Chapter III

SEX PREFERENCE PATTERN AND ITS INFLUENCE ON FERTILITY BEHAVIOUR : RECENT EMPIRICAL EVIDENCE

3.1 SCOPE

In theory, parental preferences can take many possible forms. Among the more plausible, are the desire for a minimum number of children of a particular sex (e.g. at least two sons), or for an approximately equal number of sons and daughters. These sex or gender preferences may sustain higher levels of childbearing than would be the case if the sex of children was a matter of indifference. This chapter seeks to investigate the nature of the existing sex preference pattern in the country and to understand the effect of such preferences on intended and actual fertility, at the family level.

3.2 DATA

Data used for these analyses are taken from the 1980 All India Family Planning Survey, undertaken by the Operations Research Group, Baroda. The study was a survey of a national probability sample of 34,831 currently married and co-habiting women or their husbands, to collect information on family planning and its related issues (Khan and Prasad, 1983). The attitudinal data were mainly examined. The required tabulation on fertility and family planning practices (by sex composition of previous children) are not available in the

published survey report to study the effect of sex of child on fertility through behavioural indicators. Further, the reported survey data do not permit any sophisticated analysis. Despite such problems, the published data were used mainly because of their all India base and large sample to lead a discussion on the issue of son preference and its relation to fertility behaviour in India.

For further detailed analysis of intended and actual fertility behaviour in relation to sex preference, therefore, rural and urban data of western India from a survey undertaken by the Population Research Centre, Baroda, during 1979-80, were used. The survey covered a probability sample of 2922 rural and 3220 urban (city), currently married women between 15 and 49 years of age living in south Gujarat. Details regarding sample size, universe sampled and frame used for the two surveys have been discussed in Appendix I.

3.3 THE METHOD OF ANALYSIS

There is no adequate direct measure of assessing sex preference and its relation to fertility behaviour. Considering the data sets available for empirical investigations, the sex preference effects can be studied inferentially, by comparing the behaviour of couples with different family compositions. When behaviour diverges between couples with the same number of children but with varying numbers of boys

and girls in the family, underlying preferences may be inferred. To infer about sex preference and its relation to subsequent fertility intention, attitudinal indicators, i.e. attitudes and expectations about future childbearing among women with a given number and sex of children are used. The effects of sex preference on actual fertility is determined by using the behavioural indicators, i.e. percentage of couples practising contraception and subsequent fertility among women with a given number and sex of children. The details of the measures used are discussed later on in the chapter.

3.4 STATED PREFERENCE

Prior to discussing the effects of sex preference on fertility behaviour, it is important to identify the prevailing sex preference pattern in the country. In this regard, an analysis of the couples' stated preferences about the desired or ideal number of children and their sex composition, as revealed by many studies, was made. Although a number of KAP studies have been undertaken in the country, most of them did not inquire into the ideal sex composition. Some which did include questions about desired number of sons and daughters, found that when three children were considered ideal, it was usually a combination of two sons and one daughter, and when four children were stated to be ideal, it

was either three sons and one daughter or in rare cases two sons and two daughters (Agrawala, 1961; Taneja, 1972). A combination of two sons and one daughter was also observed as the ideal number of children, as indicated by the Indian Institute of Public Opinion (IIPO, 1967). In another IIPO survey done in 1971 throughout India (except in Assam and Jammu and Kashmir), each respondent was asked about the ideal number of sons, daughters and children. Respondents considered 3.46 children (2.07 sons and 1.39 daughters) as ideal. The computed sex preference index indicated that three sons were considered ideal for every two daughters (Bhatia, 1978). Lahiri (1974), with the help of the National Sample Survey data, showed that in urban India two sons were considered ideal for every daughter.

Analysis of data from the All-India Survey carried out by the ORG, Baroda during 1970, revealed that the mean ideal number of children and sons worked out to be 3.7 and 2.2, respectively. Modal number of children and sons preferred was found to be 3 and 2, respectively (Freedman and Coombs, 1974). The pattern of stated preference obtained from the All-India Survey further revealed that the modal preference for those with an ideal of two children was one son, and for those with an ideal of four children the modal preference was two sons (see Table 3.1). Thus, with an even

Table 3.1 : Changes in Gender Preference Among Indian Couples Between 1970 and 1980: A Broad Comparison

Perceived best combinations of children		Modal number of sons preferred by specified ideal number of children	
1980 Survey		1970 Survey	
Combination	Percentage	Children	Sons
One son & one daughter	25.4	2 (8)*	1 (1.5)**
Two sons	6.4		
Two sons & one daughter	34.2	3 (30)	2 (2.0)
One son & two daughters	5.1		
Two sons & two daughters	17.1	4 (23)	2 (2.3)
Three sons & one daughter	6.0		
		5 (7)	3 (2.7)
		6+(6)	4 (3.0)
Others+	5.8	Indeterminate(26)	

* Figures within parenthesis indicate percentage with x ideal number of children.

** Indicates the average number of sons preferred.

\+ Includes those couples who desire : three sons (2.4 percent), one son (2.1), one daughter (0.7) and any other (0.6).

Source:(1) Ronald Freedman & Lolagene C. Coombs, Cross-Cultural Comparison: Data on Two factors in Fertility Behaviour, An Occassional Paper of the Population Council, New York, 1974, pp. 15-19.

(2) M.E. Khan & C.V.S. Prasad, Family Planning Practices in India - Second All-India Survey, Operations Research Group, Baroda, 1983, p.32. The detailed tabulation in relation to all possible sex combinations of children is not presented in the report. The distribution presented here is based on original tabulation, available with the authors of the report.

number, the general preference is for a balance; when an odd number of children is preferred, a high proportion of women chose two boys for the three child family and three boys for the five child family. The most preferred size was the three child family with two sons and one daughter, followed by the four child family with two sons and two daughters. There is thus evidence, from the sixties' and early seventies' data, of a fairly strong preference for sons, although such a preference for sons is not to the exclusion of daughters.

The demand for a son, even today, is still quite strong in the minds of Indian couples. The All India Survey data collected by ORG, Baroda, during 1980 also reteirate the strong preference for sons among Indian couples. Although the comparable data on desired or ideal number of children and sons, as that of 1970 ORG survey are not available from the 1980 survey report, it provides data on best combination of children, perceived by currently married persons, to assess their preference for number and sex of children (Khan and Prasad, 1983). They are summarised in Table 3.1. A study of the above mentioned data reveals that 51 percent of the respondents reported to be in favour of more number of sons than daughters and 43 percent wanted an equal number of sons and daughters . Only 6 percent of the respondents preferred more daughters than sons. The most frequently preferred combination of children was two sons and one daughter

(34 percent) followed by one son and one daughter (25). The next important combination of children appeared to be two sons and two daughters (17). A broad comparison of the 1970 and 1980 All India Survey data revealed that the preference pattern in 1980 was essentially the same as that observed for 1970. The preference for sons and that too for at least two sons as a combination, was obvious in the data of both years (see Table 3.1). However, there appears to be a slight shift in the preference for total size of family. The norm, as per the 1980 data, appears to be for a three child family, while it was for three to four children, on an average, during the early 1970s.

3.5 THE SEX OF PREVIOUS CHILDREN AND SUBSEQUENT FERTILITY

The stated preferences discussed so far are useful to infer about the extent of sex preference descriptively, but are not very satisfactory measures of sex preference. There may be inconsistency in responses simply because the respondents do not take the question seriously, might not have thought enough about the topic or might give socially desirable responses rather than their true preference. Moreover, the probable impact of sex preference on fertility behaviour cannot be assessed from such stated preferences.

To infer about the extent of sex preference and its relation to fertility, two types of measures, namely attitudinal and behavioural, were therefore used. The attitudinal

statements regarding future childbearing, in relation to the number and sex composition of the surviving children, were used to assess the probable impact of sex preference on fertility intention, while behavioural measures such as current use of contraception and parity progression ratio in relation to the number and sex composition of living children, were used to assess the probable impact of the sex of the child on actual fertility behaviour. However, it may be noted that such measures of sex preference are indirect and based on statistical aggregations of single behaviours or attitudes of many couples. Their accuracy depends on the validity of the assumptions that sex preference within a population being studied is relatively homogeneous and the existence of sex preference acts only to increase the desire to have more children, not to decrease it. Because of these assumptions the measures used may under-estimate the effects of sex preference on fertility behaviour (McClelland, 1979; Widmer et al., 1981).

Though the two deficiencies pointed out by McClelland (1979), have some validity, in practice it is unlikely that they are sufficiently important to invalidate the traditional analysis of the impact of sex composition on fertility behaviour that is presented in this section. In case of the present data, the extent of error would be minimal since the great majority of the Indian population have the same sex preference, that is, in favour of more boys. Moreover, it is likely that these

preferences are more a reflection of the pervasive societal norms rather than of personal idiosyncrasies. Secondly, in a country with a high ideal family size, the second assumption - that the existence of sex preference acts only to increase fertility, not to decrease it - is not strong enough to mask the pervasive effect of sex preference on fertility. Infact, the conceptual distinction, made in previous studies, between taste and the fear of obtaining an even less desirable balance of boys and girls with the birth of the next child (or overall size considerations and their application to reproductive decisions), seems unlikely to be paralleled in the minds of couples included here. The parity progression analyses are, in any case, useful to establish the sex preference in the aggregate or its net effect on fertility, which is usually the ultimate objective in such an analysis.

In the following sections a number of attitudinal and behavioural indicators are examined in order to infer about sex preference and its relation to fertility behaviour.

3.5.1 Attitudes About Future Childbearing

As mentioned earlier, preference for children of a particular sex may be inferred from attitudes towards having additional children. In this context, two measures were examined. The first was the percentage of couples who say they intend to have no more children with a given number and

sex of living children. The second measure was the mean number of children intended among couples with a given number and sex of living children. If sex preferences exist, they are expected to be reflected in the respondent's attitudes about future childbearing which, in turn, is likely to affect behaviour. The general line of reasoning is that couples at a particular stage in family building will have differing attitudes and expectations depending on whether or not they have achieved the sex composition they want. Such differences would permit inferences about sex preference. It is with this intention that the attitudinal data from the earlier mentioned 1980 All India survey report were first examined to understand the sex preference pattern and its influence on fertility decision.

Analysis of All India Data+

Table 3.2 presents the mean number of additional children desired, as well as the percentage of couples who want no more children, by a given number and sex of living children. The data on the percentage of couples who want no more children indicate a strong preference for sons. For example, even among couples with two living children the proportion wanting no more children was much greater for those who had two sons or had one son and one daughter, than for those with only two daughters. The former two categories

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+ This work has been published in an article by the present author, entitled "Sex Preference Pattern and its Stability in India : 1970-80", Demography India, 13 (1 & 2): 108-119, 1984.

Table 3.2 : Mean Number of Additional Children Wanted and Percent Wanting no More Children by Sex Composition of Living Children Among Couples, India, 1980.

Number of living children by sex	Mean additional number of children desired	Percent wanting no more children
None	3.0	1.0
One child	1.7	12.7
One daughter	1.7	9.9
One son	1.7	17.2
Two children	0.8	43.3
Two daughters	1.2	25.2
One son & one daughter	0.7	55.7
Two sons	0.7	51.4
Three children	0.3	68.7
Three daughters	1.1	34.6
Two daughters & one son	0.4	71.8
One daughter & two sons	0.2	89.1
Three sons	0.3	77.1
Four or more children	0.1	87.7
Four or more daughters but no son	0.9	41.3
Three or more daughters & one son	0.3	79.9
Two or more daughters & two sons	0.1	96.1
One or more daughters & three or more sons	0.1	95.7
No daughter but four or more sons	na	na
All	0.9	43.6

na - not available

did not differ much. Similarly, the pattern of relationship between number of living sons and attitude towards future childbearing is also apparent at other family size levels. The differences are particularly marked after there are three living children in the family. At each family size level the percentage of couples wanting no more children increases with the number of living sons except when all living children are sons. In this category there appears to be a slight increase in the desire for additional children. The drive to have at least one daughter is, however, much weaker than the drive to have at least one son. The maximum jump is observed from the 'all daughter' to 'one son' category at each family size level.

The data on the number of additional children desired by couples with a given number and sex of living children also indicate that additional fertility is strongly tied to the sex of the children a woman already has. Like the earlier index, women with no sons wanted more additional children than those who already had one or more sons. In other words, the mean number of additional children wanted is greater for those with no sons than for those with one or more sons. The mean number of additional children desired is however relatively small in all categories, particularly at the higher family size level. The differences in the mean additional children wanted are therefore not necessarily very large.

Nevertheless, the results are consistent with those of the earlier index and indicate a reasonably clear preference for sons. For example, three child families with no sons wanted an average of 0.9 child more than did those who had two sons (and one daughter). Even in two-child families, the mean number of additional children wanted is greater for those with two daughters (and no son), than for those with one son and one daughter or two sons.

A comparison of the above results with those based on the analysis of the 1970 All India Survey data indicated that sex preference had not changed much, at least at the aggregate level, during the last decade. The preference for sons, reported by Freedman and Coombs (1974) based on the 1970 data, is also obvious in the data of the 1980 survey. The impact of son preference on the couple's subsequent fertility intention is, however, much more evident in the 1980 data. Apart from the improvement in the quality of data, another possible explanation for the greater reflection of son preference in the recent data, may be attributed to the changing family size norm over time. With a large ideal family size, importance of sex preference is considerably less because the probability of satisfying the same is much greater with a large number of children. As the ideal family size reduces, couples are not only conscious about

limiting their families, but are equally conscious of satisfying their sex preference. This is probably why, despite improvement in women's status and other social developments, a corresponding decline in the strength of sex preference is not indicated. In fact, there has been an "illusionary" increase in the same, over the last decade.

In order to draw conclusions about the impact of sex preference on actual fertility on the basis of attitudinal indicators discussed above, it is important to know for the population under study, whether the couples with a given number of living children practise contraception to control their fertility in accordance with stated desire for additional children. If this is so, the expressed preference or desire will be reflected in their fertility behaviour. It is interesting to note, from the 1980 All India survey data which exhibited a relatively strong son preference in attitudinal indicators, that although the level of contraceptive use was only 35 percent, the desire for additional children was consistently related to use of contraception. In one and two child families, the practice of contraception was about five to six times greater for those who wanted no more children (60 percent) than for those who wanted more children (11 percent). Similarly in three or more child families, the corresponding gap is much greater. Among such couples, the use of contraception for those who desired no additional

children was about 63 percent as against 6 percent for those who wanted more children. With reproduction increasingly under voluntary control, attitudes and preferences may thus play an important role in determining actual fertility.

Analysis of Data from Western Region+

To derive further evidence regarding sex preference among Indian couples, another set of attitudinal data was analysed from Gujarat, one of the most developed states in India. Rural South Gujarat and Baroda city (of Gujarat) from where the present sample was drawn, are more modern and developed than other areas of Gujarat State. Rural and urban data are analysed separately because the sex preference and other intervening variables may have different effects in these two settings. The lower fertility desires and greater contraceptive use in urban areas, for instance, may make the sex-of-previous-children effect stronger.

The details of the data have already been discussed in Section 3.2. The analysis involved only women between the ages of 15 and 49, who were living with their husbands at the time of the interview, had between two and four live births and had not experienced any infant or child death at the time the interviews were conducted. Women who had more than four children were excluded because of their small

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+ This part of the work has been incorporated in a paper by the present author, entitled "The Sex of Previous Children and Subsequent Fertility Intention in India", Published in: Canadian Studies in Population 13(1) : 19-36.

number, and because preliminary analyses revealed a lack of variation in their intentions for additional children. The women who had experienced any infant or child death were excluded to remove the effect of mortality on the relationship under study.

To assess the probable impact of sex preference on fertility intention, the attitudinal measure, namely, the mean number of additional children intended among couples with a given number and sex of living children, was employed. At various attained parities, the impact of having children of the same sex or of different sexes on the subsequent fertility intention of women is mainly seen here.

Table 3.3 presents the mean number of additional children intended by women by the sex of their previous children, in the rural and urban areas. Inspection of the data in Table 3.3 reveals a strong preference for sons, especially in the rural area. For example, even among second parity mothers with two living children, the mean number of additional children intended is much lower for those with two sons or with one son and one daughter than for those with two daughters only. The former two categories do not differ much. In the rural area two child families with no sons wanted an average of 1.04 more children than did those who had two sons. The corresponding figure is of

Table 3.3 : Mean Additional Number of Children Wanted by Sex of Previous Children Among Mothers who are at Second or Higher Parity at the Point of Survey*, South Gujarat, 1980

Parity	Sex of previous children	Urban (Baroda city)		Rural (South Gujarat)	
		No. of cases	Mean	No. of cases	Mean
Two		780	.350	365	.627
	Two sons	231	.238	118	.331
	One son & one daughter	392	.255	168	.488
	Two daughters	157	.752	79	1.367
Three		583	.105	442	.204
	Three sons	66	.015	52	.058
	Two sons & one daughter	250	.016	211	.043
	One son & two daughters	220	.141	147	.272
	Three daughters	47	.532	32	1.188
Four		296	.061	246	.089
	Four sons	19	.053	17	.176
	Three sons & one daughter	55	.036	62	.016
	Two sons & two daughters	126	.024	96	.042
	One son & three daughters	78	.077	60	.117
	Four daughters	18	.333	11	.636

* The women who experienced any infant or child death are not included

the order of 0.51 in case of urban women. A similar pattern of relationship between number of living sons and attitude towards future childbearing is also apparent at other parities. The sex of the child effects are relatively greater at the third or higher parity. The maximum percentage variation in the mean number of additional children wanted is observed for the third parity women. At the fourth parity the percentage difference in the mean additional children wanted between the two extreme categories is also quite large compared to that at the second parity, although the mean is relatively small in all categories. Nevertheless, the results indicated a very clear preference for sons at various attained parities. The mean number of additional children intended decreases with the number of living sons. At third and fourth parities there appears to be a slight increase in the desire for additional children when all living children are sons, indicating that the desire for sons is not to the exclusion of daughters. The drive to have at least one daughter is however much weaker than the drive to have at least one son. Such a pattern has also been observed at the all India level, as discussed earlier.

At the second parity, the most contented group appears to be those couples who had two sons since additional number of children intended by them was relatively small. Similarly, at the third parity the most contented group appears to be

those couples who had at least two sons out of their three living children. At the fourth parity, the pattern is slightly different for the rural and urban samples. The most satisfied group in the rural area comprises of those couples who had three sons and one daughter out of their four living children, while it is the group with two sons and two daughters among the urban sample.

If there is no sex preference among couples, we might assume that everyone at their attained parity would desire the same number of additional children as those at that parity who are currently most satisfied with their sex composition. If the couples practise contraception to control their fertility in accordance with the stated desire for additional children, that would mean that total number of additional children at the second parity would drop by 47 percent in the rural areas and 32 percent in the urban area. Such a reduction at the third parity would be much higher and is of the order of 79 and 86 percent, respectively. Among fourth parity women, such a reduction in the mean number of additional children intended is also a big one and it is about 61 percent in urban area and 82 percent in rural area. The question which arises is how much would overall fertility be affected as a result of these reductions? If the stated desire for additional children by couples at various attained parities is a true reflection of their

future fertility behaviour, the impact on total fertility in the absence of sex preference, would not be a big one, since a relatively small proportion of the population at each attained parity (though not an insignificant one) is being affected as a result of undesirable sex composition.

In drawing conclusions from the above analysis three other factors should be borne in mind. Firstly, a reasonable level of contraceptive use must exist before conclusions about the impact of sex preference on fertility can be made on the basis of attitudinal indicators. In this regard, it is important to know for the population under study whether the couples with a given number of living children practise contraception to control their fertility in accordance with their stated desire for additional children. If this is so, the expressed preferences or desire will be reflected in their fertility behaviour. It is interesting to note from the present data that the proportion of second or higher parity women currently practising contraception is about 62 and 71 percent in rural and urban areas, respectively. In two child families, the practice of contraception among those who want no more children is about 70 and 72 percent in the rural and urban areas, respectively. Similarly, in three and four child families, the corresponding figures are 81, 83 and 85, 87 percent, respectively. The practice of contraception among rural women is at least ten times

lower for those who want more children than for those who want no more children. The corresponding gap is however much lower (two to three times) among urban women as many of the urban women who want children are using spacing methods. Nevertheless, the couples' use of contraception is very much consistent with their expressed desire for additional children.

A second important factor is that in India, infant and child mortality is still very high. Women may desire another child to replace the one who died, rather than because they wanted to satisfy a sex preference. This may obscure the relationship under study. As mentioned earlier in order to remove the effects of this, the women who had experienced any infant or child mortality at the time the interview was conducted, were excluded from the present analysis. The attrition in size of the sample due to excluding these women is about 15 and 30 percent in urban and rural areas, respectively.

Finally, the subsequent birth intention among women at a given parity also depends on their age, education and other socio-economic conditions. These characteristics of the women were not controlled in the present analysis. This and the issues raised earlier could, to some extent, obscure the relationship under study. Nevertheless, in order to

minimise these problems, the third parity women are specifically selected for sophisticated analysis. As can be seen from the analysis presented in the following section, controlling the various factors mentioned above did not change the relationship of number of sons to the number of additional children wanted.

Women with Three Children

The parity or family size level at which the preference and attitudes may make an appreciable difference in behaviour vary with the culture. In populations where ideal family size is relatively large, sex preferences may not affect behaviour until later in the family cycle, perhaps at third or fourth parity (Freedman and Coombs, 1974, p. 12). Considering the actual parity transition in India, the critical parity may be the third. The rural and urban data presented here also emphasize the importance of this group. Although the mean number of additional children wanted at third parity is relatively small compared to that at second parity, the percentage variation across the sex of the children a woman already has, is much greater at the third parity. Moreover, as was noted in the discussion prior to the analysis, the present norm is for three children which makes sex of the child for the three child family all the more critical. Further analysis, as mentioned earlier, is therefore confined to those women who were at third parity at the time

the interview was conducted.

With number of additional children intended among third parity mothers as the dependent variable and the sex of first three children as the main independent variable, Multiple Classification Analysis (MCA), a form of multiple regression analysis using dummy variables, was employed to assess the net effect of the gender of child among third parity mothers (Andrews et al., 1967). The characteristics of the sample that might affect birth intention, were put under statistical control and they were : mother's age, mother's education and socio-economic status of the family (SES)[1]. In order to remove the effects of infant and child mortality, the third parity mothers who had experienced any infant or child mortality at the time the interview was conducted, were excluded from the analysis. Finally, two MCA runs based on the data of rural South Gujarat and Baroda city, were given to assess the differences in the strength of effects of gender of children on intentions for additional births among third parity mothers between rural and urban areas.

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1. In constructing the socio-economic status scale, the following items were used for the rural scale: education, occupation, caste, social participation, land holding, type of house, farm power, household material possession, and type of family, including family size and its distinctive features. The items on which information was available for the urban scale were education, occupation, monthly income, type of house and the like, purchase of newspaper, concept of social prestige, and belief in caste system. The items relate mainly to the head of the family and the family itself

Tables 3.4 and 3.5 present the results of MCA runs for the rural and urban samples. It is evident from Table 3.4 that the mean intended family size for rural and urban women at the third parity in the present sample was 3.20 and 3.11 respectively. Roughly 20-40 percent of the variation in the subsequent fertility intentions (third parity onwards) is explained by the factors included in the MCA runs. Among the four selected characteristics that might affect subsequent fertility intentions, the sex of previous children is the most important factor, followed by socio-economic status and mother's age at interview, as evident from the value of beta coefficient or its square in MCA runs. In fact, a major part of the increase in the additional births desired at parity three is due to the influence of sex of the previous children, while the relative importance of mother's age and socio-economic condition is minimal. This is true for both rural and urban (city) areas. In both the MCA runs (rural and urban), the effect of the sex of child is noted to be statistically significant.

Table 3.5 shows the unadjusted and adjusted mean by various categories of the sex of child predictor. For this variable the pattern of net effects is quite similar to the pattern shown by gross means. Couples with no sons want more

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(for details regarding construction of the scale, see Gandotra, Das and Dey, 1982 : 50-51). The total score received by the head of the concerned family was obtained by adding the scores given to the sub-items. This total score for the person indicated the overall socio-economic status.

Table 3.4 : Beta Coefficients for the Selected Variables in MCA Runs with Additional Number of Children Desired by Third Parity Mothers as the Dependent Variable, South Gujarat, 1980

Variable	Beta coefficient desired from MCA runs	
	Rural (South Gujarat)	Urban (Baroda city)
Sex composition of the children at third parity	0.637***	0.404***
Mother's age	0.073	0.107*
Mother's education	0.057	0.046
Socio-economic status	0.104*	0.199**
R^2	0.413	0.221
Mean additional number of children desired	0.204	0.105
Standard deviation	0.471	0.353
N	442	583

Note: F-test based on the method followed by Andrews et al., (1967) was done to know the significance of beta values for all the MCA runs.

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

Table 3.5 : Unadjusted and Adjusted Number of Additional Children Desired by Sex Composition of the Earlier Children Among Mothers Who are at Third Parity and have not Experienced any Child Mortality at the Point of Survey, South Gujarat, 1980

Sex composition of the children at parity three	No. of cases	Unadjusted mean	Adjusted* mean
Rural (South Gujarat)	442	0.204	0.204
Three sons	52	0.058	0.046
Two sons and one daughter	211	0.043	0.043
One son and two daughters	147	0.272	0.272
Three daughters	32	1.188	1.207
Urban (Baroda City)	583	0.105	0.105
Three sons	66	0.015	0.024
Two sons and one daughter	250	0.016	0.046
One son and two daughters	220	0.141	0.152
Three daughters	47	0.532	0.528

* Adjusted for mother's age, education and socio-economic status by Multiple Classification Analysis.

additional children than those who already have one or more sons. In fact, mean additional number of children intended decreases consistently with the increase in the number of sons except when all living children are sons. In this category there appears to be a slight increase in the desire for additional children in rural areas although such an increase may not be significant.

In general, the pattern of net effects of the sex of previous children in urban area is quite similar to the pattern shown by the rural sample. However, the rural women displayed the effect of sex of the children on mean intended family size more distinctly than did their urban counterparts. Among the third parity rural women with all three sons, the adjusted mean number of additional children intended was only .05, the adjusted mean for women with all three daughters was as high as 1.21, indicating a difference of more than one child on an average. In the urban area, the corresponding difference between the two extreme categories is of the order of 0.50 child. The rural-urban difference in the strength of effects of gender of children on intention for additional births is also apparent at other parities. Such a difference may be related to family size norms, even though sex preferences in the rural and urban areas are not different. As modernization proceeds, it is first the urban area that will probably reduce size preference. As family

size norms decline, the pressure for few children may dominate any preference for sex of child. Increasingly, couples may avoid taking risky fertility decisions to satisfy their sex preference. Under such circumstances, measures used here might underestimate its effect in the urban area.

The foregoing analysis has shown that among the rural and urban women considered, an effect of the sex of their previous children on their intentions for additional births was present at every parity, although the rural women displayed the sex of the child effect more distinctively than did the urban women. At each parity the mean number of additional children intended decreased with the number of living sons. At higher parities there appeared to be a slight increase in the desire for additional children when all living children were sons. In other words, at higher parities, women with children of only one sex are more likely to desire an additional child than women with children of both sexes. However the drive to have at least one daughter is much weaker than the drive to have at least one son. This is consistent with the earlier presentation based on the 1980 All India Survey data. The sex of the previous child thus strongly influences a couple's decision regarding additional birth at all stages of family building, especially for bearing a fourth child. The relatively

greater uncertainty about stopping at three children among women who are not satisfied with their sex composition, suggests that the effect of sex of previous children is related to the dynamic process of altering fertility expectations. The present three child family norm among Indian couples makes sex of the child effects all the more critical, because it is factors which affect the decision to increase the family size from three to four children which are now the most important.

In this context, a detailed analysis of third parity mothers, through multiple classification analysis (which controlled the various socio-economic and demographic characteristics that might affect birth intentions), revealed that the pattern of net effects is quite similar to the pattern shown by gross means. In other words, the results as far as inferences of son preferences are concerned, differed little, with or without statistical controls for the various factors that might affect birth intention. Both urban and rural data did reveal a significant impact of the sex of child on the subsequent fertility intention. Further it is interesting to note that the use of contraception among rural and urban women is consistent with their expressed attitudes toward having additional children, not only at third parity but also at second and fourth parities. It is noted, however, that the impact of the disappearence of sex preference on

total fertility would not be a big one, although it would not be an insignificant one either.

3.5.2 Current Use of Contraception

In the last section, the association between family composition and the attitudes of the women towards future child bearing was examined. In this section, the analysis is taken a step further by examining the association between family composition and current use of contraception. Current use, here, refers to reported use of any method of contraception, including sterilisation, at the time of survey. It thus encompasses both the motivation to limit family size and to space births. As will be evident from the figures presented later, a high proportion of current users in the present sample appear to be "limiters" rather than "spacers", and since contraception is usually only began after all children wanted are born, the practice of contraception serves as a good indicator to measure the effect of sex preference on fertility.

The relevant detailed data from the 1980 all India survey, are not available for such analysis. However, to infer about the association an attempt has been made to study, from the available data, whether number of living sons has any influence on the use of contraception. Table 3.6 presents the percentage of couples currently practising

Table 3.6 : Percentage of Currently Married Couples Practicing Contraception by their Number of Living Sons and Total Number of Living Children, India, 1980

Number of surviving sons/total children	Percentage of couples currently practicing contraception			
	Terminal methods		All methods	
	Sons	Total children	Sons	Total children
0	3	*	11	4
1	18	3	34	17
2	36	16	51	34
3	42	34	55	49
4 and above	39	39	51	53
All	22		35	

* Less than 0.5 percent

Source: Computed from : M.E. Khan and C.V.S. Prasad 1983 Family Planning Practices in India - Second All India Survey, Operations Research Group, Baroda, pp. 152-153.

contraception by their number of living sons and total living children, based on all India survey carried out during 1980. Since about 13 percent of the couples appear to be current users of spacing methods, cross-classifications of terminal methods users are also examined in Table 3.6. As expected, the use of contraception among couples increases consistently with the increase in the number of living sons and total living children. However, it is interesting to note that women with one or more sons are more inclined to practise contraception than those with one or more children of either sex, indicating the influence of son preference on the use of contraception, especially terminal methods. For example, about 18 percent of the couples with one son and 36 perdent of the couples with two sons had adopted sterilisation, as against 3 percent of the couples with only one child and 16 percent with two children. Such a difference is however narrowed down with the increase in the number of children, since the probability of satisfying a sex preference becomes much greater with more number of children. Thus, from the 1980 all India survey data which exhibited relatively strong son preference in attitudinal indicators, the presence of a son is also consistently related to the use of contraception. Till further details regarding the use of contraception in relation to family composition are available, its effects on contraception cannot be ignored.

The South Gujarat data, which also exhibited clear preference for sons in attitudinal indicators, are studied here to examine their possible effects on contraception. As has been done earlier, second and higher parity women were considered for the present analysis. This was done separately for the rural and urban samples. As mentioned earlier, the current use of contraception among second or higher parity mothers is as high as 62 percent in rural south Gujarat and 71 percent in Baroda city. The overall level of contraceptive use among currently married women (all parities) for the population under study was found to be about 47-55 percent. The relatively high use of contraception in the present sample is in line with the fact that rural South Gujarat and Baroda, a cosmopolitan city, are more modern and developed than other areas of Gujarat state. It is noted that the contraceptive prevalence level in Gujarat was comparatively higher (45 percent) than the All India level (35 percent) during 1980 (Khan and Prasad, 1983: 118).

The detailed cross classification of current use among second and higher parity rural and urban women by family size and composition is given in Table 3.7. A pronounced impact of sex composition on the current use of contraception is observed for both rural and urban areas. As shown in Table 3.7, the presence of sons is consistently

Table 3.7 : Current Use of Contraception Among Second or Higher Parity Women, South Gujarat, 1980

No. and sex composition of living children	Rural (South Gujarat)		Urban (Baroda city)	
	No. of cases	Percentage	No. of cases	Percentage
1	2	3	4	5
None	11	0.00	4	25.00
One	124	11.29	50	26.00
1 son	80	12.50	29	27.59
1 daughter	44	9.09	21	23.81
Two	571	41.15	910	82.86
1 son, 1 daughter	275	46.18	458	64.41
2 sons	182	51.65	275	70.55
2 daughters	114	12.28	177	46.89
Three	676	68.64	712	76.83
2 sons, 1 daughter	304	82.89	304	84.21
1 son, 2 daughters	231	58.01	258	71.32
3 sons	83	80.72	87	83.91
3 daughters	58	18.97	63	53.97
Four	422	81.04	377	79.84
3 sons, 1 daughter	106	91.51	72	80.56
1 son, 3 daughters	102	71.57	101	75.25
2 sons, 2 daughters	170	85.88	155	86.45
4 sons	26	73.08	25	88.00
4 daughters	18	38.89	24	45.83

.... contd.

Table 3.7 (contd.)

1	2	3	4	5
Five or more	367	78.75	288	75.35
4 sons, 1 or more daughters	58	81.03	41	75.61
3 sons, 2 or more daughters	98	83.67	86	73.26
2 sons, 3 or more daughters	101	82.18	77	80.52
1 son, 4 or more daughters	69	76.81	44	81.82
All (5 or more) sons	30	73.33	26	61.54
All (5 or more) daughters	11	18.18	14	64.29
Total, parity 2 or higher	2171	61.91	2341	70.53
		(72.04)*		(77.91)

* Figures within parenthesis indicate the expected level of contraception in the absence of sex preference. The method of estimation has been described under foot-note (2) in the text.

related to the use of contraception, although the data on rural couples revealed the sex-of-child effect more distinctively. At each family-size level, contraceptive use increases with the increase in the number of sons, except when all living children are sons. In this category there appears to be a slight decrease. It is interesting to note, however, that among couples with two living children, those with only sons are more inclined to practice contraception than those with children of both sexes. The pattern resulting from the analysis of contraceptive use generally conforms to that found in the analysis of family composition and fertility intention. The increase in the proportion of users is similar to that of the decrease in subsequent fertility intention by the number of sons among the women's previous children.

Although sex preference affects use of contraception, its overall effect on contraceptive use is not large enough. According to the measure suggested by Arnold (1985)[2], it is estimated that if there was no sex preference at all, contraceptive use would at the most increase by 10 percentage points.

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2. The measure suggested by Arnold (1985: 282-283) assumes that in the absence of sex preference all couples at each parity will act in the same manner as those couples at the same parity who are currently most satisfied with the sex composition of their children. In general, the measure is defined as

$$\Sigma C_i P_i / \Sigma P_i$$

Where C_i is the maximum contraceptive use rate at each parity i, and P_i is the number of women at each parity.

As can be seen from Table 3.7, 62 percent of second or higher parity couples in the rural area and 71 percent in the urban area were practising contraception at the point of survey. In the complete absence of sex preference, it is estimated that these figures would increase to only 72 and 78 respectively. Thus, the overall effect of sex preference on actual fertility cannot be expected to be a large one although it would not be an insignificant one.

3.5.3 Actual Fertility Behaviour+

In the previous section, the association between the sex composition of families and current use of contraception, based on the recent data of all India survey and other regional survey, was examined. This section examines the association with actual fertility. In the absence of relevant data from the all India survey, only south Gujarat data are further examined for fertility analysis in relation to sex preference.

The analysis involved only women below age 49, who were living with their husbands at the time of the interview and who had at least two live births. For the present analysis, second and higher parity women who had not been exposed for at least one year for additional fertility, at the time of the interview, were excluded.

+ This work has been published in a paper by the present author, entitled "Sex Preference and Fertility Behaviour: A Study of Recent Indian Data", Demography 24(4) : 517-530, 1987.

To assess the probable impact of sex preference on fertility, a parity progression ratio (PPR) - the proportion of women who progress from parity x to parity(x+1) - was computed by the sex of their previous children at each parity. PPRs from parity 2 through parity 4 were examined to test for sex preference at specific parities. Higher level PPRs (beyond parity 4) were not analysed because a progressive decrease in the number of respondents made proper statistical control difficult. The basic assumption behind assessing the impact on the PPR of having children of the same or different sex is that couples who do not have children of the desired sex, generally assumed to be sons, are more likely to continue childbearing in the hope of having a child of this sex.

With the PPR at a given parity as the dependent variable and the sex of previous children as the independent variable, multiple classification analysis (MCA) was used to assess the affect of the gender of previous children on subsequent fertility (Andrews et al., 1967).

Since sex of offspring is a randomly determined variable, it will be unrelated to other variables that might influence fertility. However, some commonly analysed fertility determinants (elapsed duration since the attainment of pertinent parity, woman's age at attainment of pertinent parity, woman's education and socio-economic status of the

family) are included to allow comparison with the effects of sex of previous children. Since we are examining the sex of surviving children, there may be some association between this variable and socio-economic variables. In addition to controlling the selected variables, the analysis was repeated for a sample of women who had not experienced the death of any offspring. The results for this reduced sample mirror those reported here.

The MCA results for rural and urban samples are summarized in Tables 3.8 and 3.9. Table 3.8 presents the beta coefficients of each of the predictors. It also provides the value of R^2, the proportion of variance explained at various parities, along with the total number of cases, grand mean and its standard deviation. It is evident that the overall parity progression ratios (grand mean) are very high even at the fourth parity in both the samples. At parity 4, the progression ratios among rural and urban couples are 63 and 51 percent respectively. They are 69 and 58 percent among third parity rural and urban couples, respectively, while the corresponding figures at second parity are 79 and 65. Since the overall parity progressions are so high at the lower parities, it is clear that the majority of couples want to have more than two, or three children. Roughly 27-53 percent of the variation in observed levels of PPR is explained by factors included in the rural MCA runs.

Table 3.8 : Beta Coefficients for the Selected Variables, with Parity Progression Ratio (PPR) as Dependent Variable, South Gujarat, 1980

Variable	Rural (South Gujarat)			Urban (Baroda city)		
	PPR_{2-3}	PPR_{3-4}	PPR_{4-5}	PPR_{2-3}	PPR_{3-4}	PPR_{4-5}
Elapsed duration since the attainment of the pertinent parity	0.704***	0.470***	0.434***	0.514***	0.284***	0.446***
Sex composition of the children at the attainment of the pertinent parity	0.084***	0.267***	0.254***	0.078***	0.171***	0.185***
Woman's education	0.093***	0.137***	0.085**	0.225***	0.235***	0.114**
Woman's age at attainment of pertinent parity	0.065**	0.094***	0.117**	0.100***	0.232***	0.163***
Socio-economic status of household	0.032	0.065*	0.067	0.042	0.085*	0.101*
R^2	0.529	0.372	0.265	0.418	0.317	0.320
Mean PPR	0.792	0.694	0.630	0.647	0.582	0.508
Standard deviation	0.406	0.461	0.483	0.478	0.493	0.500
N	2171	1616	1054	2349	1426	789

Note: F-test based on the method followed by Andrews et al., (1967) was done to know the significance of beta values for all the MCA runs.

* significant at .05 level
** significant at .01 level
*** significant at .001 level

The urban data explain between 32 and 42 percent of the variance. The relative importance of the various factors on PPR can be assessed by looking at the beta-coefficients. As was to be expected, most of the variance explained can be attributed to elapsed-duration. In a population where use of contraception is not very high and generally occurs only after a large number of children are born, fertility becomes largely a function of time (duration of exposure). The next important predictor at parities 3 and 4 in the rural area is sex of the previous children. On the other hand, the second most important predictor in the urban area is woman's education at second and third parity and sex of previous children at fourth parity.

It is generally noted that among the five selected characteristics that might affect subsequent fertility, elapsed duration since the attainment of the pertinent parity is the most important factor, with sex of the previous children at the attained parity generally the second most important, followed by woman's education and her age at the attainment of pertinent parity. The net effect of these variables is statistically significant (see Table 3.8). The only variable not found to have a consistently significant effect in explaining the variance in subsequent fertility is the socio-economic status of the household. The salient point is that though additional fertility still depends

largely on elapsed duration, the variable sex of previous children explains more variance in subsequent fertility than either of the other important (commonly acknowledged) variables considered in the model. The relative importance of socio-economic factors is minimal, especially in the rural area. In light of this it is concluded that the sex composition of living children has an important bearing on the couple's decision about whether to proceed to higher parities.

Table 3.9 shows the gross and net deviations of the parity progression ratios from the grand mean, by sex composition of the earlier living children at second and higher parities. The pattern of net effects is similar to the pattern shown by the gross deviations. At each parity, couples less likely than the average to proceed for the next child, have either all sons or more sons than daughters, among their total previous living children. In other words, a higher proportion of couples with no sons at various attained parities, went on to have the next child than did those who already had one or more sons. Such a preference for sons is not to the exclusion of daughters, although the drive to have a daughter is much weaker than the drive to have a son. For example, among couples who had reached third parity, those who had two sons and one daughter were less apt to go on to the next parity than those with three sons. At second and

Table 3.9 : Gross and Net Deviation of Parity Progression Ratio from Mean

Parity and sex composition of living previous children*	Rural (South Gujarat) No. of cases	Deviation Gross	Deviation Net	Urban (Baroda city) No. of cases	Deviation Gross	Deviation Net
1	2	3	4	5	6	7
Parity 2	2171			2349		
None	84	0.101	0.056	28	0.246	0.047
1 son	257	0.002	0.020	133	0.180	0.077
1 daughter	218	0.099	0.043	137	0.200	0.086
1 son, 1 daughter	821	0.006	-0.007	997	-0.045	-0.021
2 sons	392	-0.088	-0.065	531	-0.082	-0.031
2 daughters	399	0.000	0.030	523	0.058	0.027
Parity 3	1616			1426		
None	25	0.306	0.211	-	-	-
1 son	70	0.148	0.147	28	0.204	-0.024
1 daughter	61	0.142	0.110	25	0.378	0.177
1 son, 1 daughter	242	0.111	0.082	124	0.111	0.056
2 sons	110	0.033	0.009	66	0.054	0.071
2 daughters	102	0.178	0.141	57	0.207	0.105
2 sons, 1 daughter	379	-0.214	-0.184	399	-0.143	-0.113
1 son, 2 daughters	400	0.011	0.030	433	-0.021	0.011
3 sons	113	-0.110	-0.137	135	-0.026	-0.015
3 daughters	114	0.121	0.137	159	0.160	0.134

.... contd.

Table 3.9 (contd.)

1	2	3	4	5	6	7
Parity 4	1054			789		
None	-	-	-	-	-	-
1 or 2 sons	67	0.079	0.047	28	0.242	0.149
1 or 2 daughters	64	0.283	0.246	21	0.397	0.180
1 son, 1 daughter	70	0.127	0.091	17	0.198	0.007
2 sons, 1 daughter	127	-0.063	-0.083	68	-0.170	-0.127
1 son, 2 daughters	140	0.048	0.095	68	0.109	0.113
3 or 4 sons	61	-0.105	-0.026	61	-0.082	-0.060
3 or 4 daughters	75	0.143	0.150	80	0.192	0.152
3 sons, 1 daughter	118	-0.121	-0.160	101	-0.033	-0.053
1 son, 3 daughters	160	0.020	0.046	148	0.019	0.027
2 sons, 2 daughters	172	-0.142	-0.154	197	-0.122	-0.071

Note: Includes only women with last birth at least one year prior to survey. Net is adjusted (MCA) for elapsed duration since attainment of pertinent parity, woman's age at attainment of pertinent parity, woman's education, and socio-economic status of household.

* "None" indicates no surviving children.

fourth parities couples with an equal number of sons and daughters were less apt, than average, to go on to the next parity.

Rural couples displayed the effects of sex preference (especially at lesser parities) more distinctly than did their urban counterparts, although the pattern of net effects of sex of previous children on PPR is similar for both. Even though the effect of sex preference is expected to be stronger in the urban area as a result of relatively higher use of contraception, it is probably the difference in the family size norms that makes the effect of gender of children less distinctive in the urban area. The present data indicate that urban people have a relatively smaller size preference than their rural counterparts[3]. As family size norms decline, the pressure for few children may dominate any preference for sex of children. Increasingly, couples may avoid taking risky fertility decisions to satisfy sex preference. Under such circumstances,

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3 In this survey no direct question regarding the ideal number of children was asked. To estimate the family-size norm and its pattern, the ideal number of children is defined as the total number of living children at the time of interview and the number of additional children desired by a couple. Measured this way, the ideal number of children is slightly overestimated for those who had x number of children but desired no more children, because it is presumed that their x number of living children is the ideal. If these couples were probed further, their ideal number of children might be less than x. Nevertheless, the measure helps assess the relative difference in ideal family size in the rural and urban areas. The respective computed means according to marriage durations (in years) of 0-8, 9-12, 13-19 and 20 or more and for all women are as follows: rural- 2.77, 3.19, 3.59, 4.27 and 3.33; urban- 2.66, 3.29, 3.90 and 2.96. The data indicate that the influence of traditional values is weakening over time and, to some extent with the place of residence.

the measures used here may underestimate the effect in the urban area. But it is also likely that as modernization continues, son preference may diminish and show less effect. Nevertheless, the preference for sons is still quite strong even in the urban area and exerts some effect on the actual fertility.

The effect of sex preference on subsequent fertility is examined through surviving children at a given parity since that is perhaps most relevant when making this parity specific decision. The estimated fertility differences are the consequences of both child mortality and sex preference. The sex preference effect can be seen by comparing the deviations of various sex composition categories for those couples who had all children living at a given parity, whereas the comparison of those with none and one or more living children at that parity is an effect of child mortality. For example, at parity 3 the difference in net effects, between couples with three daughters and those with two sons and one daughter and between those with three daughters and those with three sons - which is as high as 0.321 [0.137-(-0.184)] and 0.274 [0.137-(-0.137)], respectively in the rural area - shows the effect of sex of previous children. The corresponding figures indicating the sex preference effect in the urban area are 0.247 [0.134-(-0.113)] and 0.149 [0.134-(0.015)], respectively

On the other hand, at parity three the differences between net effects of those with none and three living children (weighted average of four sex composition categories) or between those with one (weighted average of two sex composition categories) and three living children are 0.268 [0.211-(-0.057)] and 0.187 [0.130-(-0.057)] respectively, indicating the effect of child mortality in the rural area. A similar comparison, at parity 3, of the two extreme categories i.e. couples with one and three living children, (there being no couples in the "None" category) reveals the child mortality effect to be 0.090 [0.071-(-0.019)] in the urban area (see Table 3.9). The sex preference effect can also be distinguished at other parities. Though the effect appears to be greater than that of child mortality the effect of the latter cannot be ignored in explaining additional fertility. When the impact of child mortality is controlled however, by excluding couples who had experienced any child death from the analysis, the effect of the sex of children in explaining the total variance in PPR at various parities, for the rural and urban areas is again found to be statistically significant and the resulting pattern also reflect son preference.

It is interesting to note from Table 3.9 that the sex distribution of the first two to four live births reveals slightly more women with all girls than with all

boys, as well as more women with a proportionately higher number of girls than boys, in both the rural and urban samples. For example, at parity three there are more women (114 rural and 159 urban) with 3 girls than women (113 and 135) with 3 boys for the first three living children and more women (400 and 433) with 2 girls and 1 boy than women (379 and 399) with 1 girl and 2 boys. We would expect the distribution in the population to be otherwise, assuming a sex ratio at birth of more than 100 and the independence of one birth from the next. The observed sex distribution of previous children for a given family size seems to be typical for a region whose population is known to have a strong preference for sons and a fairly high level of contraceptive use. A similar pattern is also observed in WFS data from Korea, a society known to have a strong preference for sons and a high level of contraceptive use (Park, 1983, Tables 5 and 6).

Any discrepancy between the observed and expected sex distribution in a specified family size could be behavioural in origin. As a result of contraceptive use, couples with a favourable sex composition are more likely to stop childbearing than those with an unfavourable sex composition. It seems that couples increasingly begin to practise contraception only after a desired number of children by sex are born. Therefore, as will be seen in the analysis that follows (see

Tables 3.10 and 3.11), as well as that discussed earlier (see Table 3.7), the distributions of previous births by sex at each attained parity are much as expected in the population as a whole when they are seen at the point of survey or for those women who have completed their reproduction or are, at least, in the later years of reproductive life.

The Increasing Effects of Sex Preference

Although it is not possible to make exact comparisons between the findings of the present data and those of the earlier studies because of variation in sample and methodology, gross comparisons lead one to conclude that the effect of sex preference exists in the present data, but was not visible in the 1961-1970 data, used by previous investigators (Freedman and Coombs, 1974; Mukherji, 1977; Repetto, 1972; Sarma and Jain, 1974). As noted in the earlier discussion, sex preference may become visible only when couples modernize their ideal family size downward and control their fertility to a greater extent. In recent years family size values apparently center on having three children, on an average (Khan and Prasad, 1983), while the expected family size during the 1960s and early 1970s remained fairly high and much above three, in India (Bhatia, 1978; Freedman and Coombs, 1974; Lahiri, 1974). Even with a moderate number of desired children, if a sex preference exists, its effect on fertility

may be considerable (Freedman and Coombs, 1974; 12). The level of contraceptive use during the early seventies was low, never rising above 23 percent in the case of couples with three or more children and who desired no additional children. The corresponding figure during the recent period (1980s) is as high as 63 percent. Perhaps contraceptive use must be above some threshold level before one can make conclusions about the impact of sex preference on the basis of behavioural indicators. This may be a reason why the impact of having sons on fertility was not evident during 1961-1970.

The conclusion that sex preference now has a greater effect on fertility is also evident from the present data when marriage cohorts are analyzed by PPRs and number of preceding sons and daughters. The effect of sex preference should be stronger among the more recent cohorts who have probably reduced their ideal family size and have consciously begun to control their fertility. As Table 3.10 shows, a much more pronounced impact of composition on PPRs is observed for couples whose duration of marriage was less than twelve years than for those with longer duration in both rural and urban areas, although the relation between sex composition and subsequent fertility within marriage cohorts is similar to that for all couples (see Table 3.9).

The differences between marriage cohorts at each parity are large. For example, among third parity couples

Table 3.10 : Effect of Sex Composition of Living Previous Children on Parity Progression Ratio by Duration of Marriage

Parity and sex composition of living previous children	Rural (South Gujarat)				Urban (Baroda city)			
	Married less than 12 years		Married 12 or more years		Married less than 12 years		Married 12 or more years	
	Number of cases	Mean PPR	Number of cases	Mean PPR	Number of cases	Mean PPR	Number of cases	Mean PPR
1	2	3	4	5	6	7	8	9
Parity 2	996	0.607	1175	0.949	1104	0.444	1245	0.827
None	31	0.710	53	1.000	8	0.750	20	0.950
1 son	122	0.607	135	0.963	55	0.673	78	0.936
1 daughter	96	0.755	122	0.992	61	0.738	76	0.934
1 son, 1 daughter	361	0.607	460	0.948	475	0.392	522	0.793
2 sons	185	0.492	207	0.894	248	0.351	283	0.753
2 daughters	201	0.627	198	0.960	257	0.502	266	0.902
Parity 3	558	0.398	1058	0.851	462	0.340	964	0.698
None	7	1.000	18	1.000	-	-	-	-
1 or 2 sons	68	0.485	112	0.947	29	0.276	65	0.861
1 or 2 daughters	54	0.592	109	0.991	31	0.645	51	0.961
1 son, 1 daughter	89	0.528	153	0.967	43	0.465	81	0.815
2 sons, 1 daughter	124	0.193	255	0.620	121	0.231	278	0.529
1 son, 2 daughters	142	0.324	258	0.915	149	0.275	284	0.711
3 sons	30	0.333	83	0.675	32	0.219	103	0.660
3 daughters	44	0.522	70	1.000	57	0.579	102	0.833

contd.....

Table 3.10 (contd.)

1	2	3	4	5	6	7	8	9
Parity 4	212	0.236	824	0.729	145	0.214	644	0.574
None	-	-	-	-	-	-	-	-
All (1 to 4) sons	31	0.242	97	0.743	11	0.182	78	0.577
All (1 to 4) daughters	36	0.486	103	0.961	24	0.375	77	0.857
1 son, 1 daughter	14	0.286	56	0.875	4	0.250	13	0.846
2 sons, 1 daughter	28	0.250	99	0.657	18	0.111	50	0.420
1 son, 2 daughters	32	0.187	108	0.824	15	0.200	53	0.735
3 sons, 1 daughter	12	0.000	106	0.566	12	0.167	89	0.517
1 son, 3 daughters	29	0.276	131	0.733	27	0.333	121	0.570
2 sons, 2 daughters	30	0.000	142	0.591	34	0.088	163	0.448

with three living children, the effect of three daughters (percentage deviation of the "three daughters" category from the overall mean at third parity) is twice as large in the recent cohort for the rural area, and it is more than three times larger in the recent cohorts in the urban area. The data also reveal that family size norms among the recent cohorts have gone down and center on having two to three children, on an average, in the rural and urban areas. As the ideal family size declines, couples are not only conscious about limiting their families, but are equally conscious of satisfying their sex preference. This is probably why, despite modernization, the increasing effect of sex preference is indicated among the recent cohort.

The Effects of Sex Preference on Completed Fertility

The foregoing analysis has shown that there is certainly some effect of sex preference on fertility in the population under study. The effect, however, applies to a relatively small proportion of the population, although not an insignificant one. For example, at various attained parities about 13-28 percent of the couples who have only one or more daughters are affected as a result of their son preference in both areas (see Table 3.9). This proportion would be further reduced if those couples who had experienced infant and child mortality were removed. Such individual families might be put to hardship by having more children

than they really want or can afford. The question that arises is how much gender preference affects completed family size or overall fertility. In this context, an attempt to estimate the effect of sex preference on completed fertility of the cohort is made here.

At the outset, it must be mentioned that these data were not collected for the analysis of completed fertility. The survey covered only those currently married women who were in the age group 15-49 years. From this group, all (second or higher parity) women who had completed their reproduction or had almost reached the end of their reproductive period were selected. To be specific, the analysis includes all those second or higher parity women who were 45-49 years of age and those aged 40-44 years who had attained menopause at the time of survey; the assumption made is that the additional contribution of these women towards the total fertility would be negligible. The number of currently married women thus defined is 172 in rural South Gujarat and 219 in Baroda city. To assess the probable impact of sex preference on completed fertility, the number of additional children born among these couples after attaining second or higher parity with a given sex composition of children, was computed. The results are presented in Table 3.11. The cross classification of the rural and urban couples by family size and composition at

Table 3.11 : Mean Number of Additional Births by Sex Composition of Living Previous Children for Women Who Have Completed Childbearing

Parity and sex composition of living previous children	Rural (South Gujarat)		Urban (Baroda city)		Total	
	No. of cases	Mean number additional births	No. of cases	Mean number additional births	No. of cases	Mean number additional births
Parity 2	172	3.55	219	2.44	391	2.93
None	10	3.70	3	*	13	2.85
1 son	21	3.62	14	3.07	35	3.40
1 daughter	16	4.50	11	3.64	27	4.15
1 son, 1 daughter	78	3.67	97	2.07	175	2.78
2 sons	24	2.87	49	2.06	73	2.33
2 daughters	23	4.12	45	3.00	68	3.37
Parity 3	167	2.69	195	1.74	362	2.18
None	2	*	-	-	2	*
1 or 2 sons	20	2.95	10	2.50	30	2.80
1 or 2 daughters	15	3.33	9	3.22	24	3.29
1 son, 1 daughter	22	2.95	16	2.31	38	2.68
2 sons, 1 daughter	39	1.95	64	1.26	103	1.52
1 son, 2 daughters	46	2.63	54	1.31	100	1.92
3 sons	13	2.67	20	2.00	33	2.26
3 daughters	10	3.70	22	2.62	32	2.96
Parity 4	145	2.10	136	1.46	282	1.79
None	-	-	-	-	-	-
All (1 to 4) sons	17	2.06	13	1.39	30	1.77
All (1 to 4) daughters	13	3.00	13	2.31	26	2.65
Sons=Daughters+	46	2.15	32	0.94	78	1.65
2 or 3 sons, 1 daughter	31	1.55	37	1.65	68	1.60
1 son, 2 or 3 daughters	38	2.21	41	1.44	79	1.81

* Mean not computed when number of cases is less than 9.
\+ 1 son, 1 daughter or 2 sons, 2 daughters.

each attained parity has further reduced the sample. The means for categories in which the number of respondents is small must be interpreted with caution.

As shown in Table 3.11, family composition has a discernible effect on the completed fertility of couples. The pattern of effect observed at each parity in the rural and urban areas is consistent with that of the total, combining rural and urban samples, although rural women display the effects more distinctively than their urban counterparts.

If there was no sex preference, it might be assumed that all couples at a given attained parity would have the same number of additional children as those at that parity, who are currently most satisfied with their sex composition. This would mean that completed family size would drop by 0.68 (3.55 - 2.87) in rural area and 0.38(2.44 - 2.06) in urban area, considering the additional number of children the couple had after attaining second parity (see Table 3.11). When subsequent fertility of couples at parity 3 was analysed, the reduction in completed family size was of the order of 0.74 (2.69 - 1.95) in rural area and 0.48(1.74 - 1.26) in urban area. Therefore, subsequent fertility behaviour among second and third parity couples, seems to indicate that in the absence of sex preference completed family size would drop by 12((0.68/5.55)X 100) to 13((0.74/5.69)X 100) percent in rural area and 9((0.38/4.44)X 100) to 10((0.48/4.74)X 100)

percent in the urban area. The impact of sex preference on the completed fertility, based on fertility behaviour after attaining fourth parity, however, is not consistent and it is relatively less in rural and urban areas. As mentioned earlier, the results may not be very stable because of the small number of cases, particularly at the higher parity. When rural and urban data are combined, the results confirm that reduction in overall fertility would not be more than 13 percent in the absence of sex preference. This, however, includes effects of infant and child mortality. When the mortality effect was removed by excluding couples who had experienced any infant or child death, the corresponding figure was reduced to 9 percent. Therefore the impact of the disappearance of sex preference on completed fertility would not be big, although it would not be insignificant.

The above analyses have shown that among the rural and urban couples considered, an effect of the sex of their previous children on their subsequent fertility was present at every parity, although the data on rural couples revealed the effect more distinctly than that on the urban couples. Both urban and rural data however, revealed a significant impact. Further, the results of MCA suggest that sex preference explains more variance in subsequent fertility than either of the other important, commonly acknowledged socio-economic variables, indicating a larger independent effect

of sex preference on fertility. At each parity a higher proportion of couples with no sons went on to have the next child than did those who already had one or more sons, except when all living children were sons. In this category, there appears to be a slight increase in the PPR, indicating that preference for sons is not to the exclusion of daughters.

It is not surprising that the effect of sex preference on either contraceptive use or fertility, is evident during the recent period but was not indicated during 1961-1970. For sex preference to have an impact for a population, completed family size desire must be moderate, since large families are likely to include some children of each sex. Moreover, contraceptive use must be above some threshold level so that couples who have the desired number of sons are able to stop childbearing. The present data were further analysed by marriage cohorts to examine whether the effect of sex preference is stronger among the more recent marriage cohorts. The results seem to confirm that son preference is now having a more pronounced effect on fertility because couples are reducing their ideal family size downward and are increasing contraceptive use. This is likely to be a short transitional stage, that gives rise to a situation in which couples are reducing their ideal family size, but with no marked change in sex preference. As modernization continues, son preference may diminish as well and show less of an effect on fertility.

These findings can be generalized to other areas of India although the sample for the present analysis is not representative of the whole country. As mentioned earlier, it is drawn from a relatively more developed and modern area, which is now in a transitional stage. Therefore it will be some time before other, less developed parts of the country pass through this stage and obtain a balance between their sex preference and ideal family size. Till such a time the effect of sex preference on fertility cannot be ruled out in the case of India.

One question that arises is how much overall fertility is affected as a result of a couple's preference for a particular sex combination of children. In this regard, it is necessary to acknowledge that the overall effect cannot be expected to be large as only a small proportion of the population, (although not insignificant) would be affected as a result of undesirable sex composition at each attained parity. When couples who have completed their fertility are analysed to assess the impact of sex preference on their fertility, the results indicate that the reduction would not be more than 13 percent in the absence of sex preference.