

MINOR RESEARCH PROJECT

On

**FERTILITY DECISIONS AND ITS DEMOGRAPHIC
IMPACT ON KERALA FAMILY**

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CHAPTER I

INTRODUCTION

Demographic transition means the shift of population growth from the stage of high birth and death rates to a stage of low birth and death rates. The developed countries witnessed a positive demographic change of low birth and death rates due to the growth of national income, per capita income and the overall development process. India as a developing country, still experiences the second stage of demographic transition and consequently population explosion. Kerala has now entered the last and third stage of demographic transition with low birth and death rates, eventhough it ranks one of the poorest states in India, in terms of per capita income and industrial output.

The impressive performance of Kerala state, a state in South India, in the demographic front has received worldwide attention and admiration. The major social changes that took place during the period where the breakup of the Hindu joint families, the spread of basic literacy , particularly female literacy and an improvement in the basic health facilities propagated under the erstwhile monarchies of Travancore – Cochin regions¹. Large scale migration of men mainly to the Gulf countries since 1970 for employment is also another factor. The demographic situation in Kerala has certain unique features, which distinguish it from other states of India.

The economy of the state is highly dependent on agriculture. Nearly half the labour force is engaged in agriculture. This has provided a low per capita income which is below the national average. Hence, with respect to some of the demographic characteristics of its population, Kerala appears to be more akin to the developed nations of the West, whereas its economy resembles that of the developing nations of the East².

The demographic transition in Kerala has brought about higher level of social development in the state. The miracle of Kerala model of development is that development has occurred even before the growth in productive sectors and domestic incomes. A number of factors and policies have attributed to these remarkable achievements in Kerala's demographic transition. The success was mainly due to more

¹ Chasen, Barbara and Richard, Franke, W. (1993): Kerala Development through Radical Reform", Promilla & Co., New Delhi.

² Nair, Balakrishnan, V. (1994): "Social Development Changes in South India – Focus on Kerala", MD Publication Pvt. Ltd.-An Associate of Prints India, New Delhi.

efficient delivery of services and a higher spin-off effect. One lesson from the Kerala experience is that the sequence in which policies affecting the determinants of fertility are implemented is as important as the policies themselves. In Kerala, the steps came in the right order – a reduction in infant mortality and child mortality accompanied by an increase in female education; followed by re-distribution policies and finally family planning programme.³

The fact that social development preceded economic development in Kerala has been often cited as a reason for the decline of fertility in the state. Under the enlightened monarchy which ruled Travancore region of the state till independence there was substantial improvement in the spread of basic education and health care. The fact that in Kerala, social development preceded economic development has been highlighted in several studies and has been often described as the ‘Kerala Model’ of development⁴. Several issues relating to the ‘Kerala Model’ continues to be discussed even now, although the present focus is on the sustainability of such a pattern of development elsewhere.

1.1 Objectives of the study

The present study proposes to examine the factors that were at work behind the fertility decisions of the women of Kerala. The major objectives of the study are:

- 1.1.1 To study the nature and pattern of demographic transition in Kerala.
- 1.1.2 To make an overview of the socio-economic factors which determine the size of the family.
- 1.1.3 To analyse whether the children are seen as a security for old-age.
- 1.1.4 To analyse whether the gender play any significant role in determining the size of family.

1.2 HYPOTHESIS

- 1.2.1 In Kerala, the expected old-age security, both physical and financial, has major role on the fertility decision.
- 1.2.2 The gender of the off- spring has some effect on old-age security and thereby on the fertility decision.

1.3 METHODOLOGY

The study is based on both primary and secondary data.

- 1.3.1 For analysing the hypotheses and objectives related to fertility decisions of the women of Kerala, the survey method is made use of. For primary data collection, the researcher conducted a sample survey. Kottayam district was selected for the study because it was announced as the first fully literate municipal town of India and it played an admirable role

³ Zachariah, K. C. (June 1998): “Models of Development and Demographic Change, A Case Study of Kerala.” *Demography India* 27 (1), p. 71-89.

⁴ Thomas, Laisa. (August 2005): “Demographic Transition in Kerala and its Impact on Economic Development in Kerala”, Ph.D Thesis submitted in Mahatma Gandhi University, Kottayam.

to make Kerala, the country's only state to acquire 100 percent literacy. Kottayam district has the literacy rate of 97.21 percent in 2011⁵.

Survey was conducted in five taluks of Kottayam district by taking 150 women within the age limits of 19-49 years at random on the basis of judgement sampling. The views of the selected women on the basis of the definite objectives were elucidated through a questionnaire. The qualitative part of the information which was part of the questionnaire was collected through personal interviews.

- 1.3.2 The secondary data consists of the historical and current data collected from books, reports, journals, magazines, newspapers and other published sources in this field. The data relating to the state were collected from the Sample registration System (SRS) which is conducted separately in rural and urban areas of the state every year and from various reports of census of India and Kerala. The service of Internet is used to get the relevant theoretical information on international and national perspective regarding demographic transition.

1.4 SCOPE AND SIGNIFICANCE

The context of this study is the demographic transition in the state of Kerala. In this state, social development had preceded economic development. As a result, from the turn of the century, the state exhibited a demographic trend different from the rest of the country. The pace of demographic transition got accentuated from the seventies and the state has now reached the third stage in demographic transition indicating a low birth, death and infant mortality rate.

Fertility has reached replacement level in Kerala. Fertility preference in Kerala has registered a major shift since 1980. Kerala women now want a very small family with one or two children. A larger proportion of women were able to implement their fertility preferences than in previous years, thus reducing the proportion of excess fertility women and the proportion of unwanted births. For that we should know the factors that determine family size and the role of gender difference in it. But the existing literature fails to explain these. So the present study is the culmination of such a felt need and this micro level study is essential for arriving at a generalized conclusion which can provide a clear picture regarding the background, the current status and also about the significance, the hazards and the remedies regarding the issue concerned. The findings and conclusions of the present study have much relevance for the planners and policy makers in taking appropriate decisions in this regard.

⁵ www.kottayam.com

1.5 LIMITATIONS OF THE STUDY

Eventhough the interview was carried on in an informal and cordial environment, it was felt that the respondents, while answering questions about their income had given slightly deflated income figures. It appeared that they were afraid of reporting the correct income thinking it might affect them in future. Another limitation of the study is that women had some reservations in answering personal questions. Some of them were even afraid to give their names and correct addresses for fear that others would know their personal details. Another limitation is that it is more general and everyone has a macro level knowledge about the study.

1.6 CHAPTER SCHEME

- 1.6.1 The study is divided in to five chapters. The first chapter gives an introduction. In this chapter, the hypotheses, objectives of the study, methodology, scope and significance, limitations and chapter scheme are brought out.
- 1.6.2 The second chapter gives a detailed review of existing literature on demographic transition. Review of literature will help to know the work that has taken place so far in the field concerned and the relevance of the present work.
- 1.6.3 The third chapter is an overview of the demographic transition with special reference to Kerala. Here the theory of demographic transition, Kerala model of development, the social process behind demographic change etc. are dealt with.
- 1.6.4 The fourth chapter analyses the fertility decisions of women through an empirical approach. For this, a case study of Kottayam district is done here.
- 1.6.5 The fifth chapter presents the major findings and conclusions of the study.

CHAPTER II

REVIEW OF LITERATURE

In the demographic arena, the most important determinants of family size are family structure and fertility. Most of the discussions about the family in India, whether of its structure or of changes affecting it, are in fact about households. Kerala has experienced the sharpest fertility decline in India and it aroused the attention of demographers and other researchers. What follows a brief review of some of the studies connected with this subject.

The Total Fertility Rate (TFR) for Kerala state stood at 4.1 in 1971, 1.8 in 2001 and came down to 1.7 in 2011. Rajan and Gulati (1991) analysed the age specific fertility rates for Kerala between 1971 and 1981 and their studies show that the decline in fertility has occurred in all age groups, but the decline is very impressive in ages above 30. They also found that women in Kerala are avoiding higher order births, thereby affecting fertility rates in the late reproductive ages and avoiding the births in the age group 15-19 due to the increase in the age at marriage in both rural and urban areas.

One of Kerala's most striking characteristics of demographic transition has been the dramatic decline in birth rates. Nair (1974), Krishnan (1976), Mencher (1990) and Basu (1980) pointed different reasons for this rapid decline. According to Nair (1974)⁶, Kerala appears to have started on a course of rapid decline in birth rate in the early sixties even before the intensification of the family planning programme. In his opinion once the mortality rate has declined to a level at which couples feel confident of the survival of the minimum number of children they wish to have, the birth rate may fall faster than the mortality rate.

⁶ Nair, Gopinathan, P.R., (February 1974): "Decline in Birth Rate in Kerala: A Hypothesis About the Interrelationship Between Demographic Variables", Health Services and Education, Economic and Political Weekly.

Krishnan (1976)⁷ examined the recent trends in the rates of birth, death and infant mortality in Kerala and analysed the role of factors like literacy, the age at the time of marriage, access to health care facilities etc. in the demographic transition. This study is mainly based on the data collected through the Sample Registration System (SRS). He observed that the average age of women at effective marriage is above 18 years in Kerala and it is the highest among the states. One of the important factors that influence the age at effective marriage is the level of education. Lower mortality rates and longer life expectancy could also be significant factors in reducing the birth rates. Thus according to him, the reason behind the declining birth rate in Kerala is closely related to the development of health services and education.

To explain the fertility decline in Kerala, Athiyannoor village in Neyyattinkara taluk from Thiruvananthapuram district which has a population of about 5000 and where fertility has fallen rapidly was selected for this study by Mahadevan and Sumangala (1987).⁸ They observed that voluntary efforts have played an important role in social development in this area. These agencies have helped people through formal and informal education, developed health facilities for them and offered scope for further progress. It is also seen that intermediate variables (namely age at marriage, contraception and abortion) have greater influence on fertility in Kerala than in most other states. This can also be observed in Athiyannoor village where 82 percent of the couples with two or more children have already adopted sterilization.

Mahadevan and Sumangala's findings in their field survey have some similar results with Krishnan's study, but the latter used the data from Sample Registration System and made inter- state comparison. According to Krishnan, since the birth rate reflects the changes in the fertility pattern, he tried to analyse the process of the decline in birth rates. Both of these studies point that age at marriage, and improved health facilities are the

⁷ Krishnan, T.N. (1976): "The Demographic Transition in Kerala: Facts and Factors", Economic and Political Weekly, Vol. XI.

⁸ Mahadevan, K. and Sumangala, M. (1987): "Social Development, Cultural Change and Fertility Decline: A Study of Fertility Change in Kerala," Sage Publications, New Delhi.

important factors of the fertility decline in Kerala. Krishnan gave importance to education also as a factor.

Bhat and Rajan (1990)⁹ in their study pointed out that fertility decline in Kerala is basically the result of the spread of birth control technology (diffusion hypothesis).¹⁰ By rejecting most of the accepted hypothesis including higher age at marriage, female autonomy, less preference for sons, structural changes in the state, politicization in the society, they considered adult female education as the single most important factor that can explain fertility transition in Kerala which ultimately led to the applicability of diffusion hypothesis.

The diffusion of the concept of fertility control was aided by two factors. Firstly, the family planning programme which was primarily responsible for increasing the awareness of family planning methods. The high incentives offered for sterilization might have also induced some of the labourers to undergo the operation. But the programme could not have sustained the drive on its own. Secondly, the crucial role in the diffusion was played by literacy and a rise in educational levels, particularly those of women. The educated women were the first to have the information on contraceptives and among them infant and child mortality was low and many of their children were surviving. The aspirations for the education of their children were high and educational costs were increasing. They therefore began to use birth control techniques. In a highly literate society, where majority of households depend on wages and salaries for a living, the idea of a small family and use of contraception spread quickly.

⁹ Bhat Mari, and Rajan, Irudaya, S. (September 1990): "Demographic Transition in Kerala, Revisited," Economic and Political Weekly.

¹⁰ In birth control technology, the role of factors such as perceived advantages of the new technology, its comparability with moral values and social norms, approval by opinion leaders, social networks, means of communication and information dissemination are considered to be important. The diffusion may occur spontaneously or it can be encouraged through government policies and programmes. The initial acceptance will be among those who have the knowledge and convinced of its advantage, or willing to take a risk. This will result in the emergence of fertility differentials but as the use spreads from the innovators to others in the community, differentials would start disappearing.

Zachariah et. al. (1994)¹¹ while analysing the survey data of three districts namely Palakkad, Alappuzha and Ernakulam found that about 60 percent of the fertility decline in Kerala during 70's could be attributed to socio- economic factors and the balance 40 percent to the official family planning programmes. An increase in age at marriage was the main cause of fertility decline in Kerala. Using multiple regression analysis, Zachariah has shown that among several variables used like parity, age, age at marriage, family planning, status, education and ownership of land, female education had a stronger positive relation with age at marriage. Moreover, improved health and the educational level of low income families, fixation of minimum wage, better working condition, land ceiling etc. had also helped in bringing about a reduction in fertility.

Ratcliffe (1978)¹² attributed equality as the main cause for the demographic transition in Kerala. According to him, demographic transition in Kerala is the consequence of “an identifiable shift from less to more social justice in political and economic policies and development strategies.” He identified income redistribution and increased wages of agricultural labourers as mainly responsible for Kerala's demographic transition.

Notwithstanding the argument put forward by Ratcliffe, Nag (1984)¹³ opined that equality alone cannot be considered as a reason for demographic transition in the case of Kerala. He had taken Kerala and West Bengal for his analysis and showed that Kerala represents more unequal economic situation than West Bengal. However, fertility transition occurred only in Kerala, as pointed out earlier, he attributed this to female education and health facilities.

Ashok Kumar (1990)¹⁴ points out that there are disparities in male- female literacy rates. In Kerala, female literacy is high as 73.0 percent

¹¹ Zachariah, K. C. (1994): “Demographic Transition in Kerala in the 1980's,” Centre for Development Studies, Thiruvananthapuram.

¹² Ratcliffe, J.C. (1978): “Social Justice and the Demographic Transition, Lessons from India's Kerala State,” International Journal of Health Services, Vol. 8. No. 1.

¹³ Nag, N. (1984): “Fertility Differentials in Kerala and West Bengal, Equity Fertility Hypothesis an Explanation,” Economic and Political Weekly, Vol. 19, No. 1.

¹⁴ Kumar, Ashok (1990): “Developing Women and Children in India,” Common Wealth Publishers, New Delhi.

whereas in Rajasthan, one of the nine states officially recognized as being educationally backward, less than 12.0 percent of women are literate. An analysis of literacy rates by age groups for 1971 and 1981 by Rajan and Gulati (1991)¹⁵ show that the highest percentage of literates is found in the age group 10-14. The percentage of literates in the age group of 10-14 years was 95.4 percent in 1981, the rate for boys was 96.0 percent and that for girls was 94.5 percent, while in 1971 the corresponding percentage for boys and girls were 91.3 percent and 87.2 percent respectively.

The United Nations Department of Economic and Social Development (1992)¹⁶ and Rajan and Gulati (1991) have the same view that the current literacy level for those aged 60 and above in 1981 stands at 48.0 percent. Thus every other elderly person in Kerala is a literate.

A study conducted by UNESCO (1991)¹⁷ in India showed that in the states with high literacy, child mortality was low and low mortality in turn contributed to lower fertility rates. There is an inverse relationship between education and desired family size that tends to reduce the demand for children. The evidence seems to indicate that postponement of marriage and desire for smaller family size are also caused by increased level of education.

Leela Gulati(1992)¹⁸ points out that no Indian state is so advanced as Kerala in the demographic transition. The population density in Kerala is no doubt rather high but its growth rate is now rapidly declining with high average age at marriage, a high level of family planning acceptance and fertility control, a moderate decline in mortality and high degree of population mobility. The population is also fairly well advanced in literacy and educational attainment and moderately successful in social change.

¹⁵ Rajan, Irudaya, et. Al. (September 1991): "Kerala's Health Status: Some Issues," Economic and Political Weekly.

¹⁶ United Nations Department of Economic and Development Journal (1992): "Population Aging in Kerala, India," United Nations, New York.

¹⁷ UNESCO Population Education Programme Service, (1992): "Women's Education and Fertility," Women Population and Development Journal, Bangkok.

¹⁸ Gulati, Leela (October 1992): "Dimensions of Female Aging and Widowhood Insights from Kerala Experience," Economic and Political Weekly.

Rajan and Gulati (1991)¹⁹ found that the work participation among children has declined. The male participation rate has declined from 57.3 percent in 1901 to 45.3 percent in 1981. The female participation rate has declined from 32.7 percent to 17 percent during the same period. This is due to (1) the change in the age structure (2) the marked improvements in school attendance for both boys and girls and (3) migration of male workers to other states in India.

The United Nations Department of Economic and Social Development (1992)²⁰ indicate that a large number of people migrated from Kerala state to Middle East in search of employment over the past 10-12 years. The number of persons who migrated from Kerala to the Middle East is estimated as 0.5 lakhs. This means that on an average, one out of every 10 households in the state has one person working outside the country.

Women's work or employment also reduces fertility in developing countries. A study done by UNESCO (1992)²¹ shows that there is an inverse relationship with child bearing and employment. If a woman works outside the home or her town, in non-traditional and non-agricultural sectors, she will find it difficult to work and at the same time take care of her children, unless some childcare substitutes are available. This theory has been confirmed by the results of the World Fertility Survey. This reveals that women who work in the modern sector tend to have lower fertility than women who work in the traditional agricultural sector and women who do not work. This is because more educated people can be found in the modern sector. They have a clear plan about their family, their economic status and they want to maintain their status with others. By living with people having different ideas, they were able to understand the problems of their country, the rise in prices and as to how they could meet the future etc. Thus literacy and work in the modern sector are directly related.

¹⁹ Rajan, Irudaya, S. et. al. (1991): "Population Aspects of Aging in Kerala, India, Their Economic and Social Context," Centre for Development Studies, Thiruvananthapuram.

²⁰ UNESCO Population Education Programme Service, (1992): "Women's Education and Fertility," Women Population and Development Journal, Bangkok.

²¹ *ibid*

A survey on family planning in Kuttanad was conducted by Varghese (1986)²² a total of 500 families from 10 villages were selected and the head of each family was interviewed using a questionnaire. The result is that the age group between 25-44 is most conscious about family planning. During the first few years of marriage little thought is given to family planning, but after the second child is born parents consider the matter more seriously. Education, legislations and practical wisdom have helped people to change their attitudes. Only about 10.0 percent of the people interviewed had no strong views about family planning and only 2.0 percent were opposed to it.

Another study by Zachariah et. al. (1992)²³ to investigate the desired number of children among the couples in three districts of Alappuzha, Palakkad and Ernakulam found that for both Alappuzha and Palakkad the mode is 3, but for Ernakulam the mode is 2. The proportion of women who prefer 3 children is practically the same in all districts. The proportion who prefer 2 varies considerably, ie, 36.5 percent in Ernakulam but only 21.6 percent in Palakkad.

Robbin Jeffrey (1976)²⁴ in his study deals with the breakdown of the matrilineal social system which prevailed in Travancore among a large section of high-caste Hindus, and with the growth of social assertiveness and political aspirations among low- caste Hindus and Christians. He points out that by 1908, the dissension in the taravad and the self- interested attitude of most karanavars made the matrilineal joint-family appear irreparable to many Nayers. While conservatives like C.V.Raman Pillai might see the maintenance of the taravad as the only way to preserve Nayar's landed interests and position in society, younger men advocated partition for the same reason.

Most recent studies on the family have been mainly concerned with the controversy over the persistence or destruction of the joint family system. Mehta (1973), Bailey (1957), Kaldate (1962), Lannoy (1970),

²² Varghese, K.E. (1986): "Socio-Economic Change in Kerala," Asian Publishers, New Delhi.

²³ Zachariah, K. C. (1992): "Demographic Transition in Kerala in 1980: Results of a Survey in Three Districts," Centre for Development Studies, Thiruvananthapuram.

²⁴ Robbin, Jeffrey (1976): "The Decline of Nayar Dominance- Society and Politics in Travancore, 1847-1908," Sussex University Press.

Ross (1961), Kapoor (1965) and Epstein (1962) conclude that the joint family is breaking down in India and is being replaced by the nuclear family.²⁵ Pauline Kolenda (1985)²⁶ has listed 12 types of families in her study ranging from single person and nuclear to joint families and she has noted that a woman finds joint family very oppressive and wishes a separate house of her own.

Mehta (1973)²⁷ in his study poses the question whether the joint family is breaking up. Bailey (1957)²⁸ connects the disintegration of joint family with the economic frontier. Kaldate (1962)²⁹ points that due to urbanization, the joint family broke down. Epstein (1962)³⁰ connects the disintegration with economic development and social change. Anyhow, all of them were discussing the breaking down of joint family in India.

John S. Augustine (1982)³¹ points out certain factors, which are responsible for the process of change from joint to nuclear family. They are the death of the patriarch, partition among brothers, dispersal due to employment outside the natal village, increase of members in the household and even quarrels among women could result in structural change. A joint family, which undergoes change due to any one of these factors, gives rise to several separate units.

Becker (1960)³² presents a standard version of the economic theory of fertility. Children can contribute to family income either directly by doing paid work or indirectly by attending to unpaid domestic duties and thereby releasing adults for more gainful employment. The rationality for high fertility lies in the economic value of children calculated on a long-term basis.

²⁵ Prakasa, Rao, V.V. and Nandini, Rao, V. (1982): "Marriage, The Family and Women in India," Heritage Publications, New Delhi.

²⁶ Neera, Desai, Maithreyi, Krishnaraj, Women and Society in India, Ajanta Publications New Delhi, 1987. For Pauline Kolenda, see 'Marked Regional Differences in Indian Family Structure.' 1985. Paper presented at the Asian Regional Conference.

²⁷ Mehta, Ram (September 1973): "Is the Joint Family Breaking up?," The Illustrated Weekly of India, XCIV.

²⁸ Bailey, Federick, Caste, B. And the Economic Frontier (1957): "A Village in Highland Orissa," Manchester University Press.

²⁹ Kaldate, Sudha (March 1962): "Urbanization and Disintegration of Rural Joint Family," Sociological Bulletin.

³⁰ Epstein (1962): "Economic Development and Social Change in South India," Manchester University Press.

³¹ Augustine, John, S. (1982): "The Indian Family in Transition," Vikas Publishers, Bangalore.

³² Becher, G.S. (1960): "An Economic Analysis of Fertility in Demographic and Economic Change in Developed Countries," NBER Princeton.

Leibenstein (1975)³³ points out that there is a possibility of reduced demand for children and simultaneously a shift in tastes towards a higher consumption standard. A higher consumption standard for both children and parents influences simultaneously the level of perceived required expenditures on children and the demand for other goods. Competition between these two standards in turn results in pressures that are reduced or resolved by achieving a smaller family size.

Alok (1992)³⁴ points that in the rural sector children are frequently perceived as a source of benefit to the household and are a source of additional income.

Some of the earlier studies such as those of Friedlander and Silver (1967)³⁵ and Kelly, Cutright and Hittle (1976)³⁶ found surprisingly little or no relation between the old age pension participation variables and various measures of fertility, especially in the developing countries. More recent studies such as those of Entwisle and Boller (1981),³⁷ Entwisle and Winegarden (1981)³⁸ and Hohm et. al. (1984)³⁹ which allowed for longer days in the effect of social security participation fertility behavior and introduced non-linear control variables for both the level of development and the extent of family planning have generally found significant negative relationship.

Rajan (1993)⁴⁰ made a case study of Kerala's elderly people and their social security problem. He points out that the successive governments

³³ Leibenstein, H. (1985): "The Economic Theory of Fertility Decline," Quarterly Journal of Economics, Vol.89, No. 1.

³⁴ Alok, S. K. (1992): "Family Welfare Planning: The Indian Experience," Inter-India Publications, New Delhi.

³⁵ Friedlander, S. Et. Al. (1967): "A Quantitative Study of the Determinants of Fertility Behaviour," Demography 4, No. 1.

³⁶ Kelly, W.R.et. al. (November 1976): "Comment on Charles F. Hohm's Social Security and Fertility: an International Perspective," Demography.

³⁷ Entwisle, B. et. al. (1981): "Fertility as a Determinant and Consequence of Government Sponsored Programmes in LDCs", Paper presented in the Annual Meeting of the Population Association of America, Washington DC.

³⁸ Entwisle, B. et. al. (1981): "Pension Programmes in LDC's: An Indirect Means to Fertility Reduction," Ann Arbor University of Michigan Population Studies Centre.

³⁹ Hohm et. al. (1984): "A Reappraisal of the Social Security- Fertility Hypothesis: A Bi-directional Approach," San Diego State University, San Diego.

⁴⁰ Rajan, Irudaya, S. (September 1993): "Social Security and Assistance Scheme in Kerala: Is it Enough to Protect the Elderly?" The Paper presented by the Author at the International Conference of the Elderly,

in Kerala have introduced a number of social security and welfare schemes and as a result, there are as many as 31 major social security and welfare initiatives covering different segments of the society.

A review on the different aspects of Kerala's demography showed that population growth in Kerala has declined due to the factors like high average age at marriage, a high level of family planning acceptance, a moderate decline in mortality rate, a high degree of population mobility, literacy and educational attainment.

However, no serious studies exist relating economic development and demographic transition.

CHAPTER III

DEMOGRAPHIC TRANSITION IN KERALA

The demographic transition as it was observed in Kerala has been an area of enquiry for scholars at home and abroad. The demographic transition implies the shift of population growth from the stage of high birth rates to a stage of low birth and death rates. The process of demographic transition may be defined as, “all nations in the modern era, which have moved from a traditional agrarian based economic system to a largely industrial, urbanised base, have also moved from a condition of high mortality and fertility to low mortality and fertility” Birth, death and infant mortality rates are key parameters which determine the demographic profile of a country. India as a developing country, still experiences the second stage of demographic transition and consequently population explosion. Kerala has crossed the second phase of demographic transition and entered the last and third stage of low birth and death rates, even though it ranks one of the poorest states in India, in terms of per capita income and industrial output.

Kerala, a state in India, can be projected as a striking example for its quick demographic transition without adequate economic backing. Most of the studies focused on the various factors that operated at the turn of this century contributing to this change. The major social changes that took place during the period were the breakup of the Hindu joint families, the spread of basic literacy particularly female literacy and an improvement in the basic health facilities propagated under the erstwhile monarchies of Travancore- Cochin regions. Land reforms enacted by the Government of Kerala during 1956-57 added a further dimension to the social change. Large scale migration of men mainly to the Gulf states since 1970 for employment is another factor.

It can be seen from the successive census data, the population of Kerala grew at a higher rate from 1901 to 1971 when compared with the all India average. Even during the period 1911 to 1921, when all India population registered an actual decline of -0.30 percent, the population of Kerala actually registered an increase of 9.15 percent. During 1971-2001, the population of India registered a growth of 21.64 percent, while the population of Kerala grew at 9.66 percent, indicating stamped divergence in growth rates.

Table 3.01**Population growth rate for India and Kerala: 1901 – 2011**

Year	India	Decadal growth rate over previous census (%)	Kerala	Decadal growth rate over previous census (%)
1901	23, 83, 37,313	-	63, 96,262	-
1911	25,20,05,470	5.73	71,47,673	11.74
1921	25,12,39,492	-0.30	78,02,127	9.15
1931	27,88,67,430	10.99	95,07,050	21.85
1941	31,85,39,060	14.22	1,10,31,541	16.03
1951	36,09,50,365	13.31	1,35,49,118	22.82
1961	43,90,72,582	21.64	1,69,03,715	24.75
1971	54,79,49,809	24.79	2,13,47,375	26.28
1981	66,52,87,849	21.41	2,54,53,680	19.23
1991	84,43,24,222	26.91	2,90,32,828	14.06
2001	1,02,70,15,247	21.64	3,18,38,619	9.66
2011	1,21,08,54,977	17.64	3,34,06,061	4.91

Source: Survey data

1. Census of India (1971): series 9 - Kerala Part II A, General Population Totals.
2. Census of India (1981): series 10 - Kerala Part II A, General Population Totals.
3. Census of India (1991): series 12 – Paper II Provisional Population Totals.
4. Census of India (2001): Kerala-Provisional Population Total
5. www.censusindia.govt.in

The analysis of the census data since 1951 highlights the fact that Kerala was in the second phase of demographic transition at the time of independence just like any other Indian state and it extended upto 1971. Since 1971, Kerala has proceeded to the third stage of demographic transition. As the decline in the population growth rate was significant after the 70's, it may be appropriate to state that the demographic transition in Kerala was started from 1971 onwards and it paved the way for Kerala model of development.

3.3.1 Break up of Joint Families

Families were mostly joint in Kerala till about the middle of the century. This joint family was a social as well as an economic unit. The upper castes like the Nairs and the Namboodiris were organized as joint families. In the Malabar region even the Thiya castes as well as the Muslims of coastal areas followed the joint family system. These joint families or Tharawads were also land-owning units under various tenancies.⁴¹

Under the joint family system all members had rights to property, in the sense they could claim subsistence from it.⁴² The 'Karanavar', or the oldest male member managed the properties under the joint families. In instances where a removal of the 'Karanavar' had to take place, this could be done only if all the co-parsoners agreed to it. This was generally not possible.

Regulation II of 1000 of the Malabar era enacted in 1924, virtually made it possible for the co-parsoners to claim their share of property. This

⁴¹ For a detailed account of the tenancies, see, Varghese, T.C. (1970): "Agrarian Change and Economic consequences," Allied Publishers, Bombay.

⁴² Panikkar, Gopala, T.K.(1983): "Malabar and the Folk (Rpt.)," Asian Educational Services, New Delhi.

legislation set the trend in dissolution of joint families and formation of nuclear families.⁴³

There have been a number of studies on Kerala which look into the causes for the break up of the joint family system. While these studies have dealt with the economic, social and political issues related to their break up of the joint family system in Kerala with the decline in the birth rate. It is therefore possible only to throw a tentative hypothesis to relate these two factors. It can be presumed that in a joint family set up, bringing up more children may be possible than in nuclear families. Apart from the social convenience of bringing up children in such a set up, a certain economy of scale must have been possible in joint family set up for doing so.

To counter this argument, it can be pointed out that in a joint family set up, infant mortality rate could be higher than that in nuclear families, because children get greater care and attention in nuclear families. In the absence of detailed studies, this discussion relating joint families to fertility behaviour will therefore remain inconclusive.

3.3.2 Improvement in Education and Health

The fact that social development preceded economic development in Kerala has been often cited as a reason for the decline of fertility in the state. Under the enlightened monarchy which ruled Travancore region of the state till independence there was substantial improvement in the spread of basic education and health care.⁴⁴ Mother's education exerts a powerful impact on mortality because it makes mothers more westernised in their outlook, less fatalistic about illness, bold enough to question the authority of the mother-in-law and demand better food and health care for their children. Thus, education raises potential income, productivity and technical information on health care. A rise in the number of educated persons in a community would increase the access to modern health services by increasing the demand for such services.

⁴³ Jeffrey, Robbin (1976): "The Decline of Nair Dominance: Society and Politics in Travancore 1847-1908," Sussex University Press.

⁴⁴ Tharakan, Michael, P.K.(September 1984): "Socio- Economic Factors in Educational Development: Case of Nineteenth Century Travancore," Economic and Political Weekly, Vol.XIX, No. 35.

The improvement in the access to health services would benefit everyone in the community, including the uneducated.

The improvement in the area of education and health lead to a rapid decline in birth, death and infant mortality rates. Kerala appears to have started on a course of rapid decline in birth rate from the sixties even before the intensification of family planning programme. A definite decline in the rate of enrolment in primary schools from the mid sixties has been the consequence of the decline in birth rate in the state.⁴⁵ Education, together with widespread public health facilities, is an essential pre- condition for bringing down the birth rate in Kerala.

A substantial decline in birth rate in Kerala has occurred during 1966-74.⁴⁶ In addition, the average age at marriage of women has significantly gone up in Kerala, a fact which attributed to the increase in the level of education, especially that of women. Along with education, improvement in health indicated by the increased life expectancy and reduction in infant mortality rate could also have prompted active control of births.

⁴⁵ Nair, Gopinathan, P.R.,(February 1974):"Decline in Birth Rate in Kerala: A Hypothesis About the Interrelationship Between Demographic Variables", Health Services and Education, Economic and Political Weekly, pp. 323-36.

⁴⁶ Krishnan, T.N. (1976):"The Demographic Transition in Kerala: Facts and Factors", Economic and Political Weekly, Vol. XI, pp. 31-33.

Table 3.02
Birth rate, crude death rate and infant mortality
Rate in Kerala: 1971-2011

Year	Birth Rate	Crude Death Rate	Infant Mortality Rate(Per thousand births)
1971	31.1	9.0	58
1981	25.6	6.6	40
1991	18.3	6.0	16
2001	17.9	6.4	14
2011	16.8	7.0	12

Source: Sample Registration System, 1971-2011

The birth rate had fallen from 31.1 for the period 1971 to 16.8 by 2011. The crude death rate in Kerala has come down from 9.0 per thousand in 1971 to 7.0 in 2011. One explanation which would suggest is that the death rate might have been falling faster than the birth rate, a phenomenon considered typical of underdeveloped countries. The infant mortality rate (IMR) have shown an impressive decline from 58 per thousand in 1971 to 12 per thousand in 2011. The IMR is considered an index for measuring the quality of life in any given population. Of all changes in the demographic sphere that have occurred in Kerala, the decline in the infant mortality rates is the most remarkable.

The fall of death rate from 9.0 to 7.0 was not substantial when the decline of the death rate of the earlier period, ie from 1901 to 1961 is considered. Death rate during the earlier period, that is, 1901-1961 is given in the table below.

Table 3.03

Death Rate in Kerala : 1901-1961

Year	Death Rate (Per thousand)
1901	48.2
1911	42.3
1921	37.8
1931	33.8
1941	29.1
1951	22.3
1961	16.1

Source: Kurup, R.S. and Cecil, S. (1979): "A Note on Birth and Death Rates in Kerala, "Demography India, 8, No. 1-2, pp. 68-7

The death rate in 1901 is 48.2 per thousand and it has come down to 16.1 per thousand by 1961. During the period 1901-1961 the death rate actually fell by 32.10 percent points as against a fall of 2.6 percent during 1971-2001. The fall in the death rate during 1901-1961 reveals an earlier phase in demographic transition which must have resulted in the actual increase in the growth rate of population.

Fertility and mortality have experienced very significant declines during the 1980s. The immediate or the proximate causes for the decline in fertility were the increase in age at marriage and the increased use of family

planning practice, especially sterilization.⁴⁷ The most important proximate determinant of mortality decline was the universal immunization programme, especially ante- natal care. These programmes not only provided immunization to mothers and children, but more importantly, it brought the population closer to the health system and thus indirectly increased the utilization of the health facilities for delivering babies, for treating the sick and for family planning.

The role of health and education in reducing the fertility ratio of Kerala was further highlighted in a United Nations Study.⁴⁸ The tendency towards greater equality in levels of education is of course the result of policies followed consistently by successive Governments of Kerala, particularly during the past few decades. Kerala has had a long tradition of free primary schooling. Another supplementary policy measure which has helped promotion of school education at the primary stage has been the provision of free meals at school to some categories of students. The general and infant mortality rates and the expectation of life at birth are usually considered the most important and easily available indicators of health.

3.3.3 Growth in Literacy

In order to bring about demographic transition, prime importance must be given to education, for generating a series of changes in the society. Since the role of literacy as an important factor in effecting the demographic transition of Kerala has already been discussed, it may be pertinent to observe the improvement in literacy in Kerala. This is given in Table 3.4.

⁴⁷ Zachariah, K. C. (1994): "Demographic Transition in Kerala in the 1980's," Centre for Development Studies, Thiruvananthapuram.

⁴⁸ Centre for Development Studies (1975): "Poverty, Unemployment and Development Policy: A Case Study of Selected Issues with Reference to Kerala," Thiruvananthapuram.

Table 3.04**Literacy Rate in Kerala from 1901- 2011**

Year	Literacy Rate		Total
	Males	Females	
1901	19.2	3.1	11.1
1911	22.3	4.4	13.3
1921	27.9	10.3	19.0
1931	30.9	12.0	21.3
1941	-	-	-
1951	49.8	31.4	40.5
1961	55.0	38.9	56.8
1971	66.4	54.3	60.4
1981	75.3	65.7	70.4
1991	94.5	86.5	90.6
2001	94.2	87.9	91.1
2011	96.1	92.1	94.0

Source: 1. Zachariah et. al. (1994): "Demographic Transition in Kerala in the 1980's," Centre for Development Studies, Thiruvananthapuram.

2. Census of India (2001): Paper1,2 &3- Kerala, Registrar General, New Delhi.

3. www. Censusindia.govt.in

In 1901, the literacy rate in Kerala was only 11.1 percent and by 2011, it increased to 94.0 percent. Also the literacy rate of females was very low in the beginning of this century, that is 3.1 percent in 1901 and it was going up all this time and at present it comes nearly close to the literacy rate of males. This points to the fact that female literacy improved at a higher rate (84.8 percentage points) during this period in comparison with the improvement in male literacy rate.(that is, 75.0 percentage points). A sharp increasing trend in literacy can be seen after 1980's. The total literacy rate was increased from 70.4 in 1981 to 90.6 in 1991.

The improvement in education led to an increase in the age at marriage of both males and females in Kerala. The age at marriage of both males and females in 1981 was 27.2 and 21.9 respectively.⁴⁹ One reason for the rise in the average age at marriage of females was due to the improvements in the levels of female education in Kerala. It may also be possible that the rise in the average age of women at marriage is consequent upon a rise in the average age of males at marriage. The average age at marriage of males has also been rising partly due to the longer time spent in education and partly due to the delay in getting settled in a job.⁵⁰ Increase in average age at marriage of females reduced the reproductive span of females, thereby reducing the fertility rates.⁵¹

⁴⁹ Gulati, Leela, et. al. (1975): "Population Aspects of Aging in Kerala, India, Their Economic and Social Context," Centre for Development Studies, Thiruvananthapuram, p. 48.

⁵⁰ Krishnan, T.N. (August 1976): "The Demographic Transition in Kerala: Facts and Factors", Economic and Political Weekly, Vol. XI. p. 1223.

⁵¹ Krishnan, T.N. (1976): "The Demographic Transition in Kerala: Facts and Factors", Economic and Political Weekly, p.1215.

Table 3.05**Mean Age at Marriage for Kerala, 1901-2011**

Year	Males	Females	Difference
1901	23.2	17.1	6.1
1911	23.8	17.3	6.5
1921	23.3	17.8	5.5
1931	25.6	19.6	6.0
1941	25.6	19.3	6.3
1951	26.3	19.8	6.5
1961	26.6	20.2	6.4
1971	27.0	21.3	5.7
1981	27.5	22.1	5.4
1991	27.9	23.9	4.0
2001	28.7	22.7	6.0
2011	27.3	22.6	4.7

Source: 1. Guilmoto, Christopher, Z. and Rajan, Irudaya, S. (April 2002): "Currents of Demographic Change in South India, Centre for Development Studies, Thiruvananthapuram.

2. International Institute for Population Services, Mumbai, 2001.

3. Vital Statistics, Govt. of Kerala Report 2010, published by Dept. of Economics and Statistics, Thiruvananthapuram-March 2013.

Age at marriage of males as well as females tends to vary according to the individual's socio-economic status in terms of education, caste, religion, work status etc. Age at marriage of women in Kerala has been quite high compared to that in other states in India.⁵² Between 1901-51, the age at marriage has increased by 2.7 years for women and in the next 50 years, they added another 3 years, to reach 22.6 in 2011. Infact, the age at marriage of

⁵² Zachariah, K. C. (1994): "Demographic Transition in Kerala in the 1980's," Centre for Development Studies, Thiruvananthapuram.

Indian women in 1991 is same as the Kerala women in 1951 (19.8 years).⁵³ India has a time lag of 40 years in female age at marriage compared to Kerala. Thus Kerala women marry late by 4 years than their sisters living elsewhere in India. It can also be seen a declining trend in the difference between male and female age at marriage. This may be due to the improvements in the levels of female education in Kerala. The age at marriage for males also shows substantial increase over the years. The age at marriage of males is an indirect determinant of age at marriage of females.

The decline in death rate as well as infant mortality rate in Kerala has raised the expectation of life considerably. Expectation of life at birth is an important indicator for assessing the overall health situation of any population. As the table 3.6 below shows, there has been a remarkable improvement in the expectation of life in Kerala among males and females.

⁵³ Guilmoto, Christopher, Z. et. al. (April 2002): "Currents of Demographic Change in South India," Centre for Development Studies, Thiruvananthapuram.

Table3.06**Expectation of Life at Birth in Kerala: 1960-2010**

Year	Males	Females
1951 – 1960	46.17	50.00
1971-1973	60.62	62.08
1979- 1980	64.70	69.00
1989- 1990	67.50	72.90
1990- 1991	69.00	72.00
1991- 1996	67.23	72.37
1996- 2000	68.23	73.62
2001- 2005	71.3	76.3
2006- 2010	72.0	76.8

Source: 1. Kerala Economic Review (1999): State Planning Board, Thiruvananthapuram.

2. Compendium of India's Fertility and Mortality Indicators based on SRS, Registrar General of India, 2011.

Between 1951 and 2010, the expectation of life had increased by 26 years for both males and females. It can be seen from Table 3.6, the expectation of life at birth has been consistently higher among females than males in Kerala where as this phenomenon is not true for India as a whole. During the period 1951-60, the expectation of life at birth in Kerala was 46.17 years for males and 50.0 years for females. Thus it would appear that people in Kerala have all along been enjoying a better and healthier life than people in other parts of the country.

A great difference in expectation of life can be seen from the period 1951 to 2010. The higher expectation of life points to the improved health status in Kerala. Ultimately, it is the health consciousness of the people that played the crucial role in the health status of Kerala.

3.3.4 Gender Inequality

Social and cultural factors are very predominant in determining the pace of the demographic pattern of a region. Generally, gender inequalities are manifested in the form of early marriage of females, dowry, female infanticide, female child labour, poor education to females, strong preference to sons against daughters, long breast feeding to male infants, cultural restrictions on some kind of food to females etc.

It is interesting to note that all the cultural traits mentioned above holds good for Kerala at a lesser degree. In Kerala, the position of the females is far better than their counterparts in the rest of India. The credit of positive trend observed in Kerala is due to the uniqueness of its culture evolved through the ages. In Kerala, female child has far attraction than in any other part of the country. Eventhough, the parents prefer the first male child, they seldom detest the birth of female child and hence reports of female infanticide are absent among different castes of Hindus and other religious groups.⁵⁴ Inter- state migration of females and their subsequent employment outside the state has enhanced the social and economic status of females in Kerala.

The emergence of micro families has radically changed the attitude, attention and responsibilities of males towards the health care and food requirements of their wives and children. The female partners are treated as stepping stone to build the family life which has reduced the gender inequalities among the middle-income status groups. The high female sex ratio existing in Kerala has not rendered any positive effect upon the socio-economic and cultural development of the state.

⁵⁴ Surendran, P. (2002): "The Kerala Economy- Growth and Survival," Vrinda Publications Pvt. Ltd., New Delhi, 2nd Edition.

Table 3.07

Sex Ratio in Kerala: 1901- 2011

Year	Sex Ratio(Females per thousand males)
1901	1005
1911	1008
1921	1011
1931	1022
1941	1027
1951	1028
1961	1022
1971	1016
1981	1032
1991	1036
2001	1058
2011	1084

Source: 1. Handbook Statistics (November 2000: Kerala, Statistical Institute, Jagathy, Thiruvananthapuram.

2. Census of India (2001): Paper 1, 2 &3, Kerala, Registrar General, New Delhi.

3. www.censusindia.govt.in

The sex ratio implies the number of females per thousand male populations. In Kerala, the female sex ratio increased at an alarming rate from 1005 in 1901 to 1084 in 2011. One of the important reasons that have contributed to the favourable sex ratio is the family organization in Kerala. The system of female inheritance, the right of female residence and the right to divorce and remarry if widowed, gave to women in Kerala a unique status unknown to the rest of India.⁵⁵ However, during 1951 to 1971, the last leg of the second phase of demographic transition, it showed a falling trend and it declined from 1028 in 1951 to 1022 in 1961 and further to 1016 in 1971. Probably, it might be a major reason which permitted the state to enter into the third stage of demographic transition in the 1970s. After 1980s, an increasing trend in favour of female sex ratio can be seen due to the shift in the demographic transition in the state.

The migration of males by leaving their wives, especially among the low economic status groups, to Gulf countries in search of high value employment too has added to the female sex ratio. The social status of females has improved since they are undertaking the activities and responsibilities hitherto done by the males such as banking operations, management of children and their education, administration of resources and finance. Employed daughters and daughters-in-law get a pride of place in the socio-economic circles

3.3.5 Levels and Trends in Fertility

One of the striking and most impressive changes that has taken place in the state during the last three decades is the decline in fertility. With levels of income and nutrition among the lowest, this state has achieved results in controlling population growth comparable to those in the most successful middle-income countries. In the 1980s mortality decline accelerated in Kerala and fertility decline and increase in age at marriage continued without much

⁵⁵ Rajan, Irudaya, S. et. al. (1991): "Population Aspects of Aging in Kerala, India, Their Economic and Social Context," Centre for Development Studies, Thiruvananthapuram.

deceleration.⁵⁶ Even with the very low infant mortality rate, fertility has reached replacement level.

The Total Fertility Rate (TFR) for the Kerala state stood at 4.1 in 1971, and came down to 1.7 in 2011.⁵⁷ This fertility decline aroused the attention of demographers and other researchers. Rajan and Gulati (1991) and National family Health survey (1992-93) analysed the age specific fertility rates for Kerala between 1971, 1981, 1992-'93, 2000 and 2012 and their studies show that the decline in fertility has occurred in all age groups, but the decline is very impressive in ages above 30. Table 3.8 illustrates this

Table 3.8

Age specific Fertility Rates (per 1000) and Total Fertility Rates in Kerala:1971-2012

Year	15-19	20-24	25-29	30-34	35-39	40-44	45-49	TFR
1971	51.8	213.1	224.5	171.8	113.6	40.6	6.7	4.1
1981	42.9	183.4	168.4	99.5	48.7	18.7	4.0	2.8
1992-93	38.0	160.0	123.0	54.0	17.0	6.0	1.0	2.0
2000	27.0	83.0	118.0	98.0	40.0	8.0	1.0	1.8
2012	21.3	135.7	139.1	59.7	11.2	1.4	0.1	1.7

Source: 1. Handbook Statistics (2000): Kerala, Statistical Institute, Jagathy, Thiruvananthapuram.

⁵⁶ Zachariah, K. C. (1994): "Demographic Transition in Kerala in the 1980's," Centre for Development Studies, Thiruvananthapuram.

⁵⁷ Vital Statistics, Govt. Of Kerala Report 2010, published by Dept. Of Economics and Statistics, Thiruvananthapuram-March 2013.

2. www.Jadski.com

3. Vital Statistics, Govt. of Kerala Report 2010, published by Dept. of Economics and Statistics, Thiruvananthapuram-March 2013.

It can be seen from the table 3.8, the highest percentage decline was in the age group of 35-39 followed by the age group of 40-44. An analysis of this phenomenon brings forth two major changes in Kerala. First, women in Kerala are avoiding higher order births, thereby affecting fertility rates in the late reproductive ages and secondly, avoiding the births in the age group 15-19 due to the increase in the age at marriage in both rural and urban areas. The Total Fertility Rate (TFR), which reflects the total number of live births, a woman will eventually end up with if she bares children under current fertility rates, declined from 4.1 in 1971 to 1.7 births in 2012. This decline in fertility points to the greater use of contraception in Kerala.

The two proximate determinants, which are responsible for a relatively high decline of fertility in Kerala, are the rising age at marriage of women and increasing use of contraceptives – the former being more effective prior to 1960 and the latter during the subsequent period.⁵⁸ The other socio-economic factors which are responsible for the high decline of fertility in Kerala are high female literacy rate, rapid decline of mortality rate, successful family planning programme, high minimum wage rate among agricultural labourers , egalitarian distribution of income and social services and increase of poverty among the poor.⁵⁹

3.3.6 Changes in the size of Households

The demographic transition of Kerala is well reflected in the decline of the average size of households.⁶⁰ It is these discrete units that the census enumerators focus on and the field workers readily identify as the smallest observable units.

⁵⁸ Nag, Moni (1984): "Fertility Differential in Kerala and West Bengal,-Equity Fertility Hypothesis an Explanation." Economic and Political Weekly, Vol-19, No.1.

⁵⁹ Ibid.

⁶⁰ A household is defined by the census as a group of persons normally living together and taking food from common kitchen. The households might or might not be related to one another.

The average family size in Kerala has registered a decline from 5.9 in 1961 to 4.9 in 2001. As on 1991, Malappuram district has the highest family size (6.5) and Pathanamthitta district has the lowest (4.6). The sharpest decline in family size is felt in Ernakulam district wherein it fell from 6.1 in 1961 to 5.1 in 1991. It is not intended here to relate family size to the level of literacy. However, some cursory observations are significant. Pathanamthitta district, which has recorded the lowest birth rate is declared as a fully literate district. As against this at Malappuram district literacy level is the lowest (71.9 percent).⁶¹

The decline in the average household size in the absence of drastic changes in other demographic variables mean that there is a decline in the number of children in the family. Fertility preference in Kerala has a direct influence on the family size. Kerala woman now wants a very small family consisting of one or two children. A larger proportion of women were able to achieve their family size preferences than in previous years.⁶²

3.6 Value of Children

Value of children differ from society to society, and from time to time⁶³. At different periods in history children are treated as a source of benefits to the household since they serve (a) as a source of labour (b) as a source of household income (c) as a source of old-age security (d) as a source of contributions towards meeting the obligations of the extended family (e) as a direct combination to the status of the parents within the extended family and (f) as a source of discharging such family duties and obligations as carrying on the family name, inheriting the family's place in society. In the course of economic development most or all of these benefits or attitudes towards children decline in importance as a consequence of the impact of the basic developmental changes.

⁶¹ Thomas, Laisa (1994): "Determinants of Fertility in a Modern Micro Community", M. Phil. Thesis submitted to Mahatma Gandhi University, Kottayam.

⁶² Zachariah, et.al.(1994): "Demographic Transition in Kerala in the 1980s," Centre for Development Studies, Thiruvananthapuram.

⁶³ Harvey Leibenstein, "conceptual Framework for Research on relations between Socio-Economic Development and Fertility Decline", in Demographic Transition and Socio-Economic Development: Proceedings of the United Nations, UNFPA, Expert Group Meeting, Istanbul, 27 April, 4 May, 1977.

The number of children a couple decides to have is dependent upon a number of factors. Economists and sociologists point out some of the factors that determine family size. At present there is a strong preference for small families. Even an increase in the cost of living can affect family size preferences.

Khan and Gupta⁶⁴ observe that a large number of children increase the 'private and social costs of children, thereby leading to further poverty. Poverty and fertility interact to form a vicious circle. Generally children involve direct and indirect costs relative to the income of the household. The direct costs may be (a) nurture costs (food, clothing, housing etc.) (b) education costs (c) cost attributable to changes in the consumption standards and consumption aspirations of the household (d) potential marriage costs of children (dowry, bride-price, marriage celebrations and gifts) and (e) special costs involving crowding pressure on specific scarce goods (eg. Housing).

The indirect costs may be (a) children's income forgone while they receive their education (b) the value of mother's time in terms of income forgone while engaged in nurture activities (c) perceived mobility costs to the parents in the increase in mobility and opportunity levels that accompanied development, parents or potential parents may believe themselves to be less mobile if they are married or have children (d) costs entailed in the sacrifice of other goods as a consequence of expenditures on children and (e) the sacrifice of parents consumption aspirations or other socio-economic aspirations.

In such a context it may be pertinent to understand, for the contemporary society of Kerala, which has already undergone a demographic transition to low fertility as to what socio-economic factors, now determine the size of the family, Are the children seen as a security for old-age? Does gender play any significant role in determining the size of family? These are some of the other related issues that come up in such a context.

⁶⁴Khan and Gupta, People's Perceptions about Family Planning in India, Concept publishing House, New Delhi, 1987.

CHAPTER IV

ANALYSIS OF THE DATA

Demographic transition plays an important role in the development of Kerala. The traditional views and customs of under development are replaced by modern views of development. The present study proposes to examine the factors that were at work behind the fertility decisions of the women of Kerala. Hence in this chapter, an attempt is made to gather enough information to find out the effect of (a) whether the expected old-age security, both physical and financial, has any role on the fertility decisions of Kerala women and (b) whether the gender of the off-spring has any effect on old-age security and thereby on the fertility decision.

4.1 PROFILE OF KOTTAYAM

Kottayam district was formed in July 1949. It has acquired its name from the Kottayam town which is the headquarters of the district. Kottayam district has an area of 2208 sq. km. The population of the district is 1,974,551 according to 2011 census. Of these, 968,289 are males and 1,006,262 are females. The density of population is 896 persons per sq. km⁶⁵. Kottayam came into limelight when it was declared the first literate municipal town of India, an event that triggered a mass movement to make Kerala, the country's only state to achieve 100 percent literacy.

The district has 4 municipalities. They are Kottayam, Pala, Changanacherry and Vaikom. It has five taluks namely Kottayam, Changanacherry, Vaikom, Meenachil and Kanjirappally. It also has eleven development blocks and 74 panchayats.

4.2 DATA COLLECTION

The study is based on both primary and secondary data. For primary data, a survey was conducted in five taluks of Kottayam district. A purposive

⁶⁵ www.kottayam.com

sample of 150 women within the age limits of 19-49 years was taken. The views of the selected women on the basis of the definite objectives were elucidated through a questionnaire by personal interviews. Secondary data was collected from books, reports, newspapers, journals, magazines and other published sources in this field. The service of internet was also used to collect relevant information in this regard.

The personal outlook of the women as available from the survey undertaken is depicted below. In the tables that follow, the respondent women were classified in terms of age, educational level and income.

Table 4.01

Classification of Respondents Based on Age

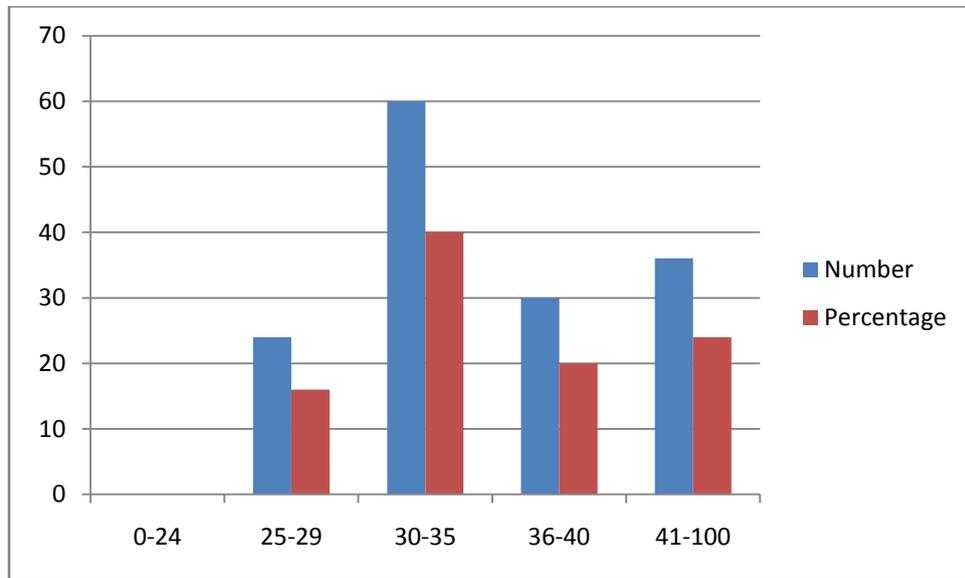
Current Age	Number	Percentage
Below 24	0	0
25-29	24	16.0
30-35	60	40.0
36-40	30	20.0
Above 40	36	24.0
Total	150	100.0

Source: Survey data

It is seen from the table that more than half of the women surveyed (84 in number) were below the age of 35. There were 66 women who were above 35 years. The age classification can be made more clear by the following diagram

Figure 4.01

Classification of Respondents Based on Age



It is further obvious from the diagram that majority of the respondents i.e. 40.0 percent belong to the age group 30-35. So the age '35' acts as a major decision taking factor.

Table 4.02

Classification of Respondents Based on Income

Annual Income (Rs.)	Number	Percentage
1000 – 10,000	32	21.3
10,000 – 50,000	66	44.0
50,000-2,00,000	36	24.0
Above 2,00,000	16	10.7
Total	150	100.0

Source: Survey data

It is seen from the table that majority of the respondents ie, 44.0 percent have annual income between Rs. 10,000-50,000. 10.7 percent of the respondents have annual income above Rs.2,00,000. At the same time, the possibility of under reporting of income levels also cannot be ruled out.

Figure 4.02

Classification of Respondents Based on Income

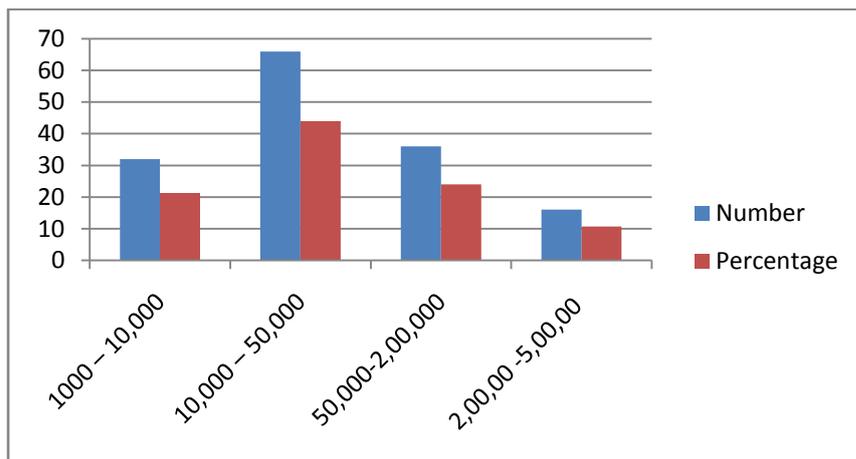


Table 4.03

Classification of Respondents Based on Educational Status

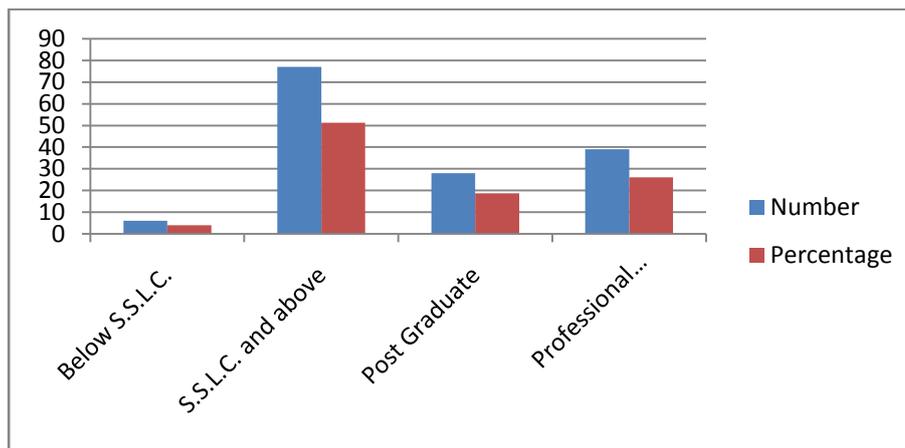
	Number	Percentage
Below S.S.L.C.	6	4.0
S.S.L.C. and above	77	51.3
Post Graduate	28	18.7
.Professional Course/Diploma	39	26.0
Total	150	100.0

Source: Survey data

Kottayam district is a highly literate district in Kerala. It is therefore not surprising that 96.0 percent of the respondents have a literacy rate of S.S.L.C. and above. Only 4.0 percent of the respondents have a literacy rate below S.S.L.C. Diagrammatic explanation will make it more clear.

Figure 4.03

Classification of Respondents Based on Educational Status



The above figure points out that only 4.0 percent of the respondents have below S.S.L.C. as educational qualification which constitutes just a microscopic minority. From this we can infer that literacy above S.S.L.C. as educational qualification has a deterministic influence in fertility decision.

Table 4.04

Classification of Respondents Based on Religion

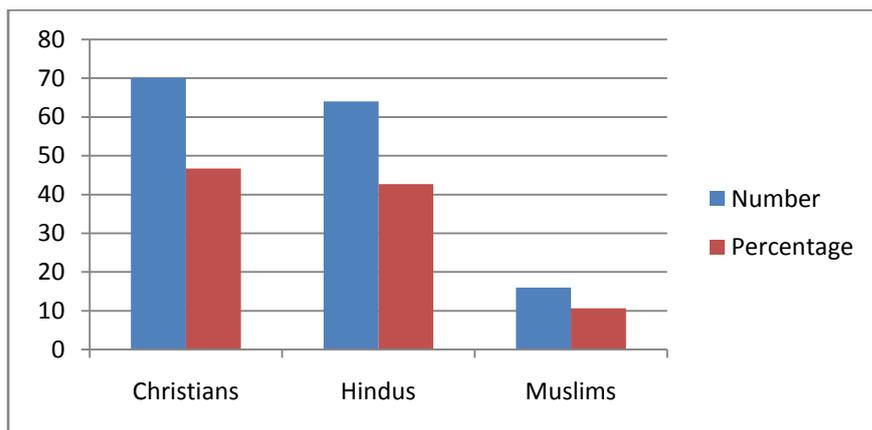
Religion	Number	Percentage
Christians	70.0	46.7
Hindus	64.0	42.7
Muslims	16.0	10.6
Total	150	100

Source: Survey data

The dominant religious group as it appears is Christians. 42.7 percent of the respondents are Hindus and 10.6 percent of the respondents are Muslims. The approach of the Christian groups to family planning was divergent. The following diagram depicts a clear picture.

Figure 4.04

Classification of Respondents Based on Religion



It is seen from the diagram that 70.0 percent of the respondents are Christians and 64.0 percent are Hindus. Eventhough the majority of the respondents belong to Christian community, they pointed that community did not have any objection to birth control.

Table 4.05

Classification of Respondents Based on the Type of Family

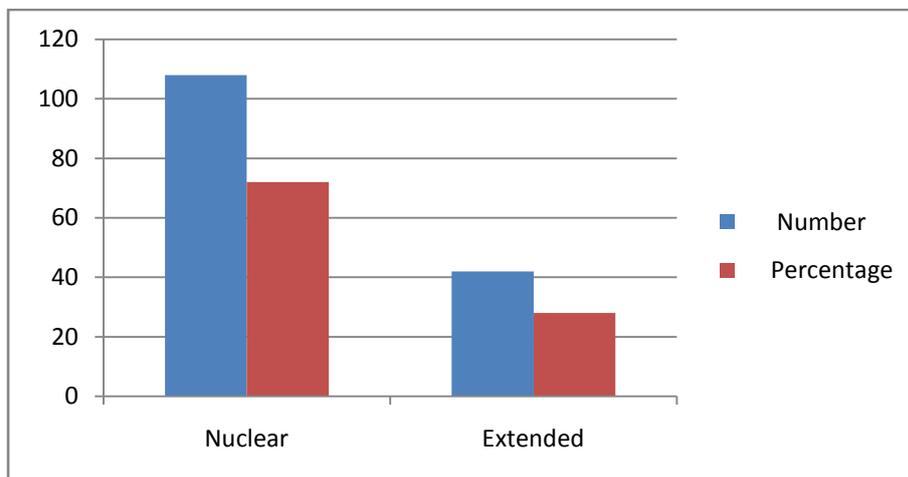
Type of Family	Number	Percentage
Nuclear	108	72.0
Extended	42	28.0
Total	150	100.0

Source: Survey data

From the above table, it is seen that majority of the respondents, that is ,72.0 percent, belong to nuclear families and only 28.0 percent have extended families. In extended families, grandparents are also there to support the bringing up of children. This is diagrammatically illustrated below.

Figure 4.05

Classification of Respondents Based on the Type of Family



From the above diagram, we can see that majority of the respondents, that is, 72.0 percent, belong to nuclear families. This is due to the fact that after the break up of joint families everybody prefers to live in nuclear families consisting of husband, wife and children.

Table 4.06

Classification of Respondents Based on the Number of Children

Number of Children	Number	Percentage
One	0	0
Two	122	81.3
Three	28.0	18.7
Total	150	100.0

Source: Survey data

The number of children in a family constitutes the size of the family. The above table shows that 81.3 percent of the respondents have two children and only 18.7 percent of the respondents have three children. It is interesting to note that none of the respondents prefer to have one child in their family and also none of the respondents prefer to have more than three child in their family.

Figure 4.06

Classification of Respondents Based on the Number of Children

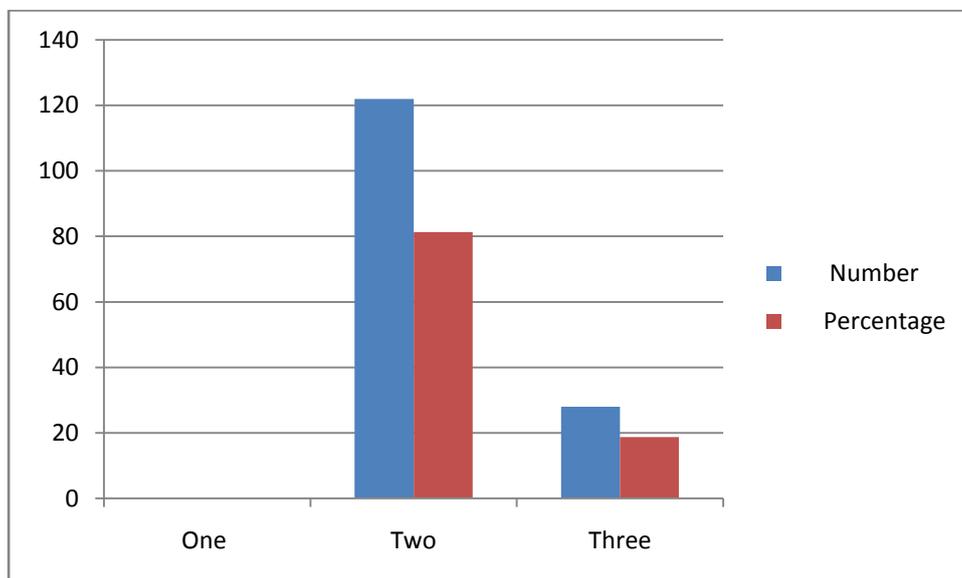


Table 4.07

Methods to Prevent Pregnancy

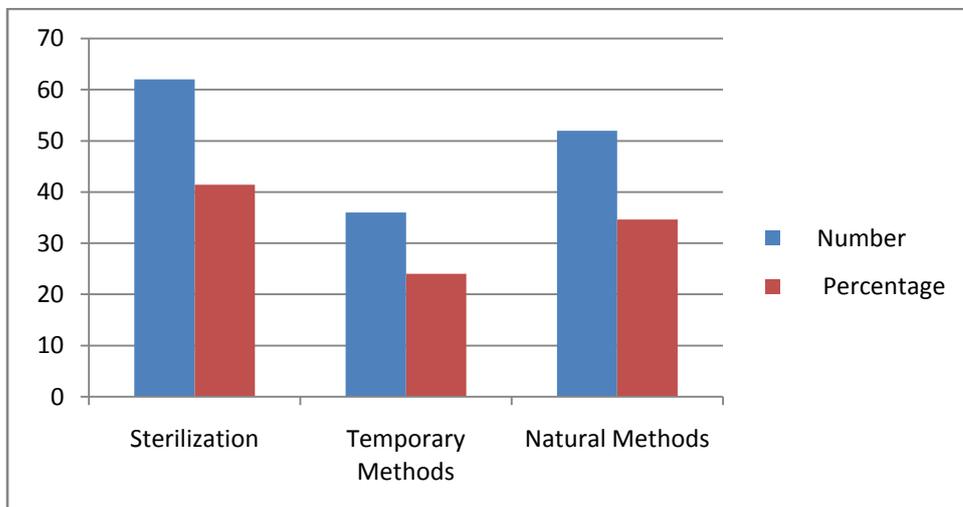
Type of Method Used	Number	Percentage
Sterilization	62	41.4
Temporary Methods	36	24.0
Natural Methods	52	34.6
Total	150	100.0

Source: Survey data

The table indicates that 41.4 percent of the respondents have preferred sterilization as the method to prevent pregnancy. 34.6 percent of the respondents used natural methods and 24.0 percent used temporary methods to prevent pregnancy. The above table can be represented through a diagram.

Figure 4.07

Methods to Prevent Pregnancy



The diagram shows that the majority of the respondents prefer sterilization as the best method to prevent pregnancy. Of the 150 women surveyed, everybody is using some methods to prevent pregnancy. From this we can infer that every woman in this area is aware of the family planning methods and strictly following the small family norms.

Table 4.08

Reason to Prevent Pregnancy

Reasons	Number	Percentage
More Children leads to more Financial Problems	128	85.4
Health Problem	14	9.3
Desire of the Husband	8	5.3
Any Compulsion	0	0
Total	150	100.0

Source: Survey data

The table points out that 85.4 percent of the respondents are of the opinion that more number of children in the family leads to more financial problem. 9.3 percent of the respondents have health problem and 5.3 percent act according to the desire of their husbands through mutual understanding. It is interesting to note that none of the respondents prefer to prevent pregnancy due to any compulsion. From this we can infer that women use any method to prevent pregnancy after having two or three children is a strategic and irreversible decision which brings down the reproductive span of women.

Figure 4.08

Methods to Prevent Pregnancy

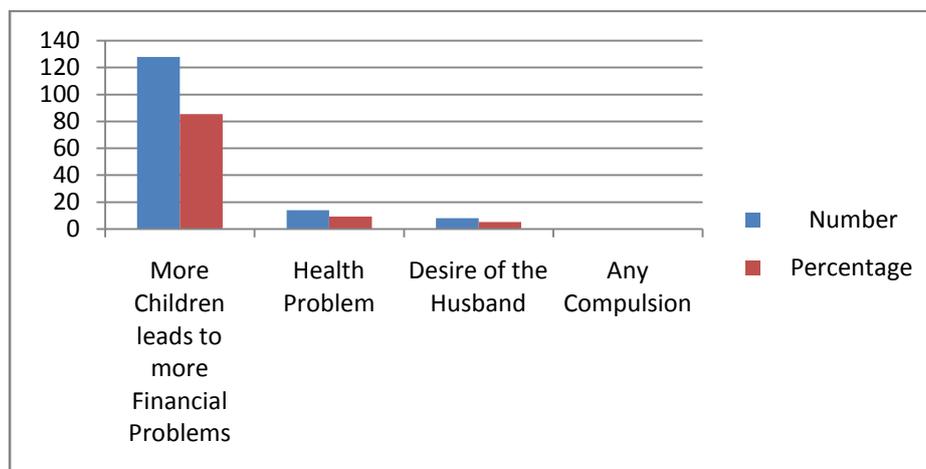


Table 4.09

**Respondent Women Cross Classified Based on the
Number of Male and Female Children**

Sex	Age				Total	Percentage
	25-29	30-35	36-40	Above 40		
(1M,1F)	11	24	10	11	56	37.4
(1F,1M)	8	16	9	10	43	28.6
(2F,1M)	3	8	6	6	23	15.3
(2M,1F)	1	0	0	7	8	5.4
(2F)	1	6	3	2	12	8.0
(2M)	0	5	0	0	5	3.3
(3F)	0	1	2	0	3	2.0
(3M)	0	0	0	0	0	0
Total	24	60	30	36	150	100.0

Source: Survey data

It is seen that, 37.4 percent of the respondents have first male child and then a female child and 28.6 percent have first female child and then a male child. This shows that there is a slight gender preference in favour of females at this stage. This may be because of old-age security especially for the physical security dominates in the minds of the parents at this stage. 15.3 percent of the respondents have 2 female child and then one male child. Here another type of sex preference can be seen in favour of males. This is because after having two females, parents had a desire for atleast one male to share some of their financial responsibilities. This points to the need for financial security of the respondent parents. None of the respondents had three male children in their families.

To sum up, it can be observed that this gender preference operate in different trajectories. At the two children limit, atleast one female is certainly desired. But beyond the two female children limit, the desire is strong for a male child. On the otherhand, after having two male children, the desire for a female child is not all that strong.

Table 4.10

Remarks Regarding the Preference of at least One Boy

Remarks	Number	Percentage
Social Security	7	4.7
As an Additional Income Earner	9	6.0
To Carry on the Duties and Obligations of the Family and Family name	134	89.3
Total	150	100.0

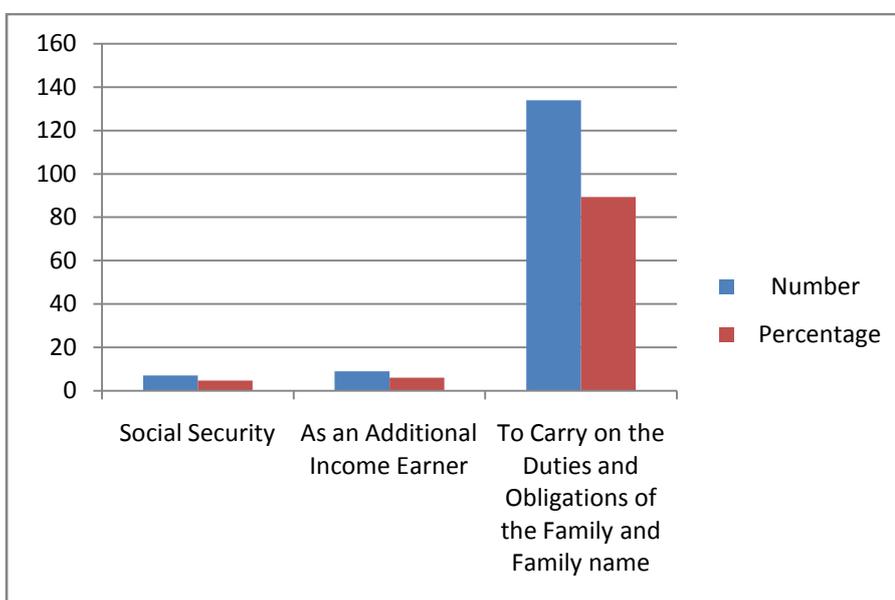
Source: Survey data

The above table shows that majority of the respondents, that is, 89.3 percent are of the opinion to have atleast one boy in their family to carry on the

duties and obligations of the family and family name. Only 6.0 percent of the respondents wanted to have atleast one boy in their family as an additional income earner and 4.7 percent of the respondents remarked as social security. This is illustrated through the following diagram.

Figure 4.10

Remarks Regarding the Preference of at least One Boy



The diagram shows that 89.3 percent of the respondents remarked to have atleast one boy in their family to carry on the duties and obligations of the family and family name. This might be due to the fact that only boy child can retain their family name and parents are more concerned about this.

Table 4.11

Attitude towards the Demand for Few Children

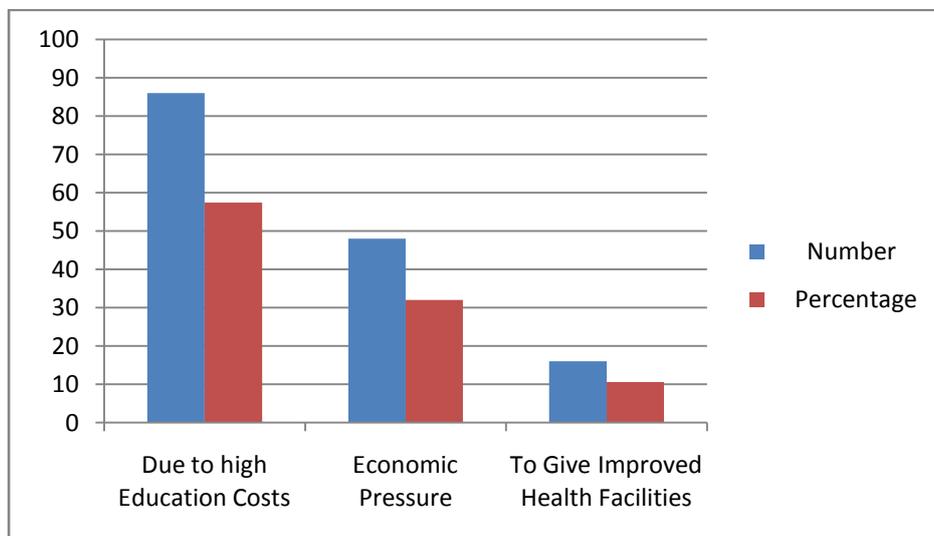
Reasons	Number	Percentage
Due to high Education Costs	86.0	57.4
Economic Pressure	48.0	32.0
To Give Improved Health Facilities	16.0	10.6
Total	150	100.0

Source: Survey data

From the table it is seen that 57.4 percent of the respondents are of the opinion that high education cost is one reason for the decreasing tendency for having more than three children. 32.0 percent of the respondents are of the opinion of high economic pressure and 10.6 percent remarked of giving improved health facilities to children. This can be made more clear through the following diagram.

Figure 4.11

Attitude towards the Demand for Few Children



It is seen from the figure that majority of the respondents prefer to have small family due to high education costs. This is due to the fact that today child rearing is very expensive. Parents are giving good education to both males and females. So the expenditure towards a male and a female child is somewhat similar.

Table 4.12

Attitude of the Respondents to Old-age Security

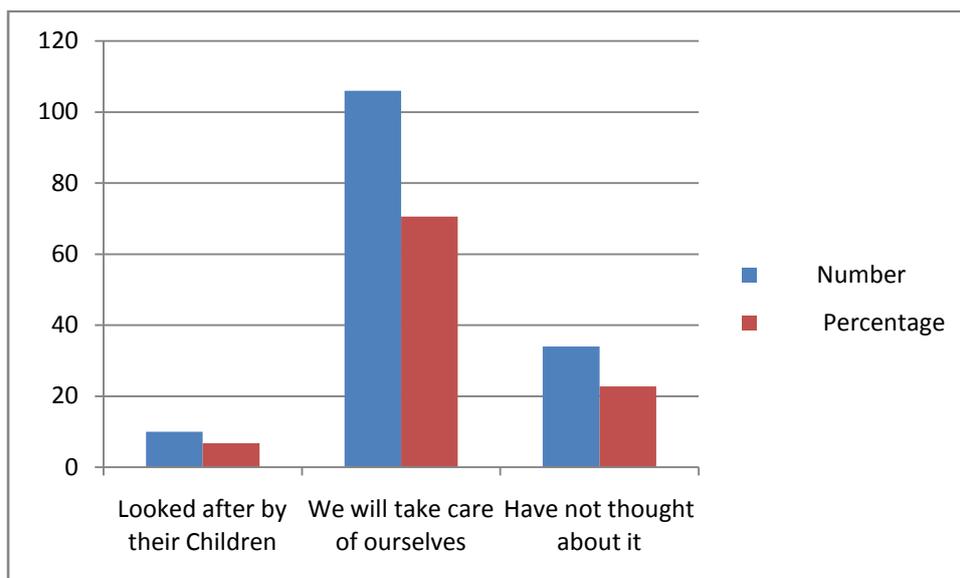
Attitude	Number	Percentage
Looked after by their Children	10.0	6.7
We will take care of ourselves	106.0	70.6
Have not thought about it	34.0	22.7
Total	150	100.0

Source: Survey data

Out of the 10 respondents who expected to be taken care of by their children in their old-age, 3 respondents replied that they expected to be looked after by their sons and 7 respondents replied that they expected to be looked after by their daughters. This can be better explained through the following diagram.

Figure 4.12

Attitude of the Respondents to Old-age Security



From the figure it is seen that 22.7 percent of the respondents never discussed their old-age problems with their family members. But majority of the respondents, that is, 70.6 percent, have a clear idea about their old-age as they planned to take care of themselves and they have no problem even if their children did not take care of them.

Table 4.13

Attitude of Husband Regarding Old-age

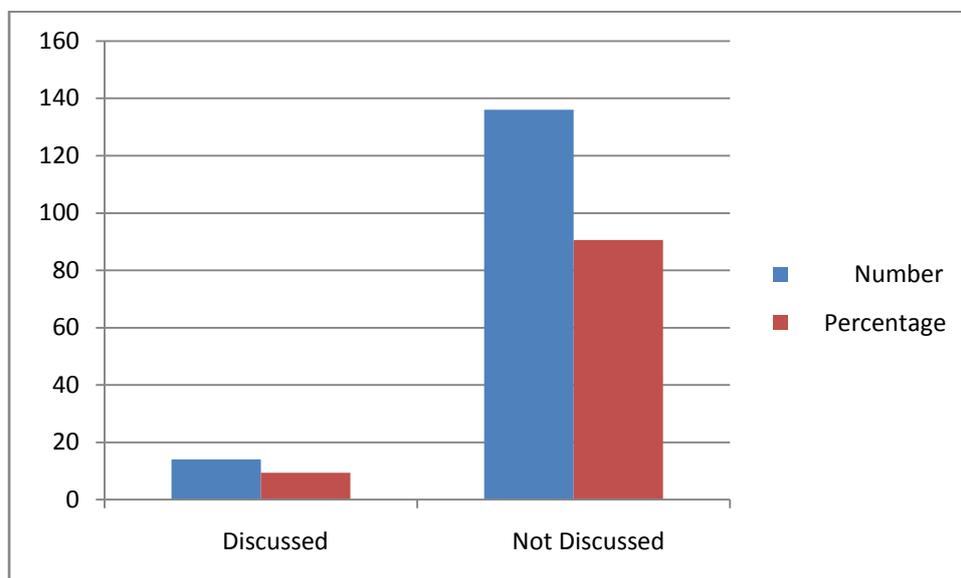
Attitude	Number	Percentage
Discussed	14	9.4
Not Discussed	136	90.6
Total	150	100.0

Source: Survey data

The above table shows that majority of the respondents had not discussed the old-age problem with their husbands. Only 9.4 percent of the respondents discussed the old-age problem with their husbands. The following diagram illustrates this.

Figure 4.13

Attitude of Husband Regarding Old-age



The figure shows that majority of the respondents, that is, 90.6 percent, did not discuss the problem of old-age with their husbands, but hoped to handle the problem when it arose. This is because the majority of the respondents are young and engaged in their day to day problems. In other words, fertility decisions appear to have been taken

within a limited time horizon. Since majority of the respondents were very young, they had not even thought of old-age security.

Table 4.14

**Classification of the Respondents Based on the Satisfaction
with the Small Family**

Satisfied with the small Family	Number	Percentage
Yes	150	100.0
No	0	0
Total	150	100.0

Source: Survey data

It is seen from the table that, every respondent, that is, 100.0 percent of the respondents are satisfied with this small family. So small family norms act as a strong determining force in the family structure.

The people of Kottayam have a clear awareness regarding the need for birth control. They are aware of the after effects of having a large number of children in their families. The major family planning decisions were taken by the age of '35'. In the case of first two children, a slight gender preference can be seen and that is in favour of females. This might be because parents expect their daughters to look after them in their old-age. After the birth of the second child, there seems to be a strong desire for a male child in order to meet the financial security of the parents in the old-age. It is also seen that in old-age, parents give more importance to physical security than financial security. 70.6 percent of the respondents would prefer to live with their husbands in their old-age. All the respondents gave more importance to their children's future and are less concerned about their own security at this stage.

CHAPTER V

FINDINGS AND CONCLUSION

The context of this study is the demographic transition in the state of Kerala. In this state, social development had preceded economic development. As a result, from the turn of the century, the state exhibited a demographic trend different from the rest of the country. The pace of demographic transition got accentuated from the seventies and the state has now reached the third stage in demographic transition indicating a low birth, death and infant mortality rate.

The focus of this study was to examine the factors that determine family size and the role of gender difference in it. In order to assess this with primary information, a survey was conducted in five taluks of Kottayam district in Kerala which was announced as the first fully literate municipal town in India. A purposive sample of 150 women within the age limits of 19-49 years was taken for the study.

The main conclusions derived from the study are the following:-

5.1 The majority of women (84 in number) who were surveyed were below the age of 35. It is also seen that 40.0 percent of the respondents belong to the age group 30-35. So the age '35' acts as a major decision taking factor.

5.2 The majority of the respondents, that is, 44.0 percent, have annual income between Rs. 10,000-Rs. 50,000. Only 10.7 percent of the respondents have annual income above Rs. 2,00,000.

5.3 Kottayam district is a highly literate district in Kerala. 96.0 percent of the respondents have a literacy rate of S.S.L.C. and above. Only 4.0 percent of the respondents have below

5.4 The general notion is that there is difference in the adoption of family planning measures in terms of religion. 70.0 percent of the respondents are Christians, 42.7 percent are Hindus and 10.6 percent are Muslims. Eventhough the majority of the respondents belong to Christian community, they pointed that their community did not have any objection to birth control.

5.5 The majority of the respondents, that is, 72.0 percent, belong to nuclear families and only 28.0 percent have extended families. This is due to the fact that after the break up of

joint families everybody prefers to live in nuclear families consisting of husband, wife and children. In extended families grandparents are also helpful in bringing up of children. Eventhen, the respondents want only small family consisting of two or three children. This reveals that small family size acts as a norm in the society, irrespective of types of the family.

5.6 The number of children in a family constitutes the size of the family. 81.3 percent of the respondents have two children and only 18.7 percent have three children. None of the respondent women had more than three children. And also none of them prefer to have one child in their family.

5.7 41.4 percent of the respondents have preferred sterilization as the method of birth control, 34.6 percent used natural methods and 24.0 percent used temporary methods to prevent pregnancy. From this we can infer that every woman in this area is aware of the family planning methods and strictly following the small family norms.

5.8 Traditionally, large number of children in a family was considered as an old- age security to the parents. Regarding the reason to prevent pregnancy, 85.4 percent of the respondents are of the opinion that more number of children in the family leads to more financial problem. 9.3 percent of the respondents have health problem and 5.3 percent act according to the desire of their husbands through mutual understanding. None of the respondents prevent pregnancy due to any compulsion. From this we can infer that women prefer to use any method to prevent pregnancy after having two or three children is a strategic and irreversible decision which brings down the reproductive span of women.

5.9 The general notion regarding gender preference is that there is a preference for male children. The issue of gender preference revealed in this survey require careful interpretations 37.4 percent of the respondents have first male child and then a female child. In other words, these women who first had a son went ahead to have a second child. Only 28.6 percent have first female child and then a male child. This shows that there is a slight gender preference in favour of females to the first two births. It may be due to the concern of parents for their physical security during old-age. 15.3 percent of the respondents have two female children and then one male child. This shows another type of sex preference in favour of males. Inorder to share some of the financial responsibilities of the parents, there is a strong desire to have atleast one male child after the birth of two females. So preference

for male children manifests only after the birth of the second child. After having two male children, the desire for a female child is not all that strong.

5.10 89.3 percent of the respondents remarked to have atleast one boy in their family to carry on the duties and obligations of the family and family name. This might be due to the fact that only boy child can retain their family name and parents are more concerned about this.

5.11 The change in the attitude towards children can also be seen throughout the survey. 57.4 percent of the respondents are of the opinion that high education cost is one reason for the decreasing tendency for having more than three children. This is due to the fact that today child rearing is very expensive. Parents are giving good education to both males and females. So the expenditure towards a male and a female child is somewhat similar.

5.12 Regarding the issue of old-age security, parents seem to have a vague idea. To the question of old-age security, 70.6 percent replied that they will live with their husbands at the old-age and they have no problem even if their children did not take care of them. 22.7 percent of the respondents never discussed their old-age problems with their family members.

5.13 90.6 percent of the respondents had not discussed the old-age problem with their husbands, but hoped to handle the problem when it arose. This is because the majority of the respondents are young and engaged in their day to day problems. In other words, fertility decisions appear to have been taken within a limited time horizon. Since majority of the respondents were very young, they had not even thought of old-age security.

5.14 Every respondent surveyed is satisfied with this small family. So small family norm acts as a strong determining force in the family structure.

These findings also throw light on the issue of value of child in the present socio-economic context in Kerala. While cost of rearing children has gone up tremendously, there is a fall in the expectations from children. A child appears to be more wanted for upward social mobility that it may bring and act as a source of inheritance of family property.

BIBLIOGRAPHY

A. Books

- Alok, S.K. (1992): "*Family Welfare Planning - The Indian Experience*," Inter-India Publications, New Dehli.
- Augustine, John, S. (1982): "*The Indian Family in Transition*," Vikas Publishers, Bangalore.
- Becker, G.S. (1981): "*A Treatise on the Family*," Harward University Press, London.
- Becker, G.S. (1960): "*An Economic Analysis of Fertility in Demographic and Economic Change in Developed Countries*," NBER, Princeton.
- Bhenda, *et.al.*, (1992): "*Principles of Population Studies*," Himalaya Publishing House, New Delhi.
- Chasen, Barbara *et.al.*, (1993): "*Kerala Development Through Radical Reform*," Promilla and Company, New Delhi.
- Cochrane, S.H. (1983): "*Effect of Education and Urbanisation on Fertility, in R. Bulatao and R.D. Lee (eds.), Determinants of Fertility in Developing Countries: A Summary of Knowledge*," Academic Press, New York.

Devanandan, P.D. *et.al.* (1960): “*The Changing Pattern of Family in India (eds) in the Christian Institute for the Study of Religion and Society,*” Bangalore.

George, K.K. (1993): “Limits to Kerala Model of Development: An Analysis of Fiscal Crisis and Its Implications,” Centre for Development Studies, Thiruvananthapuram.

Gupta, Raj Giri (1976): “Family and Social Change in Modern India,” Vikas Publishing House (P) Ltd., New Delhi.

Kamila, Uma (2003): “Indian Economy Since Independence,” 14th edition, Academic Foundation, New Delhi.

Kapadia, K.M. (1958): “Marriage and Family in India,” Second Edition, Oxford University Press, Bombay.

Kapur, Promilla (1970): “Marriage and Working Women in India,” Vikas Publishing House, New Delhi.

Kapur, Promilla (1974): “The Changing Status of the Working Women in India,” Vikas Publishing House, New Delhi.

Khan, *et.al.* (1987): “People’s Perceptions about Family Planning in India,” Concept Publishing House, New Delhi.

Kumar, Ashok (1990): "Developing Women and Children in India," Common Wealth Publishers, New Delhi.

Kuppuswamy (1972): "Social Change in India," Vikas Publishing House, New Delhi.

Mahadevan, K. (1989): "Population Dynamics in Indian States - Fertility and Family Formation and Mortality and Life Affecting Variables," Mittal Publications, New Delhi.

Mahadevan, K. *et.al.* (1987): "Social Development, Cultural Change and Fertility Decline: A Case Study of Fertility Change in Kerala," Sage Publications, New Delhi.

Nair, Balakrishnan, V. (1994): "Social Development and Demographic Changes in South India-Focus on Kerala," MD Publications (P) Ltd., An Associate of Prints India, New Delhi.

Panicker, *et.al.* (1978): "Population Growth and Agricultural Development: A Case Study of Kerala," FAO, Rome.

Panikkar, K.M. (1955): "Hindu Society at Cross Roads," Asia Publishing House, Bombay.

Rajan, Irudaya, S. *et.al.* (1978): "Population Aspects of Aging in Kerala: Their Economic and Social Consequences," Centre for Development Studies, Thiruvananthapuram.

Rao, Prakasa, V.V. *et.al.* (1982): "Marriage, The Family and Women in India," Heritage Publications, New Delhi.

Surendran, P. (2002): "The Kerala Economy - Growth and Survival," Vrinda Publications (P) Ltd., New Delhi.

Varghese, T.C. (1970): "Agrarian Change and Economic Consequences," Allied Publishers, Bombay.

Varghese, K.E. (1986): "Socio-Economic Change in Kerala," Asian Publishers, New Delhi.

Zachariah, K.C. (1983): "Anomaly of Fertility Decline in Kerala," Population, Health and Nutrition Department, Thiruvananthapuram.

Zachariah, K.C. (1992): "Demographic Transition in Kerala in 1980: Results of a Survey in Three Districts," Centre for Development Studies, Thiruvananthapuram.

Zachariah, K.C. (1994): "Demographic Transition in Kerala in the 1980s," CDS, Thiruvananthapuram.

B. ARTICLES

Basu, A.M. (1986): "Birth Control by Assetless Workers in Kerala: The Possibility of a Poverty Induced Fertility Transition," *Development and Change*, Vol. 17, No.2.

Bhat, Mari, P.N. *et. al.* (1990): "Demographic Transition in Kerala, Revisited," *Economic and Political Weekly*, September 8.

Gulati, Leela (October 1992): "Dimensions of Female Aging and Widowhood, Insights from Kerala Experience," *Economic and Political Weekly*.

Krishnaji, N. (March 1980): "Agrarian Structure and Family Formation: A Tentative Hypothesis," *Economic and Political Weekly, Review of Agriculture*, Vol. XV.

Krishnaji, N. (November 1980): "Poverty and Family Size," *Social Scientist Journal*, Vol. 9.

Krishnan, T.N. (1976): "The Demographic Transition in Kerala: Facts and Factors," *Economic and Political Weekly*, Vol. XI.

Kurup, R.S. *et al.* (1979): "A Note on Birth and Death Rates in Kerala," *Demography India*, No: 1-2, pp. 68-75.

Nag, N. (1984): "Fertility Differentials in Kerala and West Bengal, Equity Fertility Hypothesis an Explanation," Economic and Political Weekly, Vol. 19, No.1

Nair, Gopinathan, P.R. (February 1974): "Decline in Birth Rate in Kerala: A Hypothesis About the Interrelationship Between Demographic Variables," Health Services and Education, Economic and Political Weekly.

Rajan, Irudaya, S. and Mari Bhat, N. (1991): "Neonatal and Perinatal Mortality," Social Welfare, Vol. XXXVIII, No.3.

Rajan, Irudaya, Mishra U.S. and Mala Rananathan (December 1993) : "The Two-Child Family in India : Is it Realistic?" International Family Planning Perspectives, Vol. 19, No.4.

Rajan, Irudaya, S. and James, K.S. (September 1993) : "Kerala's Health Status : Some Issues," Economic and Political Weekly.

Rajan, Irudaya, S. and Zachariah, K.C. (1998) : "Longterm Implications of low Fertility in Kerala, India," Asia Pacific Population Journal, Vol. 13, No.3, pp. 41-56.

Tharakan, Michael, P.K. (September 1984): "Socio-Economic Factors in Educational Development : Case of Nineteenth Century Travancore," Economic and Political Weekly, Vol. XIX, No. 35.

C. REPORTS

Census of India (1971): "Provisional Population Totals," Government of India.

Census of India (1971): "Series 9 - Kerala, Part II A, General Population Tables," Government of India.

Census of India (1981): "Provisional Population Totals," Registrar General and Census Commissioner for India.

Census of India (1991): "Provisional Population Totals," Registrar General, New Delhi.

Census of India (2001): "Provisional Population Totals," Government of India.

Census of India (2001) : "Paper 1, 2 and 3 Kerala," Registrar General, New Delhi.

Government of India (1988) : "Fact Book on Population and Family Planning," A Statistical Profile, New Delhi.

Government of India (1970-75): "Sample Registration System," Registrar General of India, New Delhi.

Government of India (1981): "Sample Registration System," Registrar General of India, New Delhi.

Government of Kerala (1999): “Economic Review,” State Planning Board, Thiruvananthapuram.

Government of Kerala (2001): “Statistics for Planning,” Directorate of Economics and Statistics, Thiruvananthapuram.

Government of Kerala (2004): “Economic Review,” State Planning Board, Thiruvananthapuram.

Kerala Statistical Institute (2000) : “Handbook Statistics,” Jagathy, Thiruvananthapuram.

Kerala Women’s Commission (2002): “Status of Women in Kerala - A Report Based on Sample Studies,” Thiruvananthapuram.

United Nations Publications (1993): “Women’s Education and Fertility Behaviour - A Case Study of Maharashtra, India.”

United Nations Publications (1992): “Economic and Social Aspects of Population Aging in Kerala, India.”

World Development Report (1984): “The Consequence of Rapid Populatin Growth,” Oxford University Press, New Delhi.

D. DISSERTATION, SEMINAR PAPERS AND OTHERS

Gulati, Leela (February 1979) : “Age of Marriage of Women and Population Growth: The Kerala Experience,” Working Paper No. 81, CDS, Thiruvananthapuram.

Gulati, Leela (August 1983): “Impact of the Development Process on the Indian Family,” Working Paper No. 174, CDS, Thiruvananthapuram.

Gulati, Leela (August 1983): “Impact of the Development Process on the Indian Family,” Working Paper No. 174, CDS, Thiruvananthapuram.

Panikar, P G.K and C.P. Soman (1984): “Health Status of Kerala - Paradox of Economic Backwardness and Health Development, CDS, Thiruvananthapuram.

Rajan, Irudaya, S. (September 1993) : “Social Security and Assistance Schemes in Kerala: Is it enough to protect the Elderly?” Paper presented at the International Conference of the Elderly, Organized by the Singapore Action Group of Elders (SAGE) and International Federation on Aging held at Singapore.

Thomas, Laisa (1994): “Determinants of Fertility In a Modern Micro Community,” M.Phil Thesis Submitted to the Mahatma Gandhi University, Kottayam (Unpublished).

Thomas, Laisa (March 2002): “Impact of Women’s Education on the Socio-Economic Security of Family,” Paper presented at the National Seminar, Organized by the Assumption College, Changanacherry.

Zachariah, K.C. (1984), “The Anomaly of the Fertility Decline in India: Kerala State, A Field Investigation,” Staff Working Paper No. 200, Washington DC.

Zachariah, K.C, Mathew, E.T and Irudaya Rajan (May 2000) : “Migration in Kerala State-India: Dimensions, Determinants and Consequences,” Working Paper I, CDS, Thiruvananthapuram, Indo-Dutch Programmes on Alternatives in Development.

E. INTERNET REFERENCES

www.bmjournals.com

www.censusindia.com

www.keralagovt.in

www.keralaplanningboard.org

www.keralatourism.org

www.kottayam.com

www.newkerala.com

www.womenempltin.kerala.co.in

APPENDIX

Questionnaire for the Survey

A. Background Characteristics

1. Name
2. Name of the Head of the Household
3. Caste
4. Religion
5. Address
6. Details of the members residing in that house
7. How many children you like to have and how many children you have?
8. The time gap among each child
9. If any child died

B. Knowledge and use of Contraception

10. Do you use any method to prevent from pregnancy or to lengthen the period at any time?
11. Which method do you use?
12. If 'No' what is the reason behind not using any method to prevent pregnancy or to lengthen the period?
13. If 'Yes' what is the reason behind to prevent pregnancy?
14. If there is any compulsion, from whom, reason?

C. Reproductive Behaviour and sense of Security

15. If 'Just married' ask them, do you have any decision about your family size?
16. If there is a desire for an additional child, ask why?
17. If 'No' why?

18. We can see that most of the families prefer 1 boy and 1 girl. What is the notion behind it? Your remarks about it.
19. Do you have any sex preference or why you prefer to have at least one boy?
20. If your attitude towards the demand for children is few, why you consider so?
21. If 'other reasons' note that.
22. Do you like to live in urban area or rural area?
23. Does your employment influence your decision towards the number of children?
24. If 'Yes' how?
25. Are you satisfied with this small family?
26. If 'No' why?
27. What is your plan about your 'old age'?
28. Have you any time discussed this problem with your husband?
29. Then what is his comment or opinion about this?
30. What is your opinion about the need for small family? Remarks:-