

**REGIONAL PATTERNS AND TRENDS IN SEX RATIO
IN SELECTED STATES OF INDIA: A DISTRICT
LEVEL ANALYSIS**

*Dissertation submitted to the Jawaharlal Nehru University
in partial fulfillment of the requirements
for the award of the degree of*

MASTER OF PHILOSOPHY

SANJAY KUMAR



**CENTRE FOR THE STUDY OF REGIONAL DEVELOPMENT
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI-110067
INDIA**

2002



जवाहरलाल नेहरू विश्वविद्यालय
JAWAHARLAL NEHRU UNIVERSITY
Centre for the Study of Regional Development
School of Social Sciences
New Delhi-110067

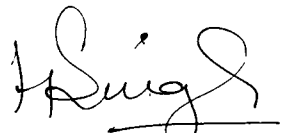
CERTIFICATE


I, Sanjay Kumar, certify that the dissertation entitled “REGIONAL PATTERNS AND TRENDS IN SEX RATIO IN SELECTED STATES OF INDIA: A DISTRICT LEVEL ANALYSIS” for the degree of MASTER OF PHILOSOPHY is my bonafide work and may be placed before the examiners for evaluation.


(SANJAY KUMAR)

Forwarded by


(DR. ANURADHA BANERJEE)
SUPERVISOR


(PROF. HARJIT SINGH)
SUPERVISOR


(PROF. S.K. THORAT)

CHAIRPERSON
Centre for the Study of Reg. Dev
School of Social Sciences,
Jawaharlal Nehru University,
New Delhi-110 067

***Dedicated
to
My Dearest Uncles & parents...***

Acknowledgement

Under divine guidance, following the completion of my dissertation, I would like to take this golden opportunity to express my heartiest thanks giving to my guide, parents, friends and well wishers. First of all, I would like to extend my deepest gratitude to my supervisors, Prof. Harjit Singh & Dr. Anuradha Banerjee, for his compassionate attitude, valuable guidance and affection that enabled me to work with utmost freedom, precision and led to the timely submission of my research work.

Secondly, I would like to thank my Uncles & parents whose constant support and abysmal belief in me, has helped me to retain my mental and physical freshness amidst all ups and downs.

I also owe a deep debt of gratitude to the various well-known writers whose works have been freely consulted.

I would like to thank my seniors specially Vijay Bharti, Jyotsna Didi & Pinaki Bhaiya for their proper guidance.

I am very much thankful for support of my respected Bhaiya & Bhabhi at each step proved as a boon in my life.

My dissertation would not have seen possible without the help of Mr. Verghese & Vinod of computer centre.

Last but not the least, I would like to quote the help extended by J.N.U, Population foundation library staffs, and my friends Sonu, Gaurav, Omkrishna, Amrita, Tanu, Abhay, Bimala and Alok whose moral support has helped me to be innovative and intellectually prompt.

If there is any shortcoming that would be attributable to my failure to make the most of the suggestions received.

July, 2002

Sanjay Kumar

Preface

This dissertation has made a sincere attempt to explain and analyze the concept of diminishing sex ratio in India. While researching the different available literature on sex ratio and their varying patterns, I have tried to project a true picture of India's demographic map. Looking back over the fifty years, I was struck by the extent to which India's demographic and population trends have changed. While population has increased many folds since the pre- independence years, our country has had tremendous change with respect to its sex ratio.

Sex ratio being the key indicator of the changing demographic pattern, it also carries a lot of weight while assessing the true picture of human development index of any country. The introductory chapter of this study makes an efforts to orientilly analyze the meaning and scope of the concept of sex ratio in India . And also makes a sincere effort to the study available literature in this respect. The second chapter provides detailed information regarding the demographic profile of the different region and places within India. And studies the variation and changes in demographic parameters in different parts of the India.

The third chapter of the dissertation attempts to study of the patterns of sex ratio in the regions of India. It mainly focuses on the kinship pattern and the spatial distribution in different part of the India and especially

North and South region. The fourth chapter focuses on the different trends of sex ratio in different part of the country. And especially in this chapter highlights the trends of Northern India. The fifth chapter makes an analytical attempt to the study of the factors influencing the sex ratio. Different analytical methods, statistical analysis have been made to study the whole process and finally this work sums up the whole study with my own inferences in the last chapter.

List of Abbreviations

S.R.	:	Sex Ratio
I.M.R.	:	Infant Mortality Rate
G.M.F.R.	:	General Marital Fertility Rate
T.F.R.	:	Total Fertility Rate
C.B.R.	:	Crude Birth Rate
U.N.	:	United Nations
U. Ts.	:	Union Territory
J.S.R.	:	Juvenile Sex Ratio

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Chapter - I
INTRODUCTION

1.1. Statement of the Problem

Sex composition is one of the basic demographic characteristics of the population. In any study of the population, analysis of the sex ratio plays a vital role. Sex ratio is defined as the number of females per one thousand males in the population.

According to the 1901 census, males outnumbered females by 3.4 million, while India's population was 238 million. At present in a population of one billion, males outnumber females by 38 millions. India's demographic scene in terms of its sex ratio has become ambiguous, particularly in respect of the female to male ratio. Thus on examining the sex ratio of any particular age group or of the whole population of a particular region, one can find many complications and inadequacies. Though the first census of the 21st century exhibits an improvement of sex ratio by 6 points over the 1991 sex ratio, improvement in this tertiary sex ratio, no doubt a matter of some satisfaction, but when it comes to the age specific sex ratio the figure becomes again puzzling. The decline in the sex ratio of 0- 6 age group populations from 945 in 1991 to 927 in 2001 is again a matter of serious concern.

This is the enigma of the "Missing Women" about which Amartya Sen wrote in the British Medical Journal in 1992. His latest estimate is that in China and India the number of missing women is 90 million. " The main culprit would seem to be the comparative neglect of female health and nutrition, especially but not exclusively during childhood. There is indeed

considerable direct evidence that female children are neglected in terms of health care, hospitalisation and even feeding”.¹

The Human development report 2001, show India's Gender related Development Index (GDI) as 0.525 with the rank of 115. We may feel comfortable compared to Pakistan (rank 116), Bhutan (119), Bangladesh, (123), but compared to Sri Lanka (76) and China (79) we are far below.² One can feel happy that over the years GDI in India is inching forward gradually. In 1997 its rank was 118, undoubtedly there has been some progress though nothing was very significant.

The existing studies and demographic data have repeatedly pointed out towards declining sex ratio in India (Table 1). The reality of missing females still remains a mystery wrapped in social and cultural taboos, son preference, female feticides, female infanticides, maternal mortality, etc. They are indicators of the unequal status of women vis-à-vis men.

The data on sex ratio and its projections are available for 15 decades. In India, between 1901- 2001, the sex ratio showed a constant decline (except between 1951- 1961 and 1991- 2001), from 972 to 933 female per thousand male.

Even the nine states, which started with a more favourable sex ratio towards female in 1901 like Bihar (1054), Goa (1091), Kerala (1004), Manipur (1057), Meghalaya (1036), Mizoram (1113), Orissa (1037), Tamil

¹ Sen Amartya, "Development as Freedom", Oxford University Press, 1999, pp-106

² Human Development Report- 2001.

Nadu (1044), Lakshadweep (1063), all except Kerala ended up with a lower number of female per thousand male by the end of the century.¹

Table 1.1. Sex Ratio of India (Female per 1000 males), 1901- 2001

No.	States/ Uts	1901	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001
	India	972	964	955	950	945	946	941	930	934	927	933
1	Andhra Pradesh	985	992	993	987	960	966	961	977	975	972	978
2	Arunachal Pradesh	-	-	-	-	-	-	894	861	862	859	901
3	Assam	919	915	896	874	875	868	869	896	910	923	932
4	Bihar	1054	1004	1016	994	996	990	994	954	946	911	921
5	Goa	1091	1106	1120	1088	1084	1128	1066	981	975	967	960
6	Gujarat	954	946	944	945	941	952	940	934	942	934	921
7	Haryana	867	835	844	844	869	871	868	867	870	86	861
8	Himachal Pradesh	884	889	890	897	890	912	938	958	973	976	970
9	Jammu Kashmir	882	876	870	865	869	873	878	878	892	923	900
10	Karnataka	983	981	969	965	960	966	959	957	963	960	964
11	Kerala	1004	1008	1011	1022	1027	1028	1022	1016	1032	1036	1058
12	Madhya Pradesh	990	986	974	973	970	967	953	941	941	931	920
13	Maharashtra	978	966	950	947	949	941	936	930	937	934	922
14	Manipur	1057	1029	1041	1065	1055	1036	1015	980	971	958	978
15	Meghalaya	1036	1013	1000	971	966	949	937	942	954	955	975
16	Mizoram	1113	1120	1109	1102	1069	1041	1009	946	919	921	938
17	Nagaland	973	993	992	997	1021	999	933	871	863	886	909
18	Orissa	1037	1056	1086	1067	1053	1022	1001	988	981	971	972
19	Punjab	832	780	799	815	836	844	854	865	879	882	874
20	Rajasthan	905	908	896	907	906	921	908	911	919	910	922
21	Sikkim	916	951	970	967	920	907	904	863	835	878	875
22	Tamil Nadu	1044	1042	1029	1027	1012	1007	992	976	977	974	986
23	Tripura	874	885	885	885	886	904	932	943	946	945	950
24	Uttar Pradesh	937	915	909	904	907	910	909	879	885	879	898
25	West Bengal	945	925	905	890	852	865	878	891	911	917	934
	Uts											
1	Andaman & Nicobar	318	352	303	495	574	625	617	644	760	818	846
2	Chandigarh	717	720	743	751	763	781	652	749	769	790	773
3	Dadar & Nagar Haveli	980	967	940	911	925	946	963	1007	974	952	811
4	Daman and Diu	995	1040	1143	1088	1060	1125	1169	1099	1042	969	709
5	Delhi	862	793	733	722	715	768	785	801	808	827	821
6	Lakshadweep	1063	987	1027	994	1018	1043	1020	978	975	943	947
7	Pondicherry	NA	1058	1053	N.A	N.A.	1030	1013	989	985	979	1001

Source: 1. Census of India 1991, Final Population Totals, Series I, Paper 2 of 1992, pp-102-105

2. Census of India 2001, Provisional Population Totals, Series I, Paper 1 of 2001

³ Nangia Sudesh and Anuradha Banerjee (2001) "Geographical variations in gender equity and equality", chapter contributed to the book "Population Development Nexus in India-Challenges for the New Millenium" ed by K. Srinivasan and Michael Vlassoff, Tata Mc Graw Hill Publishing Company Ltd. New Delhi

The projected sex ratio (between 1996-2051) by the Population Foundation Of India, of the fifteen major states of India, indicate an overall improvement of the sex ratio. In 2051, Sex ratio will be exactly balanced i.e. 1000 females per thousand males, at the all India level. Karnataka shall have the same sex ratio as that of India. Kerala and Andhra Pradesh, Tamil Nadu and West Bengal are expected to have a greater female population than male, the respective figures being 1042, 1020, 1042 and 1020 females per thousand males. In most of the major states the sex ratio is expected to be high and this will be specially the case for Gujarat (990), and even in the state like Assam (980) and Orissa (980). However, the sex ratio is expected to be somewhat lower in the Hindi speaking belt, Bihar and Uttar Pradesh at 943, Madhya Pradesh and Rajasthan at 962 respectively. The Projected Data mentioned below in the Table-1.2 depicts the clear picture of the whole scenario of Projected of Sex ratio in India.

Table 1.2 Projected Sex Ratio 1996- 2051

No.	States	1996	2001	2011	2021	2031	2041	2051
1	India	926	943	952	962	971	990	1000
2	Andhra Pradesh	971	971	980	990	990	1010	1020
3	Assam	926	926	943	952	962	971	980
4	Bihar	909	917	917	926	936	943	943
5	Gujarat	936	936	943	952	962	980	990
6	Haryana	862	877	893	901	917	936	952
7	Karnataka	962	963	971	980	990	1000	1000
8	Kerala	1042	1042	1041	1031	1042	1042	1042
9	Madhya Pradesh	936	936	936	943	943	952	962
10	Maharashtra	936	936	943	952	962	971	971
11	Orissa	971	971	971	962	971	971	980
12	Rajasthan	909	917	926	935	952	961	961
13	Tamil Nadu	971	980	990	1000	1020	1031	1042
14	Uttar Pradesh	877	885	901	917	926	935	943
15	West Bengal	917	926	935	952	980	1000	1020

Source: Population Projections- 2051

Population Foundation of India, 1999

1.2. Selection of Study Area

However the above-mentioned figures hardly depicts the regional disparity. India is marked by wide regional disparities in terms of all

demographic characteristics. This is due to multiple causes of physical variations, differences in the history of peopling of the continent as well as different socio- economic and cultural factors. It is popularly said that human beings are biologically same everywhere but demographic differences arise due to variations in socio-economic achievements. To understand the regional disparity in major demographic indicators a district level analysis is required for the selected states from the different regions of India. For this study two states from each region have been selected. From the Northern region Punjab & Haryana, from Eastern region West Bengal & Orissa, from Southern region Tamilnadu & Kerala and finally from Western region Gujarat & Maharashtra has been selected. After selecting eight States from all four different regions it has been tried to carve out the true picture of pattern and trend of sex ratio at regional level with the help of different demographic and social indicators of the selected states. Comparisons has been also been made to the national average.

The spatio-temporal pattern and trends in sex ratio reveals considerable variations. Between 1991-2001 an improvement in the overall sex ratio has been noticed in majority of the states and Union Territory (UT's) namely in the states like Kerala, Uttranchal, Uttar Pradesh etc. In contrast there has been a decline in sex ratio in Gujarat, Haryana, Maharashtra, Punjab, Chandigarh, Delhi, Dadara Nagar & Haveli. To understand the present variations and trend in sex ratio, a focused inquiry are needed, incorporating both direct and

indirect indicators. There is an ample scope to examine the spatio-temporal pattern and trends in sex ratio in India and to find out the probable factors that are responsible for regional variations of the male-female ratio.

Ashish Bose in the 1980's, had classified the demographically backward states like Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh as BIMARU, an acronym now generally accepted. The 2001 census results, fully validate his diagnosis of India's population problem in terms of the adverse role of these four BIMARU states and their offshoots. In fact the situation has worsened. To take note of the alarming decline in child sex ratio in 2001, Bose had coined another acronym- "DEMARU", where 'D'-stands for daughter & "MARU" stands for killing. In English 'E' denotes 'elimination'. On the basis of a statistical cut-off point of 50-point decline in the child sex ratio, he classified Punjab, Haryana, Himachal Pradesh and Gujarat as "DEMARU" states. He also placed the serious question mark, pointing on the whole country becoming, "DEMARU" because even in the progressive south Indian states (except Kerala) the child sex ratio has declined.

In India, most analysis focuses on the Juvenile Sex ratio, rather than the sex ratio at birth. This is firstly because of the concern that excess female child mortality that arises from the selective neglect of girl children compared to boy's, manifests itself in childhood years rather than around the time of

birth⁴². Secondly data on period sex ratio at birth are difficult to obtain in India, as the census does not publish this statistics. Such data are only occasionally published by the Sample Registration System (SRS) of certain state and thus the nationwide or time-trend analyses are ruled out.

Regional analysis of the juvenile sex ratio in India on the whole indicate more masculine juvenile sex ratio and higher female, while the male child mortality go hand in hand. That is, higher female than male child mortality accompanies higher juvenile sex ratio at ages 0-4 at the age 5-9. A well-known regional pattern is observed in the North and Northwestern parts of India, including the states of Punjab, Haryana, Rajasthan, and western Uttar Pradesh, which are areas most unfavorable to the life chances of female children. Other parts of the country, including the East, Central area and the South, exhibit more balanced rates.

A broad generalization has been made: the North/ North western regions of India fall within the so called Northern Cultural and Demographic Zone distinguished by higher fertility, higher mortality, more masculine sex ratio and lower status of women. This zone traditionally has a wheat-based agrarian economy (where women are less involved) and social systems marked by dowry, exogamous marriage and the seclusions of women. In contrast, the south is broadly characterized by rice based agrarian system (with a greater role of women), endogamous marriage system and less

⁴ DasGupta, 1988 ; Dyson, 1988

seclusion of women. Women's literacy and education levels are also much higher in the South than the North. The status of women is higher in the South, which also has lower fertility and mortality rates and more normal sex ratio.

The rural-urban differentials in sex ratio in India, are the products of sex-selectivity among the rural-urban migrants in the past. More males than females moved from rural areas to the urban areas. The rural-urban migration takes place due to the pull and push forces operating in the two areas. The selectivity among migrants, at places occurred because of high cost of living and the problem of housing in the urban areas. Due to high cost of living and associated problems in the urban areas, rural males who migrate to urban areas leaves their family behind. The joint family system prevailing in the countryside assures them of their security and safety in the rural area. Thus the rural-urban differential in sex ratio was largely the product of male selectivity in the rural-urban migration. This is in contrast to the excess of females among the rural-urban migrants in case of Western countries.

1.3. Literature Survey

Certain features of the present analysis have a bearing on the review of literature. The interdisciplinary nature of study and the hypothesis of different types of inquiry pursued within these disciplines is one such feature. Most of these strands are marked by vast literature of their own and contending schools of thought i.e. differential in mortality, gender

stratification, regional diversity in India. Incorporating all these has proved the present understanding of the problem and it enlightened the new insights.

A Brief overview

Visaria's analyses, 'Sex Ratio of the Population of India' (1971) is acclaimed as the first landmark in this debate. Earlier analyses, especially in different census reports lacks Visaria's depth and insight. Visaria clearly established that the high Female Mortality Rate (FMRs) in India arises mainly due to sex differential in the mortality, factors like migration, under-numeration of female or Sex ratio at birth having only marginal effect. This analysis is in a position to highlight the causes and correlation between the mortality differentials and the high FMRs. Miller also followed this after a decade. In his study he highlighted the socio-cultural discrimination against female children, which was found to be pronounced in certain regions in India, the preliminary reason being higher girl child mortality.

Miller has studied various other aspects also i.e. how the role of economic factors affects in the determination of intra-household distribution of resources. Miller also deals with the effect of female labor participation on sex ratio. The importance of labor participation was earlier highlighted in the study of Bardhan (1974) in his 'widely conjectured' wheat-rice divide in sex ratio patterns.

The mainly North-South divide was highlighted by Sopher (1980) through his district level map of juvenile sex ratio and Miller through the analysis of the relationship between female mortality rates and female labor participation.

Harris in his exhaustive review of sex differentials in mortality and health care among children in South Asia (1987) and a review of intra-family distribution of hunger (1990) had discussed the debated topics.

Miller has identified dowry as one of the major culprits, which creates the perception of the girl child as a liability. While the ill effects of the dowry in the northern India have been discussed for quite sometimes (Sharma 1993), the role of dowry in the south has also come under scrutiny in recent years. Heyer (1992), Kapadia (1994), Rao (1993) and Subramaniam (1996) have dealt with the above aspects in their studies.

Agrawal (1994) has emphasized the role of inheritance. She traces the roots of status, to property rights and the inheritance system. According to her the North-South divide is closely related to the issue of property rights. The north social structure denies women any significant property rights, which lower their status and consequently their access to resources. In the southern or the eastern system, women have significant property rights and therefore enjoy a better status than their northern counterparts.

Sex ratio at birth is considered as the initial condition, which determines the sex ratio of the overall population. Visaria (1971) discussed in his study, that it is nearly constant-within the range of 104-107 male live births per 100 female live births—in the absence of any sex selective humane intervention. The low value of 104 for northern zone and higher value of 108 for the central zone is attributed relatively. Pakrashi and Haldhar (1973) reported unusually high secondary sex ratio (120) among the first-born children. This sharp drop among subsequently born children is close to the 104-108 ranges.

Visaria, has examined the issue of under-enumeration in detail using the 1951 & 1961 data from post enumeration checks and direct comparison of the census population figure with direct observations from well-known Khanna's study (a detailed population study under taken in 16 villages of Ludhiana district (1956-1960) by the population studies unit of the Harvard University. The corrections in sex ratios from the post-enumeration checks are very small in magnitude and the results of Khanna's study do not show any significant differences in sex ratios from the census figures. Visaria also looked at the indirect evidence and found that unlike earlier censuses the 1891-1931 showed some signs of under reporting of females in the never married category.

To overcome the problem of sex selective migration, both Sopher (1980) and Miller (1981) have used juvenile age group data. The ingenious

use of district level Juvenile Sex Ratio (JSR) data (Papanek1984) has provided considerable insights into the issue of regional variation in the sex ratios. Yet the use of Juvenile Sex Ratio (JSR) has not gained much currency. Some of the debate about sex ratio variation continues around the role played by migration as the single most important factor explaining the temporal and cross sectional variation in sex ratio.

Most of the literature, which includes Agnihotri (1996), has emphasized the absence of sex selective migration as the primary reason for using the juvenile age group data. However the focus on juvenile age group is important for one more reason. This is the age group where the female disadvantage is more pronounced in India (Bennett, 1991;Chatterjee, 1990;Hariss, 1989). Therefore the pattern of discrimination against females can be effectively studied through the sex ratios in this age group.

Although the overall population in any region is not homogenous and sex ratios among its different substrata differ, not just by age but socio-cultural factors like caste or class. Miller (1981) recognized that, and opted for the caste base analysis of sex ratios using the 1931 census data. But caste wise data are however available only for the three broad segments of the population Schedule Caste (S.Cs), Schedule Tribe (S.Ts) and the rest of population (Agnihotri 1996).

Schedule Caste (S.Cs), Schedule Tribe (S.Ts) both share certain common economic features. They are both, for example, poor, have marginal land assets both qualitatively and quantitatively, and are major suppliers of casual and agricultural labour (Boserup, 1970:66-75, Dunn, 1993, Miller.S, 1981). But socially and culturally the two are quite different. Differences in sex ratio patterns among the Schedule Caste (S.Cs), Schedule Tribe (S.Ts) and the general category have not attracted serious attention in the literature. Generally, the high FMRs among the Indian population have been noted in old census reports from time to time (Natrajan, 1972). Dange (1972) discussed explicitly the high Female Mortality Rate (FMRs) between the Schedule Tribe (S.Ts) in Madhya Pradesh. But this has not been followed up further. Miller herself explicitly opted for this line of analysis, preferring to use older (1981) data on individual castes rather than the data from more current census, which used just three categories.

The concept of 'status' of women is frequently used in the literature on gender inequalities. Basu (1992) identified three separate but interdependent components of women status. The emphasis placed on women's interaction with the outside world has to be understood in the context of the gendering of space. In the study of B Ratna Kumari (2001) emphasis is given on the Work and Gender issue. In her study, the European Union recognizes equal opportunities for men and women to be at the heart of the reformation of the labour market. She specified that member states have committed themselves

to equality of the sexes at the workplace. This should be accompanied by the adoption of a gender mainstreaming approach to improve employability and encourage adaptability of business and employers, to reduce the disadvantage status of women at the workplace.

As the analysis moved ahead the focus moved gradually from the patterns to the processes and from the statistic aspects of sex ratio imbalances to the dynamic aspects. The larger demographic behaviour reflected in the sex ratios have origins in gender inequalities that operates at the micro and macro level. Considerable work has been done in investigating the genesis and the pattern of gender inequalities at this level.

Blumberg (1991) and others have taken up a prominent line of inquiry relevant to the present analysis. It attempts to examine the triple overlap between gender stratification, economic variables and the household domain. In the study, Bandhopadhyay (2000) pointed out that the Indian State response to the suppression of women could be described as hypocritical as its worst and schizophrenic at its best. He was in favour of doing whatever can be done for gender justice, looking back at the last fifty years of our independence. Paula Griffith, Matthew and Hinde (2000) in their paper pointed out that research must focus on direct measures of women's relative position in the Indian society rather than to measure factors such as the sex ratio, which is influenced by both the current and historical pattern of vital demographic rates. Cumulatively there is many million of missing women in India and

telling testimony of long-term gender discrimination. Currently, however, the situation may be improving even while the sex ratio continues to rise.

Huber (1991) explored briefly the genesis of gender hierarchies. Such inquiry has been pursued in the anthropological literature in details. In certain ways all these are connected with the issue of social reproduction, as societies became more complex and differentiated in the context of their production. The role that women have played during this transition have been analyzed by Goody (1976,1990) Harris (1993) and Meillassoux (1981) from different angles. Goody's work deals with the emergence of control over female sexuality in the context of transition from subsistence to surplus agriculture. It attributes the rise of gender hierarchies, to the pattern of control over the means of reproduction and therefore women as the key factor. Harris considers the role played by the biological differences between men and women in the exercise of the controls mentioned above. Johansson in his analytical analysis of historical data in Europe and Japan, finds that the Excess Female Mortality (EFM) had been low during the practice of traditional agriculture. With development of surplus and commercial agriculture it worsened. With eventual urban and industrial development the Excess Female Mortality tended to disappear. Johansson analysis looks at the historical aspects of mortality in general and female mortality in particular. She analyses the EFM pattern in Europe (1984), Japan (1986,1987,1996), England and the United States of America (1991) and makes a convincing case for looking at

the Excess Female Mortality (EFM) in its historical context rather than any historical, timeless fashion.

The overview of the literature admittedly provides a very brief outline of the literature relevant to the analysis that follows. These provide adequate information regarding the study of the topic for research.

1.4. Objectives

1. To find out the regional patterns and trends of sex ratio in order to ascertain the socio-economic and other reasons behind them.
2. To understand the factors of spatial patterns, which determine sex ratio in India.
3. To show the correlation's based on factors affecting sex ratio in the study area and analyze the situations.

1.5. Hypotheses-

1. Higher the literacy rate more favorable will be the sex ratio.
2. Higher the rate of urbanization lower would be the sex ratio.
3. Lower the rate of out migration higher would be the sex ratio.

1.6 Data Base

Data regarding the dissertation has been collected from the following sources.

1.6.1. Census of India, 1991

- Census Atlas, part XI, series 8, Census of India 1991. Directorate of Census Operation Punjab
- Census Atlas, part XI, series 8, Census of India 1991. Directorate of Census Operation Haryana.
- Census Atlas, part XI, series 26, Census of India 1991. Directorate of Census Operation West Bagal.
- Census Atlas, part XI, series 19, Census of India 1991. Directorate of Census Operation Orissa.
- Census Atlas, part XI, series 23, Census of India 1991. Directorate of Census Operation Tamil Nandu.
- Census Atlas, part XI, series, Census of India 1991. Directorate of Census Operation Kerala.
- Census Atlas, part XI, series, Census of India 1991. Directorate of Census Operation Maharastra.
- Census Atlas, part XI, series, Census of India 1991. Directorate of Census Operation Gujarat.
- District profile 1991
 - Haryana,
 - Punjab,
 - West Bangal,
 - Orissa,
 - Tamil Nadu,
 - Kerala,
 - Maharastra,
 - Gujarat.

1.6.2. Census of India, 2001 N.F.H.S Data

- Provisional Population Total paper 1 of 2001 series 1, Census of India.

- Provisional Population Total paper 2 of 2001 series 1, Census of India. (Unpublished).

1.6.3. N.F.H.S Data

Rapid household survey- RCH Project 1998-1999

1.7. Methodology

For the present studies various type of analytical methods and technique have been adopted. Both quantitative and qualitative methodologies have been considered. Firstly after computing the simple percentages of various indicators, growth rate of population in the two decades 1981-91 and 1991-2001 has been calculated. Correlation matrices have been computed from the available data. These have been calculated for each state according to their districts. Region wise study also has been made for the analysis of regional pattern and trends in sex ratio. Schematic representation has been made through the choroplething of maps by different colours and through diagrams.

1.8. Organization of the materials

The study has been compartmented into six chapters, chapter I is the Introductory chapter and it contains the statement of the problem of the selected area, objectives, hypothesis, methodology, Data Base, Literature Review and Conclusion.

Chapter II titled as, 'Demographic Profile' of the study area contains the following sub-topics with the introduction of Demographic Profile of

India as a whole vis-a-vis the Northern Region of Punjab and Haryana, Eastern Region of West Bengal and Orissa, Southern Region of Tamilnadu and Kerala, Western Region of Gujarat and Maharashtra and their Comparative Studies with Conclusion.

Chapter III titled as ‘ Pattern of Sex Ratio’ contains Introduction, Pattern of Sex Ratio in India as a whole vis-à-vis the Northern Region of Punjab and Haryana, Eastern Region of West Bengal and Orissa, Southern Region of Tamilnadu and Kerala, the Western Region of Gujarat and Maharashtra and their Comparative Studies with Conclusion.

Chapter IV titled as ‘Trends in Sex Ratio’ contains the following sub-topics Introduction, Trends of Sex Ratio in India as a whole vis-à-vis the Northern Region of Punjab and Haryana, Eastern Region of West Bengal and Orissa, the Southern Region of Tamilnadu and Kerala, the Western Region of Gujarat and Maharashtra and their Comparative Studies with Conclusion.

Chapter V entitled as ‘Factors Influencing Sex Ratio In India’ consists of following sub-topic Introduction, factors influencing sex ratio in India as a whole vis-à-vis the Northern Region of Punjab and Haryana, Eastern Region of West Bengal and Orissa, the Southern Region of Tamil Nadu and Kerala, Western Region of Gujarat and Maharashtra and their Comparative Studies with Conclusion.

The last Chapter VI Summary & Conclusions entails a brief summary of all the chapters and the conclusion of the study.

1.9. Conclusion

Sex ratio is reflective of the complex processes that may incorporate demographic processes as well as social and economic processes that are operating in a particular society. It also takes cognizance of the human behavioral patterns. Therefore, while analyzing the causes, one should not isolate any one factor. Rather a holistic approach involving the interplay of multiple factors should be taken into consideration. The next chapter therefore aims in analyzing the demographic factors in the study area.

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Chapter – II
DEMOGRAPHIC PROFILE

2.1 Introduction

The study of the population structure of a country is very important from the view of economic development and economic welfare. Presently the Indian government has placed a lot of emphasis on the Human Resource Development and to improve the quality of population. The quality of population in any country decides the rate of social and economic growth, pattern of growth and direction of a country's growth process. Hence it is necessary to know in quantitative terms of the number of people living in a country at a particular time; the rate at which they are growing and the composition and distribution of population.

To understand the changes in demographic structure it is necessary to study the factors, which are influencing the population growth at the micro level. Moreover, factors influencing population growth differ from place to place and time to time. Hence it is necessary to make a detailed study of the constituents of demographic profile. Following are the factors, which influence the demographic structure of a region or a country.

(A) Population Density: - Total population of any country does not give the real picture regarding the growth of population. Therefore it is a must that it could be in terms of the land available to the population.

Therefore, Density of population =
$$\frac{\text{Population in a region}}{\text{Area of the region}}$$

The United Nation (UN) has thus explained the Population Density as “Each population that lives in a given area or territory and a study of the geographical or spatial distribution deals with the way in which it is distributed over the territory”. Population living in one square km. is taken for the measurement of the density of population.

(B) Decadal Growth Rate of Population: - Decadal Growth Rate of Population is the inter censal change in population as the name suggests is defined as the percentage change in population (increase or decrease) over the previous census in a region. This is another important and significant factor, which affects the demographic structure of a region or area. This denotes the growth rate of population in a decade, more appropriately meaning a ten years time span. The population growth rate in India is the function of growth rate in the states and Union Territory.

(C) Sex Ratio of Population: -Conventionally, the term sex ratio is used in India to denote the female to male ratio, while internationally it is the other way round. In India, the sex ratio can be defined as the number of female per thousand of males. It can be represented by the following formula:

$$\text{Sex Ratio} = \frac{\text{Number of Female}}{\text{Number of Males}} * 1000$$

Sex ratio is one of the basic demographic characteristics of the population study. The analysis of sex ratio plays a vital role in the study of population as imbalance in sex ratio often speaks about the stage of demographic development in a country. The sex composition of the population is affected by various factors i.e. mortality condition of males and females at various ages, selective migration of the population and sex ratio at birth.

(D) Literacy Rate: - Improvement in literacy and education indicates development of a society. Spread and diffusion of literacy is generally associated with essential traits of today's civilization such as modernization, urbanization, industrialization, communication and commerce. Literacy is one of the important social characteristics on which information is obtained of every individual in the census. The census defines a literate as "a person aged seven and above, who can both read and write with understanding in any language is treated as literate."

(E) Urbanization-The factors of urbanization would entail with a review of the past trend of urban growth and would proceed to incorporate the characteristics of urban population. This calls for an intensive analysis of census and other data on urbanization. Urbanization is the indispensable part of economic development. Urbanization and industrialization go hand in hand and both are positively related with each other. Urbanization often results in industrialization and vice-versa. Kingsley Davis and Golden have established

the zero order Pearsonian correlation of 0.86 between the two. The urban life pattern has a significant impact on the fertility rate. Urbanization helps in reducing birth rate and death rates. It is experience of most of the countries of the world. Urbanization is having a more organized nature of economic activity, higher productivity, advanced technology, better living standard, high literacy rate, better education and health facilities. Above mentioned are the advantages of urbanization. On the other hand, urbanization also causes some problems i.e. shortage of houses, water supply problem, sanitation problem and pollution of water and air.

(F) Crude Birth Rate (CBR): - For calculating the Crude Birth Rate, the total population is considered along with the number of living children in a given year. For a country like India, with a large population, with relatively less number of live children during a year, the Crude Birth Rate will be registered lower. But countries where the population is less but there is a large number of live children, the Crude Birth Rate will remain high. For the present study, the Crude Birth Rate data has been collected from the Rapid Household Survey – RCH Project 1998-99, sponsored by the Ministry of Health and Family Welfare, Government of India.

(G) Total Fertility Rate (TFR): - It corresponds that how many children are produced by a women during her reproductive span. For the present study Total Fertility Rate data also has been collected from the Rapid

Household Survey – RCH Project 1998-99, sponsored by the Ministry of Health and Family Welfare, Government of India

(H) General Marital Fertility Rate (GMFR): - The General Marital Fertility Rate (GMFR) means the birth rate per 1000 married women in the reproductive age group (14-49 age group). For the present study the General Marital Fertility Rate (GMFR) data also has been collected from the Rapid Household Survey – RCH Project 1998-99, sponsored by Ministry of Health and Family Welfare, Government of India.

2.2 All India Demographic Profile

The population of India on the 1st March 2001 was 1027million (102.7crores). This includes the population of Jammu & Kashmir, where the 1991 Census could not be conducted while the enumeration was done in 2001. In the last decade (1991-2001), the population of India has increased by 181million. The decadal growth rate was 21.3%- compared to 23.9 percent during the previous decade. The density of population in India is 324 people per square km in 2001 as compared to 267 in 1991. The sex ratio is 933 in 2001 compared to 927 in 1991. The child sex ratio (0-6 age group) is 927 in 2001 as compared to 945 in 1991. The sharpest decline in the sex ratio of the child population was in Punjab, Haryana, Himachal Pradesh, Uttaranchal, Gujarat, and Maharashtra. Literacy rate (for population 7 and above) is 65.4

percent in 2001, whereas the male literacy is 75.9 percent against the female literacy rate of 54.2 percent.

2.3 Demographic Profile of Regions

India's population is heavily concentrated in the alluvial plains of the northern states. The north, including the intensively cultivated plains of Uttar Pradesh and Bihar, the heavily forested Madhya Pradesh and the arid regions of Rajasthan, accounts for 40 percent of the Indian population. This region has India's largest concentration of Hindi speakers. The North also has higher fertility, lower life expectancy and a faster population growth than the South and the West. Fertility and mortality are also higher in Eastern India and in many of the northeastern states. Densely settled states of West Bengal, once a site of Indian colonial Capital City Kolkata, contains the bulk of the regions inhabitants.

The South and Western states are developed economically and have lower fertility and mortality rate than the states in the other regions. About 14 % of India's population, lives in the Western states of Gujarat and the southern peninsular states. Mumbai is an international commercial center. Chennai, on the southeastern coast of Tamilnadu, is south India's major city. The regional differences in the states growth rates are remarkable; the states of Kerala and Tamilnadu in Southern India having a growth rate of more than 15 percent.

2.3.1 North Region

2.3.1 (a) Punjab

Roughly triangular in shape, Punjab spreads between 29° 33' and 32°31' North latitude and 75° 53' to 76°56' east longitude, covering an area of 50,362 sq. km. It constitutes 1.53 percent of the country's total area. The distribution of population in an area is linked with its physiography. Punjab is primarily a plain area, covered by the Shivaliks in the North and is infested by chaos.

Punjab has a density of 482 persons per square km, which is significantly higher than that of the country's density of 324 person per sq. km. in 2001. Punjab constitutes one of the densely populated parts of the country. Within the state, the density of population varies considerably. Ludhiana (804), Jalandhar (742), Amritsar (603), Gurdashpur (588), Rupnagar (540), which shows much higher population density, is much higher than the state's average. On the other hand, the districts like Firozpur (329), Muktsar (297), Mansa (317) shows the lower density of population, very much similar to the country's average and very less than state's average. The overall regional pattern in Punjab exhibits that the southern and southwestern part of the state is relatively less densely populated than its North and the northeastern part of the state.

Table: 2.1
Punjab

	State	Pop.Density		Decadal growth rate		Sex ratio		Literacy Rate		% of Urb.Pop		Cr.Br. Rate		Total F.R		IMR	G.M.F.R.
		1991	2001	1981-1991	1991-2001	1991	2001	1991	2001	1991	2001	1991	98-99	1991	98-99	1991	98-99
		403	482	20.81	19.76	882	874	58.51	69.95	29.72	33.95	26.63	N.A	3.80	N.A	56	N.A
1	Gurdaspur	492	588	16.07	19.33	903	888	61.83	74.19	23.10	25.48	28.52	25.10	3.71	2.90	75	153.50
2	Amritsar	492	603	14.46	22.72	873	874	58.08	67.85	34.14	40	29.59	26.80	3.96	3.00	49	163.30
3	Kapurthala	396	461	18.60	16.34	896	886	63.31	73.56	25.79	32.59	27.37	25.60	3.36	2.60	86	148.70
4	Jalandhar	626	742	17.30	18.40	897	882	68.91	77.91	36.31	47.45	28.56	22.00	3.64	2.60	53	132.00
5	Hoshiarpur	386	439	16.39	13.81	924	935	72.08	81.40	15.50	19.66	28.16	17.90	3.67	2.70	76	109.30
6	Nawanshahr	420	463	16.39	10.43	900	913	64.42	76.86	N.A	13.8	N.A	18.50	N.A	2.90	N.A	114.30
7	Rupnagar	438	540	28.29	23.39	870	870	68.15	78.49	25.57	32.46	30.72	20.00	3.99	2.60	60	118.50
8	Fatehgarh Sahib	386	457	17.01	18.65	871	851	63.34	74.10	N.A	28.08	N.A	18.80	N.A	2.60	N.A	109.10
9	Ludhiana	645	804	36.53	24.79	844	824	67.34	76.54	49.95	55.8	23.88	21.80	3.01	2.50	45	127.10
10	Moga	351	400	18.61	13.93	884	883	49.79	63.94	N.A	20.04	N.A	21.60	N.A	2.60	N.A	132.70
11	Firozpur	273	329	24.00	20.42	895	883	48.99	61.42	23.94	25.81	32.3	29.00	4.16	3.00	61	163.40
12	Muktsar	250	297	19.55	18.68	880	886	46.28	58.67	N.A	25.52	N.A	23.50	N.A	2.50	N.A	136.10
13	Faridkot	310	376	22.79	21.42	883	881	49.88	63.34	25.35	33.89	29.7	24.20	3.84	2.70	53	136.00
14	Bathinda	291	349	20.49	19.89	884	865	46.41	61.51	22.58	29.78	30.56	24.00	3.92	2.80	72	137.00
15	Mansa	265	317	18.04	19.83	873	875	37.23	52.50	N.A	20.68	N.A	23.50	N.A	2.50	N.A	139.00
16	Sangrur	336	398	21.36	18.57	870	868	45.99	60.04	24.56	29.26	30.83	21.10	3.97	2.80	53	122.00
17	Patiala	421	507	21.53	20.31	882	864	57.51	69.96	30.48	34.98	31.83	23.30	3.97	2.60	64	120.70

Sources: Census of India Paper I of 1991, 2001
R.C.H Survey 1988-89

Punjab registered a growth rate of 19.76 percent during 1991-2001. This is significantly lower than that of the country as a whole, which is 21.34 percent. However the decadal growth rate has shown decreasing trend than 1981-1991, which was 20.81percent. Within the state there is a spatial variation of growth rate. The districts like Ludhiana (24.79), Rupnagar (23.39), Amritsar (22.72), shows very high decadal growth rate of population, whereas on the other hand districts like Nawanshahar (10.43), Hoshiyarpur (13.81), Moga (13.93), and Kapurthala (16.64) shows a considerably lower growth rate, which is much lower than the state average. The overall scenario is that the district falling under the BARI Doab (area between Beas & Ravi River) and the BIST Doab (area between Beas & the Satluj River) witnessed comparatively lower growth rates. On the other hand, high growth is the characteristics of the more urbanized and industrialized districts of Ludhiana, Rupnagar, Amritsar and others.

Traditionally the sex ratio in India is adverse to women. But according to the 2001 census, it has been slightly improved by 6 points and became 933 females per 1000 males in the country as such. The situation became rather poor in Punjab in 2001, where it declined up to 874 against 882 in 1991. In fact among the states / Union Territory's in India, Punjab ranks quite low in this regard. Only Chandigarh, Haryana, Delhi, Daman & Diu, and Dadra & Nagar Haveli have sex ratio lower than that of Punjab. Although within the state, some of the districts show higher sex ratio like Hoshiarpur (935),

Nawanshahar (913), Gurdashpur (888), Kapurthala (886) which have little bit higher than the state average, but many districts show lower sex ratio than the state average itself. Although the state average showed earlier improving sex ratio of 879 in 1981 and 882 in 1991, but presently it is showing an 8-point decline. The overall pattern shows that in the northern region, it shows higher ratio than the southern part of the state.

The literacy rate of Punjab according to the 2001 census has been worked out by taking estimated population person aged 7 and above. There is, however on the whole, a significant increasing trend discernible in the proportion of literate in the state, showing quite a leap forward from census to census. The comparative picture can be shown as: -

Table-2.2

Year	Person	Male	Female
1971	38.69	46.22	29.91
1981	46.36	53.33	38.37
1991	57.14	63.68	49.72
2001	69.95	75.63	63.55

Source: - Census of India 1991, 2001

The comparative picture shows a very significant growth rate in literacy rate of the state in male as well as the female group. Within the state, the disparity shows in significant manner. The district like Hoshiarpur (81.40),

Rupnagar (78.49), Jalandhar (77.91), Nawanshahar (76.86), Gurdashpur (74.19), shows very high literacy rate. On the other hand, districts like Mansa (52.80), Muktsar (58.67), Sangrur (60.40), and Bhatinda (61.51), shows lower literacy rate, which lower than the state average. The data shows a very significant disparity level within the state regarding the literacy rate.

In Punjab the Crude Birth Rate among the states also vary significantly. The districts like Hoshiarpur, Fatehgarh, Sangrur, shows low crude birth ratio. Whereas districts like Firozpur, Amritsar, Hoshiarpur, Gurdashpur, Jalandhar shows significantly high crude birth rates. The gap between both of these groups is a 10-point gap. It can be inferred from this, that the districts, which show high literacy rate, can also show low crude birth rates.

After analyzing the data collected on the total fertility rate, we found that the districts show the similar pattern like the crude birth rate. The districts showing high literacy show slow total fertility rate, and those districts that show low literacy has high total fertility rate. This is due to the effect of awareness programme, and education in the state. The districts like Firozpur, Amritsar, Sangrur show higher total fertility rate of nearly 3.0, but on the other hand districts like Mansa, Muktsar, Ludhiana show lower total fertility rate of 2.5.

The General Marital Fertility Rate (GMFR) data shows somewhat different pattern. Districts like Firozpur, Amritsar, Gurdashpur show high General Marital Fertility rate, and also show higher literacy rate and Crude

birth rate as well as total fertility rate. Sangrur however shows high literacy rate, Crude birth rate as well as total fertility rates, but shows the low General marital fertility rate of 120.0. On the other hand, districts like Kapurthala, Rupnagar, Fatehgarsahib, show the low General marital fertility rate. They also show the lower literacy rate and low Crude birth rate, as well as total fertility rates. However, districts like Hoshiarpur, Jalandhar show a different pattern of high literacy rate and Crude birth rate as well as total fertility rate, but shows low literacy rate, Crude birth rate, low total fertility rate and low General Marital Fertility rate.

2.3.1 (B) Haryana

In Haryana, the economy is predominantly agricultural, the distributional pattern of rural population of the state is mainly affected by productivity of the soil. In Ambala and Yamunanagar districts, the population is concentrated along the river, where small patches of cultivable land and water for irrigation are available. The districts like Sirsa, Hisar, Bhiwani, and Rohtak, which have sand dunes and brackish water level are sparsely populated.

The population density of the state is influenced by many important factors i.e. productivity of soil, topography, climate, industrial development, urbanization and irrigational facilities. The state has variable population density. Districts like Faridabad (1020), Panipat (763), Ambala (644), Sonipat (603) and Gurgaon (599) show very high population density, which are much higher than the state average (477). These districts are economically

Table: 2.3
Haryana

	State	Pop.Density		Decadal growth rate		Sex ratio		Literacy Rate		% of Urb.Pop		Cr.Br. Rate		Total F.R		IMR	G.M.F.R.
		1991	2001	1981-1991	1991-2001	1991	2001	1991	2001	1991	2001	1991	98-99	1991	98-99	1991	98-99
	State	372	477	27.41	28.06	866	861	55.85	68.59	24.79	29.00	31.65	N.A	4.31	N.A	52	N.A
01	Panchkula	346	523	57.61	51.16	839	823	66.00	76.54	N.A	44.47	N.A	21.5	N.A	2.4	55.0	124.4
02	Ambala	512	644	22.31	25.69	903	869	66.57	76.20	35.85	35.19	28.18	20.8	3.5	2.6	61.0	121.9
03	Yamunanagar	456	556	27.41	21.84	883	863	60.60	72.20	33.82	40.00	32.47	23.8	4.3	2.8	35.0	135.9
04	Kurukshetra	437	541	23.40	23.72	879	866	58.44	70.04	24.25	26.06	29.98	23.0	3.8	2.8	81.0	137.0
05	Kaithal	337	408	20.92	20.95	853	854	42.85	59.50	14.74	19.36	31.03	23.1	4.2	2.9	44.0	133.9
06	Karnal	411	506	24.76	23.13	864	864	54.50	68.20	27.60	26.56	32.94	23.8	4.4	2.6	54.0	135.1
07	Panipat	551	763	37.65	38.57	852	830	57.13	69.75	27.16	40.51	33.46	26.9	4.6	3.1	54.0	155.5
08	Sonipat	493	603	24.53	22.36	840	839	62.06	73.71	23.78	25.13	30.81	23.3	4.2	2.9	72.0	137.9
09	Jind	363	440	23.03	21.35	838	853	46.81	62.80	17.27	20.34	32.74	23.3	4.5	3.0	47.0	127.7
10	Fatehabad	255	318	26.08	24.76	877	886	43.04	58.16	N.A	17.63	N.A	N.A	N.A	N.A	N.A	N.A
11	Sirsa	211	260	27.79	22.96	885	882	46.32	61.20	21.16	26.36	31.21	25.9	3.9	2.9	65.0	141.2
12	Hisar	304	386	22.67	27.06	853	852	50.49	65.85	21.18	34.96	33.75	24.3	4.4	2.9	54.0	138.2
13	Bhiwani	243	298	22.80	22.45	878	880	54.07	68.17	17.49	18.97	30.88	23.8	4.2	3.0	51.0	130.9
14	Rohtak	445	539	17.79	20.99	849	847	63.69	74.56	21.63	35.06	31.33	25.6	4.4	2.9	48.0	144.6
15	Jhajjar	390	484	21.37	24.09	861	848	63.36	72.48	N.A	21.98	N.A	N.A	N.A	N.A	N.A	N.A
16	Mahendragarh	367	437	27.91	19.09	910	919	57.87	70.43	12.70	13.46	32.85	26.7	4.4	2.9	47.0	150.3
17	Rewari	386	483	25.62	25.24	927	901	64.93	75.75	15.26	17.82	30.82	23.9	4.0	2.9	61.0	130.4
18	Gurgaon	414	599	32.67	44.64	871	874	52.61	63.64	20.51	22.28	40.23	32.1	5.7	3.3	84.0	189.4
19	Faridabad	687	1,020	49.81	48.47	828	839	59.77	70.79	48.66	55.63	34.92	31.6	N.A	3.4	56.0	187.4

Sources: Census of India Paper I of 1991, 2001
R.C.H Survey 1988-89

developed and industrialised, hence the population density here is very high. On the other hand, the picture is completely different in case of the districts like Sirsa (260), Bhiwani (298), Fatehabad (318) and Hisar (386), which show much lower density than the state average. Therefore it is quite obvious that the density is affected by the above-mentioned factors, in which geographical location as well as economic development plays a very important role. There is wide a regional variation in the decadal population growth rate in the state. Some districts where the decadal growth rate has decreased from the previous census, also exhibits growth rates much higher than the state average. These districts comprise of Panchkula (51.16), Faridabad (41.47), Gurgaon (44.4) and Panipat (38.57) in 2001 census where as the state average in 2001 stood at (28.06). On the other hand the district like Mahendragarh (19.09), Rohtak (20.99), Kaithal (20.95), Jind (21.35), Sonapat (22.36) show a low growth rate of population in 2001, also lower than the state average. Higher increase in Panchkula attribute to the rapid growth rate of Panchkula urban estate, which is in close proximity of the Union Territory Chandigarh. High increase of growth rate in Faridabad & Gurgaon region is due to industrial expansion of the National Capital Region of Delhi.

According to the Census 2001, Haryana is a female deficit state. The sex ratio in the state is among one of the lowest in the India, which is 861 male per 1000 female. Haryana exhibits consistently falling sex ratio since 1981. In 1981 it was 870 and 1991 it became 865 and in the present census it came down up to 861. The development in agriculture and household

industries based upon agricultural products invites migration of selective male population. Mahendragarh (919), Rewari (901), Fatehabad (886), Ambala (869) show higher sex ratios than the other districts which show lower Sex ratios like Panchkula (823), Panipat (830), Sonapat (839), while some other districts show very low sex ratio which is even lower than the state average. These are either agriculturally or industrially developed.

The total literacy figure of Haryana is similar to the national average. Male and female literacy, however, is higher than the national average. But within the state there is a significant disparity in literacy. The districts like Panchkula (76.56), Ambala (76.20), Rohtak (74.56), Rewari (75.75) show higher literacy rate but on the other hand there are some districts which show the lower literacy rate like Kaithal (59.50), Sirsa (61.20), Jind (62.80). This regional variation is marked due to the variation in economic development and industrialization the region. The districts, which has proximity to the urban area, show good literacy rates, while, on the other hand districts having high rural population show lower literacy rates.

Haryana shows a significant variation in crude birth rate distribution. The state follows the general pattern that the districts having high literacy rate also have the low crude birth rates, but some districts show the different nature in the state. For example the districts like Panchkula, Rewari, Rohtak, Ambala, where urban influence exists, have high literacy rate and lower crude birth rate. A different pattern emerges in districts like Faridabad; Gurgaon that

have higher literacy rate, at the same time also high crude birth rates. Again districts like Jind, Kaithal, Fatehabad have comparatively lower literacy show higher crude birthrate. From the above data pattern it is revealed that crude birthrate in Haryana is influenced by social indicator like literacy rate.

Haryana also shows the similar pattern like Punjab in total fertility rate. Within the state the districts also have significant variation regarding total fertility rate. The districts having high literacy rate also show lower total fertility rate. But the picture is different for some districts in the state. Districts like Gurgaon and Faridabad have higher literacy as well as high total fertility rates. Again other districts show inverse relationship with literacy rates.

In Haryana, the highly urbanized districts which show high literacy but lower General marital fertility rate are the districts like Gurgaon, Faridabad, Rewari, which shows similar trend as in the earlier indicators. But on the other hand, some districts that show comparatively lower literacy rate exhibit higher General Marital Fertility Rate. Thus we can correlate that literacy and child birth rates, total fertility rates, General Marital Fertility rates show inverse relationship in the general trend, but in some districts they show different picture.

2.3.2 Eastern Region

2.3.2 (a) West Bengal

West Bengal is situated between geographical coordinate 21°25'02" North to 27°13'15" North latitude and 85°49'20" East to 89°53'04" East longitudes. The Kingdom of Bhutan and Sikkim bound the state from the northern side, and in the south, she is bounded by the Bay of Bengal, in the west side she is bounded by Orissa and Bihar and in East her boundary touches with Bangladesh. West Bengal occupies 88,752 sq. km area of the country.

The density of population according to 2001 census is 904 people per square km in West Bengal, but the density varies tremendously within the state. The highest density at the district level has been recorded in the city district of Kolkata (23783), followed by Howrah (2542), North Twenty-four Parganas (2181) and Hugli (1601). Lowest densities are found in the districts of Purlia (405), Bankura (464), Darjiling (510), Jalpaiguri (547) which are also much lower than the state average. This variation can quite be significantly analyzed due to high industrialization and urbanization in the region. The lower density- regions have very low rate of urbanization and industrialization.

The growth of population in West Bengal was very high during the 1981-1991, which was 24.73 percent as against all India growth rates 23.85 percent. During this decade West Bengal was amongst the higher growth rate states. But in the present decade 1991-2001, the scenario has been completely changed. West Bengal ranks among the lower growth rate states, having

**Table: 2.4
West Bengal**

		Pop.Density		Decadal growth rate		Sex ratio		Literacy Rate		% of Urb.Pop		Cr.Br. Rate		Total F.R		IMR	G.M.F.R.
		1991	2001	1981-1991	1991-2001	1991	2001	1991	2001	1991	2001	1991	98-99	1991	98-99	1991	98-99
01	State	767	904	24.73	17.84	917	934	57.70	69.22	27.39	28.03	29.01	N.A	3.61	N.A	62	N.A
	Darjiling	413	510	26.91	23.54	914	943	57.95	72.87	30.71	32.43	29.83	25.5	3.5	2.3	58.0	148.2
02	Jaipalguri	450	547	26.44	21.52	927	941	45.09	63.62	16.40	17.74	32.08	27.4	3.9	2.8	79.0	143.8
03	Koch Bihar	641	732	22.55	14.15	935	949	45.78	67.21	7.85	9.09	32.82	27.6	4.1	2.8	98.0	146.3
04	Uttar Dinajpur	604	778	34.00	28.72	921	937	34.58	48.63	N.A	12.05	N.A	34.6	N.A	3.3	N.A	200.3
05	Dakshin Dinajpur	555	677	24.39	22.11	944	950	46.40	64.46	N.A	13.08	N.A	26.1	N.A	2.7	N.A	129.8
06	Maldah	706	881	29.78	24.77	938	948	35.62	50.71	7.08	7.32	37.56	30.8	5.0	3.2	96.0	162.4
07	Murshidabad	890	1,101	28.20	23.70	943	952	38.28	55.05	10.41	12.48	37.02	29.9	4.9	3.2	77.0	155.3
08	Birbhum	562	663	21.94	17.88	946	949	48.56	62.16	8.98	8.58	31.34	22.8	3.8	2.7	87.0	122.4
09	Bardhaman	861	985	25.13	14.36	899	921	61.88	71.00	35.43	37.17	28.95	23.8	3.6	2.5	61.0	118.8
10	Nadia	981	1,172	29.95	19.51	936	947	52.53	66.55	22.65	21.26	30.18	16.9	3.7	2.5	80.0	89.8
11	North 24 Parganas	1,779	2,181	31.69	22.64	907	927	66.81	78.49	50.83	54.3	27.33	21.3	3.3	2.4	77.0	110.7
12	Hugli	1,383	1,601	22.43	15.72	917	947	66.78	75.59	30.49	33.48	24.5	19.4	2.9	2.4	47.0	105.9
13	Bankura	408	464	18.12	13.79	951	953	52.04	63.84	8.31	7.37	28.27	22.8	3.5	2.4	63.0	125.8
14	Puruliya	355	405	20.00	13.96	947	953	43.29	56.14	9.48	10.06	30.99	26.0	4.1	3.0	55.0	147.8
15	Medinipur	592	685	23.57	15.68	944	955	69.32	75.17	10.00	10.48	30.9	24.8	3.7	2.7	73.0	137.8
16	Haora	2,542	2,913	25.71	14.60	881	906	67.62	77.64	49.54	50.38	28.75	19.7	3.6	2.6	45.0	111.1
17	Kolkata	23,783	24,760	6.61	4.11	799	828	77.61	81.31	100.00	100	24.21	17.3	3.1	2.1	28.0	89.4
18	South 24 Parganas	574	694	30.24	20.89	929	938	55.10	70.16	12.49	15.77	37.05	23.6	4.9	2.7	76.0	125.3

Sources: Census of India Paper I of 1991, 2001
R.C.H Survey 1988-89

growth rate of 17.84 percent and this figure is lower than the all India growth rate of 21.34 percent. Within the state itself, there is significant variation in the decadal population growth rate. Very few districts like Uttar Dinajpur (28.72), Darjiling (23.54), Maldah (24.75), North Twenty-four-Pargana (22.64), Jalpaiguri (21.52) and some others show the higher growth rate of population. On the other hand, rest of the Districts shows lower growth rates, which is lower than the state average. Kolkata shows the lowest growth rate of 4.11 percent. The overall pattern exhibits that the districts which have more urban concentration shows the lower growth rate, on the other hand the districts which have the high rural population ratio show the higher growth rates. This may be due to lack of knowledge and awareness regarding population control.

In the 2001 census the sex ratio of West Bengal is 934 against the all India figure of 933. It has recorded a much significant improvement compared to the 1991 census in which West Bengal recorded 917 as against the all Indian figure of 927. There is 17 points increase in this decade is really a great achievement for the state. Within the state there is a very little variation in sex ratio. More or less all the districts except some urbanised districts like Kolkata (828), Howrah (906), North Twenty-four Parganas (927) and Burdhaman (921) show favourable sex ratio more than the state average of 934. Most of the districts of West Bengal have improved their sex ratios from the last decade. But some districts show very striking improvement in sex ratio.

Districts like Darjiling, Burdhaman, Hugli and even Metropolitan City Kolkata added significantly more than 25 points to their sex ratios.

West Bengal ranks among the higher literacy states. The state literacy figure 69.22 percent in 2001 is higher than the all India average, which is 65.38 percent. Due to the institutionalized system and colonial effects the state enjoys good facilities of academic institutions, which helps in the achievement of higher literacy figures. However there is some variation in literacy within the state. In most of the districts the literacy rate is very close or higher than the state average as well as the all India average. No district likes Maldah (50.71), Murshidabad (55.06), Birbhum (62.16), Purlia (56.14), Kooch Bihar (63.62). No district has literacy rate lower than 50 percent and it goes up to 81 percent in the state. During this decade literacy has surprisingly gone up in the state as well as in all the districts of West Bengal. This is really very remarkable feature.

West Bengal shows a wide variation regarding the crude birth rate. It ranges from 16.1 percent to 34.6 percent. Districts, which have good literacy rate such as Kolkata, Haora, Hugli, Nadia enjoy lower crude birth rate and on the other hand districts like Uttar Dinajpur (34.6), Maldah (30.8), Purlia (26.0) Bardhwan (23.8) show higher crude birth rates. These districts also show lower literacy rates. But the main reason of high crude birth rates is due to lower female literacy rates in these districts.

In the West Bengal the total fertility rate also show the similar pattern like crude birth rate in the state and district also. It ranges 2.1 to 3.0. The highly urbanized areas of the state that has good literacy rates show lower total fertility and the rural area that comprises lower literacy rate enjoys higher total fertility rates. This pattern shows that the awareness and literacy affects the rate of total fertility in the state.

In West Bengal the General Marital Fertility rate ranges very high, it ranges from 89.8 to 200.3. General marital fertility rate is completely inversely proportional to the literacy rate of the state. The districts that show higher literacy rates like Kolkata, Haora, Hugli, Nadia, North Twenty-four Parganas show the lower General Marital Fertility rates. Higher GMFR is found in the districts like North Dinajpur (200.3), Maldah (162.4), and Murshidabad (155.3).

2.3.2 (B) Orissa

Orissa is situated between 81°27' and 87°21' East longitude and 17°49' and 22°34' North latitude. It lies in the East Coast of India with 482 km. of coastline and bounded in the north by state of Jharkhand, in the west by the state of Madhya Pradesh and Chattishgarh in the northeast by the state of Andhra Pradesh and West Bengal respectively. The state comprises of an area of 1,55,207sq. Km.

For the state as a whole the density is 236 persons per sq. Km. This is very low than the all India average, which is 324 persons per sq. Km. Overall

Table: 2.5
Orissa

	State	Pop.Density		Decadal growth rate		Sex ratio		Literacy Rate		% of Urb.Pop		Cr.Br. Rate		Total F.R		IMR	G.M.F.R.
		1991	2001	1981-1991	1991-2001	1991	2001	1991	2001	1991	2001	98-99	98-99	1991	98-99		
	State	203	236	20.06	15.94	971	972	49.09	63.61	13.49	14.97	28.8	N.A	3.3	N.A	124	N.A
01	Bargarh	207	231	16.93	11.47	979	976	47.65	64.13	N.A	7.69	26.2	25.1	3.1	2.8	131.0	144.0
02	Jharsuguda	212	245	21.41	15.13	938	946	52.73	71.47	N.A	36.4	24.05	22.0	3.2	2.8	132.0	129.2
03	Sambalpur	122	140	18.47	14.17	956	970	51.52	67.01	17.18	27.37	28.3	24.6	2.9	2.7	79.0	138.0
04	Debagarh	80	93	18.50	17.02	982	980	44.45	60.78	N.A	7.33	31.45	28.8	2.9	2.8	98.0	163.7
05	Sundargarh	162	188	17.62	16.26	936	957	52.97	65.22	33.46	34.38	26.58	23.2	2.9	2.8	99.0	138.0
06	Kendujhar	161	188	19.95	16.79	974	977	44.73	59.75	12.67	13.64	27.05	26.8	3.3	3.2	102.0	142.7
07	Mayurbhanj	181	213	19.14	17.89	979	980	37.88	52.43	6.19	6.99	26.3	24.0	3.4	2.8	105.0	140.3
08	Baleshwar	446	532	24.96	19.24	955	949	57.64	70.94	9.46	10.88	27.69	25.0	2.9	2.9	97.0	149.3
09	Bhadrak	441	532	23.55	20.47	985	973	60.54	74.64	N.A	10.58	26.02	24.0	2.5	3.1	92.0	142.4
10	Kendrapara	435	492	17.15	13.25	1,007	1,014	63.61	77.33	N.A	5.69	25.31	22.1	3.1	2.9	112.0	141.2
11	Jagatsinghapur	560	633	17.98	13.15	977	962	65.77	79.61	N.A	9.87	24.31	21.2	3.2	2.9	132.0	135.2
12	Cuttack	522	595	19.37	14.00	922	938	65.46	76.13	12.31	27.41	21.36	19.8	2.9	2.8	121.0	114.7
13	Jajapur	478	560	22.01	17.08	977	973	58.00	72.19	N.A	4.49	24.36	21.8	3.2	3.3	125.0	129.1
14	Dhenkanal	213	239	18.92	12.46	954	962	54.91	70.11	9.89	8.7	25.3	21.3	3.0	2.9	124.0	113.1
15	Anugul	151	179	22.31	18.55	942	941	51.53	69.40	5.95	13.9	29.6	25.2	2.9	3.0	94.0	132.7
16	Nayagarh	201	222	14.52	10.39	958	939	57.20	71.02	N.A	4.29	25.3	22.3	2.9	2.8	102.0	113.6
17	Khordha	534	666	32.67	24.79	903	901	67.72	80.19	N.A	42.93	21	18.8	2.9	2.7	106.0	114.6

18	Puri	375	431	18.08	14.80	970	968	63.30	78.40	19.76	13.6	26.3	22.6	2.8	2.7	92.0	132.6
19	Ganjam	330	382	19.25	16.01	1,006	1,000	46.72	62.94	14.97	17.16	26.3	28.5	3.0	3.2	102.0	158.6
20	Gajapati	105	120	13.04	14.02	1,027	1,031	29.37	41.73	N.A	10.18	27.5	28.1	3.0	3.1	108.0	151.1
21	Kandhamal	68	81	21.69	18.60	999	1,008	37.23	52.95	N.A	6.81	35.4	33.0	2.6	3.0	103.0	177.5
22	Baudh	103	120	18.35	17.45	987	985	40.98	58.43	N.A	4.82	29.8	27.5	3.2	2.7	104.0	145.6
23	Sonapur	204	231	19.99	13.39	979	966	42.62	64.07	N.A	7.41	24.3	23.7	3.5	3.0	102.0	139.9
24	Balangir	187	203	15.94	8.52	981	983	38.63	54.93	9.64	11.55	26.4	26.4	3.2	2.7	91.0	132.9
25	Nuapada	122	138	19.56	13.00	1,002	1,006	27.52	42.29	N.A	5.66	26.3	27.3	2.8	2.6	76.0	152.2
26	Kalahandi	143	168	19.48	17.99	999	1,000	31.08	46.20	6.53	7.51	27.9	28.7	3.0	2.7	123.0	141.1
27	Rayagada	101	116	17.29	15.27	1,012	1,029	26.01	35.61	N.A	14.02	31.2	29.1	2.7	2.6	125.0	137.9
28	Nabarangapur	160	192	24.22	20.26	989	992	18.62	34.26	N.A	5.82	32	32.4	2.9	2.7	92.0	169.3
29	Koraput	117	134	19.93	14.41	991	998	24.64	36.20	11.26	16.82	32.64	30.6	3.0	2.7	93.0	140.0
30	Malkangiri	73	83	26.00	13.71	985	996	20.04	31.26	N.A	7.21	31.25	29.2	3.0	2.8	93.0	139.9

Sources: Census of India Paper I of 1991, 2001
R.C.H Survey 1988-89

Orissa is a sparsely populated state in the country. However the density of population is quite uneven at the district level in the state. The higher density areas are confined mainly to the coastal plains of Baleswar, Cuttuk, Puri and Ganjam districts. High density may be attributed largely to the industrialization and economic development of area. Khorda shows the highest density (666) followed by Jagatsinghpur (633), Cuttuk (595) Baleswar and Bhadrak (532). Lowest densities are found in Kandhamal (81), Malkangiri (83), Debagarh (80), which, are situated in the rugged interior region of the state away from the East Coast. In the state of Orissa the decadal growth rate of population pattern has been changed from the previous decade significantly. Earlier it was 20.06 percent but in the present decade it shows the lower growth rate of population, i.e 15.94 percent, which is one of the lowest growth rates in India. Within the state almost all the districts show lower growth rate of population in comparison to national average. Very few districts like Khorda (24.79) Bhadrak (20.49), Navrangpur (20.26), Kandhamal (18.60) show higher growth rate of population. But some districts show very low growth rate of population like Bolangir (8.52), Dhenkanal (12.46) and Nayagarh (10.39). This is due to the backwardness and the lack of life support systems in these districts.

Despite its backwardness and handicaps Orissa shows very favourable sex ratio. Almost all the districts have sex ratios more than the national average of 933 in the present decade. Highest sex ratio can be observed in the district of Ganjapati (1031), followed by Rayagada (1029), Kendrapara

(1014), Naupada (1006) and Ganjam (1000). The lower sex ratios are exhibited by Khorda (901), Cuttuk (938), Nayagarh (939), and few others.

The picture of literacy is dismal in the state, literacy rate being slightly lower than the country's average. Within the state itself there is a significant variation. The coastal regions of Orissa have the high literacy rate and in the interior very low literacy rate exists. In the coastal region the districts i.e. Khorda (80.19) has the highest literacy rate followed by Jagatsinghpur (79.61), Puri (78.40), Kendrapara (77.33), Cuttuk (76.13) and on the other hand districts showing poor literacy rate include Malkangiri (31.26), Koraput (36.20), Nawrangpur (34.26), and Raygarha (35.61). Thus we can say that there is a wide variation in distribution of literacy rate among the districts. More or less half of the districts show literacy rate lower than 50 percent and some shows nearby this figure. Very few districts show high literacy rate.

In Orissa there is a significant variation in the crude birth rate. The districts, which are, located in the interior region of Orissa show the high crude birth rates, like the district of Malkangiri (29.20), Koraput (30.60), Nawrangpur (34.26) and Sambalpur (28.80). On the other hand the coastal districts have lower crude birth rates like Cuttuk (19.80), Khorda (18.80), Jajapur (21.80),

Dhenkhal (21.3), and others. Higher literacy affects the crude birth rate in the state. Again the districts showing high literacy in Orissa have low crude

birth rates and also lower total fertility rates. Total fertility rate mainly depends upon the medical facilities and survival possibility of the child. Another aspect that can also be taken into consideration is that of child labour. If the parent needs a hand, which will prove source of income for them definitely, the total fertility rate will be high. That is the main reason for high total fertility rate in backward region of Orissa.

General Marital Fertility rate shows similar pattern like crude birth rate, and total fertility rate in the state of Orissa. However, there exists a wide variation in GMFR in Orissa. Its range is from 113.4 to 177.5. Districts like Kandamal (177.5), Navrangpur (169.3), Debgarh (163.7) show high General marital fertility rate but on the other hand districts like Dhenkhal (113.1), Cuttack (114.7), show lowest general marital fertility rate. The districts, which have good health facilities, have lower General marital fertility rate also.

2.3.3 Southern Region

2.3.3 (A) Kerala

Kerala forms the southwestern most state of the Indian subcontinent. It lies between 8°17'30" to 12°47'40" North latitude and 74°51'57" to 77°24'47" east latitude. Karnataka bound it in the north and northeast, in the south she is bounded by Tamilnadu State and in the west by the Lakshadweep Sea. The state has an area of 38,863 sq. Km, which accounts 1.18 percent of the total area of the country. Kerala is a distinct physical and cultural entity. Hemmed in between the mighty Sahyadri Mountain and the coast and the

Table: 2.6
Kerala

	State	Pop.Density		Decadal growth rate		Sex ratio		Literacy Rate		% of Urb.Pop		Cr.Br. Rate		Total F.R		IMR	G.M.F.R.
		1991	2001	1981-1991	1991-2001	1991	2001	1991	2001	1991	2001	1991	98-99	1991	98-99	1991	98-99
		749	819	14.32	9.42	1,036	1,058	89.81	90.92	26.44	25.97	24.67	N.A	2.6	N.A	42	N.A
01	Kasaragod	538	604	22.78	12.30	1,026	1,047	82.51	85.17	16.46	19.42	29.54	20.1	3.3	2.4	34.0	124.1
02	Kannur	759	813	16.63	7.13	1,049	1,090	91.48	92.80	51.02	50.46	23.66	21.3	2.5	2.4	34.0	133.0
03	Wayanad	315	369	21.32	17.04	966	1,000	82.73	85.52	3.41	3.76	25.02	30.8	2.6	2.2	54.0	118.9
04	Kozhikode	1,118	1,228	16.69	9.87	1,027	1,058	91.10	92.45	38.42	38.25	28.68	20.1	3.1	2.1	37.0	112.0
05	Maiappuram	872	1,022	28.87	17.22	1,053	1,063	87.94	88.61	9.13	9.81	36.55	25.0	4.2	2.9	35.0	146.5
06	Palakkad	532	584	16.52	9.86	1,061	1,068	81.27	84.31	15.75	13.62	24.43	19.8	2.7	2.2	31.0	122.4
07	Thrissur	903	981	12.20	8.70	1,085	1,092	90.18	92.56	26.32	28.21	21.17	19.2	2.1	1.9	29.0	114.4
08	Ernakulam	963	1,050	11.42	9.09	1,000	1,017	92.30	93.42	48.79	47.65	20.7	18.1	2.1	1.8	32.0	110.5
09	Idukki	236	252	10.45	6.96	975	993	86.97	88.58	4.73	5.07	26.32	17.2	2.8	1.8	57.0	112.9
10	Kottayam	828	884	7.71	6.76	1,003	1,025	95.72	95.90	17.56	15.35	21.31	20.6	2.2	2.0	28.0	122.2
11	Alappuzha	1,415	1,489	7.28	5.21	1,051	1,079	93.87	93.66	30.62	29.36	19.62	18.0	2.0	1.8	25.0	109.8
12	Pathanamthitta	450	467	5.60	3.72	1,062	1,094	94.86	95.09	13.06	10.03	17.52	16.5	1.9	1.8	27.0	99.1
13	Kollam	967	1,037	10.68	7.33	1,035	1,070	90.47	91.49	18.59	18.03	21.66	19.1	2.1	1.9	25.0	113.5
14	Thiruvananthapuram	1,344	1,476	13.50	9.78	1,036	1,058	89.22	89.36	33.59	33.78	22.44	17.1	2.3	1.9	38.0	97.3

Sources: Census of India Paper I of 1991, 2001
R.C.H Survey 1988-89

Lakshadweep Sea on the west the land is a beautiful tract with a pleasant climate. The narrow strip of land has a long seacoast of about 580 Km. The width of the state at the northern extreme is about 16 Km and it gradually increases towards the central region of the state. The maximum width reaches near Kodungaller with 102 Km. Then it gradually tapers off at the southern most tip of Kerala. It has width of only 8 Km. The State is accessible by land, sea and air from rest of the country.

Kerala has a population density of 819 people per sq. Km., which is much higher than the all India average of 324 people per sq. Km. The population density within the state itself varies on a spatial basis. The districts, which are located near the coast, have higher densities than the districts located in the interior. The coastal districts have high density of population owing to their location than the interior areas.

Large tracts of tea plantation and dense forests cover the interior areas, which results in the poor population density. Districts like Alappuzha (1489), Thiruanantpuram (1476), Kozhikode (1228), Ernakulam (1050) Malappuram (1022) shows very high population density due to their coastal location, while districts like Iddukki (250), Wayanad (369), Pathanamithitta (467) show lower densities of population due to their interior location and hilly topography.

The state registered a population growth rate of the 9.42 percent during 1991-2001, which is significantly lowest among all the States and Union Territories of India. It is very much lower than the national average of 21.34

percent also. Within the state there is variation in the population growth rate except districts like Malapurram (17.22), Wayanad (17.04), Kasaragod (12.30) that shows higher population growth rate. More or less half of the districts of the state show the growth rate lower than the state average, which is 9.42 percent. Higher growth rate is found in the interior region and hilly district of the state, where the physiography is not favourable.

Kerala is known for higher sex ratio in the country. It had recorded the highest sex ratio in the country from decades. Sex ratio in Kerala is 1058 which is very much high than that of the nation average of 933 females per 1000 males. Due to the many positive factors, Kerala occupies this position for a very long time. Kerala also enjoys very good literacy rate and awareness programs. Within the state, however, there is a variation in literacy. There are districts, which show very much higher sex ratio rather more than state average. Districts like Pathanamthitta (1094), Thrissur (1092), Kannur (1090), Alappuzha (1079), has very high sex ratios, but on the other hand Idukki (993), has the lowest sex ratio in the state. This is lower than state but very much higher than national average followed by Wayanad (1000), Ernakulam (1017) and Kottayam (1025). Thus, within the state there is a considerable variation of sex ratio exists.

Literacy rate in Kerala has been worked out as 90.92 percent, which is much higher than the national average of 65.38 percent. The state ranks highest among the states of India. Likewise, the percentage of literate in the

total population (excluding 0-6 age groups) varies considerably. It is maximum in Kottayam (95.90) and minimum in Palakkad (84.31). In seven districts, the literacy rate is higher than the state average. But there are five districts where the literacy rates are lower than the state average. In all respect all districts of the state show their literacy rate to be higher than the national average. Higher the literacy rates tribute so many factors. The impact of colonial and foreign intrusion contributes the highest enhancement of literacy rate in the state.

Likewise literacy rate, crude birth rate also varies in the state. The districts where literacy rate is higher the crude birth rate automatically comes down and vice-versa. Highest crude birth rate has been recorded in the district of Malappuram, which shows 25.0, and literacy rate is 88.61. Lowest crude birthrates are seen in Kottayam where literacy rate is highest (95.90). Thus we can infer that crude birth rate in the districts is inversely proportion to the literacy rate.

Total fertility rate in the state is lower than the other states. Like crude birth rate it is also inversely proportional to literacy. The district, which has higher sex ratio, high literacy, has lower total fertility rate. The variation in total fertility rate is slightly lower than other states. It ranges from 1.8 to 2.4. Highest total fertility rate can be seen in the district of Kasaragod, Kannur which shows 2.4 respectively and lower comes in the district of Kottayam (1.8), Ernakulam (1.8), Pathanamthitta (1.8) and others. Thus it can be infered

that this indicator is dependent upon literacy rate and other developmental factor in the state.

The state of Kerala shows also a very poor variation in the General marital fertility rate in the state. The state shows a low range of General marital fertility rates with respect to other state. Highest General marital fertility rates are seen in the district of Malapurram (146.5) and lowest in the district of Pathanamthitta (99.1). So the state shows a low variation in General marital fertility rates. Likewise the other indicators i.e. crude birth rate, total fertility rate it also depicts inverse relation with the literacy rate and sex ratio. Less developed regions show high General marital fertility rate and vice-versa. Thus the other put a direct or indirect impact on the above-mentioned indicator.

2.3.3 (B) Tamilnadu

Tamilnadu, a land of art and culture, which was part of the Madras Presidency, came into existence on 1st November 1956 when the state reorganization took place on the basis of language. The name Tamilnadu was given to the then Madras State on 14th January 1969. The state lies between 8°5' to 13°35' North latitude and between 76°15' to 80°20' East longitude in the southern end of Indian peninsula. Karnataka and Andhra Pradesh in the north, Bay of Bengal in the east, Indian Ocean bound it in the south and Kerala in the west. The total area of the state is 1,30,058 sq. Km.

Tamilnadu has an average of 478-person Sq. Km, compared to the national average, which is 324-person Sq. Km. in the 2001 census. Within the state itself there is a large variation of population density. The highest concentration of population is recorded in Chennai district 24,231 people Sq. Km, which is treated as a single unit. Since Chennai district has a large number of commercial and manufacturing unit and having high influx of migrants, it is one of the biggest metropolises in India. Leaving Chennai district Kanyakumari claims the highest population density in the state of 992 people Sq. Km, followed by Thriuvalur (880), Madurai (733), Thanjaur (649) and Kanchipuram (647). All the districts have great historical significance, which attributes to the high population density. On the other hand districts like Dharmapuri (294), Ramnathpuram (287) Perambalur (278) and Shivganga (275) show very low population density rather lower than the state average as well as the national average also. Thus there is a significant variation in population density in the state of Tamil Nadu.

Among the states of India after Kerala, Tamilnadu shows the lowest decadal growth rate of population during 1991-200. Its decadal growth rate of population was 11.19 percent. But within the state of Tamilnadu significant variation exists in the decadal growth rate of population. Districts like Thiruvallur (22.25), Coimbatore (20.40), Kanchipuram (18.84), Dharmapuri (16.66) and Vellore (15.09) show very high decadal growth rate of population. But the other districts show comparatively lower decadal growth rate of

population rather lower than the state average also. Shivganga shows the lowest decadal growth rate of population (4.32) followed by Theni (4.33), Ramnathpuram (5.73) and Kanyakumari (4.34). This wide variation is reflective of the differential development of the areas in the state.

The state of Tamilnadu shows a high sex ratio of 986 female per 1000 male population, which is higher than the national average 933. Within the state itself there is a considerable variation of sex ratio. Some districts show very high sex ratio higher than the state average. Districts like Toothukudi has recorded highest sex ratio (1049) followed by Tirunveli (1042), Shivganga (1035), Ramnathpuram (1033). On the other hand districts like Chennai (951), Salem (929), Dharmapuri (938) recorded lower sex ratios in the state. Among the lowest, Salem recorded a figure of 929 in the state, which is lower than the state average as well as the national average.

According to 2001 census the state has the literacy rate 73.47 percent. There is a remarkable variation of literacy rate among the state. There are 15 out of 30 districts that have the literacy rate lower than the state average. Kanyakumari records very high Literacy rate of 88.11 percent followed by the Chennai (84.77), Nilgiri (81.44), and Tothukoddi (81.96). On the other hand among the lowest literacy rate the district Dharmapuri occupies the key position with a literacy rate of 59.23 followed by Villupuram (64.68), Errode (65.51) that have the literacy which is lower than the state average as well as the national average also.

**Table: 2.7
Tamil Nadu**

	State	Pop.Density		Decadal growth rate		Sex ratio		Literacy Rate		% of Urb.Pop		Cr.Br. Rate		Total F.R		IMR	G.M.F.R.
		1991	2001	1981-1991	1991-2001	1991	2001	1991	2001	1991	2001	1991	98-99	1991	98-99	1991	98-99
	State	429	478	15.39	11.19	974	986	62.66	73.47	34.20	43.86	26.44	N.A	3.1	N.A	54	N.A
01	Thiruvallur	654	800	31.53	22.35	957	970	66.22	76.54	N.A	54.48	N.A	N.A	N.A	N.A	N.A	N.A
02	Chennai	22,077	24,231	17.24	9.76	934	951	81.60	80.14	100.00	100	24.61	18.7	2.7	1.9	32.0	101.6
03	Kancheepuram	545	647	26.14	18.84	962	972	66.53	77.61	N.A	53.48	N.A	N.A	N.A	N.A	N.A	N.A
04	Vellore	498	573	15.14	15.09	978	997	60.87	73.07	N.A	37.85	N.A	N.A	N.A	N.A	N.A	N.A
05	Dharmapuri	252	294	21.61	16.66	942	938	46.02	59.23	9.41	15.77	28.12	23.1	3.5	2.4	59.0	118.9
06	Tiruvanamalai	330	352	14.40	6.80	983	996	53.07	68.22	12.10	18.36	26.7	20.0	3.4	2.5	58.0	122.0
07	Viluppuram	380	406	16.08	6.83	969	983	48.36	64.68	N.A	14.49	N.A	N.A	N.A	N.A	N.A	N.A
08	Salem	493	573	13.43	16.28	925	929	52.76	65.72	28.96	46.35	23.34	21.0	2.7	2.3	54.0	106.8
09	Namakkal	386	436	12.79	13.08	960	967	54.37	67.66	N.A	36.75	N.A	19.6	N.A	2.0	N.A	93.8
10	Erode	283	314	12.17	10.94	958	971	53.80	65.51	N.A	46.2	N.A	19.9	N.A	1.9	N.A	103.6
11	The Nilgiris	279	300	12.70	7.69	983	1,015	71.70	81.44	49.91	59.51	24.94	17.9	2.5	2.1	41.0	106.8
12	Coimbatore	470	566	14.65	20.40	952	959	66.35	76.95	53.20	66.03	22.53	19.5	2.5	1.9	46.0	113.1
13	Dindigul	291	317	12.54	8.99	976	986	56.68	69.83	21.38	35.02	24.29	19.9	2.7	2.1	68.0	111.2

14	Kapur	284	311	12.87	9.32	999	1,010	56.06	68.74	N.A	33.19	N.A	N.A	N.A	N.A	N.A	N.A
15	Tiruchirappalli	499	542	15.57	8.76	982	1,000	68.67	79.16	26.73	46.65	26.25	20.4	3.1	2.2	59.0	118.2
16	Perambalur	258	278	17.92	7.97	975	1,007	51.81	65.88	N.A	14.54	N.A	N.A	N.A	N.A	N.A	N.A
17	Ariyalur	328	358	11.16	9.06	975	1,007	48.98	64.88	N.A	11.38	N.A	N.A	N.A	N.A	N.A	N.A
18	Cuddalore	582	626	16.13	7.43	967	985	58.59	71.85	N.A	33	N.A	N.A	N.A	N.A	N.A	N.A
19	Nagapattinam	507	548	11.68	7.95	993	1,014	65.75	76.89	N.A	22.15	N.A	N.A	N.A	N.A	N.A	N.A
20	Thiruvarur	508	538	12.04	5.92	987	1,013	66.15	76.90	N.A	20.24	N.A	N.A	N.A	N.A	N.A	N.A
21	Thanjavur	605	649	11.13	7.38	996	1,020	66.13	76.07	22.94	33.92	25.87	17.8	3.0	2.3	40.0	107.8
22	Pudukkottai	285	312	14.72	9.43	1,005	1,015	57.63	71.96	14.27	16.93	31.58	23.8	4.0	2.5	58.0	136.9
23	Sivaganga	263	275	10.72	4.32	1,033	1,035	62.95	72.66	N.A	28.18	N.A	20.8	N.A	2.4	N.A	119.9
24	Madurai	686	733	17.51	6.75	964	978	69.08	78.65	44.99	55.94	27.78	19.6	3.3	2.4	55.0	108.6
25	Theni	342	357	12.98	4.33	964	979	60.26	72.01	N.A	54.1	N.A	23.0	N.A	2.3	N.A	116.8
26	Virudhunagar	365	409	16.71	11.92	994	1,011	62.91	74.23	N.A	44.38	N.A	21.1	N.A	2.4	N.A	110.5
27	Ramanathapuram	271	287	12.11	5.73	1,011	1,033	61.65	73.05	21.98	25.34	27.4	21.4	3.5	2.4	53.0	130.3
28	Toothukudi	315	339	7.80	7.54	1,051	1,049	73.02	81.96	N.A	42.28	N.A	N.A	N.A	N.A	N.A	N.A
29	Tirunelveli	367	411	12.53	11.97	1,034	1,042	65.58	76.97	31.72	46.48	28.55	19.9	3.6	2.3	72.0	118.7
30	Kanniyakumari	950	992	12.43	4.34	991	1,013	82.06	88.11	16.92	65.1	25.22	19.3	3.1	2.0	30.0	122.6

Sources: Census of India Paper I of 1991, 2001
R.C.H Survey 1988-89

The state of Tamilnadu shows lesser variation regarding the crude birth rate in the state. Here also crude birth rate is inversely proportionate to the literacy rate and sex ratio. The highest crude birth rate is noticeable in Pudukkottai (22.8), followed by Vellore (23.1), Theni (23.0) and the lowest is noticeable in the districts of Nilgiri (17.9), followed by Thanjavur (17.8) and Chennai (18.7).

The state also shows the low variation in total fertility rate. The variation ranges from 1.9 to 2.5 only. At the district level the highest variation is found in the district of Tiruvanamalai & Pudukkottai which is 2.5 followed by Ramnathpuram (2.4), Madurai (2.4), Shivganga (2.4) and Dharmapuri (2.4). The lowest total fertility rate can be seen into districts of Chennai (1.9), Erode (1.9) and Coimbtore (1.9). Among the later districts like Ramnathpuram has the higher literacy rate as well as lower sex ratios for females, but the other districts have comparatively lower literacy rate as well as sex ratio but total fertility rate is lower. Thus a mixed picture is observed.

In Tamilnadu the variation of General marital fertility rate is narrow. General marital fertility rate ranges between 93.8 to 136.9. Therefore hardly a 50-point variation in General marital fertility rate is noticeable at the district level data. The higher General marital fertility rate can be seen in the district of Pudukkottai (136.9) followed by Ramnathpuram (130.3) Tiruvanamalai (122.0).

2.3.4. West Region

2.3.4. (A) Gujarat

The state of Gujarat was carved out on 1st May 1960 from Bombay State under the State Reorganization Act of 1960. Gujarat State is situated in the West Coast of India extending between 20°07' to 24°43' North Latitude and 68°07' to 74°29' East Longitude. Pakistan bound the state in the northwest, Rajasthan in the north and northeast, Madhya Pradesh in the east, Union Territory of Dadra Nagar Haveli to the south. The state comprises an area of 1,96,024 sq. Km., which accounts to 5.96 percent of the total area of the country.

According to the average density of population per sq. km. in Gujarat State is 258, which is quite lower than that of country as a whole (324). As far as the district level data is concerned there are 11 districts below and 14 districts above the state average. The district of Kachchh recorded the lowest density of 33 per sq. km. where as Ahmedabad district recorded the highest density of 718 per sq. km. The reason for the low density in Kachchh district can be assigned to the fact that it forms a part of desert topography having poor soil and inadequate and erratic rainfall. On the other hand, high density of population in Ahmedabad (718), Gandhinagar (617), Surat (653), Vadodara (482), Valsad (465) districts is due to the excellent network of communication and concentration of industries. Ahmedabad has the highest density due to

Table: 2.8
Gujarat

	State	Pop.Density		Decadal growth rate		Sex ratio		Literacy Rate		% of Urb.Pop		Cr.Br. Rate		Total F.R.		IMR	G.M.F.R.
		1991	2001	1981-1991	1991-2001	1991	2001	1991	2001	1991	2001	1991	98-99	1991	98-99	1991	98-99
	State	211	258	21.19	22.48	934	921	61.29	69.97	34.40	37.35	33.56	N.A	4.2	N.A	78	N.A
01	Kachchh	28	33	20.22	20.90	964	951	52.15	NA	30.28	N.A	34.37	26.2	4.39	3.3	79.0	152.6
02	Banas Kantha	184	233	30.87	26.31	934	931	39.50	51.26	10.18	11	38.22	29.6	5.29	3.0	85.0	170.5
03	Patan	181	206	12.35	14.08	944	933	53.91	60.59	N.A	20.12	N.A	18.8	N.A	2.9	N.A	107.4
04	Mahesana	374	419	17.35	12.04	951	926	68.39	75.54	22.03	22.4	N.A	27.5	4.14	3.6	89.0	143.8
05	Sabar Kantha	238	282	17.23	18.30	965	948	59.03	67.31	10.50	10.89	34.72	23.0	4.26	3.3	75.0	97.9
06	Gandhinagar	498	617	24.49	23.88	934	911	73.78	76.83	40.81	35	32.93	30.5	3.76	3.6	78.0	153.0
07	Ahmadabad	567	718	24.25	26.61	897	892	73.64	79.89	74.77	80.09	30.52	24.2	3.55	3.6	64.0	129.0
08	Surendranagar	115	144	16.89	25.34	921	923	54.77	62.46	49.83	26.58	33.86	20.2	4.43	2.6	78.0	120.9
09	Rajkot	224	282	20.12	25.60	946	930	66.96	75.88	47.03	54.69	32.17	25.1	4.00	3.0	54.0	148.7
10	Jamnagar	111	135	12.24	22.39	949	942	58.96	67.19	39.74	46.13	31.42	N.A	4.00	N.A	51.0	N.A
11	Porbandar	204	234	10.23	14.35	960	946	61.85	69.09	N.A	48.69	N.A	27.8	N.A	3.3	N.A	161.5
12	Junagadh	236	277	15.29	17.08	960	955	59.63	68.35	32.55	29.05	30.89	28.0	3.99	3.2	63.0	168.7
13	Amreli	177	188	14.97	6.45	985	986	60.46	67.72	21.53	22.46	32.95	N.A	4.23	N.A	64.0	N.A
14	Bhavnagar	207	247	23.13	19.29	944	936	57.75	66.98	35.05	37.85	34.98	26.1	4.56	2.9	54.0	157.3
15	Anand	559	631	13.39	13.03	912	910	67.92	74.95	N.A	27.34	N.A	24.1	N.A	3.7	N.A	125.9
16	Kheda	424	480	14.81	13.24	924	922	63.97	72.71	22.63	20.07	33.74	N.A	4.14	N.A	84.0	N.A
17	Panch Mahals	322	388	22.34	20.36	934	939	49.58	61.50	10.58	12.51	34.37	30.2	4.70	3.5	79.0	160.8
18	Dohad	349	449	34.60	28.35	976	985	35.84	45.65	N.A	9.56	N.A	N.A	N.A	N.A	N.A	N.A
19	Vadodara	402	482	21.07	19.80	913	919	63.73	71.32	42.82	45.26	35.27	23.3	4.61	3.5	51.0	122.7
20	Narmada	163	187	19.85	14.40	947	948	51.38	60.37	N.A	10.14	N.A	N.A	N.A	N.A	49.0	N.A
21	Bharuch	176	210	18.36	19.32	925	920	65.76	74.79	21.26	25.74	30.28	24.6	3.63	3.1	N.A	132.0
22	Surat	444	653	36.29	47.04	901	835	64.36	74.99	50.61	59.96	30.64	31.0	3.45	3.5	60.0	155.0
23	The Dangs	82	106	26.77	29.58	983	986	47.56	60.23	11.08	0.00	39.19	30.0	5.04	2.9	87.0	157.0
24	Navsari	491	556	19.34	13.22	958	955	68.29	75.98	N.A	27.35	N.A	N.A	N.A	N.A	N.A	N.A
25	Valsad	359	465	25.87	29.66	957	919	60.33	69.41	24.43	27.04	28.96	19.9	3.43	3.2	55.0	105.5

Sources: Census of India Paper I of 1991, 2001
R.C.H Survey 1988-89

its industrial network and administrative set up. More than half of the districts of the state, have lower density than the national average.

The growth rate of population in the state on a whole is 22.48 percent, which is slightly higher than that of nation, which is 21.34. On a closer look at the data of 1991-2001 it can be inferred that Surat district registered the highest growth rate of population of 47.04 percent, where as the least growth rate of population was registered by Amreli district which was 6.45 percent, thereby reflecting regional variations. In the earlier decade the highest growth rate of population was recorded by Gandhinagar district and the lowest was by Junagarh. The highest growth rate of population also attributes to rehabilitation programs launched by government due to the several natural calamities.

The sex ratio in Gujarat is 921 where as the national average is 933, which is on higher side. During the present decade the sex ratio of the state has declined with respect to previous decade. Earlier it was 934 female per 1000 male but it has declined by 13 points. The highest sex ratio can be seen in the district of Dange (986), and Amreli (986), followed by Dohad and Junagarh and Navsari having the sex ratios of 955 respectively. The lowest sex ratio is found in the Surat (855). In case of Surat district it can be inferred that the major part of it forms an industrial zone attracting male workers from outside. At the district level it is seen that out of 25 districts only 6 districts (Amreli, Panch Mahal, Dohad, Vadodara, Narmada and The Dange)

experience an increase in sex ratio in 2001 as compared to 1991. All other 19 districts experience a decline in sex ratio in 2001.

It has been observed that the literates comprise of 69.77 percent as per census 2001 in the state of Gujarat. At the district level Ahmedabad(79.89) and Gandhinagar (76.83) ranked highest in the state, followed by Rajkot, Anand , Kheda, Bharuch and Navsari that ranked higher than the state average which is 69.97. In the earlier decade 1981-1991 only Ahmedabad and Gandhinagar had literacy rates higher than the state average. On the other hand Dohad and Banaskantha represents among lower literacy rate of 45.65 and 51.26 respectively. Thus large variations exists within the state itself. Due to the earthquake in the Kachchh region, the data of literacy rate is not available. The state of Gujarat enjoys a significant variation regarding CBR. The ranges of CBR variation in the state are 18.8 to 31.0. CBR is noticeable in the district of Surat, which shows the figure of 31.0, and the lowest shows in Patan, which has 18.8. Districts having high CBR district are the Dangs (30.0), and PanchMahal (30.2). Surprisingly Gandhi Nagar, which has very high literacy, rate as well as high CBR. On the other hand the general trend is that the district showing low literacy and economically backward has the higher CBR and vice-versa.

Like the other indicators the State of Gujarat the variation in total fertility rate is significantly high the district showing high literacy rate, are inversely proportionate to TFR also the district Anand shows the high TFR in

the state followed by Vadodara, Mehsana, Panch Mahal, and others. On the other hand Surendra Nagar, showing the lowest TFR. But here a complex features come out that district like Ahmedabad, Gandhinagar and also showing the high Total Fertility Rate is really in different character this can be infer that TFR is affected by the different feature in the state. So composite types of characteristic are found here.

GMFR in the state has its own character but similar like CBR and TFR there is n clearest characteristics of GMFR. The state which has high literacy rake low CBR and TFR also shows high GMFR and the district showing low literacy and lower general awareness, level also has the lower GMFR in the state Banaskanta recorded the highest in-the state having GMFR 170 and the lowest recorded by Sabarkantha, which is (97.9) this like the other demographic indicators the GMFR also show the different pattern which is neither favorable nor the unfavorable.

2.3.4 (B) Maharashtra

Maharashtra is situated on the western coast of India and spreads between $15^{\circ} 45'$ to $22^{\circ} 00'$ North latitudes and from $72^{\circ} 45'$ to $80^{\circ} 45'$ east longitude. Gujarat and Dadra, Nagar Haveli Surround it in the northeast, M.P. to its north and east, AP and Karnakata to its Southeast, Goa to its South and the Arabian Sea to its west. It has a long coastline of about 720 km. Stretching from Thane districts in the north to Sindhudung district in the south. Bombay, one of the most important ports of India, in located on the coast and Caters to

**Table: 2.9
Maharashtra**

	State	Pop.Density		Decadal growth rate		Sex ratio		Literacy Rate		% of Urb.Pop		Cr.Br. Rate		Total F.R		IMR	G.M.F.R.
		1991	2001	1981-1991	1991-2001	1991	2001	1991	2001	1991	2001	1991	98-99	1991	98-99	1991	98-99
	State	257	314	25.73	22.57	934	922	64.87	77.27	38.79	42.4	29.95	N.A	3.72	N.A	74	N.A
01	Nandurbar	211	260	25.30	23.21	975	975	51.12	56.06	N.A	15.47	N.A	29.8	N.A	3.7	N.A	157.0
02	Dhule	183	212	22.53	16.01	945	945	51.30	72.08	20.53	26.07	32.5	33.0	4.2	4.2	73.0	171.0
03	Jalgaon	271	313	21.75	15.44	940	932	64.30	76.06	27.42	28.6	29.87	20.5	3.9	3.0	71.0	112.3
04	Buldana	195	230	25.02	18.03	953	946	61.69	76.14	20.63	21.26	32.59	33.0	4.5	4.5	82.0	174.0
05	Akola	249	300	20.87	20.51	934	938	65.86	81.77	28.68	38.48	34.07	34.0	4.6	4.6	101.0	190.0
06	Washim	167	198	21.72	18.25	946	939	65.79	74.03	N.A	17.48	N.A	N.A	N.A	N.A	N.A	N.A
07	Amravati	180	213	18.19	18.45	936	940	70.06	82.96	33.01	34.51	34.05	30.4	4.0	4.0	94.0	176.0
08	Wardha	169	195	15.19	15.30	939	936	69.95	80.50	26.61	26.4	27.07	27.7	3.5	3.5	88.0	155.0
09	Nagpur	332	413	26.97	23.25	922	933	73.64	84.18	61.84	64.36	29.13	29.0	3.5	3.5	75.0	165.0
10	Bhandara	250	292	20.10	11.20	980	982	64.74	78.68	13.15	15.44	30.1	30.0	3.8	3.8	81.0	158.0
11	Gondiya	209	221	10.04	10.49	995	1,005	64.64	78.65	N.A	11.95	N.A	N.A	N.A	N.A	N.A	N.A
12	Gadchiroli	55	67	23.48	23.25	976	976	42.89	60.29	8.71	6.93	33.2	33.0	4.0	4.0	106.0	171.0
13	Chandrapur	155	182	25.06	17.26	948	961	59.41	73.07	28.04	32.37	30.83	31.0	3.8	3.8	96.0	165.0
14	Yavatmal	153	181	19.55	18.46	951	942	57.96	74.06	17.21	18.67	29.85	25.1	3.9	4.9	114.0	162.0
15	Nanded	221	272	33.21	23.08	945	943	48.17	68.52	21.71	24.02	32.92	38.0	4.6	4.6	68.0	174.0

16	Hingoli	185	218	25.75	19.76	952	953	47.60	66.86	N.A	15.62	N.A	N.A	N.A	N.A	N.A	N.A
17	Parbhani	197	229	30.96	15.31	954	957	47.57	67.04	22.50	32.53	33.61	24.0	4.5	4.1	50.0	136.0
18	Jalna	177	209	32.45	18.17	958	952	46.25	64.52	16.92	19.07	32.64	32.6	4.5	4.5	76.0	166.0
19	Aurangabad	219	289	39.60	31.93	922	919	56.98	73.63	32.78	37.19	33.83	25.6	4.6	4.1	56.0	169.0
20	Nashik	248	321	28.73	29.51	940	924	62.33	75.10	35.52	38.83	32.12	32.1	4.1	4.0	61.0	138.8
21	Thane	549	850	56.62	54.86	879	857	69.54	81.00	64.74	72.58	29.34	25.7	3.4	3.4	46.0	140.0
22	Mumbai (Suburban)	15,137	19,255	36.15	27.20	831	826	81.96	87.14	100.00	100.00	25.86	25.9	3.0	3.0	37.0	143.0
23	Mumbai	20,222	21,190	-3.35	4.79	791	774	83.61	86.82	N.A	100.00	N.A	25.9	N.A	3.0	N.A	143.0
24	Raigarh	255	308	22.76	20.89	1,010	975	63.95	77.32	17.84	24.24	30.87	31.0	3.8	4.0	63.0	160.0
25	Pune	354	462	32.85	30.58	933	917	71.05	80.78	50.76	58.07	27.39	27.4	3.2	3.2	52.0	138.0
26	Ahmadnagar	198	240	24.35	21.20	949	941	61.03	75.82	15.84	19.66	29.43	29.4	3.8	3.8	47.0	149.0
27	Bid	170	202	28.95	18.54	944	927	49.82	68.48	17.96	17.9	31.08	31.0	4.4	4.3	52.0	161.0
28	Latur	234	290	29.68	23.95	942	934	55.57	72.34	20.42	23.58	31.24	31.2	4.3	4.3	57.0	165.0
29	Osmanabad	169	195	23.95	15.35	937	930	54.27	70.24	15.22	15.84	28.32	28.3	3.9	3.9	70.0	148.0
30	Solapur	217	259	24.84	19.32	934	937	56.39	71.50	28.81	31.8	27.8	27.8	3.5	3.5	68.0	141.0
31	Satara	234	267	20.24	14.10	1,029	995	66.67	78.52	12.91	14.24	26.46	26.5	3.3	3.3	51.0	130.0
32	Ratnagiri	188	207	11.92	9.87	1,205	1,135	62.70	75.35	8.97	11.33	30	30.0	3.7	3.7	75.0	156.0
33	Sindhudurg	160	165	6.56	3.55	1,137	1,077	75.81	80.52	7.60	9.56	25.86	26.0	3.3	3.3	70.0	152.0
35	Kolhapur	389	457	21.67	17.59	961	949	66.94	77.23	26.40	29.65	24.87	25.0	2.9	2.9	55.0	121.0
35	Sangli	258	301	20.45	16.85	958	957	62.61	76.70	22.84	24.52	23.82	22.8	3.0	2.1	41.0	116.0

Sources: Census of India Paper I of 1991, 2001
R.C.H Survey 1988-89

the needs of a vast hinterland, the state has an area of 307,713 km² that comprises 9.36 percent of the total area of the country. Maharashtra is highly urbanized state in the country and ranks first where the bigger state percent of the total population live in urban area.

The physical conditions and infrastructure affect the distribution of population to a great extent, the hilly tracts – Sahyadri, Satpuda, Gwaligarh hills and the remote forested parts of Chandrapur and Gadchiroli districts are thinly populated. The factors of agricultural development and industrialisation have jointly caused clustering of population in certain areas of the state viz., Kolhapur-region that is the well-known sugar belt of the state. Bombay-Thane region is an industrial belt. Other clusters are seen around Jalgaon, along the Tapti Valley, Shsprimpur and around Gondiya the area of Pune to Kolhapur through Saturesp has a high density of population. High densities of population are also found in the fertile river valleys and the coastal plain. Greater Bombay is the biggest center for trade, commerce, industry and transportation and provides more opportunities for people to earn their livelihood. The distribution of population is generally very sparse in the forested areas and hilly tracts the state. The lowest concentration is noticed in the Gadchiroli district (67). Highest concentration found in Mumbai (21,190). Districts like Mumbai Suburban (19,255) Thane (850), Kolhapur (457), Pune (462) Nagpur (413) Nasik (321) have densities higher than the state average. Other 28 districts have the densities lower than the state average.

The Decadal Growth Rate in the Maharashtra in 22.57 as compared to the National average 21-34. In the earlier decade it was 23.86% and there is 3.54% decline in the growth rate of population in the state from the previous decade. Almost all the districts of the state show the decreasing trend of decadal population growth rate but there are some districts like Amravati, Wardha, Goudia and Nashik shows the increasing trend also. Like the previous decade Thane recorded the highest growth rate of population in the state which is 54.86% and the lowest recorded by Mumbai which is 4.79% the range of decadal growth rate is very high extends from 4.79 to 54.86.

The sex ratio for the state of Maharashtra as a whole is 922, which is 12 point, decline from the previous decade. The highest sex ratio in the state is 1205 and on the other hand the district like Mumbai Suburban (826) shows part of the state in the district of Ratnagirik, Raigarh, Sindhudurgh, Kolhapur, Safar and Sangli. This SouthWestern region is well-known region for selective out migration of males in search of Greater Bombay and the surrounding region. These areas are highly industrialized owing to which there is a large influx of males in search of employment.

The state of Maharashtra shows high literacy rate of 77.27% as compared to the national average 65.38% in 2001 census. Among the districts the percentage of literates vary deeply from 87.14% in Greater Bombay district to 56.06 in Nandurbar. The general picture depicts that the western and northern Maharashtra has high literary while in the central parts of the

State the literacy is low. Thirty-two districts have a range of 80% and above literacy rate. Among the lowest literacy below the national average, there are 35 districts.

Although the state of Maharashtra has the higher literacy rate, higher sex ratios but CBRs vary too. The range of CBR in the state is 20-38 which appear the widest range among all the states chosen for the study. The lowest CBR is noticeable in the district of Jalgaon, which is 20.5, and the highest is recorded in the district of Nanded, which is 38.0. These two districts also show that the districts. In Maharashtra the gap between the districts, which have the highest and lower TFR, is noticeable in Sangli (2.1) and the highest in Yavatmal. Variation in TFR is affected by the various other determinants also.

Regarding the situation of GMFR the state of Maharashtra also shows a wide variation. The highest GMFR is noticeable district of Akola, which is 190.0, and the lowest one is seen in 116.0 in Sangli district. Although, both the districts show higher literacy rate. They show the similar trend of GMFR like TFR. There is a wide variation of GMFR also among the district of Maharashtra.

2.4. Comparative Study

After studying the district wise study of the demography profile of the state, a comparative study of the four regions has been attempted. For each

demographic indicator the data has been arranged in ascending and descending order. The indicator like population density, decadal growth rate, sex ratio, literacy rate are arranged in descending order and the other indicator like population density, decadal growth rate, sex ratio, literacy rate are arranged in descending order and the other indicator like CBRs, TFRs, GMFRs are arranged in ascending order.

After analysing the data it is recorded that districts which ranks highest in the population density are mainly from west Bengal which represent eastern region and Kerala which represents the southern region. Among the top twenty districts these states represent the highest. On the other hand lowest twenty districts are mainly from Orissa, Gujarat and some hilly districts of Maharashtra. Due to the rough terrain of the states, the population density is very sparse. On the other hand in the state of West Bengal and Kerala the density is higher due to the fertile and plain land area.

After the three Metro Cities of Kolkata, Chennai and Mumbai the highest density is found in Haora and the lowest in Kachcha and the interior districts of Orissa.

Higher decadal growth rate has been recorded in the district of Maharashtra, Kerala and in some districts of Orissa. The highest decadal growth rate is in the district of Kerala. But the lower decadal growth rates are found in districts of Harayana, Punjab and some metropolitan cities like

Kolkata, Mumbai which are highly developed so the growth rate will be naturally lower. Mumbai recorded lowest of 3.55%.

In almost all the districts of Kerala are among the top twenty districts of the all four regions. Kerala represents the highest sex ratio as a whole also in the country. But the highest among of the districts in 2001, was noticeable in the Ratnagiri district of Maharashtra, which recorded the highest in the last decade (2235 female per 1000 males). On the other hand, the lower positions are occupied by Haryana, which recorded the lowest among the Indian states. Although Kolkata and Mumbai also comes in the lowest category with figures of 791 and 799 respectively are noticed.

High literacy rates within the top twenty districts. The two metro cities of Mumbai and Chennai have lower literacy rates. Although its literacy rate in general increase from 81.94 to 84.07% and the lower literacy are noticeable in the districts of Orissa, West Bengal, some districts of Punjab and Haryana, and in the rural areas of West Bengal.

Among all the districts of the region the highest CBR was noticeable in the interior region of Maharashtra and Gujarat. Here highest rates are noticeable in Yavatmal (38.0). The lowest CBR is in Pathanmanthitta of Kerala, i.e 16.5% followed by Thiruvannthpuram, Iddukki and among the lowest twenty Chennai and Kolkata also exists.

Like wise CBR the TFR also follow the same trend. The lower TFRs characterise Kerala followed by Chennai and Kolkata. Due the higher literacy, and awareness in the region the TFR is low. This is also true in Maharashtra and some districts of Harayana.

Finally, the GMFR level in the region shows lowest in the Kolkata (89.4) followed by the some districts of Kerala, Gujarat, West Bengal and Maharashtra.

2.5 Conclusion

After observing the state profile as well as the study results of the data, variations in demographic parameters are noticed. The southern and western region, which comprises Kerala, Tamil Nadu, Maharashtra and Gujarat State, are better placed than the others. Population density, sex ratio literacy rate and other social indicators also show a positive picture. The spectacular variations in the demographic profile of the different regions and states in India require regional demographic planning along with socio-economic development of the respective regions and states in India. Since population is an important and integral part of the regional planning and development of any region, the knowledge of the demography of different region is essential for proper planning and development of these regions. In developmental states likes Orissa, West Bengal cannot be treated at par with Kerala, which is socially and demographically developed. The former states require special attention

in case of fertility control in India. So there is certainly a greater scope to emphasize the need for human resource development.

Chapter – III
PATTERN OF SEX RATIO

3.1 Introduction

The steadily deteriorating sex ratio over the last one hundred years and particularly since the beginning of the current century in India has been the subject of much speculation and investigation. India shares a distinctive feature of the South-Asian and Chinese populations with regard to the sex ratio, with a continuous deficit of females to males- the opposite of non-Asian countries¹. In India the deficit of females is largely attributed to women's lower status in the society, which has contributed to their higher mortality in all ages up to 45. In many states, especially the larger Hindi-speaking ones, the sex ratio being quite low between 1981 and 1991. The sex ratio has however slightly increased in 2001 by a mere six points. Surprisingly even Maharashtra, considered as one of the most progressive states in the country with better status for women, recorded a sex ratio of 922 in 2001, compared to 924 in 1991. Kerala is the only state with higher number of females throughout the century (1058 females per 1000 males in 2001). Only in 8 out of the 28 states, in which the census was conducted, the sex ratio was found to be lower. Except Kerala, there is a deficit of females to males in all other states since 1951. This decline in the sex ratio for the country as a whole, and in many states during the previous decade, is perplexing and against the basic demographic logic. The more recent

¹ Srinivasan K. (Ed) Population Policy and Reproduction Health, 1996.

fall in the sex has re-introduced fears about differences in mortality between the sexes, which previously had been also feared by the apparent drop in the ratio in 1981. Several authors have expressed this continuing disparity between males and females in terms of total missing females. In a highly populated country, the result of such calculation can give impressive estimate of females who are missing. For example, Coale (1991) estimated 22.8 females are missing in India; Sen's (1989) estimate is almost double this figure². Competing arguments alternatively suggest under-enumeration, highly masculine sex ratio at birth, or excess female mortality throughout the life course as the factors underlying the overall sex ratio³. Little attempt has been made, however, to explore the combination of these factors that possibly could produce the reported Indian sex. Mayor (1991) recently highlighted a distinct lack of research in the historical trend in demographic factors, that might result in changes of sex ratio over time. He suggested that these factors have a potentially large effect on sex ratios in a country undergoing demographic transition.

² Paula Griffiths, Carolina Population Centre, University of North Carolina, *Demography*, Volm. 37 No. 4 , Nov.2000.

³ Agnihotry S.B. 1997

3.2 Pattern of Sex Ratio in India

States in India are demographically and culturally very diverse⁴ as a result of which large regional differences in the sex ratios are observed at the state level. Different trends in the sex ratio are observed in individual states⁵. Generally the sex ratios in the north- western states are highly masculine, whereas ratio in the southern states are more favourable to females. Sex ratio in India at birth also shows state and regional differences. The states generally follow a regional pattern in their estimated sex ratio at birth, similar to those observed for the overall sex ratio. Although some states in the southwest and the extreme northeast have reported sex ratio at birth values within the normal range like the one reported in other regions of the world. In contrast, several southern states, some extreme north- eastern states like Gujarat, Bihar display sex ratios at birth values lower than the average values, found in the other regions of the world. Given evidence from other parts of the world, it seems clear that the sex- selective abortion and regional differences in under- reporting of female births play a major role in determining the sex ratio in India.

⁴ Basu 1992; Das Gupta 1987; kishore 1995

⁵ Agnihotri S.B. 1996,2000.

3.3 Regional Pattern of Sex Ratio in India

Spatial distributions of sex ratio reveal that most parts of the country exhibit ratios that are not abnormally masculine. The few masculine regions are found within the north/ northwestern zone, such as urban Punjab, Jammu and Kashmir, Chandigarh, and also urban Gujarat in the west, and surprisingly the Lakshadweep Island, off India's southwest coast. The masculine sex ratio at birth is not only noticed in the urban areas of the north and north-western zone (Himachal Pradesh, Punjab, Haryana, Rajasthan, Delhi), but also in the corresponding rural areas and a spill over effect from this zone to the urban areas of Central and Western zone states namely Gujarat, Maharashtra, Madhya Pradesh, Uttar Pradesh and Bihar. The southern state sex ratio at birth appears to be normal only in Kerala and Tamil Nadu.

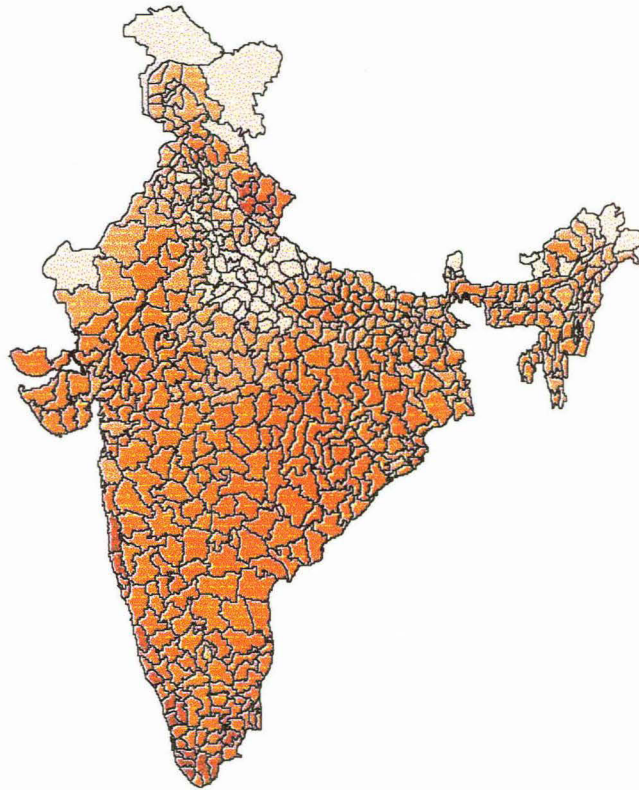
On a regional basis, sex ratio is lower in many parts of north India, particularly in the north-west India. But the situation is quite different in case of many parts of south India, which has recorded a higher sex ratio during the 2001 census. According to Dr Srinivasan, a leading demographer of India, sex ratio has declined substantially in the big Hindi speaking states of north India⁶. The low sex ratio prevailing in these states might be due to the heavy under-reporting of females during census

⁶ Reddy M.M. Krishna 'An Introduction to Demographic Behaviour in India', 1996.

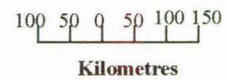
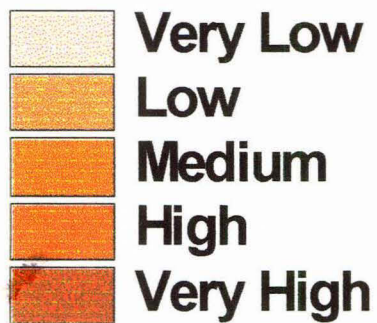
enumeration coupled with sex differentials in migration and mortality conditions. Kerala in south India and Himachal Pradesh in north India have shown a sex ratio favourable to females ranging between 1058 and 976 respectively during the 1991-01 decade. The higher status of women, steep reduction in female mortality and better awareness among them are considered to be some of the important reasons for higher female sex ratios prevailing in the country. The peculiar matrilineal and other kinship network of family systems in Kerala gave excessive importance to females and caused the upliftment in the status of women, which has indirectly helped to shoot up the sex ratio prevailing in Kerala. With regard to north Indian states, the practice of widespread female infanticide and mortality in the northwestern parts of north India and female mortality due to early age at marriage is considered to be the other important reason for low female sex ratio observed in these places.

States like Himachal Pradesh, Uttaranchal, Manipur, Mizoram, Meghalaya, West Bengal, Jharkhand, Orissa, Chattisgarh, Goa, Kerala, Tamil Nadu, Pondicherry have shown sex ratio above the national average in the present census. Contrary to this trend of sex ratio, states like Assam, Haryana, Punjab, Rajasthan, Uttar Pradesh, Adaman & Nicobar Islands, Chandigarh and Delhi have shown sex ratio below the all India average. The discrimination and neglect of females and limited freedom given to them coupled with the lack of economic independence, social, cultural and

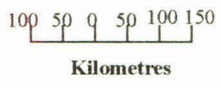
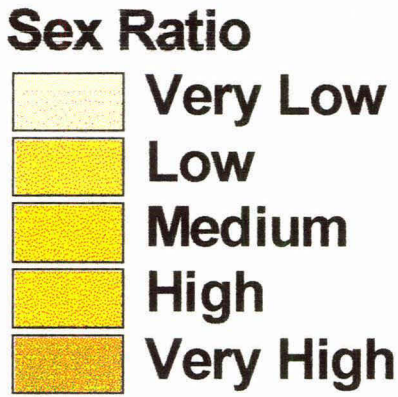
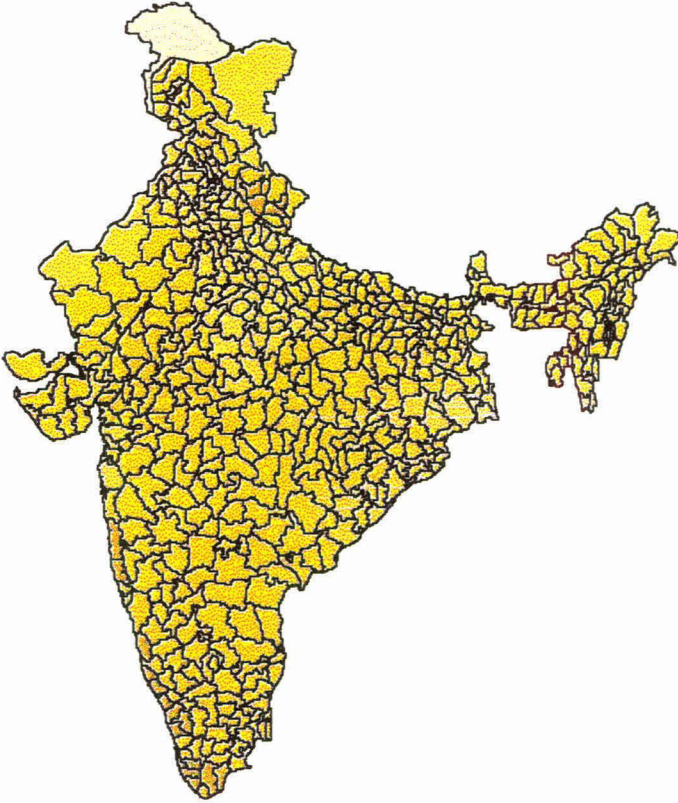
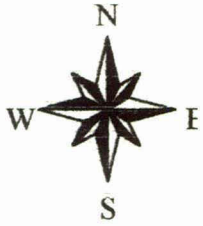
Districtwise Sex Ratio of India 1991



Sex Ratio



Districtwise Sex Ratio of India 2001



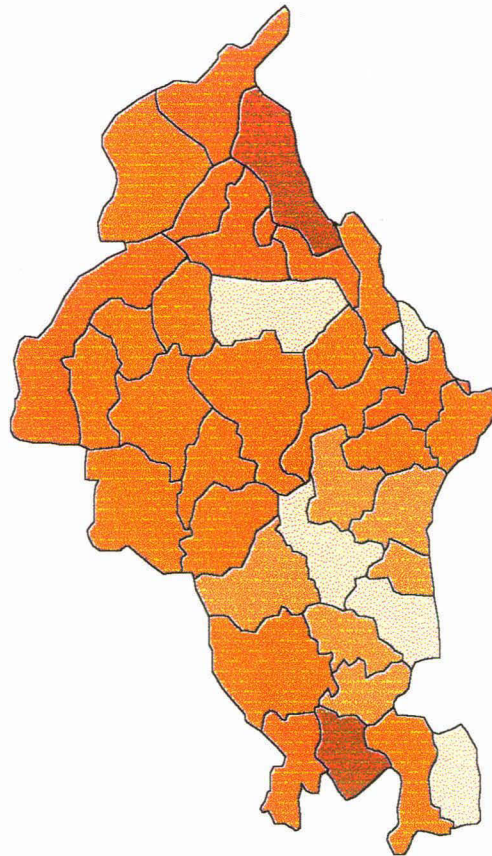
psychological restrictions imposed on their movement, have resulted in the prevailing decline in sex ratio of women in these states. Unlike this situation, better status and value attached to women in their freedom and economic independence, education of females at par with males; alongwith decreasing impact of tradition and culture, have raised the status of women in majority of the Southern states in India.

3.4 Pattern of Sex Ratio in Regions

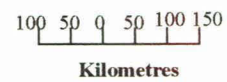
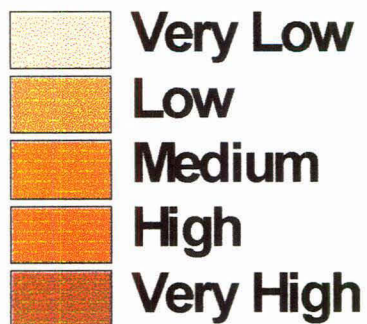
3.4.1 Northern Region

In the northern region, the pattern of sex ratio reveals a deficit of women. In the 2001 census, none of the districts of both of the states under observation show sex ratio equal to the national average, that is 934 female per 1000 male population. While Haryana shows 865, which is lowest among all the Indian states, Punjab shows a sex ratio of 874, which is slightly higher than Haryana. In the northern region, the lowest sex ratio are noticeable in Panchkula (823), followed by Ludhiana (824), the highest among the two states are noticeable in the district of Rewari (927) Hoshiarpur (924). The overall picture reveals that the area, which is in the proximity of town, shows lower sex ratio and vice-versa. Although this region which comprises Punjab and Haryana enjoys high urban growth and literacy rate, as well as other favourable socio-economic natural factors including land with good fertility, the fertile plain area of northern India reveal lower sex ratio.

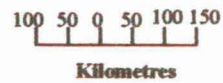
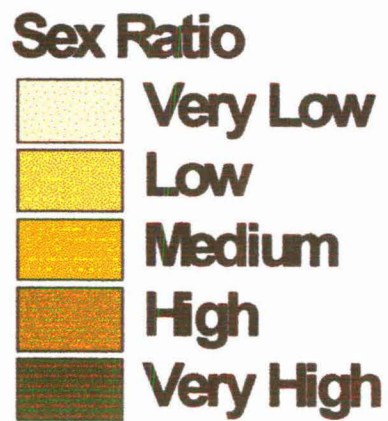
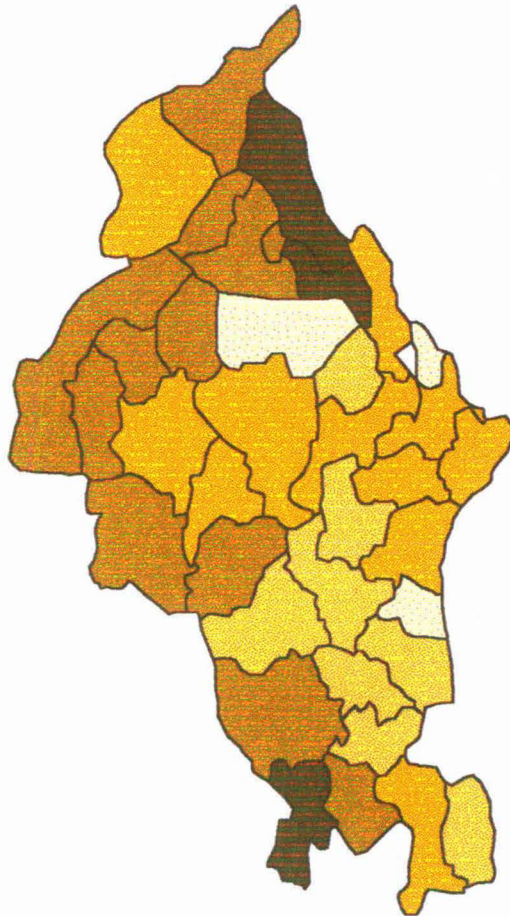
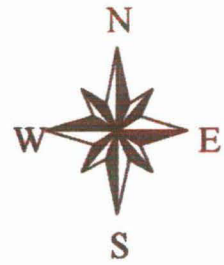
Northern Region Sex Ratio 1991



Sex Ratio



Northern Region Sex Ratio 2001



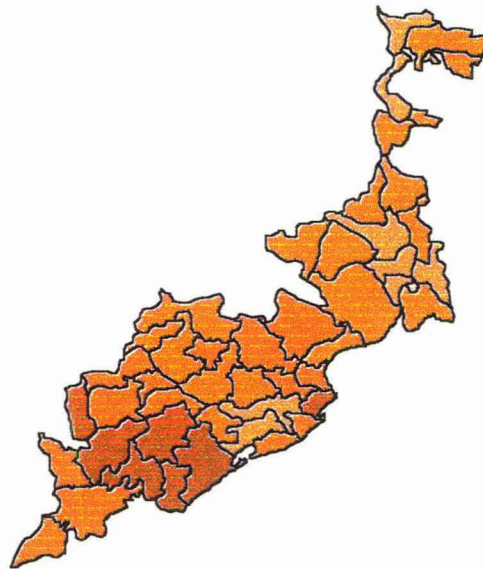
3.4.2 Eastern Region

The Eastern region, which comprises the states of West Bengal and Orissa, shows favourable sex ratio. Both the states selected for study have sex ratios higher than the national average. In the state of West Bengal, almost all the districts have sex ratios higher than the national and state average, except the metro- city of Kolkata and some other districts like Howrah, Barddhaman and the 24 Parganas. Similarly, in the state of Orissa the pattern is very much in the favour of females. All the districts show higher sex ratios than the national average, except only in one district i.e Khorda (901). Four of the districts of Orissa have crossed the figure 1000, including Gajapati (1031), Rayagarha (1029), Khandhamal (1008), Naupada (1006) and many others districts where the sex ratio has touched the 1000 mark.

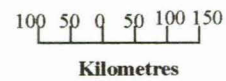
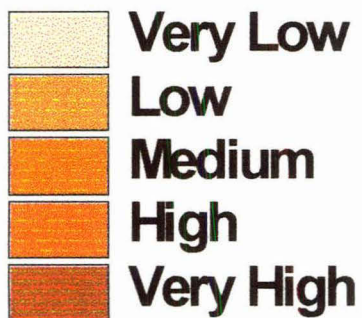
Eastern Region

Sex Ratio

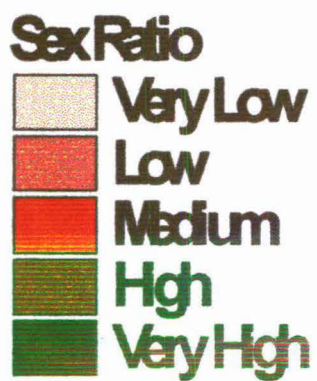
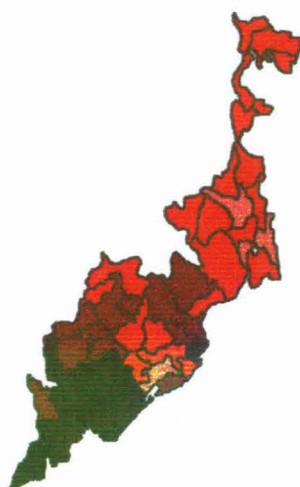
1991



Sex Ratio



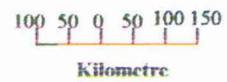
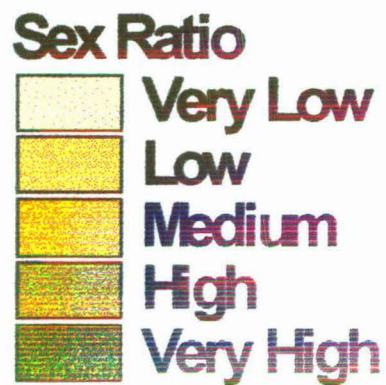
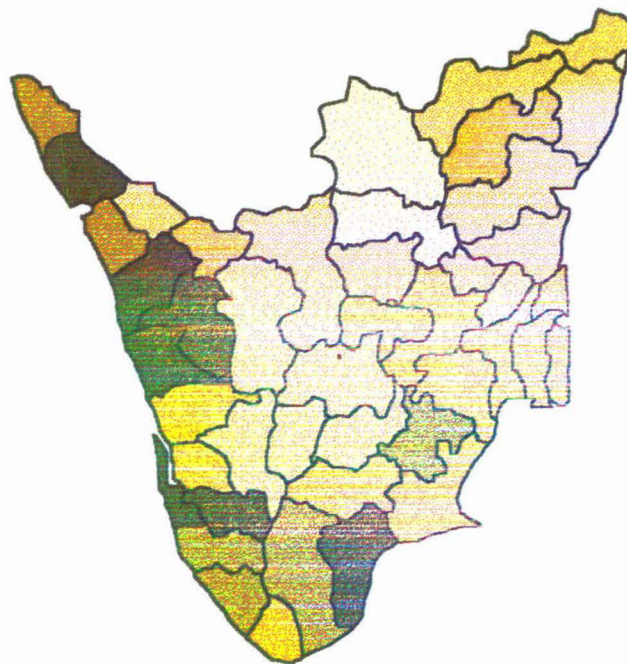
Eastern Region Sex Ratio 2001



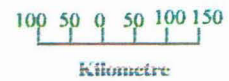
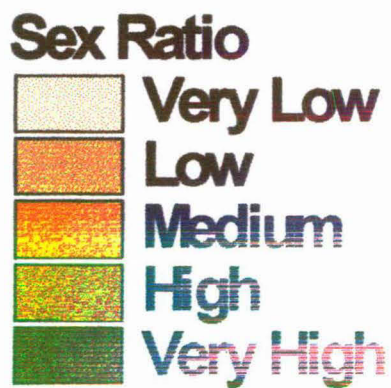
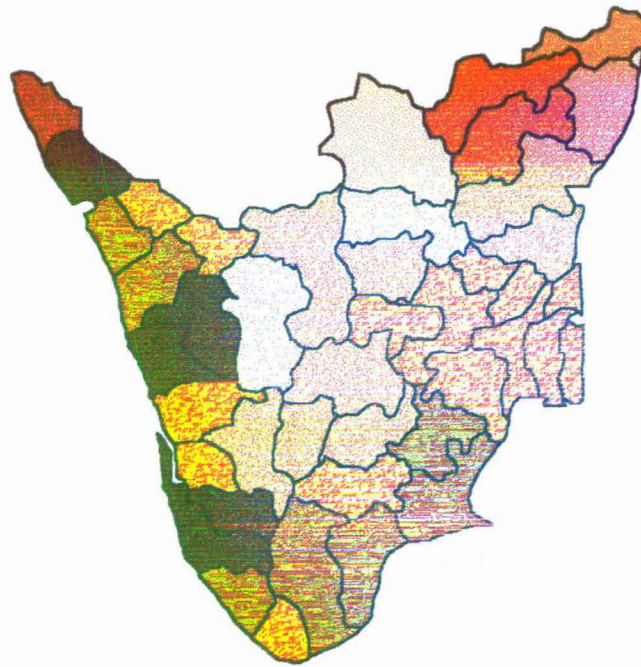
3.4.3 Southern Region

The Southern region of India, which is in contrast to the northern region, depicts that all the districts of Tamil Nadu and Kerala have sex ratios higher than the national average. In the state of Tamil Nadu five of the districts show the sex ratio being more than unity and many of them are nearly reaching this figure. In the state of Kerala, which has the highest sex ratio in the country, only one district i.e. Iddukki show the sex ratio lower than 1000, which is 993. The highest sex ratio is noticeable is the district of Pathanamthitta (1094), and the lowest one in Dharampuri (938). The region enjoys higher literacy rate among males as well as females, the level of awareness being very high. Work participation rates of females are also high in this state.

Southern Region Sex Ratio 1991



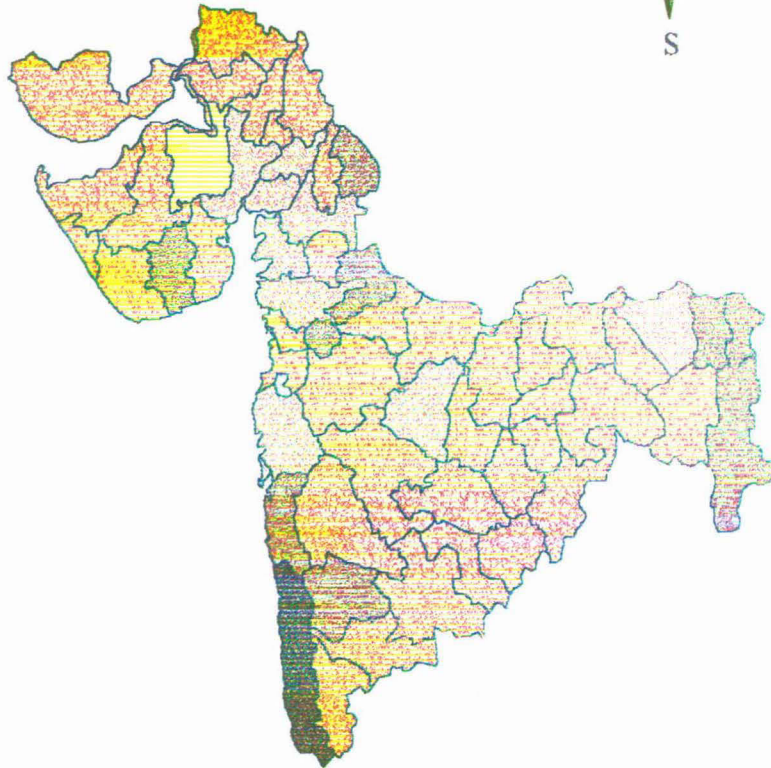
Southern Region Sex Ratio 2001



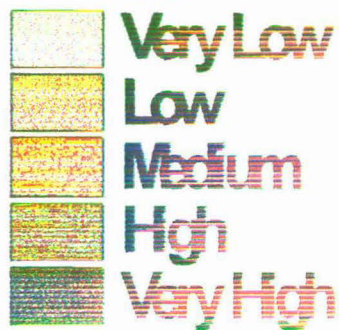
3.4.4 Western Region

The Western regions of India, however, does not have a favourable picture for females regarding sex ratio. Both of the selected states of the western region, Gujarat and Maharashtra, show the sex ratio as lower sex ratio than the national average. In Gujarat 10 districts out of 25, show the lower sex ratio than the national average, and none of the districts has attained the sex ratio equal to the male unity. The lowest sex ratio in the region is noticeable in the metropolitan town of Mumbai (774) followed by districts, which lie in the periphery of Mumbai. In Maharashtra, the Ratnagiri district has the highest sex ratio not only in the region but also among all the four regions, its sex ratio (1135) being the highest of all. In Maharashtra three districts have sex ratios higher than 1000 and 8 out of the 35 districts have the sex ratio lower than the national average. Data shows that the districts that are showing lower sex ratio are mostly urban in nature, including towns like Thane, Nashik and Aurangabad. One reason pointed out by scholars are the huge male migration from these towns. In Gujarat, the industrial districts show lower sex ratio, the overall scenario being unfavourable for the female as a whole.

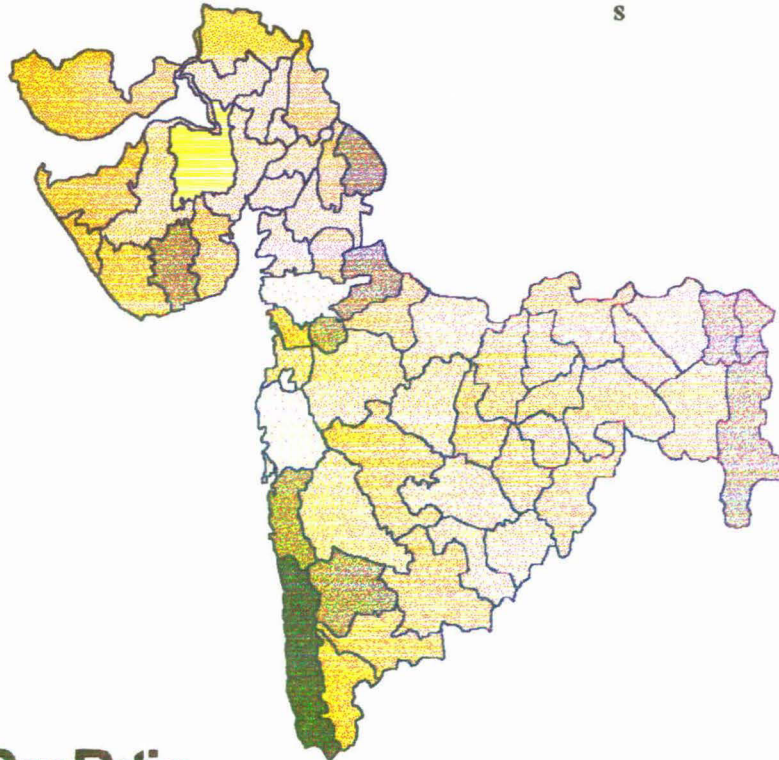
Western Region Sex Ratio 1991



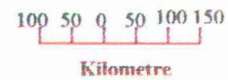
Sex Ratio



Western Region Sex Ratio 2001



Sex Ratio



3.5 Comparative Study

Among the major states in India, Kerala has been consistently showing higher sex ratios, being more than 1000 females for the last four decades, particularly from 1961 onwards. On the basis of district-wise distribution of sex ratio in India, all the districts of Kerala, Uttaranchal and the hilly areas of Himachal Pradesh have the sex ratio of more than 1000 females. The same pattern of high sex ratio of more than 1000 females is also found in certain tribal tracts of Orissa, Andhra Pradesh and few districts in southern Tamil Nadu. On the other hand, the highly urbanised districts of Mumbai suburb, Kolkata and others have a low sex ratio as revealed earlier. It is interesting to note that all the districts of Haryana, Uttar Pradesh and others have a sex ratio below 850. The low status of women coupled with widespread discrimination of females matter of their rearing and upbringing. The practice of female infanticide, prevalence of high female mortality due to malnutrition and early age at marriage and socio-economic backwardness influencing large scale under-reporting of females in these parts of the country are found to be the important reason for the declining sex ratio in these parts of north India. After analysing the sex ratio in the urban cities, it can be deciphered that the sex ratio has been showing an increasing trend in these cities over the decade.

The correlation analysis of B N Kapoor (1992)⁷, explained that the states which recorded a higher sex ratio have the lower growth rates during the last decade. This implies that better status of women and upliftment of women in their social status are reflected by higher sex ratio which have a significant impact on the growth rate of the population in India. But contrary to this finding, Tata Kanitkar (1992) has brought an interesting finding by analysing the sex ratio of the various communities especially among the Hindus who constitute a very high proportion of the Indian population. In her report, a surprising finding of inverse relationship is observed between the ratio of females to males, increasing with the level of socio-economic standing of the community. She puts the example of the Bombay presidency, the sex ratio for the advanced, intermediate and backward classes at 875, 935 and 956 respectively. In the case of the depressed class it rose to 982 females per 1000 males. This show that the socio- economic development of the community can effect the birth rate of the same group, resulting in low birth rate and low family size, where there will be very few females in proportion to their male counterparts. And this poor socio- economic status of the community can cultivate into high fertility value, which can promote larger family size where the proportion of females to males is significantly higher. So the adoption of low fertility

⁷ Reddy M.M., 'An Introduction to Demographic Behaviour in India', 1996.

values without bringing any significant rise in the status of women in the community and the predominant influence of male sex preference can lead to a sex ratio in favour of males in the society. This may be a specific situation particular to a community of the general society.

3.6 Conclusion

Although debates on sex ratio patterns in India has a long and distinguished history, yet it has missed out the demographic significance of the internal structure of less than five mortality. The analysis of the regional variation of sex ratio highlights the role of cultural factors. Culture is a significant determinant of the position of women in the society. Where the culture is female- friendly, survival chances of the girl child are better. The analysis also reveals different cultural layers covering the Indian landscape and the need to take these into account while analysing the problem, the importance of geographical regions as units of analysis has important implication for regional studies, data collection and policy planning.

The decline in sex ratio represents poor status and treatment of women in the society, the fewer proportion of women will lead to the breakup of the family system. It will promote individual families and cause compulsory celibacy of fewer males without any marriage due the shortage of female. This will cause social problems such as prostitution, drug

addiction and many other related evils in the society increasing disruption and disorder in the society. The fewer proportion of women will enhance the divorce rate and other familial problems, which is dangerous to the welfare and growth of the society. Though the Indian sex composition experiences are not favourable to women, but in real situation it may not be true. The high under- enumeration of women in the Indian census and the lack of social responsibility of the Indian masses due to widespread poverty and illiteracy and backwardness of the people has led to the concealment of women in the case of census reporting.

Chapter IV
TRENDS OF SEX RATIO

4.1 Introduction

Trends in sex ratio reflect the disadvantage of female mortality in India. While earlier research showed that sex ratio tended to increase in the middle phases of the demographic transition¹, today sex ratio trends and their relationship to historical demographic patterns, including the influence of demographic transition must be addressed as well². Mayer suggests that small level of excess female mortality produced during the demographic transition might give rise to low population sex ratios, which continue to increase as a result of population momentum, even after declining mortality rates.

India shares a distinctive feature of South Asia and the Chinese population with regard to sex ratio, following a century's old deficit of females. From 1901-1991, the sex ratio has declined from 972 to 927, except a six-point increase in 2001, which has been attributed to the preference for a male child, coupled with the discrimination against a girl child, resulting in lower female literacy, female feticide, higher fertility and higher female mortality levels upto the age group of 45.

In India most analyses focus on juvenile sex ratios, rather than the sex ratios at birth. This is firstly because of the concern, that excess female

¹ Ananthram and Premi ,1989

² Mayer 1999.

child mortality that arises from the selective neglect of girl children compared to boys manifest itself in the childhood years rather than around the time of birth.³ Secondly, data on period sex ratios at birth are difficult to obtain in India, as the census of India does not publish these statistics. Such data being only occasionally published by the Sample Registration System (SRS) of certain states, ruling out the nation-wide trend analyses for smaller periods of time. The vital statistics registration is of varying quality and completeness in different parts of the country, as are hospital records. Thus all India or time trend investigation of period sex ratios at birth are difficult to find, although some intra- state analysis are emerging.

4.2. Trends of Sex Ratio in India

Improvement in the overall sex ratio in India, has come around for the second time in the past 30 years, the first one being observed between 1971 and 1981 and the second one between 1991-2001. When the sex ratio in the total population improved in the favour of females from 920-934 between 1971-8, there was a feeling that the discrimination against women and especially the girl child had to be stalled and one could hope for further improvement in the sex ratio.⁴ The decline in sex ratio by 7 points between 1981-91 has come as a rude shock, now viewed as a matter of serious concern by demographic and several women's organisation. The decline in

³ Das gupta M. 1987 ; Dyson 1988

⁴ Visaria and Irudaya Rajan ,1996

sex ratio by ten points between 1971-81 was considered by many demographers, to be the result of the deterioration in census count between the two censuses. Since the undercount in 1971 census increased to 17 persons per 1000 from an undercount of 8 persons per 1000 in the 1961 census has been a major stumbling block in determining the loopholes in sex ratio. Had the level of undercount in the 1971 census, particularly in Bihar, Tamil Nadu and Uttar Pradesh remained the same as in the 1961 census, the sex ratio in 1971 would have been around 937 instead of 930.

While the improvement in the overall sex ratio between 1991-2001 is noticed in majority of the states and Union territories; among the major states like Kerala, Uttarakhand and Uttar Pradesh have registered a more than 20 point increase, while Bihar, Jharkhand,⁵ Rajasthan, Tamil Nadu and West Bengal have registered a 10-20 points increase. In contrast, there has been a decline in sex ratio in Gujarat and Maharashtra on the one hand and in Haryana, Himachal Pradesh, Punjab, Chandigarh and Delhi on the other. The strikingly low ratio of 260 points in the Dadra and Nagar Haveli require special explanation.

The 1991 census tabulated for the first time, separate sex ratios for the age group of 0-6, 7 and above. The sex ratio for the two population sub- group along with the overall sex ratio at the state levels is presented in the table- 4.1

⁵ Premi M.K. 2001.

Table 4.1

Sex Ratio of Total Population, Child Population in the age Group 0-6 and Population Aged 7+ by States, 1991 and 2001

Sr. No.	India/ States Union Territory	Sex Ratio (Female per 1000 males)			Child Pop. Aged 0-6			Population Aged 7+		
		Total Population	1991	2001	Change	1991	2001	Change	1991	2001
	India	927	933	6	945	927	-18	923	935	12
	1	2	3	4	5	6	7	8	9	10
1	Jammu & Kashmir	N.A	900	N.A	N.A	937	N.A	N.A	894	N.A
2	Himachal Pradesh	976	970	-6	951	897	-54	980	981	1
3	Punjab	882	874	-8	875	793	-82	883	886	3
4	Chandigarh	790	773	-17	899	845	-54	772	763	-9
5	Uttaranchal	936	964	28	948	906	-42	933	976	43
6	Haryana	865	861	-4	879	820	-59	862	869	7
7	Delhi	827	821	-6	915	865	-50	810	813	3
8	Rajasthan	910	922	12	916	909	-7	908	925	17
9	Uttar Pradesh	876	898	22	927	916	-11	863	895	32
10	Bihar	907	921	14	953	938	-15	895	916	21
11	Sikkim	878	875	-3	965	986	21	860	858	-2
12	Arunachal Pradesh	859	901	42	982	961	-21	829	888	59
13	Nagaland	886	909	23	993	975	-18	865	899	34
14	Manipur	958	978	20	974	961	-13	955	981	26
15	Mizoram	921	938	17	969	971	2	911	932	21
16	Tripura	945	950	5	967	975	8	940	947	7
17	Meghalaya	955	975	20	986	975	-11	947	974	27
18	Assam	923	932	9	975	964	-11	910	926	16
19	West Bengal	917	934	17	967	963	-4	907	929	22
20	Jharkhand	922	941	19	979	966	-13	908	936	28
21	Orissa	971	972	1	967	950	-17	972	976	4
22	Chhatisgarh	985	990	5	984	975	-9	986	992	6
23	Madhya Pradesh	912	920	8	941	929	-12	905	910	5
24	Gujarat	934	921	-13	928	878	-50	936	927	-9
25	Daman & Diu	969	709	-260	958	925	-33	971	682	-289
26	Dadra Nagar Haveli	952	811	-141	1013	973	-40	937	779	-158
27	Maharashtra	934	922	-12	946	917	-29	931	923	-8
28	Andhra Pradesh	972	978	6	975	964	-11	972	980	8
29	Karnataka	960	964	4	960	949	-11	960	966	6
30	Goa	967	960	-7	964	933	-31	967	964	-3
31	Lakshdweep	943	947	4	941	974	33	943	943	0
32	Kerala	1036	1058	22	958	963	5	1049	1071	22
33	Tamil Nadu	974	986	12	948	939	-9	978	992	14
34	Pondicherry	979	1001	22	963	958	-5	982	1007	25
35	Andaman & Nicobar Islands	818	846	28	973	965	-8	790	830	40

Source: Census of India 2001 (2001: 92, 94)

Concentrating on the states where the overall sex ratio improved substantially- Uttaranchal, Uttar Pradesh and Kerala- one finds that the child sex ratio declined by 42 points in Uttaranchal by 11 points, in Uttar Pradesh, while it improved by 5 points in Kerala. Among the other states where the improvement in the overall sex ratio has been more than 10 points, Bihar had a shortfall in child sex ratio by 15 points, Jharkhand by 13 points and Tamil Nadu by 9 points. It is obvious that the improvement in sex ratio in the above named states has been ranged among the population aged between seven and above. One needs to probe in details as to what has been happening to children in these states, especially in Uttaranchal. The states where there has been a decline in the overall sex ratio, especially Gujarat and Maharashtra on the one hand and Punjab, Haryana, Himachal Pradesh, Chandigarh, Delhi on the other hand, the child sex ratios has declined substantially, and is a matter of serious concern. The problem may be due to the social constraints of the rigid social system in India.

For further detailed explanation on the basis of data compiled from paper-1 of the 2001 census for India, certain aspects stand out prominently. It may be noted that the figures for the 7 and above age group are influenced by migration. In Uttaranchal the sex ratio 7+ has gone up from 933-976 or by 43 points. This far from showing an improvement in the status of women indicates the impact of male migration from the hills and the growing hardship of women. Kerala, Tripura, Mizoram are the only

states where sex ratios for both groups- the 0-6 age group and the 7+ group have increased. The shocking decline in the 0-6 age group sex ratio exist in Punjab, Haryana, Himachal Pradesh, Chandigarh, Gujarat and Delhi followed by Uttaranchal, Goa and Maharashtra.

4.3 Regional Trends of Sex Ratio in India

Trends in the 1991-01 population sex ratio pointed out a dismal picture in the traditionally more conservative northern parts. What is more surprising is that that the southern states (except for Kerala) have increasing deficits of females. That is, it is not the case that the numerically dominant North Indian states are alone responsible for the national rise in the population sex ratio. The decadal change in juvenile sex ratio has been falling consistently, which are very unlikely to be a result of sex selective migration streams. But the sex ratio 7 + for the country as a whole has risen in recent years in the southern states of Andhra Pradesh, Tamil Nadu and Karnataka. This line between a 'northern culture' and a 'southern culture' are becoming increasingly blurred as far as the variable of a gender balance in numbers is concerned according to the 2001 census.

The regional variation of sex ratio in details can be observed by the study of the data, which show how it has changed over time in the decade between 1981-91. In the northern region, the difference between 2001-1991 shows the highest deficit in the district of Ambala in the order of 34

females. In the last decade, Ambala recorded the sex ratio at 903 and it deteriorated up to 869. In Haryana itself, more than 50% of the districts show this declining trend in sex ratio. Punjab also shows a declining trend, against the western region which show a completely different picture in this regard. The Ratnagiri district in Maharashtra recorded the highest sex ratio in both the decades, but it also shows the highest decline in the sex ratio out of the entire four regions. The western region has the highest number of districts, which show declining trend in the 2001 census as compared to the southern region.

The eastern region, which comprises of the states of West Bengal and Orissa apart from the lower difference in sex ratio from 1991-2001, very few districts show the decline in sex ratios. On the whole, only some districts of coastal Orissa show declining trends. While all the districts of West Bengal show increasing trend. In the southern region only two districts of Tamil Nadu; namely Dharmapuri and Toothkudi showed the decreasing trend and all the others showed the increasing trend.

4.4 Trends of Sex Ratio in Regions

4.4.1 Northern Region

(A) Punjab: - The trend in sex ratio in Punjab are generally less favourable for females, the overall figure showing a decline by 8-points in the 2001 census. The highest 20-point decline has been recorded in the

two districts of Fatehgarh Sahib and Ludhiana. In contrast, Nawashahar and Hoshiarpur show an increase of 13 and 11 points respectively. In Punjab the decline in sex ratio ranges between 20-13. Due to the preference of male child coupled with other factors, whole of the districts of the state show a sex ratio much lower than the national average of 933. The state loms behind by 68 points against the national average figure.

(B) Haryana: - Haryana recorded the lowest sex ratio in the 2001 census among all the Indian states. The state show a 4-point decline in its sex ratio from 1991 also. Almost all the districts show the decreasing trends in sex ratio in the state. The highest decline has been in the district of Ambala, where there has been a 34 point decline from 1991 to 2001, the state recorded a decline in sex ratio ranging from the minimum of -1 in Sonipat and Hisar to the maximum of -34 in Ambala and -26 in the Rewani district. Due to harder social constraints, the state has a very pathetic situation regarding sex ratio both at the state and the district level .

4.4.2 Eastern Region

(A) West Bengal: - After Kerala, West Bengal is the only state where the trend in sex ratio at the district level show positive signals. The state itself records the positive trend and a 17 point increase in the sex ratio as it touched the 934 mark, which is slightly 1 point more than the national average. In the district Hughly, recorded the highest 30 point increase in

sex ratio from 1991- 2001 reaching the mark of 947, which is a very good sign of awareness among the people Even in Kolkata there is 29-point increase in the sex ratio. The improvement of sex ratio in the state ranges from the lowest 2-point in Bankura to the highest 30 points in the Hugly district. The data records that in the rural district, the increment is little bit low but those districts that are more urbanized enjoy a favourable sex ratio. But whatever may be the rate of increment, all the districts have recorded a positive increment in sex ratio

(B) Orissa: - Orissa recorded a 1-point increase in the sex ratio in 2001 from 1991. It became 972, which is higher than the national average. Within the state itself there is a wide variation regarding the trend in sex ratio. The range of decline in sex ratio recorded a maximum -19 point in Nayagarh to a minimum -1 in Angul. On the other hand the increment in sex ratio also has a wide variation from a maximum 21 point in Sundergarh to the minimum 1point in Kalahandi and Mayurbhanj. But the overall scenario is favourable regarding the sex ratio in the state. Out of the 30 districts in the state, six of them recorded a sex ratio higher than unity, except Khorda, (recording a range the above national average figure of 933). This depicts that social constraint like the northern states is not very strong in this state. Although the state does not enjoy good infrastructure facilities, but the sex ratio is comparatively favourable for the females,

higher sex ratio being associated with agricultural communities in the state by scholars.

4.4.3 Southern Region

(A) Tamil Nadu: - Tamil Nadu recorded a positive trend regarding sex ratio against the national average. Its sex ratio is 986, where there has been 12 point increases from the previous decade. Except Dharampuri and Toothukudi where the sex ratio declined by 4 points and 2 point respectively, all other districts in the state record an increase in sex ratio from the previous decade. This increase also has a wide range of variation. Increase has also been recorded in the district of Prerambalur and Ariyalur, where both of them crossed 1000 and became 1007 by adding 32 points in their sex ratios. The lowest increase in sex ratio is recorded by Shivganga, where after a 2 point increase in sex ratio the figure is 1035, which is in the higher group not only in the state but also in the country. The districts which show a decline in sex ratio has a very high sex ratio i.e. Toothkudi, which shows a 2 point decline but it's sex ratio is 1049. The overall state scenario is favorable for females. Out of the 30 districts, 15 districts show a sex ratio higher than 1000. Except Salem (929) all the districts show sex ratios higher than the national average and most of them are near a balanced sex ratio.

(B) Kerala: - Kerala is the state which records the highest sex ratio not in the present decade, but it has been the pioneer for the last four decades. In the present decade, it records the highest improvement, which is a 22-point increase over the earlier figure. This improvement is more than five times from the previous decade. Within the state also the rate of improvement varies widely. The range of improvement is higher in the Kannur district (41 points) and the lowest in Palakkad and Thrissur districts (7 points). Except Iddukki, all the districts enjoy a sex ratio higher than the figure of 1000. This situation can only be perceived in a state, which has very good awareness, high literacy level, weak social constraints and higher male selective out migration. Kerala is therefore a female surplus state.

4.4.4. Western Region

(A) Gujarat: - The state of Gujarat recorded negative trends in sex ratio. In the present decade it shows a 13 point decline in sex ratio and the state has a sex ratio lower than the national average also, the variation within the state being very high. The highest decline in sex ratio is recorded in Surat district, which is a 66-point decline and the lowest in Kheda and Anand, where a 2-point decline has been recorded. Out of the 25 districts, only 7 districts show the positive growth of sex ratio. Only 12 districts show the sex ratio higher than the national average. This picture is

due to the high industrialization and the in migration of the male labour-force from the plain areas of Bihar and Uttar Pradesh. Due to this high influx of the male, sex ratio has been lowered in the state. Surat, Valsad, Gandhinagar, Porbander being mainly industrial towns, have registered very low sex ratios.

(B)Maharashtra: - The state of Maharashtra show similar trends like Gujarat. There is a 12-point decline in sex ratio recorded by the state in the present decade from the previous one. The state records sex ratios lower than the national average also. Within the districts, Maharashtra recorded the highest variation in declining trend in sex ratio. On one hand, Ratnagiri recorded a 70-point decline in its sex ratio. Ratnagiri incidentally had the sex ratio of 1135 in the present decade and 1205 in the past decade. The situation is almost similar with Sindhudurg, in which after a 60 point decline in sex ratio, it has a figure of 1077, which ranks highest among the districts. The lowest decline has been recorded in the Sangli, district with 1 point decline. Out of 35 districts in the state, only 8 districts show the increase in sex ratio in the state. Three districts recorded the sex ratio higher than the figure of 1000. Only 9 districts show the sex ratio lower than the national average. The overall scenario in the state is due to the high rate of urbanization and industrialization. The rate of in migration is very high also in the state, which contributes in lowering the sex ratio level.

4.5 Comparative Study

In India there are large regional differences in fertility decline and in the intensity of sex discrimination in different regions. This raises the question of whether fertility decline has altered earlier regional differentials in the manifestation of sex discrimination. There are strong regional differences in the manifestation of sex bias, with the bias more pronounced in the north than in the south.⁶ This is reflected in regional differences in sex ratios, which have persisted for over a century.⁷ The most balanced sex ratio for children was found in the Southern states, the highest imbalance being seen in the state of Punjab and Haryana. It may be thought that a greater intensification of sex bias following the more rapid fall in fertility in the south might overcome the low intensity of bias and lead to a convergence of observed sex bias between the North and the South, as measured by sex ratios of children. Kerala had the highest sex ratio of 1058 females per 1000 males. At the other end of the scale was Haryana with a sex ratio of 861 females per 1000 males. Kerala has been one of the most densely populated states of the country which has been experiencing male selective out-migration since long. Moreover, it has a sizeable proportion of Christian population and the highest literacy rates in the country, which together may have contributed to a low male mortality rate.

⁶ Dyson and Moore, 1983

⁷ Visaria 1961

Broadly, peninsular India was characterised by relatively higher sex ratios in comparison to Northern India. Within peninsular India, the Malabar Coast and a few adjacent coastal districts of Tamil Nadu and the southern Konkan coast had excessively high sex ratio where females were in excess of males. Similarly the Dandkaranya region also had excess of female over males within Maharashtra the coastal districts of Raigarh, Ratnagiri, Sindhudurg and the non- coastal district of Salora also showed a paucity of males. The lowest sex ratio was displayed by the northern parts of the country covering Punjab and Haryana. The differences in the sex ratio of north and south India maybe associated with the difference in their cultural background.

4.6 Conclusion

Regional analysis of sex ratio in India on the whole indicates that more masculinity in sex ratio and higher female than child mortality go hand in hand.⁸ A well regional pattern is observed in the northern states including Punjab and Haryana, being areas most unfavorable to the life chances of the female children. The trend has remained over the decades. Other parts of the country, including the East central area and the south, exhibit more balance rates. The rice cultivating eastern region could have been fitted into any pattern. Migration alone also cannot explain this

⁸ Agnihotri, 1996 Das Gupta 1997

phenomena, which must be the consequence of other factor also. The census Commission rightly observed in his report; “ One thing is clear- the imbalance that has set in at the early age group is difficult to be removed and would remain to haunt the population for a long time to come. To say he least demographically the sex ratio of 927 of the population in age group 0-6 does not appear to augur well for the future of the country.”⁹

If parents value sons and daughters more or less equally, so that they are satisfied say two surviving children irrespective of sex, the incentive for additional birth is correspondingly lower. The strong effects of male literacy, son preference and child mortality on fertility levels contrast with the tenuous correlation between the latter and various indicators the overall development and modernization such as male literacy, urbanization and even poverty. Indian population had been accentuation, all through the present, century due to relatively sharper decline in male mortality rate in comparison to that of female mortality rate until very recently.

⁹ Census Commissioner Report 2001, pp 96.

Chapter -V
FACTORS INFLUENCING SEX RATIO

5.1 Introduction

The present study has been aimed at incorporating the various issues related to sex ratio in India. The spatial pattern and trends in sex ratio has been analyzed thoroughly. Moreover, the overall positions of the states have been analyzed by considering the factors influencing sex ratio in the present chapter. This has been done at three levels:(a) By identifying the spatial pattern of sex ratio, (b) considering the trends in sex ratio over time, and finally by identifying the districts through a scale of variation in sex ratios into developed and under developed. After statistical calculations, the results portray how sex ratio is influenced by certain factors. For the further study a correlation analysis has been attempted separately for each factors. For the micro level study of the region and the state separate correlations have been worked out and the factors taken into consideration are role of urbanization, population growth, population density, literacy rate. We have studied the regional pattern is both spatial and temporal aspects:

5.2. Factors influencing sex ratio in India

In the study firstly all-188 districts from all four regions, are considered which comprises 8 major states of India both developed and underdeveloped. This division was based on this basis of deviation of the

indicators from the national average. Districts, which are showing level, equal and more have been considered as the developed districts and which show the value lower than national average had been categorized as under developed districts. On this division the study has been made in two segments on temporal basis. One has been made on the basis of 1991 and other on 2001 data. After observing the results of correlation analysis among the developed districts in 1991, we found that sex ratio was negatively and weakly correlated with urbanization. The other indicators like decadal growth rate of population also have weak and negatively correlation with sex ratio. Sex ratio has positive correlation with literacy rate. This reveals that in 1991 urbanization and decadal growth rate has inverse relations. That is high rating of urbanization show the lower sex ratios. This may be mainly due to the male selective in migration. Out of 188 districts from all the four regions 85 districts are considered as developed and rest 103 falls in the under developed category.

Correlation Result Table-5.1

Dev - 91					
	Pop. Den	Gr. rate	Sex ratio	Litt. Rate	% of Ur.p
Pop. Den	1	0.116	-0.304	0.32	0.784
Gr. rate	0.116	1	-0.537	0.278	0.149
Sex ratio	0.304	0.537	1	0.49	0.353
Litt. Rate	0.32	0.278	0.49	1	0.369
% of Ur.p	0.784	0.149	-0.353	0.369	1

Correlation Result Table 5.2

Dev - 2001					
	Pop. Den	Gr. rate	Sex ratio	Litt. Rate	% of Ur.p
Pop. Den	1	-0.175	-0.285	0.277	0.756
Gr. rate	-0.175	1	-0.624	-0.197	0.07
Sex ratio	-0.285	-0.624	1	0.349	-0.283
Litt. Rate	0.277	-0.197	0.349	1	0.363
% of Ur.p	0.756	0.07	-0.283	0.363	1

On the other hand in 2001 within the developed districts also increase in urbanization results in the correlation values turning shows negative. The correlation of sex ratio with other indicators like literacy rate shows slightly increasing and positive trends. This indicates that due to higher growth rate in literacy sex ratio goes up. With increasing population density, the sex ratio goes down.

The results shows that the situation is completely different in the under develop states of the selected regions in 1991. The correlation result shows very weak and negative results with sex ratio and urbanization. It is weaker than the state developed districts. It shows that due to the female selective infant mortality may also be one of the reasons for the lowering of sex ratio. The correlation between sex ratio and the literacy rate was weaker and positively correlated but the same time the correlation between sex ratio and the percentage of urban population was weak and negatively correlated. One striking feature is that the correlation results between sex ratio and population density was very low in the under developed districts although it was like is developed districts it shows negatively correlation also.

In 2001 the situation in the undeveloped districts was very pathetic. The results show that the correlation between sex ratio and percentage of urban population shows the more negative and slightly stronger. This may

be due to the more attention on the health of male selective group. Because of this attention the sex ratio declined although the rate of urbanization also increased. The other aspects like literacy rate shows the weak and negative relation is under develop districts but within developed districts it show weaker but positive correlation.

Correlation Result
Table 5.3

Under Dev 91					
	Pop. Den	Gr. rate	Sex ratio	Litt. Rate	% of Ur.p
Pop. Den	1	-0.04	-0.002	0.402	0.062
Gr. rate	-0.04	1	-0.479	-0.475	0.102
Sex ratio	0.002	-0.479	1	0.369	-0.401
Litt. Rate	0.402	-0.475	0.369	1	0.091
% of Ur.p	0.062	0.102	-0.401	0.091	1

Correlation Result
Table 5.4

Under Dev 2001					
	Pop. Den	Gr. rate	Sex ratio	Litt. Rate	% of Ur.p
Pop. Den	1	0.096	-0.32	0.351	0.128
Gr. rate	0.096	1	-0.414	-0.34	0.14
Sex ratio	-0.32	-0.414	1	-0.15	-0.559
Litt. Rate	0.351	-0.34	-0.15	1	0.241
% of Ur.p	0.128	0.14	-0.559	0.241	1

This way be due to the lower literacy level in the under develop districts where awareness level was under lower in 1991 and it puts the negative impact on sex ratio. The data also reveals the number of under develop of districts lower down with respects to 1991 to 2001

5.3 Impact of factors Influencing sex ratio in regions

After observing the situation on a temporal basis by categorizing the districts within develop and under develop from all four selected regions of the country, which comprises 188 districts of the eight major states of the country, a region-wise analysis has been attempted in general. The analysis

had been made on the temporal basis also between 1991 and 2001. Five indicators have been selected for this type of analysis.

**Correlation Result
Table 5.5**

North - 91

	Pop. Den	Gr. rate	Sex ratio	Litt. Rate	% of Ur.p
Pop. Den	1	0.405	-0.282	0.641	0.758
Gr. rate	0.405	1	-0.46	-0.001	0.451
Sex ratio	-0.282	-0.46	1	0.295	-0.34
Litt. Rate	0.641	-0.001	0.295	1	0.353
% of Ur.p	0.758	0.451	-0.34	0.353	1

**Correlation Result
Table 5.6**

North - 2001

	Pop. Den	Gr. rate	Sex ratio	Litt. Rate	% of Ur.p
Pop. Den	1	0.6	-0.462	0.532	0.731
Gr. rate	0.6	1	-0.456	-0.051	0.359
Sex ratio	-0.462	-0.456	1	0.133	-0.572
Litt. Rate	0.532	-0.051	0.133	1	0.314
% of Ur.p	0.731	0.359	-0.572	0.314	1

In the northern region after observing the result we found that there is variation in the result. In 1991 the percentage of urbanization was negatively correlated with the sex ratio. But this correlation has been changed in the due course of time. In the present decade the result was that although negatively correlated but the situation has become chronic or more established. This may be due to the increase of rate of urbanization and development of the other infrastructural facilities also. The result of correlation of the sex ratio with literacy rate also shows the more or less same pattern the correlation between population density and sex ratio also shows negative correlation that has become more established in 2001.

The Eastern region, shows the completely contrast picture than the northern. Here the percentage of urbanization and the sex ratio have very

strong but negative correlation with each other. But this situation has been changed over the time. In the present decade the correlation become weaker than the earlier decade. The literacy rate and the sex ratio presents the same type of result and the trends is more or less same. But the correlation between growth rate of population and literacy rate shows the completely different pattern .In 1991 it was very weak and negatively correlated and over the period of time it become slightly stronger as well as negatively correlated. This may be due to the high literacy level in the region. This results that high awareness level in the society and the same constraint is applicable for the rate of urbanization. But except some metro City the level of urbanization in the region is not very high and it way result the favorable sex ratio for female.

Correlation Result

Table 5.7

East - 91

	Pop. Den	Gr. rate	Sex ratio	Litt. Rate	% of Ur.p
Pop. Den	1	-0.508	-0.765	0.477	0.841
Gr. rate	-0.508	1	0.07	-0.12	0.284
Sex ratio	-0.765	0.07	1	-0.689	0.846
Litt. Rate	0.477	-0.12	-0.689	1	0.674
% of Ur.p	0.841	-0.284	-0.846	0.674	1

Correlation Result

Table 5.8

East - 2001

	Pop. Den	Gr. rate	Sex ratio	Litt. Rate	% of Ur.p
Pop. Den	1	-0.404	-0.682	0.268	0.771
Gr. rate	-0.404	1	0.87	-0.202	-0.246
Sex ratio	-0.682	0.087	1	-0.626	-0.774
Litt. Rate	0.286	-0.202	-0.626	1	0.507
% of Ur.p	0.771	-0.246	-0.77	0.507	1

In the southern region the result shows completely different from the all three other regions. Here the sex ratio has very weak and negative correlation with the percent of urban population but it has very strong and positive correlation with the literacy rate. It also has weak and negative correlation with the decadal growth rate in the region. The result may be

studied in the preview that the role of urbanization has very less impact on the sex ratio. But the level of literacy rate had a strong impact on the sex ratio. This led to the enhancement of awareness level in the society. Because of the less strong social constraint in the region may have the better improvement on the enhancement of the sex ratio in the region. Over the period of time the correlation between sex ratio and literacy rate become stronger and sex ratio and the percentage of urbanization are weakly correlated with each other. In the earlier decade the correlation between growth rate and percent of urbanization was very much weaker and negatively correlated it has been changed and become positively correlated in present decade. Although, the correlation was weaker. This may be seen as the decadal growth rate has an impact on the urbanization. Also it can be noticed that the population density and percentage of urbanization had a strong and positive correlation in the earlier decade and become weaker in the present decade.

Correlation Result
Table 5.9

Correlation Result
Table 5.10

South - 91						South - 2001					
	Pop. Den	Gr.rate	Sex ratio	Litt. Rate	% of Ur.p		Pop. Den	Gr. rate	Sex ratio	Litt. Rate	% of Ur.p
Pop. Den	1	0.115	-0.284	0.101	0.719	Pop. Den	1	-0.004	0.21	0.071	0.568
Gr. rate	0.115	1	-0.173	-0.249	-0.003	Gr. rate	-0.004	1	-0.462	-0.259	0.12
Sex ratio	-0.284	-0.173	1	0.653	-0.248	Sex ratio	-0.21	-0.462	1	0.711	-0.304
Litt. Rate	0.101	-0.249	0.653	1	0.103	Litt. Rate	0.071	0.259	0.711	1	0.041
% of Ur.p	0.719	-0.003	-0.248	0.103	1	% of Ur.p	0.568	0.12	-0.304	0.041	1

Correlation Result
Table 5.11

Correlation Result
Table 5.12

West- 91						West- 2001					
	Pop. Den	Gr.rate	Sex ratio	Litt. Rate	% of Ur.p		Pop. Den	Gr. rate	Sex ratio	Litt. Rate	% of Ur.p
Pop. Den	1	0.234	-0.339	0.369	0.59	Pop. Den	1	-0.085	-0.563	0.356	0.653
Gr. rate	0.234	1	-0.543	-0.137	0.439	Gr. rate	-0.085	1	-0.434	-0.069	0.338
Sex ratio	-0.339	-0.543	1	-0.056	-0.607	Sex ratio	-0.563	-0.433	1	-0.252	-0.73
Litt. Rate	0.369	-0.137	-0.056	1	0.579	Litt. Rate	0.356	-0.069	-0.252	1	0.585
% of Ur.p	0.59	0.439	-0.607	0.579	1	% of Ur.p	0.653	0.338	-0.73	0.585	1

In the western region the situation is entirely different from all the other three. Here all the correlations result has become stronger than the previous year. The correlation between the sex ratio and the percentage of urban population shows very strong but negatively correlated with each other. The region also enjoys the districts, which has the highest sex ratio not only in region but also all over the India. But with due course of time decline is sex ratio in also very high to the district Ratnagiri. The region comprises two states Maharstra and Gujarat where the rate of urbanization is very high. This led to the decline in sex ratio. But some rural and hilly area has extremely high sex ratio. This may be due to lesser urbanization.

5.3 North Region

(A) Punjab

Punjab State shows the unique picture after observing the result of the correlation within the state among the selected indicators in the state

sex ratio shows very strong and negative correlation with the percent of urban population in the state. Although, this correlation slightly shows the decline trend over the decade in present century. The rate of urbanization is high and it may attract male in migration lowering the sex ratio.. That provides the facilities of pre-natal test, which may led to female selective abortion rate high. The literacy rate shows very weak and positive correlation with sex ratio in the state. This shows that although literacy rate is high but there are other features, which results in a decline of sex ratio. The decadal growth rate has very high but negative correlation with sex ratio in the state. This shows that the declining trends in the sex ratio may be due to the social constraints particular to the region. These may be the preference of male children high female selective mortality rate etc. Total fertility shows positively but weak correlation and infant mortality rate in 1991 also show more or less strong correlation with sex ratio.

(B) Haryana

In Haryana the percentage of urban population shows the negative and weaker correlation with sex ratio in the 90s but it changed over the time and in present decade it shows negative but strong correlation with sex ratio. The most striking feature is that Haryana has a very high and positive correlation between the literacy rate and sex ratio in both the decades. Although in present decade it slightly come down but the

correlation is positive. The other striking feature which comes out the state has a very weak and positive correlation between growth rate of population and sex ratio in 1991. It becomes negatively correlated and shows very weak correlation 2001. Sex ratio is weakly correlated with infant mortality rate in 1991 and General marital fertility rate in 2001. The reason behind the lowest sex ratio lowest in the state may be due to the fertile land of the state where male members needed as a more for helping hand in agriculture and other aspects. The strong and rigid social system may be one constraint of the lower sex ratio in the state.

5.3.2 Eastern Region

(A) West Bengal

West Bengal exhibits higher sex ratios in general. The state has a very strong and negative correlation between the percent of urban population and the sex ratio. The state has strong and negative correlation between sex ratio and literacy rate also. But on the other hand it has a strong and positive correlation between growth rate and the sex ratio in the state. A noticeable point that emerges here is that the total fertility rate, infant mortality rate and G.M.F.R. also show positively and more or less strong correlation with sex ratio. The population density of the state shows very strong but negative correlation with the sex ratio in the state.

(B) Orissa

The state of Orissa shows the different type of pattern regarding the sex ratio, which can be revealed after observing the data of the correlation result. The correlation results reveal that the relationship of correlation between percent of urbanization and sex ratio is very poorly and negatively correlated but in the state of Orissa the result shows that the correlation between sex ratio and literacy are strongly but negatively correlated. Although these results change over the time the decadal growth rate is very poorly correlated with the sex ratio. The state enjoys favorable sex ratio for female in the state. Although the urbanization level is lower as well as literacy level is not very high. Due to the rough topographical terrain of the state the child fertility rate is low. These features led to the higher sex ratio in the state.

5.3.3 Southern Region:

(A) Tamilnadu

The state of Tamilnadu shows the result of correlation in favor of the higher sex ratio in the state. The results reveals that within the state the correlation between sex ratio and the percentage of urbanization shows the negatively and poorly correlated over the year it shows the declining trends in result also the other results shows that the correlation between the

literacy rate it is poorly correlated but over the decade it come up in 2001. The decadal growth rate of population and the sex ration are strongly and negatively correlated with the state itself. The other factors like crude birth rate the date shows that during the previous decade it was positively but poorly correlated but over this year it correlated negatively and very poorly with sex ratio. The state enjoys a very good rate of urbanization and literacy rate. But the sex ratio is in favour of females may be due to higher degree of awareness among the people. Sex ratio may be high due to the lack of strong social belief in the favor of male child in the society.

(B) Kerala.

Kerala is this only state in the Indian sub continent where is last few decade the sex ratio remained high. After studying the correlation result of the state, we found that except decadal growth rate of population all the indicators which includes literacy rate, percentage of urbanization, population density show the positive but weakly correlated with sex ratio, the decadal growth rate of population shows negatively correlation with sex ratio. The state having highest literacy rate higher rate of urbanization also enjoyed the higher sex ratio. This may be due to the male selective migration to other country in search of better opportunities. The state also lacks the strong social system, which attribute in decline of sex ratio. The awareness level which really high through the education led to the increase

is sex ratio. All the above-mentioned factors may help in the retaining the sex ratio highest in the community.

5.3.4 West Region

(A) Gujarat

In the state of Gujarat the results show that the correlation between all the other indicators shows the strong and negatively correlated with sex ratio. The results reveal that the percentage of urban population shows negative and strong correlation with sex ratio. The state may show the lower sex ratio in the favor of female may be due to the influx of migration of labour class in the industrial town of Gujrat .The over all higher literacy level may be one of the factor which did not affect sex ratio in the state. The higher influx of the labours in the in industrial town led to low sex ratio. The low awareness level may one of the factors, which can help in the lowering down of sex ratio in the state.

(B) Maharastra.

After the detail observation of the result the state of Maharastra we found that all the indicators are strongly but negatively correlated with sex ratio except the literacy rate, which is poorly correlated, with sex ratio. The result shows that the percentage of urban population is strongly correlated with sex ratio. Like wise Gujrat, Maharastra is a state when the

industrialization process is very much prominent. Therefore the similar condition may prevail in the state. The state also enjoys very good amount of urbanization. This may also led to the development of infrastructure and the health facilities. This may results to the preventive measure for the decrease rate of morality

5.5 Limitation of the present Study

While this analysis has considerably advanced the understanding of sex ratio in India it suffers from certain limitations. These limitations have to be addressed in future studies on this subject. The limitations related to data, which means that this study has been made at the point of time when census could not publish all the data. So some comparability problems are there. Due to paucity of data for various other indicators at district level the other aspect could not be dealt properly. This is the period when rest of the data had yet to be publishing by census for 2001 data. Some data, which are published by NFHS, are the sample data, have comparability problem with census data. These errors can be taken into consideration.

5.6 Conclusions.

This analysis of regional variations of sex ratio highlights the role of various factors. Cultural factors are significant determinants of the position of women in the society. Where the culture is female friendly survival

chances of the girl children are better. The analysis also reveals different cultural layer covering the Indian landscapes and the need to take than into account while analysis the problem. The importance of geophysical region as units of analysis has important implication for regional studies data collections and policy planning. Study of regional pattern of sex ratios need to be persuaded more seriously. The analysis here has led to a modification of the conventional North South classification. This have given useful results and also raised very other important requisition, which need to be debated seriously. It is possible to take both biological and behavioral aspects into account in coherent theoretical framework.

Chapter -VI
SUMMARY AND CONCLUSIONS

This last chapter of this research work, “**summary and conclusions**” which is a collection of the brief of all the chapters and suggestions for the planning process may be a significant help to bring some sort of awareness on the present crisis of sex ratio in India in the contemporary period.

In the Introductory chapter of this dissertation an attempt has been made to introduce the concept of diminishing sex ratio in India. It enlists the different available literature on sex ratio and tries to project the population problem of India in the light of the socio-economic development of the country. In each and every chapter of this study, important suggestion and recommendation have been brought to the forefront to arrive at important conclusions and policy implications. In the first chapter itself database, methodology, objectives have been pointed out.

In the second chapter of the work, an attempt has been made to provide the detailed information regarding the demographic profile of the region, state and districts in particular. The aim has been towards identifying the districts, which are more developed vis-à-vis, the underdeveloped ones. After observing the state profile as well as the data, variations in demographic parameters are noticed. We found that the

southern and western region, which comprises Tamilnadu, Kerala, Gujarat and Maharastra, are better placed than the other regions of the country.

In the third chapter of the study, the spatial pattern of sex ratio in the region, state and districts has been considered. At the end, a comparative study has been made for the different districts of the region. Spatial distribution of sex ratio reveals that in most part of the country, exhibit ratios that are not abnormally masculine. Very few masculine regions are found within the north & northwestern region. The peculiar matrilineal and other kinship network of family system in south India has given excessive importance on female and their upliftment.

The fourth chapter focuses on the trends of sex ratio in each state as well as the all the four regions of the country. The work has drawn detailed information regarding the overall trend of sex ratio. In this chapter a well regional pattern has been observed in the northern states including Punjab and Haryana and area which are most unfavourable to the life chances of female children. This trends remains over the decades.

The fifth chapter comprises the study of all factors influencing sex ratio. Mathematical and statistical tools have been applied for the discussion of the issue. The correlation matrixes have been completed in addition to each segment that has been discussed with an aim to compute the inter relationship with different variables. In this chapter, the role of

various demographic factors has been highlighted. How the North south differences are prominent for determining the gender selection in the society also has been discussed in this chapter.

Finally in this chapter, a summary of the whole discussion and conclusions has been provided. The policy imperatives have been discussed to overcome the crisis of the situation in the Indian society.

In societies, characterized by strong preference for sons, fertility decline has two opposing effects on the girl child. On the one hand fewer births lead to higher discrimination against the birth of girl child and secondly it causes a discrimination of providing opportunities to the girl child.. These two effects result in excess mortality of girls as fertility decline proceeds.

However even with indirectly estimated measure, there is a clearly rising trend in the masculinity of sex ratio in the north and the urban areas of central India. This suggests the issue of pre-natal sex determination and sex selective abortion. The studies and reports indicate that the sex ratio figures indicate that pre-natal techniques are being increasingly used in these regions. The trend initially began in urban areas and spread out over the time to the rural surroundings, especially concentrated in those regions of the country that have a socio-cultural history of disfavored women. The

present study also indicates higher masculinity in sex ratio that should attract the attention of development planners.

Some scholars argue that increasing masculinity of sex ratio could be caused by development of the health sector because improved health conditions provide better life chances to male fetus that are by nature more deadly. The intense masculinity in the northern region is however a little difficult to attribute entirely to improved health. Thus we conclude that male survivorship is in itself an insufficient explanation for the temporal and spatial trend in sex ratios in India.

The economic argument is that women in the south had a great economic role. Paddy, unlike wheat, which is the main crop cultivated in the South, involving women workers has created a source of earning there. Families thus being less patriarchal have given a separate voice to the women in the south as a whole. However other cultural factors have also been given importance in the south which explains the regional pattern in sex ratio in these states. One such factor frequently cited is endogamy of marriage, which was widely practiced in the south. This system was associated with greater reciprocity in marriage transaction and presumed to have fostered greater female autonomy. In the north, exogamy was common and was associated with the dowry system among many castes. This was a factor behind the strong preference for sons.

It is a well established fact that in tradition bound societies, the promotion or adoption of low birth rates by the rich section of the society can promote a sex ratio in favour of males predominantly due to male sex preference. Therefore one of the most important factor found to result in declining sex ratio in recent years in the Indian society is due to the higher acceptance of sterilization. According to Ashish Bose, a well known demographer in India, most of the couples or people in north India cannot go for family planning acceptance, unless they are satisfied with having two male living children in their families. This will clearly reveal the importance of more sex preferences in explaining the family planning behaviour of the Indian couples. This has led to the practice of limiting the family size with more number of males living children with a fewer proportion of female living children in their families.

The other important socio-economic and cultural factors responsible for the declining trend of sex ratio in India can be attributed to the discrimination of female sexes right from pregnancy until her death. In Indian society, poverty is a major stumbling block that considers the birth of a girl child as a burden, apart from bearing the cost of her upbringing, which is generally without any return. The expenditure incurred in the marriage of a girl child, are other factors that have motivated the tradition bound couples to prefer the birth of male children. Though abortions in

general, cannot change the sex ratio, however sex selective abortion can definitely change the sex proportion of the females in the society. The neglect of female children in the matter of providing good health facilities and in controlling their various diseases and malnutrition has added to so many females deaths in India.

This large scale under enumeration of females, particularly in their early ages might be the other important factor for the declining the sex ratio in India in the present century. Ultimately one would conclude that female mortality and female under enumeration in census counts might be the predominant factor for the declining sex ratio at the all India level, in addition to migrations, resulting in state and regional variations.

The policy imperatives that arises from the study should entail

1. Aiming at increasing literacy particularly female literacy.
2. The Government should discourage sex selective abortions
3. Expanding the awareness in female deficit areas regarding issues specific to the girl child.
4. Policies should also aim at providing employment to women so that they have a wider range of choices.
5. On the whole female empowerment should be considered as an important national goal. This would result in the betterment of

females and may help to bridge the male- female gap, thereby aiming at sustainable development.

BIBLIOGRAPHY

Books

- Abuzar M. (1988) "Socio –Economic Aspects of Population Structure: A Case Study of U.P., India", Rawat Publication, Jaipur.
- Agnihotri S.B. (2000) "Sex Ratio Patterns in the Indian Population: A Fresh Exploration", Sage Publication, New Delhi.
- Bandarage Asoka (Ed) (1997) "Women, Population and Global Crisis: A Political –Economic Analysis", Zed Publication London.
- Bose Ashish, (1996) "India's Basic Demographic Statistics 177 key Tables With Graphics", B.R.publishing corporation India, New Delhi.
- Bose Ashish, (2001) "Population of India 2001 Census Results & Methodology", B.R.publishing Corporation India, New Delhi.
- Bose Ashish, (2001). "India's Billion Plus People 2001, Census Highlights, Methodology & Media Coverage", B.R.publishing Corporation India, New Delhi.
- Chandrasekhar S. (1950) "India's Population Facts and Policy," Annamalai University.
- Chase Nancy D. (Ed) (1999) "Burdened Children: Theory, Research and Treatment of Parentification", Sage publication, London.
- Desai Neera & Patel Vibhuti (1985) "Indian Women: Change & Challenge in the International Decade 1975-85", Popular Prakashan, Bombay.

- Desai P.B. (1969) "Size and Sex Composition of Population in India", Asia Publishing House, Bombay.
- Donovan Katherine O. & Seyszczak Erika (1988) "Equality and Sex Determination Law", Basil Blackwell Ltd. Oxford, U.K.
- Ilbery Brain (Ed) (1999) "The Geography of Rural Change", Addison Wesley Longman Ltd. Essex, U.K.
- Joshi B.H. (2001) "Changing Demographic Structure of India", Raj Publishing House Jaipur.
- Kansas Georgia Lee (1985) "Population Dilemma: India's Struggle for Survival", Arnold -Heinemann, India
- Mitra Asok (1979) "Implication of Declining Sex Ratio in India's Population", Allied Publishers Pvt. Ltd. Bombay.
- Raj Maihtrey Krishna (Ed.) (1986) "Women's Studies in India", Popular Prakashan, Bombay.
- Razvi Shahra (Ed.)(2000) "Gender Poverty and Wellbeing", Blackwell Publication Ltd. Oxford U.K.
- Reddy M.M.Krishna (1996) "An Introduction To Demographic Behaviour in India", Popular Prakashan, Bombay.
- Seth Mira (2000) "Women and Development: the Indian Experience", Sage Publication, New Delhi.
- Sharma A.K. (1985) "Social Inequality and Demographic Process", Mittal Publication New Delhi.

Singh J.P (Ed.)(1998), "Studies in Social Demography", M.D. Publication Pvt. Ltd., New Delhi.

Singh Ram Dayal (1985) "Population Structure of Indian Cities: A Case Study of the Cities of Bihar", Inter India Publication New Delhi.

Singh S.N., Premi M.K., Bhatia P.S. Bose Ashish (1989) "Population Transition in India", Volm- I & II B.R.publishing Corporation India, New Delhi.

Srinivasan K. (Ed.) (1996) "Population Policy and Reproductive Health", Hindustan Publishing Corporation, India New Delhi.

Vaidyanathan K.E.(1972) "Studies on Mortality in India", The Gandhi gram Institute of Rural Health & Family Planning, Tamilnadu.

Articles

Agnihotri S.B. "Inferring Gender Bias from Mortality data: A Discussion Note", Journal of Development Studies, Volm.35, No.4, Apr.1999, pp.175-200.

Agnihotri S.B., "Declining Infant and child Mortality in India: How do girl children fare?" Economic and Political Weekly Volm.36, No.3, Jan.20, 2001, pp.228-233.

Alam Jayanti, "Religion, Patriarchy and Declining Sex Ratio-I", Mainstream, Volume .39,No.10, March 10,2001 pp.23-27.

Alam Jayanti, "Religion, Patriarchy and Declining Sex Ratio-II", Mainstream, Volume .39,No.13, March 17,2001 pp.19 -27.

- Bandhopadhyay D. "Gender and Governance in India", Economic and Political Weekly Volm.35, No.8, July.29, 2000,pp.2696-2699.
- Barber Nigel, "The Sex Ratio as a Predictor of Cross- National Variation in Violent Crime", published in Cross cultural Research, Volm.34, No.3, Aug.2000, pp.264-282.
- Basu Alka Malwade, "Fertility Decline and increasing Gender Imbalance a possible South Indian turn around", Development and change, Volm.30, 1999,pp.237-263.
- Bhutani Smita, "Spatial patterns of Changes in Indian Sex Ratio: 1981-1991", Asian Profile Volm.27, No.2, Feb.1999, pp.157-168.
- Bose Ashish, "Census of India 2001 and after", Economic and Political Weekly Volm.36, No.20, May.19, 2001,pp.1685-1687.
- Bose Ashish, "Demographic data: Overview and non-utilization", Economic and Political Weekly Volm.36, No.44, Nov.3, 2001,pp.4176-4178.
- Burra Neera, "Cultural Stereotype and household behaviour: Girl chidlabour in India", Economic and Political Weekly Volm.36, No.5&6, Feb.3-10, 2001,pp.481-487.
- Dasgupta Monica & Bhatt P.N.Mari, "Fertility Decline and increase manifestation of Sex bias in India", Population Studies, Volm-51, 1997,pp.307-315.
- George S.M. & Dahiya R.S.. "Female Feticide in Rural Haryana", Economic and Political Weekly Volume, No., Aug.8, 1998,pp.2191-2198.

- Jankowaik W. & Ramsey Angela, "Femme Fatale and Status Fatale: A Cross cultural perspective", Cross cultural Research, Volm.34, No.1, Feb.2000, pp.57-69.
- Kiecolt K.J. "Mate Availability and African American Family Structure in U.S. non-metropolitan south 1960-1990", Journal of marriage and the family, Volm.59, Feb.1997, pp.192-203.
- Krishnaji N., "Trends in Sex Ratio: A Review in tribute to Ashok Mitra", Economic and Political Weekly Volm.36, No.17, Apr.1, 2001,pp.1161-1163.
- Kumari Ratna B. "Work and gender: A European perspective", Economic and Political Weekly Volm.36, No.38, Sept.22, 2001,pp.3603-3605.
- Parikh K.S. & Gupta Chiranjib "How effective is Female Literacy in reducing fertility?" Economic and Political Weekly Volm.36, No.35, Sept.1, 2001,pp.3391-3412.
- Rajan S.I., Mishra U.S & Navneethan, "Decline in Sex Ratio: An alternative Explanation?" Economic and Political Weekly Volm-26, No.51, Dec.21, 1991,pp.2962-2964.
- Raju.Saraswati, "Negotiating With patriarchy: Addressing Men in Reproductive and child health," Economic and Political Weekly Volm.36, No.49. Dec.8, 2001 pp4589-4592.
- Seth Swapan, "Two way Movement of Sex Ratio", Economic and Political Weekly Volume. No.38, Oct.5, 1996,pp.2730-2733.
- Stephanie Tawa Lama Rewal, "Fluctuating Ambivalent Legitimacy of gender as a political category", Economic and Political Weekly Volm.36, No.17, Apr.28, 2001,pp.1435-1440.

Sudha S. & Rajan Irudaya, "Female Demographic Disadvantage in India 1981-1991 Sex abortions and Female infanticide", Development and change, Volm.30, 1999, pp.585-618.

Vishwanathan Renuka, "Development, Empowerment and Domestic Violence: Karnataka Experience", Economic and Political Weekly Volm.36, No.24, June.16, 2001, pp.2173-2177.

Yadav Bhupendra, "Haryana's setting Daughters", Economic and Political Weekly Volm.36, No.45, Nov.10, 2001, pp.4257-4259.

Government Documents

Census of India, 1991

- Census Atlas, part XI, series 8, Census of India 1991. Directorate of Census Operation Punjab
- Census Atlas, part XI, series 8, Census of India 1991. Directorate of Census Operation Haryana.
- Census Atlas, part XI, series 26, Census of India 1991. Directorate of Census Operation West Bagal.
- Census Atlas, part XI, series 19, Census of India 1991. Directorate of Census Operation Orissa.
- Census Atlas, part XI, series 23, Census of India 1991. Directorate of Census Operation Tamil Nandu.
- Census Atlas, part XI, series, Census of India 1991. Directorate of Census Operation Kerala.

- Census Atlas, part XI, series, Census of India 1991. Directorate of Census Operation Maharashtra.
- Census Atlas, part XI, series, Census of India 1991. Directorate of Census Operation Gujarat.
- District profile 1991
 - Haryana,
 - Punjab,
 - West Bangal,
 - Orissa,
 - Tamil Nadu,
 - Kerala,
 - Maharashtra,
 - Gujarat.

Census of India, 2001 N.F.H.S Data

- Provisional Population Total paper 1 of 2001 series 1, Census of India.
- Provisional Population Total paper 2 of 2001 series 1, Census of India. (Unpublished).

N.F.H.S Data

Rapid household survey- RCH Project 1998-1999

World Development Reports 2000,2001

Websites

[http//www//maps//ofindia.com](http://www//maps//ofindia.com)

www.google.com

www.india123.com