The phenomenon of rapid population growth is one of the serious problems confronting the mankind today. India, the second largest populous country in the world, has been experiencing very high growth rates, particularly from 1951. The population of India which was 361 million in 1951, has increased to around 843.9 million currently, resulting in an increase of 482.9 million in forty years. During 1981-91, the country's population has grown by 23.5 per cent. If this trend continues, India's population is likely to cross the one billion mark by the turn of the century.

Right from the inception of Five Year Plans, control of the growth of population has been one of the major public policy objectives. The government-sponsored family planning programme with emphasis on fertility control has always remained the kingpin of population control measures and massive amount of resources have been allocated to family planning programme from time to time. However, the achievement of the programme in terms of fertility reduction was not commensurate with efforts and resources put in. The actual growth rate of population exceeded the target growth rates set out in the various Plans, resulting in rapid additions to the size of population in India.

One important feature observed during the course of development of the family planning programme in the country is that the decline in fertility brought about by the programme had not been uniform throughout the country. While the fertility decline in India as a whole had been low, the decline recorded in Kerala State has been remarkably steep. The Sample Registration Systems (SRS) data indicates that between 1960-89, the birth rate in Kerala has declined from 39 to 29 per thousand while the decline in the country was from 42 to 32 only. Similarly, the fertility rate in Kerala declined from 4.1 per cent in 1971 to 2.8 per cent in 1981. In fact, Kerala is the only State in India which has recorded a steep fall in birth rate during the last two decades. As a result, the growth of population in Kerala declined from 26 per cent during 1961-71 to 19 per cent during 1971-81 (appendix Table 1). The growth rate in the State had further fallen to 13.98 per cent during 1981-91, representing an annual decline of 0.50 per cent.

The fertility decline accomplished in Kerala is comparable to the decline observed in Singapore, Taiwan, Hong Kong and China. These countries have satisfied most of the universally accepted conditions for fertility decline such as

high per capita income, large non-agricultural employment, urbanization, greater levels of investment in family planning and higher levels of education, particularly among women. Paradoxically, Kerala does not satisfy most of these conditions except those relating to education and health. The per capita income of Kerala is one of the lowest in India and constitutes only a fraction of the per capita income of the countries mentioned above. It is hardly one-twentieth of the per capita income of Singapore and one-sixth that of South Korea. In terms of the extent of poverty, the State's position is only marginally better (47 per cent) when compared to the country as a whole (48 per cent). Even in matters of occupational structure, level of industrial development and urbanization, there is little that is comparable between Kerala and the South Asian countries mentioned above. The percentage of labour force engaged in agriculture remains as high as 30 per cent in Kerala while it is as low as 3 to 9 per cent in the above countries. Even in terms of urbanization, Kerala with a population of 18.74 per cent living in urban areas, is much behind the national average of 23.71 per cent.

In the field of educational attainment, Kerala is very close to countries mentioned above. Even among Indian States, Kerala leads the country with 90.59 per cent of its population being literate. In the matter of female literacy also, Kerala has made rapid strides. While female literacy rate in the country as a whole is only 39.42 per cent, the percentage for Kerala is 86.93.

Closely related to education, is the health status of the population. During the recent past, the State has made remarkable progress in the field of medical facilities (appendix Table 12). The continued improvement in the health of the people has been related to their educational attainments and to health policies which have brought medical facilities both within their reach and means. As a result, life expectancy in Kerala reached nearly to 70 years in 1985 while the national average was 54 years. Similarly, the rate of infant mortality was 6.2 in Kerala while it was 10.9 for the country in 1990.

The rapid decline in fertility in Kerala has been attributed mainly to three important factors, namely, educational attainment, particularly of women, more equitable

distribution of income and wealth and better health and family planning delivery systems. Of the three, education is considered as the most significant factor responsible for the rapid decline in fertility in the State.

Different hypotheses have been advanced by various writers about the fertility decline in Kerala. Currently, two schools of thought dominate the fertility transition, more specifically, fertility decline within marriage. The first is the transition of structural change according to which fertility transition is the consequences of the shifts in the balance of economic costs and benefits necessitated to the parents due to child bearing. The second school of thought considers the diffusion proposition according to which fertility decline among the married is mainly because of the spread of birth control technology.


unemployment. Under these circumstances, majority of the people feel that the chances of getting employment are bleak which compelled them to reduce their family size.

Nair, Kurup, Mahadevan, Bhat and Rajan largely subscribed to the diffusion hypothesis. But the factors identified by them as responsible for the diffusion are different. According to Nair, the most important reason for diffusion is the enhanced status of Hindu women who traditionally enjoyed dominance in the matrilineal Hindu family which helped them considerably in quick adoption of family planning. Kurup and Mahadevan, on the other hand, found improvement in general literacy and the provision of health and family planning as the most important factors accounting for the diffusion and consequent decline in fertility in the State.


Apart from the above, Ratcliffe and Zachariah attributed the decline in fertility to more equitable distribution of income and wealth brought about in the State by institutional changes such as land reforms and political awareness. At the other end of the spectrum, orthodox demographic sociologists are of the opinion that fertility decline was due to change in the 'proximate determinants' of fertility like age at marriage, lactation, induced abortion, breast feeding and the like.

Studies conducted so far on the fertility decline in Kerala State have implicitly or explicitly assumed that apart from several socio-economic variables, education is the most crucial determinant of fertility levels. Most of the studies concluded that education affects family planning and fertility both directly and indirectly. Education promotes family planning directly by increasing knowledge and awareness. Indirectly, education alters the age at marriage, age at adoption, the lag between marriage and adoption, the attitude towards the ideal size of the family and sex preference for children. Education is also an important factor in enabling

the eligible couples to make use of the family planning services provided by the government. Moreover, education promotes inter-personal and inter-spouse communication and increases social inter-action which would ultimately lead to the decline in fertility.

While most of the studies conducted in Kerala have concentrated on identifying the determinants of fertility decline, only a few of them have explored the link between education and the adoption of family planning. The studies of Zachariah, Balakrishnan, Jayasree etc. have highlighted the role of education and other socio-economic factors in the reduction of fertility. Zachariah, Mari Bhat and Irudaya Rajan have sought to explore the possible link between education and family planning adoption. Majority of the studies conducted in Kerala have viewed the entire State as one single and more or less homogenous unit. Though the State of Kerala as a whole is very much different from the rest of India in terms of demographic transition, there are very wide inter-district disparities with in the State in terms of

population growth rate, fertility decline, age at marriage and family planning adoption. These inter-regional disparities in fertility levels have been lost sight of by most studies. Moreover, in Kerala, there is a dearth of specific attempts to study and analyse systematically the link between education, fertility and contraceptive behaviour. In particular, the impact of women's education on fertility and family planning on two different socio-economic groups has not been brought out by any earlier study. A modest attempt is made in the present thesis to study the direct and indirect impact of education on fertility and family planning and to understand the differential impact that education has on fertility and family planning in two different districts. In other words, the focus of the present study is the impact of education on family planning and fertility in two districts of Kerala, namely, Kottayam and Wynad which present markedly different socio-economic scenarios(appendix Table 16).

The main objectives of the study are:

(i) to examine the link between education, family planning and fertility behaviour;

(ii) to identify the major determinants of family planning and their total and individual contributions to fertility decline;

(iii) to analyse the direct and indirect impact of education on the adoption of family planning and fertility behaviour;
(iv) to examine the influence of education on attitude of women towards family planning, family size, sex preference and the availability and adequacy of family planning services with a view to reinforce the findings derived from the pursuit of the above objectives.

The following hypotheses have been formulated and tested:

(i) education of the spouses exerts a positive influence on family planning and negative influence on fertility;

(ii) female education has a greater influence than male's education on the practice of contraception;

(iii) lower the age at marriage, smaller the gap between marriage and the adoption of family planning techniques.

(iv) there exist significant differences between educated and uneducated women in terms of their attitude and perception towards family size, sex preference and family planning services.

Sample Frame

The study is based on two districts of Kerala, namely, Kottayam and Wynad. Kottayam is situated in the rich central part of the State in Travancore region while Wynad district is situated in the northern side in Malabar region. Kottayam district is considered as one of the developed districts in the State in terms of well known socio-economic indicators.
On the other hand, Wynad represents the least developed district in the State. (shown in appendix Table 16). Thus, the selection of sample districts has been purposely done.

From each of the two districts, two Primary Health Centre (PHC) areas were selected, one with very good performance and another with poor performance in Family Welfare Programmes during 1983-84 to 1988-89 as indicated in appendix Tables 17 & 18. Thus, the PHC of Karukachal in Kottayam showed good performance while the PHC of Uzhavoor has a poor record of performance in Family Welfare Programmes. In Wynad, the PHC of Meenangadi showed good performance whereas the PHC of Thariode recorded poor performance during the above period.

Each PHC selected in Kottayam district catered a population of 17164 eligible couples in Karukachal and 5838 eligible couples in Uzhavoor during 1988-89. In Wynad district, the PHC of Meenangadi covered 16884 eligible couples while in Thariode, 8423 eligible couples were covered in the same year. Under each PHC, there are Sub-centres. In Kottayam, the PHCs of Karukachal and Uzhavoor had 23 and 19 Sub-centres respectively. In Wynad, the PHCs of Meenangadi and Thariode had 20 and 16 Sub-centres respectively, during the above period. The number of Sub-centres under each PHC in Kottayam is larger because of the larger population, better infrastructural facilities and the geographical distribution
of the population. Later, seven Sub-centres have been selected at random from each PHC in Kottayam district and six Sub-centres have been selected from each PHC in Wynad district at random. This was done to ensure coverage of one-third of the total number of Sub-centres under the PHCs in each district.

From each of the selected Sub-centre, a list of eligible couples, both adoptors and non-adoptors, were collected. Each Sub-centre had approximately 400 eligible women, 300 adoptors and 100 non-adoptors. From these adoptors and non-adoptors, 5 per cent have been chosen at random. Thus, from each Sub-centre, 15 adoptors and 5 non-adoptors have been selected. This has generated a sample of 210 adoptors and 70 non-adoptors in Kottayam district and 180 adoptors and 60 non-adoptors in Wynad district. Thus, while the district and PHCs have been selected purposely, the Sub-centres and adoptor-non-adoptor respondents have been selected on the basis of simple random sampling without replacement. To cope up with non-responses, a reserve list of sample respondents has been drawn for each Sub-centre. In case of non-responses, replacements have been made from the reserved list.
**Data Analysis**

A detailed questionnaire appended to the thesis was administered during February-June 1989 to generate information on various socio-economic determinants of family planning and fertility behaviour. The data collected has been processed and analysed with the help of a computer.

The sample data generated on various socio-economic and cultural determinants of family planning and fertility behaviour have been vigorously analysed to test the hypotheses formulated above. The relationship between education and contraceptive behaviour has been examined in detail in chapter IV with the help of a large number of two way, three way tables. The socio-economic and cultural characteristics have also been examined in relation to the level of education. Similarly, the family planning adoption has also been examined by the level of education of the women. The significance of the difference between different educational groups in respect of socio-economic and demographic variables has been tested with the help of $\chi^2$ statistics.

To understand the determinants of family planning practice, simple correlations have been found out among the seventeen socio-economic variables for both Kottayam and Wynad districts. Later, partial correlations have been estimated
between education and important family planning and fertility variables, holding other variables constant. Further, rank correlations between education and family planning variables have been estimated. On the basis of correlation analysis, six regression models have been formulated to estimate the impact of education and other important socio-economic variables on family planning, fertility, age at marriage, the method of family planning adopted, the time lag between marriage and adoption and the age at adoption. These models have been estimated by using ordinary least squares method for the two districts separately.

Regression analysis measures only the direct impact of each variable on the dependent variable. In order to understand the direct as well as the indirect impact of education on family planning and in order to understand the processes through which education influences family planning and fertility, path analysis has been undertaken in this study. The direct as well as the indirect routes through which education of the spouses influence family planning and fertility have been conceptualised and a set of seven recursive equations have been formulated and estimated to assess the direct as well as the indirect impact of education of the spouses on family planning. Thus, following the visual procedure, the direct as well as the indirect path coefficients have been estimated for both the districts.
Since most of the socio-economic variables are inter-dependent, the direction of causality cannot be easily determined. Moreover, these variables jointly influence family planning and fertility. Therefore, in order to account for the joint effect of the socio-economic variables on family planning and fertility, principal component analysis has been undertaken for both the districts. With the help of socio-economic variables, a set of six important principal component variables have been generated which are later used as independent variables to determine family planning, fertility, age at marriage, age at adoption, time lag and the method of adoption in a multiple regression framework.

Chapter Plan

The rest of the thesis is presented in eight chapters.

Chapter II presents a brief review of earlier studies relevant to the present work.

Chapter III presents the profile of the sample respondents.

Chapter IV examines the relationship between education and contraceptive behaviour on the basis of the sample study.

Chapter V analyses the determinants of family planning and fertility with the help of correlation and regression analysis.
Chapter VI assesses the direct as well as indirect impact of education on family planning and fertility with the help of path analysis. The problems of causality and inter-dependence are analysed with the help of principal component analysis in the same chapter.

Chapter VII deals with the influence of education on the attitude of the respondents towards the size and composition of the family.

Chapter VIII examines the attitude of the respondents towards family planning services provided by the government.

Chapter IX summarises the study and presents major conclusions and policy implications.