Chapter IX

SUMMARY AND CONCLUSIONS

A preference for sons, resulting from traditional religious beliefs, social customs (dowry system, lineage, familial and kinship ties etc.), and economic benefits, including support of aging parents, is widespread not only in India but also in many Asian countries. The preference for a particular sex of the child is believed to have a powerful effect on the number of additional children desired by parents which, in turn, influences their decision to regulate fertility. When infant and child mortality is high, such a desire for additional children remains even stronger, reflecting the attempt on the part of the couples to ensure the survival of a sufficient number of children, especially an adequate number of sons. To date, there has been no reliable substantial evidence concerning the demographic consequences of son preference in India. It is needless to emphasize that the study of sex preference in relation to fertility has important policy implications in a developing country like India, the Govt. of which is concerned about the ways of curbing population growth.

Apart from the interplay of a myriad set of socio-cultural and demographic factors, lingering son preference in the minds of Indian couples, is hampering the successful

implementation of the two-child family policy in the country. In view of this, it is desirable to re-assess the feasibility of achieving the demographic goal of NRR to unity by the turn of the century. Thus, a critical study of the minimum desired children by sex and its likely impact on the current fertility in the country is needed so as to make appropriate changes in the existing population policy.

The major objective of the study has therefore been to identify (i) the nature of the existing sex preferences in the country, (ii) to examine how such preferences affect the reproductive behaviour of couples and (iii) to study the effect of allowing couples to satisfy their desired size and sex preferences on the national birth rate and other current fertility indices.

A fertility decision making model, developed through the stochastic approach, has been used to study the likely effect of sex preferences on various current fertility indices, through the adoption of a stopping rule. Under a stopping rule couples deliberately interrupt their child-bearing when a minimum number of sons or daughters or some combination of the two is obtained. Since the results thus obtained may be influenced due to the rigid assumptions,

likely to be involved in a stochastic model, they are also confirmed by employing a computer simulation model, wherein the assumptions are made sufficiently general and realistic.

To infer about the extent of sex preferences and its relation to fertility, two types of measures, namely, attitudinal and behavioural were 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 preferences on fertility intention. Behavioural measures such as current use of contraception and parity progression ratio (PPR), in relation to number and sex composition of living children, have been used to assess the probable impact of the sex of the child on actual fertility behaviour. Data used for these analyses were partly taken from the 1980 All India Family Planning Survey, undertaken by the Operations Research Group, Baroda. For further detailed analysis of intended and actual fertility behaviour in relation to sex preferences, rural and urban data of western India from a survey undertaken during 1979-80 by the Population Research Centre, Baroda, were used.

Sex Preference and its Relation to Fertility

Prior to estimating the effects of sex preferences on fertility behaviour, an analysis of the stated preferences

during 1979-80 was undertaken, which indicated 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, in case of the majority of the Indian couples, was obvious in the data of both the years. The attitudinal data with respect to future child-bearing also reiterated the strong preference for sons. At each parity the mean number of additional children intended decreased with the increase in 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, indicating a slight preference for a daughter. The sex of the previous child thus strongly influences a couple's decision regarding additional births at all stages of family building. In view of present three child family norm among Indian couples such an influence is most evident at parity three since "sex of the child effects" determine a couple's decision to bear a fourth child. The pattern of net effects of the sex of previous children in the urban area was quite similar to the pattern shown by the rural sample. However, the rural data revealed the effect of sex of the children on mean intended family size more distinctly than did their urban counterparts.

The pattern resulting from the analysis of contraceptive use generally conformed to that found in the

analysis of family composition and fertility intention. At each family size level, contraceptive use increased with the increase in the number of sons. The increase in the proportion of users was similar to that of the decrease in subsequent fertility intention by the number of living sons among women's previous children. Although sex preferences affect use of contraception, its overall effect on contraceptive use is not large enough. It is estimated that if there was no sex preference, contraceptive use would, at the most, increase by 10 percentage points.

The analysis of fertility data itself has shown that among couples, an effect of the sex of their previous children on their subsequent fertility was present at every parity. Among rural couples, the effects of sex preferences (especially at lesser parities) were more distinct than among their urban counterparts, although the pattern of net effects of sex of previous children on parity progression ratio (PPR) was similar for both. 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 appeared to be a slight increase in the PPR, indicating once again that the preference for sons is not to the exclusion of daughters. Further, the results

of multiple classification analysis (MCA), suggest that sex preferences explain 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. It may be noted that the effect of sex preferences on subsequent fertility was examined through child survivorship at a given parity, since that is perhaps most relevant when making this parity specific decision. The estimated effects are therefore the consequences of both child mortality and sex preferences although the net effect of sex preferences can also be distinguished at each parity from the same results. When the impact of child mortality was controlled, by excluding from the analysis couples who had experienced any child death, the effect of the sex of children in explaining the total variance in PPR at various parities, for the rural and urban areas was again found to be statistically significant and the resulting pattern also reflected son preference.

The analysis of fertility data further revealed 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.

There is thus certainly some effect of sex preference on actual fertility in the population under study. The question which arises is how much overall fertility is affected as a result of such sex preferences. In this regard, it is noted 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 were analysed to assess the impact of sex preferences on their fertility, the results indicated that the reduction would not be more than 13 percent in the absence of sex preference.

Development of a Fertility Decision Making Model for Sex Preferences

The main purpose of the study has been to look for a suitable fertility decision making model with respect to sex preferences of children, such that it would enable measurement of the effect of these preferences on the birth rate and other current fertility indices. While various probability models developed earlier have been useful for estimating the likely impact of sex preferences on family size, they do not lend themselves for estimation of the effect of

sex preferences on current fertility. In this regard, a fertility decision making model has been developed through the probability as well as simulation approach.

The model has been conceived as a controlled experiment. Two sets of current fertility rates were obtained from the model, one based on usual reproductive behaviour (control set), and the other with specific rules for stopping reproduction once the specified family compositional goal is achieved (experimental set). The input parameters for obtaining the two sets of fertility rates are identical except for the additional parameter of stopping rules for the experimental set. The difference in the fertility rates of the two sets is a measure of the impact of sex preferences on fertility, expressed through the adoption of a stopping rule. Fertility rates are obtained based on estimates of birth probabilities for a given age and age at marriage of a woman, utilising the models developed through the probability as well as simulation approach. These models have dealt not only with the independent effect of sex preferences, but also with the combined effect of sex preferences and child mortality, considering that the desired family size composition formulated by couples is with reference to living children and not live births.

The decision making model is devised so that if all couples wish to have b boys and g girls and keep having

children until this desired minimum is achieved, its effect on current fertility can be examined. This implies that sex preferences within a population are homogenous. Since such a situation is unlikely to be valid for a given population in reality, these models were therefore modified to accommodate the varied, individual preferences in order to measure the overall impact on fertility, due to these preferences. These models are applied to Indian data for illustration. While illustrating the models, various alternative hypothetical stopping rules, based on the existing sex preference pattern in India as observed earlier, have been formulated to examine the effect of each of these rules on the national birth rate and other current fertility indices, for the period 1981-96.

Impact of Sex Preferences on Current Fertility

The main findings that have emerged through the application of simulation model are basically the same and consistent as that obtained through the application of the probability model. These results indicated that sex preferences affect the current fertility of a population. Current fertility as measured through various indices such as Total Marital Fertility Rate (TMFR), General Marital Fertility Rate (GMFR) and Crude Birth Rate (CBR), increased with increasing preference for one sex over the other. The results have indicated that

for a given size of family, the lowest fertility was achieved in the complete absence of sex preference, the next lowest being exhibited when the preference was for an equal or nearly equal numbers of each sex, while the maximum was observed when the desired minimum consisted of one sex only. While these results refer to the combined effect of sex preferences and child mortality, the results remained essentially the same when the models considered only the net effect of sex preferences. These findings are basically consistent with those of other related studies where the variation in family size, under different rules adopted by the parents regarding the sex composition of their children, were examined through probability models (Krishnamoorthy, 1971; Pathak, 1973; Sheps, 1963).

The above findings thus reveal that, even when couples wish to have one son and one daughter, and keep having children until they attain this desired composition, the total fertility or the birth rate of a population would always be higher than what it would be if they stop at two children irrespective of the sex. Nevertheless, the results further revealed that in a population like India where the level of fertility is still high, the current fertility could be greatly reduced even if all couples are allowed to have one living son and one living daughter, but stop reproduction as soon as they attain this desired minimum. For example, a

birth rate of about 32 per 1000 population, which was observed during 1986 under the control assumption, reduced by more than two-fifths under this strategy. The corresponding level of TMFR was 2.93 under the experimental set, while it was as high as 5.34 under the control assumption.

Considering the degree of sex preference that prevails in the country, even if all couples continue reproduction to achieve their most preferred combination, i.e. two living sons and one living daughter, but stop reproduction upon achieving this, the same birth rate would still decline by more than one-fifth. The expected TMFR under this strategy was 4.13 as against 5.34 under the control set.

Similarly, the model has also examined the effects of uninterrupted reproduction by couples in order to achieve various other combinations of sex composition for a two to four child family size, on various current fertility indices. While such indefinite reproduction may be an unrealistic assumption, the model has further considered such effects with an imposition on the upper limit on the total number of children. For example, if each couple proceeds to have the most preferred combination i.e. two living sons and one living daughter subject to a maximum of four living children, the expected reduction in the same birth rate (32 per 1000 population) is still more (24 percent) than it would be

without such an upper limit (21 percent).

The results further revealed that under the prevailing sex preference pattern, where the majority of the Indian couples have expressed a desire to have more than one son as a combination, the country's demographic goal of NRR to unity even to the revised data of 2006-11 (Govt. of India, 1985), seems to be unlikely to be achieved. Even under the proposed two-child policy, if couples insist on having one living child of each sex, the NRR has been estimated to be more than one.

The Overall Effect of Sex Preferences on Current Fertility

A significant effect of sex preferences on current fertility is also evident at the aggregate level. If all couples continue reproduction until they satisfy their respective individual desired family size composition, the total marital fertility of the population is expected to be about 3.92 per woman. In the absence of sex preferences, it is estimated that this figure would decrease to 3.03. Thus the overall effect of sex preferences is to increase TMFR by about 29 percent. An almost similar increase is expected considering other measures of current fertility. Considering this aggregate effect of sex preference, it appears that a significant decrease in fertility in India could be achieved in the complete absence of any sex preference, which is an

unlikely circumstance in the near future. Nevertheless, the results have revealed that even if all couples proceed to have children in order to satisfy their respective individual preferences but cease reproduction as soon as the desired minimum of each sex is achieved, the level of fertility in the country could be reduced by about one-fourth. For example, a TMFR of 5.34 as observed under the control assumption, reduces to 3.92 under the experimental assumption, wherein couples are allowed to satisfy their individual preferences. Similarly, a birth rate of 32 per 1000 population, as observed during 1986 under the control assumption, can be reduced to about 24 under the same strategy. Such a reduction in the birth rate can be achieved under the present family planning programme as it does not involve any efforts to alter the prevailing norm regarding size and sex preference in the country.

Concluding Remarks

The acknowledged high value placed on sons in India, arises out of the patrilineal nature of the society, wherein the roles performed by a daughter are much more limited in scope than those performed by a son. While daughters are desired because of the phychic role they perform (give and take of love) as well as supporting household work, it is sons who are desired most because they perpetuate the family line, and more importantly are the major source of economic

support and insurance for old age. Therefore son preference strongly influences a couple's decision regarding additional fertility at all stages of family building. Such an influence on actual fertility is more evident today since couples are in the process of reducing their family size downward and are simultaneously increasing the use of contraception.

This strong preference for one sex over the other, has culminated in couple's desire to control the sex of their offspring. Folklore abounds in recommending ways of controlling the sex of offspring, right from the suggestion regarding the position and timing of coitus to the more unbelievable one of the type of clothes to be worn during coitus (Bennett, 1983).

Modern day sex selection technology is also aiming to enable couples to choose the sex of their children, on a more scientific basis. Although many such techniques are on the "research anvil" or are already available to certain sections of the population, their impact is still to be seen in the developing countries. It is quite likely that sex selection technology may not be available to the masses for its effective use, especially to those who have strong son preference, i.e. those with low incomes and rural couples, in the country. Furthermore, adoption of these techniques in the developing countries is likely to face similar

resistance as that faced by present day birth control techniques, viz. in terms of associated fears and misconceptions, considering such techniques as unnatural and general skepticism of modern methods. Lastly, such techniques call for a rigorous examination of the legal, ethical and moral issues that arise, apart from their likely demographic effects on the sex ratio of a population.

Thus, in a society with strong son preference and the absence of suitable sex selection technology for mass use, it is indeed difficult to imagine a condition whereby couples would adhere to the two child policy, by which the country can achieve its demographic goal of NRR to unity. The fact that the date of achievement of this goal has had to be revised from the earlier date of 1996-2001 (Govt. of India, 1984) to the present date of 2006-11 (Govt. of India, 1985), is an indication of the futile exercise of setting goals which ignore a country's socio-cultural milieu.

However, the present study has suggested a strategy whereby India can still reduce its birth rate, while at the same time enabling couples to satisfy their desired sex preference. The strategy calls for couples to cease childbearing once they have attained their desired minimum. Under this strategy, various alternative stopping rules have been framed in the light of the prevailing sex preference pattern

in the country, indicating the expected level of current fertility corresponding to each rule. The indicated level of current fertility under a stopping rule is valid under the assumption that all couples adopt that specific rule regarding sex preference. Since it is unlikely that all couples would have the same sex preference, the study has also examined the likely aggregate effect on current fertility if couples proceed to achieve their individual desired minimum of each sex. As it has been seen, even the fulfillment of individual couples' varied sex preferences, reduces a birth rate of 32 (1986) to 24 per thousand population, with a corresponding TMFR of 3.9.

In view of this, it is recommended that the immediate goal of the country should be to aim for a birth rate of 24 which could be easily achieved under the present family planning programme since it does not call for any fundamental changes in the size and sex preference pattern. However, it does call for a revitalisation of the family planning programme whereby couples are motivated to adopt contraception as soon as they have achieved their desired family composition. The reduction in fertility beyond this level can only be attained through mass use of sex selection techniques which is an unlikely circumstance in the near future in the country.

Further reduction in fertility can therefore only be

brought about by an effective campaign of limiting family size to three or less. This would involve approaches beyond family planning which promote the small family size norm and reduce son preference. Such approaches, however, can see fruition in the long run since they involve fundamental structural and ideological changes to reduce fertility.

Since the Government is aiming for substantial reduction in fertility in the not too distant future, it can only do so if adequate measures and incentives as part of a fertility reduction programme are introduced. These measures must provide alternative, sustained economic benefits especially for old age so that the effect of this factor, which is central to son preference, is gradually weakened.