

## Chapter I

### INTRODUCTION

Fertility in the developing countries is a complex phenomenon resulting from an interplay of various social and cultural patterns related to marriage, childbirth, child rearing and marital or kinship affiliation. The central importance of familial affiliation coupled with high mortality, as in the case of India (particularly rural India), is one of the causative factors responsible for large family size. Such a desire for large family is deeply embedded in the perceived values and roles that children perform in their families. Some of the purposes for which children are valued by parents are specific to social groups or individuals. In the traditional Indian society, children are a means to perpetuate tradition and the ancestral line, provide economic and old age support for parents, act as agents of change in life styles, customs and goals and perform the psychic role of providing love and affection as well as strengthening the marital bond (Basu et al. 1979; Jairath, 1975; Khan and Gupta, 1985; Mahadevan, 1979; Mamdani, 1970). Among the various reasons for wanting children, economic benefits and old age security were the ones most frequently cited by Indian couples (Khan and Gupta, 1985).

While more children in general are desired among Indian couples it is specifically sons who are desired more than

daughters. This differentiation arises out of the fact that the Indian society is patrilineal in nature, wherein the type and number of roles expected of daughters are limited in scope than those expected of a son. Supporting household work is the common role performed by daughters across all caste and class groups (Mahadevan, 1979, p. 64). Apart from other common roles and values associated with having a daughter (give and take of love and affection, assistance in caretaking etc.), a belief among some Indian couples that "kanyadan" (giving away of the bride) helps in attaining immortality, is an important psychic role performed by daughters (Lahiri, 1975). However, it is still the desire for a son that is most vehemently expressed by Indian couples.

Such a desire originates mainly from the dominant economic role and status of the male, which goes far back in history to the hunting and food gathering societies. In agrarian societies, males provided the necessary manpower requirements for labour intensive agricultural production and further constituted a source of power and social security, especially for the rural family. Of course the most important reasons underlying such a preference is the importance of sons for the continuation of the family lineage and insurance for old age (ORG, 1972; Jairath, 1975; Khan and Gupta, 1985; Arnold and Zhaoxiang, 1986) which underscores son preference even in the modern world.

Son preference is widespread not only in India but also throughout the world, although the intensity of this preference varies across different countries and regions. Williamson (1976; 1983) noted this to be unusually strong in the Arab countries, south Asia, in the rural areas of north America, Korea and India; moderate in sub-Saharan Africa, Turkey, Lebanon, Israel, Taiwan and China and mild or no preference in the United States, Europe, Japan, Latin America and south-east Asia.

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 adopt or not to adopt a family planning method, eventually determining their completed family size. 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. However, there is little empirical evidence concerning the extent to which fertility in the developing countries like India is directly influenced by the desire for sons or for a particular sex composition of the children.

It is needless to emphasize that the study of sex preference in relation to fertility has important policy

implications. Policy makers in countries such as Bangladesh, China, India, Pakistan, South Korea and Taiwan have recently become concerned about sex preference, since their objective is to reduce the population growth rates of their respective countries. The policy makers in other countries assume that son preference will diminish with modernisation (Williamson, 1982). Among countries with high son preference China is unusual in that the government of the country has undermined the basis for son preference. The preference for sons in the peasant community on which the Chinese Government is trying to impose the one child policy, is causing female infanticide (Rooke, 1984).

In India, the study of sex preference in relation to fertility assumes special significance. In the sixth five year plan document (1980-85), the long term demographic goal as laid down in the population policy involves a reduction of the Net Reproduction Rate (NRR) to unity by 1996 for the country as a whole (Government of India, 1981). It is for the first time that such a target has been laid down which implies a reduction of family size to two by 1996. While one cannot question the importance of reducing the family size, particularly when large amounts of money and time are being spent on the promotion of family planning, it is imperative to study the feasibility of achieving such targets under the country's present socio-cultural and political setup. The

very fact that the achievement of NRR to unity has had to be postponed from its earlier date of 1996 to the later period of 2006-2011 (Government of India, 1985), points to the drawback of setting targets which ignore a country's existing socio-cultural norms.

Considering the prevalence of sex preference as a result of social and religious functions of sons in India, the slowness of the culture in responding to change and the ineffectiveness of government regulatory acts in the country, an adhoc solution consisting of adoption of a two child family seems rather an impossible proposition. Even if parents are satisfied to have two children who would grow to maturity, but simultaneously also insist that the two include one boy and one girl, it turns out that they would need to average more than three children in all, for the usual sex ratio at birth is of 105 boys per 100 girls. Thus, apart from other aspects, a critical study of the minimum desired children by sex and its impact on fertility is needed so as to make appropriate changes in the policy.

Further, in the light of the so-called "Biological Revolution", these results and the subject in general have important but somewhat different implications for developed and developing countries. In the high fertility countries, fertility might be reduced if gender preferences could be realized. In the low fertility populations of the developed

countries, fertility is likely to be minimally influenced by gender preferences (Pebley and Westoff, 1982). Many methods of controlling the sex of offspring are being discussed currently (Bennett, 1983; Hartley and Pietraczyk, 1979; Largey, 1972; Walter, 1974). Several techniques for preselecting the sex of offspring are available now or will be in the near future. Modern day techniques of sex selection are based on three approaches. The first approach necessitates sperm separation in vitro and subsequent artificial insemination. The second technique stresses the timing of coitus relative to ovulation within the menstrual cycle, whereas the third approach is the selective abortion of the fetus after gender identification. It is evident that the first two techniques may be called sex preselection, since selection occurs prior to conception, while the third approach refers to post fertilisation means which involve many legal and ethical issues. If such methods are available, parents will be able to choose the sex of their children. It is not possible to know at this early date the probable extent of use of these techniques as they are still being perfected. However, the social impact of such an innovation has already evoked a great deal of serious discussion regarding its availability, acceptability and impact on society and the family (Hartley and Pietraczyk, 1979; Largey, 1972; Markle and Nam, 1971; Pebley and Westoff, 1982; Westoff and Rindfuss, 1974; Williamson, 1983). If the impact of such sex pre-determination

techniques is to be channelled in a desirable direction, quantitative estimates must be made of the diverse and complex effects which might be expected.

The majority of the earlier research studies, a review of which has been presented in the next chapter, on the effects of sex preference on fertility are based on the data of developed countries and are concerned with effects which might result if the couples were able to predetermine the gender of their children. There has been little empirical work on the subject in India. Even those few research reports examining the sex preference effects on fertility, do not seem to show any consistent results and have been rather inconclusive although it is quite well established that there is a strong preference for sons among Indian couples.

Although there may be some methodological problems responsible for this, it may also be attributed to the time reference when this data was collected. Prevalence of large families and low contraceptive use, during the sixties and early seventies, even when the desired sex composition had been achieved, negated the exclusive effect of son preference on fertility.

With reproduction increasingly under voluntary control, attitudes and preferences may play an important role in

determining actual fertility. With modernization, preference for large families will reduce. If this occurs, without a corresponding decrease in the preference for sons, the son preference would influence fertility more strongly. At issue is, therefore, the question of whether sex preference could make a difference when family size norms and use of contraception are changing favourably over time. If this is so, then policy makers need to understand the implications of allowing couples to achieve their desired sex composition, on the national birth rate and total fertility rate in the future years.

#### Objectives and Scope of the Study

In this study, no a priori assumptions are made about the nature of sex preferences and its relation to fertility. An attempt has been made to identify the nature of existing preferences in the country and to examine how such preferences affect reproductive behaviour. The basic hypothesis which needs to be examined first, with the recent empirical data, is that sex preference affects fertility behaviour. To assess the probable impact of sex preference on fertility intention, couples' desired family size of their intention for further births in relation to the combination of sexes among the offspring already present, is examined. The impact of sex preference on actual fertility is assessed through an examination of the impact of having children of the same

sex or of different sexes on the subsequent fertility of the women at a given parity. Family limitation behaviour as indicated by current use of contraception, is also being examined in relation to the sex composition of surviving children. If the basic hypothesis is true, then it should also be true that couples who produce the minimum number of children of the desired sex, will tend to limit further reproduction, and that couples will not limit their reproduction until such a minimum number of children of the desired sex have been born.

With this empirical evidence in mind an attempt has been made to develop a stochastic model to study the impact of attaining the desired size and sex composition of the family by all married couples on the national birth rate and other current fertility indices. In other words, the model would be able to assess changes in the current fertility level in future years if Indian couples stop reproducing when they attain their specific desired size and sex composition of the family. Since the proposed model involves some rigid assumptions which may or may not influence the results, the same problem has also been examined through development of computer simulation model. In this model the assumptions are made sufficiently general and realistic.

The probability and simulation models are considered under two situations. These are, (a) controlled situation,

wherein fertility rates are derived under usual reproductive behaviour without any consideration for stopping rules and (b) an experimental situation where fertility ceases for each couple as soon as a specific (desired) family size by sex is achieved. Different sets of stopping rules are framed depending on the observed sex preference pattern in India. The difference between the control and experimental rules as well as the difference between the experimental runs with different stopping rules, are expected to reveal the influence of attaining specific desired sex composition of children on fertility in India. The model will also be used to determine the level of fertility under a specific pattern where reproduction stops only after all the couples achieve their respective desired family composition.

#### Chapterisation Plan

A review of researchers related to sex preferences and their effects on fertility are presented in Chapter II. This chapter looks at such evidence from the United States, other developed countries, developing countries and India in particular. Chapter III examines the empirical evidence regarding the prevailing sex preference pattern in India and its effect on intended and actual fertility from recent survey data. In order to measure the effects of sex preferences on the national birth rate and other current fertility indices, a fertility decision making stochastic model is

developed, which is presented in Chapter IV. A description of the various biological and demographic input parameters used in the stochastic model and later in the simulation model is given in Chapter V. This chapter also gives details of sources of data as well as methods of derivation, wherever necessary.

In the light of the existing sex preference pattern in India (presented in Chapter III), Chapter VI examines the effects of such a sex preference pattern on current fertility. Acknowledging the fact that the desired family size composition is formulated with respect to surviving children and not live births, Chapter VII presents the combined effect of sex preferences and mortality on current fertility. The analysis presented in the above two chapters is made possible by application of the fertility decision making stochastic model developed in Chapter IV.

A simulation model is developed in Chapter VIII, the assumptions for which are more general and realistic than for the model developed in Chapter VII. This simulation study confirms the results regarding the effects of sex preference on fertility, obtained by the application of the stochastic model.

Finally, a summary of the results obtained is presented in Chapter IX. This chapter also examines the implications of

these results which would serve as a guide in the formulation of future population policy.