An important concern of developmental economists and economic policy makers has been the interaction between population growth and economic development. The experience of the currently developed countries during the period of their industrialization does not provide irrefutable evidence as to the nature of this relationship. Whatever be the history of the currently developed nations, the demographic evolution process has been quite different in the currently developing nations. Medical and public health technology largely borrowed from developed countries caused decline in mortality from very high levels within a short span even in the absence of modernization demonstrating that mortality decline can be independent of economic transformation. But the fertility levels in developing countries remained much higher than those experienced by the developed nations during their periods of modernization. The question as to whether fertility levels can be influenced in the absence of economic transformation remained an issue of debate among researchers till recent past. However, the experience of countries like Sri Lanka, Cuba and in India of Kerala state, has demonstrated that the fertility can be lowered without much economic development.

Like any other state in India, Kerala had a high fertility rate, in fact, higher than
the national rate till 1950. Decline in birth rate started in Kerala somewhere in the fifties (Nair, 1974; Krishnan, 1976; Bhat and Rajan, 1990). In the initial stages, the pace of decline was slow and age at marriage was the primary factor behind it. But the large difference in fertility rates between Kerala and other states that was observable from 1970 onwards was mainly due to the greater use of contraceptive methods in the former (Zachariah, 1984). Birth rate in Kerala declined from 36 per 1000 in 1966 to 25 per 1000 in 1978 while the national birth rate declined from 41 to 33 per 1000. Kerala’s dramatic decline in fertility was often quoted as a demographic paradox because it appeared out of line with what would have been expected on the basis of observed patterns of demographic transition in the developed countries as well as a number of developing countries. Historically speaking, declines in fertility and mortality have been preceded by improvements in income, urbanization and industrialization. But in these respects, Kerala was far behind many other states which had much higher fertility levels than Kerala.

Researchers who have looked into Kerala culture and social structure have suggested a wide range of factors which may help to explain the unprecedented decline in the birth rate in the state. An egalitarian government policy based on equitable distribution of income and assets, an efficient public distribution system, the success achieved in improving health and education (especially the female education), the intensive drive on the family planning front, the matriarchal inheritance system, etc. are considered
to have contributed to the low fertility level in the state (Nair, 1974; Krishnan, 1976; Kurup and Cecil, 1976; Ratcliffe, 1978; Nag, 1983; Zachariah, 1984). While all these propositions seem relevant to the state context and add to the knowledge about the factors involved in the fertility decline process, several other important aspects of fertility decline in the state have not been critically probed and assessed. The way in which fertility transition has taken place has not been documented systematically in these studies and hence the nature of the process of change and its effects on different sub-populations remain obscure. Although the current fertility rate in the state has reached the replacement level (Zachariah, 1992), the growth rates of most of the northern districts are almost twice as high as those of the southern districts.

Study of differentials in demographic behaviour by socio-economic categories such as strata, classes, sectors or groups is one of the topics most often included in the studies of social and economic determinants of demographic phenomenon. History points to the experiences of developed countries, wherein as the national birth rates turned downwards, fertility differentials increased greatly. The inverse relation between fertility and socio-economic status, which before the downturn of birth rate was clear-cut, became deeper and more consistent during the transition. Rural-urban and agricultural-nonagricultural differentials also widened. Quite often as a general rule, it has been observed that the decline was initiated through the gradual control of births of higher order by the elite well-to-do classes and the process filtered
down to the lower orders (Wrong, 1958; Cowill, 1963; Lughod, 1964). At the same time, changes in the onset as well as pace of reproduction also appeared. A few recent studies in developed countries suggest that the behavioural changes during the transition process also include the intentional lengthening of inter-birth intervals (Anderton and Bean, 1985; Knodel, 1987).

For the developing countries the nature of transition has been observed to be different. For instance, the increasing availability of data from the developing countries has demonstrated a rise in fertility in the initial stage of fertility transition (Nag, 1980; UN, 1987). This is due to the abandonment of traditional practices such as prolonged breastfeeding, post partum abstinence and also improvement in fecundability resulting from better health accompanying the modernization process. Nevertheless, it is expected that such fertility increasing indirect effects will be compensated by increased contraceptive use. In terms of speed and completion time also, the recent transitions differ from what had happened in the developed countries. The widespread contraception, the changing value system and secularization process are believed to have contributed to such differences.

The speedy and impressive decline in Kerala fertility is often considered a model to be emulated by other states; it is necessary therefore, to examine how various subgroups of population have responded to the fertility transition process and what mechanisms they have adopted. It is apparent that the above stated changes cannot be observed by a mere examination of the
usually used summary index like the total fertility rate. Period rates are prone to fluctuations independent of the change in the aggregate cohort fertility level (Ryder, 1983). Further, aggregate indices cannot identify changes in the fertility pattern arising out of changes at low or high parities. In such a situation observing the family building process disaggregated into different parity stages beginning with marriage and subsequent births would be an explicit way to depict the sequential nature of reproductive phenomenon. Clearly, to observe the dynamic character of fertility involving changes in the starting, timing and stopping pattern of child bearing (Heckman, Hotz and Walker, 1985; Hobcraft and McDonald, 1984; Gilk, 1986), an analysis of successive birth transitions looking into the spacing and quantum differentials would be more informative.

In Kerala, where fertility has declined substantially, the changes in the dynamics of fertility involving alterations in the onset, speed and termination of reproduction have remained under explored relative to the variations in the total number of children. So the present research aims at a study of the fertility transition process by investigating the changes and differentials in the family building pattern among various socio-economic, religious and caste groups in the state. The study of fertility differentials during fertility decline is important, for it can shed light on the process of fertility transition (Haines, 1989).

In 1980, a comprehensive study of the fertility in Kerala was conducted as a part of the World Bank-UNFPA Research Project entitled "Case studies of the determinants of fertility in Sri Lanka and South India". In this project, field
investigations were carried out in three districts of Kerala. The first report pertaining to this survey (Zachariah, 1984) explored the decline in fertility in the state. In fact, it was aimed at developing a theoretical framework which could satisfactorily explain the unprecedented and sudden decline in fertility in the state. Although some aspects of fertility differentials were examined, they were inadequate to understand the fertility transition process fully. So a reanalysis of the 1980 survey data is attempted in this thesis using alternate techniques looking into the fertility dynamics aspects. The important issues taken up here include the questions as to how and to what extent the different segments of the population had responded to the general fertility decline in the state.

Ever since the WFS analytical series has demonstrated successful application of varied statistical techniques to demographic data, our substantive understanding of the socio-economic determinants of fertility and changing fertility process has been considerably enhanced. Therefore, some of these techniques and ideas from similar studies are applied to Kerala Fertility Survey data of 1980. For this reason, the present work seeks to bring out several characteristics of the fertility transition process.

It may be mentioned that a second survey conducted in 1990 in the state to observe the progress in fertility transition during the 80s, had found the fertility differentials getting narrower and hence it is widely speculated that the socio-economic factors are irrelevant as far as current fertility and family planning practice in the state are concerned (Zachariah et al., 1994). However, the
endeavour here is not to evaluate the absolute differentials at any point of time, but the structural changes in fertility during the fertility transition. This involves observing the changes and differentials in the key dimensions of fertility, the quantum and tempo regulating phenomena, thereby identifying the mechanisms of change during a period when substantial amount of fertility variations across various socio-economic and cultural attributes were discernible in the state. This, it is hoped, would open ways to understand the changing reproductive behaviour among various subgroups in an atmosphere of intensive influence of the subsidized family planning in the state.

The impressive speed with which the fertility declined in Kerala (in about 12 years, between 1966-78) has brought worldwide attention to the state. So, when development programmes are largely focused on the rural and weaker sections of the population, a detailed knowledge of the socio-cultural dimensions of fertility differentials can add new significant directions to the effort to formulate population policy more systematically at micro level. Although the current differentials in fertility in Kerala are too small to be of any concern, there are differences in the rate of growth and distribution of population between the northern and southern districts. Therefore, the analysis of fertility differentials by religion, caste, class, education and occupation characteristics may also serve to identify new action possibilities for the reduction of fertility uniformly across the state.

Before going into the details of the study it would be interesting to examine
how various social developments have transformed Kerala into a modernizing society. So the following section provides certain qualitative information as a background to comprehend the demographic changes in the state in proper perspective.

1.2 Modernization Process in Kerala: A Historical Sketch

The modernization process in Kerala was caused by a number of factors such as the progress in educational system, occupational mobility, transport and communication, development of health care system and improved status of women, along with several concomitant changes in social structure. All these happened when Kerala had a low level of industrialization and per capita income. The priority and importance accorded to social development in the state (from earlier rulers to present government) are the root causes of this development and therefore, it is the components of social development that have mainly been highlighted here.

1.2.1 Geography

Geography of a place is a very important factor in the life of residents there. It is the greatest force that shapes human history and civilization. Hence knowledge of geography is necessary to understand history. The small state of Kerala situated in the south-western corner of India constituting 1/2 percent of its land area has its geographical boundaries clear-cut; the western ghats in the east and the Arabian sea in the west. In the north-south direction it extends about 585 Km long from Kasargod to Trivandrum. The state, as it exists today,
was constituted in 1956 as a result of the reorganization effected on linguistic lines. Prior to 1956, the northern districts together were known as Malabar which was a part of the, then Madras presidency. The remaining districts constituted two princely states - Travancore and Cochin which had already been integrated in 1949 after India’s independence. For nearly one and a half century since the establishment of British hegemony in 1792, these states had remained as separate administrative and political entities.

The geography of Kerala played a significant role in shaping its history. Since the western ghats had separated it from other neighbouring parts, Kerala is strikingly distinct in climate, geographical features, settlement pattern, flora and fauna. The rich rainfall here endows the state with an exuberant greenery. In striking contrast with other parts of India, the villages here have scattered dwellings and this settlement pattern is believed to have shaped the independent outlook and adaptive nature noticed among the people of Kerala (Nayar, 1986).

Despite the division made by Western ghats, there were passes in the ghats which facilitated inter-state contacts with the neighbouring parts. However, they also paved the way for frequent invasions from Mysore on the northern part of Kerala in the 18th and 19th centuries. In the same way, the sea on the west was instrumental in the development of cultural and trade contacts between the state and many ancient countries of the world. Islam, Christianity and Judaism entered the state through sea route. Among the Europeans who
reached here - the Portuguese, the Dutch, the French and the English, the last group ultimately established its supremacy. While Travancore and Cochin safeguarded their identities via treaties with East-India Company, Malabar became a part of the British province of Madras. The differences in the system of administration and policies pursued by these regions had influenced their development patterns significantly.

1.2.2 Social Reforms

During the period of colonial hegemony, the constituent parts of Kerala developed their trade contact with many other countries. With the entry of British capital into plantations the need for infrastructure facilities was increasingly felt and it culminated in the development of transport and communication facilities during the 19th century. This was subsequently followed by the need for trained manpower and thereby steps were undertaken for extending and promoting education. Thus, it is reported that by the turn of the century itself the constituent units of Kerala had attained higher literacy levels than many other parts of India (Tharakan, 1984; Jeffrey, 1987). However, the modern education began to take shape with the initiatives of Christian missionaries and it was also fostered by the local rulers (Tharakan, 1984; Nair, 1976, 1983a). But, due to the rigid caste system that prevailed among the Hindus, the upper castes enjoyed the available rights and privileges. Education remained more or less a prerogative of the upper classes, while the practice of untouchability and inapproachability kept the lower castes away from the
mainstream of social life. The landowners were from the higher castes and the tenants were victimized under their oppressive rules. In short, customs and institutions of a feudal character remained there (Menon, 1967).

However, the early decades of this century began to witness the shaping of a new social order in Kerala under social, economic and cultural influences. Enlightened saints like Sri Narayana Guru and Chattampi Swamikal came forward to create awareness among the people about the evils of caste system. Religious organisations like Sri. Rama Krishna Mission, Arya Samaj and Theosophical society also acted as guiding lights to the people. The evolution of literature dealing with many social themes ranging from religious to secular value system had a profound impact on the thinking of literate masses.

Agrarian unrest among the tenants also surfaced. During the first two decades various communal organisations came into existence to safeguard the interests of and uplift the different backward communities that were oppressed under the caste hierarchy. Slowly there began many social reforms like removal of untouchability, removal of caste barriers to entry of lower castes into educational institutions, places of worship and government services, and prohibition of child marriages (Menon, 1967). It was in these changing conditions that communism crept into the state in the late thirties. In fact, the major political parties in Kerala are deeply rooted in communal organisations (Victor, 1970). Ultimately, the inter-community rivalry in the state resulted in rapid improvement in education among different communities through the
establishment of educational institutions meant for their members rather than the kind of violent communal conflicts that have been noticed in other parts of the country.

1.2.3 Development of Health Care Facilities

Kerala has a long tradition of medical and health culture, especially it is famous for its Ayurvedic tradition. The rulers of Travancore and Cochin had always taken active interest in the health services for their people. As a result, mortality rate in these parts of Kerala came down to much lower levels than in other parts of India. In fact, it is assumed that in Kerala the mortality rates started their downward trend at a much earlier date than what had been generally recognized (Panickar, 1975). The higher growth rates of Travancore and Cochin from 1891 onwards compared to other parts of India stand testimony to this fact. However, in Malabar, like any other part of India, growth rates were lower during the early decades of this century. To a large part, it is the early development of public health measures in Travancore-Cochin states that had been a strong force behind the continuous decline in mortality in these areas. The public health authorities in Travancore had identified sufficiently early the basic factors of the origin and propagation of many of the prevalent diseases and had undertaken various measures to control them effectively. For example, Travancore had introduced an impressive vaccination programme against smallpox by the middle of the 19th century. Similarly, the authorities had initiated programmes and policies to improve
sanitation, environmental hygiene and the provision of safe-drinking water to the people.

The colonial powers played a dominant role in introducing the modern system of medicine in the 19th century. However, the accent of health strategy was on the prevention of diseases (Panickar and Soman, 1984). The curative side was taken care of, more or less, by the indigenous medical system (Logan, 1951; Arya, 1906). With the establishment of hospitals in many parts of the region by foreign missionaries and with the improvement in education the demand for health services went up in the twentieth century. In response, the government started hospitals and dispensaries in many parts. It is reported that the health consciousness of the educated public has greatly helped the fuller utilisation of the existing health facilities in the state (Panickar, 1979). The level of education in Kerala (males and females) which had always remained above the national average was a conducive factor to this effect. The rural urban literacy differences in the state were also very small.

1.2.4 Agrarian Reforms

The land tenure legislation in early Travancore can be considered radical compared to the agrarian legislation in other neighbouring states. The bulk of the land which was under the state was given on tenure-ship to people of all castes, except the lower caste who were mostly labourers. The state in turn demanded only nominal land revenue in the form of tax or rent. Later, when the state conferred ownership rights on these tenant cultivators, it increased the
disparity in status among the new owners and this created many rich land owners who were mainly from upper castes. Although there were laws and judiciary to regulate the unreasonable eviction of tenants (agricultural labourers), due to several loopholes in these laws the real benefits did not reach the deprived sections. The judiciary itself was mainly drawn from the land owning groups. Further, the existing non-democratic political system restricted any organised peasant activity at that time.

Soon after independence, when Travancore and Cochin were merged, legislation was passed to restrict the eviction of hutment dwellers from their residential plots. However, the landlords never refrained from such acts and the same old system continued. During the fifties the communist party started organising struggles on a continuous basis for permanent rights of cultivators over land, allotment of land to the landless and for subsidising agricultural inputs to peasants. Ultimately, when communist ministry came to power in 1957, the agrarian legislation bill was introduced. Although the ministry was soon dismissed, the struggle continued and finally the Kerala Land Reforms Amendment Act (KLRAA) came into force in 1970. It gave the landless hutment dwellers not only security of tenure but the right to purchase up to one-tenth of an acre at a nominal price. It also vested the ownership rights on all land leased out to tenants in the government thereby depriving the owners of any chance to continue any sort of tenurial arrangement in future.

Thus, due to land reforms, every agriculture-labourer could own ten cents of
land around his hut. It also lowered the ceiling on land holdings of a primary family unit to 10 acres. Nevertheless, from the present assessment, it is difficult to say how far these changes have raised the standard of living of the poor. Although the agrarian reforms simultaneously raised the wages and other benefits of workers, there was evidence showing a striking decrease in the quantum of work available to agricultural labourers (Mencher, 1980).

1.2.5 Status of Women

Traditionally, women in Kerala had several advantages compared to their counterparts in other parts of the country. In the typical matrarchal family organization in Kerala, the prestige of woman was not a function of her reproductive performance and the number of sons she had produced, instead, the socio-cultural mechanisms like female property rights and social acceptance of female education enhanced her status both in the family and society (Nayar, 1989). The literature relating to earlier periods indicates that female education had received great patronage in Kerala from very early period and it continued through the era of Brahmin dominance and the reign of local Rajas (Jayashree, 1989; Nayar, 1989). There are historic tales which tell that in ancient Kerala, the women were trained even in traditional warfare. However, these facts could be true only for the women who belonged to certain higher stratum of the society, because education and cultural advancement were considered to be the privileges of certain communities which enjoyed a superior position in the traditional social hierarchy.
Much later, with the advent of colonial administration and as a result of social reform movement and political freedom struggle, there was rapid breakthrough in the spread of education among the masses (Sivanandan, 1979). In the 19th century, due to the efforts of Christian missionaries, women's education was widely popularised. They opened schools for girls in different parts of Kerala. Slowly, efforts to popularize English education also began. This is evident from the fact that an English medium school for girls was started by the state of Travancore in 1864 in Trivandrum and it was later raised to a college. A breakdown of the literacy rate by castes for the year 1891 showed that Nair women topped the list (Aiya, 1906). Later, the 1901 Census of India also proved that the Travancore state was foremost in female literacy and general education.

During the early decades of the 20th century, there were accelerated efforts and movements to raise female education. Government and missionary activities in the field of education during this century resulted in the establishment of a number of separate schools for women and also caused a rise in the enrolment of girls in mixed schools (Nayar, 1986). In 1917, the Travancore state introduced free and compulsory primary education (Nag, 1981a). The state of Cochin also adopted similar policies soon. Slowly, opportunities for education began to be availed by the lower castes and other backward communities too. In the post independence era, several social and economic reforms favouring the poor were initiated. All these factors of social
change contributed to the overall modernization of Kerala society and helped to improve the status of women. The impressive change in the female status during the last few decades is evident from the improvement recorded in many measurable indicators of female literacy and female work participation. In 1961, when the literacy rate among females in India was 15 percent, in Kerala it was 46 percent. This rate for Kerala increased to 73 percent and 87 percent in 1981 and 1991, respectively. Along with increased education of women there has been an increase in the number of women entering or willing to enter workforce as a result of the benefits that have accrued to them through social development. In this context, it may be stated that although there was a depression in the female work participation rates in the last four decades potential job seekers have increased over time in this state.

1.2.6 Family Planning Practices

In Kerala the family planning programme began on a modest scale in 1955 with just eleven family planning clinics attached to medical institutions. In 1958, the State and District Family Planning Boards were set up. Between 1956 and 1961 the programme made very slow progress. However, in 1964, there was considerable development in the whole programme with the reorganizations made on the recommendation of the Mukherjee committee appointed by Government of India. The promotion of sterilization through vasectomy and tubectomy has been one of the most successful features of India's family planning programme. During the sixties more sterilization operations were
performed in India than in all other countries combined (Presser, 1970). In Kerala sterilization facilities were made available not only in hospitals and clinics but also by special medical units established at fairs and family planning camps. In one month long camp held in Ernakulam district of Kerala in 1971, a record number of 62,913 vasectomies and 505 tubectomies were performed (Krishnakumar, 1971, 1972). Volunteers and families were brought to the camp headquarters in Cochin city by free transportation and were given incentives and gifts after the operation. The success of this venture was based on intensive planning by district officials headed by the Collector. Within six months after the Ernakulam camp, 645,000 vasectomies had been performed in similar camps in the rest of the state. Awareness creation among people through various mass media removed their fear and anxiety about sterilization. Thus health and family planning programme was able to produce dramatic attitudinal change and motivation towards contraception among the people.

It is the presence of proper infrastructure facilities, staff, services and strategies that led to the success of family planning programme in the state. Statistics for 1979-80 indicate the average service area of a Primary Health Centre in Kerala as 232 sq. km and that in India as 563 sq. km; that of a Sub-centre in Kerala as 21 sq. km and in India as 63 sq. km. Similarly, the number of hospital beds per 1,00,000 population in the urban and rural parts of Kerala was found to be 458 and 107, respectively while the corresponding all India figures were 263 in urban India and a mere 12 in rural India (Zachariah, 1984).
1.2.7 Regional Disparities

The historical events that happened in Travancore-Cochin area and Malabar had considerably influenced the density, size and distribution of population within the state. Malabar was exposed to frequent Mysorean invasions and was the scene of communal riots during the 18th and 19th centuries. The Moplah (Mappila) revolts of Malabar which took place between 1836 and 1896 are well known (Logan, 1951; Innes, 1908). These incidents had induced large scale out migration from Malabar. As a result, the economic growth of this region was retarded while Travancore-Cochin flourished in economic progress under the control of the local rulers. Thus considerable disparities in density and socio-economic development came into existence between Malabar and Travancore-Cochin from very early times itself. However, after the formation of the present Kerala state, the northern part has received special attention for its social and economic progress. Due to this, since the decade 1951-61, the northern region has been gaining population through migration from the southern region to the relatively cheap vacant land in the north (Devamoni, 1977)

1.2.8 Occupational Mobility

Migration is not only a factor in population redistribution, but also a major instrument of social and economic change. According to census figures, from 1961 onwards out migration from Kerala has exceeded in migration. Both male and female out migration has considerably increased during the last 3
decades. According to 1971 census, about 74 percent of male out migrants and 71 percent of female out migrants moved from rural to urban areas (Census of India, 1971). Among the out migrants from Kerala, mostly were male and female job seekers. While a good number of professionals (doctors, engineers and teachers) from the state worked in developed countries like U.S., U.K., and Canada, for the majority of the young job seekers (both male and female) the destination was the Gulf countries. With the increasing demand for professionals as well as skilled and unskilled labourers in the Gulf countries the Gulf migration has become an ever increasing phenomenon in the state. According to Nair (1983b), in the emigration from India to Gulf countries, Kerala was supposed to account for not less than 50 percent of the migrants.

When migration occurs from rural to urban areas it makes people modern in many ways. The economic flow from the place of destination of migrants to their place of origin (remittances) makes the latter prosperous in all aspects of life. It also provides non-formal education through direct and indirect means, exposes people to new and diverse situations and paves the way for modifying the traditional life style, customs, habits and behaviour in general.

1.3 Plan of Study

Kerala has registered an impressive decline in fertility during the mid sixties and seventies. There have been considerable changes in the demographic profile of the state. Indicators of socio-economic status such as level of education
and per capita income have risen in the state. This has probably been accompanied by a rise in average age at marriage of females and increased knowledge and use of contraception (increased governmental efforts in family planning are acknowledged). A combination of these factors has resulted in the reduction in age-specific fertility.

Although there have been a number of studies on Kerala’s fertility, the present work aims at an in-depth search into the fertility transition process in the state by depicting the changes in fertility differentials, that takes also into account the various dimensions of fertility. It was thought that examining the fertility differential aspects during the period of fertility transition, wherein the whole range of fertility related aspects were operative, would provide a clear understanding of the process of transition from high to low fertility. This necessitated the documentation of the ways in which various sub populations (socio-economic, religious and caste groups) had contributed to the changes and differentials in the fertility components.

To study the fertility components, an analysis of birth intervals is most advantageous. Changes in fertility need not be unidirectional and focusing on the tempo or pace of fertility allows examination of this possibility. A focus on the tempo of fertility may seem paradoxical because of the emphasis placed on the number of children by many studies and national policies, and the limited attention given to timing in the existing demographic literature on developing nations and the common knowledge that contraception is usually
more prevalent for prevention than for spacing in developing countries. Nevertheless, with the exception of sterilization, innovative contraceptive behaviour need not have a number effect as its most immediate consequence. So a focus on timing will allow to observe the results of even sporadic use of non-terminal methods. Further, focusing on birth intervals with life-table approach will permit the examination of recent experience including that of many women who had not had an additional birth when interviewed but will eventually have one, as well as the experience of women who will have no more children. Life tables calculate duration specific risks on observed periods of risk and estimate cumulative function from these rates. The cumulative functions of the life table provide flexibility in analyzing the pace of fertility; one can observe whether changes in pace occur primarily at short or long durations since the preceding birth and this can be studied at different parity levels.

According to the theory of demographic transition, fertility decline is initiated by the upper stratum of the society, usually the better educated and the upper occupation classes, and it gradually diffuses among other sub-groups. However, the former group usually constitutes a small fraction of the total population and hence its representation in a sample of moderate size often turns insufficient to permit the computation of statistically valid fertility rates, thus making the basic measurement of differential fertility difficult. In this study, appropriate research methods have been employed to encompass the
multiple dimensions of women's reproductivity and the factors influencing it. As a result, it enabled to observe the extent of fertility decline at different parity levels and also the approximate timing of decline in various socio-economic groups in the sample.

Conceptually, the study has been based on the proximate determinant framework. Proximate determinants are a set of biological and behavioural factors through which social, economic and environmental variables are bound to affect fertility (Davis and Blake, 1956). Of all the proximate factors, four are recognized as crucial in the sense that majority of the variation in fertility can be accounted by them (Bongaarts, 1982). These are i) marriage ii) contraception iii) lactation and iv) induced abortion. So it is useful to think of fertility as mediated by these factors which must stand between fertility and the socio-economic processes. Several fertility studies conducted in India have indicated that fertility differentials are commonly observable in this country with regard to all the background characteristics like education, income, occupation, family type, residence background, religion/caste etc. While these conventional factors have hitherto been recognized as important fertility determinants, certain other factors also are particularly important in some societies. For example, in a traditional society like India, in addition to the aforesaid list of factors, certain socio-cultural factors are reported to be important in influencing fertility. In this context, 'preference for sons' is an essential factor contributing to high fertility among many communities (Srinivas
and Ramaswamy, 1977; Mahadevan, 1979, Nag et al., 1978) Similarly, the level of infant child mortality and for that reason, the experience with child death is another factor that decides on the fertility regulating behaviour of couples. Thus, factors influencing fertility can be classified into i) proximate determinants and ii) social, economic, cultural and other environmental variables that have a direct influence on the proximate determinants. Based on this conceptualization, from the socio-economic and environmental set of possible fertility influencing factors, those factors which are found to be important in Kerala context are chosen and their influences on fertility and proximate determinants are observed. However, most of the past studies, while exploring the reasons of fertility decline in Kerala, have revealed that the increase in female age at marriage of females and family planning practices had made maximum contribution towards the decline of fertility. In view of this fact as well as due to the non-availability of data on other proximate factors, only two proximate determinants, viz. age at marriage and use of contraception, are studied in the present work.

1.4 Objectives

The ultimate objective is to analyse the fertility transition process in Kerala and for that purpose to document the ways in which the various sub-populations in the state have responded to it. This essentially demands a detailed study in terms of the changes and differentials in the fertility components among various socio-economic groups in the state. Thereby the following objectives

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are pursued

1) To study the trend, differentials and determinants of total fertility in the state.

2) To translate the fertility trends into birth interval dynamics, and towards this, to decompose the total fertility (of different socio economic groups) into successive birth orders and disaggregate its basic components - the quantum and tempo of birth transition.

3) To examine the differentials in cumulative segments of total fertility (of different socio economic groups) in successive cohorts to observe the structural changes in fertility during the transition period.

4) To study the socio-economic differentials in the two proximate determinants of fertility, age at marriage and contraceptive use.

5) To explore the influence of women's work activity on fertility and its proximate determinants, age at marriage and contraceptive use.

1.5 Data Source

As mentioned earlier, this study utilizes the 1980 fertility survey data of Kerala. This survey was conducted as a part of the World Bank-UNFPA Research Project entitled "Case Studies of the Determinants of Fertility in Sri Lanka and South India". Three districts (Palghat, Ernakulam and Alleppey) were selected for field investigation based on geographical as well as north-south regional criteria. Household was the ultimate sampling unit. From each of the three districts, a sample of 1000 households was selected and from these households all ever
mired women in the age group of 15-49 were interviewed. The survey utilized a lengthy questionnaire (containing about 300 questions) designed to elicit a detailed picture of the demographic and socio-economic characteristics of each household and the adult members living in it. Information collected from ever married women included details of pregnancy history, family planning knowledge and use, age at marriage, attitude towards marriage and the details of their employment in case of working or ever worked women. In this study, all the analysis has been confined to ever married women.

1.6 Hypotheses

On the basis of the theoretical conceptualisation in the context of demographic transition theory, it is conjectured that higher education, better economic status, residential premises in progressive areas and working in non-agricultural activities that contribute to shape the attitude and progressive outlook of individuals will differentiate them with regard to the timing of their marriage and behaviour in relation to contraceptive use and thereby their fertility. So the following specific hypotheses have been formulated to be tested in the study:

1) With increased education of women there is a shift towards higher age at marriage, more contraceptive use and low fertility

2) Women belonging to socially high castes have higher age at marriage, more contraceptive use and low fertility.
3) Women from progressive areas tend to go for relatively late marriage and low fertility.

4) Women with high living standard have more contraceptive use and low fertility.

5) Women engaged in agricultural work have lower contraceptive use and higher fertility than women engaged in non-agricultural pursuits. Non-farm employment outside home tends to promote early and increased adoption of contraception among females.

6) During fertility transition the better educated, and the socially higher groups lead in the adoption of contraception and reduction in fertility.

1.7 Statistical Methods for Data Analysis

Majority of the questions in the interview schedules canvassed were coded to suit the specific types of analysis planned in this study. After range and consistency checks, the data were entered into computer in coded form. At the first stage, variables were suitably categorised and cross tabulations were made. For statistical analyses the SPSS package was used. The various statistical analysis techniques employed include Multiple Regression Analysis, Hierarchal Regression Analysis, Logistic Regression Analysis, Multiple Classification Analysis (MCA), and Path Analysis. The analysis of data on birth intervals was done through life table technique.

The MCA analysis (Andrews et al., 1973) gives mean values of different categories of predictors both before and after adjustment for other factors.
also provides an answer to the question as to how much of the variability explained in the dependent variable can be attributed to each of the factors, before as well as after adjustment. Path analysis helps to interpret the results of MCA further. It enables in making the logic of regression calculations explicit and in identifying the indirect and spurious effects of the independent variables. Hierarchical regression has the advantage that it allows for causally prior variables in a regression when variables are arranged in a logical sequence.

1.8 Organization of the Chapters

Chapter-I which contains this section, introduces the subject of fertility decline experienced by the economically poor state of Kerala during 1960-80. It provides a brief historical and socio-political background of this state which directly or indirectly has influenced its demographic changes. Given the implications it discusses the significance of a study of fertility differentials during the transition period to identify the groups at the vanguard of change. It also provides an account of the plan of study, objectives, hypotheses and the various statistical methodology used for data analysis.

Chapter-II deals with a discussion on the important theoretical formulations in demography relating fertility to various social and economic characteristics at the individual level. This is followed by a descriptive review of important national and international studies in the area of differential fertility.
Chapter-III reviews fertility trend in Kerala and includes a discussion on important determinants of fertility and their complex interaction. Various demographic, social, economic factors affecting fertility behaviour are analysed in a multivariate framework with a view to understand the behavioural aspects of childbearing phenomenon.

Chapter-IV presents the life table analysis of successive birth intervals. Here, the objective has been to analyse successive birth order transitions in various socio-economic groups and observe the order specific differentials in the quantum and tempo of fertility.

Chapter-V gives the details of a cohort analysis of fertility with marriage cohorts of successive 10 years apart. The fertility differentials in successive cumulative segments of total fertility among various socio-economic groups are examined.

In Chapter-VI and VII, the extent of differentials in the two proximate determinants of fertility, age at marriage and contraceptive use among various socio-economic groups are examined.

Chapter-VIII explores the relationship between female employment and fertility. Taking into account various dimensions and characteristics of work, an attempt is made to test the validity of the role incompatibility hypothesis, i.e., the type of work that is more compatible with having and raising children does not influence fertility performance.
Chapter IX includes the summary and important highlights of the present investigation.