THE SOCIOLOGY OF FERTILITY:

A COMPARATIVE STUDY OF

KERALA AND BIHAR

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CERTIFICATE

This is to certify that this dissertation entitled **"SOCIOLOGY OF FERTILITY: A COMPARATIVE STUDY OF KERALA AND B IHAR"** submitted by **AJAY KUMAR SINGH** in partial fulfillment of the requirements for the award of the Degree of **MASTER OF PHILOSOPHY**, has not been previously submitted for any degree of this or any other University and this is his own work.

We recommend that this dissertation may be placed before examiners for evaluation.

PROF. EHSANUL HAQ
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Dedicated in Memory of My Mother

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PREFACE

As a complex process and as an instrument for the biological continuance of society, human fertility constitutes an essential aspect of the studies in modern sociology and demography. The study of the factors contributing to high fertility levels assumes great importance in view of the high rate of increase in population growth and the wide variations in the levels of fertility observed within many high fertility countries, particularly India, an attempt is made in this study to find out the factors responsible for high fertility differentials within the country. A thorough understanding of the differentials and determinants of fertility at all levels is essential for initiating any planned effort for fertility control programmes and for economic development as well. Further, the knowledge of various determinants of differential fertility contributes to the advancement of a precise theoretical conceptualization in the sociology of fertility.

Though, there are numerous studies attempting to explain differential fertility embedded in a particular social-economic ambience, still sociology of fertility suffers acute dearth of studies analyzing fertility differentials in comparative perspective. As a response to this immanent problem of sociology of fertility the present study is an endeavour to explore a latent pattern between various socio-economic factors on the one hand and fertility determinants on other, leading to high fertility differentials within India, in a comparative manner.

As plurality and diversity characterize every aspect of Indian social life, its demographic facet is not an exception of this. Every state in India is

demographically different from the other but this difference becomes more stark and acute while comparing Kerala with Bihar which stand on two opposite extremes on many counts. Moreover, in such a situation, where hardly any study exists encompassing the whole complex of socio-economic and demographic factors affecting fertility behaviour, it would be of great interest and full of insight to compare the fertility differential of Kerala and Bihar where substantial amount of socio-economic and demographic attributes are discernable. Besides, the comparative analysis of fertility differentials of these two states provide an understanding of the process of transition from high to low fertility in a set up where the whole range of fertility-related forces viz., modern and traditional are operative.

This study consists of five chapters. The first chapter deals with a brief introduction of demography, social demography and sociology of fertility. The review of various literatures in this chapter provides a background for this study.

The second chapter contains a discussion on various conceptual and theoretical issues involved in the 'fertility behaviour' in genera and in the 'sociology of fertility' in particular.

The third chapter consists of general fertility trends in terms of various background characteristics in India. It presents a vivid picture of the fertility behaviour of people of India with their various socio- economic backgrounds.

The fourth chapter is a comparative analysis of fertility behaviour of people of Kerala and Bihar and attempts to trace the causes of fertility differentials in these states.

The fifth and the last chapter consists of conclusion and discussion on previous chapters, establishes a relationship between various socio-economic factors and fertility determinants. Finally, it causally relates the background characteristics of people with their fertility behaviour.

Now that I have written the last word of this dissertation, it is opportune time to acknowledge the contribution of all those who were some how engrossed and involved with it and made it possible.

First of all, I wish to express my gratitude to Prof. Ehsanul Haq, who has been a supervisor of this work, for his personal interest and guidance which enabled me to accomplish this work.

I owe a special debt of gratitude to Prof. J.S. Gandhi and Dr. Amit Sharma for their valuable suggestion and personal kindness since my M.A. days in JNU.

To measure the contribution of my 'Parents', whose support, patience and encouragement always inspired me in building my career and making my life possible, would be like unbecoming a son.

I want to express a heartfelt gratitude to my brothers, sisters, bhabhi, Tej Pratap, Vikas, Praveen and Mama-mami specially for their love affection and support in the hour of crisis and creation.

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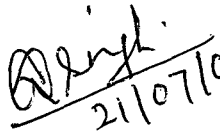
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Introduction

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INTRODUCTION

Population explosion constitutes a major threat to mankind today. While many developed countries have moved from a condition of high mortality and high fertility with consequently slow growth of population to conditions of low mortality and low fertility once again leading to a slow growth of population, the situation in developing countries is alarming. In developing countries the economic development is unable to keep pace with population growth as a result of which rapidly increasing population in these countries eats away all benefits derived from programmes of economic development.

The growth of population is creating problems for both the developed and the under developed countries economic problems for developing countries and the social problems such as congestion and pollution for the industrial countries. It is hampering the agricultural and industrial development of underdeveloped countries. Population growth also affects a country's status in international trade and politics. Whereas increase in the numbers is an emblem of strength and manpower of a country, at the same time, undernourished and unmanageable armies of persons create an imbalance between resources and their users, thereby giving rise to poverty and the economic dependence on other countries. In other words it is the root cause of international tensions, threats of war and the world's very chances of survival. Society is both a necessary and sufficient cause of population trends. A knowledge about the social aspects of population becomes increasingly important for individual's education and indispensable to his exercise of intelligent citizenship.

"The population of the Earth has grown more than eight fold during the last 300 years. Population of the earth was estimated to be 0.25 billion in 1 A.D., which doubled itself to 0.50 in billion 1650 A.D. and since then the time taken to double is decreasing. In 1850, the world population was 1.2 billion which had doubled itself in 200 years. In 1930 it was 2.0 billion, which was doubled to 4.0 billion in 1975 and according to projected estimates it is likely to double itself by 2010 A.D. i.e. just in 35 years (Wilson et. al. 1978). According to United Nations study the world population was about 4.3 billion in 1979 with annual rate of increase 1.8% and it is estimated that with this rate of growth we would double ourselves in about 35 years. The only relief is that the annual rate of increase has dropped from 2.0% in 1955-65 to about 1.8% in 1970. Though 1.8% is moderately high, yet it is indicative of the fact that world population growth rate has started declining after reaching the peak, and we may hopefully expect it to abate gradually even further in future (UN, 1980)".

"However, what is aggravating the situation is the uneven distribution of population. In 1978, the population of Asia, African and European countries was 57.80%, 10.38% and 11.27% respectively, which means that almost three fourth of the world population is concentrated in the economically less developed countries (UN, 1978). The paradox is that the more developed countries have small proportion of world population to support, while the underdeveloped nations have to support larger proportions of the world's populace".

India, which comes under the category of developing countries is not an exception to the situation emerging from rapidly increasing population. Although the fertility is reported to have declined in India in the past decades, the population is on rapid increase. The population in the year 1991 was 843 million which has crossed the 1 billion mark in 2001. Thus inspite of a decline in fertility, the increase in the growth rate

may obviously be attributed to the decline in death rate as the pace of fertility decline has been much lower than the pace of mortality decline.

Evidences show that in the last one hundred and twenty five years the crude birth rate declined from the high forties per thousand to around high twenties in 2001 and is still maintaining a high level. The death rate has achieved a considerable decrease beginning from 1921 and especially since 1951 from well over 40 per thousand to well below 18 per thousand population.

Further the infant mortality rate decline from around 300 or above per thousand to around 110 and in some areas almost to half this later figure. Deaths due to malnutrition, famines and the gastro intestinal ailments are being decreased through improved agricultural production and distribution and the purification of water supplies. In addition, the Government of India and the World Health Organization had launched national programmes of medical care and preventive medicine which, on the basis of recent surveys appeared to have been effective in lowering down the incidence of small-pox, cholera, plague, malaria, filariaris, tuberculosis and several veneral diseases. Control over these and other primary causes of death has been most important factor for a rapid decline in mortality rate.

The vast changes have occurred in many aspects of life due to the rapid population growth in a large number of countries of the world, especially after the Second World War. The developing countries that became independent generally after the Second World War, launched their programmes of social and economic development for raising the standard of living of their people. But, in some countries, the economic development programme have failed to keep pace with the rising ride of population and they have, therefore not been able to ensure higher standard of living for their people.

Thus, the problems arising from rapid population growth became a subject of world wide interest and of utmost and urgent concern which finally laid the emergence of a new discipline called Demography. 'Demography' is a science which deals with human populations. This term is derived from two Greek Words, demos, the people, and graphy, to draw or write. The term was first used by Guillard in 1855, and now-a-days denotes the study by statistical methods of human populations involving primarily the measurement of size, growth and diminution of the numbers of people, the proportions of living, being born or dying within some area of region and the related functions of fertility, mortality and marriage (Cox, 1970:1).

The Multilingual Demographic Dictionary defines demography as the "scientific study of human populations, primarily with respect to their size, their structure and their development" (U.N., 1958:3). Another limited view of demography is taken by Wrong who defines it "as the statistical description and analysis of human populations" (Wrong, 1967:2). The Multilingual Demographic Dictionary, however, differentiates between various aspects of demography by defining separately demographic statistics, economic demography and social demography, the latter two imply the "study of relations between demographic phenomena on the one hand and economic and social phenomena on the other".

Some other writers have taken a more comprehensive view in defining the discipline of demography which covers more clearly its nature and scope. For example, Hauser and Duncan define it in the following manner, "demography is the study of size, territorial distribution and composition of population, changes therein, and the components of such changes, which may be identified as natality, mortality, territorial movement (migration) and social mobility (change in status)" (Hauser and Duncan, 1959: 2).

Demography can also be defined as the analysis of the size, structure and development of human populations, although it is occasionally employed to cover the study of animal populations. The crude statistics of population size and change are provided by the relationship between the birth and death rates and by migration and emigration. Two central features of population structure are the sex and age composition of human groups. Demographic analysis also includes the geographical distribution of populations, population and natural resources, genetic composition, population projections, family planning and demographic features of the labour supply. Because the demography of human populations is crucial for economic and social planning, the development of demographic analysis has become important for national and international government forecasting. Partly in response to government requirements and partly because of the nature of demographic data, demographers have developed sophisticated mathematical models of population change and structure which permit statistical forecasting, population projections and the creation of actuarial life tables. It is now common place, therefore, to distinguish between formal or mathematical demography, which is concerned with the mathematical structure and functions of human populations, and social or historical demography, which studies the historical conditions of population change such as the nature of demographic transition.

The demographic characteristics of human populations are clearly of major importance for any sociological understanding of human society. Population change in both size and structure has a direct bearing on for example, the availability of housing education, health and employment. Despite these obvious connections between demography and sociology, it is perhaps surprising that the two disciplines have tended to develop as separate and distinct approaches to human society. Although the question of population density played an important part in early

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sociological theories of social contract and division of labour, subsequent sociological theory and research did not take the demographic features of society to be of central analytical significance in sociological explanation. One explanation of the neglect of demography by sociologists may lie in the fact that sociologists like T. Parsons came to equate an interest in the demography of society with a 'biologizing' tendency in sociological theory. Biological determinism attempts to employ the study of animal populations as the basis for the study of human groups, perceiving the latter in terms of basic laws of population growth in relation to fixed resources. While demographers were inclined to ignore the cultural and social factors which mediate between population and environment, sociologists have neglected population variables between society and environment.

This mirror-image ignorance between demography and sociology has now changed fundamentally with recent developments in the social history of human populations which is centrally concerned with such questions as marriage practices, basturdy, family structure and generally with the impact of social conditions on fertility, mortality and migration. Historical demography employs the method of 'family reconstitution' in which parish records are used to study the major demographic events-births, deaths and marriages – of each family. The use of this method by, for example, the Annales School transformed sociologists'understanding of the family. In particular, it helped to destroy the myth of the extended family in pre-industrial Europe. Historical demography, especially under the impact of the Cambridge centre of the study of population and history, has made a major contribution to the re-evaluation of conventional sociological perspectives on the family, fertility and social class, and the social aspects of population change. This expansion in historical demography has consequently made important contribution to the sociological analysis of social change by improving our

understanding of the relationship between population change, social structure and technological improvement.

The use of the term "social demography" has been in vogue in recent years but, as is true of many disciplines neither the context nor the boundaries of social demography can be defined with exactitude. Conceived in general terms, the major concern of social demography can be said to be the analysis of the inter-relationships of general, social and cultural factors with population structure (size, composition and distribution) and population processes related to dynamic behaviour (fertility, mortality, nuptiality and mobility).

In the study of such inter-relationships, on the one hand, social and cultural factors are viewed as independent variables that account for empirical regularities (or variations) in population size, its structure and processes of change in them; on the other hand, pure demographic variables are treated as independent variables to study the ways in which changes in them affect various aspects of society and culture, as well as social structure. These later aspects can be represented either by "social action system" (informal groups, associations, communities and institutions of marriage and family, religions, political and economic systems and health, education and welfare systems) or by "social aggregate system" which is made up of characteristics of individuals and groups like race, religion, caste, ethnic background, marital status, family characteristics, economic characteristics, education and income as well as attitudes, values and beliefs. This approach to the definition of social demography can be represented by the overlapping areas of the circles representing social action system and social aggregate systems with the circle representing demographic system (Ford and De Jong, 1970:13).

Diagrammatically, this can be represented in the following manner (Fig. 1):

Fig. I

Major Analytical Systems in Social Demography

PRINCIPAL ELEMENTS

Population size

Composition

Distribution

Fertility

Mortality

Migration

PRINCIPLE ELEMENTS

Informal groups

Associations

Communities

Marriage and family institutions

Religions institutions

Political institutions

Economic institution

Health institutions

Welfare institutions

Educational institutions

PRINCIPAL ELEMENTS

i. Socially defined

Race

Ethnic background

Marital status

Family characteristics

Labour force

Participation

Occupation

Industry

Education

Income

Religion

ii. Analytically defined

Attitudes

Values

Beliefs

In this framework, a social action system is chiefly characterized by the inclusion of various forms of interactions of the system's members. This interaction can be institutionalized through the institutions of marriage and family, religion, economic and political systems and health, education and welfare systems; it can be non-institutionalized as well which is represented by informal groups, associations and communities. A basic assumption of sociology is that personal interaction gives rise to social norms which govern social behavior, many times involving basic demographic processes of nuptiality, fertility, mortality, and migration and through them, influence demographic structure. Reciprocally, the size of population and its sex and age structure strongly affect the nature of personal interaction and hence, the functioning of social action systems. A study of these inter relationship becomes an important field of social demography. This is particularly so in India considering its long history and great diversing of cultures and traditions peoples have in different parts of the country who are living at different levels of economic and social development, from the primitive mode of certain tribal groups to the most complex and sophisticated ways of our great metropolises.

One of the most important constituents of demographic composition of any society is 'fertility' which is distinctively different from another seemingly similar concept 'fecundity'. The term 'fecundity'refers to the capacity to produce living offspring whereas 'fertility' refers to actual performance.

Although fecundity is important from the biological view point, demographer's interest lies in fertility, that is, the actual number of births that take place in any country, or the number of children borne by women. It is the human fertility, a complex biological process which plays instrumental in continuation of a society. Unlike the multitude of other living beings on earth, human fertility can not be considered purely

as a function of biological factors, but it is conditional and controlled by social factors too. Like other forms of human behaviour, procreation is also a response to the motivation provided by society. But it does not allow people to reproduce to their full biological capacity and puts controls on the total reproductive capacity. The use of contraceptives among primitive people illustrates the fact that fertility has always been socially controlled, however, the control may be conscious or unconscious.

BROAD MEASURES OF FERTILITY

As the number of births in a year in any given population depend on its size, it is necessary to convert the births into some sort of a rate to make any comparison (over space or over time) feasible. The various rates obtained by making use of vital registration data are known as "direct fertility measures" while those derived from census statistics alone are known as "indirect fertility measures".

I.   Direct Fertility Measures:

The most common and the most widely used measure of fertility is called crude birth rate. It is defined as:

(i) Crude Birth Rate (CBR) =

$$\frac{\text{No. of live births in a calendar year in a given geographical area}}{\text{Population of that area at the mid point of the year}} \times 1000$$

In the definition of CBR, the total population in the denominator is taken at the mid point of the year and not at the beginning or at the end of the year. The reason for this is at the population is continuously changing by births, deaths and migration.

CBR is called a crude measure, because its denominator consists of all persons in the population of both sexes and all ages,many of whom do not contribute towards fertility or births. In fact, biologically, it is the

women who bear children and that too, within a certain age span. A woman can bear a child only after the onset of menstruation and can continue to bear children till she reaches the age of menopause. Generally, the period of child bearing is taken from age 15 to 50 although there are women who bear children before the age of 15 or after the age of 50.

(ii) General Fertility Rate (GFR) =

$$\frac{\text{No. of live births in a calendar year in a given geographical area}}{\text{Female population aged 15-49 at mid year}} \times 1000$$

This measure is quite good for general purposes, but as the populations differ from one another in terms of the age structure of females within the child bearing ages also, for more refined purposes demographers have defined certain other fertility measures. Thus, in order to measure the fertility performance of women in different age groups, we define age specific fertility rate as:

(iii) Age Specific Fertility Rate (ASFR) =

$$\frac{\text{No. of live births in a calendar year in a given geographical area to women of specific age group}}{\text{Female population of that age group at mid year}} \times 1000$$

This measure becomes a refined measure of fertility since it gives the actual performance of women in different age groups.

Another important concept to measure fertility is total fertility rate.

(iv) Total Fertility Rate (TFR) =

$$\frac{\text{Summation of ASFRs}}{1000} \times \text{Width of the age interval}$$

TFR specifies the number of children a woman would have as she passes through her child bearing span. This measure is very helpful in comparing the fertility performance of different populations or social groups.

Still more refined work demographers have also defined another measure of fertility, known as Gross Reproduction Rate (GRR) which specifies the average number of daughters born to a woman through her child bearing span. This also specifies the number by which a woman is replaced in her next generation by females who would then reproduce in the next generation when mortality among them is not considered. A similar measure, in which mortality in the next generation is taken into account is called Net Re-Production Rate (NRR).

II. Indirect Measures of Fertility

In countries where no data on births are available from the vital registration system, recourse is sometimes made to study the fertility pattern with the help of another measure called 'Child Women Ratio'. It is defined as:

Child Woman Ratio (CWR) =

$$\text{Child Woman Ratio (CWR)} = \frac{\text{No. of Children aged 0-4 counted in a census}}{\text{Female population age 15-44 in that census}} \times 1000$$

This measure helps in comparing fertility performance of different groups of people purely on the basis of census data. These comparisons are valid only under the assumption that the infant and child mortality is the same in different groups.

REVIEW OF LITERATURE

Various studies have been conducted by demographers and sociologists in order to analyse the factors influencing fertility behaviour of human beings. These studies have identified numerous factors which

are responsible for differential fertility rate at different levels. Apart from physiological factors, various parts of social structures are the ultimate determinants of fertility. It is because of the variation in the social structure of various societies like social, economic, cultural, religious and value systems that fertility rate varies from one society to other.

Joint family is a unique characteristic of Indian social system and many studies have incorporated it in fertility behaviour. Lorimer (1954) is of the view that whole cultural context in the extended families tends to be idealized and is likely to be conducive to high fertility. Chandrashekhar (1946) is of the view that large family units in India are culturally equipped to accommodate any extra baby. Basu (1971) have observed that women belonging to the category of extended type of family are endowed with a relatively higher fertility than those belonging to the category of simple type of family.

Bebarta (1967), based on his study of 567 women belonging to joint families and 327 to nuclear families from six Delhi villages concluded that the nuclear type had higher fertility than the joint type in each age group. Nag (1965) has pointed out that lack of adequate privacy due to over crowding in houses under the occupation of extended families may be a factor for their low fertility. Guha (1960) found that the number of children in joint family was less than in simple families, when women of all ages were considered. On the basis of a study of 1018 couples belonging to three socio-economic groups, found that the standardized average number of children per couple was 2.9, 3.4 and 3.5 in three socio-economic groups for the nuclear family and 2.5, 3.1 and 3.7 for the joint family.

Another study by (Driver, 1963 and Mandelbaum, 1974) also highlights that joint family system has a decreasing effect on fertility because by virtue of the number of people living together, couples have little privacy and infrequent opportunity for sexual intercourse. In

contrast, a study conducted in West Bengal reveals that joint family exerts a positive impact on family size, which operates through the incentive mechanism induced by sharing the direct and opportunity costs in having children (Nandi, Bandhopadhyay and Mukhopadhyay, 1978).

Poffenberger (1968), observes the importance of the kinship obligations of siblings to the parents as a factor facilitating higher fertility among certain Hindus in Gujarat. He founds that 30% father and 56% mothers want sons for economic reasons. Mahadevan (1979) also found that 76% of respondents wanted sons to perpetuate the lineage, 69% to perform rituals, 60% for economic support and 84% wanted them for old age support. Repetto (1972) also observed that preference for sons is a strong cultural factor in India and its influence on contraceptions is reflected by the fact that certain forms of contraceptions which permanently terminate fertility are more frequent among couples with a number of sons among the living children.

Mandelbaum (1974), in his study observed that strong son preference in Indian society also arises from higher status value attached to a mother with sons, and religions rites that can be performed exclusively by sons. Vlassoff (1990), found that sons have a deeper cultural significance which persists even when the widows in Maharashtra are financially independent. Also, lineage and religious concerns are significant reasons for son preference but a more fundamental consideration seems to be the culturally prescribed sex role differences between males and females. This is emphasized in a recent study in Punjab which reveals that, sex bias lies not in economic hardship but in rights of asset ownership which restricts women from providing economic support to their parents (Dasgupta, 1987).

Traditionally, Indian Society is stratified on the basis of caste. Each caste is a socio-cultural group which distinguishes it from other

castes. This system of closed stratification has penetrated so deep in society, that it is not possible to think of studying Indian population without incorporating this variable. Sharma (1984) has emphasized the importance of caste in the study of population. "Differential contribution to population by various strata of society should be understood in the context of differential gain in the developmental processes in a class society".

Saxena (1965) in a survey of 1413 Uttar Pradesh village couples ex-emplified the inverse relation of caste and fertility. Women over 45 of the highest category averaged 7.6 live-births, those of the intermediate rank 8.2, and those of the lowest category averaged 8.8 live-births. Dandekar and Dandekar (1953) in a survey of Poona District conducted by Gokhale Institute in 1936-38, it was found that Brahmin had lower fertility than other caste groups.

Gordon (1965) made a detailed study of the fertility differential of the two dominant caste groups the Jat farmers and Chamar (leather workers) in the rural area of Punjab. Based on the data for 223 Jat women and 108 chamar women aged 45 and over, all married once and currently married, it was found that the average number of children born were 6.78 and 8.23 respectively. Driver (1963) also indicates that scheduled castes have the highest fertility and Brahmins the lowest.

A study conducted by Pillai and Nampoothiri (1972) in one Community Development Block in Madurai district indicates that fertility and mortality follow a consistently inter-related pattern among three caste groups; the Gounders, the harijans and the others. The Gounders whose mortality is the lowest among the three groups have the lowest fertility also. On the contrary, mortality and fertility are highest among the Harijans. The others have an intermediate level of these vital events. Thus the fertility level among these subcultures are closely adjusted to the relative risk of mortality. Reddy (1984) who studied the relationship

between caste and sterlization found that people of higher economic and caste status (Kammas) adopted sterilization at earlier ages, after fewer living children, fewer sons and with experiences of the least number of infant or child deaths as compared to those of lower economic status namely the Harijans.

With regard to the influence of income on fertility behaviour, Freedom (1959) puts forth certain explanations for its conventional inverse relationship. There are several possible factors that may have forced the higher income groups to have fewer children-one important cause may have been that the children represent an economic burden impending social mobility. Another possible reason is the location of many of the couples with higher income in large cities where fertility is usually low.

Sinha's (1957) study showed a significantly lower fertility in women belonging to family income of Rs. 300 per month and over as compared to those belonging to lower income classes. The average number of children born per women in income class of Rs. 500 and over was 6.1, in Rs. 300-500 class 6.7, in Rs. 100-300 class 7.6 and below Rs. 100 class 7.9. According to Driver's study (1960) the class having income below Rs. 500 per annum had an average 4.6 children; Rs. 500-999 class, 4.5 children; Rs. 1000-1499 class 4.6 children; Rs. 1500-1999, 4.2 children, and Rs. 2000 and above 4.3 children. In another study conducted by Srinivasan (1967) the fertility of women of low economic level was higher as compared to the women of the higher economic level in every age group.

In 1979, the International Year of the Child, the Sample Registration Scheme conducted a survey on infant and child mortality in which the fertility of women was also studied in relation to various socio-economic characteristics. The per capita monthly expenditure was divided into three categories viz. below 50, 51 to 100 and above 101. For

the urban area T.M.F.R for three categories is 5.97, 4.65 and 2.70, while the corresponding figures for rural areas were 6.18, 4.77 and 3.43 respectively (Registrar, 1980).

Labour force participation of women is also found to be inversely related to fertility according to a number of studies conducted in many parts of the world and also in India. This relationship has been found to be more pronounced in the industrialized than in developing countries, and in the urban than in the rural areas. In the Indianopolis study, wife's work history was one of the very few variables, strongly correlated with planning status and fertility, even when socio-economic status was controlled (Freedman, 1961). Several studies from U.S.S.R and Eastern Europe also support the hypothesis that working women have low fertility than others. However, data obtained from Latin America and Turkey do not support the above hypothesis (Stycos 1965, Styos and Weller 1967). Stycos and Weller (1967) studied the relationship between female employment and the fertility in Turkey from a sample of 2700 couples in 240 villages, 46 towns, 21 cities and the metropolitan cities of Ankara, Istambul and Ismir. They found residence and education rather than employment status of women to affect fertility.

Kiser (1965) notes the difficulty in explaining the casual relation of variables as he noted that "It is difficult to know whether the fertility of working wives is low because they work or whether they work because their fertility to low". Morsa (1959), similarly expresses the difficulty of isolating the independent influence of this factor from other related socio-economic status variables as they are very much interrelated. Freedman, Whelpton and Campbell (1959), find that women most likely to be employed are sub-fecund women.

In India, Aggrwala (1970) found that the wives of cultivators and labourers had, on an average 7.4 children, while the wives of professional and service occupations had on an average 6.6 children. Driver (1963),

also found that the wives of unskilled workers, agriculturists and artisans had higher fertility than the wives of clerks.

Judith Blake (1967) argues that the foregoing employment is an indirect cost that must be considered by the working wife and that this indirect cost has a negative influence on the decision of the working wife to bear additional children. Further Blake contends that employment often entails satisfactory alternative to children such as companionship, recreation, stimulation and creative activity or the means of such satisfaction in the form of financial remuneration. Another explanation given by Ridly (1969), is based on husband wife dominance. He states that labour force participation of women leads to a more egalitarian relationship between husband and wives, which in turn is said to be related to lower fertility. Similarly, Weller (1969), adds that wives manifest lower fertility behavior in wife dominant and egalitarian families rather than in husband dominated families. Thus it seems that the distribution of dominance between the husband and the wife plays a crucial role in affecting the fertility behaviour.

An examination of the role of the socio-cultural and economic status of women in explaining the state wise variation in the levels of marital fertility indicates that the former is more important in fertility regulation (Jejeebhoy, 1981). A comparative study of fertility decline between economically better-off West Bengal and socially developed Kerala reveals that the social factors in the latter are more conductive to the reduction of fertility than economic ones (Nag, 1984). Comparison of the fertility decline in two villages-one with a higher per capita income in Andhra Pradesh and the other with low per capita income in Kerala, depicts a rapid decline of fertility in the latter. This may be attributed to social development and cultural change in Kerala (Mahadevan and Sumangala, 1987).

Generally an inverse relationship has been found to exist between fertility and educational level in many parts of the world since the late nineteenth century. But the magnitude of this relationship has now diminished in recent decades and a direct relationship has even been observed at the highest educational levels in a few countries (U.N, 1973). Kiser (1971), believes that the inverse relation between fertility and education could be temporary one due to particular circumstances present during the demographic transition which may later disappear.

In the National Sample Survey (1967) Round of 1960-61, 16,285 urban women aged 47 and older were interviewed and their responses were grouped according to six educational classes, from illiterate to 'college and above'. The average number of children borne alive to women who had only primary schooling was 6.57, for those with middle school education it was 5.24 and for matriculates it was 4.58. The report of the 1961-62 round includes a rural sample (of 32,453 women), as well as an urban sample (22,301) though neither is stratified by age. Both show a decrease in the average number of children born alive with an increase in women's educational class above the primary level. The rural women show the largest decrease between the primary (2.62) and middle school level (2.31). The largest decline in the urban sample comes one level higher, i.e. between (2.06) (N.S.S. 1970).

Driver's (1963) survey in Nagpur District set up three classes of women's education in a sample of 2314 viz. illiterate, primary school and the above primary school. The weighted mean of children born alive among women of all ages was 4.7 for those in the primary school category, whereas it was 3.8 for those with education above the primary level. Another survey conducted in Lucknow City (Hussain, 1970) in 1966-67 reported general fertility rates by class of education. The data showed a steady decline in the general fertility rate (per thousand) with increasing education, from the illiterate (163.89) to the next category,

"below primary" (145.16) and through primary (102.4) secondary (96.20) and higher (63.38). This survey also calculated fertility rates by level of husband's education. The results are similar but with some lag in fertility decline.

The Indian demographic literature emphasize that female education is more important than male education in lowering the fertility levels. Female education can influence fertility behaviour even without a simultaneous change in other factors, such as, increasing opportunity for participation in the paid labour force in the modern sector (Jain, 1981). About 75 percent of the variation in the Total Fertility Rate in India between 1972 and 1984 is explained by female literacy rate (Srinivasan, 1988). This implies that female literacy has a significant impact on fertility in the country.

Demographers also advocated that unless female education is completed to a level higher than primary it is not effective in fertility reduction (Jain and Nag, 1986). A sample of 6000 households in Calcutta (1970) reveals a significant negative correlation between family size and education of wives above primary stage (Sarkar, 1989). Some scholars maintain that it is female literacy of 15+ age group which is relevant in raising the mean age at marriage and thereby reducing fertility (Dutt, 1985).

Dandekar (1965), on a comparative study of fertility data available for 49 countries, has found that higher the level of education of persons, the smaller is the number of children born to them in those countries. Bhende and Rao (1969) in the study of Panaji Goa, found that the average number of children ever born, standardized for age, was 3.51 for those who were either illiterate or had studied up to primary school level, 3.45 for those who had some secondary school education but had either passed the matriculation examination or had studied beyond that level. Bala Neeti and Datta (1980) studies the effect of Education and Family

Planning on the ideal and actual live-births in the Vaish population of Mehrauli, Delhi. They also found a decrease in the number of live-births and ideal number of children in a family with increase in the educational status of husband and wife.

Bhende and Kantikar (1982) also subscribe to the view that higher levels of education provide a higher level of information about keeping fertility under control and create and sustain motivation to keep the family size small with a view to achieving better standards of life. However, higher levels of education provide alternatives to repeated child bearing. They are associated with lower infant mortality rates and better child care, a greater appreciation of the mothers' role and a greater receptivity to innovations in general.

Fertility behaviour is affected by age at which marriage is consummated and age at marriage, varies across many cultural and sub-cultural groups. According Aggarwala to (1962), the influence of age at marriage acts in two ways: "First, through a shortening of the reproductive span by about five years; and secondly through the shift in the fertility pattern towards fewer children in a women's later years, partly attributable to factors like education and modernization".

In the U.N. Mysore Population Study (1961), the completed family size for four ages at marriage groups viz. below 14, 14 to 17, 18 to 21, and 22 and above in urban areas was 6.7, 6.0, 5.7, and 4.6 respectively, while the comparable figures for rural areas wee 6.5, 5.9 and 4.7, there being no respondents in 22 and above marriage age group.

Aggarwala (1968) strongly suggests that Indian women marrying after the age of 19 give birth to fewer children than women who marry earlier. He has calculated that the Indian birth rate might be reduced to 30% by 1991-92 if all Indian women married after the age of 19.

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Bhargave (1984) too has found that there is a negative relationship between female age at marriage and fertility.

In India, many studies have provided sufficient evidence to prove that urban fertility tends to be lower than rural. Crude birth-rate for urban and rural India in 1969 was 32.8 and 38.8 respectively while the corresponding figures in 1979 were 27.8 and 34.3 respectively (Basic Statistics: 1981).

Rele et. al. (1974), in Fertility and Family Planning study conducted in Greater Bombay in 1966, found that migrant women with a rural residential background had the highest standardized average number of children ever born (3.42) in comparison with migrant women having urban residential background (2.90) and non-migrant women (3.0).

F.D. Driver's study (1963) also suggests that differences among residential groups are not significant. In his study of Poona, Bopegamage (1966) found that there was a spatial pattern in the distribution of human fertility rates which tended to increase with increasing distance from main business centres the distribution was not uniform in all directions.

The individual's desire to improve his social status has also been found to act as a motivation factor for family limitation. It has been recognsed that rearing of children absorbs money, time and effort which could otherwise be used to rise in the social scale and that this fosters motivation for smaller families (Royal Commission, 1949). Kantner and Kiser (1973), in his study of Indiana-Polis shows that couples who experienced intergenerational upward mobility tend to come from smaller families than non-mobile couples.

Most of the religions throughout the world are pro-natalist, still, differentials in fertility according to religious, ethnic and other cultural

groups have been reported in many studies. In many developing countries particularly in India, religions and other cultural diversities have contributed to fertility differences. The Mysore Population Study (1961) indicates that religion is associated with fertility, ever-married Muslim women have borne on average a large number of children than Hindu women. Rele and Kantikar (1980) also found that the general marital fertility of Muslim women was higher than that of Hindu women. Visaia (1974), in pre-partition India observes that, the fertility of the Muslims was about 15% higher than that of the Hindus.

Heer (1986), some sociologists are of the opinion that minority religious groups may tend to have higher fertility rates to gain more political power. This, however, does not hold true in all the cases. The minority communities i.e. the Zorastian community in India and the Jewish community in United States have always shown lower fertility rates than the majority group. Rele and Kanitkar (1980) found that the fertility of Zorastrian community was the lowest among all the religious groups studied in Greater Bombay. Chandersekhar (1948), Karkal (1975) and Gould (1982) have also found consistently lower rate of fertility for the Parsee.

An adequate understanding of the causes of fertility variation necessitates the analysis of some other mechanism through which the different variables influence fertility. Davis and Blake (1956), identifies eleven "inter-mediate fertility variables" which represents the biological and behavioural factors through which the socio-economic, cultural and environmental variables affect fertility. These have been reduced to four conceptually distinct and quantitatively important "proximate determinants" of fertility (Bongaarts, 1978). They exert a direct impact on fertility and include contraception, induced abortion, proportion of married and lactational infecundability due to the duration and intensity of breast-feeding. However, in the high fertility countries, the practice of

contraception is virtually the only proximate cause of fertility decline, which falls on an average, at a rate of 0.62 births per woman for each 10 percent increase in contraceptive prevalence (Bongaarts, 1987).

On the basis of the Bongaarts' model, the fertility decline in India during 1971-81 has been largely attributed to an increase in contraception which accounts for 27 percent of the fall in Total Fertility Rate. This is followed by a change in marriage pattern (3-4 percent) and induced abortion (2 percent) (Pathak and Ram, 1987). Similar studies in Bihar (Rai, 1988) and Karnataka (Patil, 1987) also reveal the same trend.

The data of World Fertility Survey (1976) in eight countries reveals that women with higher education living in urban areas breast-feed their children for a shorter period than their rural counter parts. Further, breast-feeding is not used for limiting family size but for increasing the birth interval which rises by 0.4 months for every one month of breast feeding (Jain and Bongaarts, 1981). Research indicates that breast-feeding is almost universal in India, but, among the urban and educated women, its duration is decreasing (Khan, 1990).

Contraceptive prevalence as a major proximate determinant of fertility has been extensively studied in India. A review of the Indian family planning programme since its inception in 1952 reveals that it is largely one of missed opportunity (Soni, 1983). Its weakness lies in its overemphasis on sterilization which is generally accepted at higher parities, (Srikantan and Balasubramanian, 1983). The slow progress of the programme may be attributed to its voluntary nature and fertility–increasing effects of modernization, so that its impact is not very strongly felt (Srinivasan, 1983). Nevertheless, the programme should continue because, even at its present level of performance, it is cost effective (Bery, 1982).

Nag (1981), in his study found that modernization not only contributes to fertility reduction but it also has fertility enhancing effects. These operates through a decline in breast-feeding, post-partum abstinence, early widowhood and sterility and are predominant in the early stages of fertility decline. The gradual longterm decrease in fertility reveals that the fertility-increasing effects of modernization have been offset by its fertility-decreasing impact (Nag, 1980).

Another study by Raju (1987) also observed that husbandwife communication, especially in rural areas, in the process of decision making regarding family size and adoption of family planning is important for fertility reduction. Scholars argue that since family planning has failed to reduce the birth rate substantially over the decades, 'beyond family planning' measures are required to achieve the goal. These include socio-economic development, legal sanctions, taxand welfare benefits and political will (Jain, 1981). 'Integrated Population Education' through formal and non-formal channels has been identified as the most potent 'beyond family planning' measures to reduce fertility (Saksena, 1986).

RATIONALE OF THE STUDY

The review of the literature so far indicates that the need for social control of human fertility is not a new phenomenon. Since times immemorial sociologists and demographers have systematically explored the determinants of differential fertility in various parts of the world. Almost all of them, with the exception of few studies, have explained only one to one relationship between the socio-economic, cultural variables and fertility behaviour, but the detailed results always reflects inconsistencies. Infact, in modern complex societies like that of today, any component of social structure does not affect fertility in isolation, instead the causal relation between two is intervened by a set of intermediary variables which act as catalysts and enhance orretard the

effect of primary variables. Without taking these intermediary variables into consideration any study on fertility or population will be estranged from reality. Particularly in a developing society like India which is characterized by high rate of growth the need for such an approach is more acute in order to check the population growth. Again, a thorough understanding of the determinants of fertility at all levels is essential for initiating any planned efforts for fertility control programmes and for economic development.

Moreover, any intensive and comprehensive understanding of population growth with differential fertility rate in India makes necessary a comparative study of fertility profile of Kerala and Bihar which stand on two extremes on many counts and also to initiate proper measures to control it.

HYPOTHESIS

Socio-cultural and economic factors play a determining role in shaping the fertility behaviour of a particular society.

OBJECTIVES

The major objectives that the present study intended to achieve in order to make comparative study of fertility behaviour of Kerala and Bihar are followings:

- To draw demographic profile of Kerala and Bihar.

- To find out the various fertility determinants of Kerala and Bihar.

- To examine the fertility differentials and trends of Kerala and Bihar.

- To investigate the relative significance of socio-cultural and economic considerations for different determinants of fertility behaviour of Kerala and Bihar.

METHODOLOGY

In order to achieve the above mentioned objectives this study used the secondary sources of data collection and adopted comparative method for the intended purpose. Any attempt to obtain a comprehensive understanding of a social phenomenon necessarily involves the similarities and differences between it and other relevant phenomena of the same society and between the same phenomena of the different society. As the problem of fertility is situated in a particular socio cultural and economic set-up it is very complex phenomenon and any insightful study of it necessitates to compare the fertility profile of one society with another.

SOURCES OF DATA COLLECTION

This work largely relied upon secondary sources for the purpose of data collection. It used books, magazines, journals National Family Health Survey – 2, 1998-99 report and census of India 2001 related to the subjects. Various articles and write-ups published in newspaper were also concerned. Paper presented in various seminars also proved helpful in this regard.

Chapter – II

Perspectives on Fertility: Theories and Issues

CHAPTER – II

PERSPECTIVES ON FERTILITY:
THEORIES AND ISSUES

The issue of population has always remained at the centre of attention of philosophers, economists, biologists, social thinkers and sociologists who have been giving vent to their ideas over this from time to time. The exposition and interpretation of their views has given rise to a host of population theories which present a vivid picture of the nature and kind of population problem in those times and their implications to our times. It figures in the works of Plato and Aristotle who made references to it in considering the size of the city state in which man could make the best contribution to the "highest good". The Chinese Philosopher Confucius also mentions it in his works. Plato thought that the maximum number of citizens in a city should be 5040. Aristotle observed; "A state comes into existence only when the population has grown large enough to live well as a political association, should it exceed this limit, it may indeed be a greater state; but as I was saying, there must be some point at which it stops increasing... the best limit of population is the largest number requisite for self-sufficiency and which can be taken in at a single view (i.e. which will enable all the members to know one another".

Both Plato and Aristotle wrote of restrictions to population. Plato considered that birth should be restricted if needful by "restraining the production of those in whom generation is affluent". Aristotle mentioned child exposure and abortion (Bahadur, 1977).

Unlike the Greeks, the Romans favoured large empires rather than city states. So they were for big populations and encouraged marriages and births and made laws with this objective. In the seventeenth and the

early part of the eighteenth century, large and growing populations were favoured because they were believed to increase power and wealth. The mercantilists, while regarding a favourable balance of trade as essential for a country, considered that in large populations, people were healthy, vigorous and powerful both from the economic and military points of view. The economists of the mercantile school were not concerned with increasing the per capita income of a country. All that they advocated was that the total income of the state should increase. During the later half of the eighteenth century, however opinion began to veer in favour of small populations. A scientific attitude began to be adopted by the writers of this period. This was also a period of reaction against the mercantile economists. The Utopian School of Philosophy came into prominence whose exponents were Godwin and Condercet. The Utopians believed that bad laws, corrupt Government, evil rulers, greedy employers and so forth made men selfish, base and evil, and caused social deterioration and misery. If these institutions were reformed, men's nature would improve and the world in which they lived would be better.

It was against the mercantilists and Utopians that Thomas Robert Malthus wrote his essay on the Principle of Population which have become a landmark in the history of demography. He showed neither the mercantilists craze for big populations, nor the Utopians faith in changing human nature. Rather, he believed that men's sexual passion and his other basic impulses were likely to remain what they had always been. Malthus's analysis of population paved the way for a host of other theories which tried to elucidate factors determining population growth. Thus the population theories since Malthus have been broadly classified in to (a) Biological (b) Social and (c) Economic Theories by Coontz (1979).

BIOLOGICAL THEORIES

The biological theories considered that the laws regulating the human populations are same as those which regulate the growth of plants and animals.

The Density Principle

In 1830, Michael Thomas Sadler published a two volume work entitled "The Law of Population", two third of that volume was devoted to the refutation of Malthus's law of population. Sadler propounded that "the true law of population is that fertility varies inversely with the density of population i.e. the prolificness of a given number of marriages will, all other circumstances being the same, vary in proportion to the condensation of population". Sadler gave a second principle regarding fertility, according to which, "the prolificness of an equal number of individuals, other circumstances being similar, is greater where the mortality is greater and on the contrary smaller where the mortality is less". Sadler's Density Principle did not find universal support due to methodological shortcomings in the procedure followed by him to establish the inverse relation between fertility and density, but his objections to the Malthusian principle were well founded and were widely acclaimed.

Almost a century after the publication of Sadler's work, two biologists Raymond Pearl and Lowell J. Reed reintroduced the density principle as an explanation of population growth. They propounded: "within each cultural epoch or cycle of population, the rate of growth of population has not been constant in time. At first the population grows slowly, but the rate of growth constantly increases upto a certain point where it reaches a maximum... This point of maximum rate of growth is the point of inflextion of the population growth curve. After that point is passed, the rate of growth becomes progressively slower till finally the

curve stretches along nearly horizontal in close approach to the upper asymptote which belongs to the particular cultural epoch and area involved".

This growth equation is known as logistic curve and Pearl and Reed experimented with the yeast cells and with fruit files in order to demonstrate the applicability of the density principle. With human populations Pearl used the method of partial correlation and he obtained a correlation between density and birth rate of minus 0.131, plus or minus 0.058. His density principle received wide criticism because of the definition of density adopted by him and he could also not obtain a positive correlation between density and birth rate.

The Diet Principle

In 1841, eleven years after the publication of Sadler's theory, Thomas A. Doubleday offered a work entitled "The true Law of Population", which was shown to be connected with the food of the people. The Great General Law, according to Doubleday which regulates the increase or decrease both of vegetable and of animal life is that whenever a species or genius is endangered, a corresponding effort is invariably made by the nature for its preservation and continuance, by an increase of fecundity or fertility, and that this especially takes place whenever such danger arises from a diminution of proper nourishment of food, so that the state of depletion, or the deplethoric state is favourable to fertility and on the other hand plethoric state or the state of repletion is unfavourable to fertility, in the ratio of the intensity of each state, Doubleday maintained that this principle is equally applicable to human society also, and in all the societies there is a constant increase among that section of population which is worst supplied with food, that is among the poorest. Equipped with this general law, Doubleday explained the intra and international differences in fertility. He maintained that within a country, and among different countries, differences in diet are

responsible for their differential fecundity. He found that population is thin in pastoral countries, where the food is mainly animal food, it is denser where it is partly mixed with vegetable food, it is denser still, where it is vegetable food only, but with plenty, and it is densest of all, where it is vegetable food only but scarcely available.

More than a century after Doubleday's work, the hypothesis that fertility is regulated by diet has been advanced again by Josue's de Castro in the "Geography of Hunger", where he contended that fertility is regulated by the quantity and quality of protein consumption. Castro suggested that instead of soil erosion, we should concentrate on human erosion. Human erosion springs from hunger, and hunger is interpreted not as the mere lack of a sufficient quantity of food, but rather, as the lack of any of the forty or so elements necessary for a balanced diet. The poverty that arises from inadequate diet is aggravated by increased fertility, which; is function of poor nourishment. Castro enumerates the process by which diet regulates fertility. According to him fecundation in women is closely related to the functioning of the ovaries, to the production of their harmones, particularly the Oestrogens and he quantity of these present in the blood and internal organs. There is a direct connection between the functioning of the liver and ovaries. The role of the liver is to inactivate the excess of Oestrogens which the ovaries throw into the blood stream. Due to deficiency of proteins, degeneration of liver takes place and it begins to operate less efficiently and is less effective at its job of inactivating excess oestrogens. The result is a marked increase in the women's reproductive capacity.

Spencer's Biological Theory

According to Spencer (1880) preservation of the species is a general biological law that governs the growth of all populations, both human and infra-human. The means for the preservation of the species are two, individuation and genesis. Spencer defined 'individuation' as a power of a

species to maintain and conserve the life of its individual members, whereas genesis refers to the capacity of the species to generate new individuals. These two processes are antagonistic to each other. On the one hand a species would soon become extinct if its members had both a very low survival capacity and a feeble capacity to reproduce, and on the other hand, it is impossible to conceive of a species whose individuals possessed both great powers of self-preservation and multiplication, for the excess of fertility if extreme will cause extinction of the species by starvation, if less extreme, it must produce a permanent increase in the number of the species, and this followed by intenser competition for food and augmented number of enemies will involve such an increase of the dangers to the individual life, that the great self-preserving powers of the individuals will not be more than sufficient to cope with them. Thus if the fertility is relatively too great, then the ability to maintain individual life inevitably becomes smaller. Spencer also explained the differential fertility of various social classes. According to him the infertility of the 'Upper Classes' is attributable to greater individuation. It is a matter of common observation that men of unusual mental ability leave no offspring and infertility is generally produced in women by mental labour carried too far.

SOCIAL AND CULTURAL THEORIES

Cultural theories emphasize the importance of psychic factors in determining fertility patterns. These psychological attributes are either developed by the present culture or in case they are inherited, receive sustenance from the present mileau of the individual (Coontz, 1979).

Social Capillarity

According to Dumont (1890), there are three principles of population rather than one. The Malthusian principle may be said to hold true for animals and men who live like animals i.e. savages who

subsist on what they find rather than on what they produce. At a more advanced stage of human development, Guillard's principle that population proportions itself automatically so that 'where bread is born, is born a man' may govern. But in civilized society, when imagination and the attraction of an ideal enter upon the scene, we find ourselves in the presence of a third principle of population which supplants the other two.

Dumont (1890) called the population principle that governs civilized societies as *'Social Capillarity'*. Social capillarity refers to the individual's drive towards recognition according to the values of that society of which he is a member. Though this principle is manifest in civilized communities, yet it does not operate with equal vigour everywhere. It is weakest in those societies where status and caste are rigid barriers to individual advancement. In such societies fertility is high because individual is debarred from personal progress. Social capillarity is found to be most influential in communities characterized by great social mobility. There the fertility is low because children are encumbrances which prevent or retard the individual's struggle to advance.

Voluntarism

According to Fetter, no single population principle is adequate to explain the multitude of phenomenon. In the evolution of society, limits to the production of subsistence play an ever-diminishing role so that the explanation of demographic changes must be sought in multiplicity of motives which determine men's behaviour. Fetter argues that through progress man achieves a degree of emancipation so that his behaviour is determined more by his will than by the exigencies of physical necessity. Fetter maintained that, it is among the well situated that the fear of hunger is the greatest. There behaviour is characterised by prudence and foresight, by the ability to subordinate present enjoyments to future

considerations. The same virtues which have made them wealthy are the ones which lead them to practice family limitation. Thus the wealthy classes have lesser number of children in comparison to poor classes.

Further, among the wealthy classes, an additional child not only increases the family expenditure, but also fails to augment the family income for a relatively long period, whereas among the poor, the children frequently supplement the family income from, an early age. The fear of inheritance also compels the wealthy classes to have lesser number of children, whereas this motivation is absent among the poor as they have nothing to bequeath, but their poverty (Coontz, 1979).

THE THEORY OF INCREASING PROSPERITY

According to Brentano, man is essentially a creature of pleasure, and the key to differential fertility is to be found in various sources of gratification available to the different classes of society. The economic means available to a person determine the range of possible pleasures accessible to him. So, the differences in fertility on closer inspection seems to reduce themselves to differences in material prosperity. Among the poorer classes, the number of alternative pleasures are stridly limited and they seek compensation for this deprivation in sexual indulgence. Among the wealthy classes, the situation is altogether different. The number of competing pleasures are many and, in general their gratification is found outside the home. Again about children, they have a new character of refinement, so that quality is emphasized rather than quantity. Brentano further emphasize that family limitation is not a virtue, rather it is a choice between two pleasures, which in itself is neither moral nor immoral. Man limits his family when the sum total of his satisfaction would be diminished by an additional member (Coortz; 1979).

Rationalism as the cause of Fertility Decline

Ungern-Sternberg argues that a theory of population should explain not only the low fertility of the upper classes, but also the recent fertility decline among the proletariat. According to Sternberg one limits the number of births in order to be able to obtain prosperity. Prosperity, therefore, is not the cause but the goal and birth control is the means for the attainment of this goal.

The bourgeoisie have a capitalist mentality by virtue of which everything which is impulsive, ecstatic and spontaneous is gradually eliminated under the influence of a rationalistic spirit. So that a typical bourgeoisie is a non-erotic, matter of-fact type of individual who carefully weighs all actions including paternity. Sternberg further argues that the proletariat follows the standards of the upper class. It has restricted itself in its entire style of living to imitating in a general way, what the bourgeoisie is doing. Undoubtedly this intensive desire for imitation has also had a strong influence on their sexual behaviour.

Socio-Economic Status

Coontz (1979) argues that regardless of whether it is asserted that increasing wealth lowers fertility by developing a more mature and rational mentality; or that wealth lowers fertility by furnishing the individual with the opportunity to experience new sources of satisfaction; or that wealth and family limitations are both the effects of the will to advance; all theories are united in recognizing that progress in socio-economic status necessarily implies a decrease in fertility.

Coontz further asserts that the inverse relationship between socio-economic status and fertility is not a simple one. Studies of urban fertility based on income, revealed a decreasing fertility with increasing income up to a certain point, beyond which, however, the opposite was true. Again some studies on fertility and income among the rural

population show that 'the lowest fertility is that of a middle group, both the poorest and the wealthiest groups have larger families, in others there is a continuous decrease in fertility with increasing wealth'. From these and other contradictory results Coontz proceeded to draw an explanation.

The fertility decline of the last quarter of the nineteenth century was essentially a cultural revolution, a transformation from a large to a small-sized family. In this evolution, the wealthier and more educated classes took the lead in the transition to the small sized family, and this explains the past inverse correlation between socio-economic status and fertility. But given the general adoption of a new optimum size family, economic conditions play an increasingly important role, i.e. those who are able to afford children now have them and this explains the breakdown in the inverse relation between fertility and socio-economic status. Thus according to Coontz inverse relationship between fertility and socio-economic status was a phenomenon of the transition only.

ECONOMIC THEORIES

The propagators of an economic approach to fertility believe that there are no general laws for population. All such laws are relative and not absolute and population variation depends on economic development. Economic theories may be discussed under the headings: Classical and Neo-classical theories.

The Classical School

Within the classical school, two different approaches to the population problem are found. On the one hand there was an optimistic attitude among the older economists which include Petty, Harrington, Arthur, Young and Adams Smith and they saw in population growth an index of economic prosperity. They had a belief in an automatic adjustment that the demand for men, like that of any other commodity

necessarily regulates the production of men. They raised no alarm against the large families of the improvident poor. On the other hand, the Malthusian analysis, inspite of its successive qualifications, coupled with the Ricardian theories of rent and the falling rate of profit, leads to a certain pessimism. Stress is placed on the contradiction between the potentially great increase in population in contrast to the potentially limited increase of the means of subsistence.

Finally, in the classical school there was a general recognition that demand for labour determined its supply, demand for the labour however is treated as synonymous with the means of subsistence (Coontz, 1979).

Neo-Classical School

Neo-classical economists accepts the Malthusian preposition that by limiting the size of the population it is possible to improve the worker's standard of living. Following Adam Smith, capital accumulation was conceived as beneficial to labour, since what was annually saved was annually consumed i.e. all the saving is reinvested and constitutes a demand for labour.

Marshall exercised a great influence upon the Neo-classical school. According to his estimate, at the present world rate of population and great improvements in the art of agriculture... the pressure of population on the means of subsistence may be held in check for about 200 years, but no longer. Marshall emphasiszes that there is only a temporary escape from the law of diminishing returns. Throughout the greater part of the world, the working class can afford but few luxuries and not even many conventional necessaries, and any increase in their earnings would result in so great an increase in their numbers as to bring down their earnings, quickly to nearly the old level at their mere expense of rearing. Over the great part of the world wages are governed, nearly by the

socalled iron or brazen law, which ties them close to the cost of rearing and sustaining a rather inefficient class of labourers.

There is also an implicit explanation of differential fertility in Marshall's argument. Efficient labour require an objectively determined higher standard of living and the rearing of an efficient (or skilled) labourer will be some multiple of the cost of rearing an inefficient labourer. Due to lack of adequate compensation or limited demand for skilled labour, the standard of living of efficient worker is threatened and they respond to this situation by curtailing the size of the family.

Income then appears but an approximate or rough expression of fertility differences. As an index of inter-occupational variation, the inverse relation between income and fertility holds since the quality of labour reared usually involves a quantitative sacrifice. But within the occupational group itself, given the historically determined standard of living necessary for the reproduction of a particular quality of labour, the inverse relation between income and fertility is replaced by a direct relation between income and fertility (Coontz, 1979).

OTHER ECONOMIC THEORIES

In addition to classical and neo-classical schools of economic thought, some other economists also propounded economic explanations of fertility behaviour.

The Principle of Optimum Population

Alexander Carr-Saunders on economist of England brought out the theory of optimum population. This theory is the outcome of the synthesis of two different bodies of the generally accepted economic theory. On the one hand there was a notion that growing population results in an enlarged market and greater division of labour and consequently brings about an increase in productivity per capita. On the other hand there was the doctrine of diminishing returns, which holds

that if other factors are held constant, productivity per capita will diminish if the number of people working under given resources increase beyond a certain point. From combining these two doctrines Car-Saunders logically concluded that there must be a point at which the two opposing tendencies are in equilibrium; an optimum point at which a given size of population results in maximum productivity per capita (Kammeyer, 1975).

The optimum number according to the author varies from time to time according to man's volition. In place of the positive checks of Malthus, Carr-Saunders thinks that man can himself control his growth in numbers. But this theory is an ideal-typical construct and even up-to-date no satisfactory statistical indicators of optimum population have been devised.

Leibenstein's Theory

Leibenstein in 1957 provided a consistent theoretical framework for explaining the completed family size. His assumption was that parents are able and willing to make a rough calculation of the costs and benefits of procreation.

Leibenstein distinguishes three types of utility children yield to their parents. First, for most parents, children are a source of pleasure, in this sense children may be regarded as consumption goods. Second, children have value as productive agents especially in more traditional and rural setting. Third, children can provide insurance for old age or illness. The costs of added child are divided into two categories. The first group consists of the direct costs experienced by parents, such as food and shelter. Opportunity costs or indirect costs make up the second variety which include the opportunity of wife to earn income as long as child rearing obligations prevent her from joining the labour force.

Economic progress, modernisation and a new occupational environment has raised both the direct and indirect costs of children and hence parent makes a rough calculation of costs and benefits of procreation (Over Beak, 1974).

Becker's Theory

In 1960, Becker in his famous article on "An Economic Analysis of Fertility" put forward his economic theory of fertility. It is similar to Leibenstein's theory in some respects and differed from it in some other respects. Applying micro-consumption theory to fertility he argued that fertility behaviour is the result of house hold choice. In the economic theory of household beahviour, the choice or purchase of durable goods by a consumer with a given taste is considered to be made after a careful evaluation of the utilities derived from the concerned goods and the costs to be incurred as well as income. Becker considered children to be the same as household commodities and argued that the household choice of fertility is made in the same manner as in the case of the purchase of durable goods. A couple's decision to have an additional child, according to Becker's point of view depends on the balance of its preference, the constraints of its income and costs of the child. Thus Becker's argument rested on two postulates of the traditional economics: The representative household behave rationally on the basis of unchanging tastes and the prices of commodities desired by the representative household are unaffected by the household's consumption decision. Becker's argument was that if knowledge of birth-control methods was wide spread, fertility would be directly related to the income of parents.

Easterlin's Theory

Easterlin (1969) challenged Becker's theory in 1966 and raised the point that tastes can not be taken as immutable facts, and insisted that tastes change systematically according to one's upbringing. He thus

introduced the sociological concept of socialization into economic theory. He however, accepted Becker's second assumption that the prices of commodities desired by a representative household are unaffected by householder's consumption decision. He also underlined the importance of the sociological factors on economic factors.

Most of the empirical studies on population have taken lead from the above theories. The clinical studies on fertility have taken lead from the biological theories, economic studies on fertility have taken lead from the economic theories, whereas the sociological studies on fertility have taken lead from both cultural and economic theories.

Development of Socio-Economic Theories of Fertility

Most of the studies in the economic theoretical framework generally focus on an individual's reproductive behaviour, by and large independent of the opinions and expectations of the society in which he lives. Basically, reproductive behaviour is presumed to be influenced only by economic considerations, i.e., the costs and benefits of children.

Ryder (1973a, 5-66) aptly commented on this limitation of the framework and stated that 'just as no act is devoid of economic content, so no act is devoid of normative content.' Actually, norms are institutionalized solutions of the pervasive problems of the society. Freedman (1963) also reiterated the same, with a view that in each society there are norms or a set of societal rules presumed to prescribe normal patterns of family growth.

An explanation of fertility behaviour in terms of values and norms should be evaluated more objectively. Societies may practice certain norms, but may not necessary accept them. It is possible that norms and values prevalent in a society arise out of the exigencies of the situation affecting most of the members of the society. However, the recognition that these sociological considerations have an impact on fertility behaviour stimulated certain theoretical developments which combined

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sociological and economic considerations and are known as socio-economic theories of fertility.

Sociological considerations (such as, education, religion and rural/urban background) bring about structural changes in tastes and such factors can also be embedded into the basic economic framework of household choice through its utility function. Easterlin (1969) was critical of the simplified assumption of the constancy of tastes in economic framework in which preference curves are presumed to be of a homothetic nature. The argument of differentials in relative preferences was further extended by Leibenstein (1976). He postulated that in addition to the influence of the parental family considered by Easterlin, peer groups also influence these preferences. Thus, the relative preferences are viewed to be varied and changing over time. Becker also mentioned the possibility of systematic shift in tastes against children along the income scale to be responsible for the negative association between income and fertility in the empirical study.

However, empirical investigations for highlighting the forces influencing the formation and change in tastes are still lacking. Thus steps in this direction may prove to be quite fruitful in the formation of a general theory of the determinants of fertility.

Chapter – III

Demographic Profile of India

CHAPTER – III

DEMOGRAPHIC PROFILE OF INDIA

1. INDIA: ITS DEMOGRAPHIC FEATURES AND ECONOMY

India crossed the one billion population mark in May 2000. According to the census of India, India had a population of 548 million in 1971, 683 million in 1981, and 846 million in 1991. The exponential growth rate was virtually constant between 1961-71 and 1971-81 (2.22 and 2.20 percent, respectively), but it declined to 2.14 in 1981-91. The sex ratio of the Indian population has been unfavourable to females since the beginning of this century and has declined in every decade except 1971-81. The sex ratios were 930, 934 and 927 females per 1,000 males in 1971, 1981 and 1991 respectively. Population density increased from 177 persons per km^2 in 1971 to 216 in 1981 and 267 in 1991, indicating increasing population pressure on the land. As per the 1991 census, 37 percent of the population is in the childhood ages (0-14 years), 7 percent is in the age group 60 and over, and 55 percent is in the working age group 15-59, which indicates a high dependency burden. The process of urbanization has been rather slow in India. The percentage of the total population living in urban areas increased from 20 percent in 1971 to 23 percent in 1981 and 26 percent in 1991. During the decade 1981-91 the growth rate of the rural population was 2.00 percent per annum, while that of the urban population was 3.65 percent per annum. One-fifth of India's population lives in class I cities and class II towns that have populations of 50,000 and above. One fourth of India's population lives in villages that have fewer than 1,000 residents. As per the 1991 census, 16 percent of India's population belongs to scheduled castes and 8 percent belongs to scheduled tribes (Central Statistical Organization, 1999; Ministry of Health and Family Welfare; 1998a).

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India's gross national product in the year 1999-2000 was Rs. 17.5 trillions at current prices. India's national income (NNP at factor cost) was five times as high in 1992-93 (Rs. 2.0 trillion) as in 1950-51 (Rs. 0.4 trillion) at constant (1980-81) prices. From 1993-94 to 1998-99, the NNP increased by an additional 38 percent, reaching Rs. 9.5 trillion at 1993 94 prices. Between 1950-51 and 1992-93, however, percapita income only doubled and it increased further by only 27 percent between 1993-94 and 1998-99. In 1998-99, India's per capita income was Rs. 14,682 at current prices. The growth rate of national income at constant prices increased from 3.6 percent per annum during the first plan (1951-56) to 6.6 percent per annum during the eighth plan (1992-97). The corresponding increase in the growth rate of per capita income was from 1.8 percent to 4.6 percent per annum (Ministry of Finance, 2000). Between 1950-51 and 1998-99, gross domestic savings and gross domestic capital formation as a percentage of the gross domestic product (GDP) increased from around 10 percent to 22 percent.

Agricultural production increased nearly fourfold from 1950-51 to 1998-99. The century ended with the country's output of food grains crossing 200 million tones, a fourfold increase since 1950-51, mainly due to the success of the green revolution since the 1970s. Although the area under cultivation with food grains has remained virtually constant since 1970-71, the yield has increased by 65 percent. India had to importfood grains for some time after independence, but now it has emerged as a marginal exporter of food grains (Ministry of Finance, 2000). Agriculture contributes nearly one-fourth of the GDP (Reserve Bank of India, 1999) and provides a livelihood to about two-thirds of all workers in the country (Central Statistical Organisation, 1999). Although the percentage of land cultivated with food crops that is irrigated increased from 24 percent in 1970-71 to 41 percent in 1996-97, the performance of Indian agriculture still largely depends on monsoon rains. In spite of a fourfold

increase in food production since the early fifties, daily per capita net availability of cereals and pulses has increased by only 18 percent, from 395 grams to 467 grams per day (Ministry of Finance, 2000).

At the time of independence, India had a weak industrial base. Since 1948, within the framework of planned development of economy, India has adopted the concept of a mixed economy for overall industrial development. The industrial policy resolution of 1948 demarcated the scope for development of industries in the private sector and also provided for reservation of some areas for exclusive development in the public sector. In subsequent industrial policy statements, the government adopted a variety of measures to modify licensing policies and regulate the private sector. Since 1980, however, the government has taken several steps towards liberalization of industrial policy (Singh, 1986). With the introduction of the New Industrial Policy, 1991, a substantial programme of structural reforms for liberalization and globalization has been undertaken to accelerate the process of making Indian industry internationally competitive.

The industrial production index was more than 18 times as high in 1999-2000 (148) as it was in 1950-51 (8). Production of finished steel has increased from 1 million tones to 24 million tones, and production of coal from 32 million tones to 316 million tones. The generation of electricity has increased from 5 billion kwh to 448 billion kwh. The Indian economy is expected to grow by 5 percent in 1999-2000 and, as a result of industrial recovery, the growth of GDP from manufacturing will almost double to 7.0 percent in 1999-2000 from 3.6 percent in 199899. From 1950-51 to 1998-99, exports increased from US $1.3 billion to US $33.7 billion, while imports increased from US$1.3 billion to US $41.9 billion (Ministry of Finance, 2000). India's achievements in the field of information technology have been internationaly recognized. Software

exports continued to show vigorous growth of over 50 percent from April to September 1999.

2. INDIA: POPULATION AND ITS GROWTH (1901-2001)

In absolute terms, the population of India has increased by a whopping 180.6 million during the decade 1991-2001. The absolute addition to the population during the decade 1991-2001 is more than the estimated population of Brazil, the fifth most populous country in the world. Although, the net addition in population during each decade has increased consistently, the change in net addition has shown a steady declining trend over the decades starting from 1961. While 27.9 million more people were added between the decade 1981-91 than between 1971-1981, this number declined to 17.6 million for the decades between 1981-1991 and 1991-2001. This implies that as a result of the combination of population momentum and somewhat impeded fertility, although India continues to grow in size, its pace of net addition is on the decrease.

This population growth in India over the years ranging from 1901 to 2001 can be tabulated as follows:

Table 1.1
Population and its growth, India: 1901-2001

Census years	Population	Decadal Growth		Change in decadal growth		Average annual exponential growth rate (percent)	Progressive growth rate over 1901 (percent)
		Absolute	Percent	Absolute	Percent		
1901	238,396,327			-	-	-	-
1911	252,093,390	13,697,063	5.75	-	-	0.56	5.75
1621	251,321,213	-772,177	-0.31	-14,469,240	-6.05	-0.03	5.42
1931	278,977,238	27,656,025	11.00	28,428,202	11.31	1.04	17.02
1941	318,660,580	39,683,342	14.22	12,027,317	3.22	1.33	33.67

Cont...

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Census years	Population	Decadal Growth		Change in decadal growth		Average annual exponential growth rate (percent)	Progressive growth rate over 1901 (percent)
1951[1]	361,088,090	42,427,510	13.31	2,744,168	-0.91	1.25	51.47
1961[1]	439,234,771	78,146,681	21.64	35,719,171	8.33	1.96	84.25
1971	548,159,652	108,924,881	24.80	30,778,200	3.16	2.20	129.94
1981[2]	683,329,097	135,169,445	24.66	26,244,564	-0.14	2.22	186.64
1991[3]	843,387,888	163,058,791	23.86	27,889,346	-0.80	2.14	255.03
2001[4]	1,027,015,247	180,627,359	21.34	17,568,568	-2.52	1.93	330.80

Note:
1. In working out 'Decadal Growth' and 'Percentage Decadal Growth' for India 1941-51 and 1951-61 the population of Tuensang district for 1951 (7,025) and the population of Tuensang (83,501) and Mon (5,774) districts for 1961 Census of Nagaland State have not been taken into account as the areas were censused for the first time in 1951 and the same are not comparable.
2. The 1981 Census could not be held owing to disturbed conditions prevailing in Assam. Hence the population figures for 1981 of Assam have been worked out by 'interpolation'.
3. The 1991 census could not be held owing to disturbed conditions prevailing in Jammu and Kashmir. Hence the population figures for 1991 of Jammu and Kashmir have been worked out by 'interpolation'.
4. Please see note 1 below figures at a Glance.

Source: Provisional Population Totals, Paper – 1 of 2001, Series – 1, Census of India, 2001.

However, the growth of population in India is not uniformly distributed among its various constituent states and union territories. These states and union territories have their own mite of contribution to the overall population of India which can be presented through diagram as follows:

Figure – 2

Population Share of States and Union Territories in India – 2001

Himachal Pradesh 6077248   0.59%
Uttaranchal 8479562   0.83%
Jammu & Kashmir 10069917   0.98%
13782976   1.34%
20795956   2.03%
21082989   2.05%
24289296   2.37%

Other states & U.T.s
16 411 286   1.59%

INDIA
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UTTAR PRADESH   166 052 859   16.17%
MAHARASHTRA   96 752 247   9.42%
BIHAR   82 878 796   8.07%
WEST BENGAL   80 221 171   7.81%
ANDHRA PRADESH   75 727 541   7.37%
TAMIL NADU   62 110 839   6.05%
MADHYA PRADESH   60 385 118   5.88%
RAJASTHAN   56 473 122   5.50%
KARNATAKA   52 733 958   5.14%
GUJARAT   50 596 992   4.93%
ORISSA   36 706 920   3.75%
KERALA   31 838 619   3.10%
JHARKHAND   26 909 428   2.62%
ASSAM   26 638 407   2.59%
PUNJAB
HARYANA
CHHATTISGARH
DELHI

Other states & U.T.s: Tripura (0.31%), Manipur (0.23%), Meghalaya (0.22%), Nagaland (0.19%), Goa (0.13%), Aruranchal Pradesh (0.11%), Pondicherry (0.09%), Chandigarh (0.09%), Mizoram (0.09%), Sikkim (0.05%), Andaman & Nicobar Islands (0.03%), Dadra & Nagar Haveli (0.02%), Daman & Diu (0.02%) and Lakshadweep (0.01%).

Source: Provisional Population Totals, Paper – 1 of 2001, Series – 1, Census of India, 2001.

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The analysis of growth rates of the states startingfrom the decade 1951-1961 reflects the real story of population growth in India. It took four decades even for Kerala to reach a decadal growth of less than 10 percent from a high growth rate of 26.29 percent during 1961-71. Tamil Nadu also took forty years to reduce its growth from a high of 22.30 percent during 1961-71 to 11.19 percent during 1991-2001. The growth rate of Bihar has shown an upward swing during 1991-2001 and the growth rates on Rajasthan, Uttar Pradesh and Madhya Pradesh are now at a level where Kerala and Tamil Nadu were forty years ago. Even if it takes four decades for these four states to reach the present levels achieved by Kerala and Tamil Nadu, it seems it would be difficult for India to achieve a stable population by 2045. Therefore, it is imperative that some bold and path breaking initiatives are taken in reversing the trends of growth in these states, which at this stage do not show perceptible signs of abatement. Andhra Pradesh, however, has apparently shown an impressive fall in decadal growth rate by over ten percentage points within a short span of a decade and this success story does inspire confidence that it should be possible to cross all hurdles to achieve sharp declines in population growth.

This trends in decadal growth rate of population of some selected states can be shown in figure 3 as follows:

Figure – 3

Trends in decadal growth rate of population
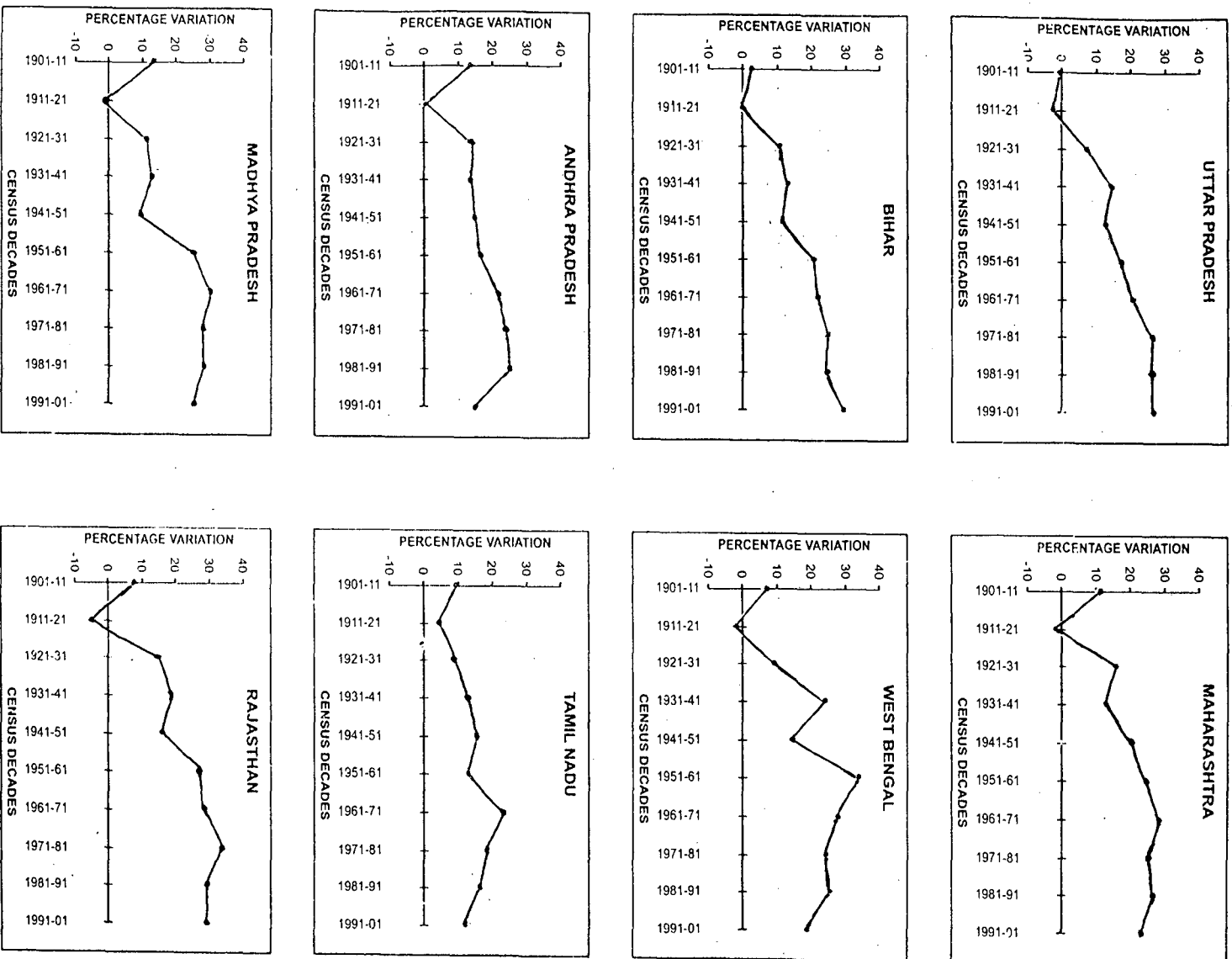
Cont.....
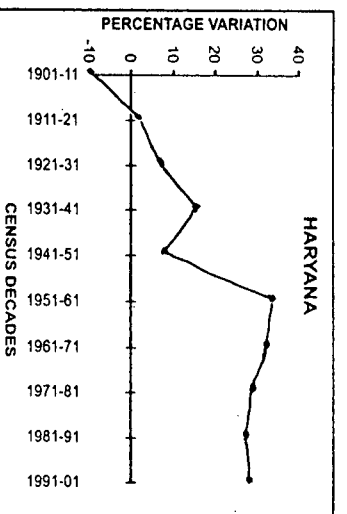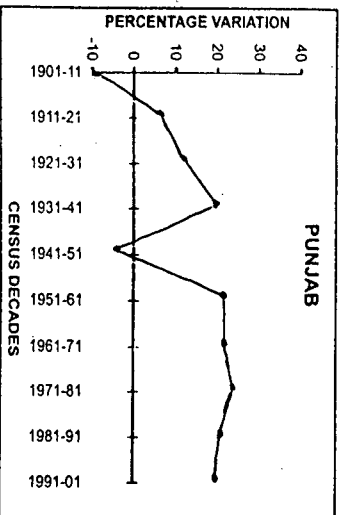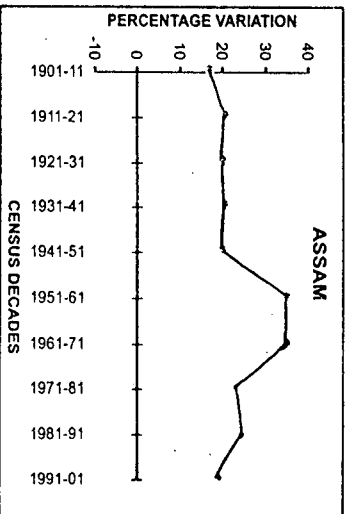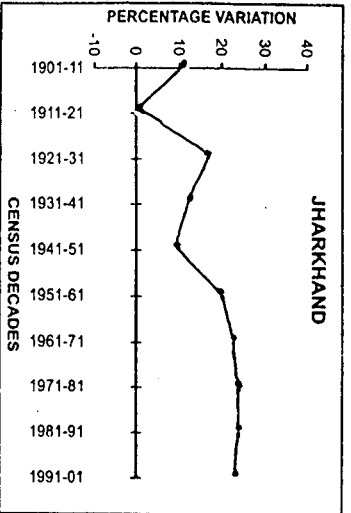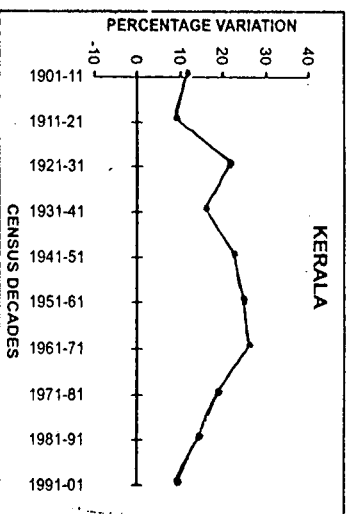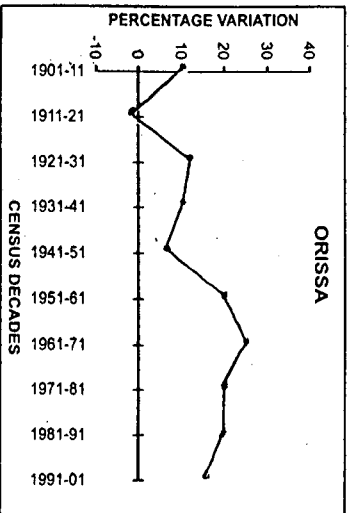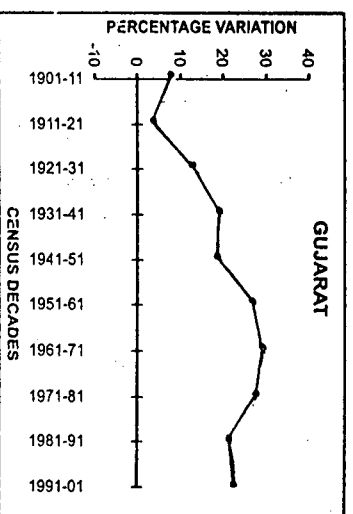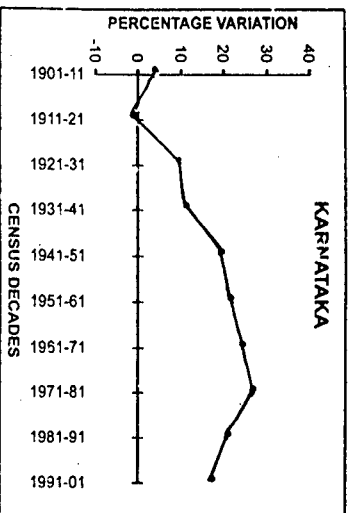
PERCENTAGE VARIATION

Source: Provisional Population Totals, paper – 1 of 2001, Series – 1, Census of India, 2001.

PUNJAB

JHARKHAND

ORISSA

KARNATAKA

HARYANA

ASSAM

KERALA

GUJARAT

The above description presents a vivid picture of demographic profile of India where in fertility as a demographic component plays very indomitable role. Now, the present purpose of the study necessitates to identify certain fertility indicies to have a better and greater understanding of fertility differentials and trends in India.

3. INDIA: HEALTH, HEALTHCARE AND NUTRITION

Promotion of maternal and child health has been one of the most important components of the Family Welfare Programme of the Government of India. One goal is for each pregnant women to receive at least three antenatal check-ups plus two tentanus toxoid injections and a full course of iron and folic and supplementation. But in India, according to NFHS-2 (1998-99), coverage is low for all groups of women. Women in disadvantaged socioeconomic groups are less likely than other women to be covered by each of these interventions. Coverage is also low for women who already have four or more children. States that perform well below the national average with regard to the provision of recommended components of antenatal care include Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh, and several of the northeastern states. Kerala, Goa and Tamil Nadu by contrast, have achieved relative success with regard to antenatal care. Even in these states, however, a substantial proportion of women do not receive all of the recommended components of antenatal care.

The Family Welfare Programme encourages Women to deliver in a medical facility or if at home, with assistance from a trained health professional and to receive at least three check-ups after delivery. During the three years preceding (1996-98) NFHS-2 (1998-99), only one-third of births in India took place in a medical facility, up from one-fourth at the time of NFHS-1 (1992-93). Among births at home over 50 percent were assisted by a traditional birth attendant, and only 13 percent were assisted by a health professional. Only 17 percent of births outside a

medical facility were followed by a postpartum check-up within two months of delivery. These results show that maternal health services in India are reaching many more women during pregnancy than during delivery or after childbirth. They also point to the important role of traditional birth attendants for the substantial proportion of births that occur at home.

The government of India recommends that breastfeeding should begin immediately after childbirth and that infant should be exclusively breastfed for the first four months of life. Although breastfeeding is nearly universal in India, very few children begin breastfeeding immediately after birth. At age 6-9 months, all children should be receiving solid or mushy food in addition to breast milk to provide sufficient nutrients for optimal growth. However, only 34 percent of children age 6-9 months receive the recommended combination of breast milk and solid or mushy food. The proportion of children age 6-9 months who receive solid or mushy food is even lower than the national average in six states, including Bihar, Uttar Pradesh and Rajasthan, where this proportion is only 15-18 percent.

Based on international standards, 47 percent of children under age three years in India are underweight, down slightly from 52 percent at the time of NFHS-1 (1992-93). Undernutrition is much higher in rural areas than in urban areas, and is particularly high among children from disadvantaged socioeconomic groups. Christian children, children whose mothers have completed at least high school, children from households with a relatively high standard of living, and children whose mothers are not anaemic, have anaemia rates that are substantially below the national average. Even among these groups, however, at lest 61 percent of children are anaemic.

Child immunization is an important component of child-survival programmes in India. With efforts focusing on six serious but

preventable diseases-tuberculosis, diphtheria, pertussis, tetanus, polio and measles. The objective of the Universal Immunization Programme (UIP), launched in 1985-86, was to extend immunization coverage against these diseases to at least 85 percent of infants by 1990. In India, 42 percent of children age 12-13 months have received all the recommended vaccinations, 44 percent have received some but not all, and 14 percent have received none of the recommended vaccinations.

Based on a weight-for-height index (the body mass index), more than one-third (36 percent) of women in India are undernourished. Nutritional deficiency is particularly acute for women in rural areas, younger women, women in disadvantaged socioeconomic groups, and women who work for someone else. Women who are undernourished themselves are also much more likely than other women to have children who are undernourished. The proportion of women undernourished is highest in Orissa (48 percent) and West Bengal (44 percent) and lowest in Arunachal Pradesh (11 percent), Sikkim (11 percent) and Delhi (12 percent).

Less than half of the households use cooking salt that is iodized at the recommended level of 15 parts per million, suggesting that iodine deficiency disorders are likely to be serious problem. Rural households and households with a low standard of living are much less likely than other households to be using adequately iodized cooking salt. While 88-91 percent of household in Himachal Pradesh, Mizoram, Delhi and Manipur consume adequately iodized salt, only 21 percent of households in Tamil Nadu and 27 percent in Andhra Pradesh do so.

About two-fifths (39 percent) of currently married women in India report some type of reproductive health problem, including abnormal vaginal discharge, symptoms of a urinary tract infection, and pain or bleeding associated with intercourse. Among these women, 66 percent have not sought any advice or treatment. These results suggest a heed to

expand reproductive health services and IEC programmes that encourage women to discuss their problems with a healthcare provider. The percentage of currently married women reporting at least one reproductive health problem varies among states from 19 percent in Karnataka to above 60 percent in Meghalaya and Jammu and iKashmir.

In recent years, there has been growing concern about domestic violence in India. NFHS-2 (1998-99) found that there is wide spread acceptance among ever married women that the beating of wives by husbands is justified under some circumstances. More than half (56 percent) the women accept at least one of six reasons as justification for a husband beating his wife. Domestic violence is also fairly common. At least one in five women have experienced beatings or physical mistreatment since age 15 and at least one in nine experienced such violence in the 12 months preceding the survey. Most of these women have been beaten or physically mistreated by their husbands. Domestic violence against women is especially prevalent (27-29 percent) among women working for cash, poor women, scheduled-caste women, and widowed, divorced or deserted women.

The survey collected information on the prevalence of tuberculosis, asthma, malaria and jaundice among all household members. Prevalence of all four conditions is higher in rural areas than in urban areas and among men than among women.

Most households in India (65 percent) go to private hospitals/ clinics or doctors for treatment when a family member is ill. Only 29 percent normally use the public medical sector. Even among poor households, only 34 percent normally use the public medical sector when members become ill. Most respondents are generally satisfied with the healthcare they receive. Ratings on quality of services are, however, lower for public-sector facilities both in rural and urban areas than for private sector/NGO/trust facilities.

Although the spread of HIV/AIDS is a major concern in India, 60 percent of women in India have not heard of AIDS. Awareness of AIDS is particularly low among women who are not regularly exposed to media, scheduled-tribe women, illiterate women, women living in households with a low standard of living, and rural women. Among women who have heard of AIDS, however, one-third do not know of any way to avoid infection. Survey results suggest that health personal could play a much larger role in promoting AIDS awareness.

4. INDIA: POPULATION POLICIES AND PROGRAMMES

The Family Welfare Programme in India has undergone important changes in recent years, particularly during the last five or six years. The government has dispensed with its procedure, initiated during the Fourth Five-year Plan, of monitoring the family Welfare Programme on the basis of method-specific family planning targets to achieve couple protection rate (CPR) of 60 percent. Experience has shown that the emphasis on achieving method-specific targets, particularly sterilization targets, has created a situation in which targets for number of acceptors gained precedence over everything else and the programme was not driven by demand. This led to the acceptance of sterilization by older and higher-parity couples at the expense of the promotion of spacing between children among younger couples. The target approach, along with incentive schemes to encourage better performance, led to unhealthy competition among states and among personnel at different levels within states. This emphasis had an adverse impact on the quality of services and care provided by the progrmme. Adequate emphasis was not placed on informed choice, counseling, and follow-up services to clients.

The scope of the services provided by the programme has increased consistently over the years. At the time of initiation of the programme in 1952, it was primarily a clinic-based family planning programme. After the adoption of the extension approach in 1963 and subsequent

integration with the maternal and child health (MCH) programme, the activities of the programme broadend significantly. In addition to family planning the programme was supposed to provide a variety of services to mothers and children, including antenatal, delivery and postnatal care, immunization of children against various vaccine preventable diseases, and counseling on maternal and child health problems and nutrition. In 1992, the Child Survival and Safe Motherhood (CSSM) Programme was launched as part of the Family Welfare Programme. This was done with the intention of having an integrated package of interventions for the betterment of the health status of mothers and children. Under this programme, treatment of diarrhea and acute respiratory infections, essential newborn care, and strengthening of emergency obstetric care services were the additional areas emphasized.

In 1993, the Government of India constituted a committee under the chairmanship of Dr. M.S. Swaminathan to draft a new National Population Policy. The Committee submitted its report in May 1994. The report consisted of a number of important recommendations, one of which was to abolish the target oriented approach. After the International Conference on Population and Development (ICPD) in 1994 in Cairo, the programme was gradually reoriented towards the holistic approach of the Reproductive and Child Health (RCH) Programme. In addition to the activities covered under the CSSM Programme, the RCH Programme includes components relating to sexually transmitted diseases (STD) and reproductive tract infections (RTI).

The Family Welfare Programme's target free approach (TFA) was implemented throughout the country in 1996. This was done after some initial experiments to gauge the impact of making the programme target free in a few selected districts. The essence of the TFA was to modify the system of monitoring the programme and to make it a demand driven system in which a worker would assess the needs of the community at

the beginning of each year. Such an assessment would form the basis for planning and monitoring the programme during the year. Workers are supposed to assess the needs of the community on the basis of consultations with families in the area, Mahila Swasthya Sangh, anganwadis, and panchayats (Ministry of Health and Family Welfare, 1998b). To remove any misconceptions about the TFA, it was subsequently renamed the community needs assessment (CAN) approach.

The recent National Population Policy (NPP), released in February 2000, paid special attention to the health and education of women and children to achieve population stabilization for the country by 2045. This suggests a paradigm shift to reproductive and child health wih utmost concern towards improving the quality of care. The policy document begins with the statement that 'the overriding objective of economic and social development is to improve the quality of lives that people lead, to enhance their well being, and to provide them with opportunities and choices to become productive assets in society' (Ministry of Health and Family Welfare, 2000).

For the first time, the policy prepones to 2010 the period for attaining the goal of replacement level fertility (that is, a net reproduction rate of 1.0). The NPP has elaborated 12 strategies to achieve its socio demographic goals. The strategies can have far-reaching implications, including reductions in the high level of unwanted as well as wanted fertility. Unwanted fertility is high due to high levels of unmet need for family planning as first revealed by the 1992-93 National Family Health Survey (International Institute for Population Sciences, 1995). Wanted fertility is expected to decline with the control of infant and child mortality.

To achieve its objectives, the NPP reaffirms continuation of the TFA and emphasizes informed contraceptive choice and the availability of

good quality services. The policy proposes decentralized planning and programme implementation. Towards the goal of lowering fertility, a number of strategies were suggested to improve RCH services, including an emphasis on education, women's empowerment, and the involvement of men in the programme. The policy envisages free and compulsory school education up to age 14, a reduction in the infant mortality rate to less than 30 infant deaths per 1,000 live births, and a reduction in the maternal mortality ratio to less than 100 maternal deaths per 100,000 live births. The policy also aims to achieve universal immunization of children, delivery assistance by trained personnel for all births, and 100 percent registration of births, deaths, marriages, and pregnancies. Another important emphasis of the policy is the need for promoting delayed marriages for girls, the provision of wider choice and universal access to family planning information and services, and the prevention of major infectious diseases, including RTIs and AIDS. All these goals are to be achieved by 2010 to realize replacement level fertility by that year with an estimated population of 1.11 billion and population stabilization by 2045.

AGE AT FIRST COHABITATION

The number of children that a woman will have in her lifetime is strongly influenced by the age at which she marries. In many parts of India, however, formal marriage is not always immediately followed by cohabitation. Rather, the husband and the wife begin to cohabit only after the *"gauna"* ceremony. Even in states where 'gauna' is not practiced, a marriage may not be consummated immediately if it occurs at a very young age. In such instances, there is a difference between age at marriage and age at consummation of marriage. Age at consummation of marriage is, of course, what is relevant for fertility. National Family Health Survey (NFHS-2, 1998-99) measured age at first cohabitation as a proxy for age at consummation of marriage in the following table:

Table 1.2

Age at First Cohabitation with Husband

Median age at first cohabitation with husband among women age 2049 years by current age and selected background characteristics, India, 1998-99

Background characteristic	Current age						
	20-24	25-29	30-34	35-39	40-49	20-49	25-49
Residence							
Urban	NC	19.3	18.7	18.3	18.1	18.9	18.6
Rural	17.6	16.9	16.6	16.5	16.3	16.8	16.6
Education							
Illiterate	16.3	16.1	16.1	16.1	16.0	16.1	16.0
Literal, <middle schools complete	18.1	17.6	17.3	17.2	17.3	17.5	17.4
Middle school compete	19.3	18.9	18.7	18.9	18.6	18.9	18.8
High school complete and above	NC	21.8	21.4	21.3	21.1	NC	21.5
Religion							
Hindu	18.2	17.4	17.0	16.8	16.7	17.2	16.9
Muslim	18.2	17.3	16.8	16.7	16.6	17.1	16.9
Christian	NC	21.2	20.2	20.4	20.2	NC	20.5
Sikh	NC	20.2	20.2	19.9	20.2	NC	20.1
Jain	NC	20.6	19.1	18.9	18.3	19.6	18.9
Buddhist/ Neo-Buddhist	19.8	17.5	17.0	16.8	16.7	17.6	16.9
Other	19.1	17.2	17.1	17.2	17.5	18.0	17.2
No religion	(19.2)	(18.7)	(18.1)	(19.9)	(18.3)	18.8	18.7
Caste/ tribe							
Scheduled caste	17.8	16.7	16.4	16.3	16.0	16.6	16.3
Scheduled tribe	17.1	16.8	16.5	16.7	16.5	16.7	16.6
Other backward class	18.2	17.4	16.9	16.8	16.7	17.2	16.9
Other	18.9	18.3	17.8	17.5	17.3	18.1	17.7
Standard of living index							
Low	16.5	16.2	16.1	16.1	15.9	16.2	16.1
Medium	18.3	17.5	17.0	16.7	16.6	17.2	16.9
High	NC	20.1	19.4	18.9	18.4	19.6	19.1
Total	**18.3**	**17.5**	**17.1**	**16.9**	**16.8**	**17.4**	**17.0**

Note: Total includes women with missing information on education, religion, caste/ tribe, and the standard of living index, who are not shown separately.

NC: Not calculated because less than 50 percent of women have started living with their husband by age 20

() Based on 25-49 unweighted cases.

Source: *National Family Health Survey, India, 1998-1999*

In table 1.2, the median age at first cohabitation for a group of women is defined as the age by which half of the entire group began to cohabit, rather than the age by which half of all ever-cohabiting women in the group began to cohabit.

Table 1.2 shows that, in India, the median age at first cohabitation with husband is 17.4 years for women age 20-49. For age groups, the lowest median age at first cohabitation is 16.8 for women age 40-49, and the highest is 18.3 for women age 20-24, suggesting a modest increase of 1.5 years in the median age at first cohabitation over a period of approximately 23 years. The value of 18.3 for the youngest age group is still rather low, however, suggesting that the considerable decline in fertility that has occurred in India has resulted mostly from family limitation within marriage rather than from an increase in age at first cohabitation.

Table 1.2 also shows that the median age at first cohabitation is two years higher for urban women than for rural women. Over time, the median age at first cohabitation has risen in both urban and rural areas, but the rise has been greater in urban areas. Differentials in the median age at first cohabitation by education are larger than differentials by residence. For women age 25-49, the median age at first cohabitation ranges from 16.0 for illiterate women to 21.5 for women with at least a high school education. Increase over time in the median age have been small in all educational groups, but the increase among illiterate women has been almost negligible. By religion, the median age at first cohabitation for women age 25-49 ranges from 16.9 for Hindus, Muslims, and Buddhist to 20.1 for Sikhs and 20.5 for Christians. By caste/tribe, for women age 20.49, the median age ranges from 16.6-16.7 for scheduled-caste and scheduled-tribe women to 18.1 for women who belong neither to a scheduled caste or tribe nor to an other backward class. The median age of first cohabitation increases steadily with the

standard of living, from 16.2 for women living in households with a low standard of living to 19.6 for women living in households with a high standard of living.

TOTAL FERTILITY RATE

Total fertility rate as shown in Table 1.3 also vary by selected background characteristics. In NFHS-2 (1998-99), the TFR for India is 1.5 children higher for illiterate women than for women with at least a high school education. The TFR is 0.8 child higher for Muslims than for Hindus, and both of these groups have much higher fertility than any other religious group. By caste/tribe, the TFR is 0.5 child higher for scheduled-caste women, 0.4 child higher for scheduled tribe women, and 0.2. child higher for OBC women than for women who do not belong to any of these groups. The TFR is 1.3 children higher for women living in house holds with low standard of living and 0.8 child higher for women living in households with a medium standard of living than for women living in households with a high standard of living.

Table 1.3

Total Fertility Rate

Total fertility rate for the three years preceding the survey, by selected background characteristics, India, 1998-99	
Background characteristic	**Total fertility rate·**
Residence	
Urban	2.27
Rural	3.07
Education	
Illiterate	3.47
Literate, <middle school complete	2.64
Middle school complete	2.26
High school and above	1.99
Religion	
Hindu	2.78
Muslim	3.59

Background characteristic	Total fertility rate 1
Christian	2.44
Sikh	2.26
Jain	1.9
Buddhist/ Neo-Buddhist	2.13
Other	2.33
No religion	3.91
Caste / Tribe	
Scheduled caste	3.15
Scheduled tribe	3.06
Other backward class	2.83
Other	2.66
Standard of living index	
Low	3.37
Medium	2.85
High	2.10
Total	**2.85**

Note: Total includes women with missing information on education, religion, caste/ tribe, and the standard of living index, who are not shown separately.

* Rate for women age 15-49 years

Source: National Family Health Survey, India, 1998-99

BIRTH ORDER

The distribution of births by birth order is yet another way to view fertility. In case of India, the distribution of birth by birth order in terms of selected background characteristics can be tabulated as follows based on data available from NFHS-2 (1998-99).

Table 1.4

Birth Order

Percent distribution of births during the three years preceding the survey by birth order, according to selected background characteristics, India 1998-99						
Background characteristic	**Birth order**					
	1	2	3	4+	Total Percent	Number of births
Mother's current age						
15-19	73.3	22.9	3.5	0.4	100.0	4.209
20-29	27.5	30.8	21.8	20.0	100.0	22,147
30-39	4.5	10.3	13.3	71.9	100.0	5,658
40-49	0.3	2.2	4.6	92.9	100.0	483

Cont..

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Background characteristic	Birth order				Total Percent	Number of births
	1	2	3	4+		
Residence						
Urban	35.4	29.6	15.8	19.2	100.0	7.215
Rural	27.1	24.7	18.2	29.9	100.0	25,282
Mother's education						
Illiterate	21.5	21.4	18.9	38.2	100.0	19,132
Literate, <middle school complete	31.9	29.0	19.5	19.6	100.0	5,832
Middle school complete	41.7	33.7	15.3	9.3	100.0	2,948
High school complete and above	48.5	35.1	11.9	4.6	100.0	4,580
Religion						
Hindu	29.7	26.3	17.9	26.2	100.0	25,730
Muslim	24.2	22.3	16.3	37.3	100.0	5,140
Christian	35.2	29.9	16.1	18.8	100.0	755
Sikh	32.8	30.8	20.6	15.8	100.0	451
Jain	36.2	41.1	16.5	6.2	100.0	76
Buddhist/ Neo-Buddhist	34.4	26.2	22.1	17.3	100.0	199
Other	22.9	24.4	25.0	27.7	100.0	87
No religion	17.4	19.7	15.9	47.0	100.0	24
Caste / tribe						
Scheduled caste	26.6	24.1	17.9	31.5	100.0	6,505
Scheduled tribe	24.1	23.5	18.5	34.0	100.0	3,091
Other backward class	29.7	26.4	17.7	26.2	100.0	10,431
Other	31.2	27.0	17.2	24.5	100.0	12,086
Mother's work status						
Working in family farm/ business	22.0	22.5	19.9	35.6	100.0	4,203
Employed by someone else	23.4	23.4	19.4	33.8	100.0	4,808
Self-employed	25.3	23.1	16.1	35.5	100.0	1,102
Not worked in past 12 months	31.7	27.1	17.0	24.3	100.0	22,373
Standard of living index						
Low	22.9	21.9	18.4	36.7	100.0	11,844
Medium	30.0	26.5	17.8	25.7	100.0	15,131
High	39.7	33.1	15.5	11.7	100.0	5,125
Total	**29.0**	**25.8**	**17.7**	**27.5**	**100.0**	**32,496**

Note: Total includes 5,33,383,9, and 397 births with missing information on mother's education, religion, caste/tribe, Mother's work status, and the standard of living index, Respectively, which are not shown separately.

Source: National Family Health Survey, India, 1998-99.

Table 1.4 shows the distribution of births during the three-year period before the survey (1996-98) by birth order for selected background characteristics. Overall, as expected, the proportion of births at each

order is larger than the proportion at the next higher order. Twenty nine percent of all births are first order births, 26 percent are second-order birth, 18 percent are third-order births, and 28 percent are births of order four or higher.

Over 70 percent of births to mothers age 15-19 are of order one; by contrast, over 70 percent of births to mothers age 30-39 are of order four or higher. The proportion of births that are of order four or higher in 19 percent in urban areas and 30 percent in rural areas. the proportion of births of order four or higher is relatively large for births to illiterate women, Muslim Women, and scheduled-tribe women. By work status, 34-36 percent of births to women who work are of order four or higher compared with 24 percent of births to women who did not work in the past 12 months. This finding may be partly explained by the fact that working women come disproportionately from rural areas, where fertility is relatively high. For women living in households with a low standard of living, the proportion of births of order four or higher is 37 percent, compared with only 12 percent for women living in households with a high standard of living.

BIRTH INTERVAL

A birth interval, defined as the length of time between two successive live births, indicates the pace of child bearing of a woman. Short birth intervals may adversely affect a mother's health and her children's chances of survival. Past research has shown that children born too close to a previous birth are at increased risk of dying, especially if the interval between the births is less than 24 months (Pandey et al., 1998; Govndasamy et al., 1993). The birth interval an indicator of pace of child bearing with selected demographic and socioeconomic back ground characteristics in India can be shown in the form of table (table 1.5) as follows based on data available from NFHS-2 (1998-99).

Table 1.5

Birth Interval

Percent distribution of births during the five years preceding the survey by interval since previous birth according to selected demographic and background characteristics, India, 1998-99

Demographic/ background characteristic	Moths since previous birth						Total Percent	Median open birth interval	Median closed birth interval	Number of births
	<12	12-17	18-23	24-35	36-47	48+				
Mother's current age										
15-19	4.0	21.2	23.25	36.7	12.2	2.5	100.0	10.0	24.3	1,193
20-29	2.6	11.0	17.2	36.2	19.5	13.5	100.0	20.3	29.3	26,305
30-39	2.0	7.1	11.9	30.2	20.8	28.0	100.0	29.5	35.5	11,183
40-49	3.3	7.1	11.9	24.8	17.5	35.5	100.0	38.4	37.3	1,215
Residence										
Urban	2.2	11.0	16.2	31.8	17.7	21.0	100.0	25.1	30.9	8,017
Rural	2.5	9.8	15.6	34.8	20.0	17.2	100.0	22.3	30.8	31,878
Mother's education										
Illiterate	2.6	9.9	15.0	34.7	20.2	17.6	100.0	22.4	31.0	26,674
Literate< middle school complete	2.1	10.3	17.6	35.2	18.7	16.1	100.0	24.0	29.6	6,779
Middle school complete	2.2	10.1	19.0	33.8	17.3	17.6	100.0	22.6	29.6	2,728
High school complete and above	1.9	10.9	15.0	29.5	18.4	24.3	100.0	24.3	32.5	3,706
Religion										
Hindu	2.4	9.7	15.5	34.2	20.0	18.1	100.0	23.0	31.1	31,277
Muslim	2.8	11.3	16.3	34.3	17.6	17.6	100.0	21.9	29.7	6,777
Christian	1.7	9.5	18.0	33.3	18.8	18.8	100.0	22.6	30.9	824
Sikh	3.1	14.5	17.9	32.2	17.5	14.8	100.0	26.7	28.2	529
Jain	2.7	12.0	12.2	25.9	22.7	24.6	100.0	19.8	33.3	75
Buddhist/ Neo-Buddhist	0.6	10.8	18.0	39.4	15.1	16.2	100.0	21.8	29.6	230
Other	1.7	11.9	11.7	41.7	19.4	13.6	100.0	23.9	30.1	115
No religion	6.8	6.3	17.1	35.1	12.7	22.0	100.0	24.6	27.6	31
Caste/ tribe										
Scheduled caste	2.6	9.8	14.9	35.2	20.5	17.1	100.0	21.4	30.7	8,106
Scheduled tribe	2.8	10.5	16.0	35.7	19.4	15.6	100.0	22.5	29.9	4,133
Other backward class	2.2	9.6	15.9	34.3	19.8	18.2	100.0	23.2	31.1	12,686

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Demographic/ background characteristic	Moths since previous birth						Total Percent	Median open birth interval	Median closed birth interval	Number of births
	<12	12-17	18-23	24-35	36-47	48+				
Other	2.5	10.5	16.1	33.3	18.7	18.9	100.0	23.9	30.7	14,384
Standard of living index										
Low	2.6	9.5	15.1	35.0	20.0	17.8	100.0	22.4	31.0	16,073
Medium	2.4	10.2	16.3	34.7	19.6	16.7	100.0	22.8	30.4	18,212
High	2.2	11.3	15.8	29.7	18.4	22.6	100.0	24.9	31.7	5,149
Order of previous birth										
1	2.5	11.0	16.4	32.8	18.6	18.7	100.0	21.4	30.7	14,325
2	2.1	9.4	16.2	35.2	19.9	17.2	100.0	22.3	30.8	9,713
3	1.8	9.4	15.7	35.3	20.3	17.4	100.0	24.4	31.0	6,102
4+	3.2	9.8	14.3	34.6	20.2	17.9	100.0	25.1	30.8	9,756
Sex of previous birth										
Male	2.4	9.9	15.6	34.1	20.0	18.0	100.0	24.1	31.1	19,526
Female	2.5	10.3	15.8	34.4	19.2	17.9	100.0	21.8	30.6	20,369
Survival of previous birth										
Living	1.9	8.8	15.5	34.8	20.3	18.8	100.0	23.0	31.6	35,278
Dead	6.9	20.1	17.7	30.0	13.9	11.4	100.0	21.8	25.2	4,618
Total	**2.5**	**10.1**	**15.7**	**34.2**	**19.6**	**17.9**	**100.0**	**22.9**	**30.8**	**39,896**

Note: Table includes only second-and higher-order birth except for the median open birth interval, which is based on all births. The interbirth interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth. Total includes 10.38.587, and 461 births with missing information on mother's education, religion, caste/tribe, and the standard of living index respectively, which are not shown separately.
  1. Median number of months between the date of interview and the most recent birth
  2. Median number of months between the most recent birth and the previous birth

Source: National Family Health Survey, India, 1998-99.

According to table 1.5, in India, 13 percent of births occur within 18 months of a previous birth and 28 percent occur within 24 months. Thirty-eight percent of births occur after an interval of three years or more.

The median closed birth interval in India is 31 months. The median closed birth interval for women age 15-19 is 24 months, which is

substantially less than the median interval of 36 months for women age 30-39. The relatively short birth interval for women age 15-19 at the time of the survey may result partly from a selection effect. Only women who have had two or more births are included in the table, and women age 15-19 with more than one birth are likely to be more fecund than average. Given the finding that the median birth interval increases with mother's age, it is surprising that it does not also increase substantially with the order of the previous birth. Perhaps this is due to the absence of the selection effect just noted in the case of age. There may also be another type of selection effect operating. Mothers of higher-order births may be more fecund, on average, than mothers of lower-order births.

The median birth internal is shorter if the previous child was a girl than if it was a boy, but the difference is only 0.5 months. This pattern may result from the shorter duration of breastfeeding for girls, which is indicative of son preference. Birth intervals are much shorter if the previous child died (25 months) than if the previous child survived 32 months). In part, this reflects the shortening of post partum amenorrhoea that occurs when the preceding child dies in infancy and breastfeeding stops prematurely. Women are also less likely to use temporary methods of contraception to postpone fertility if the previous child died and they want to replace the dead child. Very few women in India use temporary methods of contraception, however, so that the main effect is probably through prematurely terminated breastfeeding.

Birth intervals are virtually the same in urban areas and rural areas. Birth intervals are somewhat longer for illiterate mothers and mothers with at least a high school education than for mother with intermediate levels of education. The median interval between births is slightly shorter for Muslim and Sikh mothers than for Hindu and Christian mothers. Birth intervals show little variation by caste/tribe or the standard of living. The median open birth interval (the interval

between the most recent birth and the time of survey) is 23 months. The median open birth interval rises dramatically with age from only 10 months for teenage mothers to 38 months for mothers in their forties. For women in all other subgroups (except for Sikh women), the median open birth interval varies between only 20 months and 25 months.

AGE AT FIRST AND LAST BIRTH

The ages at which women start and stop childbearing are important demographic determinants of fertility. A higher median age at first birth and a lower median age at last birth are indicators of lower fertility. The median age at first birth among women age 20-49 years by current age and selected background characteristics in India can be tabulated as follows based on the data available from NFHS-2 (1998-99).

Table 1.6

Median age at first birth

Median age at first birth among women age 20-49 years by current age and selected background characteristics, India. 1998-99								
Background characteristic	Current age							
	20-24	25-29	30-34	35-39	40-44	45-49	20-49	25-49
Residence								
Urban	NC	21.3	20.6	20.3	20.3	20.3	NC	20.6
Rural	19.7	19.0	18.8	19.0	18.9	19.2	19.1	19.0
Education								
Illiterate	18.5	18.2	18.3	18.6	18.6	18.9	18.5	18.5
Literate.<middle school complete	19.3	19.4	19.2	19.4	19.4	19.7	19.5	19.4
Middle school complete	NC	20.8	20.7	20.8	20.5	20.5	NC	20.7
High school complete and above	NC	23.5	23.1	23.2	23.2	23.2	NC	23.3
Religion								
Hindu	NC	19.5	19.3	19.3	19.2	19.5	19.6	19.4
Muslim	19.8	19.2	18.8	18.9	18.8	18.8	19.1	18.9
Christian	NC	23.1	22.1	21.9	22.6	21.3	NC	22.2
Sikh	NC	21.3	21.4	21.5	21.7	22.5	NC	21.5
Jain	NC	22.5	20.7	21.0	(21.1)	20.9	NC	21.2
Buddhist/ Neo-Buddhist	NC	19.4	18.4	18.7	19.6	18.5	19.5	19.1
Other	NC	19.5	18.6	19.9	19.3	20.0	19.9	19.5
No religion	NC	(19.6)	(19.2)	(20.7)	*	*	NC	19.7

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Background characteristic	Current age							
	20-24	25-29	30-34	35-39	40-44	45-49	20-49	25-49
Caste/ tribe								
Scheduled caste	19.8	18.9	18.5	18.6	18.6	18.8	18.9	18.7
Scheduled tribe	19.4	18.8	18.6	18.9	18.9	19.1	18.9	18.8
Other backward class	NC	19.5	19.3	19.3	19.1	19.4	19.5	19.3
Other	NC	20.1	19.9	19.9	19.8	20.0	NC	20.0
Standard of living index								
Low	18.7	18.3	18.3	18.7	18.7	18.8	18.5	18.5
Medium	NC	19.6	19.2	19.1	19.0	19.4	19.5	19.3
High	NC	22.0	21.3	21.1	20.7	20.5	NC	21.2
Total	**NC**	**19.6**	**19.3**	**19.4**	**19.3**	**19.5**	**19.6**	**19.4**

Note: Total includes women with missing information on education, religion, caste/ tribe, and the standard of living index, who are not shown separately

NC: Not calculated because less than 50 per cent of women had their first birth by age 20

() Based on 25-49 unweighted cases

* Median not shown; based on fewer than 25 unweighted cases

Source: National Family Health Survey, India, 1998-99.

Table 1.6 shows the median age at first birth for any group of women is defined in this table as the age by which half of all women in the group have had a first birth, rather than the age by which half of all mothers in the group have had a first birth. If the median age at first birth calculated for an age group lies above the lower limit of that age group, it is not valid because some younger women in the age group who have not yet had a first birth would not have reached the median age by the time of the survey. In such cases, the estimate of the median is not shown.

As shown in the last row of the table, the median age at first birth in India as a whole appears to have increased slightly in recent years, from 19.3 years for women age 30-34 to 19.6 years for women age 25-29. Among all women age 25-49, the median age at first birth is 1.6 years higher in urban areas than in rural areas. The median increases especially sharply between the 30-34 and 25-29 age cohorts in urban areas and between the 25-29 and 20-24 age cohurts in rural areas. The median age at first birth is almost five years higher for women who have completed at least high school then for illiterate women. The median is

0.5 year higher for Hindus than for Muslims. Christians, Sikhs and Jains all have a median age at first birth that is considerably higher than that of earlier Hindus or Muslims. By caste/tribe, women from other backward classes have a median age at first birth that is about half a year higher than that of scheduled-caste women or scheduledtribe women, and women belonging to none of these caste/tribe groups have a median that is more than one year higher than that of schedule-caste women or scheduled-tribe women. The median age at first birth increases steadily with standard of living and is almost three years higher for women living in households with a high standard of living than for women living in households with a low standard of living.

For older women the age at last childbirth is an indicator of cessation of childbearing. Table 1.7 presents the distribution of ever-married women age 40-49 by age at last birth, as well as the median age at last birth. Although a few of these women may have another birth later on, the very low fertility rates for women in this age group suggest that childbearing is virtually complete by these ages. More than half of women (54 percent) had their last birth by age 30 and 80 percent by age 35. The median age at last birth in India for women age 40-49 is 29.3 years (28.7 for women age 40-44 and 30.2 for women age 45-49).

Table 1.7

Age at last birth

| Percent distribution of ever-married women age 40-49 years by age at last birth and median age at last birth, according to current age and residence, India, 1998-99 ||||||||||||
| | Age at last birth |||||||| | | |
Current age	No birth	<20	20-24	25-29	30-34	35-39	40-44	45-49	Total percent	Median age at last birth	Number of women
URBAN											
40-44	3.1	3.1	23.9	36.8	23.3	8.7	1.1	NA	100.0	28.0	3,135
45-49	3.1	2.7	18.1	36.6	25.3	12.1	2.0	0.2	100.0	28.8	2,473
40-49	3.1	2.9	21.3	36.7	24.2	10.2	1.5	0.1	100.0	28.4	5,608

	Age at last birth										
Current age	No birth	<20	20-24	25-29	30-34	35-39	40-44	45-49	Total percent	Median age at last birth	Number of women
RURAL											
40-44	2.7	3.8	19.1	33.6	24.2	13.9	2.7	NA	100.0	29.0	7,387
45-49	2.9	3.3	13.9	27.5	29.6	15.8	6.2	0.7	100.0	30.7	5,706
40-49	2.8	3.6	16.8	31.0	26.6	14.7	4.2	0.3	100.0	29.8	13.092
TOTAL											
40-44	2.8	3.6	20.5	34.6	23.9	12.4	2.2	NA	100.0	28.7	10,521
45-49	2.9	3.1	15.2	30.3	28.3	14.7	4.9	0.6	100.0	30.2	· 8,179
40-49	2.9	3.4	18.2	32.7	25.9	13.4	3.4	0.2	100.0	29.3	18,701

NA: Not applicable

Source: National Family Health Survey, India, 1998-99.

The different between the median age at first birth and the median age at last birth provides a rough estimate of the typical reproductive age span. Among women age 40-49 in India, this estimated reproductive age span is the difference between 19.2 and 29.1, or 9.9 years. Thus, reproduction is India begins at a fairly early age and is concentrated in a span of about 10 years.

Sex Preference for Children

A strong preference for sons has been found to be pervasive in Indian society, affecting both attitudes and behaviour with respect to children. Table 1.8 shows the mean ideal number of sons and daughters, the percentage who desire more sons than daughters, the percentage who desire more daughters than sons, the percentage who desire at least one son, and the percentage who desire at least one daughter, according to selected background characteristics. Following table shows a consistent preference for sons over daughters. Overall, the average ideal family size of 2.7 children consists of 1.4 sons, 1.0 daughters, and 0.3 children of either sex.

Table 1.8

Indicators of sex preference

Mean ideal number of sons, daughters, and children of either sex for ever-married women, percentage who want more sons than daughters, percentage who want more daughters than sons, percentage who want at least one son, and percentage who want at least one daughter by selected background characteristics, India 1998-99

Background characteristic	Mean ideal number of			Percentage who want more sons than daughters	Percentage who want more daughters than sons	Percentage who want at least one son	Percentage who want at least one daughter	Number of women
	Sons	Daughters	Either sex					
Residence								
Urban	1.1	0.8	0.4	22.6	2.5	76.9	72.7	22,027
Rural	1.5	1.0	0.3	37.0	2.1	88.1	82.8	60,911
Education								
Illiterate	1.6	1.1	0.3	41.7	2.0	90.2	84.8	47.104
Literate, <Middle school complete	1.2	0.9	0.4	27.7	2.2	83.2	78.7	16,289
Middle school complete	1.0	0.8	0.4	21.5	2.1	80.0	75.6	7,135
High school complete and above	0.8	0.7	0.5	14.6	3.0	71.0	67.0	12,401
Religion								
Hindu	1.3	0.9	0.3	33.6	2.0	85.3	80.1	68,574
Muslim	1.6	1.1	0.4	34.4	2.8	85.3	82.2	9,582
Christian	1.2	1.0	0.5	20.0	5.2	77.6	74.1	2,036
Sikh	1.2	0.8	0.3	30.1	0.8	86.7	76.1	1,393
Jain	1.0	0.8	0.4	18.3	1.5	81.1	75.7	326
Buddhist/ Neo-Buddhist	1.1	0.9	0.3	25.1	2.1	83.2	78.2	654
Other	1.6	1.2	0.2	32.5	3.9	93.5	89.0	259
No religion	2.0	1.9	0.1	22.1	15.6	87.1	89.3	42
Caste/ tribe								
Scheduled caste	1.5	1.0	0.3	37.9	1.8	87.3	82.1	15,232
Scheduled tribe	1.6	1.2	0.2	38.0	3.6	91.5	86.6	7,313
Other backward class	1.3	0.9	0.4	32.5	1.9	83.7	79.4	27, 169
Other	1.3	0.9	0.3	30.0	2.3	83.6	78.2	32,455
Work Status								
Working in family farm/ business	1.5	1.0	0.3	39.6	2.1	89.2	83.0	11,861
Employed by someone else	1.3	0.9	0.4	30.8	2.6	82.8	78.0	16,051
Self-employed	1.3	1.0	0.3	30.7	3.4	83.1	78.6	4,153
Not worked in past 12 months	1.4	1.0	0.3	32.6	2.0	85.0	80.3	50,855

Cont..

Background characteristic	Mean ideal number of			Percentage who want more sons than daughters	Percentage who want more daughters than sons	Percentage who want at least one son	Percentage who want at least one daughter	Number of women
	Sons	Daughters	Either sex					
Standard of living index								
Low	1.5	1.1	0.3	38.4	2.3	89.0	84.1	26,517
Medium	1.4	1.0	0.3	34.3	2.0	85.7	80.7	38,378
High	1.0	0.8	0.4	22.5	2.5	77.5	72.8	17,067
Husband's education								
Illiterate	1.6	1.1	0.3	40.2	2.1	89.4	84.2	24,572
Literate < primary school complete	1.4	1.0	0.3	34.9	2.7	87.5	82.7	7,395
Primary school complete	1.4	1.0	0.3	33.3	2.1	85.3	80.3	13,558
Middle school complete	1.3	0.9	0.3	33.7	2.0	86.1	80.9	11,348
High school complete	1.2	0.9	0.3	28.8	2.1	83.3	78.1	12,290
Higher secondary complete and above	1.0	0.8	0.4	23.0	2.5	76.6	72.4	13,545
Total	**1.4**	**1.0**	**0.3**	**33.2**	**2.2**	**85.1**	**80.1**	**82,939**

Note: Table excludes women who gave non-numeric responses to the questions on ideal number of children or ideal number of sons or daughters. Total includes 11,73,770, 18, 976 and 230 women with missing information on education, religion caste/ tribe, work status, the standard of living index, and husband's education, respectively, who are not shown separately

Source: *National Family Health Survey, India, 1998-99.*

Thirty-three percent of women want more sons than daughters, but only 2 percent want more daughters than sons. The indicator on the percentage who want at least one son and at least one daughterexhibits the weakest son preference. Eighty five percent want at least one son among their children, and nearly as many (80 percent) want at least one daughter. One reason that a substantial proportion of women want to have at least one daughter despite having a preference for sons is to fulfill the Hindu religious obligation of Kanyadan (giving a daughter away at the time of her marriage), which is one of the acts that enable the parents to acquire the highest level of merit (Panya).

Son preference is relatively weak in urban areas, among literate women, among women with more education and whose husbands have more education, and among women living in households with a high standard of living. Son preference is somewhat weaker among Christian and Jain women than among women of other religions. Son preference does not vary much by caste/tribe or woman's work status.

USE OF FAMILY PLANNING METHODS

Use of family planning method by people is another relevant factor for fertility differentials in India. Table 1.9 shows differences in contraceptive use by background characteristics.

Current contraceptive use among currently married women generally increases with education, from 43 percent among illiterate women to 57 percent among women with at least a high school education. There is, however, little difference in contraceptive use between literate women who have and have not completed middle school. In the case of spacing methods, use also tends to increase with education. Modern spacing methods account for 6 percent of contraceptive use by illiterate women and 35 percent of contraceptive use by women with at least high school education. On the other hand, use of female sterilization declines sharply with education among literate women. Illiterate women, however, have a somewhat lower prevalence of sterilization than literate women who have not completed middle school. Female and male sterilization account for 85 percent of contraceptive use by illiterate women but only 48 percent of contraceptive use by women with at least a high school education. Contraceptive use increased between NFHS-1 and NFHS-2 among women of every educational level. The increase, however was much more rapid among illiterate women than among literate women. Various studies based on NFHS-1 datahave shown that even after controlling the effects of other factors, education is

a key factor influencing contraceptive use (Retherford and Ramesh, 1996; Ramesh et al. 1996).

By religion, contraceptive prevalence among Hindus (49 percent) is higher than among Muslims (37 percent) but lower than among women belonging to most other religions (52-65 percent). Use of the pill is highest among Muslims and Sikhs (4 percent), use of the IUD is highest among Sikhs (7 percent), and use of condoms is highest among Sikhs and Jains (10-12 percent). Male sterilization is rare for all religions groups except Buddhists/Neo-Buddhists. Use of female sterilization in lowest among Muslims (20 percent) and highest among Buddhists/Neo-Buddhists (53 percent). Since NFHS-1, contraceptive prevalence has in creased for all religious groups, but the largest increases have been for Buddhist/Neo-Budhists and Muslims. By caste/tribe, contraceptive prevalence is highest among women who do not belong to a scheduled caste, scheduled tribe or other backward class (54 percent), followed by women belonging to other backward classes (47 percent), scheduled castes (45 percent), and scheduled tribes (39 percent). The use of male sterilization and each of the modern temporary methods is very low for all caste/tribe groups. By the standard of living index (SLI), contraceptive prevalence ranges from 40 percent among women living in households with a low SLI to 61 percent among women living in households with a high SLI. The use of officially –sponsored spacing methods is also much higher among women with a high SLI (16 percent) than among women with a medium (6 percent) or low SLI (3 percent).

Table 1.9

Current use by background characteristics

Background characteristic	Any method	Any modern method	Pill	IUD	Con-dom	Female ster-lization	Male ster-lization	Any tradi-tional method	Rhythm/safe period	With-drawal	Other method[1]	Not using any method	Total percent	Number of women
Residence														
Urban	58.2	51.2	2.7	3.5	7.2	36.0	1.8	6.7	3.9	2.8	0.3	41.8	100.0	21,888
Rural	44.7	39.9	1.9	1.0	1.6	33.5	1.9	4.4	2.7	1.7	0.4	55.3	100.0	61,761
Education														
Literate	42.9	39.2	1.2	0.5	0.9	34.4	2.2	3.3	2.1	1.2	0.4	57.1	100.0	48,018
Literate, <middle school complete	55.5	49.7	3.3	1.5	2.3	40.8	1.8	5.4	3.1	2.4	0.3	44.5	100.0	16,257
Middle school complete	52.2	44.6	3.7	2.9	5.0	32.1	0.9	7.4	4.0	3.4	0.2	47.8	100.0	7,073
High school complete and above	57.0	47.1	3.0	5.7	11.2	25.8	1.4	9.6	5.1	3.7	0.3	43.0	100.0	12,291
Religion														
Hindu	49.2	44.3	1.8	1.5	2.7	36.2	2.1	4.7	2.9	1.8	0.3	50.8	100.0	68,443
Muslim	37.0	30.2	4.1	1.5	4.2	19.6	0.8	6.4	3.6	2.8	0.4	63.0	100.0	10,477
Christian	52.4	44.9	1.2	2.3	2.8	36.5	2.1	7.1	4.9	2.3	0.4	47.6	100.0	2,072
Sikh	65.2	54.7	3.7	7.4	11.8	30.2	1.6	10.1	4.6	5.5	0.4	34.8	100.0	1,365
Jain	65.1	58.1	0.2	4.3	10.0	42.3	1.4	6.4	4.6	1.8	0.6	34.9	100.0	316
Buddhist/Neo-Buddhist	64.7	63.9	2.5	1.4	2.5	52.5	5.0	0.8	0.4	0.4	0.0	35.3	100.0	601
Other	48.6	35.2	2.8	3.9	1.3	26.1	1.0	9.1	4.9	4.3	4.2	51.4	100.0	259
No religion	30.1	28.6	3.3	6.3	2.4	16.7	0.0	1.4	1.0	0.4	0.0	69.9	100.0	38
Caste/tribe														
Scheduled caste	44.6	40.1	1.5	0.7	1.6	34.4	1.9	4.2	2.7	1.6	0.3	55.4	100.0	15,178
Scheduled tribe	39.1	35.2	1.6	0.9	0.8	28.8	3.1	3.2	2.3	1.0	0.7	60.9	100.0	7,176
Other backward class	46.8	43.4	1.1	1.5	2.0	37.2	1.6	3.1	2.0	1.1	0.3	53.2	100.0	27,529
Other	53.5	45.8	3.3	2.4	5.1	33.1	1.9	7.3	4.2	3.1	0.4	46.5	100.0	32,957

Percent distribution of currently married women by contraceptive method currently used, according to selected background charaderstics, India, 1998-99

Cont...

Background characteristic	Any method	Any modern method	Pill	IUD	Con-dom	Female ster-lization	Male ster-lization	Any tradi-tional method	Rhythm/ safe period	With-drawal	Other method[1]	Not using any method	Total percent	Number of women
Standard of living index														
Low	39.5	35.5	1.5	0.4	0.6	31.0	2.0	3.6	2.3	1.3	0.4	60.5	100.0	26,505
Medium	48.4	43.3	2.2	1.2	2.2	36.0	1.7	4.8	2.9	1.9	0.3	51.6	100.0	38,999
High	61.2	53.1	2.7	4.5	8.7	35.0	2.2	7.8	4.5	3.2	0.3	38.8	100.0	17,173
Number and sex of living children														
No children	4.6	2.1	0.4	0.0	1.0	0.4	0.3	2.5	1.3	1.2	0.0	95.4	100.0	9,792
1 child	23.7	15.8	3.1	2.9	4.9	4.2	0.7	7.7	4.5	3.2	0.2	76.3	100.0	13,215
1 son	25.3	16.9	3.2	3.3	5.2	4.8	0.5	8.2	4.8	3.4	0.3	74.7	100.0	7,062
No sons	21.9	14.6	3.1	2.5	4.5	3.6	0.9	7.1	4.1	3.0	0.2	78.1	100.0	6,153
2 children	58.1	51.9	2.7	3.0	4.7	39.4	2.1	5.9	3.4	2.5	0.3	41.9	100.0	20,184
2 sons	66.8	61.6	2.4	2.9	3.5	50.5	2.3	4.8	2.7	2.1	0.3	33.2	100.0	6,185
1 son	58.9	52.2	3.0	3.2	5.4	38.5	2.2	6.4	3.8	2.6	0.2	41.1	100.0	10,621
No sons	39.7	33.1	2.4	2.6	5.0	21.9	1.3	6.3	3.4	3.0	0.2	60.3	100.0	3,378
3 children	67.5	63.1	1.7	1.2	2.5	54.8	2.8	4.1	2.5	1.6	0.4	32.5	100.0	17,840
3 sons	73.8	69.7	0.9	0.7	1.7	63.8	2.5	3.7	2.2	1.5	0.5	26.2	100.0	2,381
2 sons	74.9	71.0	1.6	1.0	2.0	63.3	3.2	3.5	2.2	1.3	0.4	25.1	100.0	8,131
1 son	61.6	56.5	2.0	1.8	3.6	46.4	2.8	4.8	3.0	1.8	0.3	38.4	100.0	5,975
No sons	37.9	32.8	2.8	1.1	2.4	25.5	1.0	4.8	3.0	1.9	0.2	62.1	100.0	1,354
4+ children	57.4	52.2	1.9	0.7	1.8	45.3	2.4	4.5	3.0	1.5	0.7	42.6	100.0	22,617
2+ sons	58.5	53.5	1.9	0.6	1.6	46.9	2.4	4.4	2.9	1.4	0.7	41.5	100.0	17,488
1 son	56.2	50.4	2.3	1.1	2.7	41.7	2.6	5.1	3.4	1.7	0.7	43.8	100.0	4,423
No sons	37.3	33.0	0.8	0.1	2.2	28.8	1.1	3.7	2.2	1.5	0.6	62.7	100.0	705
Total	**48.2**	**42.8**	**2.1**	**1.6**	**3.1**	**34.2**	**1.9**	**5.0**	**3.0**	**2.0**	**0.4**	**51.8**	**100.0**	**83,649**

Note: Total includes 11,77,809 and 971 women with missing information on education, religion, caste/tribe and the standard of living index, respectively, who are not shown separately.

[1] includes both modern and traditional methods that are not listed separately

Source: *National Family Health Survey, India, 1998-99*

Table 1.9 also shows differences in current use by number and sex of living children. Contraceptive use increases sharply from 5 percent for women with no living children to 68 percent for women with three living children and then falls to 57 percent for women with four or more living children. A similar pattern is evident for female and male sterilization. The results also indicate strong preference for sons over daughters. At each parity, current use of family planning is lower among women with no sons than among women with one or more sons, with a maximum differential at parity 3. Son preference is not, however, an insuperable barrier to contraceptive use. At parities 2, 3 and 4+, the percentage of women with no sons who are currently using sterilization (female or male) is 23, 27 and 30 percent, respectively. An earlier study based on NFHS-1 data has shown that son preference is an important factor influencing contraceptive use in India and that the national contraceptive prevalence rate would be 5 percentage points higher if there were no son preference (Arnold et al., 1998).

Chapter – IV

Comparing Fertility Profile of Kerala and Bihar

CHAPTER – IV

COMPARING FERTILITY PROFILE OF
KERALA AND BIHAR

KERALA: AN INTRODUCTION

Kerala acquired the status of a state within the Indian Union, with Thiruvananthapuram as its capital, on 1st November 1956, when the State Reorganization Act of 1956 came into force. It has a total land area of 38,863 square kilometers. On the basis of physical features, Kerala may be divided into three natural regions-highlands, midlands and lowlands. The state accounts for 3.1 percent of India's population in 2001 and for 1.18 percent of its land area. At the time of the 1991 census, the state was divided into 14 districts and 61 taluks. Since then, the number of taluks has risen to 63.

Kerala is predominantly an agricultural state with 73 percent of the population living in rural areas. The importance of various economic sectors in the economy has changed only slightly over time. The contribution of the agricultural sector to the state domestic product declined from 34 percent in 1980-81 to 31 percent in 1996-97. During the same period, the share of the manufacturing sector was almost constant at 14 percent and the contribution of other sectors increased slightly, from 52 percent to 55 percent (EPW Research Foundation, 1998). At the time of the 1991 census, the agricultural sector provided a livelihood for 48 percent of the labour force (office of the Registrar General and Census Commissioner, 1992). Rice is the only major cereal crop grown in Kerala. Nearly 76 percent of agricultural land is under nonfood crops, the highest among the major states. By comparison, the proportion of agricultural land under nonfood crops in India as a whole

is only 28 percent. Coconut palms and other cash crops such as tea, coffee, and rubber are among the most important products of the state.

Kerala is an industrially backward state with only a few industries that manufacture cement, fertilizer, aluminium and automobiles. The average annual per capita net domestic product of the state increased from Rs. 1,508 in 1980-81 to Rs. 2,363 in 1996-97 at constant 1980-81 prices or Rs. 9,066 at current prices (EPW Research Foundation, 1998). As per the estimates given by the planning commission for 1993-94, 25 percent of the population were below the poverty line, lower than for the country as a whole (36 percent) (Central Statistical Organization; 1999).

Kerala had a population of 31.8 million at the time of the 2001 census. The total population of the state was 21 million in 1971, 25 million 1981 and 29 million in 1991. The decadal growthrate decreased from 26 percent in 1961-71 to 19 percetn in 1971-81, and to 14 percent in 1981-91. The 1991-2001 intercensal increase in population (9.4 percent) was much lower than that for the country as a whole (21.3 percent). Population density per km² in Kerala increased from 549 in 1971 to 655 in 1981 and 749 in 1991. In 1991, the population density in Kerala was three times the density for the country as a whole (273). The increase in population density indicates an increasing pressure on land and other resources. Population density has increased further to 819 in 2001. The only other states with a population density greater than Kerala are Bihar and West Bengal (office of the Registrar General and Census Commissioner, 2001).

Kerala has been undergoing slow but steady urbanization. The percentage of the total population living in urban areas increased from 16 percent in 1971 to 19 percent in 1981 and 27 percent in 1991. According to the 1991 census, 10 percent of the population of Kerala belonged to the scheduled castes and 1 percent belonged to the scheduled tribes. By contrast, in India as a whole 17 percent of the

population belonged to the scheduled castes and 8 percent to the scheduled tribes in 1991.

According to the 2001 census, Kerala is the most literate state in India with a literacy rate of 91 percent for the population age 7 and above. By contrast, the corresponding literacy rate for India as a whole is only 65 percent. The literacy rates are 94 percent for males and 88 percent for females in the state, compared with 76 percent for males and 54 percent for females in India as a whole (office of the Registrar General and Census Commissioner, 2001).

Kerala has attracted worldwide attention in recent years as a major exporter of labour, especially to the oil-rich Gulf countries. According to the first National Family Health Survey (1992-93), 21 percent of the 4,387 households interviewed in Kerala had at least one migrant currently working outside the country (Population Research Centre, University of Kerala and International Institute for Popualtion Sciences, 1995). A recent survey shows that nearly 1.5 million Keralites now live outside India (Zachariah et al., 2001).

For 1999, the Sample Registration System estimated the infant mortality rate in Kerala at 14 per 1,000 live births, which is five times lower than the rate of 70 from the some source for India as a whole. For the period 1996-2001, life expectancy was projected to be 71 years for males and 75 yeas for females, a substantial increase from the estimates of 67 for males and 72 for females for the period 1986-1991 (Ministry of Health and Family Welfare, 1991). The sex ratio of the population (number of females per 1,000 males) has increased steadily from 1,016 in 1971 to 1,058 in 2001. The share of the population age 0-14 years in the total population has declined steadily over time from 40 percent in 1971 and 35 percent in 1981 to 30 percent in 1991.

The couple protection rate (defined as a percentage of eligible couples effectively protected against pregnancy by various methods of contraception) in Kerala increased steadily from 15 percent in 1971 to 55 percent in 1991, and then declined to 41 percent in 1998 (Ministry of Health and Family Welfare, 1999a). Between 1971 and 1997, fertility declined sharply in the state. According to estimates from Sample Registration System, the crude death rate has also declined from 9 per 1,000 population in 1971 to 7 per 1,000 population in 1981 and has hovered around 6 thereafter (Registrar General, 2000; 2001).

BIHAR: AN INTRODUCTION

Bihar is the third most populous state, next to Uttar Pradesh and Maharashtra, in India. It has a total land area of 94,163 square kilometers. According to the 2001 census, the state is divided into 37 districts distributed in two regions: North Bihar Plains, Comprising Saran, Siwan, Gopalganj, Paschim Champaran, Purba Champaran, Sitamarhi, Vaishali, Darbhanga, Madhubani, Samastipur, Muzaffarpur, Purnia, Araria, Kishanganj, Katihar, Saharsa and Madhepura districts; and South Bihar Plain, Comprising Patna, Nalanda, Gaya, Jehanabad, Aurangabad, Nawada, Bhojpur, Rohtas, Begusarai Munger, Khagaria, Bhagalpur, Supaul, Banka, Buxar, Jamui, Lakhisarai, Sheikhpura and Sheohar.

Although Bihar is predominantly an agricultural state, the state has been changing rapidly. The contribution of the agricultural sector to the state domestic product declined from 48 percent in 1980-81 to 31 percent in 1996-97. The contribution of the manufacturing sector to the state domestic product increased from around 11 percent in 1980-81 to 14 percent in 1996-97. The share of other sectors increased from 41 percent in 1980-81 to 55 percent in 1996-97 (EPW Research Foundation, 1998). At the time of the 1991 census, the agricultural sector provided livelihood to 81 percent of the working population in the state (office of

the Registrar General and Census Commissioner, 1992). Paddy, jawar, bazra, tur, maize, potato, onion, tobacco, jute and sugarcane are extensively cultivated. Kharif and rabi food grains constitute 64 and 36 percent of the total production of food grains in the state, respectively (Centre for Monitoring Indian Economy, 1991). After the division of state into Bihar and Jharkhand in 2000 the state is left with few industries which are notable in the industrial map of Bihar. It includes Railway Wagon Plants at Muzaffarpur and Mokamah, Oil Refinery at Barauni, Fertilizer Manufacturing Plant (HPCL) at Barauni and PPCL at Amjhor, Cotton Spinning Mills at Siwan, Pandaul, Bhagalpur, Mokamah and Gaya; 13 sugar mills in private sector and 15 in the public sector located in South and North Bihar with a total crushing capacity of 45,000 TPD. In addition, distilleries at Gopalganj, West Champaran, Bhagalpur and Riga (in Sitamarhi district); Finished Leather Industry in West Champaran, Muzaffarpur and Barauni; Jute Mills at Katihar and Samastipur; Medicine Manufacturing Unit at Hajipur; Food Processing Units as also Vanaspati manufacturing Units at Aurangabad and Patna; besides Kalyanpur Cement Limited at Banjari.

The average annual per capita income of the state increased marginally from Rs. 917 in 1980-81 to Rs. 1,010 in 199697 at constant (1980-81) prices. At current prices, the average annual per capita income in the state in 1996-97 is Rs. 3,835 (EPW Research Foundation, 1998). As per the estimates given by the planning commission for 1993-94, 58 percent of the rural population and 35 percent of the urban population in Bihar were below the poverty line (Central Statistical Organization, 1999).

Bihar had a population of 82.8 million at the time of the 2001 census. The total population of Bihar (including Jharkhand) was 56 million in 1971, 70 million in 1981 and 86 million in 1991. The decadal growth rate increased from 21 percent for the period 1961-71 to 24

percent for 1971-81 and from 24 percent during 1981-91 to 28.43 percent during 1991-2001. The 1991-2001 intercensal increase in population (28.43 percent) is much higher than that br the country as a whole (21.34 percent). The population density, which was 324 persons per km² in 1971, increased to 405 in 1981, and 685 in 1991 to 880 in 2001. The increase in population density by 195 persons per km² during 1991-2001 indicates an increasing pressure on land and other resources. The population density is much higher in Bihar than in India as a whole (880 compared with 324 per km²).

Bihar has been undergoing a slow process of urbanization. The percentage of population in Bihar that is urban increased from 10 percent in 1971 to 13 percent in 1981. The percentage living in urban areas remained at 13 percent in 1991. The level of urbanization in Bihar (13 percent) is much lower than for India as a whole (26 percent). The sex ratio (number of females per 1,000 males) in the state declined from 954 in 1971 to 946 in 1981 and 911 in 1991 to 921 in 2001. The sex ratio in Bihar is lower than in India as a whole (921 comparedwith 933). The percentage of population age 0-14 years declined from 43 percent to 41 percent between 1971 and 1991. The percentage of population age 65 and above increased marginally during this period.

According to the 1991 census, the proportions of the total population designated as scheduled castes and scheduled tribes are lower in Bihar than in all of India. The scheduled-caste population increased marginally from 14 percent of the total population in 1971 to 15 percent in 1991.

Bihar is one of the educationally most backward states in India. According to the 2001 census, the literacy rate among the population age seven and above was 47.53 percent, compared with 65.38 percent for India as a whole. The literacy rates were 60.32 percent for males and 33.57 percent for females in Bihar, compared with 75.85 percent and

54.16 percent for males and females, respectively, for India. The gap in literacy rates between males and females in Bihar is higher than the gap in India as a whole.

According to the Sample Registration System (SRS), fertility in Bihar declined considerably during 1981-91, but it has been stagnating since. The crude birth rate decline from 39.1 per 1,000 population in 1981 to 30.7 in 1991, but has increased slightly to 31.7 in 1997. The total fertility rate also declined substantially, from 5.7 children per woman in 1981 to 4.4 children per woman in 1991 – dropping by 1.3 children per woman during the 1981-91 decade, but has remained around that level since (4.4 children per woman in 1997). Mortality decline in Bihar also exhibits a similar pattern, i.e., a decline during the 1980s and stagnation during the 1990s. The crude death rate declined from 13.9 per 1,000 population in 1981 to 9.8 in 1991. The infant mortality rate declined from 118 per 1,000 live births in 1981 to 69 in 1991 a decline of 49 percent. The crude death rate and infant mortality rate in 1997 were 10.0 and 71, respectively, indicating no improvement since 1991.

The infant mortality rate estimated by the Sample Registration System for Bihar in 1997 was the same as that for India as a whole (i.e., 71 per 1,000 live births). For 1996-2001, life expectancy was projected to be 65.6 years for males and 62.1 years for females, a substantial increase from the estimates of 55.2 years for males and 53.0 years for females in 1981-86. The couple protection rate (defined as the percentage of eligible couples effectively protected against pregnancy by various methods of contraception) in Bihar was 21 percent in 1997, compared with 6 percent in 1971. The couple protection rate in Bihar in 1997 was much lower than the 45 percent estimate for all India.

Aforesaid sketching of socio-economic and demographic feature of Kerala and Bihar marks a characteristic role of fertility as a demographic component. In order to obtain detailed information of fertility differentids and trends certain fertility indicators are taken which are as follows:

1. AGE AT FIRST COHABITATION

KERALA

The number of children that a woman will have in her lifetime is strongly influenced by the age at which marriage is consummated. NFHS-2 (1998-99) measured age at first cohabitation as a proxy for age at consummation of marriage. Although in some states in India formal marriage is not always immediately followed by cohabitation, in Kerala, there are only negligible differences in the age at first marriage and age at first cohabitation with husband for all age groups. Thus age at marriage, cohabitation, and consummation of marriage are all likely to coincide for the vast majority of women in Kerala. The median age at first cohabitation with husband in Kerala can be shown by age and background characteristics in the following table:

Table 2.1

Age at first cohabitation with husband

Median age at first cohabitation with husband among women age 25-49 years by current age and selected background characteristics, Kerala, 1999.					
Background Characteristic	Current Age				
	25-29	30-34	35-39	40-49	25-49
Residence					
Urban	22.8	21.7	22.1	20.7	21.7
Rural	20.6	20.1	19.2	19.6	19.9
Education					
Illiterate	(17.6)	18.6	18.2	18.0	18.1
Literate, <middle school complete	18.6	18.9	18.6	18.8	18.8
Middle school complete	20.4	19.4	20.1	20.6	20.2
High school complete and above	22.4	22.5	22.7	23.2	22.7
Religion					
Hindu	22.2	21.4	20.8	20.4	21.2
Muslim	18.2	17.6	17.5	17.4	17.7
Christian	23.3	22.6	22.5	22.3	22.6

Background Characteristic	Current Age				
	25-29	30-34	35-39	40-49	25-49
Caste / tribe					
Scheduled caste	21.4	20.6	18.4	19.3	19.6
Other backward class	20.5	20.3	20.1	19.5	20.0
Other[1]	21.6	20.6	20.0	20.6	20.7
Standard of living index					
Low	20.1	19.9	19.0	19.6	19.6
Medium	20.9	20.2	19.6	19.6	20.1
High	21.8	21.5	21.5	20.8	21.3
Total	20.9	20.4	19.8	19.9	20.3

Note; Total includes women belonging to other religions and scheduled-tribe women, who are not shown separately

() Based on 25-49 unweighted cases

[1]Not belonging to a scheduled caste, a scheduled tribe, or an other backward class

Source: National Family Health Survey, Kerala, 1998-99.

The median age at first cohabitation for a group of women is defined in the table as the age by which half of the entire group began to cohabit, rather than the age by which half of all-ever-cohabiting women in the group began to cohabit.

In Kerala, the median age at first cohabitation with the husband is 20.3 years for women age 25.49. The median age is higher by about one year for women age 25-29 (21 years) than for older women (20 years).

For women age 25-49, the median age at first cohabitation is two years higher is urban areas than in rural areas. The median age at first cohabitation has risen slightly faster in urban areas than in rural areas, so the urban-rural gap has widened over time. The median age at first cohabitation rises sharply with women's level of education from 18 years among illiterate women to 23 years among women who have completed at least high school. The median age is higher for Christian women (23 years) than for Muslim (18 years) or Hindu (21 years) women. It is lower by about one year for women from the scheduled castes and other backward classes than for women who do not bdong to the scheduled castes, scheduled tribes, or other backward classes. The median age at first cohabitation is also higher among women from households with a

high standard by living, compared with women from households with a low or medium standard of living.

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In many parts of India, however, formal marriage is not always immediately followed by cohabitation. Rather, the husband and wife only begin to cohabit after the 'gauna' ceremony. Even in states where 'gauna' is not practical a marriage may not be consummated immediately if it occurs at a very young age. In such instances, there is a difference between age at marriage and age at consummation of marriage. Age at consummation of marriage is, of course, what is relevant for fertility. In Bihar, according to NFHS-2 (1998-99) the median age at first cohabitation with husband among women age 20-49 years by current age and selected background characteristics can be tabulated as follows:

Table 2.2

Age at first cohabitation with husband

Median age at first cohabitation with husband among women age 20-49 years by current age and selected background characteristics, Bihar , 1998-99							
Background characteristic	Current age						
	20-24	25-29	30-34	35-39	40-49	20-49	25-49
Residence							
Urban	19.5	18.3	17.5	17.6	17.2	18.0	17.6
Rural	17.0	16.6	16.5	16.4	16.4	16.6	16.5
Region							
North Bihar Plain	17.0	16.4	16.3	16.4	16.2	16.4	16.3
South Bihar plain	17.7	17.3	17.2	17.1	17.1	17.3	17.2
Jharkhand	16.9	16.7	16.6	16.3	16.4	16.6	16.5
Education							
Illiterate	16.5	16.3	16.3	16.4	16.2	16.3	16.3
Literate<middle school complete	18.3	17.0	17.5	16.6	17.0	17.3	17.0
Middle school complete	19.0	18.3	(17.1)	(16.8)	(17.3)	18.1	17.4
High school complete and above	NC	19.5	19.0	19.1	18.5	19.5	19.2

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Background characteristic	Current age						
	20-24	25-29	30-34	35-39	40-49	20-49	25-49
Religion							
Hindu	17.3	16.7	16.6	16.5	16.5	16.7	16.6
Muslim	16.7	16.4	16.4	16.7	16.1	16.5	16.4
Christian	*	*	*	*	*	19.0	18.9
Other	NC	*	*	*	*	17.3	(16.7)
Caste / tribe							
Scheduled caste	16.7	16.1	16.3	16.1	16.1	16.3	16.1
Scheduled tribe	16.8	17.0	16.5	16.7	16.8	16.8	16.8
Other backward class	17.0	16.7	16.4	16.4	16.3	16.6	16.5
Other	19.0	17.3	17.7	17.2	17.1	17.7	17.3
Standard of living index							
Low	16.4	16.2	16.3	16.3	16.2	16.3	16.2
Medium	17.9	17.1	16.7	16.6	16.5	16.9	16.7
High	NC	19.1	18.3	18.0	17.5	18.5	18.2
Total	17.2	16.7	16.6	16.5	16.5	16.7	16.6

NC: Not calculated because less than 50 percent of the women have started living with husband by age 20
() Based on 25-49 unweighted cases
* Median not shown; based on fewer than 25 unweighted cases
Source: National Family Health Survey, Bihar, 1998-99.

Table 2.1 shows that, in Bihar, the median age at first cohabitation with husband is 16.7 years for women age 20-49. The lowest median age at first cohabitation is 16.5 years for women age 35-49, and the highest is 17.2 years for women age 20-24, suggesting a modest increase of 0.7 years in the median age at first cohabitation over a period of approximately 20 years. The value of 17.2 for the younger age group is still low, however, suggesting that whatever decline in fertility that has occurred in Bihar has resulted mainly from family limitation within marriage rather than from an increase in age at first cohabitation.

This table also shows that the median age at first cohabitation is 1.4 years higher for urban women than for rural women. Over time, the median age at first cohabitation has risen in both urban and rural areas, but the rise has been greater in urban areas. Differentials by education in the median age at first cohabitation are even larger than differentials

by residence. For example, for women age 20-49, the median age at first cohabitation ranges from 16.3 for illiterate women to 19.5 for women who have at least completed highest school. Within education categories, the median age has increased over time among literate women, but not among illiterate women. By religion, the median age at first cohabitation for women age at 20-49 ranges from 16.5 for Muslims to 19.0 for Christians. By caste/tribe, it ranges from 16.3 for scheduled-caste women to 17.7 for women in the 'other' category. The median age increases steadily with the standard of living, from 16.3 for women living in households with a low standard of living to 18.5 for women living in households with a high standard of living.

2. TOTAL FERTILITY RATE

KERALA

According to NFHS-2 (1998-99) the total fertility rate in Kerala varies by selected background characteristics which can be tabulated as follows:

Table 2.3

Total Fertility Rate by Background Characteristics

Total fertility rate for the three years preceding the survey (1996-98), by selected background characteristics, Kerala, 1999	
Background characteristic	Total fertility rate[1]
Residence	
Urban	1.51
Rural	2.07
Education	
Illiterate	2.22
Literate,< middle school complete	2.02
Middle school complete	2.14
High school complete and above	2.02

Cont...

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Background characteristic	Total fertility rate[1]
Religion	
Hindu	1.64
Muslim	2.46
Christian	1.88
Caste/tribe	
Scheduled caste	1.52
Scheduled tribe	*
Other backward class	1.90
Other	1.85
Standard of living index	
Low	1.78
Medium	1.98
High	1.98
Total	**1.96**

Note: Total includes women belonging to other religions, who are not shown separately.
* Not shown: based on fewer than 125 women-years of exposure for the total fertility rate and 25 unweighted cases for the mean number of children ever born.
[1] Rate or women age 15-49 years

Source: *National Family Health Survey, Kerala, 1998-99.*

Table 2.3 indicates that in Kerala, where fertility has reached replacement level, differentials in fertility as measured by the TFR are relatively small. The largest differentials are by religion and urban-rural residence. Specifically, a differential of over half a child persists between urban and rural areas and the TFR for Muslims is almost one child higher than the TFR for Hindus and more than half a child higher than the TFR for Christians. By caste/tribe, the TFR for other backward class (1.90) and others (1.85) is higher than the TFR for scheduled caste (1.52). Also the TFR is higher among the people who belongs to medium and high standard of living than the people belongs to low standard of living.

BIHAR

Total fertility rate in Bihar according to NFHS-2 (1998-99) also vary by selected background characteristics which can be presented in the form of table in the following manner:

Table 2.4

Total Fertility Rate by Background Characteristics

Total fertility rate for the three years preceding the survey (1996-98), by selected background characteristics, Bihar, 1998-99	
Background characteristic	**Total fertility rate[1]**
Residence	
Urban	2.75
Rural	3.59
Region	
North Bihar Plain	3.82
South Bihar Plain	3.63
Jharkhand	2.76
Education	
Illiterate	3.78
Literate,< middle school complete	2.93
Middle school complete	2.69
High school complete and above	2.50
Religion	
Hindu	3.36
Muslim	4.44
Christian	(1.90)
Other	(2.41)
Caste/tribe	
Scheduled caste	3.91
Scheduled tribe	2.45
Other backward class	3.64
Other	3.13
Standard of living index	
Low	3.89
Medium	3.24
High	2.47
Total	**3.49**
() Rate is based on 125-249 woman-years of exposure [1] Rate for women age 15-49 years	

Source: National Family Health Survey, Bihar, 1998-99.

Table 2.4 shows that the TFR varies considerably by residence, being 0.84 children higher in rural areas than in urban areas. It varies substantially by education, being 1.28 children higher among illiterate women than among women who have at least completed high school. The TFR also varies substantially by religion, being 1.08 children higher among Muslims than among Hindus. By caste/tribe, the TFR is 0.78 children higher among scheduled caste women and 0.51 children higher among other backward class women than among women in the 'other' category. The TFR is lowest, at 2.45, among scheduled tribe women, 0.68 children lower than among women in the 'other' caste/tribe/class category. The characteristic showing the greatest variation in household standard of living. The TFR is 1.42 children higher among women living in household with a low standard of living than among women living in households with a high standard of living. These results indicate that fertility differentials by background characteristics remain qute substantial in Bihar.

3. BIRTH ORDER

KERALA

The distribution of births by birth order is yet another way to view fertility. The distribution of births by birth order for selected background characteristics based on data available by NFHS-2 (1998-99) during the three year period (1996-98) preceding the survey can be tabulated in the following manner:

Table 2.5

Birth Order

Percent distribution of births during the three years preceding the survey by birth order, according to selected background characteristics, Kerala, 1999

Background characteristic	Birth order				Total percent	Number of births
	1	2	3	4+		
Mother's current age						
20-29	44.1	39.3	13.5	3.1	100.0	543
30-39	16.6	45.2	20.3	17.9	100.0	136
Residence						
Urban	44.8	45.7	7.1	2.3	100.0	134
Rural	38.9	37.4	15.9	7.7	100.0	575
Mother's education						
Illiterate	(18.7)	(33.1)	(7.6)	(40.6)	100.0	9
Literate, < middle school complete	25.3	41.0	18.7	15.0	100.0	153
Middle school complete	37.1	32.7	24.2	6.0	100.0	145
High school complete and above	48.7	41.0	9.2	1.1	100.0	381
Religion						
Hindu	46.3	44.3	8.4	1.1	100.0	315
Muslim	31.3	32.1	22.0	14.6	100.0	287
Christian	45.2	41.9	10.8	2.1	100.0	106
Caste/tribe						
Scheduled caste	34.2	47.3	12.7	5.8	100.0	57
Other backward class	36.4	39.4	17.0	7.2	100.0	306
Other[1]	43.6	37.4	12.4	6.6	100.0	339
Mother's work status						
Employed by someone else	38.3	50.0	10.0	1.8	100.0	62
Not worked in past 12 months	40.1	37.7	14.8	7.4	100.0	615
Standard of living index						
Low	33.8	38.7	15.1	12.3	100.0	105
Medium	37.8	40.6	14.4	7.2	100.0	399
High	47.6	35.9	13.6	2.9	100.0	204
Total	**40.0**	**39.0**	**14.3**	**6.7**	**100.0**	**709**

Note: Total includes 22 and 8 births to mothers currently age 15-19 and age 40-49, respectively, 7 births to mothers belonging to the scheduled tribes, 11 births to mothers working in a family farm/ business. And 21 births to self-employed mothers, which are not shown separately
() Based on 25-49 unweighted cases
[1] Not belonging to a scheduled caste, a scheduled tribe, or an other backward class
Source: National Family Health Survey, Kerala, 1998-99.

This table shows that forty percent of all births are first-order births, 39 percent are second order births, and 14 percent are third-order births. The low proportion of births of order four or higher, at 7 percent, compared with the national average of 28 percent, is another indication of the low level of fertility in Kerala.

Forty-four percent births to women age 20-29 are first-order births and another 39 percent are second-order births. Less than one in five births to women in this age group are third or higher order births. Even among women age 30-39 the majority of births (62 percent) are first order or second-order births. The proportion of births that are of order three or higher are more than twice as high in rural area (24 percent) as in urban areas (9 percent). Nonetheless, even in rural areas, less than one in four births is of order three or higher. While the likelihood of first order births increases sharply with education, the likelihood of birth of order four or higher declines sharply with education. Muslim women and women in households with a low standard of living are more likely than other women to have a birth that is of order three or higher. Notably, more than one-third of the births to Muslim women are of order three or higher, compared with about one-tenth of the births to Christian or Hindu women.

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According to NFHS 2 (1998-99) the distribution of births in Bihar during the three-year (1996-98) period before the survey by birth order for selected background characteristics can also be shown in the form of table as follows:

Table 2.6

Birth order

Percent distribution of births during the three years preceding the survey by birth order, according to selected background characteristics, Bihar, 1998-99

Background characteristic	Birth order					
	1	2	3	4+	Total percent	Number of births
Mother's current age						
15-19	75.6	21.9	2.4	0.0	100.0	371
20-29	20.6	28.8	23.6	27.0	100.0	1,924
30-39	1.2	3.2	8.0	87.6	100.0	593
40-49	0.0	0.0	4.6	95.4	100.0	66
Residence						
Urban	32.8	20.2	18.4	28.6	100.0	259
Rural	22.2	22.3	17.3	38.1	100.0	2,695
Region						
North Bihar Plain	23.0	22.0	15.8	39.2	100.0	1,380
South Bihar Plain	22.8	22.3	17.6	37.3	100.0	983
Jharkhand	24.1	22.1	20.8	32.9	100.0	591
Mother's education						
Illiterate	20.3	19.6	17.1	43.0	100.0	2,267
Literate, < middle school complete	28.2	27.0	18.8	26.0	100.0	282
Middle school complete	33.0	28.9	19.3	18.8	100.0	127
High school complete and above	36.7	34.9	17.9	10.5	100.0	277
Religion						
Hindu	24.2	22.5	18.2	35.1	100.0	2,384
Muslim	18.5	21.1	13.0	47.4	100.0	533
Caste/tribe						
Scheduled caste	22.0	21.2	16.5	40.3	100.0	672
Scheduled tribe	22.4	16.6	21.0	40.0	100.0	197
Other backward class	22.9	22.1	18.3	36.8	100.0	1,550
Other	25.7	25.6	14.7	34.0	100.0	534
Mother's work status						
Working in family farm/ business	11.5	17.1	17.1	54.3	100.0	231
Employed by someone else	15.1	14.7	19.2	51.0	100.0	291
Self- employed	11.4	20.3	12.6	55.7	100.0	135
Not worked in past 12 months	26.1	23.7	17.5	32.8	100.0	2,296
Standard of living index						
Low	19.9	19.4	17.0	43.8	100.0	1,680
Medium	26.0	23.7	19.1	31.3	100.0	1,030
High	33.9	34.7	13.8	17.7	100.0	237
Total	**23.2**	**22.1**	**17.4**	**37.3**	**100.0**	**2,954**

Note: Total includes 17 and 20 births to mothers belonging to Christian and other religions, respectively, and 6 births with missing information on the standard of living index, who are not shown separately.

Source: National Family Health Survey, Bihar, 1998-99.

In this table twenty-three percent of all births are first-order births, 22 percent are second order births, 17 percent are third-order births, and 37 percent are of order four or hither.

Table 2.6 shown that the highest proportion of births to mother age 15-19 are of order one, by contrast, the highest proportion births to mothers age 30-49 are of order four or higher. The proportion of births that are of order four or higher is 29 percent in urban areas and 38 percent in rural areas. The proportion of births of order four or higher is relatively large for births to illiterate women, Muslim women, and scheduled-caste and scheduled-tribe women. By work status, 51-56 percent of births to women who work are of order four or higher compared with 33 percent among women who did not work in the past 12 months. This suggests a positive association between fertility and work status that requires further investigation. Among women with a low standard of living, the proportion of births of order four or higher is 44 percent, compared with 18 percent among women with a high standard of living.

4. BIRTH INTERVAL

KERALA

A birth interval, ⟨   ⟩ccessive
live births, indicates tl   ·vals may
adversely affect a moth   ·survival.
Past research has sho\   ous birth
are at increased risk of   he births
is less than 24 months   1993).

The birth inter   hic and
socioeconomic charact(n of table
as follows based on the   uring the
five years (1994-98) pre

Table 2.7

Birth internal

Percent distribution of births during the five years preceding the survey by interval since previous birth and median number of months since previous birth, according to selected background characteristics, Kerala, 1999

Background characteristic	Months since previous birth						Total Percent	Median Months since previous birth	Number of births
	<12	12-17	18-23	24-35	36-47	48+			
Mother's current age									
20-29	1.8	9.7	14.3	29.8	19.7	24.8	100.0	33.3	432
30-39	0.3	6.6	7.8	15.9	15.8	53.6	100.0	NC	251
Residence									
Urban	2.3	5.2	8.7	27.3	19.8	36.7	100.0	39.3	135
Rural	1.0	9.2	12.4	23.7	17.7	36.0	100.0	37.7	559
Mother's education									
Illiterate	(0.0)	(10.5)	(12.1)	(10.4)	(14.8)	(52.3)	100.0	(48.4)	42
Literate, <middle school complete	2.2	10.1	10.9	25.5	20.4	30.9	100.0	36.3	199
Middle school complete	1.5	8.4	13.3	30.7	11.7	34.4	100.0	34.1	145
High school complete and above	0.6	7.0	11.4	22.7	20.1	38.2	100.0	41.0	308
Religion									
Hindu	1.1	8.0	11.0	27.0	19.3	33.6	100.0	37.4	281
Muslim	1.2	8.8	11.0	23.7	16.6	38.7	100.0	38.7	308
Christian	1.7	8.2	15.5	19.8	19.2	35.5	100.0	38.9	106
Caste / tribe									
Scheduled caste	0.0	10.1	16.5	30.3	17.6	25.6	100.0	30.3	63
Other backward class	1.2	8.8	8.4	25.8	20.5	35.3	100.0	38.3	306
Other[1]	1.5	7.8	13.5	22.1	15.6	39.6	100.0	39.3	319
Standard of living index									
Low	0.0	10.7	15.7	29.2	13.4	31.0	100.0	33.1	122
Medium	1.5	9.6	12.2	24.2	18.7	33.7	100.0	36.8	395
High	1.5	4.0	7.7	21.6	2.0	45.3	100.0	44.1	176

Cont...

Background characteristic	Months since previous birth						Total Percent	Median Months since previous birth	Number of births
	<12	12-17	18-23	24-35	36-47	48+			
Order of previous birth									
1	1.5	7.2	11.5	25.4	19.7	34.7	100.0	37.5	445
2	0.0	11.7	11.1	24.6	11.6	41.1	100.0	38.7	161
3	(3.6)	(8.7)	(15.7)	(14.2)	(27.9)	(30.0)	100.0	(38.8)	51
4+	(0.0)	(8.6)	(11.3)	(25.7)	(13.9)	(40.5)	100.0	(44.3)	38
Sex of previous birth									
Male	1.5	8.6	12.9	26.3	14.1	36.5	100.0	36.3	358
Female	0.9	8.2	10.5	22.4	22.3	35.8	100.0	39.4	306
Survival of previous birth									
Living	1.0	8.5	11.9	24.6	18.0	36.1	100.0	38.0	668
Dead	(7.1)	(6.8)	(7.0)	(20.7)	(20.1)	(38.2)	100.0	(40.1)	26
Total	**1.2**	**8.4**	**11.7**	**24.4**	**18.1**	**36.2**	**100.0**	**38.1**	**694**

Note: Table includes only second-and higher-order births. The interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth. Total includes 12 births to mothers currently age 40-49 and 6 births to mothers belonging to the scheduled tribes, which are not shown separately.

NC. Not calculated because less than 50 percent of mothers have had their first birth by age 30

() Based on 25-49 unweighted cases

[1] Not belonging to a scheduled caste, a scheduled tirbe. Or an other backward class.

Source: National Family Health Survey, Kerala, 1998-99.

Table 2.7 shows that in Kerala, 10 percent of births occur within 18 months of a previous birth and 21 percent occur within 24 months. Fifty four percent of births occur after an interval of three years or more. The median birth interval in Kerala is 38 months, longer than for any other state in the country. The median birth interval is 33 months for women age 20-29 and tends to increase with birth order.

The median birth interval is about three months longer if the previous birth was a girl than if it was a boy, contrary to the experience in many other states in India. In states with strong son preference it is often the case that the interval after the birth of a girl is shorter than after the birth of a boy. The median birth interval increases with

household standard of living from 33 months for births to women in households with a low standard of living to 44 months for births to women in households with a high standard of living. Birth intervals for scheduled-caste women are 8-9 months shorter than birth intervals for women from other backward classes and women who do not belong to the scheduled castes, the scheduled tribes and other backward classes. Differentials by rural-urban residence and religion in the median birth interval are small, and differentials by education tend to be inconsistent.

BIHAR

In Bihar, the percent distribution of births during the five years (1994-98) preceding the survey by birth interval according to selected demographic and socioeconomic background characteristics, based on data taken from NFHS 2 (1998-99) can also be presented as follows:

Table 2.8

Birth Interval

Percent distribution of births during the five years preceding the survey by interval since previous birth and median number of months since previous birth, according to selected background characteristics, Bihar, 1998-99									
Background characteristic	Months since previous birth					Total Percent	Median Months since previous birth	Number of births
	<12	12-17	18-23	24-35	36-47	48+			
Mother's current age									
15-19	6.3	19.9	13.8	35.4	19.6	5.0	100.0	26.0	97
20-29	2.5	8.9	15.8	36.3	20.7	15.9	100.0	31.3	2,492
30-39	2.1	5.6	12.9	31.3	22.6	25.4	100.0	35.1	1,184
40-49	1.7	9.4	9.9	26.8	18.9	33.2	100.0	36.5	169
Residence									
Urban	2.7	10.6	17.6	31.7	17.5	20.0	100.0	33.0	317
Rural	2.4	8.0	14.3	34.6	21.5	19.2	100.0	32.5	3,625
Region									
North Bihar Plain	2.2	6.8	13.1	36.9	21.8	19.1	100.0	33.0	1,775
South Bihar Plain	2.9	10.0	16.4	33.0	19.5	18.2	100.0	30.8	1,349
Jharkhand	2.2	8.1	14.9	31.3	22.4	21.1	100.0	33.2	818

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Background characteristic	Months since previous birth						Total Percent	Median Months since previous birth	Number of births
	<12	12-17	18-23	24-35	36-47	48+			
Mother's education									
Illiterate	2.3	7.9	13.8	34.1	21.8	20.1	100.0	33.0	3,191
Literate, <middle school complete	3.2	8.4	17.0	36.5	18.8	16.2	100.0	30.3	356
Middle school complete	3.2	9.6	16.5	30.8	22.4	17.6	100.0	31.2	127
High school complete and above	1.8	11.3	20.1	37.2	15.7	13.9	100.0	29.1	268
Religion									
Hindu	2.3	7.8	14.4	34.6	21.3	19.7	100.0	32.4	3,125
Muslim	2.9	9.8	15.6	33.7	20.4	17.6	100.0	32.0	765
Other	(3.9)	(15.6)	(11.6)	(37.9)	(19.5)	(11.5)	100.0	(27.9)	28
Caste / tribe									
Scheduled caste	2.1	8.8	12.0	37.1	21.4	18.5	100.0	32.5	893
Scheduled Tribe	2.5	8.9	13.4	32.8	20.7	21.6	100.0	32.7	296
Other Backward Class	2.5	7.6	15.2	33.9	21.9	18.9	100.0	32.5	2,082
Other	2.4	9.1	16.6	33.0	18.8	20.1	100.0	31.6	671
Standard of living index									
Low	2.2	7.6	13.1	34.9	22.1	20.1	100.0	33.1	2,385
Medium	2.6	8.6	16.5	33.9	20.2	18.1	100.0	32.0	1,293
High	3.1	11.6	18.9	32.7	16.8	16.9	100.0	28.1	261
Order of previous birth									
1	2.4	9.6	15.0	33.1	20.5	19.4	100.0	32.1	1,086
2	2.1	7.5	14.3	37.6	21.7	16.9	100.0	32.3	907
3	2.4	8.3	16.2	32.8	20.0	20.3	100.0	31.8	695
4+	2.7	7.5	13.5	34.1	21.9	20.3	100.0	33.0	1,254
Sex of previous birth									
Male	2.1	8.0	15.0	34.8	21.0	19.1	100.0	32.2	1,937
Female	2.7	8.4	14.2	34.0	21.3	19.4	100.0	32.5	2,005
Survival of previous birth									
Living	1.9	6.8	14.6	34.3	22.0	20.4	100.0	33.2	3,465
Dead	6.0	18.2	14.8	34.8	15.3	10.8	100.0	26.5	477
Total	**2.4**	**8.2**	**14.6**	**34.4**	**21.2**	**19.2**	**100.0**	**32.3**	**3,942**

Note: Table includes only second-and higher-order births. The interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth. Total includes 24 births to mothers belongs to the Christian religion and 3 births with missing information on the standard of living index, who are not shown separately.

() Based on 25-49 unweighted cases

Source: National Family Health Survey, Bihar, 1998-99.

Table 2.8 shows that in Bihar, 11 percent of births occur within 18 months of a previous birth and 25 percent occur within 24 months. Forty percent of births occur after an interval of three years or more.

The median birth interval in Bihar is 32 months. The median birth interval for women age 15-19 is 26 months, which is substantially lower than the median interval of 37 months for women age 40-49. The relatively short birth interval for women age 15-19 at the time of survey may result partly from a selection effect. Only women who have had two or more births are included in the table, and women age 15-19 with more than one birth are likely to be more fecund than average. Given the finding that the median birth interval increases with mother's age, it is surprising that it does not also increase substantially with the order of the previous birth. Perhaps this is due to the absence of the selection effect just noted in the case of age. There may also be another type of selection effect operating. Mothers of higher order births may be more fecund on average, than mothers of lower-order births.

The median birth interval varies little by sex of previous child. Birth internals are much shorter if the previous child died (27 months) than if the previous child survived (33 months). In part of effects the shortening of post partum amenoirhoea that occurs when the preceding child dies in infancy and breastfeeding stops prematurely. Women are also less likely to use temporary methods of contraception to postpone fertility if the previous child died and they want to replace the dead child. Temporary methods of contraception are used by very few women in Bihar, however, so that the main effect is probably through prematurely terminated breastfeeding.

Birth intervals are three months shorter among urban women than among rural women, perhaps because breastfeeding is shorter among urban women. There is also a tendency for birth intervals to decrease with education. Mothers with atleast a high school education have a

median birth interval that is four months shorter than the interval for illiterate mothers. It is significant to note that a greater proportion of births occur within 24 months among mothers with at least high school education (33 percent) than among illiterate mothers (24 percent). A probable explanation for this may lie in the tendency of early discontinuation of breast-feeding among educated women. Similarly, mothers living in households with a high standard of living have a median birth interval that is five months shorter than the interval for mothers who live in households with a low standard of living. Differences in birth intervals by religion and caste/tribe of household head tend to be small.

5. AGE AT FIRST AND LAST BIRTH

KERALA

The ages at which women start and stop child bearing are important demographic determinants of fertility. A higher median age at first birth and a lower median age at last birth are indicators of lower fertility. The median age at first birth for various age groups by selected background characteristics and the median age at last birth among various groups in Kerala, can be tabulated as follows:

Table 2.9

Median age at first birth

Median age at first birth among women age 25-49 years by current age and selected background characterstics Kerala, 1999						
Background characteristic	Current age					
	25-29	30-34	35-39	40-44	45-49	25-49
Residence						
Urban	24.6	23.5	23.3	22.8	21.4	23.3
Rural	21.8	21.8	20.8	21.3	21.3	21.4
Education						
Illetrate	(18.3)	(19.8)	19.5	20.0	20.0	19.7

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Background characteristic	Current age					
	25-29	30-34	35-39	40-44	45-49	25-49
Literate <middle school complete	19.9	20.5	20.3	20.5	20.3	20.3
Middle Scholl complete	21.5	21.6	21.6	21.8	(21.7)	21.7
High School Compete and above	23.9	24.0	24.4	24.8	25.4	24.2
Religion						
Hindu	23.7	23.0	22.5	22.1	22.1	22.8
Muslim	19.7	19.5	19.2	19.3	19.1	19.4
Christian	24.5	24.4	24.1	23.4	23.8	24.0
Caste/ tribe						
Scheduled caste	(22.8)	(22.9)	19.6	(20.7)	(19.8)	21.3
Other backward class	21.8	22.1	21.6	21.2	20.7	21.5
Other[1]	23.1	22.4	21.9	22.3	22.1	22.4
Standard of living Index						
Low	20.8	21.1	20.7	21.4	(22.6)	21.1
Medium	22.4	22.0	21.0	21.2	20.7	21.6
High	23.4	23.0	22.9	23.1	21.9	22.9
Total	**22.5**	**22.2**	**21.5**	**21.6**	**21.3**	**21.9**

Note: Total includes women belonging to other religions and scheduled-tribe women, who are not shown separately

() Based on 25-49 unweighted cases

[1] Not belonging to a scheduled caste a scheduled tribe, or an other backward class

Source: National Family Health Survey, Kerala, 1998-99.

Table 2.10

Age at last birth

Percent distribution of ever-married women age 40-49 years by age at last birth and median age at last birth, according to current age, Kerala 1999

	Age at last birth							Total Percent	Median age at last birth	Number of women
Current age	No birth	<20	20-24	25-29	30-34	35-39	40-44			
40-44	2.9	1.9	24.2	42.6	21.2	6.6	0.7	100.0	27.7	445
45-49	4.4	2.8	19.8	35.0	28.6	8.7	0.7	100.0	28.9	381
40-49	3.6	2.3	22.1	39.1	24.6	7.6	0.7	100.0	28.1	826

Source: National Family Health Survey, Kerala, 1998-99.

In table 2.9, the median age at first birth for any group of women is defined as the age by which half of all women in the group have had a first birth, rather than the age by which half of all mothers in the group have had a first birth. If the median age at first birth calculated for an age group lies above the lower limit of that age group, it is not valid because some younger women in the age group who have not yet had a

first birth will not have reached the median age by the time of the survey. In such cases, the estimate of the median is not shown.

As shown in the last row of the table, the median age at first birth in Kerala has risen only by one year in a period of 20 years, from 21.3 years for women age 45-49 to 22.5 years for women age 25-29. The median age at first birth is relatively low (19-20 years) for Muslim women, illiterate women, and literate women who have not completed middle school. It is relatively high, at 24 years, for women who have completed at least high school and Christian women. Notably, the median age at first birth has risen much more rapidly in urban areas than in rural areas. Whereas, the median age at first birth was similar (21 years) for rural and urban women age 45-49, the median age at first birth for women age 25-29 in urban areas (25 years) is three years higher than the median age at first birth for this age group in rural areas (22 years).

For older women, the age at last childbirth is an indicator of the cessation of childbearing. Table 2.10 presents the distribution of ever-married women age 40-49 by age at last birth, as well as the median age at last birth. Although a few of these women may have another birth later on, the very low fertility rates for women in this age group suggest that childbearing is virtually complete by these ages. Sixty four percent of women in this age group had their last birth by age 30, 88 percent by age 35 and 96 percent by age 40. The median age at last birth is 28 years for women age 40-44 and 29 years for women age 45-49. The typical reproductive age span (which is the difference between the median age at last birth and the median age at first birth for women who have ever had a birth) is considerably shorter in Kerala (7 years) than in India as a whole (10 years), consistent with the low level of fertility in Kerala (International Institute for Population Sciences and ORC Macro, 2000: Table 4.15).

BIHAR

The median age at first birth for various age groups by selected background characteristics and the median age at last birth among various age groups in Bihar, can also be shown in the form of table based on data available from NFHS- 2 (1998-99).

Table 2.11

Median age at first birth

Median age at first birth among women age 20-49 years by current age and selected background characteristics Bihar 1998-99								
	Current Age							
Background characteristic	20-24	25-29	30-34	35-39	40-44	45-49	20-49	25-49
Residence								
Urban	NC	20.3	19.7	19.4	19.6	18.9	NC	19.7
Rural	19.4	18.8	18.9	18.9	18.8	18.8	19.0	18.9
Region								
North Bihar Plain	19.3	18.5	18.6	18.8	18.6	18.4	18.7	18.6
South Bihar Plain	19.9	19.4	19.6	19.5	19.3	19.8	19.6	19.5
Jharkhand	19.6	19.0	18.7	18.6	18.8	18.7	19.0	18.8
Education								
Illiterate	18.9	18.5	18.6	18.8	18.8	18.6	18.7	18.7
Literate < middle school complete	NC	19.6	19.6	18.8	18.6	19.6	19.3	19.1
Middle school complete	NC	19.7	(19.5)	*	*	*	20.0	19.7
High school complete and above	NC	21.5	21.1	21.9	(21.1)	*	NC	21.4
Religion								
Hindu	19.6	18.9	19.1	19.0	18.9	19.0	19.1	19.0
Muslim	19.1	18.6	18.7	18.8	18.9	17.7	18.7	18.6
Christian	*	*	*	*	*	*	NC	(20.5)
Other	NC	*	*	*	*	*	(19.8)	(19.1)
Caste / tribe								
Scheduled caste	19.1	18.5	18.6	18.5	18.5	18.2	18.6	18.5
Scheduled tribe	19.5	19.1	18.7	19.4	19.5	(18.7)	19.1	19.0
Other backward class	19.3	18.9	18.9	19.0	18.8	18.9	19.0	18.9
Other	NC	19.3	19.7	19.3	19.3	19.4	19.8	19.4
Standard of Living index								
Low	18.8	18.3	18.5	18.8	18.8	18.8	18.6	18.6
Medium	19.9	19.3	19.3	18.8	18.8	18.8	19.3	19.1
High	NC	21.1	20.3	20.5	19.5	18.8	NC	20.2
Total	19.6	18.9	19.0	19.0	18.9	18.8	19.1	18.9

NC: Not calculated because less than 50 per cent of women had their first birth by age 20
() Based on 25-49 unweighted cases
* Median not shown: based on fewer than 25 unweighted cases

Source: *National Family Health Survey, Bihar, 1998-99.*

Table 2.12

Age at last birth

Percent distribution of ever-married women age 40-49 years by age at last birth and median age at last birth, according to current age, Bihar 1998-99

Current age	Age at last birth								Total Percent	Median age at last birth	Number of women
	No birth	<20	20-24	25-29	30-34	35-39	40-44	45-49			
40-44	1.9	1.8	11.4	28.9	28.3	23.4	4.3	NA	100.0	31.3	759
45-49	1.9	2.6	8.4	26.2	27.8	21.8	10.9	0.5	100.0	31.6	593
40-49	1.9	2.2	10.1	27.7	28.1	22.7	7.2	0.2	100.0	31.4	1,353

NA. Not applicable

Source: *National Family Health Survey, Bihar, 1998-99.*

As shown in the last row of the table 2.11, the median age at first birth in the state as a whole has increased in recent years. This is shown by the fact that the median increases from 18.9 years for women age 25-29 to 19.6 years for women age 20-24.

Among all women age 25-49, the median age at first birth is 0.8 years higher in urban areas than in rural areas. Hindu, women have a slightly higher median age at first birth (19.0 years) than Muslim women (18.6 years). By caste/tribe, the 'other' category has a median of 19.4, which is 0.9 years higher than the median for scheduled caste women, 0.4 years higher than the median for scheduled tribe women, and 0.5 years higher than the median for women from other backward classes. Women living in households with a high standard of living have a median age at first birth of 20.2, which is 1.6 years higher than the median for women living in households with a low standard of living. The differentials by education are also substantial. The median age at first birth is 18.7 years among illiterate women compared with 21.4 years among women who have at least completed high school.

For older women, the age at last childbirth is an indicator of cessation of childbearing. Table 2.12 presents the distribution of ever married women in the age group 40-49 by age at last birth, as well as the

median age at last birth in Bihar. Although a few of these women may have another birth later on, the very low fertility rates for women in this age group suggest that childbearing is virtually complete by these ages. Seventy percent of women (including women who never gave birth) had their last birth by age 35 and 93 percent by age 40. The median age at last birth in Bihar for women age 40-49 is 31.4 years. It is 31.3 for women age 40-44 and 31.6 for women age 45-49. The difference between the median age at first birth and median age at last birth provides an estimate of the typical reproductive age span. Among women age 45-49, this estimated reproductive age span is the difference between 18.8 and 31.6, or 12.8 years.

6. SEX PREFERENCE FOR CHILDREN

KERALA

A strong preference for sons has been found to be pervasive in Indian society, affecting both attitudes and behaviour with respect to children. According to NFHS 2 (1998-99), women who gave a numerical response to the question on the ideal number of children were asked how many of these children they would like to be boys, how many they would like to be girls, and for how many the sex would not matter. The women's mean ideal number of sons and daughters, the percentages who want more children of a particular sex, the percentage who want at least one son, and the percentage who want at least one daughter, according to selected background characteristics can be presented as follows:

Table 2.13

Indicators of sex preference

Mean ideal number of sons, daughters, and children of either sex for ever-married women, percentage who want more sons than daughters, percentage who want more daughter than sons, percentage who want at least one son, and percentage who want at least one daughter by selected background characteristics, Kerala. 1999.

Background characteristic	Mean ideal number of			Percentage who want more sons than daughters	Percentage who want more daughters than sons	Percentage who want atleast one son	Percentage who want at least one daughter	Number of woman
	Sons	Daug hters	Eithe r Sex					
Residence								
Urban	0.9	0.8	0.6	14.2	4.8	74.6	71.3	596
Rural	1.0	0.8	0.8	14.8	5.3	72.0	70.5	1,936
Education								
Illiterate	1.0	0.9	1.0	18.5	6.3	69.4	67.4	284
Literate < Middle school complete	1.1	0.9	0.9	20.0	5.3	73.3	70.0	715
Middle school complete	1.1	0.9	0.5	15.9	5.8	79.7	78.8	452
High school complete and above	0.8	0.8	0.7	9.5	4.6	70.0	68.6	1,081
Religion								
Hindu	0.9	0.8	0.6	11.7	4.3	73.6	71.2	1,374
Muslim	1.2	1.0	1.1	20.9	7.1	70.1	69.0	742
Christian	0.9	0.8	0.6	13.2	4.6	73.8	72.1	415
Caste / tribe								
Scheduled caste	0.9	0.8	0.5	15.6	6.4	78.4	74.5	241
Scheduled tribe	(1.1)	(0.8)	(0.5)	(23.5)	(9.8)	(75.4(	(65.6(	31
Other backward class	1.0	0.9	.7	16.2	3.8	75.8	74.0	1,083
Other	0.9	0.8	0.8	12.8	6.0	68.4	67.0	1,177
Work Status								
Working in family farm/ business	0.8	0.8	0.7	14.2	8.8	66.7	66.6	58
Employed by someone else	0.9	0.8	0.6	15.9	7.3	71.1	70.5	439
Self employed	0.9	0.8	0.7	12.5	7.6	71.5	70.5	146
Not worked in past 12 months	1.0	0.9	0.8	14.5	4.4	73.2	70.8	1,889
Standard of living index								
Low	0.9	0.8	0.8	14.8	4.6	70.5	67.4	400
Medium	1.0	0.9	0.7	14.9	5.0	74.0	71.7	1,385
High	0.9	0.8	0.7	14.1	5.8	71.2	70.5	747

Cont...

Background characteristic	Mean ideal number of			Percentage who want more sons than daughters	Percentage who want more daughters than sons	Percentage who want atleast one son	Percentage who want at least one daughter	Number of woman
	Sons	Daug hters	Eithe r Sex					
Husband's education								
Literate	1.1	0.8	0.9	23.4	3.5	71.7	67.0	178
Literate < primary school complete	1.1	0.9	0.9	18.4	5.8	75.5	74.4	305
Primary school complete	1.0	0.9	0.8	17.2	6.3	72.2	69.9	576
Middle school complete	1.0	0.9	0.6	15.0	3.7	77.4	75.3	475
High school complete	0.9	0.8	0.6	10.9	4.7	72.0	69.9	609
Higher secondary complete and above	0.8	0.7	0.7	8.4	6.5	66.0	66.0	382
Total	**1.0**	**0.8**	**0.7**	**14.6**	**5.2**	**72.6**	**70.7**	**2,532**

Note: Table excludes women who gave non-numeric responses to the questions on ideal number of children or ideal number of sons and daughters, Total includes 2 women belonging to other religions and 6 women with missing information on husband's education, who are not shown separately.
() Based on 25-49 unweighted cases.

Source: National Family Health Survey, Kerala, 1998-99.

In the table 2.13, overall, the average ideal family size of 2.5 children consists of 1 son, 0.8 daughters, and 0.7 children of either sex. Fifteen percent of women want more sons than daughters, but only 5 percent want more daughters than sons. Although Kerala is generally believed to be an exception to the widespread son preference in India, these data suggest the existence of some amount of preference for sons in women's conception of an ideal family. Nonetheless, the majority of women want at least one son (73 percent), and a similar majority want at least one daughter (71 percent).

Taking all indicators together, son preference, however limited, is most evident among illiterate or less educated women, women whose husbands are illiterate or less education, and Muslim women. The finding of some amount of son preference is also supported by recent research that finds that in 2 out of 14 districts in Kerala, sex ratios at

birth and for the population age 0-1 and 0-6 years are higher than those compatible with no son preference (Rajan et al., 2000).

BIHAR

Similarly, in Bihar, according to NFHS 2 Bihar (1998-99), the mean ideal number of sons and daughters, the percentage who desire more sons than daughters, the percentage who desire at least one son, and the percentage who desire at least one daughter according to selected background characteristics can be shown in the form of table as follows:

Table 2.14

Indicators of sex preference

Mean ideal number of sons, daughters, and children of either sex for ever-married women, percentage who want more sons than daughters, percentage who want more daughter than sons, percentage who want at least one son, and percentage who want at least one daughter by selected background characteristics, Kerala. 1999.

Background characteristic	Mean ideal number of			Percentage who want more sons than daughters	Percentage who want more daughters than sons	Percentage who want atleast one son	Percentage who want at least one daughter	Number of woman
	Sons	Daughters	Either Sex					
Residence								
Urban	1.5	1.1	0.2	35.7	2.8	93.0	90.0	693
Rural	1.9	1.3	0.1	49.3	2.0	97.7	94.0	5,851
Region								
North Bihar Plain	2.0	1.3	0.1	52.6	1.3	98.5	94.6	2,832
South Bihar Plain	1.9	1.3	0.1	48.2	2.3	98.6	94.2	2,036
Jharkhand	1.7	1.2	0.2	39.5	3.2	93.3	91.1	1,675
Education								
Illiterate	2.0	1.3	0.1	50.8	2.2	97.7	94.2	4,949
Literate < Middle school complete	1.8	1.2	0.1	47.4	2.0	97.2	93.9	739
Middle school complete	1.5	1.1	0.1	38.4	2.0	98.1	94.2	265
High school complete and above	1.3	1.0	0.2	28.6	1.6	92.5	88.0	591
Religion								
Hindu	1.8	1.2	0.1	48.1	2.0	97.2	93.5	5,623
Muslim	2.3	1.5	0.1	48.8	2.7	98.1	95.1	809
Christian	1.5	1.1	0.3	35.8	3.6	87.8	86.0	59
Other	(1.5)	(1.2)	(0.3)	(30.7)	(5.9)	(90.1)	(88.2)	53

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Background characteristic	Mean ideal number of			Percentage who want more sons than daughters	Percentage who want more daughters than sons	Percentage who want atleast one son	Percentage who want at least one daughter	Number of woman
	Sons	Daughters	Either Sex					
Caste / tribe								
Scheduled caste	1.9	1.3	0.1	52.6	1.7	98.0	94.3	1,367
Scheduled tribe	1.8	1.3	0.2	40.1	3.5	93.2	91.1	574
Other backward class	1.9	1.3	0.1	49.4	1.8	97.8	94.4	3,389
Other	1.8	1.2	0.1	42.2	2.6	96.4	91.7	1,214
Work Status								
Working in family farm/ business	1.9	1.3	0.1	46.2	1.4	96.3	93.1	566
Employed by someone else	2.0	1.3	0.1	52.1	2.8	96.3	93.4	767
Self employed	2.0	1.3	0.1	53.2	2.5	97.3	92.1	380
Not worked in pat 12 months	1.9	1.3	0.1	47.0	2.0	97.4	93.8	4,831
Standard of living index								
Low	2.0	1.3	0.1	51.0	2.3	97.7	93.9	3,390
Medium	1.8	1.3	0.1	46.8	1.9	97.4	94.5	2,453
High	1.5	1.0	0.2	36.7	2.0	94.0	88.8	694
Husband's education								
Literate	2.0	1.4	0.1	50.7	2.4	97.6	94.3	2,687
Literate < primary school complete	2.0	1.4	0.1	49.9	2.8	98.0	95.8	361
Primary school complete	2.0	1.3	0.1	49.7	1.7	97.4	94.6	845
Middle school complete	1.8	1.2	0.1	50.2	1.4	97.7	93.0	626
High school complete	1.8	1.2	0.1	45.9	1.7	98.1	94.5	1,081
Higher secondary complete and above	1.5	1.0	0.1	38.3	2.2	94.1	89.1	940
Total	**1.9**	**1.3**	**0.1**	**47.9**	**2.1**	**97.2**	**93.6**	**6,544**

Note: Table excludes women who gave non-numeric responses to the questions onideal number of children or ideal number of sons and daughters, Total includes 8 and 4 women with missing information on the standard of living index and husband's education, respectively, who are not shown separately.
() Based on 25-49 unweighted cases.

Source: National Family Health Survey, Bihar, 1998-99.

The table 2.14 shows a consistent, rather strong preference for sons and over daughters. Overall, the average ideal family size of 3.3 children consists of 1.9 sons, 1.3 daughters, and 0.1 children of either sex. Forty-eight percent of women want more sons than daughters but

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only 2 percent want more daughters than sons. Almost all women (97 percent) say they want at least one son among their children and a slightly smaller percentage (94 percent) want at least one daughter.

Son preference is relatively moderate in urban areas, in the Jharkhand region, among more educated women, among women belonging to a religion other than Hindu or Muslim, and among women from higher standard of living households. Son preference does not vary much by work status of women. The proportion of ever-married women who desire more sons than daughters is 36 percent in urban areas and 49 percent in rural areas. By women's education, this proportion ranges from 51 percent for illiterate women to 29 percent for women who have completed high school or more education. The proportion wanting more sons than daughters ranges from 51 percent among women from low standard of living households to 37 percent among women from high standard of living households. The proportion wanting more sons than daughters is also relatively low among scheduled tribe women and among women whose husband have at least completed high school. The proportion wanting more daughters than sons is universally low across all groups of women.

7. USE OF FAMILY PLANNING METHODS

KERALA

The differences in current contraceptive use by background characteristics in Kerala can be presented in the form of table based on data collected by NFHS 2 (1998-99) as follows:

Table 2.15

Use of Family Planning Method

Percent distribution of currently married women by contraceptive method currently used, according to selected back ground charactristics, Kerala, 1999													
Background characteristic	Any method	Any modern method	Pill	IUD	Con-dom	Female sterilize-ation	Male sterili-zation	Any traditiona l method	Rhythm/ safe period	With-drawal	Not Using any method	Total percent	Number of women
Residence													
Urban	65.5	57.4	0.2	1.6	4.4	48.5	2.7	8.1	3.8	4.3	34.5	100.0	628
Rural	63.2	55.7	0.5	1.6	2.6	48.6	2.4	7.5	3.8	3.6	36.8	100.0	2,048
Education													
Illiterate	74.0	68.3	0.0	0.4	0.0	64.8	3.2	5.7	0.0	5.7	26.0	100.0	299
Literate, <middle school complete	67.0	61.4	0.6	0.6	0.4	55.3	4.5	5.6	1.6	3.9	33.0	100.0	781
Middle school complete	64.2	59.8	0.7	2.2	4.0	50.9	2.0	4.4	2.4	2.0	35.8	100.0	468
High school complete and above	58.5	47.6	0.3	2.4	5.3	38.6	1.1	10.9	6.9	3.9	41.5	100.0	1,127
Religion													
Hindu	71.6	64.5	0.3	2.0	3.5	55.3	3.4	7.1	4.2	2.9	28.4	100.0	1,367
Muslim	47.2	41.1	0.8	0.8	2.1	36.2	1.1	6.1	1.4	4.7	52.8	100.0	864
Christian	71.5	59.2	0.2	1.8	3.5	51.6	2.0	12.3	7.4	4.9	28.5	100.0	443
Caste /tribe													
Scheduled caste	75.5	69.4	0.7	0.5	2.1	61.4	4.8	6.1	4.1	2.0	24.5	100.0	232
Scheduled tribe	(62.4)	(58.4)	(0.0)	(0.0)	(7.5)	(50.9)	(0.0)	(4.0)	(0.0)	(4.0)	(37.6)	100.0	28
Other backward class	62.6	56.0	0.3	1.7	2.5	49.0	2.4	6.6	2.8	3.8	37.4	100.0	1,144
Other	62.6	53.7	0.5	1.7	3.6	45.7	2.2	8.9	4.8	4.1	37.4	100.0	1,271

Cont..

Background characteristic	Any method	Any modern method	Pill	IUD	Con-dom	Female sterilize-ation	Male sterili-zation	Any traditional method	Rhythm/ safe period	With-drawal	Not Using any method	Total percent	Number of women
Standard of living index													
Low	71.1	65.2	0.3	0.6	1.3	59.8	3.2	6.0	1.1	4.9	28.9	100.0	384
Medium	64.3	57.3	0.3	1.6	2.0	50.7	2.8	7.0	3.0	3.9	35.7	100.0	1,477
High	59.2	49.6	0.8	2.1	5.7	39.3	1.7	9.6	6.5	3.0	40.8	100.0	814
Number and sex of living children													
No children	5.3	1.8	0.0	0.0	1.4	0.0	0.4	3.5	1.4	2.1	94.7	100.0	269
1 child	34.4	17.8	0.2	5.2	7.5	2.8	2.0	16.6	10.2	6.4	65.6	100.0	490
One son	33.3	14.8	0.0	5.5	6.2	1.9	1.3	18.5	11.0	7.5	66.7	100.0	257
No sons	35.6	21.0	0.3	4.9	9.1	3.9	2.8	14.5	9.2	5.3	64.4	100.0	233
2 children	79.8	72.4	0.7	1.3	3.8	62.9	3.7	7.4	3.8	3.6	20.2	100.0	1,009
2 sons	80.9	73.2	0.3	1.6	3.7	66.4	1.2	7.7	4.5	3.2	19.1	100.0	253
1 son	80.6	73.6	0.8	1.5	3.8	63.4	4.1	7.0	3.6	3.3	19.4	100.0	553
No sons	76.3	68.1	1.1	0.5	3.6	57.2	5.7	8.2	3.3	5.0	23.7	100.0	203
3 children	81.7	78.3	0.0	0.5	0.6	74.9	2.4	3.4	1.3	2.1	18.3	100.0	577
3 sons	84.6	81.4	0.0	1.1	1.5	74.6	4.3	3.1	3.1	0.0	15.4	100.0	71
2 sons	82.8	79.1	0.0	0.0	0.0	75.7	3.4	3.8	0.5	3.3	17.2	100.0	221
1 son	82.9	80.6	0.0	0.5	1.0	77.5	1.6	2.3	0.5	1.8	17.1	100.0	214
No sons	71.5	65.8	0.0	1.2	0.0	64.7	0.0	5.7	4.1	1.6	28.5	100.0	71
4+ children	74.5	68.8	1.0	0.3	0.0	66.1	1.4	5.7	0.9	4.7	25.5	100.0	330
2+sons	73.2	68.5	0.9	0.0	0.0	66.7	0.9	4.7	0.3	4.3	26.8	100.0	243
1son	76.2	65.1	1.6	1.6	0.0	60.2	1.7	11.1	3.4	7.7	23.8	100.0	66
Total	**63.7**	**56.1**	**0.4**	**1.6**	**3.1**	**48.5**	**2.5**	**7.6**	**3.8**	**3.8**	**36.3**	**100.0**	**2,675**

Note: Total includes 2 women belonging to other religions and 21 women with 4+ children who have no sons, who are not shown separately. () Based on 25-49 unweighted cases

Source: National Family Health Survey, Kerala, 1998-99.

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Table 2.15 shows that current contraceptive use decreases steadily with education from 74 percent among illiterate women to 59 percent among women who have completed at least high school. The strong inverse relationship between education and contraceptive use in Kerala is largely a result of the fact that education is higher among younger women who are more likely to be still in the family formation process, and thus less likely to adopt sterilization, the dominant contraceptive method. Indeed, female sterilization dominates the method mix for women is each educational category, but its acceptance declines sharply with education. Modern spacing method use, though low, does increase with education. These methods account for a negligible share of contraceptive use by illiterate women, but for 14 percent of contraceptive use by women who have completed at least high school. Condom use increases with education, from 0 percent for illiterate women to 5 percent for women who have completed at least high school. The use of the IUD also generally increases with education, but remains low even among the more educated women. The use of the pill is never greater than 1 percent for any educational groups. Also, the use of traditional methods is higher at 11 percent for women who have completed at least high school than among illiterate women and women in other educational groups (4-6 percent). Contraceptive use has increased since NFHS 1 (1992-93) for women in every educational category, with the largest increase being for illiterate women.

Contraceptive prevalence is higher among Hindus and Christians (72 percent, each) than Muslims (47 percent) in Kerala. Although the use of most methods is lower among Muslims than among women of other religions, Muslims are particularly less likely (36 percent) than Hindu or Christian women (52-55 percent) to be using sterilization. Notably, Christians in Kerala are about twice as likely (12 percent) as Hindus or Muslims (6-7 percent) to be using a traditional method. Contraceptive prevalence is higher among scheduled-caste women than among women in most other sub-groups of the population.

The use of contraception is negatively related to the standard of living index. Contraceptive prevalence decreases from 71 percent for

women from households with a low standard of living to 59 percent for women from households with a high standard of living. Nonetheless, the use of modern spacing methods is higher among women from households with a high standard of living (9 percent) than among women from households with a medium (4 percent) or a low standard of living (2 percent). Traditional method use is also negatively related to household standard of living.

Table 2.15 also shows differences in current use by the number and sex of living children. Contraceptive use increases from 5 percent for women with no living children to 82 percent for women with three living children and then declines to 75 percent among women with four or more living children. The same pattern is evident for female sterilization, whereas the use of modern spacing methods is relatively high only among women with one living child (13 percent). Similarly, the use of traditional methods is also relatively high (17 percent) only among women with one living child.

Contraceptive prevalence rates by sex composition of living children suggest almost no son preference, except among women at parity two or three. Among women with two or three living children, women with no sons are slightly less likely than women with one or more sons to be using contraception, particularly sterilization. For example, among women with three children, 72 percent with no sons are using contraception, compared with 83-85 percent with one or more sons. Notably, however, among women at parities above one, women who have one son are about as likely as women with more than one son to be using contraception.

BIHAR

The differences in contraceptive use by background characteristics in Bihar can also be shown in the form of table based on data taken from NFHS 2 (1998-99) in the following manner:

Table 2.16

Use of Family Planning Method

Percent distribution of currently married women by contraceptive method currently used, according to selected back ground charactristics, Bihar, 1998-99														
Background characteristic	Any method	Any modern method	Pill	IUD	Con-dom	Female sterili-zation	Male steril-ization	Any tradi-tional method	Rhythm/ safe period	With-drawal	Other Method[1]	Not Using any method	Total percent	Number of women
Residence														
Urban	38.9	35.4	2.9	1.2	3.0	26.6	1.7	3.2	1.5	1.7	0.3	61.1	100.0	677
Rural	22.9	20.9	0.8	0.4	0.4	18.3	0.9	1.4	0.8	0.6	0.6	77.1	100.0	5,984
Region														
North Bihar Plain	24.4	22.8	0.7	0.6	0.6	19.9	1.0	1.6	1.0	0.6	0.1	75.6	100.0	2,974
South Bihar Plain	22.2	19.8	1.0	0.6	0.5	16.7	1.0	2.0	1.0	1.0	0.4	77.8	100.0	2,074
Jharkhand	27.6	24.9	1.5	0.3	1.1	21.1	0.9	1.1	0.5	0.7	1.6	72.4	100.0	1,613
Education														
Illiterate	20.5	18.7	0.6	0.2	0.2	17.0	0.8	1.2	0.8	0.4	0.6	79.5	100.0	5,083
Literage, <middle school complete	36.1	33.3	1.5	1.2	1.5	28.0	1.2	21.0	0.5	1.5	0.7	63.9	100.0	748
Middle school complete	36.3	33.4	3.9	0.8	3.1	24.3	1.2	2.9	0.8	2.1	0.0	63.7	100.0	256
High school complete and above	40.3	35.9	2.9	2.5	3.2	24.9	2.3	4.4	1.9	2.5	0.0	59.7	100.0	573
Religion														
Hindu	27.3	25.1	1.0	0.6	0.7	21.8	1.1	1.6	0.8	0.8	0.6	72.7	100.0	5,574
Muslim	9.1	7.5	1.3	0.2	0.5	5.0	0.5	1.4	0.9	0.4	0.2	90.9	100.0	982
Christian	25.8	14.9	0.0	0.0	0.0	13.0	1.9	7.3	3.6	3.7	3.7	74.2	100.0	57
Other	(15.5)	(13.1)	(0.0)	(0.0)	(2.0)	(11.1)	(0.0)	(0.0)	(0.0)	(0.0)	(2.4)	(84.5)	100.0	48
Caste /tribe														
Scheduled caste	19.5	17.7	0.7	0.2	0.5	15.8	0.6	1.4	1.0	0.4	0.4	80.5	100.0	1,383
Scheduled tribe	14.1	9.8	0.6	0.0	0.2	8.6	0.4	1.4	0.6	0.8	2.9	85.9	100.0	546

Cont...

Background characteristic	Any method	Any modern method	Pill	IUD	Con-dom	Female sterili-zation	Male steril-ization	Any tradi-tional method	Rhythm/ safe period	With-drawal	Other Method1	Not Using any method	Total percent	Number of women
Other backward class	24.6	22.4	1.0	0.6	0.7	19.2	0.9	1.8	1.0	0.8	0.4	75.4	100.0	3,454
Other	34.3	32.8	1.6	0.9	1.2	27.3	1.7	1.5	0.6	0.9	0.0	65.7	100.0	1,277
Standard of living index														
Low	16.5	14.7	0.3	0.1	0.2	13.6	0.5	1.1	0.8	0.3	1.7	83.5	100.0	3,480
Medium	29.1	26.9	1.3	0.4	0.9	23.2	1.0	1.7	0.8	0.9	0.5	70.9	100.0	2,491
High	48.8	45.0	3.3	3.3	2.4	32.6	3.4	3.7	1.3	2.4	0.0	51.2	100.0	682
Number and sex of living children														
No children	1.5	0.5	0.2	0.0	0.0	0.2	0.1	0.9	0.4	0.5	0.0	98.5	100.0	920
1 child	6.4	4.0	1.1	0.2	0.8	1.6	0.2	2.2	1.0	1.1	0.2	93.6	100.0	988
1 son	7.6	5.4	1.2	0.2	1.1	2.6	0.2	2.1	1.2	0.9	0.2	92.4	100.0	529
No sons	5.0	2.5	1.1	0.2	0.5	0.5	0.2	2.3	0.9	1.4	0.2	95.0	100.0	460
2 children	24.2	21.4	1.3	1.2	1.1	16.6	1.2	2.3	1.0	1.2	0.5	75.8	100.0	1,152
2 sons	37.5	34.1	0.6	0.8	1.1	29.2	2.4	2.8	0.8	2.0	0.6	62.5	100.0	359
1 son	20.9	18.2	2.1	1.6	0.7	12.9	0.9	2.1	1.2	0.9	0.6	79.1	100.0	580
No sons	11.0	8.7	0.0	1.0	2.4	5.3	0.0	1.8	0.9	0.9	0.4	89.0	100.0	213
3 children	37.3	35.4	1.1	0.8	1.4	30.8	1.4	1.1	0.6	0.5	0.8	62.7	100.0	1,188
3 sons	47.2	44.8	2.4	1.2	0.6	38.3	2.2	1.2	1.2	0.0	1.2	52.8	100.0	173
2 sons	48.6	46.0	0.2	0.2	1.2	43.2	1.2	1.8	1.0	0.8	0.8	51.4	100.0	520
1 son	25.0	24.2	1.7	1.5	2.0	17.5	1.5	0.5	0.0	0.5	0.2	75.0	100.0	403
No sons	9.9	7.7	1.2	0.0	1.1	5.3	0.0	0.0	0.0	0.0	2.2	90.1	100.0	93
4+ children	34.6	32.2	1.0	0.4	0.4	29.1	1.3	1.6	1.0	0.6	0.8	65.4	100.0	2,412
2+sons	37.0	34.7	0.9	0.3	0.3	31.7	1.5	1.6	1.1	0.5	0.7	63.0	100.0	1,944
1 son	25.9	23.1	1.8	1.0	0.7	18.9	0.7	1.5	0.5	1.0	1.3	74.1	100.0	398
No sons	15.8	14.4	0.0	0.0	0.0	14.4	0.0	1.5	1.5	0.0	0.0	84.2	100.0	70
Total	24.5	22.4	1.0	0.5	0.7	19.2	1.0	1.6	0.9	0.7	0.5	75.5	100.0	6,661

Note: Total includes
8 women with missing of information on the standard of living index, who are not shown separately
Based on 25-49 unweighted cases
Excludes both modern and traditional methods that are not listed separately.

Source: National Family Health Survey, Bihar, 1998-99.

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Table 2.16 shows that current use of contraceptive methods is considerably higher in urban areas (39 percent) than in rural areas (23 percent). This is true for each specific modern or traditional method. By geographic region, current contraceptive use is somewhat higher in the Jharkhand region (28 percent) than in the North Bihar Plain Region (24 percent) and in the South Bihar Plain Region (22 percent).

Current use of contraceptive method is much lower among illiterate women (21 percent) than among literate women (36-40 percent). The differences by education are largely the result of two factors: the predominance of sterilization in the method mix and the fact that more educated women tend to be younger women who may not yet have reached their desired level of fertility. The use of spacing methods (which are particularly appropriate for women who have not yet reached their desired family size) generally rises with education. Use of traditional methods also rises with education. Modern spacing methodsare used by 1 percent of illiterate women and 9 percent of women who have completed at least high school. Female and male sterilization account for 87 percent of contraceptive use by illiterate women and only 67 percent of contraceptive use by women who have completed at least high school. Contraceptive use has increased since NFHS 1 (1992-93) among illiterate women, but declined among literate women.

Contraceptive prevalence is much lower among Muslim (9 percent) than among Hindus (27 percent) and Christians (26 percent). Lower use of contraceptive methods among Muslims is mainly due to a much lower use of sterilization among Muslims than among Hindus and Christians. The use of modern temporary methods is about the same among Muslims and Hindus (2 percent, each). Christians in Bihar are unique in that they are much less likely to use modern temporary methods but much more likely to use traditional methods than Hindus or Muslims.

Contraceptive prevalence is highest (34 percent) among women who do not belong to a scheduled caste, scheduled tribe, or other backward class, followed by women belonging to other backward classes (25 percent) and scheduled castes (20 percent). Contraceptive use is lowest among women belonging to scheduled tribes (14 percent). The use of male sterilization, however, is marginally higher for husbands of women from the 'other' caste/tribe category (2 percent) than for husbands of women from a scheduled caste, scheduled tribe, or other backward class (less than 1 percent, each).

The use of any contraception as well as the use of each specific contraceptive method is positively related to the household standard of living index (SLI). Whereas contraceptive prevalence is only 17 percent among the poorest women (low SLI), it is 49 percent among women with a high SLI. The use of officially-sponsored spacing methods is also much higher among women with a high SLI (9 percent) than among women with a medium SLI (3 percent) or low SLI (1 percent).

Table 2.16 also shows differences in current use by the number and sex of living children. Contraceptive use increases sharply from only 2 percent for women with no living children to 37 percent for women with three living children and then falls to 35 percent for women with four or more living children. A similar pattern is evident for both male and female sterilization. Prevalence rates by sex composition of living children indicates the existence of some son preference. At each parity, current use of family planning is lower among with no sons than among women with one or more sons. Son preference does not completely outweigh parity in determining contraceptive use, however, as is evident from the fact that a considerable proportion of higher-parity women with no sons use family planning, including permanent methods.

Chapter – V

Conclusion

CHAPTER – V

CONCLUSION

Every society in response to its level of technology development ensures a balance between human numbers and the means of subsistence whenever there has been an improvement in food supply caused by some discovery or technological innovation, the population has also grown corresponding to it. But when the population increases beyond a certain limit, people try to inhibit the fecundity of their members because of certain geo-economic compulsions. Every society needs an optimum population to ensure its survival and progress. Societies having both below optimum and above optimum population suffer from various social and economic pathologies.

Not too long ago, all countries in the world were supposed to be at subsistence. The rate of population growth which was sufficiently moderate upto the middle of the twentieth century got a sudden spurt after the second world war because of the precipitous decline in death rates rather than any significant increase in birth rates. At the same time, the developing countries launch their programmes of social and economic development for raising their people's standard of living but, in most cases these developmental programmes failed to keep pace with the ever growing population. The government again faced the problem of providing food, shelter, education, employment and health facilities to this enormous size of population. Moreover, the concern with regard to "population explosion" and the fast depletion of natural resources also took serious dimension. It is this concern which led world-wide interest in the problems of mankind arising out of rapid population growth.

Though, this problem of "population explosion" is the result of remarkable declines in mortality rates throughout the world, and more

so in developed countries during the last two decades, nonetheless, the solution of the problem rests in the fact that declines in level of mortality are to be followed by corresponding declines in the level of fertility. The problem of population explosion thus revolves around the present levels of fertility and the prospects of its decline in future. It is this context which sets stage for a sociological study of fertility differentials and determinants in India.

In the present work, under the rubric of the "sociology of fertility" the fertility differentials and determinants have been comparatively analysed within specific social, cultural and economic contexts of Indian states which are demographically distinct. The states namely Kerala and Bihar which set the universe of this study represent the abovementioned specific contexts. The analysis and inquiry into the fertility differentials and determinants of these states endows with an insightful understanding of fertility leading to population growth in a particular socio-cultural and economic ambience. Defining fertility, as the actual number of births that take place in any country, or the number of children borne by a women, this study analyses the fertility of Kerala and Bihar in terms of age at first cohabitation, total fertility rate, birth order, birth interval, age at first and last birth, sex preference for children and the use of family planning methods couched in varying socio-cultural and economic background.

In India, the median age at first cohabitation over a period of approximately 23 years suggests a modest increase of 1.5 years. The considerable decline in fertility that marks Indian population is a consequence of family limitation within marriage than that of an increase in age at first cohabitation. Besides, the median age at first cohabitation shows a varying pattern in terms of rural-urban, education, religion, caste and standard of living.

Total fertility rate, one of the most important fertility determinants, is higher in case of illiterate women, Muslim women, scheduled caste women and the women with low standard of living.

An analysis of fertility differentials in terms of birth order reveals that the proportion of birth order of four or higher is relatively large for rural women, illiterate women, Muslim women, scheduled caste/tribe women and women with low standard if living.

Birth intervals in India between successive births are virtually the same in urban and rural areas. However, illiterate women show somewhat larger birth intervals than women with at least intermediate level of education. Birth interval is again higher among Hindu and Christian women than Muslim and Sikh women.

A higher median age at first birth and a lower median age at last birth imply lower fertility while the difference between the median age at first birth and the median age at last birth gives an estimate of the typical reproductive age span. In India, on the whole the median age at first birth has slightly increased in recent years from 19.3 years for women age 30-34 to 19.6 years for women age 25-29, while the median age at last birth for women age 40-49 is 29.3 years. Among the women age 25-49, the median age at first birth is 1.6 years higher in urban areas than in rural areas. Again it is 5 years higher among the women who have at least completed high school than the illiterate women. For, Hindu women median age at first birth is 0.5 year higher than for Muslim women. Again, the median age at first birth of Christian, Sikh and Jain women is remarkably higher than the either Hindu or Muslim women. The women of other backward classes have half a year higher median age at first birth than that of scheduled caste women or scheduled tribe women. Its again, increases with the women of high standard of living.

A strong and pervasive preference for son in Indian society has a very positive impact on fertility. It affects the attitude and behaviour of people regarding the procurement and procreation of children.An overall analysis of son preference that determines the fertility of India reveals that this preference is relatively weak among the women of urban areas, literate women, women with highly educated husbands and among women maintaining a high standard of living. Again, women of Christian and Jain community show somewhat a weaker son preference than women of other religious communities. There is negligible variation for son preference in terms of caste/tribe or the working status of women.

In India, the use of contraceptive and spacing method to restrain the astonishing pace of population growth shows a positive correlation with eduction while the use of female sterilization sharply declines with education among literate women. In terms of religion, the use of contraceptive is higher among Hindu than Muslim but lower than among women belonging to other religions. Male sterilization is lower among all irrespective of their religions affiliation. Again, the prevalence of contraceptive is highest among women who do not belong to schedule caste, scehduel tribe or other backward class and the use of male sterilization and other modern temporary method is very low for all caste/tribe groups. By the standard of living index, the use of contraceptive and officially sponsored spacing method is higher among women belonging to high standard of living than those belonging to low standard of living. Moreover, the present data and the earlier study based on NFHS-I data as well reveal that son preference in India has a strong bearing upon the use of contraceptive and consequently upon the fertility behaviour of people.

Kerala and Bihar which are geographically located in Indian subcontinent, show a diverse pattern of population growth, more

explicitly manifested in case of fertility differentials and determinants embedded in their respective social, cultural and economic background.

In Kerala, on the whole, median age at first cohabitation with the husband is 20.3 years for women of age group 25-49 and it is 21 years for women of age group 25-29. The median age at first cohabitation has risen faster in urban areas than rural areas. It is again higher in the case of educated women and women with high standard of living. The median age again at first cohabitation is higher for Christian women in comparison to Muslim or Hindu women. It is lower in case of women from scheduled castes and other backward classes. On the other hand, in Bihar the median age at first cohabitation with the husband is 16.7 years for women of age group 20-49. Both in urban and rural areas the median age at first cohabitation has risen but it is slightly higher in urban areas than rural areas. In case of educated and women with high standard of living the median age at first cohabitation is higher. Again, it is higher among Christian women than Muslim women.

An anlaysis of total fertility rate in Kerala, reveals that it is higher in rural (2.07) areas than urban (1.51) areas. The illiterate shows a higher total fertility rate. Similarly, it is higher among Muslim than Christian and Hindu and among other backward classes than others and scheduled castes. Surprisingly, the people of medium and high standard of living show a higher total fertility rate than the people of low standard of living. In case of Bihar, somewhat a similar trend has been observed in all these contexts. The data reveal that the total fertility rate is higher in rural areas than urban areas. It is higher among illiterate and Muslims in contrast to their counterpart literate and Hindus respectively. Again among the scheduled caste the total fertility rate is higher than other backward classes, other and scheduled tribes. And, people with high standard of living maintain a lower fertility rate than low and medium standard of living.

In Kerala, the births that are of order three or higher are more than twice as high in rural areas as in urban areas. Again in rural areas less than one in four births is of third or higher order while the likelihood of first order births increases with education and the births of order four or higher declines with education. Similarly, Muslims women and women with low standard of living are more likely than other women to have a births of third order or higher. While in case of Bihar, the births order of four or higher is greater in rural areas than urban areas. It is again relatively large for birth order of four or higher for births to illiterate women, Muslim women and scheduled – caste and scheduled tribe women. Again, the proportion of birth order four or higher is larger among women of low standard of living than women with high standard of living.

In terms of birth interval, Kerala shows a trend contrary to the general experience of many other states in India. The median birth interval is about three months longer if the previous birth was a girl than it was a boy. It is again longer in case of women with high standard of living, of other backward classes and others. Differentials in birth interval tend to be inconsistent in terms of education, and smaller in terms of religion and rural-urban differentials. While, in Bihar birth intervals are shorter among urban women than rural women. It also decreases with education and is inversely related to standard of living. This interval in terms of religion and caste tend to be negligibly smaller.

The analysis of data regarding the age at first and last birth reveals that the median age at first birth for women of age 25-29 is three years higher than the women of same age group in rural areas. It is relatively low for Muslim women in comparison to Christian women and for illiterate women in comparison to literate women. Again, the typical reproductive age span is considerably low in Kerala i.e. 7 years in contrast to India as a whole that marks 10 years of reproductive age

span. In Bihar also the median age at first birth is higher in urban areas than rural areas. It is higher in case of Hindu women than Muslim women and of other category women than the scheduled caste, scheduled tribe and other backward classes women. The median age at first birth is again higher for women who are educated or at least have completed high school and for women with high standard of living.

An analysis of fertility determinants on the index of sex preference for children has established that a strong preference of son is a characteristic feature of pan-Indian society. No doubt, Kerala stands as an exception to this. Yet the data suggests some amount of preference for sons which is more evident among Muslim women and illiterate or less educated women or women whose husbands are illiterate or less educated. While in case of Bihar the phenomenon of son preference is more virulent. The data shows that its desire is relatively moderate in urban areas, among more educated, among women from high standard of living and among women belonging to a religion other than Hindu or Muslim. This desire for sons against daughters is again remarkably low among scheduled tribe women. Nonetheless, the preference for daughters over sons is universally low across all groups of women.

The data regarding the use of various methods of family planning show that in Kerala the use of contraceptive and female sterilization is low among educated than illiterate women while modern spacing method and the use of IUD increases with education. Again, contraceptive prevalence is higher among Hindus and Christians than Muslims while it is inversely related to standard of living. Nonetheless, the use of modern spacing method is higher among women belonging to high standard of living. Similarly, in case of Bihar, the use of contraceptive and male and female sterilization is lower among educated women than illiterate one. Again, in terms of religion, the prevalence of contraceptive is lower among Muslim than among Hindu and Christian. A unique trend of

family planning in Bihar is that the Christians are more likely to use traditional method while the Hindus and the Muslims are more likely to use modern temporary method. The use of any contraceptive method in Bihar is positively related to the standard of living of people. Again, the use of contraceptive is higher among other caste groups than scheduled caste and scheduled tribe women.

Aforesaid, comparative analysis of fertility behaviour of Kerala and Bihar evidently states that these two states/societies are, of course, distinct from each other in terms of volume, density and quality of their respective population. Nonetheless, these states share a lot together in terms of the significance of socio-cultural and economic consideration in determining the various aspects of fertility. The age at first cohabitation in both Kerala and Bihar is higher in case of urban educated women and women belonging to high standard of living. At the same time it is higher among Christian women. Again age at first cohabitation varies with socio-cultural and economic background of people.

Similarly, total fertility rate, an indication of fertility profile, in Kerala and Bihar is higher among rural and uneducated women. The Muslim women also show a higher total fertility rate.

So far as the birth order, the first order birth shows a positive relation with education while in both these states the birth of third or higher order is high among rural, illiterate, Muslims and women belonging to low standard of living.

In Kerala, it has been found that the median birth interval is longer if the previous birth is a girl while it is higher in case of women belonging to high standard of living. While, in Bihar, the birth interval decreases with education and is inversely related to standard of living of a women.

Again the median age at first birth which shows the fertility trend is higher in case of urban, literate and women belonging to high standard of living. Here, its worth mentioning that Kerala shows a typical reproductive life span that is considerably shorter than India as a whole.

The preference for son which has far reaching implications from the demographic point of view, is prevalent and pervasive phenomenon throughout India. Some amount of this preference has been noticed in Kerala, too. Bihar, of course, practicises this preference in more virulent form. In both these states, the preference for son has been found stronger among rural, illiterate or less educated, Hindu and Muslim women and women belonging to low standard of living. However, the preference for a girl child is universally low across all groups.

In case of implementation of family planning policy and application of its various methods, both Kerala and Bihar mark a similarity while analysed in the background characteristics of its people. The use of contraceptive and female sterilization is low among educated women as they are younger and still in the process of family formation. While, modern spacing method and the use of IUD is higher among this section of society. The use of contraceptive is again positively related to standard of living.

Besides, these similarities regarding fertility behaviour in its background characteristics, demographically speaking there are remarkable quantitative and qualitative differences between Kerala and Bihar which constitutes a subject for further research.

In sum, people differentiated by place of residence i.e., rural-urban, also differ significantly with regard to their fertility behaviour. Education is a very significant factor influencing the fertility. The present study also indicates an inverse relationship between fertility and education. Similarly, this comparative study reveals that, religion also

plays an indomitable role in determining the fertility behaviour of people. Again, age at marriage or age at first cohabitation has a very strong bearing on fertility behaviour. There is a positive correlation between the two. The association of fertility with caste and standard of living or income reveals that for each level of income fertility for upper caste is less than that for backward class or for scheduled caste and also the mean fertility for women belonging to high standard of living is less than that for women belonging to low standard of living. Besides, the cultural values like desire for children and preference for sons which as a matter of fact depend very much upon the social and economic characteristics, are found to have a significant bearing on the fertility behaviour of people. And lastly, effective implementation of legislations regarding family planning and application of its various method to a great extent shape the fertility profile of a society.

On the whole, this study further confirms the long cherished deduction of "sociology of fertility" that fertility behaviour is not an exclusive demographic phenomenon rather, it is "socially located", "culturally designed" and "economically shaped".

Finally this study leads to the suggestions that vertical and horizontal spread of education among men and women is inevitable to control population growth. Similarly, legislation regarding age at marriage should be implemented with sincere social commitment and political will. In order to realize the goals set by new National Population Policy and to make the various Family Welfare Programmes a successful endeavour, there is a need to evolve a new multi-media motivational strategy which will utilize all the available media channels including the radio, television, press, films, visual displays and also traditional folk media. At the same time, the somewhat urban-elitist approaches should be translated into a much more imaginative and vigourous rural-oriented approach.

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