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Preferences for Number and Sex of Children and Contraceptive Use in Korea

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The WFS is being undertaken, with the collaboration of the United Nations, by the International Statistical Institute in co-operation with the International Union for the Scientific Study of Population. Financial support is provided principally by the United Nations Fund for Population Activities and the United States Agency for International Development. Substantial support is also provided by the UK Overseas Development Administration.

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Contents

PREFACE	5
ACKNOWLEDGEMENTS	6
1 INTRODUCTION	7
2 FERTILITY PREFERENCES AND CONTRACEPTIVE USE	8
2.1 Measurement of Fertility Preferences and Past Trends	8
2.2 Number Preference and Sex Preference	8
2.3 Relationship between Preferences and Contraceptive Use	9
3 FACTORS AFFECTING DESIRE FOR MORE CHILDREN	12
3.1 Demographic Factors	12
3.2 Background Characteristics	13
3.3 Socio-Economic Characteristics	13
3.4 Family Planning Programme Availability	19
3.5 Traditional Attitudes and Other Miscellaneous Variables	19
4 FACTORS AFFECTING THE USE OF CONTRACEPTION	20
4.1 Demographic Factors	20
4.2 Background Characteristics	20
4.3 Socio-Economic Characteristics	21
4.4 Family Planning Programme Availability	21
5 THE EFFECT OF FERTILITY PREFERENCES ON CONTRACEPTIVE USE	26
6 SUMMARY AND CONCLUSIONS	28
REFERENCES	29
TABLES	
1 Measures of Fertility Preferences for Currently Married, Non-Pregnant and Fecund Women	9
2 Relationships between Fertility Preferences and Contraceptive Use for Currently Married, Non- Pregnant and Fecund Women	11
3 Analysis of Variance Table for Hierarchical Regression of Desire for Future Births on Demographic and Background Variables	14

Contents (continued)

4	Per Cent of Currently Married, Non-Pregnant, Fecund Women who Want More Children by Selected Demographic and Background Variables, Unadjusted and Adjusted for Indicated Variables by Linear Regression	16
5	Analysis of Variance Table for Hierarchical Regression of Current Use of Contraception on Demographic and Background Variables	22
6	Per Cent of Currently Married, Non-Pregnant, Fecund Women Currently Using an Efficient Method by Selected Demographic and Background Variables, Unadjusted and Adjusted for Indicated Variables by Linear Regression	24
7	Per Cent of Currently Married, Non-Pregnant, Fecund Women Currently Using an Efficient Method by Measures of Number and Sex Preference, Unadjusted and Adjusted for Indicated Variables by Regression Analysis	26

Preface

A central concern of the World Fertility Survey programme is the provision of technical assistance for in-depth analysis of the data collected by the participating countries. A major vehicle for the provision of such assistance has been the organization of workshops on data analysis. These workshops play an important role in providing training to national researchers and at the same time help to promote and successfully complete second-stage analysis projects.

As part of this programme, the WFS and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) organized a Regional Workshop on the Application of Multivariate Analysis Techniques to the Analysis of WFS Data, which took place at the Asian Institute of Technology in Bangkok, Thailand, from 23 September to 23 November 1979.

The workshop was attended by eleven participants from six countries in the ESCAP region: Bangladesh, Indonesia, Korea, Malaysia, Nepal and Thailand. Technical assistance was provided at various stages of the workshop by R. Little, G. Rodríguez, A. Westlake and J. Cleland (WFS), N. Ogawa and J. Rele (ESCAP), J. Palmore (East-West Center, Honolulu) and M. Weinberger (UN Population Division, New York).

The first three weeks of the workshop consisted mainly of intensive instruction in the methodology of multivariate analysis and its application to WFS data, including the use of computer software. The remaining seven weeks were devoted to specific second-stage analysis projects applying multivariate techniques to the data from each participating country. At the end of the workshop, the participants had completed a first draft of their reports. These were finalized at a follow-up meeting held in Bangkok from 18 to 22 August 1980.

A complete set of the reports produced by the workshop participants will be published by ESCAP. However, three reports deemed of greater interest and relevance to other participating countries are also being issued in the *WFS Scientific Reports* series, to ensure a wider circulation. The present study, 'Preferences for Number and Sex of Children and Contraceptive Use in Korea' by Nam Il Kim and Byoung Mohk Choi, is one such report.

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1 Introduction

The Korean National Fertility Survey, conducted in 1974 as part of the World Fertility Survey programme, collected a vast amount of information on fertility levels and trends, family planning knowledge, attitudes and practices (KAP), and the demographic and socio-economic backgrounds of respondents. The present study analyses one of the most interesting topics from the survey, fertility preferences, which are believed to provide an important psychological motivation for acceptance of family planning and contraceptive use. Earlier studies have discussed whether fertility preferences can be used to predict actual behaviour. In many of these studies, it was reported that fertility prefer-

ences and contraceptive practice are related (Shah and Palmore 1979; Freedman, Hermalin and Cnang 1975; Knodel and Prachuabmoh 1973).

In this report we study primarily the fertility preferences of Korean women in relation to their contraceptive practice. First, we look at the consistency of the answers to questions related to fertility preferences (chapter 2). Secondly, we look at the determinants or relationships of fertility preferences with a large number of cultural, demographic and socio-economic factors (chapter 3). Finally, we look at the relationship of fertility preferences and contraceptive practices (chapters 4 and 5).

2 Fertility Preferences and Contraceptive Use

In the 1974 Korean National Fertility Survey, a series of questions was asked of ever-married women aged 15-49 to gain information on their preferences as to family size and sex composition:

- 1 Do you want to have another child sometime?
- 2 Does your husband want you to have any more children?
- 3 If you could choose exactly the number of children to have in your whole life, how many children would that be?
- 4 Questions for Coombs' number preference scale.
- 5 Questions for Coombs' sex preference scale.

Some additional questions on spacing, number and sex preferences were also asked but are not included in the present analysis.

In this chapter, the general patterns and the consistency of replies to the five types of questions are examined, before passing to a multivariate analysis, by comparing the measurements of fertility preferences with the actual fertility behaviour of the women.

2.1 MEASUREMENT OF FERTILITY PREFERENCES AND PAST TRENDS

Earlier studies have discussed the accuracy and consistency of measurements of fertility preferences. For example, Freedman and Sharp (1954) differentiated between a generalized ideal which refers to the number of children the respondent considers ideal for the average family and a personal ideal which refers to the number thought ideal for the respondent's own family. Other problems discussed in previous studies (Mauldin 1965; Ryder and Westoff 1969) are meaningless random response, no answer to this type of question due to illiteracy or inability to verbalize, no numerical answer, overlapping replies, no clear concept of an ideal family size, rationalization of the achieved family size, respondent's sensitivity to the interviewer's expectations, and failure to measure the intensity of the respondent's feelings on the subject. Nevertheless, many of these papers concluded that, even with all these defects, data on family size preferences have some useful meaning.

Several KAP surveys conducted in Korea since 1965 have collected information on fertility preferences. Variations in wording in these surveys fall into two categories. In the surveys conducted before 1971, the question sought a generalized ideal as described by Freedman and Sharp, and in the 1971, 1973 and 1974 surveys, the question related to a personal ideal. Questions on desires for additional children that were directly comparable from survey to survey were included in the 1967, 1968, 1973 and 1974 surveys. When we compared these survey data, declining family size preferences were clearly evident. The desired (or ideal) number of children for all currently

married women in the sample was 3.9 in 1965 and 1968, 3.7 in 1971, 3.1 in 1973 and 3.2 in 1974.

A majority (52-60 per cent) of currently married women aged 15-44 in the 1965, 1968 and 1971 surveys considered four or more children as ideal, but the proportion wanting four or more declined to less than 32 per cent by 1973. Further, more than 65 per cent of women wanted two or three-child families in the 1973 and 1974 surveys. Among women who had two living children in the 1967 survey, only 15 per cent wanted no more children, but the corresponding figure was 66 per cent in the 1974 survey. Fifty-five per cent of all currently married women wanted no more children in the 1967 survey as compared to 72 per cent in 1974.

2.2 NUMBER PREFERENCE AND SEX PREFERENCE

Table 1 presents a comparison between measures of fertility preference and women's actual behaviour. A detailed discussion on the validity of these measures would be outside the scope of this report, but a discussion of trends is a useful introduction to the subsequent analysis.

The mean desired number of children for all exposed women was 3.14, and it increases steadily with the number of living children. This trend may be interpreted as reflecting both the smaller fertility ideals of younger cohorts and the rationalization of past fertility as women pass through the childbearing years. The mean Coombs' number preference for all exposed women was 4.35. In general, the mean number of children desired and Coombs' number preference are consistent. The Coombs' number preference for each number of living children category revealed a pattern similar to that of desired number of children, and a very high statistical association between them was noticeable ($R^2 = .99$). Table 1, panel A, shows that 75 per cent of exposed women want no more children. This proportion increases sharply from 16 to 68 per cent and again to 88 per cent when the sizes of their families reach two and three children respectively. After four living children, over 93 per cent of exposed women wanted no more children.

The proportion of exposed women whose desired number of children equals or exceeds their actual number of living children is similar to the proportion wanting future births, though there are substantial differences between the two measures. For women with three or fewer living children, the per cent with desired \leq living is far less than the per cent not wanting a future birth, implying that some of the women with less than three living children may have wanted to have a smaller family size than they considered ideal because of practical constraints.

Table 1 also shows the consistency of responses from women wanting no more children, and their desired family size compared with their actual number of living children.

Table 1 Measures of Fertility Preferences for Currently Married, Non-Pregnant and Fecund Women

A Number preference^a

No of living children	No of women	% wanting no more	Mean no of children desired	% desiring \leq living	Coombs' number preference	Consistency of responses
0	176	15.02	2.39	1.1	3.70	86.12
1	507	15.87	2.56	4.4	3.72	87.30
2	726	68.00	2.75	41.5	3.88	64.40
3	848	88.23	3.09	75.1	4.29	76.58
4	744	92.52	3.38	91.7	4.62	87.50
5+	896	96.38	3.81	97.5	5.04	94.50
All	3897	74.71	3.14	64.5	4.35	82.34

B Sex preference^b

Number of living:		No of women	% wanting more children	% preferring a boy (of those who want more children)	Coombs' sex preference
Children	Sons				
0	0	173	85.0	59.86	5.17
1	0	229	86.9	93.43	5.23
	1	275	81.8	26.91	5.29
2	0	113	63.7	100.00	5.18
	1	366	28.4	80.00	5.24
	2	246	22.8	1.79	5.34
3	0	60	53.3	100.00	4.96
	1	253	18.2	100.00	5.22
	2	400	3.3	23.08	5.32
4+	3	128	6.3	12.50	5.53
	—	1620	5.4	95.18	5.52
All		3863	25.29	65.91	5.37

^aExcludes 10 missing cases.

^bExcludes 44 missing cases.

Eighty-two per cent of all exposed women responded consistently to the questions. In fact, this ratio is lower than that for Taiwan (Freedman *et al* 1975). However, when we introduce the sex composition of living children, the consistency ratio increases to more than 90 per cent. It can be concluded, therefore, that the responses on fertility preference measures are highly consistent and may be interpreted with reasonable confidence.

The strong preference for sons is clearly shown in table 1, panel B. Among those who want more children, two-thirds want a son. The remainder are equally divided between those wanting a daughter and those expressing no preference. It is interesting to note that virtually no woman wants more children if she has three children, including two or more sons. When the number of living children reaches more than four, only around 5 per cent of women want to have more children. The Coombs' sex preference score is 5.4 for all women, which is much higher than the number preference score, and shows only a small difference between the categories of number of living children and living sons.

2.3 RELATIONSHIP BETWEEN PREFERENCES AND CONTRACEPTIVE USE

Before analysing relationships between use of contraception and different fertility preference measures in depth, it is necessary to select one fertility preference measure most appropriate for the subsequent analysis. This selection will be made after examining the relationships between the various preference measures and fertility.

The proportion of exposed women who were currently using an efficient contraceptive method or had been sterilized for contraceptive purposes at the time of the survey was 42 per cent. In table 2, proportions of exposed women who are currently using or who have ever used contraception are shown by different measures of number and sex preferences. However, the discussion that follows is restricted to current use of efficient methods, because only 4 per cent were using an inefficient method. It is believed that current use of efficient methods is more precise and is directly related to the current reproductive behaviour of women.

Panel A of table 2 reveals that the desire for future births differentiates best the users and non-users of contraceptive methods. Fifteen per cent of exposed women who want additional children are using contraceptive methods compared to 51 per cent of those who do not want more children. When the desired number of children is compared to the actual number of living children, those who had reached and those who had exceeded their desired number were 1.8 times as likely to be using birth control as those who had yet to reach it. The differentials are less pronounced among women with the various Coombs' number preference scores than for the two previous measures of family size preferences. From table 2, panel A, it is clear

that all three measures of family size preferences are closely related to contraceptive use. We have selected the desire for future births as the measure of fertility preferences for the subsequent analysis, because this variable shows the highest association with contraceptive use.

The relation between sex preferences and use of contraception is illustrated in table 2, panel B, which shows that both the sex preference measures — sex composition of living children and Coombs' sex preference score — are related to use of contraception. The sex composition of actual living children showed a higher association with use of contraception than the Coombs' sex preference scale.

Table 2 Relationships between Fertility Preferences and Contraceptive Use^a for Currently Married, Non-Pregnant and Fecund Women

A Number preference

	No of women	Ever-use		Current use	
		Efficient	Any	Efficient	Any
All women	3907	61.94	67.03	42.08	46.10
<i>Wanting future birth</i>					
Yes	974	26.39	32.50	14.78	16.22
No	2905	72.77	77.87	50.66	55.97
Undecided	20	45.00	55.00	25.00	30.00
<i>Desired vs living children</i>					
Desired < Living	1364	76.69	80.50	49.52	54.84
Desired = Living	1131	67.73	73.83	49.24	53.87
Desired > Living	1375	39.93	46.33	27.03	30.13
<i>Coombs' number preference</i>					
1-2	392	57.40	65.82	41.13	45.76
3	554	62.82	67.87	46.97	50.83
4	985	59.80	65.69	42.58	46.19
5	1365	63.59	68.79	41.71	46.50
6	465	59.14	62.80	34.71	40.13
7	136	50.74	52.94	30.60	32.84

B Sex preference

		No of women	Ever-use		No of women	Current use	
			Efficient	Any		Efficient	Any
<i>Sex Composition</i>							
Children	Sons						
0	0	177	23.73	29.38	172	15.70	15.70
1	0	230	17.83	24.35	227	11.01	13.66
	1	278	27.34	34.53	271	18.08	19.56
2	0	114	36.84	43.86	113	19.47	22.12
	1	367	53.41	63.22	365	43.01	45.75
	2	246	71.14	76.83	244	53.69	60.66
3	0	60	55.00	63.33	60	35.00	36.67
	1	256	60.94	66.80	252	37.30	42.86
	2	402	76.62	80.85	401	55.86	60.35
	3	132	78.03	83.33	132	55.30	63.64
4+	—	1645	73.49	77.39	1629	47.70	52.17
<i>Coombs' sex preference</i>							
1-3		79	53.16	69.62		49.37	54.43
4		203	60.10	67.98		42.08	47.52
5		1937	62.00	67.37		43.96	47.99
6		1505	60.40	65.32		38.62	43.46
7		175	58.86	60.57		32.37	34.10

^aExcludes cases with missing information on preferences.

3 Factors Affecting Desire for More Children

As we have seen, fertility preferences are highly correlated with contraceptive use. Other variables may affect contraceptive use directly, or indirectly through their effect on fertility preferences. In this sense, fertility preferences may be considered as an intermediate variable influencing the use of contraception, although preferences do not always precede the adoption of contraception.

In this chapter, a set of demographic and socio-economic factors affecting fertility preferences is discussed. The purpose of the analysis is not only to gain insight into the determinants of preferences, a subject of interest in itself, but also to determine which factors may affect contraceptive use through preferences. In later chapters, we study the effects of the same factors on contraceptive use and the direct effect of fertility preferences on use after controlling for other relevant variables.

The dependent variable used is the respondent's desire for additional children. Among the measures of fertility preferences, desire for more children is the single measure most highly correlated with the use of contraception. This variable also reflects both the respondent's number and sex preferences and is less ambiguously defined than the desired or ideal number of children.

The study population was restricted to currently married, fecund and non-pregnant women. Women who were reported infecund were excluded from the analysis, except for women sterilized for family planning purposes who were included. Thus we direct our attention to the group of women exposed to the risk of conception, for whom contraception is directly relevant. The study population is 3907 women, after excluding women not currently married (368 women), pregnant (537 women) or infecund (618 women). The group comprises 72 per cent of all ever-married women interviewed (5430 women).

The method of analysis utilized in this study is multiple linear regression. In studying factors affecting fertility preferences and factors affecting use of contraception, a two-stage approach has been employed. First, all variables available from the survey which have some theoretical relation with the dependent variable were included in a regression equation. This equation was called our full model. At this stage, our special interest was to examine all the regressor variables for their contribution in explaining the dependent variable after other variables had been considered.

This was accomplished by running a regression on a computer in a hierarchical mode with the use of the Statistical Package for Social Sciences (SPSS) (Nie *et al* 1975). The hierarchy of the regressor variables was predetermined on the basis of a rough causal ordering of the variables. The order of causal relationships was extremely difficult to establish, because in many cases circular causal relationships were theoretically possible. Thus the hierarchical order in which the variables entered the regression equation is some-

what arbitrary. However, it was thought that this arbitrariness would not make much difference after introducing the demographic variables, which explain most of the variance in fertility preferences and the use of contraception.

In the full model, 36 independent variables, some of them represented by several dummies, were included and an analysis of variance table was prepared to show the relative importance of each variable in predicting fertility preferences. It was believed that it was necessary to show which were the unimportant variables as well as which were the important ones. From the full model, a subset of 15 variables which best explained fertility preferences was selected to form a reduced model. Selection was based mainly on the size of the partial R^2 . However, it must be borne in mind that this procedure has the danger of eliminating variables with important indirect effects and relatively large shared variances with other variables. To give some justification for our selection of variables for the reduced model, the results of the full model are presented along with the reduced model. Based on this reduced model, two sets of adjusted means were calculated to show the effects of each variable, net of variables introduced earlier in the model, and net of all other variables in the model.

Simple R^2 s were calculated by squaring the Pearson's zero order correlation coefficient provided in the SPSS correlation matrix. For a variable represented by several dummies, the simple R^2 is in fact the multiple R^2 of a linear regression equation containing only these dummy variables as independent variables. Simple R^2 s were presented to show the crude association of this variable with the dependent variable. Partial R^2 s in a hierarchical regression are ratios of the additional sum of squares due to an independent variable to total sum of squares. Thus they provide a measure of the additional contribution of the variable when all previous, but not subsequent, variables are controlled. Multiple R^2 s, which are obtained by accumulation of partial R^2 , provide measures of the proportion of the variance of the dependent variable explained by all variables included up to that stage in the analysis.

3.1 DEMOGRAPHIC FACTORS

Age, marital duration, number of living children, and number of living sons were included, in that order, in both the full and reduced models. Each variable was represented by a linear and a squared term. Inclusion of these squared terms was necessary to allow for possible curvilinearity in the relationship between these variables and desire for a future birth.

In both the full and reduced models, the demographic variables explained 48 per cent of the variance in desire for a future birth (see table 3). The proportion who want a

future birth declines sharply with age, even after adjusting for all other variables in the model. A similar sharp decline is noted with marital duration, even after controlling age, but no consistent pattern emerges after all the other variables – and notably number of children – are controlled.

Number of living children is the single most important determinant of desire for a future birth. The proportion who want another child decreases sharply from 84 to 31 per cent after the second child and further declines to 11 per cent after the third child (see table 4). This pattern of relationships is maintained after controlling age, marital duration and all other variables in the model.

The number of living sons is another important determinant of desire for a future birth. The proportion wanting another child declines from 76 to 35 per cent after the first boy is born and further declines to 6 per cent after the second boy, reflecting a very strong desire to have at least one boy. Even after adjusting for previous variables, including number of living children, the per cent who want more children declines from 49 to 30 after the first boy, and to 18 per cent after the second boy. This effect of number of boys is maintained even after controlling for all other variables in the model. To show the effect of sex composition within each number of children category, unadjusted and adjusted percentages desiring a future birth were calculated using the relevant regression coefficients of the other two variables, number of living children and number of living sons, and are presented in the same table.¹ The result shows most clearly the effect of sex composition within each number of children category after adjusting for all previous variables and also all other variables. The adjusted per cent desiring more births diminishes with the number of children without exception. Within a given number of living children, the largest differences were found between the no son and one son categories. We shall return in a later chapter to a more detailed study of the effects of sex preferences.

3.2 BACKGROUND CHARACTERISTICS

In the full model, husband's birth order, number of wife's siblings, number of husband's siblings, family type, childhood residence, and current residence were included. Since the eldest son assumes responsibilities for family lineage and ancestor worship in Korea, one might expect higher son preference for a wife whose husband is the eldest son of the family. In a family, the number of siblings which the wife or husband had affects their living conditions and thus may be expected to have some relationship with their family size and contraceptive use. However, looking at the simple R^2 , these variables are found to have negligible correlations with fertility preferences and do not contribute to explaining the variance. Therefore, all three variables were excluded in the reduced model.

Family type is defined in terms of whether or not the wife is living with the parents-in-law, and if not, how often she sees them. This variable may be expected to reflect the

degree of influence or pressure from the older generations, which would in turn be expected to lead to higher fertility preferences. The unadjusted proportions who want more children by family type do not show a clear pattern, probably because of a confounding effect of other variables, such as number of living children. After controlling for the number of living children, as well as age and marital duration, the relationship which we expected emerges clearly: those who live with their parents-in-law, and are thus presumably subject to more pressure from family traditions, have the highest proportion who want more children (29 per cent); those who live away but visit once a month have a lower proportion (26 per cent); and those who live away and visit less often have the lowest proportion (17 per cent). The other two categories, 'lived before but not now' and 'parents-in-law not alive', are somewhat intermediate, although the meaning of these two categories in terms of family pressure is not altogether clear. Surprisingly, however, this variable had the second highest partial correlation with fertility preferences after controlling the demographic variables. The relationship is weaker when all other variables in the model have been controlled, but the direction of the relationship remains the same.

The last variables among the background characteristics are childhood residence and current residence. In the full model, these variables initially showed no relationship with fertility preferences, but both became significant after controlling for demographic composition. Indeed, current residence turned out to be the second most highly correlated variable next to the number of living children.

In the reduced model, the two residence variables were combined into one variable representing childhood residence, current residence and hence lifetime migration status. The three categories of this joint variable were rural-rural (ie childhood and current place of residence both rural), rural-urban (ie migrated from rural to urban area) and urban-either (ie urban childhood with current residence either rural or urban). The unadjusted means showed a theoretically unexpected relationship with fertility preferences, with the rural-rural women having the lowest proportion who want more children (24 per cent) and the urban group having the highest (27 per cent). This is, of course, because the rural-rural group has a higher mean age, and more children than the others. When the means were adjusted for the previous demographic variables – age and number of children – the trends turned out to be in the expected direction and the differences widened remarkably. The difference between the urban-either group with 20 per cent wanting more children and the rural-rural group with 31 per cent wanting more children was 11 percentage points. Introduction of further socio-economic and other variables reduced the differential only slightly. The large observed differences suggest that previous and present residence have a considerable effect on the desire for future children.

3.3 SOCIO-ECONOMIC CHARACTERISTICS

A total of nine socio-economic variables were considered in the full model: educational level of wife and husband; work status before and after marriage; ownership of house; number of rooms per person; a modernity index based on

¹ In other words, the sex composition variable was not included in the regression equation. Instead, these results were hand calculated later.

Table 3 Analysis of Variance Table for Hierarchical Regression of Desire for Future Births on Demographic and Background Variables

Variable added	Simple R ²	Full model						Reduced model							
		df	Sum of squares	Mean squares	F	Significance level	R ²		df	Sum of squares	Mean squares	F	Significance level	R ²	
							Partial ^a	Multiple						Partial ^a	Multiple
<i>Demographic variables^b</i>															
Age	.332	2	224.164	112.082	1574.189	<.001	.332	.332	2	224.164	112.082	1243.976	<.001	.332	.332
Marital duration	.362	2	27.222	13.611	191.163	<.001	.040	.372	2	27.222	13.611	151.063	<.001	.040	.372
No of living children	.402	2	44.451	22.226	312.158	<.001	.066	.438	2	44.451	22.226	246.678	<.001	.066	.438
No of living sons	.353	2	29.106	14.553	204.397	<.001	.043	.481	2	29.106	14.553	161.521	<.001	.043	.481
<i>Background variables</i>															
Husband's birth order	.000	1	.024	.024	.339	>.100	.000	.481							
No of wife's siblings	.001	1	.036	.036	.506	>.100	.000	.481							
No of husband's siblings	.000	1	.001	.001	.017	>.100	.000	.481							
Family type	.025	4	4.381	1.095	15.383	<.001	.006	.487	4	4.265	1.066	11.833	<.001	.006	.487
Childhood residence	.001	1	1.663	1.663	23.361	<.001	.002	.490	2	8.006	4.003	44.426	<.001	.012	.499
Current residence	.000	1	6.445	6.445	90.526	<.001	.010	.499							
<i>Socio-economic variables</i>															
Wife's education	.032	3	1.860	.620	3.707	<.001	.003	.502	3	2.035	.678	7.530	<.001	.003	.502
Husband's education	.086	3	1.174	.391	5.495	<.001	.002	.504	3	1.236	.412	4.571	<.003	.002	.504
Work before marriage	.030	2	1.477	.739	10.373	<.001	.002	.506							
Work after marriage	.016	2	.033	.016	.228	>.100	.000	.506							
Ownership of home	.025	1	.115	.115	1.615	>.100	.000	.506							
No of rooms per person	.012	1	.115	.115	1.613	>.100	.000	.506							
Modernity index	.017	1	.051	.051	.710	>.100	.000	.506	1	.012	.012	.137	>.100	.000	.504
Adequacy of present income	.033	3	.190	.063	.889	>.100	.000	.507							
Media exposure	.002	3	.675	.225	3.161	.024	.001	.508	3	.807	.269	2.987	.030	.001	.505
<i>Programme variables</i>															
Ever visited women's ass., etc	.027	1	.123	.123	1.722	>.100	.000	.508							
Attended mothers' club for FP discussion	.020	1	.001	.001	.016	>.100	.000	.508	1	.154	.154	1.714	>.100	.000	.505
Ever had nurse or FP visit	.017	1	.107	.107	1.504	>.100	.000	.508							
Time needed to reach FP clinic	.006	1	.907	.907	12.743	<.001	.001	.509	1	1.031	1.031	11.442	<.001	.002	.507

Attitude and other variables

General opinion about abortion	.019	3	1.696	.565	7.941	<.001	.003	.512	3	1.800	.600	6.657	<.001	.003	.509
Induced abortions	.042	1	.373	.373	5.242	.022	.001	.512							
Still birth/spontaneous abortion	.000	1	.056	.856	.787	>.100	.000	.512							
Times married	.001	1	.337	.337	4.737	.030	.000	.513							
Educational aspiration for sons	.007	2	.135	.067	.946	>.100	.000	.513							
Educational aspiration for girls	.007	2	.405	.203	2.846	.058	.001	.514							
Child living in after married	.000	2	.211	.105	1.481	>.100	.000	.514							
Children's contribution of wages	.002	2	.679	.339	4.765	.009	.001	.515							
Children's support in old age	.004	2	.058	.029	.405	>.100	.000	.515							
Coombs' sex preference score	.001	1	.649	.649	9.115	.003	.001	.516	1	.849	.849	9.442	.022	.001	.510
Coombs' number preference score	.003	1	10.100	10.100	141.852	<.001	.015	.531	1	111.427	11.427	126.825	<.001	.017	.527
Husband's desire for children	.512	1	66.573	66.573	935.017	<.001	.098	.629							
<i>Summary</i>															
Regression		59	425.594	7.213	101.308				31	356.565	11.502	127.656			
Residual		3519	250.565	.071					3547	319.593	.090				
Total		3578	676.159						3578	676.158					

^aControlling previous variables.

^bEach variable is represented by a linear and a square term.

Table 4 Per Cent of Currently Married, Non-Pregnant, Fecund Women who Want More Children by Selected Demographic and Background Variables, Unadjusted and Adjusted for Indicated Variables by Linear Regression

(Grand mean = 25.29)

(Number of women = 3579)

Variables in order	No of women	Unadjusted	Adjusted for	
			Previous variables	All other variables
Demographic characteristics				
<i>Age</i>				
15-19	36	92.31	100.00	43.14
20-24	365	75.25	77.83	35.90
25-29	835	45.41	43.47	29.82
30-34	866	16.08	19.15	24.90
35-39	798	6.94	4.87	21.14
40-44	531	2.78	.62	18.54
45-49	148	1.25	6.40	17.10
<i>Marital duration (years)</i>				
0-4	788	71.90	54.59	15.77
5-9	797	24.54	31.55	26.20
10-14	662	13.09	15.67	21.71
15-19	627	5.44	6.94	19.93
20-24	409	2.71	5.36	20.86
25+	295	1.56	14.55	26.40
<i>No of living children</i>				
0	160	85.06	75.55	64.30
1	464	83.90	52.38	47.33
2	664	31.39	33.87	33.43
3	779	11.26	20.21	22.60
4	685	7.14	11.21	14.84
5+ ^a	827	3.35	7.47	10.15
<i>No of living sons</i>				
0	570	75.89	48.62	49.16
1	1104	34.67	30.03	30.29
2	1127	6.38	17.62	17.55
3	530	1.92	11.39	10.93
4+ ^a	247	0.00	11.33	10.43
Sex composition				
<i>Children</i>	<i>Sons</i>			
1	0	228	86.84	65.95
	1	275	81.45	46.87
2	0	110	62.73	54.44
	1	364	27.75	35.36
	2	246	22.76	22.64
3	0	59	52.54	45.96
	1	253	17.00	26.88
	2	401	3.24	14.16
	3	131	6.11	7.78
4	0	30	43.33	40.51
	1	174	17.82	21.44
	2	308	2.27	8.71
	3	182	1.10	2.33
	4	48	0.00	2.30
Background characteristics				
<i>Family type</i>				
Living with parent-in-law	842	29.06	29.42	26.88
Lived with before but not now	1429	19.39	25.43	25.82

Table 4 (continued)

Variables in order	No of women	Unadjusted	Adjusted for	
			Previous variables	All other variables
Visit more than once a month	292	40.76	25.96	26.69
Visit less often	447	33.26	17.23	20.12
No parent-in-law alive	569	19.61	24.60	24.82
<i>Type of residence</i>				
<i>Childhood</i>	<i>Current</i>			
Rural	Rural	1540	31.34	28.65
Rural	Urban	1386	31.25	22.93
Urban	Either	652	19.74	22.44
Socio-economic characteristics				
<i>Education</i>				
No school	594	10.09	27.00	23.75
Primary school	1858	25.47	27.27	26.24
Middle school	642	30.89	21.08	23.77
High school or more	484	31.48	21.16	25.44
<i>Husband's education</i>				
Primary school	1427	21.65	28.29	27.44
Middle school	815	25.20	23.94	24.42
High school	867	30.49	23.64	23.88
College or higher	470	25.39	21.67	22.94
<i>Modernity index</i>				
0	305	29.14	26.02	25.26
1	1156	30.74	25.64	25.27
2	1264	23.82	25.26	25.29
3	455	20.52	24.88	25.31
4	241	15.89	24.49	25.33
5	123	8.33	24.11	25.34
6	35	2.70	23.73	25.36
<i>Mass media contact</i>				
Every day	1969	26.53	23.89	24.45
Few days each week	347	25.00	24.99	24.87
Occasionally	860	23.61	27.84	27.25
Never	402	21.33	26.95	35.55
Family planning programme availability				
<i>Programme outlet contact</i>				
Yes	1729	16.92	24.55	24.61
No	1850	32.77	25.97	25.91
<i>Perceived availability</i>				
≤ 20 mins	1612	21.92	23.33	23.62
> 20 mins	1967	27.72	26.91	26.67
Attitudes and preferences				
<i>Attitudes on abortion</i>				
Strongly approve	1566	19.33	23.34	23.88
Approve	152	30.91	29.55	28.82
Don't know	630	34.85	29.29	28.53
Disapprove and strongly disapprove	1231	26.76	25.24	25.03
<i>Coombs' sex preference index</i>				
1-3 ^a	72	25.64	20.18	23.21
4	186	28.86	22.72	24.25
5	1778	25.68	24.59	25.01

Table 4 (continued)

Variables in order	No of women	Unadjusted	Adjusted for	
			Previous variables	All other variables
6	1383	24.87	26.46	25.77
7	160	16.18	28.33	26.53
<i>Coombs' number preference index</i>				
1, 2 ^a	359	27.31	13.48	12.97
3	510	27.22	18.56	18.27
4	904	28.53	23.54	23.46
5	1254	23.45	28.51	28.65
6	427	20.35	33.49	33.84
7	125	18.52	38.47	39.04

^aAdjusted mean for this category is a weighted average.

possession of selected household goods; a measure of the adequacy of present income; and exposure to the mass media.

The highest correlation, among this group of variables, was found between desire for a future birth and respondent's educational level (simple $R^2 = .032$). After controlling demographic and background characteristics, the educational level of women was still found to contribute significantly in explaining the variance in desire for a future birth (partial $R^2 = .003$).

Women with no formal education had the lowest unadjusted proportion wanting to have future births and the group with the highest education had the highest proportion wanting more children. This unexpected effect of education can be understood as reflecting the disproportional age distribution of women. The group of women with no schooling is also the group with the higher mean age and more living children. Hence, when the means were adjusted for demographic and background variables (age, number of living children, etc), an entirely different pattern emerged. The lowest educational group now had the highest percentage of women desiring a future birth (27 per cent) and the highest educational group has the lowest percentage (21 per cent).

When we then introduced other socio-economic variables, such as the availability of the family planning programme and other variables which influence attitudes towards fertility, the trend which had been consistent so far disappeared, indicating that the effect of wife's education on desire for future births was accounted for by other variables, possibly by husband's education. Husband's education also showed an unexpected pattern at first but after adjusting for previous variables, the expected pattern emerged, and further adjustment for the remaining variables did not alter it, though it reduced slightly the differentials between education groups.

The respondent's work experience before and after marriage showed a relatively high correlation with the desire for more children. After controlling for previous variables, the contribution of work experience before

marriage remained significant, while work experience after marriage did not contribute significantly to the explained sum of squares. The rest of the socio-economic variables – ownership of home, number of rooms per person, the modernity index and adequacy of present income – seem to have no statistically significant relation with fertility preferences after controlling for previous variables. Only mass media contact was related to the desire for more children. Of the nine socio-economic variables, only four – wife's education, husband's education, modernity index and media exposure – were retained in the reduced model. The modernity index, though it does not significantly contribute to the explained sum of squares, was kept in the reduced model because it seemed to be an important variable in explaining current use of contraceptives.

The unadjusted proportion wanting another child was 30 per cent for women belonging to less modern groups (modernity index 0 and 1), and this proportion declines very rapidly to 3 per cent for the women with a modernity index 6. Adjustment for the previous demographic background and socio-economic characteristics reduced the differentials substantially while preserving the overall trend. After adjusting for all other variables in the equation, however, all the differences disappeared. Thus the effect of the modernity index is attributable to other variables in the model.

Exposure to mass media makes a significant contribution to the explained sum of squares. The reason we kept this variable in the reduced model, however, was not the significance level, but the fact that this variable was important in the contraceptive use equation. Like type of place of residence and husband's education, the variable provides another good example of the complete reversal of group means after adjustment. Women who are exposed to the mass media every day have the highest proportion wanting more children; they are also the group with the lowest family size, but after adjusting for previous variables, the group shows the lowest proportion wanting a future birth.

3.4 FAMILY PLANNING PROGRAMME AVAILABILITY

Four programme variables were included in the full model to determine whether programme availability shows any association with the fertility preferences measure. Although women's contact with selected family planning outlets and their fertility preferences show somewhat high simple R^2 s, the three indicators for contact with a programme outlet are found not to contribute to the explained sum of squares. The three variables were attending women's associations, mothers' club and family planning field worker visits. The fourth programme variable, the time required to reach a known programme outlet, showed a statistically significant association with fertility preferences.

The three programme outlet variables are combined into one and are kept in the reduced model for the same reason as the modernity index and mass media exposure. The combination was made in such a way that if the respondent had contact with any one of the three, she was regarded as having contacted a programme outlet. Seventeen per cent of the women who contacted a programme outlet wanted more children, in contrast with 33 per cent among women not in contact with programme outlets. However, this difference disappeared after adjustment.

3.5 TRADITIONAL ATTITUDES AND OTHER MISCELLANEOUS VARIABLES

Twelve variables related to traditional attitudes were included in the full model. Traditional attitudes in Korea are believed to be associated with a desire for a large family and a strong preference for sons in general. All the 12 variables, except the number of still births and spontaneous abortions, are believed to reflect some aspect of the traditional attitudes of women.

General opinions about abortion have been measured using the following scale: strongly disapprove, disapprove, depends, approve, and strongly approve. In the analysis, however, the category 'disapprove' was collapsed with the 'strongly disapprove' category because of its low frequency. Women who disapprove of abortion can be expected to have traditional attitudes in general.

The analysis showed a high initial association, and even after controlling previous and all other variables, the substantial contribution made by 'opinion about abortion' in explaining the variance of fertility preferences.

However, the relation of the opinion about abortion to fertility preferences is in fact more complicated. Some women who have a modern outlook and a small family ideal may disapprove of abortion simply because they prefer birth control to abortion. Moreover, the unusual frequency distribution by categories of opinion about abortion – very low frequencies for intermediate categories such as 'approve' and 'disapprove' – tell us that data should be interpreted with caution.

Analysis of the contingency table of 'opinion about abortion' and 'desire for future births' seems to show this complicated relation. The groups with extreme attitudes on abortion, positive or negative, had smaller proportions desiring more children than those with moderate or indifferent attitudes. Women belonging to intermediate

categories seem to have no distinctive opinion or attitude and in general they may be viewed as somewhat passive on the subject. In chapter 4, we will see that this group of women practises family planning considerably less than the two extreme groups.

The number of induced abortions and times married are continuous variables and are expected to be negatively related to traditional values. Thus a woman who has experienced more than one marriage or practised abortion is behaving in an untraditional way. The number of induced abortions has a relatively high initial association with desire for future births. After controlling all the previous variables including opinion about abortion, the additional contributions by these two variables, number of abortions and times married, were not substantial enough to be included in the reduced model, though they were statistically significant and their effects were in the expected direction.

The number of still births and spontaneous abortions was included in the full model as a continuous variable. This variable is thought to represent the biological condition of women. Women with greater experience of still births and spontaneous abortions are expected to show more desire for future births. The contribution of this variable in explaining the variance of the dependent variable was negligible and statistically insignificant.

The educational aspirations of women for their sons and daughters are also thought to be related to the women's desire for future births in that when aspirations are high women want a small family, in order to be able to devote greater financial resources to each child. Hence its relation with desire for future births is expected to be negative. The role of this variable in our model was not significant, reflecting in part the fact that women do not differ in their aspirations for their children.

Women's opinions on living together with their children after the children were married, and expectations of children's contribution of their incomes, and of support by their children in old age have been measured using a scale of answers similar to the one which was used to measure opinions about abortion. Some categories were collapsed as the number of cases was considered too small. These three variables were expected to provide some measure of parents' expectations from their children in the future. Examination of the partial R^2 measures for this set of three variables indicates that only the variable of children's support in old age is significantly related to fertility preferences, but its additional contribution was not substantial.

Coombs' preference scales and the husband's desire for future births as perceived by the wife were included at the end of full model. In fact, Coombs' number preference score and husband's perceived desire are often proxies for the dependent variable itself. The husband's perceived desire, in particular, is closely associated with the women's desire for future births as the simple R^2 (.512) indicates. This variable is therefore not suitable as a regressor variable. However, we were still interested to find out whether this variable can represent the difference between the wife and husband in desire for future births in the model. Coombs' preference scales, for sex and number, have values ranging from 1 to 7, and the score 4 in both preferences indicates an intermediate preference. The values 5, 6 and 7 represent higher number preferences or non-preferences. Both variables contributed significantly to the explained sum of squares.

4 Factors Affecting the Use of Contraception

All the variables used in studying factors affecting the use of contraception are the same as those used in the fertility preference equation, except that women's desire for future births is included as one of the regressor variables in the equation. Thus the number of independent variables in the use of contraception equation becomes 35 in the full model and 16 in the reduced model.

The desire for future births was included at the end in the regression equation, because this variable is related not only with use of contraception but also with other variables, as we found in the previous chapter. The purpose of this analysis is to see if fertility preferences contribute towards explaining the variance in contraceptive use when previous variables are controlled. When we examine the simple R^2 in table 5, we find the associations between the regressor variables and current use of contraception are weaker in general than those between the regressors and fertility preferences.

4.1 DEMOGRAPHIC FACTORS

Demographic variables show the strongest association among regressor variables in the use of contraception equation, but the relative contribution of demographic factors is much smaller in the use of contraception equation than in the desire for future birth equation.

In both the full and reduced models, the demographic variables explained 10 per cent of the variance in use of contraception, which is equivalent to 60 per cent of the total explained variance. For the desire for future birth equation, the corresponding figures are 48 per cent and 91 per cent respectively.

The proportion who are currently using an efficient method increases sharply until the age of 40 and declines slightly thereafter (table 6). After adjusting for all other variables in the model, the trend was reversed, as expected. The youngest age group of women have the highest proportion currently using contraception, and the oldest age group have the lowest proportion. The effects of marital duration on the use of contraception are similar to the age effects, increasing sharply with marital duration before adjustment. After adjusting for all other variables, the pattern remained the same overall, but the differential between marital duration groups after 20 years of marriage was greatly reduced.

The number of living children seems to be an important determinant in the use of contraception. However, comparison of the partial R^2 s reveals that the sex composition of living children influences the use of contraception even more strongly than the number of living children does, a reversal of their positions in the fertility preference equation. The proportion using contraception increases greatly from 15 per cent to 43 per cent after two living children and

again to 52 per cent after four living children. Most of the difference, however, disappears after adjusting for age and marital duration. When we further adjust for the number of living sons and other variables, the pattern, surprisingly, is completely reversed. The adjusted proportion using contraception was highest among women with one living child, and thereafter the proportions declined consistently to 3.7 per cent for women with four or more children. The effect of number of living children on the use of contraception appears complicated.

There are two likely components that may explain these results. First, the number of living sons is more important than the total number of children. Hence adjustment for the living sons variable reduces the contraceptive use of higher parity women in the adjusted percentages. Secondly, both very high and very low parity women are likely to use contraception less. Low parity women are not likely to use contraception because the use of contraception for spacing is still limited in Korea. High parity women can only reach such high parity by virtue of not practising contraception. Here, we have the parity/contraceptive use relationship with each factor 'causing' the other.

4.2 BACKGROUND CHARACTERISTICS

In the analysis of variance table for the full model (table 5), the simple R^2 and partial R^2 show that husband's birth order, number of wife's siblings and number of husband's siblings have almost no correlation and do not contribute to explaining the variance in the use of contraception. This was also true in the fertility preference regression.

Among the six background variables, family type, residence and childhood residence show some correlation and contribute to explaining the variance in the use of contraception. The unadjusted proportion who are using contraception by family type does not show a clear pattern. After controlling for demographic variables, the expected pattern of relationships emerges, as in the case of fertility preferences. Those who live with their parents-in-law have the lowest proportion who are using contraception (41 per cent), those who live away but visit once a month have a higher proportion (44 per cent) and those who live away and visit less often have the highest proportion (49 per cent). The remaining two categories, 'lived before but not now' and 'parents-in-law not alive', are excluded from the discussion because of their unclear relationship with the use of contraception. After controlling for all the other variables, however, there appears to be virtually no differential in the use of contraception between family type categories.

Childhood residence and current residence initially showed some association with the use of contraception, and this relationship becomes stronger after controlling for demographic characteristics. In the reduced model, child-

hood residence and current residence were combined into one variable. Adjustment for the previous demographic and background variables widened the differences in the use of contraception between the residence groups, with higher acceptance being associated with urban residence. Further control for the remaining variables, however, reduced the differences.

4.3 SOCIO-ECONOMIC CHARACTERISTICS

Nine socio-economic variables explain 16 per cent of the total explained variance in the use of contraception, which is substantially more than the 2 per cent explained in the fertility preference equation. Socio-economic characteristics of women seem to have a more important role in determining the use of contraception than in family size preferences. Initially the modernity index showed the highest association with the use of contraception among all except the demographic variables (simple $R^2 = .027$). But this high association disappeared after introducing the demographic, background and socio-economic variables.

Among the nine socio-economic variables, the educational levels of wife and husband contributed most to the explained variance. Besides education, media exposure and the modernity index added significantly to the explained variance in the use of contraception. The pattern of the unadjusted means by wife's educational groups was as expected: the group with no education had the lowest proportion using contraception (39 per cent) and the group educated to high school level or beyond had the highest proportion (51 per cent). This trend remained the same after adjusting for previous variables, but after adjustment for all remaining variables, the differences in the use of contraception among the three lower educational groups were negligible. There remained some difference between women with high school education, or more (47 per cent) and women in the lower educational groups (41 per cent). A similar trend was noticed in the adjusted proportions using contraception by husband's educational level, but the use of contraception increased with the level of husband's education among the three lower educational groups.

The modernity index showed the highest initial association with the use of contraception of the nine socio-economic variables. Though this variable added little to the explained variance in the use of contraception (partial $R^2 = .002$), differences between group means are most spectacular. The proportion using contraception in the least modern group (value 0), was 15 per cent after adjusting for all

other variables, and that for the most modern group (value 6) was 100 per cent.

Mass media contact showed the expected positive relationship with the use of contraception, which persists after adjusting for previous as well as all variables, though the differentials narrow down somewhat after adjustments.

4.4 FAMILY PLANNING PROGRAMME AVAILABILITY

All the four programme variables did much better in the use of contraception equation, as expected. The three programme contact variables and programme availability represented by the perceived time required to reach the programme outlet initially showed a stronger association with the fertility preferences measure than with the use of contraception. However, after controlling for demographic, background and socio-economic variables, they were all found to be contributing substantially more to the explained sum of squares in the use of contraception equation than in the fertility preference equation. Forty-five per cent of women who had ever contacted one of the programme outlets were using contraception, as compared with 40 per cent of those who had never contacted any of the three programme outlets. The effect of the perceived availability of the programme is similar to that of programme contact. Of women living within 20 minutes of a programme outlet, the proportion using contraception was 45 per cent, compared with 40 per cent for other women.

General opinions about abortion, the experience of induced abortion, the experience of still birth or spontaneous abortion, educational aspirations, whether parents want to live together with their children after their marriage, and expectations regarding children's support in old age were included in the full model but were found to contribute little to the sum of squares.

Among these attitude variables, general opinions about abortion had the second highest partial R^2 (.003). The experience of induced abortion had the second highest initial correlation with the use of contraception, not including demographic variables and fertility preferences.

The general opinions about abortion that were included in the reduced model and the differences between group means were tested before and after adjustment. Group means are U-shaped: the two extreme groups – 'strongly approve' and 'strongly disapprove' – have higher proportions using contraception (43 and 44 per cent respectively) than the two groups in between – 'approve' and 'depends or don't know' (38 and 37 per cent respectively), after adjusting for previous variables.

Table 5 Analysis of Variance Table for Hierarchical Regression of Current Use of Contraception on Demographic and Background Variables

Variable added	Simple R ²	Full model							Reduced model						
		df	Sum of squares	Mean squares	F	Significance level	R ²		df	Sum of squares	Mean squares	F	Significance level	R ²	
							Partial ^a	Multiple						Partial ^a	Multiple
<i>Demographic variables^b</i>															
Age	.056	2	48.735	24.367	120.060	<.001	.056	.056	2	48.735	24.367	119.238	<.001	.056	.056
Marital duration	.066	2	10.946	5.473	26.966	<.001	.013	.068	2	10.946	5.473	26.781	<.001	.013	.068
No of living children	.058	2	8.730	4.365	21.508	<.001	.010	.078	2	8.730	4.365	21.360	<.001	.010	.078
No of living sons	.075	2	19.342	9.671	47.649	<.001	.022	.101	2	19.342	9.671	47.323	<.001	.022	.101
<i>Background variables</i>															
Husband's birth order	.000	1	.234	.234	1.153	>.100	.000	.101							
No of wife's siblings	.000	1	.103	.103	.507	>.100	.000	.101							
No of husband's siblings	.000	1	.036	.036	.176	>.100	.000	.101							
Family type	.002	4	3.216	.804	3.962	.003	.004	.105	4	3.285	.821	4.018	.003	.004	.104
Childhood residence	.001	1	2.052	2.052	10.110	.001	.002	.107	2	6.720	3.360	16.441	<.001	.008	.112
Current residence	.004	1	4.630	4.630	22.814	<.001	.005	.112							
<i>Socio-economic variables</i>															
Wife's education	.000	3	13.262	4.420	21.781	<.001	.015	.128	3	13.449	4.483	21.937	<.001	.015	.137
Husband's education	.017	3	5.141	1.714	8.443	<.001	.006	.133	3	5.126	1.709	8.360	<.001	.006	.133
Work before marriage	.004	2	1.247	.623	3.072	.046	.001	.135							
Work after marriage	.001	2	.019	.010	.047	>.100	.000	.135							
Ownership of home	.002	1	.003	.003	.014	>.100	.000	.135							
No of rooms per person	.000	1	.001	.001	.007	>.100	.000	.135							
Modernity index	.027	1	1.925	1.925	9.485	.002	.002	.137	1	1.842	1.842	9.011	.003	.002	.135
Adequacy of present income	.000	3	.179	.060	.293	>.100	.002	.137							
Media exposure	.010	3	2.862	.954	4.700	.003	.003	.141	3	3.027	1.009	4.938	.002	.003	.139
<i>Programme variables</i>															
Ever visited women's ass., etc	.001	1	1.198	1.198	5.901	.015	.001	.142	1	2.048	2.048	10.020	.002	.002	.141
Attended mothers' club for FP discussion	.018	1	3.960	3.960	19.509	<.001	.005	.147							
Ever had nurse or FP visit	.008	1	1.832	1.832	9.025	.003	.002	.149							
Time needed to reach FP clinic	.012	1	2.233	2.233	11.000	.001	.003	.151	1	2.438	2.438	11.929	<.001	.003	.144

Attitude and other variables

General opinion about abortion	.007	3	2.231	.744	3.663	.012	.003	.154	3	2.419	.806	3.946	.008	.003	.147
Induced abortion	.026	1	1.556	1.556	7.668	.006	.002	.156							
Still birth/spontaneous abortion	.001	1	1.636	1.636	8.059	.005	.002	.157							
Times married	.000	1	.181	.181	.893	>.100	.000	.158							
Educational aspiration for sons	.002	2	.557	.279	1.372	>.100	.001	.158							
Educational aspiration for girls	.004	2	.538	.269	1.327	>.100	.001	.159							
Child living in after married	.004	2	.970	.485	2.390	.092	.001	.160							
Children's contribution of wages	.000	2	.045	.023	.112	>.110	.000	.160							
Children's support in old age	.004	2	1.613	.806	3.974	.019	.002	.162							
Coombs' sex preference score	.004	1	1.802	1.802	8.879	.003	.002	.164	1	2.705	2.705	13.235	<.001	.003	.150
Coombs' number preference score	.003	1	2.926	2.926	14.418	<.001	.003	.167	1	4.042	4.042	19.780	<.001	.005	.154
Desire for future birth	.102	1	12.585	12.585	62.005	<.001	.014	.182	1	12.775	12.775	62.512	<.001	.015	.169
Husband's desire for more children	.066	1	.118	.118	.581	>.100	.000	.182							
Number wanted: Number alive	.046	2	.034	.017	.084	>.100	.000	.182							
<i>Summary</i>															
Regression		62	158.677	2.559	12.610				32	147.629	4.613	22.573			
Residual		3516	713.616	.203					3546	724.664	.204				
Total		3578	872.293						3578	872.293					

^aControlling previous variables.

^bEach variable is represented by a linear and a square term.

Table 6 Per Cent of Currently Married, Non-Pregnant, Fecund Women Currently Using an Efficient Method by Selected Demographic and Background Variables, Unadjusted and Adjusted for Indicated Variables by Linear Regression

(Grand Mean = 42.08)

(Number of women = 3579)

Variables in order	No of women	Unadjusted	Adjusted for	
			Previous variables	All other variables
Demographic characteristics				
<i>Age</i>				
15--19	36	17.95	0.00	52.29
20--24	368	16.08	16.04	48.52
25--29	848	33.41	35.40	45.14
30--34	865	46.57	47.43	42.15
35--39	798	53.60	52.13	39.55
40--44	518	45.89	49.51	37.34
45--49	145	43.95	39.56	35.53
<i>Marital duration (years)</i>				
<5	797	20.44	37.16	30.55
5--9	806	42.94	50.80	43.09
10--14	664	48.12	58.05	51.82
15--19	620	55.52	58.91	56.72
20--24	401	46.88	47.75	54.43
25+	291	41.40	35.80	53.20
<i>No of living children</i>				
0	159	15.70	29.46	42.76
1	460	14.86	37.68	54.00
2	668	42.94	43.20	51.04
3	781	48.76	50.56	46.23
4	682	52.03	46.16	39.56
5+ ^a	828	44.11	43.59	31.50
<i>No of living sons</i>				
0	574	16.77	23.07	27.64
1	1105	34.84	38.63	39.31
2	1126	54.93	48.62	46.94
3	526	52.64	53.03	50.54
4+ ^a	248	42.16	51.87	50.10
Sex composition				
<i>Children</i>	<i>Sons</i>			
1	0	227	11.01	26.3
	1	271	18.08	41.8
2	0	113	19.47	26.4
	1	365	43.01	41.9
	2	244	53.69	51.9
3	0	60	35.00	25.2
	1	252	37.30	40.8
	2	401	55.86	50.7
	3	132	55.30	55.1
4	0	31	22.58	22.95
	1	174	40.23	38.51
	2	307	57.00	48.50
	3	180	59.44	52.91
	4	48	56.25	51.75
Background characteristics				
<i>Family type</i>				
Living with parent-in-law	846	39.74	40.91	43.12
Lived with before but not now	1426	44.18	42.07	41.91

Table 6 (continued)

Variables in order	No c.f. women	Unadjusted	Adjusted for		
			Previous variables	All other variables	
Visit more than once a month	296	36.91	44.05	43.05	
Visit less often	448	41.88	48.85	44.64	
No parent-in-law alive	564	38.58	37.38	38.30	
<i>Type of residence</i>					
<i>Childhood</i>	<i>Current</i>				
Rural	Rural	1550	37.86	36.62	41.51
Rural	Urban	1380	43.62	45.25	43.18
Urban	Either	649	45.14	48.04	41.06
Socio-economic characteristics					
<i>Education</i>					
No school	596	38.82	34.06	41.06	
Primary school	1860	39.52	38.59	41.32	
Middle school	639	41.59	46.50	41.36	
High school or more	484	51.43	59.11	47.10	
<i>Husband's education</i>					
Primary school	1423	37.12	37.30	39.31	
Middle school	816	39.25	40.59	40.01	
High school	873	42.40	44.47	43.49	
College or higher	468	56.55	54.53	51.34	
<i>Modernity index</i>					
0	308	31.10	37.59	14.95	
1	1159	35.55	39.94	29.14	
2	1266	42.18	42.29	43.34	
3	453	44.93	44.64	57.54	
4	236	55.16	46.99	71.74	
5	123	66.41	49.34	85.94	
6	34	77.78	51.69	100.13	
<i>Mass media contact</i>					
Every day	1962	45.14	44.65	43.80	
Few days each week	349	39.52	42.18	42.18	
Occasionally	860	38.64	39.61	40.80	
Never	408	30.68	34.42	36.10	
Family planning programme availability					
<i>Programme outlet contact</i>					
Yes	1726	47.16	44.76	44.55	
No	1853	36.01	39.57	39.76	
<i>Perceived availability</i>					
≤20 mins	1611	47.24	45.08	44.47	
>20 mins	1968	36.59	39.58	40.08	
Attitudes and preferences					
<i>Attitudes on abortion</i>					
Strongly approve	1559	42.87	42.99	42.38	
Approve	150	37.04	38.49	39.80	
Don't know	635	33.24	36.81	37.95	
Disapprove and strongly disapprove	1235	44.23	43.94	44.00	

^a Adjusted mean for this category is a weighted average.

5 The Effect of Fertility Preferences on Contraceptive Use

The relationship of fertility preferences to contraceptive use merits special attention in connection with the study of unwanted fertility and unmet needs for contraception. There is a basic assumption underlying many of these studies that the desire for no more children is a principal motivation for using family planning. However, there has been some criticism of the predictive validity of responses obtained to questions concerning ideal family size (Hauser 1967; Mauldin 1965; Simmons 1971). Studies have found that there is a higher correlation between fertility preferences and actual contraceptive behaviour than between ideals and behaviour (Freedman *et al* 1975; Knodel and Prachuabmoh 1973; Shah and Palmore 1979).

In this report we examine the same questions as the previous studies, ascertaining whether fertility preference measures are related to contraceptive use even after controlling for the effect of previous variables of actual fertility

and other social, economic and demographic background characteristics. As fertility preferences are related to many demographic, social and economic variables, the desire for future births is included at the end of the equation in the full model to determine its additional contribution to the sum of squares, after removing the effects of all other variables.

Five fertility preference measures are included in the following order: Coombs' sex preference score; Coombs' number preference score; desire for future births; husband's desire for additional children; and a combined measure of the desired number of children and number of living children (number wanted vs number alive). The partial R^2 s are .002, .003, and .014 respectively for Coombs' sex preference, Coombs' number preference, and the desire for future births (table 5). These three fertility preference measures together explain 1.9 per cent of the total variance,

Table 7 Per Cent of Currently Married, Non-Pregnant, Fecund Women Currently Using an Efficient Method by Measures of Number and Sex Preference, Unadjusted and Adjusted for Indicated Variables by Regression Analysis

(Number of women = 3579)

Variables	No of women	Unadjusted	Adjusted for	
			Previous variables	All other variables
<i>Coombs' sex preference</i>				
1-3 ^a	73	49.36	50.58	49.76
4	187	42.08	46.36	45.94
5	1775	43.96	43.24	43.13
6	1383	38.63	40.12	40.31
7	160	32.37	37.01	37.50
<i>Coombs' number preference</i>				
1, 2 ^a	361	41.13	48.44	46.94
3	506	46.97	45.70	44.85
4	900	42.58	43.02	42.80
5	1260	41.71	40.34	40.75
6	428	34.71	37.66	38.70
7	124	30.60	34.99	36.65
<i>Desire for more children</i>				
Wants more	908	14.78	27.14	27.14
Wants no more	2671	50.66	47.13	47.13
<i>Husband's desire for future birth</i>				
Yes	1027	21.50	40.70	40.71
No	2552	49.55	42.63	42.63
<i>Number wanted: number alive</i>				
D < L	1264	49.52	41.61	46.61
D = L	1049	49.24	40.78	40.78
D > L	1265	27.03	40.98	40.98

^aAdjusted mean for this category is a weighted average.

which is equivalent to 10 per cent of the total explained variance. As in earlier studies, this net explained variance is quite small in absolute terms, but as a percentage of the total variance explained, the variables seem to play an important role in predicting use of contraception. The simple R^2 of the desire for future birth with contraceptive use was .102, which is the highest not only among the five fertility preference measures but also among all the variables included in the model.

The simple R^2 of the husband's desire for additional births was .066, the next highest, that of the combined measure (number wanted vs number alive), was .046. These two variables, however, contributed very little after controlling for desire for future births and previous variables. One noteworthy fact emerging from this analysis of variance is that husband's desire does not contribute in explaining variance when we control wife's desire, which may be interpreted as reflecting the dominant role of wives over husbands in accepting family planning in Korea or a high level of agreement between husband and wife.

In table 7 the unadjusted and adjusted proportions using contraception are presented for women of various fertility preference categories, to clarify the effects of

fertility preference measures. In the Coombs' sex preference scale, lower sex preferences tend to be associated with higher proportions using contraception both before and after adjustment. Controlling other variables, including previous fertility and its sex composition, did not alter the trend. The proportion using contraception among women whose sex preference score is 7 is 37 per cent after adjusting for previous variables, as compared with 51 per cent among women whose sex preference score is 1-3. The Coombs' number preference showed a similar trend.

The unadjusted proportion using contraception among women wanting no more children was 51 per cent, which is three and a half times higher than that of women wanting more children. Adjustment for all previous variables and introduction of the two remaining fertility preference measures - husband's desire for future births and the joint variable, number wanted vs number alive - reduced the differential only slightly.

There was initially a large difference in the use of contraception according to husband's desire for future births. Most of the difference, however, disappeared after adjusting for previous variables. It was possibly accounted for by the wife's desire for future births.

6 Summary and Conclusions

In Korea's Fourth Five-Year Economic Development Plan, an unfavourable age structure, persistent traditional attitudes towards fertility, and the stable rates of contraceptive practice in recent years are listed as the barriers to success in the population control programme. This report has examined two of those barriers – fertility attitudes and the use of contraception – in terms of determinants and differentials among various socio-economic groups of women.

The 1974 Korean National Fertility Survey (KNFS) provided data useful for this study. The base population for this study was 3907 women who were currently married, fecund and non-pregnant at the time of the survey. These women comprised 72 per cent of the total women in the national probability sample selected for the 1974 KNFS.

The method used in this study is multiple linear regression. The respondent's desire for future births and her current use of contraception, which are dichotomous variables, were the two dependent variables used in the two different regression equations. Many variables available from the survey are considered to be related with fertility preferences and the use of contraception. A total of 36 variables were incorporated in the model, as it was believed that it was equally important to show the unimportant as well as the important variables. The study was accomplished by running the regressions using SPSS in a hierarchical mode.

This study shows clearly that fertility preferences are one of the important intermediate variables governing women's use of contraception. The major determinants of fertility preferences were different from those for contraceptive use. In the fertility preferences equation, the 34 independent variables together explained 53 per cent of the variance in desire for future births. Four demographic variables contributed a predominant portion (91 per cent) to the total explained variance and the remaining 30 variables added the balance of 9 per cent. The demographic variables, together with residence, family type, wife's education and general opinion about abortion were

the important determinants in the desire for future births. Among these variables, the role of family type was impressive. Family type was defined to represent the extent to which old people affect the young. Surprisingly, this variable had the second highest partial correlation with fertility preferences after controlling for the demographic variables.

In the use of contraception equation, the 36 independent variables together explained 17 per cent of the total variance. The four demographic variables explained 10 per cent of the total variance (60 per cent of the total explained variance), which is far less than in the fertility preference equation. In other words, non-demographic variables played a more important role in the use of contraception. The desire for future births contributed most to the explained variance, much more than any of the demographic variables correlated with the use of contraception. Other important variables were educational level, residence or lifetime migration status, programme variables and family type.

Some variables which were thought important in a society like Korea, such as birth order, number of siblings, work experience and traditional attitudes, turned out not to be related to the dependent variables, or were represented by some of the other variables in the model.

The number of living children was found to be the most important determinant in the decision whether to have another child. The number of sons is the most important determinant in the use of contraception and in actual reproductive behaviour, though after two sons, the differentials in the use of contraception were negligible.

It is interesting that many of the variables came out initially with unexpected signs in both the equations, but turned out to conform to the expected pattern when adjusted for previous and all variables. These results suggest that we should be cautious in interpreting survey results without detailed analysis of data, as use of the unadjusted relationships between variables may lead to seriously distorted conclusions.

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