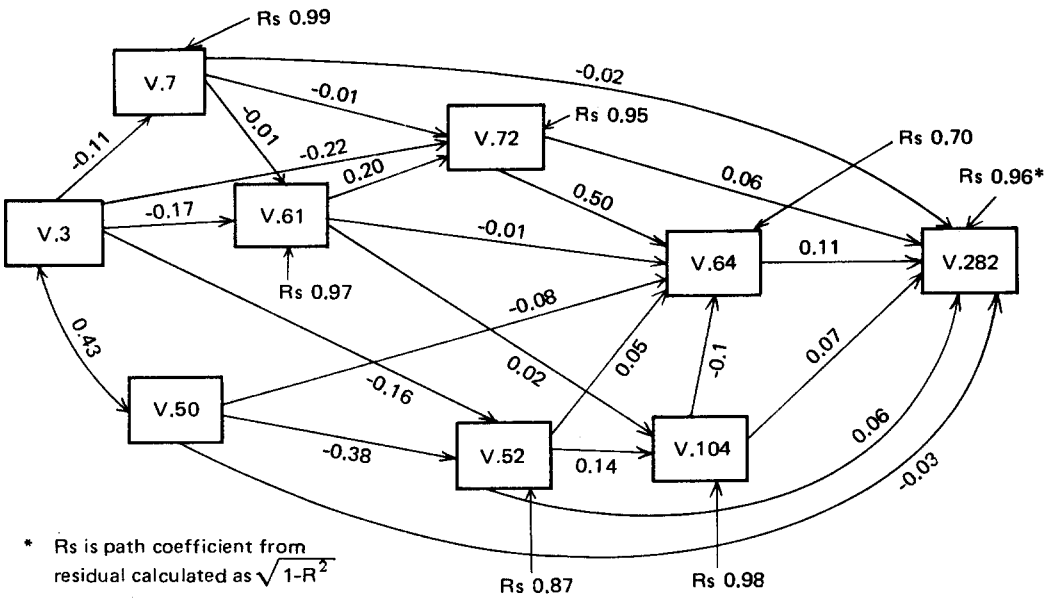
Fig.2 is the path diagram based on Table 9, and the individual variables specified in Table 9 are:

V3 --current residence
V.7 -- family size (total household size, not the number of children)
V.50 -- husband's educational level
V.52 -- newspaper readership
V.61 – conjugal communication
V.72 -- number of children ever-born
V.64 -- number of boys alive
V.104 -- contraception status (contracepting, non-contracepting)
V.282 -- IS son preference scale value.

* For V.3, 1 stands for rural, 2 for rurban, and 3 for urban.

** For V.49, 1 stands for those with no schooling or those who did not graduate from primary school, 2 for primary and middle school graduates, 3 for high school graduates and college drop-outs, and 4 for college graduates and graduate school graduates.

Figure 2.



a fairly high level of communication between the spouses and the wife is less submissive to the husband. As for V. 104, contraceptive users are coded 1 and non-users 2. For V. 282, the IS values ranging from 1 to 3 are codes 1 (no sex bias) and the IS values 4 to 7 are scored 2 (sex bias). This scoring method is tentamount to regressing only the IS values within the 4-7 range on the predictor variables, since there are few cases falling in the 1-3 category of the IS scale value. In the V. 52, those who read newspaper everyday on a regular basis are scored 1, those who never read newspaper are coded 4, and others in between 2 or 3 depending on the frequency of newspaper reading.

The path model represented in Fig. 2, however, explains only 4 percent of the variance in the dependent variable. It appears that either the model is grossly misspecified or the poor explanatory powers of the six predictor variables believed to directly influence the extent of the parental son preference (V. 282) have to do with the fact that the criterion variable V. 282 is dichotomous in nature.

Or, the parental son preference variable is of such a nature that even with a

highly sophisticated path model only a limited portion of its variance can be accounted for. In the above model, only V. 64 seems to have a slight influence even though its significance level is not much high. Also, the relationship between V. 3 and V. 61 is negative with its path coefficient's significance at a less than one per cent level.

Several alternative specifications using other variables (e.g. wife's age, wife's age at first marriage, the marital duration) have been reviewed, but the proportion explained in the dependent variable did not exceed the five percent level. Models employing the dummy dependent variable and the log-linear approach are forthcoming.

If the nature of the V.282 as a dependent variable cannot be fully accounted for, one can still search for the ways to explain the contributions the son preference variable makes as an independent variable. The extent and strength of son preference do influence the birth interval, since a different sex combination of the existing children is directly associated with the length of the subsequent birth interval. When the sex combination of the children alive is that of MMM, the fourth birth interval tends to be appreciably lengthened. When the sex combination is FFF, that very combination produces a kind of "bunching effect" as far as the childbearing is concerned.

Using the 1981 son preference data, an attempt has been made to gauge the difference in the length of birth interval with different sex combinations of the children ever-born. The changes in the length of the subsequent birth intervals (dependent variable) are explained by four predictor variables, namely, the current residence, wife's educational level, sex of the child born in the preceding birth interval, and wife's age at the time of the subsequent child birth. Since in the presence of strong interactions, the resulting scores from the MCA become meaningless, the analysis of variance and covariance has to be made. Table 10 shows the interactions between the four factors (covariates) entered in the analysis, under different sex combination of the child (children) alive.

Reviewing Table 10 one notices in both the second, the third and the fourth birth intervals alike, the two-way and the three-way interactions are uniformly

not significant, which indicates that the MCA approach can be made use of in this instance.

One other noteworthy feature in Table 10 is that in the second birth interval sex of the first child is not significant, whereas in the third and the fourth birth intervals, the sex combination of the first two and the first three children become significant, and the residence is not significant throughout.

Table 10.

Source of Variation	F Ratio	Significance level
(a) Second birth interval		
main effects	1.519	.169
residence (V.3)	2.307	.100
wife's education (V.49)	1.782	.149
sex of first child (V.157)	.232	.630
covariate	41.257	.001
wife's age at the second child birth	41.257	.001
two-way interactions	.960	.482
V.3 X V.49	.976	.440
V.3 X V.157	.511	.600
V.49 X V.157	1.181	.316
three-way interactions	.315	.929
V.3 X V.49 X V.157	.315	.929
(b) Third birth interval		
main effects	1.826	.070
V.3	.150	.861
V.49	1.175	.319
V.376 (sex combination of first two children)	3.688	.012
covariate	35.296	.001
wife's age at the third child birth (V.178)	35.296	.001
two-way interactions	1.298	.179
V.3 X V.49	.910	.487

Table 10. Continued.

Source of Variation	F Ratio	Significance level
V.3 X V.376	1.811	.095
V.49 X V.376	1.608	.131
3-way interactions	.683	.768
V.3 X V.49 X V.376	.683	.768
(c) Fourth birth interval		
main effects	2.778	.001
V.3	1.445	.238
V.49	2.764	.043
V.377 (sex combination of first three children)	2.870	.007
covariate	31.568	.001
wife's age at the fourth child birth O (V.189)	31.568	.001
2-way interactions	1.086	.350
V.3 X V.49	1.480	.197
V.3 X V.377	.744	.729
V.49 X V.377	1.162	.305
3-way interactions	1.025	.430
V.3 X V.49 X V.377	1.025	.430

Table 11 shows the MCA results for the three respective birth intervals.

As can be seen in Table 11, the sex composition (rather the sex of a child) of the first child does not seem to exert any significant influence on the subsequent second birth interval, since for those who had a boy as their first child, the second birth interval was 35.04 months, a slightly longer than that of those who had a girl for the first child.

However, in the third birth interval, the sex combination of the first two children already born do play a role. Those who had two sons in a row, the third birth interval was 39.60 months, as compared with 34.92 months for those whose first two children were all girls. In the third birth interval, the greater the number of boys the parents have, the longer are their third birth interval, which may be interpreted as saying that the parents do have a strong

Table 11.

Variable	N	Unadjusted interval	Eta value	Adjusted interval (month)	Beta value
		(a) Second birth interval			
		Grand mean: 2.90 (years)			
V.3*					
1	(304)	-.08		-.08	
2	(166)	.08		.08	
3	(243)	.04		.04	
			.07		.07
V.49**					
1	(95)	.14		.21	
2	(480)	-.03		-.01	
3	(115)	.07		-.05	
4	(23)	-.25		-.41	
			.08		.11
V.157					
Male (M)	(348)	.02		.02 (35.04)	
Female (F)	(365)	-.02		-.02 (34.56)	
			.02		.02
$R^2 = 0.067$					
		(b) Third birth interval			
		Grand mean: 3.16 (years)			
V.3					
1	(254)	-.00		.03	
2	(123)	.02		.02	
3	(157)	-.02		-.07	
			.01		.04
V.49					
1	(87)	-.05		-.09	
2	(366)	-.02		-.01	
3	(70)	.20		.20	
4	(11)	-.25		-.28	
			.07		.08

* For V.3, 1 stands for rural, 2 for rurban, and 3 for urban.

** For V.49, 1 stands for those with no schooling or those who did not graduate from primary and middle school graduates, 3 for high school graduates and college drop-outs, and 4 for college graduates and graduate school graduates.

Table 11. Continued.

Variable	N	Unadjusted interval	Eta value	Adjusted interval (month)	Beta value
V.376					
MM	(118)	.16		.14 (39.60)	
MF	(139)	.10		.09 (39.00)	
FM	(131)	.02		.05 (38.52)	
FF	(146)	-.24		-.25 (34.92)	
			.14		.14
$R^2 = 0.087$					
		(c) Fourth birth interval			
		Grand mean: 3.26 (years)			
V.3					
1	(164)	-.09		-.06	
2	(68)	.18		.15	
3	(76)	.02		.01	
			.09		.07
V.49					
1	(70)	.01		.02	
2	(206)	-.04		-.03	
3	(29)	.05		-.00	
4	(3)	2.08		1.93	
			.17		.16
V.377					
MMM	(27)	-.18		-.08 (38.16)	
MMF	(28)	-.26		-.17 (37.08)	
MFM	(34)	.33		.37 (43.56)	
FMM	(30)	.21		.26 (42.24)	
MFF	(45)	-.06		-.08 (38.16)	
FMF	(46)	-.28		-.32 (35.28)	
FFM	(46)	.50		.33 (43.08)	
FFF	(52)	-.26		-.20 (36.72)	
			.24		.21
$R^2 = 0.179$					

boy preference.

Again, it may be noted that the third birth interval of those with the MF sex composition is considerably longer than that of those with the FM sex composition, which also helps support the strong parental son preference.

In the fourth birth interval, the birth interval of those with the extreme FFF sex combination (36.72 months) is far shorter than that of those with the another extreme MMM combination (38.16 months). Another evidence of the lingering parental son bias is represented by the fact that the birth interval of those with the MMM sex combination is greater than that of those with the MMF combination, even if the total number of respondents in the two categories are too small to buttress the son preference claim.

That those with the FMF sex combination register the shortest fourth birth interval bespeaks the way the underlying sex preference affects the reproductive behavior of the individual women. Apparently, the fertility behavior, at least during the third and fourth intervals, relates directly to the son preference attitudes of the parents, even though there may as yet be many confounding factors in between that need to be explained in order to have a much clearer picture as to the extent the son preference attitude affects the reproductive behavior.

Excepting for the too limited case numbers (N=3) for the fourth category of the variable V. 49 for the fourth birth interval (note the large deviations (2.08 and 1.93) due to the smaller number), the MCA analysis throughout the second and the fourth birth interval provides us with a reasonable amount of confidence that the sex combination of children influences the subsequent fertility behavior, not to speak of the parental attitude. Again, in the fourth birth interval, the amount of variance in the dependent variable explained by the sex combination of the children (beta value of 0.21) is greater than the amount of variance explained by either V. 3 or V. 49. In all, the sex composition, together with the other two variables, explains some 18 per cent of the variance.

A number of studies have been done to prove that the sex combination of

existing children affects the subsequent fertility behavior of the individual women (Park, 1978; Park et al, 1979; Kang et al, 1981)[29]. However, in all these studies it still remains unanswered whether the main importance of the son preferenc variable is found only in its role as an intermediate variable as in the case of the age at first marriage[30].

For instance, Lee et al (1978) found in a path analytic approach that there is only a tenuous relation between the age at first marriage and the ultimate family size (here, it refers to the number of children ever-born), albeit the age at first marriage is very strongly related to the length of the first birth interval and to the childbearing tempo for at least the first and the second births.

4. Discussions and Summary

One of the important reasons that the influence of the parental son preference on the fertility behavior has evaded our attention so far has to do with the not-yet-well-recognized demographers' inborn (?) bias of studying fertility as an outcome ignoring the many processes involved before an outcome results as an end-product.

We focus our attention on the number of children, but rarely are we concerned about the timing of the individual women's first- second- and the higher-order birth either affected by the age at marriage or, in the present instance, by the sex composition of the present instance, by the sex composition of the children already born, namely by the parental son or girl preference whatever the circumstances may be.

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29) C. B. Park, "The Fourth Korean Child, the Effect of Son Preference on Subsequent Fertility," Journal of Biosocial Science, 10, (1978). C. B. Park, S. H. Han, M. K. Choe, "The Effect of Infant Death on Subsequent Fertility in Korea and the Role of Family Planning," American Journal of Public Health, (June, 1979). Y. J. Kang, B. M. Choe, Birth Interval Analysis, Korea Institute for Population and Health, (1981)

30) H. T. Lee, D. W. Han, Age at First Marriage and Fertility, Korea Institute for Population and Health, (1978). For related topics, see M. M. Marini, P. J. Hodsdon, "Effects of the Timing of Marriage and First Birth on the Spacing of Subsequent Births," Demography, (Nov. 1981), pp. 529-548.

An exception to this is the seminal study by L. Bumpass et al (1978)[31] in which they demonstrate that the age and the marital status at first birth (early motherhood or pre-martial conception) exert a strong influence on the pace of the subsequent fertility, the effects being particularly strong in the interval immediately following the first birth.

In this sense, it is more than appropriate that the son preference attitude of the parents should be shed a better light, since the change, however gradual that may be, in the underlying parental son preference attitude will invariably set certain constraints on the total number of children one ultimately will have.

As is clearly shown in Table 12 below, the son preference variable not only works influence as an intermediate variable but also as a direct causal independent variable as far as the additional number of children wanted by the parents (The figures in Table 12 are from the 1981 son preference survey preliminary data analysis) is concerned. Of course, if we view fertility as part of a family-building process, we need to know what different decision processes are involved for different individuals at each stage of family life cycle, since depending on the circumstances the attitude may or may not translate into behavior. But by focusing on the processes whereby the parental sex bias affects the timing of fertility, one can get a better picture of the individual fertility behavior and its change.

31) L. Bumpass, R. Rindfuss, R. Janosik, "Age and Marital Status at First Birth and the Pace of Subsequent Fertility," Demography, (Feb. 1978), pp. 75-86.

Table 12. Percentage distribution of the number of children additionally wanted by region and sex composition of children alive

Sex composition of children alive	Number of children additionally wanted							
	0		1		2		(N)	
	Rural*	Urban	Rural*	Urban	Rural*	Urban	Rural*	Urban
M	90.0%	75.0%	50%	33.3%	66.7%	40.0%	26	19
F	10.0	25.0	50.0	66.7	33.3	60.0	17	22
Total (N)	(10)	(12)	(30)	(24)	(3)	(5)	43	41
MM	39.3	38.0	11.1	11.8	—	—	32	29
MF	23.0	21.1	22.2	23.5	25.0	100.0	24	20
FM	32.4	36.6	25.9	23.5	—	—	31	30
FF	5.4	4.2	40.7	41.2	75.0	—	18	10
Total (N)	(74)	(71)	(27)	(17)	(4)	(1)	105	89
MMM	17.1	12.6	—	—	—	—	24	11
MMF	12.1	14.9	—	—	—	—	17	13
MFM	22.9	12.6	—	—	100.0	—	33	11
FMM	15.0	16.1	—	—	—	—	21	14
MFF	8.6	8.0	12.5	—	—	—	13	7
FMF	7.9	10.3	25.0	—	—	—	13	9
FFM	13.6	19.5	25.0	—	—	100.0	21	18
FFF	2.9	5.7	37.5	100.0	—	—	7	7
Total (N)	(140)	(87)	(8)	(2)	(1)	(1)	149	90

* The rural area includes semi-urbanized rurban area as well.