

**TRENDS IN SEX RATIO IN SELECTED  
DISTRICTS IN MAHARASHTRA:  
(1951 TO 2011)**

A Thesis

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**Undertaking**

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## **Abbreviations**

BC	: Backword Class
CSR	: Child Sex Ratio
DWCRA	: Development of women and Children in Rural Area
FOGSI	: Federation of Obstetric and Gynecological Societies of India
GSR	: Global Sex Ratio
GSR	: General Sex Ratio
IEC	: Intensive Information, Education and Communication
IMA	: Indian Medical Association
MTP	: Medical Termination of Pregnancy
NDDP	: Net District Domestic Product
NGO	: Non-Government Organization
NIC	: National Informatics Centre
NIPCCD	: National Institute of Public Cooperation and Child
NWPP	: Nations, World Population Prospects Population Division
SC	: Schedule Cast
SRB	: Sex Ratio at Birth
SRS	: Sample Registration System
ST	: Schedule Tribal
UN	: United Nations
UNDESAPD	: United Nations, Department of Economic and Social Affairs,
UNDP	: United Nations Development Programme
UNFPA	: United Nations Fund for Population Activities
USA	: United Sates of America
WPR	: Work Participation Rate

# Chapter : I

## Introduction

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## **Chapter 01**

### **Introduction**

#### **1.1 Introduction / General Background**

The last millennia have seen great change in the status of women in India. Ancient Indian society gave equal status to men and women. But as the patriarchal system grew stronger, the state of women deteriorated and reached a low level by the medieval period. Modern India has seen the promotion of equal rights for women by many reformers (Thomas Pooja, 2011, pp-01)

Indians belong to a long tradition of Goddess worship but ironically women are not given the respect that is their due (Jha O. P. 2016, pp. 1-5).

Majority of Indian still pray for a baby boy. The following figure no 1.3 supports this statement. There were 940 women for every thousand men in India in 2011 and this figure has been reached after continuous improvement during the last two decades. According to the 2001 Census there were 933 women per thousand men. In 1990-91 this figure was 927 women per 1000 men. In 2011 the child sex ratio was 917 girls as against 1000 boys. This is the story of Indian women who constitute half of the country's population. While Kerala and Puducherry give equal importance to the female population, in Haryana, Daman and Diu the situation is really bleak – there are only 877 and 618 females respectively as against 1000 males. The situation is similar in other states as well with differences of only a few numbers (Gender Composition of Population, 2016, pp. 86).

#### **1.2 Government Policy**

While India is being considered as a future superpower, the gender equality scenario in the country is not encouraging. To counter this problem the government has started a campaign to ensure equal rights and opportunities to women of the nation and to eradicate the discrimination against females in several parts of the country.

Sex ratio depends on family type, age structure, marital status, education level, working status of women, occupational structure of women, women's participation in development i. e. participation in politics, etc. That is the reason the Central

Government proposed to start from grass root level in order to increase the sex ratio in the country.

One of the important programs in this effort is the Beti Bachao Beti Padhao campaign that was initiated to simplify the access to facilities for the betterment of women and also to sensitize people about them. In this direction there is also a proposal to start a project on trial basis costing Rs. 50 crore for women's safety in public transport and also a proposal to spend Rs. 150 crore for improving women's safety in several cities.

Women play an important role in our society but the question is still there whether they are equally empowered in a society that can be considered to be male dominated. Providing equal rights and equal opportunities to the women of the nation socially, economically and politically is really the need of the present (Agnihotri Rashmi, Malipatil, K.S., 2018, pp. 2-7).

Women and men are equally important for the growth and development of individual and social lives. However, a careful analysis of Indian society indicates that the situation is not good for women in general. The sex ratio in the Indian population has been changing and becoming unfavorable towards women (Gupta Akhil, 2012, pp. 38-40).

### **1.3 Subject of study**

The work thoroughly examined the sex ratio trends in four Maharashtra districts, namely Ratnagiri, Sindhudurg, Mumbai (Suburban), and Mumbai, where the statistics revealed fascinating variations. Ratnagiri and Sindhudurg, where the sex ratio is consistently high and likewise slanted towards female till the census 2011, has shown a gradual fall since 1951. The ratio in these two districts is expected to decrease in the next years. In contrast, in Mumbai (Suburban) and Mumbai districts the sex ratio remained consistently low but is increasing. Hence the subject of this study is to identify the various socio-economic factors affecting sex ratio in these four districts.

## **1.4 Meaning of Population**

The foremost important capital a society can have is human capital. Assessing the capacity and quality of this capital in a small area, regional and national levels is a necessary component of the current government population policy. Apart from the solution to the question “How many are we?” there is also a necessity to deliver a solution to “Who are we?” in terms of age, sex, education, occupation, economic activity, and other crucial characteristics. (United Nations, 2008, pp-1 (23)).

Population has been defined as -

“All the people living in a particular country, area, or place.” (Combridge Dictionary, 2010)

“Population is a set of individuals of a particular species, which are found in a particular geographical area” (Sha Payal, 2013).

### **1.4.1 Population Policy**

The growth of a country nowadays is heavily reliant on demographic policy. Population growth and socioeconomic improvement are inextricably linked. Demographic policy research comprises the following topics: philosophy and guiding principles; the enormity of work; organizational structure; services and supplies; education and motivation; birth prevention progress throughout a five-year plan; and so on. Demographic strategies in many nations are formed in response to local needs. Furthermore, suggestions in this regard have been made by international organizations (Bogue Donald J, 1969, pp-36).

The demographic policy is also described as the purposeful creation or modification of governance frameworks and/or particular programs by which governments strive to affect population change, either explicitly or implicitly. The definition's broad scope allows for a variety of interpretations. The goal of demographic policy in any given nation might alternatively be precisely defined as bringing about quantitative changes within the membership of the territorially limited population under the government's authority. Membership is only added through births and immigration; losses are caused by emigration and fatalities. Concerns about this last component are

often viewed as an issue of health policy, leaving fertility and migration as the primary governmental interests in demographic change.

In a broader sense, the policy objective might be to change qualitative features of these processes like fertility and international migration, along with population composition and spatial distribution. Additionally, authorities' concerns about population issues may stretch beyond the boundaries of their territories. Global issues of population policy are becoming extremely important in today's society (Paul Demeny, 2010, pp-3).

## **1.4.2 Characteristics of Population**

**1.4.2.1 Size of Population:** Population is analyzed largely within the context of its size. In India, population censuses are carried out every 10 years. Demographers in many countries calculate the population size of their respective countries. These statistics are then used by United Nations organizations to assess the number of the world's population. The United Nations Population Division, based in New York, researches the global population, and working papers are issued regularly. The Food and Agricultural Organization also provides essential statistics regularly. The United Nations Department of Economic and Social Concerns also provides useful statistics periodically (Sharma Rajendra, 2004, pp-10).

**1.4.2.2 Structure of Population:** Population organization refers to the quantitative features of a community's population in a given country at a given time. Age, sex, sex ratio, marital status, educational level, religion, caste, race, and health are just a few examples of these traits. These characteristics are always evolving (Sharma Rajendra, 2004, pp-10).

**1.4.2.3 Population Distribution:** Typically, population distribution is examined in terms of geographic regions. The proportion of the population and population density are two measurements of population dispersion. Geographic, social, economic, and demographic variables all influence population dispersion. The categorization of residency is often used to study population dispersion. It covers both rural and urban living. Measures of urbanization include the percentage of the population in urban areas, the ratio of urban-to-rural population, the size and location of the median inhabitant, the tempo of urbanization, and so on. Furthermore, government institutions

in practically every country are researching urbanization (Sharma Rajendra, 2004, pp-11).

**1.4.2.4 Fertility:** Fertility is an important area of demographic research. It is measured in terms of birth rate, birth order, family size, sterility, contraception, and so on. The impact of biological restrictions and societal norms on fertility is significant.

**1.4.2.5 Migration:** Migration is divided into two categories: immigration and emigration, or in-migration and out-migration. Demographers study migration trends, migratory movement, place, and origin of destination, gross and net migration, migration intervals, migration streams, and so on. Census surveys and population registries are two sources of information on migration (Sharma Rajendra, 2004, pp-11).

**1.4.2.6 Labour force:** The labor force is an important area of demographic research. The study includes an economically active population, both employed and unemployed, as well as a population that is not economically active, such as housewives, students, and income beneficiaries, among others.

**1.4.2.7 Institutional Demography:** The analysis of demographic elements of social organizations, notably family and marriage, is included in institutional demography. The analysis of marriage involves marital status, mean age at a marriage based on census data, time trend in the age at marriage, age by zones, marriage age by religious groups, marriage age by caste, a recent increase in marriage age, difference in marriage age by residence, differences in marriage age by educational level, and so on. It also investigates the extent of widowhood, the technique of calculating widowhood age, the trend within the mean widowhood age, widowhood age by religion, the mean length of a fruitful union, the method of calculation, and so on (Sharma Rajendra, 2004, pp-12).

## 1.5 Meaning of population studies/demography

In general, the history of demography may be traced back around three centuries. However, quantitatively and qualitatively, its development is also observed only within the 20<sup>th</sup> century. Today, demography is considered an independent branch of information. According to the authors, it is frequently maintained that particular disciplines of population analysis should be separated from others by a distinct term. In this context, the term "demology" has been suggested as a signal of the more academic branches of the topic, although it has not gained widespread use. Rather, the term "population studies" is more generally used to refer to the simpler and more descriptive demographic studies. However, there is no clear distinction between the various elements of demography, and these terms are employed inconsistently, if at all. Demography was first concerned only with population enumeration. It gradually began to examine the population from empirical, social, and mathematical perspectives. It now investigates the population's size, composition, and dispersion. The population of a location at various times is included in its size. The demographic composition contains quantifiable aspects of the population such as age, gender, marital status, education, religion, caste, health, and so on. **Yet another characteristic of the population that shows the status of women in society is the sex ratio.** These aspects of population organization change all the time. The distribution of people might also be evaluated in accordance with communities and non-secular groupings, or according to population fields. Demography is the study of the patterns and causes of changes in population number, composition, and distribution. It investigates the impact of those changes on many elements of society. It does quantitative research on birth, death, marriage, migration, and social mobility (Cox Peter, 1951, pp. 2-3).

### 1.5.1 Definition of Demography

The word demography is based on two main Greek roots that signify "demos" or the people and graphy meaning is "those who sketch or write." As a result, demography is concerned with literature about individuals. The preceding study of the contemporary field of demography reveals its meaning as well.

Donald J. Bogue writes the definition of demography “ Demography is the mathematical study of the size, composition and spatial distribution of human population and changes over time in these aspects through the operation of the five



processes of fertility, mortality, marriage, migration and social mobility. Although it maintains a continuous descriptive and comparative analysis of trends in each of those to elucidate the events that it charts and compares” (Bogue Donald, Douglas Anderton, Barrett Richard, 1997, pp -2).

### **1.5.2 Scope of Demography**

The field of social demography has been divided into two sections: macro demography and micro demography. While the former involves studies of large-scale systems, civilizations, and societies, the latter analyses the individual as well as the family as a social unit. As a result, the latter research contains fewer units and is more extensively done. According to Donald J. Bogue, “It is the study of the growth, distribution, and redistribution of the population within a community, state, economic area or other local areas. This includes both numerical and compositional aspects and is performed by using meaningful sub-divisions of community or local areas”. (Sharma Rajendra, 2004, pp-09).

Nevertheless, the majority of population studies are undertaken in the discipline of "macro demography." Both fields benefit from one another. For example, the death rate is investigated from both macro and micro perspectives. The same is true for the birth rate, fertility, migration, sex ratio, and other indicators. Since 1954, the science of demography has included the topics covered at world population conferences. The 1965 conferences included the following topics: fertility, mortality rate, migration, genetic variation, the future probability, population and means of subsistence, population measurement, and demographer training. Other topics covered by demography include population distribution, qualitative elements of demographic data, family welfare, population growth, demographic aspects of labor supply, demographic features of housing, and demographic factors of saving and investing. Since 1965, the scope of demography has expanded even more (Sharma Rajendra, 2004, pp-10).

### **1.5.3 Historical Review**

**John Graunt**, an English Haberdasher, has been acclaimed as the **father of demography or population** studies. He published a pamphlet in London in 1692 with the title ‘Natural and Political Observations Made upon the Bills of Mortality’. This

pamphlet contained a measuring analysis of mortality. It also analyzed fertility and migration. The article was based upon weekly bills of mortality containing reports on burials and christenings, for a population of half a million persons in London and suburbs. These reports had been compiled and maintained regularly by Parish clerks since 1603. Graunt gathered the information contained in these reports during the period 1604 to 1661 and made a systematic and objective report. This report was enormous as the first landmark within the history of population studies. After Graunt's observations, Edmund Halley (1665–1772), an English astronomer, created the first empirical life table based on birth and death statistics. Gregory King (1648–1712), an English scholar, contributed by calculating the demographics of England and Wales. This was the sole assessment of England and Wales' population size before the very first survey in 1801. Population studies in the 17<sup>th</sup> century were made in different social strata in varied avocations. These researchers tried to discover the hitherto unknown relationships in vital processes of life and death in quantitative terms. They had great respect for empirical observations (Sharma Rajendra, 2004, pp-2-6).

In late 1790, Thomas Robert Malthus wrote his observation in 'An Essay on the Principle of Population.' It starts with two physiological hypotheses since it influences the impending progress of society: that people must have food, and that the sex desire will always be a key aspect of our make-up. His subsequent statements were less obvious but fundamental to the argument: an unregulated population expands at a "geometric" pace, as in the series 1, 2, 4, 8, 16, while the means of sustenance can only be grown at an "arithmetic" rate, as in 1, 2, 3, 4, 5. Because man's reproductive abilities much outnumber his food-production abilities, the population will always outnumber available resources. As a result, a sizable segment of society is forced to live on the precipice of sustenance. Any major increase in general living conditions will result in earlier marriages and lower mortality, resulting in quicker population expansion than good supplies. Per capita consumption, which has briefly grown above the subsistence level, will be driven down to, or maybe below, that level (Malthus Robert, 1798, pp. 4-8).

Later in the 19<sup>th</sup> and 20<sup>th</sup> centuries, there was widespread interest in research in the field of fertility. In 1801 England and France had their first census survey. The census technique was gradually improved and also the scope of the census was subsequently widened. The course of population growth could now be traced to the

source of census surveys of a population at regular intervals. This question was earlier raised at the time of the census of 1911. In 1922, A. M. Carr Sanders, a biologist, published his book *The population problem*. This book contained a systematic statement of the problems of population size and growth. At the same time a Population Investigation Commission was appointed in 1936 in Britain under the chairmanship of A. M. Carr-Saunders and with D. V. Glass as research secretary, to study the problem of birth rate and related matters.

After the Second World War, demographical studies were widely undertaken within the developed countries. In the USA, the Princeton Group studied social and psychological factors affecting fertility and therefore the practice of contraception among Americans. Besides the developed countries, there has been spectacular progress in demography in the developing countries. For example, there has been a growing awareness of the population problem in India and programs have been outlined for family planning (1952) and birth control. Besides the developed and the developing countries, the most important role in demographical studies in the 20<sup>th</sup> century has been played by UNO and other international agencies. A Population Commission was set up at UNO as a portion of the legislative wing of the organization. The contribution of the UNO is significant in the field of methodology and the techniques of population analysis. Its publications have provided data to demographers everywhere, particularly the United Nations Demographic Year Book (Sharma Rajendra, 2004, pp-7).

### **1.6 Need and significance of population studies - economic social political**

With the mainstream of developing countries facing population explosion, the study of population and its problems has become very important in every sphere of an economy. Demography aids in the understanding of population issues, particularly in the world's less developed regions. It also aids in population planning in both developed and developing countries. International organizations produce statistics in this regard regularly. The gravity of the consequences of fast population growth emphasizes the relevance of demographic research. The main issue in a country's population is how to regulate population increase in connection with the expansion of health care, food supply, jobs, education, and housing. Demographical studies highlight the circumstances and needs in these places, allowing future development and expansion

to be planned properly. In summary, the following points concerning the relevance of demography should be underlined (Sharma Rajendra, 2004, pp-13).

### **1.6.1 For the Economy**

Demography is a hugely important aspect of economics. Population studies help us determine how well the economy's growth rate matches the population's growth rate. The speed of economic development would be slowed if the population increased at a greater rate. The government can take necessary steps to control population growth and stimulate economic development.

Rapid population growth decreases per capita income, lowers the standard of living, plunges the economy into mass unemployment and underemployment, damages the environment, and places a strain on existing social infrastructure. Population studies highlight the economic issues that need to be addressed by the government.

### **1.6.2 For Society**

The relevance of population education in society cannot be overstated. When the population grows rapidly, society is confronted with a slew of issues. Water, energy, transportation, communications, public health, education, and other basic amenities are in short supply.

Along with them, the expanding population causes migration and urbanization issues, which exacerbates the law-and-order crisis. When confronted with such challenges, which are unavoidable as a result of population increase, the state and non-governmental social organizations can take appropriate actions to address them.

### **1.6.3 For Political System**

Demography information is extremely important for a democratic political system. The electoral commission of a nation separates seats based on the source of census information related to distinct areas. The addition to the number of voters following each election aids in determining how many have migrated from other parts of the nation.

Political parties can use census data to determine the number of male and female voters, their level of education, their age structure, their level of income, and so on. On this premise, political parties can highlight challenges and pledge remedies in their election manifestos.

#### **1.6.4 Health Planning**

Persistently high fertility poses serious health issues for both the mother and the child. In most underdeveloped nations, married women face a constant nutritional drain as a result of many pregnancies. The premature discontinuation of newborn feeding is a major contributor to the high infant death rate. High fertility is linked to children's underdevelopment. Because demography analyses fertility and related issues, it may be necessary for the country's health planning.

#### **1.6.5 Planning of food supply**

Food supply planning entails ensuring the availability of enough food for the whole population, both in terms of quality and quantity. Inadequate food supply causes growth retardation, high death rates, poor health, low physical activity, and, as a result, low productivity. As a result, food supply must be connected to demographic research. For example, in some countries, it may be impossible to satisfy the demands of food supply within the country. Different nations now rely heavily on other countries for food. Furthermore, without the assistance of international agencies, developing countries would be unable to satisfy the need for food supply. As a result, the Population Council and the Population Division of the United Nations conduct worldwide studies on population development and food supply to enhance assistance to developing countries.

#### **1.6.6 Employment Planning**

These days, unemployment is a worldwide issue. Unemployment and underemployment are on the rise not only in developing countries but also in the industrialized world. The high dependence ratio in less developed nations such as India, where four out of five individuals rely on the earnings of one person, is a significant demographic determinant. As a result, job planning necessitates a thorough examination of the population in all of its facets. It also necessitates research on migration (immigration and emigration), all of which are key topics of demography. As a result, the significance of demographics in job planning is obvious.

### **1.6.7 Educational Planning**

Every nation today is concerned about providing enough education for children. The number of children, on the other hand, is steadily growing. As a result, demographic planning is required for educational planning for children. This can also be necessary in the case of ignorant adults. As an example, in India more than 1/3rd of adults are illiterate. A demographic estimate of widespread illiteracy and the amount of education required is a prerequisite for every educational planning. Estimates of future educational demands are also developed based on population growth projections.

### **1.6.8 Housing Planning**

The population grows, and so does the need for homes. As a result, data on mortality, fertility, migration, and family formation serve as the foundation for estimating the amount of housing needed. According to projections produced by the Economic and Social Commission for Asia and the Pacific, the number of persons aged 15–24 in the area is expected to climb from 379 million in 1970 to 469 million by 1980, a 24 percent increase. These persons will marry and want to have their own families and homes.

### **1.6.9 Planning concerning migration**

Today, India is plagued with brain drain. Data on persons migrating to Western nations is critical for developing countries in estimating the amount of brain drain. Such estimations have been made, and discussions have begun regarding how to combat this scourge. Again, a big number of immigrants causes a qualitative shift in a country's population, especially when the majority of emigrants are highly trained professionals and technical hands. This is especially true in developing nations like India. For some years, a considerable number of destitute, illiterate, and hungry immigrants from Bangladesh have been arriving in India, mainly in the states of West Bengal and Assam. (Sharma Rajendra, 2004, pp-13-14).

## **1.7 Sex Ratio**

The sex ratio has an impact on both the rates of expansion and the evolutionary paths of wild populations. The population's sex ratio influences and is influenced by birth, mortality, immigration, and emigration rates. It is calculated as the ratio of the number of persons of one sex to the number of individuals of the other sex, or as the allocation

ratio in each. The most prevalent evolutionary strategy is the generation of men and women in a 1:1 ratio, which is driven by frequency-dependent natural selection owing to competition for mates among individuals of the same sex. Natural selection seems to influence sex ratio variations within and across populations and species. The optimal sex ratio for a specific human in a specific population is determined by the population's present sex ratio as well as the relative costs and advantages of producing children of each gender. Natural selection patterns on sex ratio may be influenced by the quality and stability of the nearby environment, as well as life-history features, competition, and dispersion, all of which impact local competition for mates or resources

Population geographers are very interested in sex composition. The sex ratio might be a useful demographic and cultural indicator. The ratio can represent the population's biological, social, economic, and emigrational aspects. A persistent sex ratio imbalance would result in reduced fertility and slower development. The divergence from a balanced sex ratio is caused by a variety of social and demographic reasons. The sex ratio assessment is critical for a correct insight of the various demographic attributes of any region, as the sex ratio can be an index of the economic growth existing in a territory and is a valuable tool for territorial assessment of other demographic aspects such as population growth, marriage rates, occupational structure, fertility rates, and so on (Sapir Y., Holzapfe C., 2008, pp. 2).

### **1.7.1 The Concept of Sex Ratio**

The sex ratio is represented as the male-to-female ratio in a very huge population and is often represented as the number of men per 100 females. The number of boys born alive per 100 girls born alive is occasionally used to indicate the sex ratio at birth. The term "child sex ratio" refers to the ratio of boys to girls in a specific age range - commonly 0–6 years, but also 0–4 and 0–5 years. The typical sex ratio at birth in most countries ranges between 102 and 106 boys per 100 girls. Male fatality under the age of five is frequently 10–20 percent higher than female fatality due to male's increased biological fragility. The child sex ratio is often lower than the sex ratio at birth, and this trend persists as the cohort matures, frequently leading to a sex ratio below 100 (i.e., fewer men than women) in the elder population (World Health Organisation, 2011, pp-2).

In India, Sex ratio refers simply to the number of females per thousand male population. Sex composition constitutes one of the foremost readily observable elements of the population. It is a crucial aspect of population composition that sets the future rates of fertility, mortality, and migration. The sex ratio may be a function of three basic factors, i.e., sex ratio at birth, differentials in mortality between sexes at different stages of life, and sex-selective migration (Bansode Navnath, 2017, pp-71).

Primary sex ratio is the sex ratio at the time of conception, secondary sex ratio is the ratio at the time of birth and tertiary sex ratio is the ratio found at the time of enumeration (Ghosh B. N., 1985, pp-97).

.The Indian censuses define **sex ratio as the number of female per 1000 males**.

The adult sex ratio is influenced mainly by sex differential in mortality and migration and therefore the sex ratio at birth is the essential social indicator to show the prevailing equity between males and females.

- Internationally, the Sex ratio is defined as the number of males per 100 females (Charnov Eric, 1982, p-192).
- The sex ratio, in India, is defined as the number of females per 1000 males within the population (Kumar Ashish and Kamal, 2014, p-44).

### **1.7.2 Importance of sex ratio**

Sex ratios are among the foremost basic demographic parameters and supply a sign of both the relative survival of female and male and also the future breeding potential of a population. The observed sex ratio may be a consequence of action on the sexes and any anthropogenic effects. This information is an important social indicator to measure the extent of equality between male and female in a society at a given time. The sex ratio in India has always remained unfavorable for females (Bajpai Devendra , 2012, pp-2).



### **1.7.3 Why equal ratio is favorable**

The sex ratio is the ratio of the number of male to female in a given population. Favorable sex ratio refers to a good sex ratio where the numbers of male to female are evenly matched (Devi Uma, 2000, pp. 03).

In the above various concept Researcher trying to elucidate about what is the situation in India regarding the sex ratio. Various forms of gender disparity in India i. e., women are discriminated against from early childhood, dependence on others (parents, husbands), the girl child is typically burdened with responsibilities, women have become targets of atrocities and subjected to discrimination in learning, death, and exploitation, etc. Before coming to sex ratio in India, we describe global sex ratio scenario.

## **1.8 Global Sex ratio**

The gender makeup of the world's population is not consistent and exhibits a variety of trends across various countries. Table -01 and Figure -01 show the sex ratio in the world's 10 most populous nations between 2001 and 2011. It is predicted that by 2011, the globe would have 984 females for every 1,000 males. Female outweigh males in the United States, the Russian Federation, Japan, and Brazil, as evidenced by the statement. The proportion is skewed towards men in the remaining six countries. When compared to the previous years, China, Indonesia, Nigeria, and the United States have all shown a decrease in the sex ratio in the current decade. Nigeria and Indonesia have seen the greatest declines. Despite small fluctuations, the sex ratio in the United States, the Russian Federation, and Japan have always been more than one (Gender Composition of the Population, 2011 pp-78).

### **1.8.1 Sex ratio in selected countries**

The below table shows the sex ratio in selected countries, where the highest sex ratio is in the Russian Federation. i.e. in the year 2011 1167 and the lowest sex ratio in India i.e. 940.

**Table No. 1.1**

Sex ratio in selected countries- 2001-2011

<b>Sr. No.</b>	<b>Countries</b>	<b>2001</b>	<b>2011</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
	<b>World</b>	<b>986</b>	<b>984</b>
<b>1.</b>	China	944	926
<b>2.</b>	India	933	940
<b>3.</b>	U.S.A.	1,029	1,025
<b>4.</b>	Indonesia	1,004	988
<b>5.</b>	Brazil	1,025	1,042
<b>6.</b>	Pakistan	938	943
<b>7.</b>	Russian Fed.	1,140	1,167
<b>8.</b>	Bangladesh	958	978
<b>9.</b>	Japan	1,041	1,055
<b>10.</b>	Nigeria	1,016	987

**Sources:**

1. United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision, Volume II: Demographic Profiles (ST/ESA/SER.A/400).
2. 2011 Census Data, Gender composition of the population – 5, Provisional population India totals – pp79.

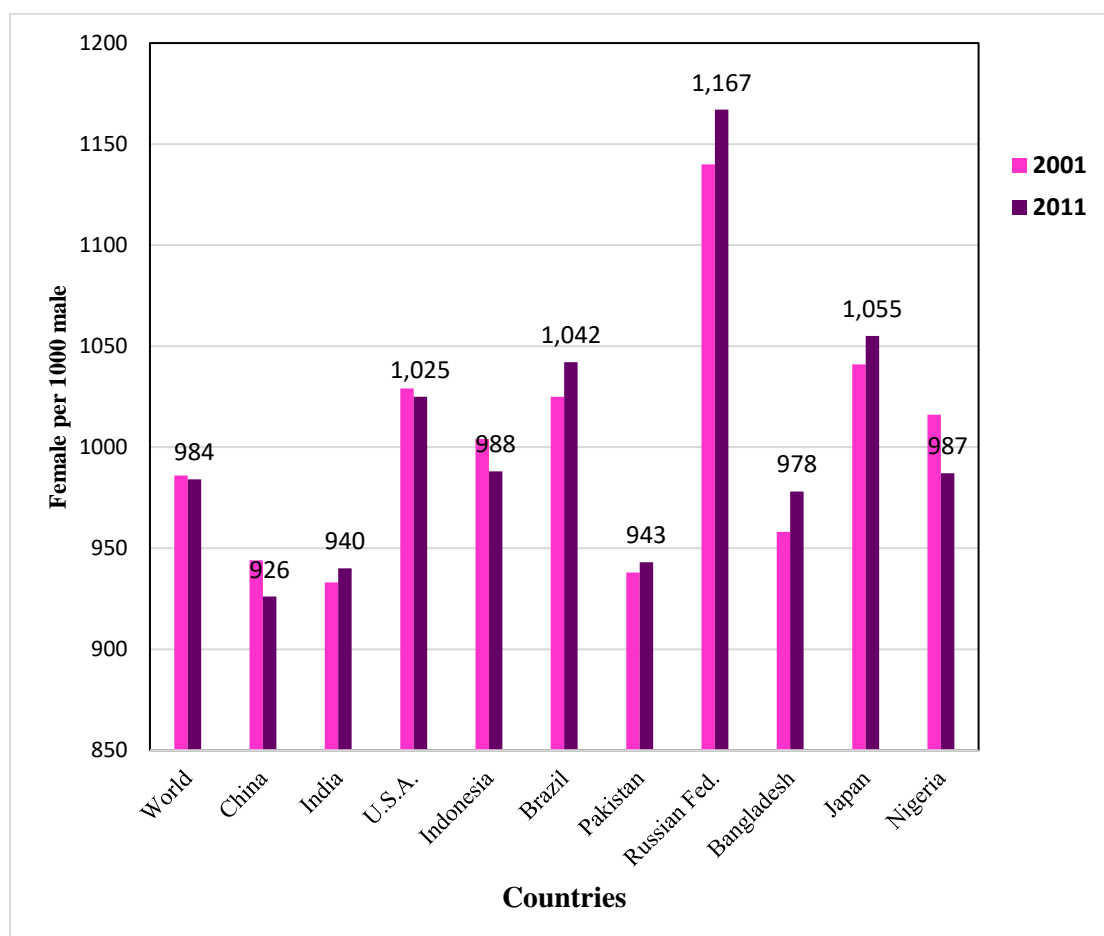
The above schedule shows the top sex ratio in the world in the years 2001 and 2011 in the Russian Fed. i. e. 1,140 and 1167. Also, Brazil and U.S.A.'s sex ratio never come below 1000. Compared to the world, India and China's sex ratio is below 1000.

**1.8.2 Trends in sex ratio in the ten most populous countries from 2001 to 2011**

The below graph shows the most populous countries' sex ratio.

**Figure 1.1**

Trends in the gender ratio in the world's ten most populated nations 2001 and 2011



**Source:** Table No. 1.1

The study by the World Economic Forum also pointed to the risks a country faced if a significant sex imbalance was combined with a rapidly aging population. The “Global Gender Gap Report” measures gaps between women and men in health, education, economic participation and opportunity, and political empowerment (Zhou Viola, 2016, pp-01).

At the world level, the numbers of men and women are roughly equal, with the male population being slightly larger than the female population. In 2017, there were 102 men for every 100 women. Thus, during a group of 1,000 people selected at random from the world’s population, 504 would be male and 496 would be female on average (United Nations, 2017, pp-xxiii).

India shares a typical feature of the South Asian and Chinese Population with relevance to the sex ratio, with a century's old deficit of female to the male -the opposite of non-Asian countries. In India, the basic deficit is largely attributed to women's inferiority status in society, which has contributed to their higher Mortality in ages up to 45. Of more serious concern to the country and vocalized by the women's groups in recent years is the sex ratio, which has been declining almost consistently over the decades. A sex ratio greater than 1000 indicates that there are more men than female. A sex ratio of less than 1000 indicates that there are more female than male. A sex ratio of 1000 indicates that there are equal numbers of male and female.

The United Nations' principal list is based on forecasts for 2015. The sex ratios of 201 nations and regions are included in this list. The second-ranking is based on World Bank projections for the year 2013. The population of 194 nations or territories is represented on this list (United Nations, 2017, pp-xxviii).

According to the United Nations, the global sex ratio in 2015 was 101.70. It indicates that there are 101.70 men for every 100 females on the planet or 98.33 female for every 100 males. In relative terms, the male population of the globe outnumbers the female population by 61,591,853. Thirteen nations have a sex ratio of fewer than 90.0, and 36 have a sex ratio of less than 95.0. Female outnumber male in 124 nations. There are 158 nations with a higher sex ratio than the global average.

The lowest sex ratio is in Curacao is 82.10, followed by 84.37 in Latvia. Martinique (85.08), Lithuania (85.24), and Ukraine (85.35) are ranked third, fourth, and fifth, respectively. Six of the ten nations with the lowest sex ratio are located on the European continent, three in North America, and one in Asia.

Bhutan, Western Sahara, China, and India are among the top 10 countries having a higher male population than the female population. Qatar has a sex ratio of 324.35, whereas the UAE has a sex ratio of 228.2. Except for Western Sahara, which is on the African continent, the remaining nine are on the Asian continent. Finally, Asia has a sex ratio of 104.8, Europe has a sex ratio of 93.0, Africa has a sex ratio of 100.1, South America has a sex ratio of 97.5, Oceania has a sex ratio of 100, Central America has a sex ratio of 94.9, and the Caribbean has a sex ratio of 98.3. (Sarabu Vijay Kumar, 2012, pp29-30).

### 1.8.3 India among its neighboring countries sex ratio year 2001 and 2011

The below table shows the neighboring countries' sex ratios, where the highest sex ratio in Myanmar i.e. 1048, and the lowest sex ratio is Bhutan at 897.

**Table No. 1.2**

India, among its neighboring countries, sex ratio from 2001 to 2011

Sr. No.	Countries	2001	2011
1	2	3	4
1.	India	933	940
2.	Pakistan	938	943
3.	Nepal	1005	1014
4.	Myanmar	1011	1048
5.	Afghanistan	930	931
6.	Bangladesh	958	978
7.	Sri Lanka	1010	1034
8.	Bhutan	919	897
9.	China	944	926

#### Sources:

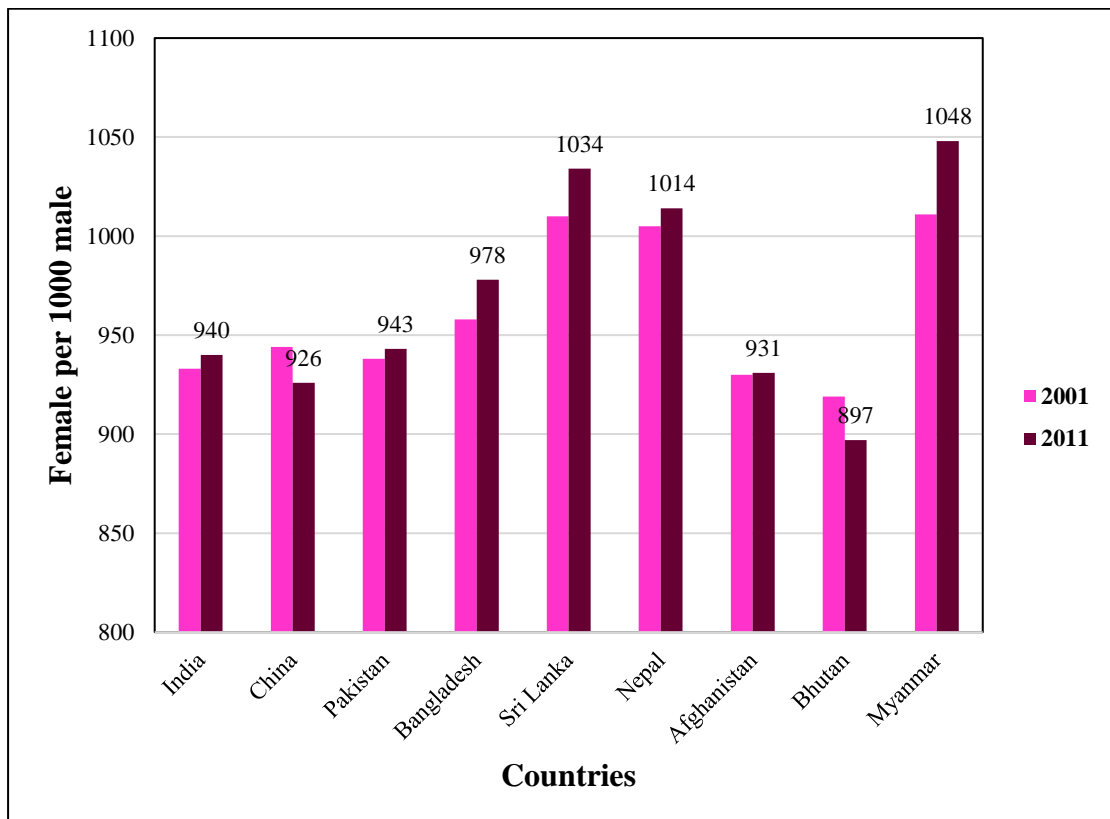
1. United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision, Volume II: Demographic Profiles (ST/ESA/SER.A/400).
2. 2011 Census Data, Gender composition of the population – 5, Provisional population India totals – p80.

The Situation in the immediate neighborhood of India reveals a mixed picture. Myanmar (1048), Sri Lanka (1034), and Nepal (1014) have more female in their populations whereas altogether other countries the sex ratio shows male domination.

The below graph shows the countries i.e. China, Pakistan, Bangladesh, Sri Lanka, Nepal, Afghanistan, Bhutan, And Myanmar. The graph also shows that Sri Lanka, Nepal, and Myanmar's Sex Ratio in the year 2011 is higher than 1000, i.e. 1034, 1014, and 1048 (Gender Composition of the Population, 2011 pp-80).

**Figure – 1.2**

Sex Ratio in India and neighbors countries year 2001 and 2011



Source: Table No. 1.2

In above graph shows that Myanmar's sex ratio is the highest in the year 2001 sex ratio is 1011 and after 2011- 1048 it rises again. One more observation comes from the above bar diagram shows that Bhutan and China's sex ratio is declining but India, Pakistan, Bangladesh, Sri Lanka, Nepal, and Afghanistan's sex ratio is rising.

### 1.9 Trends in Sex ratio in India

In India, the sex ratio has traditionally been adverse, or detrimental to female. The table below demonstrates that during the pre-independence era, the sex ratio steadily dropped until 1951, when it barely increased. The trend persisted in the post-

independence period, with the sex ratio falling for two decades in a row after 1951, hitting 930 in 1971. The sex ratio fell by 11 points between 1961 and 1971.

**Table No. 1.3**

Sex ratio in India: 1901 to 2011

<b>Census Year</b>	<b>Sex ratio ( female per 1,000 male )</b>
<b>1901</b>	<b>972</b>
<b>1911</b>	<b>964</b>
<b>1921</b>	<b>955</b>
<b>1931</b>	<b>950</b>
<b>1941</b>	<b>945</b>
<b>1951</b>	<b>946</b>
<b>1961</b>	<b>941</b>
<b>1971</b>	<b>930</b>
<b>1981</b>	<b>934</b>
<b>1991</b>	<b>927</b>
<b>2001</b>	<b>933</b>
<b>2011</b>	<b>940</b>

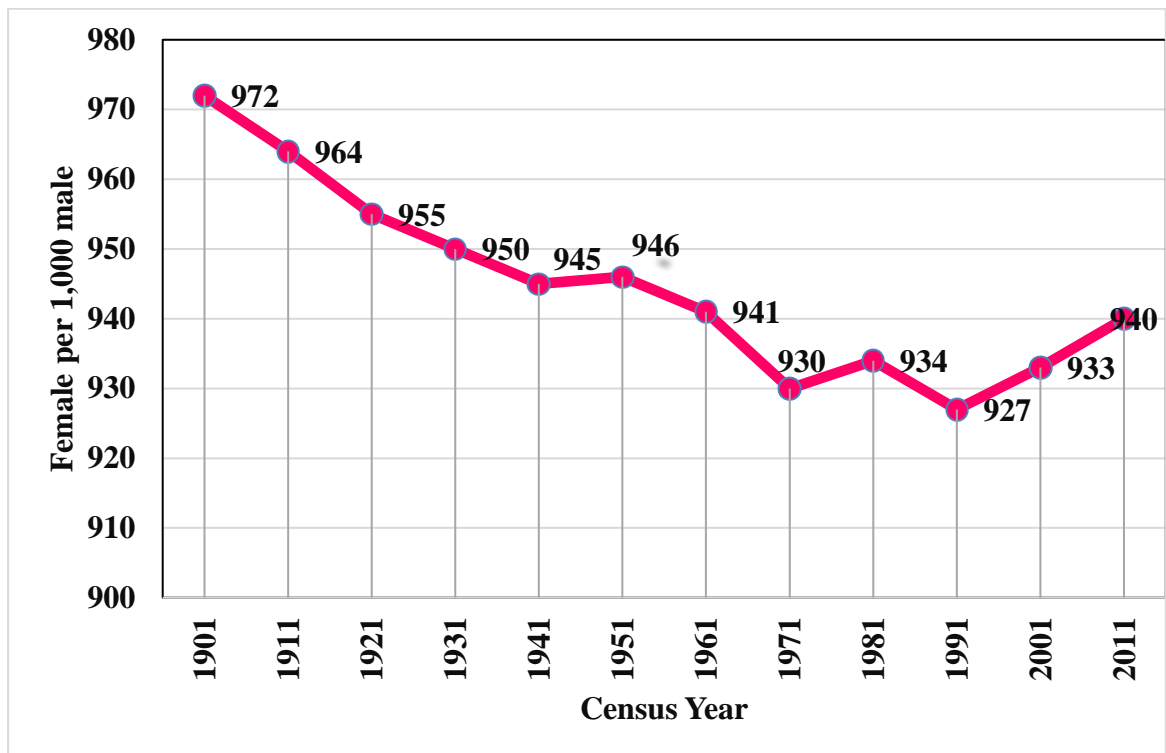
**Source:** Census of India 2011

Following the 1971 Census, trends were inconsistent, with the ratio increasing one decade and declining the next. It had, nevertheless, been hovering around 930. According to preliminary figures, the sex ratio is the highest since 1971 and just a little lower than in 1961.

The below Graph shows that India's 1901 Sex Ratio is 972 and then continuously decline to 1971 i.e. 930, then in year 2011 finally reaching 940. After independence, the Sex Ratio in India is 946 and after 60 years, the Sex ratio is 940.

**Figure - 1.3**

Sex ratio in India: 1901 to 2011



**Source:** Table No. 1.3

1. The above diagram shows that the early stage of development sex ratio in India has been historically negative or in other words, unfavorable to female.
2. A glance at the figure that within the pre-independence period, the sex ratio declined consistently up to 1951 when it rose marginally.
3. Within the post-independence period, the trend continued and therefore the sex ratio slipped down for two consecutive decades after 1951 to reach 930 in 1971. During 1961-71, a steep fall was seen in the sex ratio.



## 1.9.1 State-wise Sex ratio in India

**Table No. 1.4**

State-wise Sex Ratio (Female per 1000 male) in India

As per 1951 to 2011 Census								
Sr. No.	States/UTs	1951	1961	1971	1981	1991	2001	2011
1	2	3	4	5	6	7	8	9
	<b>India</b>	<b>946</b>	<b>941</b>	<b>930</b>	<b>934</b>	<b>927</b>	<b>933</b>	<b>940</b>
01	Kerala	1028	1022	1016	1032	1036	1058	1084
02	<b>Pondicherry #</b>	1030	1013	989	985	979	1001	1038
03	Tamil Nadu	1007	992	978	977	974	986	995
04	Andhra Pradesh	986	981	977	975	972	978	992
05	Chhatisgarh	1024	1008	998	996	985	990	991
06	Manipur	1036	1015	980	971	958	978	987
07	Meghalaya	949	937	942	954	955	975	986
08	Orissa	1022	1001	988	981	971	972	978
09	Mizoram	1041	1009	946	919	921	938	975
10	Himachal Pradesh	912	938	958	973	976	970	974
11	Goa	1128	1066	981	975	967	960	968
12	Karnataka	966	959	957	963	960	964	968
13	Uttarakhand	940	947	940	936	936	964	963
14	Tripura	904	932	943	946	945	950	961
15	Assam	868	869	896	910	923	932	954
16	Jharkhand	961	960	945	940	922	941	947
17	West Bengal	865	878	891	911	917	934	947
18	<b>Lakshadweep #</b>	1043	1020	978	975	943	947	946
19	Nagaland	999	933	871	863	886	909	931
20	Madhya Pradesh	945	932	920	921	912	920	930
21	Rajasthan	921	908	911	919	910	922	926
22	<b>Maharashtra</b>	<b>941</b>	<b>936</b>	<b>930</b>	<b>937</b>	<b>934</b>	<b>922</b>	<b>925</b>
23	Arunachal Pradesh	NA	894	861	862	859	901	920
24	Gujarat	952	940	934	942	934	921	918
25	Bihar	1000	1005	957	948	907	921	916
26	Uttar Pradesh	908	907	876	882	876	898	908
27	Punjab	844	854	865	879	882	874	893
28	Sikkim	907	904	863	835	878	-875	889
29	Jammu & Kashmir	873	878	878	892	896	900	883
30	<b>A &amp; N Islands #</b>	625	617	644	760	818	846	878
31	Haryana	871	868	867	870	865	861	877
32	<b>Delhi #</b>	768	785	801	808	827	821	866

33	<b>Chandigarh #</b>	781	652	749	769	790	773	818
34	<b>Dadra &amp; N. Haveli #</b>	946	963	1007	974	952	811	775
35	<b>Daman &amp; Diu #</b>	1125	1169	1099	1062	969	709	618

# Union Territories

**Source:** Census of India 1951 to 2011.

Table 1.4 shows the developments in the sex ratio for each state and union territory from 1951. Trends in the sex ratio for a handful of the major states from 1951 to 2011 are also illustrated in graphs.

According to the chart, there may have been as many as eleven states and union territories in 1951 with a sex ratio greater than unity, or greater than 1000. This figure fell to nine in 1961, three in 1971, two in 1981, and one in 1991. Kerala and the Union Territory of Puducherry reported an above-unity sex ratio in 2001. Both these states not only kept their status but also increased significantly in 2011. Aside from these two, the number of states and union territories on the rise has increased from 24 in 2001 to 29 in 2011. The surge varied from one point in Uttarakhand to forty-five points in Delhi's densely populated National Capital Territory. In 18 states and union territories, the growth was more than the points between 2001 and 2011

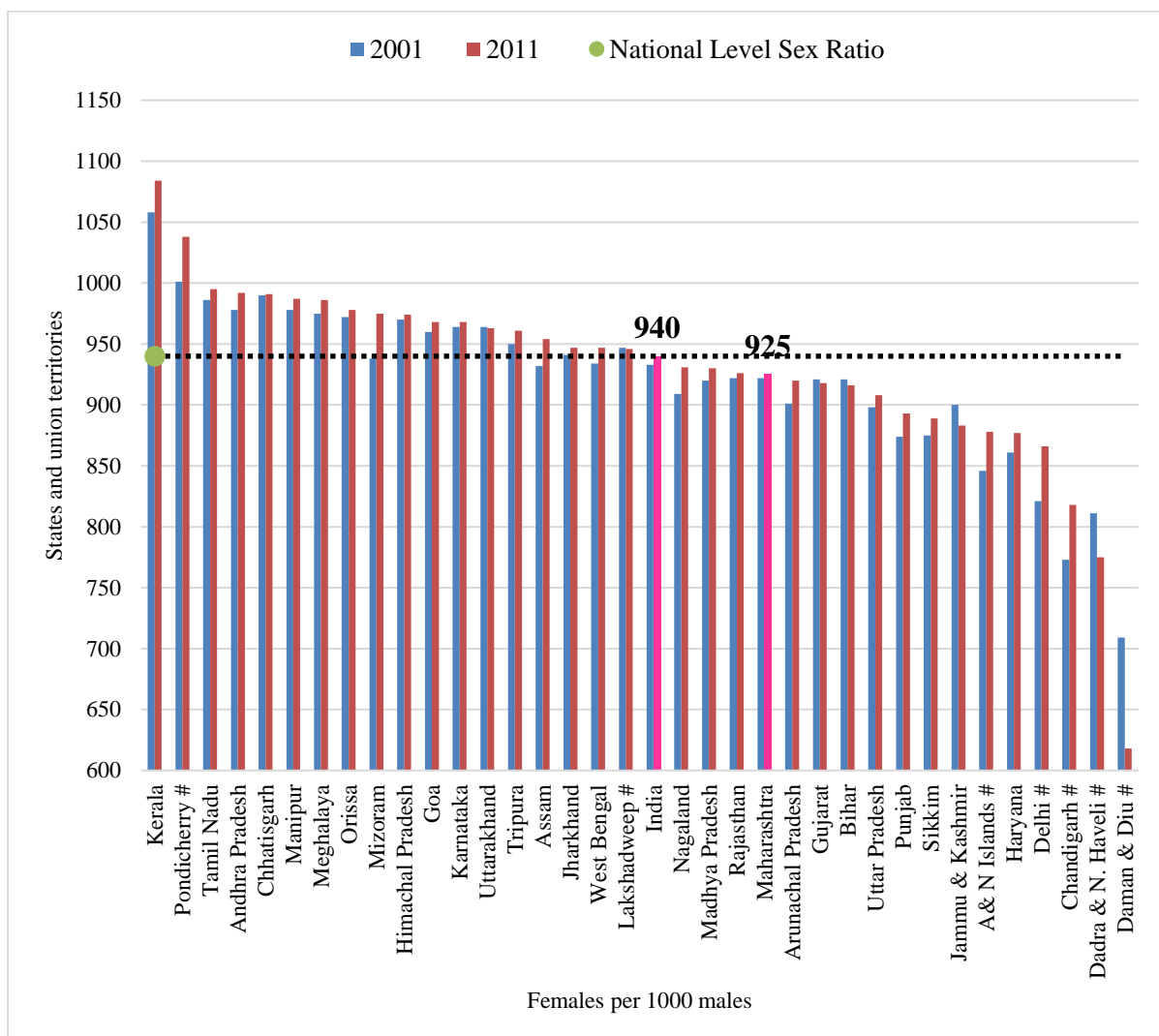
Among the primary states, the sex ratio has decreased in Bihar, Jammu & Kashmir, and Gujarat. The drop varied from 2 to 9 points in Gujarat and Jammu & Kashmir. Dadra & Nagar Haveli, Daman, and Diu are among the smaller Union Territories witnessing rapid reductions. Increases have been noted in key states such as Uttar Pradesh, Rajasthan, Jharkhand, Maharashtra, Kerala, Tamil Nadu, Panjab, and other North-Eastern states.

It should be noted that states with exceptionally low sex ratios, like Punjab, Haryana, Delhi, and Chandigarh, had a significant increase in the sex ratio in Census 2011. According to preliminary data, a lot of the states recognized as gender-critical needing particular attention and action as part of the Census 2011 have demonstrated an upward trend in the sex ratio.

The below graph shows the state wise sex ratio in 28 states and 7 union territories. The horizontal border line shows the national average sex ratio i.e. 940 and Maharashtra is 925 in the year 2011 respectively.

**Figure - 1.4**

Sex ratio in States and Union Territories (2001 and 2011)



**Source:** Table No. 1.4

Above figure 1.4 shows the trends of sex ratio differ between states and union territories. Kerala (1084), Tamil Nadu (995), and Andhra Pradesh (992) are the three leading states in terms of total sex ratio in India. Puducherry (1038), Lakshadweep (946), and the Andaman and Nicobar Islands (878) are the top three UTs.

Haryana (877), Jammu and Kashmir (883), and Sikkim (889) have the lowest sex ratios among the states. Daman & Diu (618), Dadra & Nagar Haveli (775), and Chandigarh (818) have the lowest sex ratios among the UTs. Only three large states, Bihar, Gujarat, Jammu, and Kashmir, have seen a drop in the sex ratio.

### **1.9.2 Sex ratio in Maharashtra**

One of the countries having a female shortfall is India. Women's shortage has become a prominent characteristic of India's population. According to the data given above, a similar scenario exists at the state level in Maharashtra during the whole regular census history. The state has a larger male-to-total-population ratio, indicating an increased predisposition for muscularity. This may be a dangerous scenario. Before taking any remedial action, it is vital to determine whether the same trend exists at the micro-level, i.e., at the district level. The table below depicts the gender distribution of the population throughout Maharashtra's districts during the research period (Maharashtra Human Development Report 2012, 2014, pp-xxxvii).

**Table No. 1.5**

District-wise Sex Ratio in Maharashtra (1951-2011)

As per the 1951 to 2011 Census								
Sr. No.	District Name	1951	1961	1971	1981	1991	2001	2011
1	2	3	4	5	6	7	8	9
	<b>Maharashtra</b>	<b>941</b>	<b>936</b>	<b>930</b>	<b>937</b>	<b>934</b>	<b>922</b>	<b>925</b>
1	Ratnagiri #	1239	1264	1263	1258	1205	1136	1123
2	Sindhudurg #	1200	1194	1213	1205	1137	1079	1037
3	Gondiya	1004	1000	989	1004	995	1005	996
4	Satara	1051	1047	1037	1061	1029	995	986
5	Bhandara	1005	993	984	989	980	981	984
6	Nandurbar	973	975	968	982	975	977	972
7	Gadchiroli	1000	998	986	981	976	976	975
8	Raigarh	1040	1058	1056	1046	1010	976	955
9	Parbhani	974	969	954	968	954	958	940
10	Sangli	968	957	949	967	958	957	964
11	Hingoli	989	975	968	966	952	953	935
12	Jalna	976	970	959	970	958	951	929
13	Kolhapur	964	961	953	962	961	949	953
14	Chandrapur	994	979	963	959	948	948	959
15	Buldana	981	959	954	957	953	946	928
16	Dhule	968	961	948	954	945	944	941
17	Yavatmal	989	972	961	958	951	942	947
18	Nanded	983	970	955	960	945	942	937
19	Ahmadnagar	971	962	956	959	949	940	934
20	Washim	971	956	957	963	946	939	926
21	Amravati	958	933	931	936	936	938	947
22	Akola	953	926	931	939	934	938	942
23	Bid	957	969	954	965	944	936	912
24	Wardha	983	964	949	948	939	935	946
25	Solapur	945	936	933	942	934	935	932
26	Latur	947	950	942	959	942	935	924
27	Jalgaon	971	957	948	950	940	933	922
28	Nagpur	956	929	922	924	922	932	948
29	Osmanabad	948	948	947	958	937	932	920
30	Nashik	956	946	940	937	940	927	931
31	Aurangabad	974	955	935	936	922	925	917
32	Pune	939	944	933	937	933	919	910

33	Thane	920	919	894	883	879	858	880
34	Mumbai (Suburban) #	712	744	769	801	831	822	857
35	Mumbai #	574	626	670	729	791	777	838

**Source:** Census of India 2011

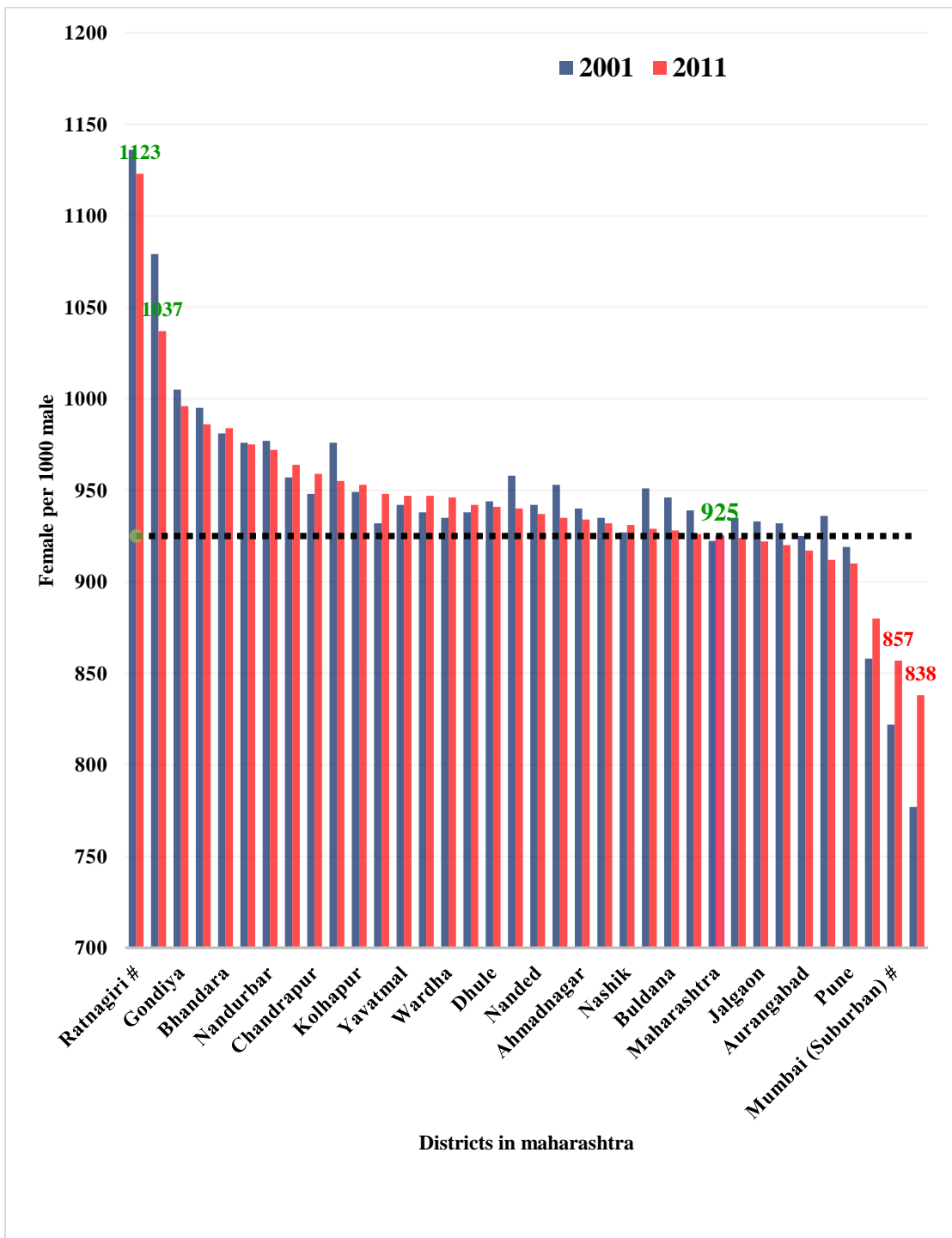
Note: # Selected Districts for study

From the above table, it may be seen that,

1. Above Table shows, that Ratnagiri and Sindhudurg district sex ratio is continuously high, and vice versa Mumbai and Mumbai Suburban sex ratios are comparatively low.
2. The Table also shows that the compared to year 2001 in Mumbai and Mumbai Suburban sex ratio improved in the year 2011 i.e. 838 and 857 respectively.
3. But compared to the national Sex Ratio i.e., 940, an improvement in Maharashtra's Sex ratio is required.

**Figure – 1.5**

District-wise Sex Ratio (Female per 1000 Male) in Maharashtra  
2001 and 2011



**Source:** Table No. 1.5

From the above Graph, it may be seen that, -

1. Above graph shows, that Ratnagiri and Sindhudurg district sex ratio is highest and Mumbai and Mumbai Suburban sex ratio is lowest in Maharashtra in 2001 and 2011.
2. In the year 2011 Maharashtra's average Sex Ratio is 925, which has been shown by dotted cutter line.

### 1.9.3 Sex ratio in the study area

Because certain districts have greater sex ratios, the sex ratio of Maharashtra state as a whole and selected districts, such as Ratnagiri, Sindhudurg, Mumbai (Suburban), and Mumbai, offer a distinct image. An attempt has been undertaken for research purposes to evaluate the district-wise sex ratio from 1951 to 2011. Changes in sex composition indicate fundamental socio-cultural characteristics in a community in a variety of ways. The gender composition of a country's population is an important determinant in its evolution, with both economic and social ramifications. The ratio of men to female in a population has an impact on the social and economic interactions within an area. The sex ratio is an important component in influencing a population's mortality rate. Women have lower mortality rates than male at most ages in most nations (Maharashtra Human Development Report 2012, 2014, pp-72).

**Table No. 1.6**

Selected District In Maharashtra Sex Ratio (Female per 1000 Male) 1951 to 2011

Sr. No.	Ratnagiri	1951	1961	1971	1981	1991	2001	2011
1	Ratnagiri	1239	1264	1263	1258	1205	1136	1123
2	Sindhudurg	1200	1194	1213	1205	1137	1079	1037
3	Mumbai (Suburban)	712	744	769	801	831	822	857
4	Mumbai	574	626	670	729	791	777	838
5	Maharashtra	941	936	930	937	934	922	925

**Source:** Census of India 2011

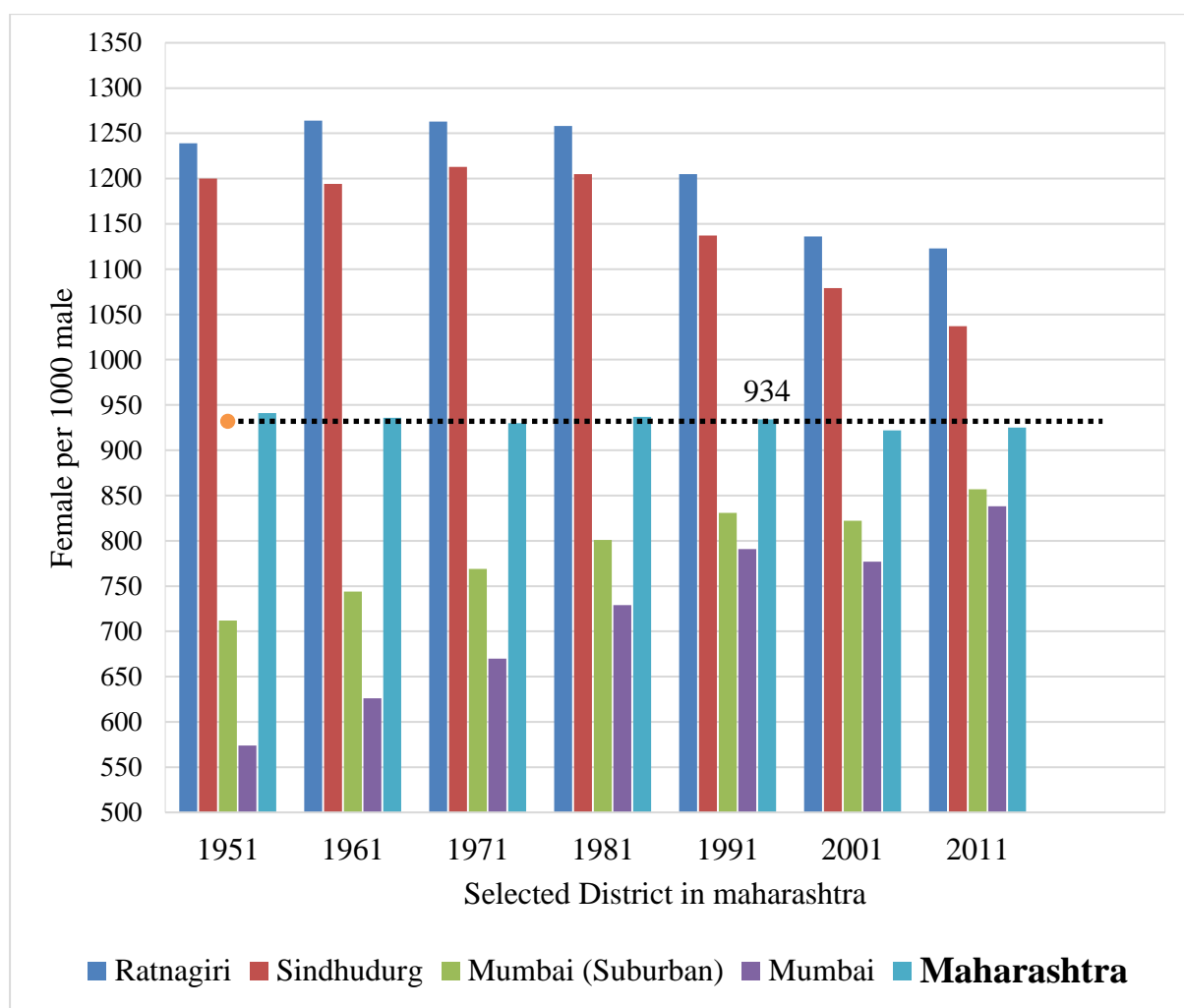


From the above table, it can be seen that, -

1. The above schedule shows the selected district sex ratio in Maharashtra (1951 to 2011).
2. The year 1951 to 2011 Ratnagiri and Sindhudurg district sex ratio have always been greater than 1000.
3. Vice versa condition of Mumbai (Suburban) and Mumbai is continuously below 1000.

**Figure – 1.6**

Selected District in Maharashtra Sex Ratio (Female per 1000 Male) 1951 to 2011



**Source:** Table No. 1.6

From the above Graph, it will be seen that, -

1. The above Bar Diagram shows sex ratio in Maharashtra selected district.
2. The year 1951 to the year 2011 many variations come under the Sex ratio.
3. Ratnagiri and Sindhudurg district sex ratio from 1951 to 2011 continuously over 1000 but at the identical time, Mumbai and Mumbai (Suburban) sex never go above 860.

### **1.10 Factors Responsible for Low Female Sex Ratio in India**

In India, a vast number of girls face the bleak reality of gender-based discrimination from birth, if not before. Because of the profoundly established patriarchal tradition that is still present in many Indian communities, millions of girls are deprived of life year after year, and if they are born, they face mistreatment or desertion from their families.

Sex-selective abortions and female mass killings have added to the low sex ratio at birth, or the ratio of the number of girls and boys born in a certain time, since the 1970s. This disparity has resulted in a large number of unaccounted for female births—the difference between the number of girls born and the natural anticipated number. According to studies, the total number of missing female births in India was above 15 million between 1990 and 2016, and the yearly amount is expected to continue at around 3 million by 2050. The sex ratio within the country has always remained unfavorable to female. It means that the number of females per 1000 males has always remained low in our country. So, in this section, researcher has described the variables that contribute to India's low female sex ratio (Nandita Mohandas, 2020, pp-2).

The first economist to study the problem of female foeticide and who coined the phrase 'missing women' was Amartya Sen. Sen argued that the disparity in sex ratios across eastern Asian countries like India, China and Korea when compared to North America and Europe, as seen in 1992, could only be explained by deliberate deprivation of women and girls in the areas of nutrition and health. The reasons for this deprivation is rooted in the culture of these countries, as seen in their traditions and values. These

cultural mechanisms are different between countries and even regionally within countries (Sen Amartya, 1990).

In many of these countries, the bias towards male children is so high that sex selective abortions eliminate girls even before they are born. Even if girls are allowed to be born, the medical care give to them and the food allocated to them is far inferior to boys in the family, leading to lower survival rates for girls.

Sen has pointed out that in a patriarchal society, women typically do not own economic resources and are dependent on fathers and husbands for land and income. Sen argued that women's lower bargaining power in household decisions was one of the factors resulting in short fall of female populations across eastern Asia. So, if women were to work outside the home and earn an independent income, their status in the society and family would be enhanced as result of their perceived contribution to the household.

Sen felt that even when women avail of economic opportunities outside the home and hence can afford better healthcare, the missing women problem still persists. A major reason is the widespread availability of ultrasound technology in India hat has exacerbated the problem of missing female children. This technology allows parents to get rid of unwanted female foetues before they are born. Sen concluded that these barriers against women were so entrenched that parents, even mothers, preferred boys to girls as they are looked upon as having an economically productive future, while girls do not. As parents grow older, they can expect much more help and support from their sons than from daughters who after marriage technically belong to their husband's families. Even if girls are educated and earn good income, they may not be able to support their parents. Another economic drawback of daughters is the dowry that has to be paid by their parents to their husband's family at the time of their marriage.

Hence Sen recommended that instead of just increasing women's economic rights and opportunities outside the home, a greater emphasis needs to be placed on raising consciousness to eradicate the strong bias against female children (Sen Amartya, 1992, pp587-588)

The various factors responsible for low sex ratio are:

**1.10.1 Gender discrimination (Desire for sons):** In India, the bias against female has cultural, economic, and spiritual foundations. Sons are supposed to labor in the fields, earn a higher wage, and care for their parents in their old age. Sons are viewed in this light as a form of insurance. Furthermore, in a patriarchal society, sons are accountable for the family name's maintenance. In addition, according to Hindu mythology, the funeral pyre ignited by a son is required for the spirit's redemption. There is a prejudice against the birth of girls. According to the 2011 census, the worst impacted areas in terms of sex ratio are western Maharashtra, western Uttar Pradesh, and Rajasthan.

**1.10.2 Discrimination against girl child:** Racism against girls is prevalent in many aspects of life, including education, marriage, and job. Sex determination is still widely and openly practiced. Girls are given less food, less health care, less education, and even less affection. Furthermore, it appears that initiatives aimed at children have done nothing to improve the situation. Girls are considerably more malnourished, putting them at a higher risk of sickness and death. When compared to the female child, the male child is given precedence. When it comes to raising male children, the state spends roughly twice as much as it does on female children.

**1.10.3 Ineffectiveness of tough legislation:** The constantly dropping child sex ratio—that is, the number of female children per 1000 male children in the 0 to 6 age group—could be a testament to the failure of India's relatively tough regulations prohibiting sex determination tests. The Government of India has passed the Pre-Conception and Pre-Natal Diagnostic Techniques Act in 1994 and amended it in 2003 with Rules made thereunder to safeguard the girl child. The implementation of this Act has been ineffective.

**1.10.4 Abortion, Female Feticide, and Infanticide:** Amartya Sen alludes to abortion of the feminine fetus once the sex of the fetus has been determined as natality inequity. He calls the use of ultrasound "high-tech sexism." Female deficits were more likely in affluent families, particularly if the firstborn child was a girl. Families were reported to undergo sex determination tests and terminate the pregnancy if the fetus was female in order to process a male heir. According to the report, which is based on a countrywide

survey of 1.1 million Indian families, five lakh female newborns are lost in India each year owing to selective abortion.

**1.10.5 Dowry:** Dowry is a pernicious practice that is frequently practiced in India. As a result, daughters are regarded as financial responsibility. The Indian dowry system is likely to contribute to the lower child sex ratio. Women have limited authority over economic resources, hence the best method for an Indian bride to gain influence is through her capacity to deliver offspring, particularly male.

**1.10.6 Increased female mortality (young girls, maternal mortality, and female infanticide):** Throughout India's census history till 1991, the most significant factor responsible for the numerical shortfall of female was excess female mortality. In order to offer an approximate impression of the scale of the problem, Amartya Sen proposed a technique to quantify the numerical effect of advanced female mortality in terms of missing women. According to more recent estimates, 50 million women have gone missing in India alone. The number of females is also decreasing as a result of delivery fatalities (maternal deaths). It was determined that every 14 minutes, a woman dies in India as a result of pregnancy and delivery problems (Sarabu Vijay Kumar, 2012, pp38-40).

**1.10.7 Family and society influences:** Paternities are concerned about more than simply economic worries, according to polls, which indicate ongoing demands from family and community members. In questionnaires, women frequently report pressure from female in-laws and spouses, as well as verbal and physical abuse, after failing to produce a son or becoming pregnant with a girl. (Puri Sunita, Adams Vincanne, Lvey Susan, Nachtigall Robert, 2011, pp-1172).

**1.10.8 Religion:** It is considered in certain societies that only a son may light a pyre and perform death-related ceremonies and rituals required for salvation.

## **1.11 Measures to increase sex ratio in India**

**1.11.1 Change in attitude of men:** Men's attitudes toward women should alter. Unless and until male begin to view women as equal partners, the gender divide will exist in the evolution of mankind. No one achievement, such as education, occupation, legal rights, or even a combination of all of these, will provide an answer. The only viable answer is a mental shift, a shift in men's attitudes toward women. No amount of educating, lecturing, or negotiating will benefit the girl child until this is accomplished.

**1.11.2 Change in attitude of women:** There is a Telugu saying that says a woman is an enemy to women. Women, too, must adjust their attitudes regarding children and women. Women, at least in part, are to fault for their predicament. Women are the ones who spoil their sons and spouses to the point where they feel they are truly superior humans.

**1.11.3 Gender discrimination:** Gender inequality and son favoritism should be abolished. Both boys and girls should be considered equitable in all ways. (Sarabu Vijay Kumar, 2012, pp-41).

**1.11.4 Intensive Information, Education and Communication (IEC):** Intense Details, Schooling, and Interaction efforts to raise public awareness of the serious repercussions of a drop in female sex ratio. The declaration of GK Pillai, Union Home Secretary, that whatever substantial initiatives that have been put in place over the previous 40 years have had no influence on the child sex ratio, and hence it demands a full assessment, will help us comprehend the seriousness of the situation. So each policy initiative must be reviewed by federal government officials as well as panchayat officials. Mrs. Prathibha Devi Singh Patil recent times said, on the occasion of International Women's Day, while presenting the 'Sthri Shakthi' Awards, "It is of great concern to me that the female population within the country is only 58.6 crores, while the male population is 62.3 crores, and thus there is a deficit of 3.7 crores in the female population." Furthermore, the dropping girl child sex ratio (0–6), which has fallen to 914 girl children per 1000 male children for the first time since independence, is causing great concern (Census of India 2011, pp-1).

**1.11.5 Mass media:** The mainstream press should play a role in creating a healthy portrayal of women. The intended audience must be high school and undergraduate girls. This might, nevertheless, be supplemented by emphasizing the complexity and hazards of female feticide and a lopsided sex ratio.

**1.11.6 Reframing policies:** Globalization has posed new problems for achieving the aim of gender equality, the gender effect of which has not been well assessed. Furthermore, according to the macro-level research commissioned by the Department of Women and Child Development, there is a need for regulations requiring accessibility to and sustainability of work.

**1.11.7 Medical Termination of Pregnancy:** When executing second-trimester abortions, MTP physicians must be extra cautious. While feminist abortion rhetoric claims that abortion is a right to one's body, sex-selective abortion may be a kind of female violence in and of itself.

**1.11.8 Women empowerment:** Girls' schooling has the potential to be a strong weapon for boosting nourishment, advancing the age of marriage, embracing birth control, boosting self-image, and empowering women. India has accepted a number of international agreements and human rights instruments, pledging to ensure women's equality. The most important of these is the 1993 ratification of the Convention on the Elimination of All Forms of Discrimination Against Women. (Sarabu Vijay Kumar, 2012, pp-42).

**1.11.9 Reducing the gender gap:** Closing the gender inequality in secondary and higher institutions would be a priority, with a specific emphasis on girls and women, particularly those from underrepresented groups such as the SC/ST/BC/Minorities.

**1.11.10 NGOs Role:** NGOs are also welcomed to inspire the creation of self-help groups, arrange non-formal learning for adult female and school dropouts, generate job potentials for girls, and offer additional consultation and assistance services to recently married and pregnant women to dissuade them from getting gender-biased abortions.

**1.11.11 Role of medical colleges and professional bodies:** The work of medical schools and competent organizations such as the Indian Medical Association (IMA), the Federation of Obstetric and Gynecological Societies of India (FOGSI), and the

Association of Radiologists in combating this critical concern must be recognized. This might involve Alerting health workers to the unfavorable gender ratio while emphasizing the ethical difficulties involved in female feticide Conduct monthly workshops/Continuing Medical Education sessions to assist reinforce the seriousness of this issue across the country. Such initiatives should even be encouraged to include private doctors. Conduct public awareness initiatives in fields of expertise. (Sarabu Vijay Kumar, 2012, pp-42).

**1.11.12 Warning Signals:** The drop in child sex ratio was predicted, but it serves as a wake-up call for the government. The law against sex-based abortion is not strictly enforced. This word of warning should be taken carefully. We are currently in a state of emergency. The greater cause for worry was the fact that previously unaffected states were also engaging in sex determination as a result of doctors' active promotion of the sex selection assessments.

**1.11.13 Regular check and serious punishment:** For sex determination tests, female feticide, infanticide, and illegal abortions, regular monitoring, and harsh penalties should be imposed.

**1.11.14 Save the Girl Child Campaign:** The Indian government's "Save the Girl Child" program must be stepped up. One of its key goals is to lessen the demand for a boy by emphasizing the accomplishments of young female. To achieve the long-term aim, efforts are being undertaken to establish an atmosphere in which boys and girls are valued equally. Boys must be taught from an early age to respect and treat girls equally.

**1.11.15 Dowry:** Dowry is a pernicious custom that is frequently observed in India. This might be reduced by enacting stricter legislation and sanctions.

**1.11.16 Strategies to Curb Female Feticide:** To demand efforts to improve women's standing in society, as well as to affirm the efficient execution of the Prenatal Diagnostic Techniques Act, so that families find it difficult to engage in sex determination and selective abortion. The stage essentially gives people increased educational and career possibilities, as well as a bigger say in governance affairs. They



have included initiatives to rectify the inheritance rights prejudice (Sarabu Vijay Kumar, 2012, pp-43).

**1.11.17 Malnutrition:** Given the significant risk of malnutrition and illness that women suffer at all four important phases of their lives, namely infancy, childhood, adolescence, and the reproductive phase, special emphasis would be directed to addressing women's nutritional needs at all stages of their life cycle.

**1.11.18 Positive Economic and Social policies:** Creating an environment for women's complete growth through favorable economic and social policies that allow them to realize their full potential.

**1.11.19 Equal Rights:** Women should be granted de jure and de facto enjoyment of all human rights and fundamental freedoms on an equal footing with male in all spheres-political, economic, social, cultural, and civic.

**1.11.20 Equal Access:** Women must have equal access to involvement and decision-making in the nation's social, political, and economic life, as well as equal pay, occupational health and safety, social security, and public office, among other things.

**1.11.21 Strengthening legal systems:** The necessity of the hour is to strengthen legal structures geared at eliminating all forms of discrimination against women (Sarabu Vijay Kumar, 2012, pp42-43).

## **1.12 Process of reduction in the gender gap in India (from pre-British period to present)**

Throughout history, Indian women have been viewed as the responsibility of others, whether as daughters, spouses, or mothers. This was documented in Manu's prescriptions, written around the beginning of the Christian period. She should not do anything on her own, not even in her own home. She was subordinate to her father as a child, her spouse as a young woman, and her sons when her husband died. She should never be allowed to be self-sufficient. Women had far greater independence in the early Vedic period than in later eras, according to most historians. Indian women were exploited in a variety of ways throughout that period. Changes in British control in India during the nineteenth and the first part of the twentieth centuries had both beneficial

and bad effects on women's status. The abolition of sati in 1921 was a progressive act, as were improvements in female education in the 1850s when schools were open to both girls and boys. However, in the absence of altering the practice of child marriage, these educational advances had little influence because girls were forced to drop out of school at any age. Other revolutionary reforms included the legalization of widow remarriage in 1856, the condemnation of Purdah, the passage of the Child Marriage Restraint Act in 1929, and the granting of voting rights to women in the majority of states by the 1920s. The less favorable impacts of British rule on women's rights included an increase in dowry, which, according to Indian scholars, was not formally curtailed until after independence with the Prohibition of Dowry Act of 1961. During this time, prostitution grew as a result of poverty and the subsequent repression of women's independence.

During the war for independence, Gandhi advocated for women's rights, and Indian women were involved in the Non-Cooperation Movement and other political rallies. The Indian Constitution, which went into force on January 26, 1950, gave women equal rights, privileges, and prospects and authorized the state to engage in positive discrimination in favor of women. The Hindu Marriage Act of 1955 raised the marriage age for women to fifteen and boys to eighteen, abolished polygamy, and granted women the right to divorce. The Special Marriage Act of 1954 also made inter-caste marriage permissible. The Hindu Succession Act of 1956 liberalized property rights for female family members. In 1961, the Prohibition of the Dowry Act established penalties for donating and accepting dowries in marital agreements. The Child Marriage Restraint Act of 1978 increased the marriage age for women to 18 and male to 21. The National Commission for Women Act of 1990 established a national agency to protect women's rights and welfare. The universal primary education program, as well as the National Policy for Women's Empowerment, were both introduced in 2001, to advance, develop, and empower women in areas like decision-making, economic advancement, education, and access to contraceptives. The National Policy also called for more progress in female education and mandatory birth registration, both of which are critical steps toward reaching the objective of universal compliance with the legal marriage age for girls by 2010. The Hindu Succession Act of 1956 was revised in 2005 to provide female equal inheritance rights and titles, including ancestral land that was formerly inherited solely by boys.

Nevertheless, it appears that these progressive regulations have had little influence on female empowerment and gender equality in India. Despite being formally outlawed, dowry is nonetheless deeply ingrained in marital agreements. Economic considerations for son preference are contained within this wide framework in India. Sons are supposed to live in their native families and provide economic contributions to their parents throughout their adult life, including financial assistance when their parents are no longer working, in its patriarchal society. As their girls marry into their husbands' families, their parents lose both income and security utility, albeit not always consumption utility, which refers to the happiness that parents gain from their relationships with their children. Daughters are substantially more expensive than sons, not only because of the investment made in their upbringing and education but also because they necessitate hefty dowry and marriage fees. As previously stated, the dowry was intended as a gift from the bride's nuclear family at the time of marriage, intended for her personal use. It was also intended to boost the new bride's standing in her in-laws family and to provide insurance in the event of a financial emergency. Meanwhile, through time, this wedding endowment has become the groom's entitlement, and it is now viewed as financial recompense for the responsibility the bride causes to her in-law. Despite the fact that dowry has been illegal in India since 1961, prospective spouses continue to demand or anticipate big presents, putting considerable pressure on the poor. The primary religious basis for son preference is based on the Hindu religion. It is more common among India's upper castes, because, as previously indicated, only a male child may offer appropriate oblations for the soul of a departed father. If these are not carried out by a male descendent, the ancestors will be punished in the hereafter. Other religious groups in India, such as the Sikhs and Muslims, hold similar views.

Aside from the increased gender inequities associated with the revival of Hinduism, nothing is known regarding the relationship between caste and son choice. However, it may appear that disadvantages along one spectrum, such as caste, would amplify other inequalities, such as education and gender gaps. Various forms of studies highlight the linkages between caste and gender, particularly the disparities in socioeconomic traits such as education and mobility between high and low caste women.

While financial, cultural, and spiritual variables may combine in India to generate a psychological preference for a boy over a female, the joy of having children

is not confined to sons. As this investigation will show, parents, get a lot of joy from their female offspring but not from their sons. The tradition of married daughters returning home to their families for childbirth or other visits is well established in India, and one of the Hindu festivals, Nag Panchami, could be day when married women, particularly those who have recently married, rationally return home to be with their families. In an investigation conducted in Tamil Nadu to investigate the reasons for the widespread preference for one boy and one girl, it was discovered that boys were desired for economic and social reasons, whereas girls were valued for affection and emotional support, housekeeping assistance, and maintaining a decent family name. However, a similar survey found that female respondents were averse to having more than one daughter due to the costs associated with a dowry (Vlassoff Carol, 2013, pp. 2-7).

### **1.13 Discussion and conclusion**

Maharashtra's sex ratio has shifted dramatically since the state's inception in 1960. In Maharashtra, the percentage of female per thousand male is not equal. In reality, the sex ratio has been steadily declining year after year. Such an imbalance is caused by the predilection for sons and neglect of the female offspring. The patterns and social-economic ramifications of changes in sex ratios in Maharashtra State were investigated in this chapter. Thus, a distinguishing element of Maharashtra State's population is the sex ratio, with a considerable lack of females, which is a continuing trend in the state. This disparity is considerably more pronounced in cities. This inequality can be decreased if the underlying reasons are recognized and addressed. The occurrence of male-female discriminatory practices that begin even before birth necessitates policymakers' immediate attention. This study takes a district-level micro perspective of the sex ratio in Maharashtra, and an endeavor has been made to discover numerous explanations and their likely consequences on the sex ratio.

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## Chapter: II

### Review of Literature

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## Chapter 02

### Review of Literature

#### 2.1 Introduction:

A review of the related literature is a significant part of the research work. Because, it avoids duplication of work and it helps the researcher to go deep into the problem. An attempt has been made here to present some of the studies carried in selected districts, in India and abroad which are related to the present research problem. Reviews have been presented chronologically based on the issues. Here for review of literature taken 17<sup>th</sup> Ph. D. theses, 15 Books, 09 Research papers, 6 Articles, etc. collating information.

#### 2.2 Ph. D. Thesis – 17

##### 2.2.1 Lal Nilawma (1990)

**Lal Nilawma (1990)** has authored “*Progress of Women in Mizoram from The Earliest Times to the Present*”. The investigation is designed to find the problems common to **Mizo** women as perceived by them. Among others, the objectives of the study included studying the to focus on, to trace the position of Mizo women from early stage of the history of Mizo society up to the present day, to find out the problems that the Mizo women had to face from time to time on their way to progress in different fields, to find the solutions to their different problems by different ways and means that they may come up in every sphere of human activities, to help the Mizo women to have complete development of their personalities, to pave the way for further research in this field. Accordingly, the data collected through the investigator personally visited the sample selected women of Mizoram to administer the scales.

The findings of the study revealed the following:

**One** findings special motivational programme should be undertaken by the government to bring girls to schools. The **second** findings Full participation of women in economic

and social development. **Third** to ensure the full integration of women in the total development effort, especially by emphasizing women's role in economic, social and cultural development. The **fourth** findings the a major obstacle in improving the status of women lies in public attitudes and values regarding women's roles in society. The **fifth** Women not only need education which makes them literate, but also education which equips them to carry out their multiple roles as citizens, housewives, contributors to the family income and builders of the new society.

In short **conclusion** is the today women are entering into technical, clerical, medical, marketing, scientific occupations in large numbers. The rising cost of living along with new trends of m o d e m living, resulting in the ever widening field of necessities of life, are compelling more and more women, both married and single, to seek employment. Earlier, women used to be engaged mostly in unskilled, semi-skilled occupation. However, now their presence is rapidly felt in services, industries, shops, offices, hospitals, laboratories and the white-collared and other occupations. Undergraduates as well as postgraduates with science subjects like medicine, engineering as well as commerce are increasing in numbers alarmingly as job seekers. (Lal Nilawma, 1990, pp238-257).

### **2.2.2 Nayak Debendra Kumbar (1991)**

**Nayak Debendra Kumbar (1991)** has authored “*Female Participation in Economic Activity in Selected Rural Areas in India: Analysis*” covering the period is 1971 to 1989. The regions include Marwar, Mewat, Sub-Himalayan North and the middle Ganga Yamuna doab in the North-West and Brahmaputra valley in the North-East. Among others, the objectives of the this research highlights some of the important issues concerning rural women's participation in economic activity and raises a few policy issues; to analyze the regional variations in the structure of female workforce; to identify the spatial, ecological, economic and social parameters which play crucial roles in the variation in female participation in economic activity; and to synthesize the nature of variations into various typologies of female work participation for the sake of planning and policy measures. Accordingly, the data were gathered from various sources and field investigations spread over seven sample villages in five regions of the country.

The findings of the study revealed the following:

**One** in this study an attempt has been made to understand the nature of female involvement in work and the structure of female workforce. **Secondly** findings in each of the selected regions, social and ethnic factors play a significant role in causing differentiation in female work participation. **Thirdly** findings Female work participation in Agewa and Indana, the sample villages from Marwar and Mewat respectively, shows somewhat lower proportion of female workers in households having little access to land. The analysis of structure of female workforce reveals that female work participation is confined to agriculture only. **Fourthly** findings The analysis of structure of female workforce reveals that female work participation is confined to agriculture only.

In short **conclusion** The sex-composition of the workforce in agricultural and non-agricultural activity reveals the predominance of women in the former. The data indicate that women's participation in agriculture is higher within households with small holdings. more opportunities of work shall be provided to the rural women may sound too simplistic. (Nayak Debendra Kumbar, 1991, pp368-381).

### **2.2.3 Singh Manju (1994)**

**Singh Manju (1994)** has authored "*Changing Economic Status of Women and Government Policies*" covering the period is Ajmer District of Rajasthan where It will help to understand the broad pattern of changes through government, programmes and to study the opinion of rural women towards selected government, programmes (IRDP, TRYSEM, JRY etc. 1988-89 to 1990-91.). Among others, the objectives of Whether government programmes significantly affected economic status of women through various programme which are trying to involve women in economic activities; Whether there is any useful effect of women's employment reflecting on the state of redistributing in family income; In a context where customary division strongly emphasizes men's and women's separate spheres of activities and allocates domestic work and child care to women, is there any evidence of renegotiation of household division of labour either between women and men or between female kin? Does any type of family, size of family make it easier to involve in government programme and enter in wage-work for women and affect patterns of household composition? Accordingly, the present study is based on primary as well as secondary data.

The findings of the study revealed the following:

**One** increasing employment and income of women has proved to be fruitful by improvement in the status of women. **Secondly** finding Another parameter, freedom of spending, is measured to analyse women's economic status. It is observed that the inclusion in government programmes has improved the freedom of spending of female beneficiaries. **Thirdly** finding attitude of women would change and they would move towards higher status. **Fourthly** finding The whole analysis of level of exposure of female indicates that their literacy level significantly influences the level of exposure.

In short **conclusion** study status of a woman beneficiary changes after involvement into economic activity through government programme Involvement of a woman into government sponsored economic activity generates extra income for her household. This may affect her decision power, freedom of spending in family income, domestic indebtedness of her household, burden of household chores and perception of different factors. The status of a woman is intimately connected with its economic position which depends on the opportunities for participation in economic activities. (Singh Manju 1994, pp225-235).

#### **2.2.4 Shrestha Pushpa (1996)**

**Shrestha Pushpa (1996)** has authored "*Educated Females in Nepal: Factors Influencing Their Participation in Economic Activities*" covering the period is 1981 to 1996. The universe of study includes that part of female population of Nepal in Kathmandu City, Among others, the objectives of this research study of the levels and patterns of literate and educated females' economic participation; To discern the factors responsible for low economic participation of literate and educated female, if so. Accordingly, the data this study has used secondary as well as primary sources of information.

The findings of the study revealed the following:

**One** in Nepal, literacy level is low compared to a large number of developing countries, **Secondly** finding indicated that a certain threshold level of education is required to promote female's participation in economic activities. **Thirdly** finding female ' level of educational attainment and their participation in white collar occupations particularly as professionals are positively associated. **Fourthly** finding literate and educated female ' workforce participation and their husbands' levels of education were positively related.

In short **conclusion** study has indicated that to enter into secondary and tertiary sectors of occupation, female should have some threshold level of education, female respondents and their employment status before marriage which established a positive relationship between the level of education of husbands and wives' economic participation. The education curricula should specifically try to reduce, if not, eliminate completely the differential in traditional role model ascribed to male and female with respect to work.

When researcher study in Nepal about few districts, she found with regard to facilitating factors both female and husbands' perceptions were studied separately, to understand the gender-wise perception regarding the issue of employment of literate and educated female. Of the 902 female respondents, a total of 2884 responses were recorded. Among them, around 15 % felt that government should create suitable job opportunities in the manufacturing, trade and commerce and services sector of the economy. Close to fifteen per cent of the respondents felt that the attitude of the government and the society should be conducive to female economic activities. (Shrestha Pushpa, 1996, pp125-140).

#### **2.2.5 Nabi I Too G. H. (1996)**

**Nabi I Too G. H. (1996)** has authored “*Social Development of Women and Children in Jammu & Kashmir : A Sociological Study of Policies and Processes in District Anantnag.*” covering the period is 1951 to 1951. Among others, the objectives of the conjecture underlying this thesis is that the policies and programmes for the development of women and children have a direct bearing upon the social relationships both at micro (individual, family) and macro (community society) levels; to testify the relevance of existing models of development, based on economic interpretation and the search for an appropriate model in which there is maximum choice for women and children. to find out the women and children to benefit from developmental programmes. Accordingly, the present study is based on primary as well as secondary data.

The findings of the study revealed the following:

**One** Socio-economic schemes have opened employment avenues for women to help them to become economically independent. **Secondly** findings policies and programmes for the development of women and children influence the social relationships both at micro and macro levels. **Thirdly** findings there is a need to

encourage the voluntary organization to come forward and become co-sponsors for the delivery of such services to women and children.

In short **conclusion** the process of development is of crucial concern to women and children who constitute the majority of the population in any society in the world. Educated women are in a better position to get a job which means economic independence. The health status of a woman is determined by several factors i. e. literacy, age at marriage, birth intervals, nutritional status and after all maternity care. (Nabi I Too G. H., pp273-300, 1996)

### 2.2.6 Sing Renuka (1996)

**Sing Renuka (1996)** has authored “*Status of Indian Women: A Sociological Study of Women in Delhi*” covering understanding of status of women in Delhi is our fundamental concern in the present study. Among others, the objectives of the study included studying the to focus on the impact of change in the cropping pattern on employment, especially of women labourers, to study the impact of changed female employment (unemployment) situations resulting from the shift in cropping pattern on family consumption pattern, and to study how women labourers in agriculture sector got adapted to the situation of changing employment opportunities. Accordingly, the data collected through the primary survey forms the main source of data for the study as well as secondary.

The findings of the study revealed the following:

**One** A high employment status of a woman does not necessarily mean a high maternal status. **secondly** findings thus, status dynamism has enabled us to locate the woman's problem in totality, mainly in terms of her consciousness about her existence in relation to wider society. **Thirdly** findings The low status of a woman in one sphere is invariably compensated by a high status in another area. **Fourthly** findings women's education and access to it have been seen as an indication of high status.

In short **conclusion** the consciousness of present day world makes us delve into the paradoxical perceptions about the status of women in India. Based on objective data, 56.5 per cent of women, in our study, have a high status and 43.5 per cent a low status. However, based on the responses, only 10 per cent of women, expressed of experiencing a high status, whereas, 90 per cent of women experienced a low status. Which means that 46.5 per cent of women who actually had a high status, based on the



objective dimension, could not enjoy their high status as their subjective perception coloured their reality. (Sing Renuka, pp195-203, 1996).

### **2.2.7 Saha Karabi (1998)**

**Saha Karabi (1998)** has authored “*Education and Women’s Empowerment in Urban Villages of Delhi*” covering understanding Studies show that Women's contributions in the home and workplace are undervalued and overlooked (1955 -90) under urban village of Delhi. Among others, the objectives of the study included to measure the level of education of women along with their social background; To derive an operational definition of empowerment and measure it quantitatively; To examine the role of education and other socio-demographic characteristics in empowerment of women. Accordingly, the present study is based on primary data related to the level of education of women and their empowerment in various aspects of life and one of the secondary objective of this study is to look into the social background of the respondents also.

The findings of the study revealed the following:

**One** as the educational level increases the percentage of male increases and the percentage for female population starts declining. No female has technical level of education. **Second** findings different levels of education of women have been identified along with their social background. **Third** findings The women in the younger age group have higher level of education compared to older age group. **Fourth** findings number of aspects of empowerment have been taken care of to see various levels of women empowerment in four urban villages of Delhi.

In short **conclusion** working status of women is very low while most of the women are found not working and very few are working which is considered a conventional definition of work. Working status of women is an important aspect in terms of empowerment of women which has inter-relationship between education of women and to some extent education of husband and education of head of household. At the lower level of education of women or head of household or husband, the percentage of working women are found higher while it comes down at the level of middle and secondary or higher secondary education. But the higher level of education of women or head of household or husband i.e. graduation or above shows higher percentage of

working women. The educational level of women show very consistently higher positive correlation with all the aspects of empowerment. It is notable that education of head of household in parent's house has not shown enough relationship with empowerment. So far it has been found that education is an important factor in women's empowerment. (Saha Karabi, 1998, pp-170-180).

#### **2.2.8 Datta Anindita A. (1998)**

**Datta Anindita A. (1998)** has authored "*Inter Regional Gender Disparities in The Levels of Social Well Being: A Comparative Study of the Utarakhand Region and Awadh Plains*" covering understanding The study draws its relevance from the fact that the problem of female marginalization is analysed in the context of gender disparities in the levels of social wellbeing studied under Utarakhand Region and Awadh Plains. Among others, the objectives of the study included to compare the gender disparities in the above aspects of social wellbeing over space. To compare the gender disparities in the following aspects of social wellbeing across. To attempt a theorisation of the problem of female marginalisation within the framework of gender disparities in key aspects of social wellbeing. Accordingly, Data for this study was drawn from both primary as well as secondary sources.

The findings of the study revealed the following:

**One** Educational deprivation is an important tool in maintaining unequal gender, caste and class relations and thus perpetuating and sustaining the system and sub systems of female marginalisation. **Second** findings the analysis of educational inequalities as part of a larger scheme of inequalities perpetuated against women leads to the conclusion that in every social category, female form a sub category that faces greater deprivation than male of the same group. This is because of their lower social value within the household. **Third** findings within each category of household income, more female than male are illiterate- illustrating the fact that female form a sub group more marginalised within each economic group.

In short **conclusion** is policy implications of this functional model are twofold. While short term measures may be more direct and aimed at correcting the imbalances in health and educational status, such measures must be backed by a sustained long term policy to enhance the social value of female and oppressed groups. The media emerges as an important vehicle for such policy measures. Gender sensitisation schemes aimed

at recognizing the value of domestic work, increasing the social value of female by imparting of income generating skills to them. (Datta Anindita ,1998, pp196-205).

### **2.2.9 Shah Trupti Thakorbbhai (1999)**

**Shah Trupti Thakorbbhai (1999)** has authored "*Economic Status of Women in Urban Informal Sector -A Study of Baroda City*" covering understanding The study, was to understand the ways of survival of the poor women of Baroda, in the absence of particular types of industries which employ women's labour(1951-91). Among others, the objectives of the study to examine the economic status of women by estimating the Work Participation Rate and income in the informal sector in the city of Baroda. To examine the factors affecting Work Participation Rate of women in the informal sector of Baroda city. To examine the factors affecting inter-sector and intra-sector mobility of women workers in the city of Baroda. To examine the factors which keep women in the lower segment of the economy. Accordingly, the study is based on secondary as well as primary data sources.

The findings of the study revealed the following:

**One** It is argued that women are absorbed in the lower segment and get less income because they are not consistently committed to their waged work. **Second** findings the reasons for participation in the women labour market were mainly economic but the reasons for not working were mainly of three categories social, economic and lack of support services. **Thirdly** findings Patriarchal norms or family norms are one of the most important factors that not only affect women's entry into the labour market but also the kind of work they can do in the labour market. **Fourth** findings The comparison of the effect of these factors on the nature of work participation shows that in case of women these factors interact with gender and the combined effect of gender, caste, religion, culture create different processes and results for women in die labour market. **Fifth** findings education had a positive effect on men's income but not very clear effect on women's income.

In short **conclusion** men and women in the lower income groups rely more on the informal sector than the formal sector for their livelihood but women's access to the forma! sector is far lower compared to men from their households. The high concentration of women in personal services, mainly as domestic servants, and homebased work shows that women are concentrated in the lowest segments within the Informal sector as well. The strategy of capital Intensive industrial growth has left

women with fewer choices for work in the urban economy at the national level. Our study observed the same trend in Baroda as well. (Shah Trupti, 1999, pp221-238).

#### **2.2.10 Leiithabhai K.N. (2003)**

**Leiithabhai K.N. (2003)** has authored “*Gender Issues in Development: Impact of Shift in Cropping Pattern in Kerala on Employment of Women, Family Income and Consumption*” covering a period from 1961 to 1991 in Kerala. Among others, the objectives of the study included studying the to focus on the impact of change in the cropping pattern on employment, especially of women labourers, to study the impact of changed female employment (unemployment) situations resulting from the shift in cropping pattern on family consumption pattern, and to study how women labourers in agriculture sector got adapted to the situation of changing employment opportunities. Accordingly, the data collected through the primary survey forms the main source of data for the study as well as secondary.

The findings of the study revealed the following:

**One** of the findings regarding the labour force participation of female’s in Kerala is that participation is declining. Casualisation of work is increasing in the case of workers of both sexes. Female labour are being evicted from their traditional sectors of agriculture wage labour, household industries, etc. The **second** findings derived on the present study is that agricultural performance in Kerala at state level and at the study area (Kottayam district) level is recovering from a decline, since early 1980s. Total agriculture showed growth in production and yield due to shift in cropping pattern in favor of high valued non-food crops. The **third** findings income of women labour in agriculture sector contributing much to the household income of the labour families and there by determine the consumption behavior of labour class. The **fourth** findings the spending pattern of female and male income earners, are different. Female earners spend more on family consumption, while male earners spend mainly on personal consumption.

In short **conclusion** is the present study concludes also that consumption pattern of labour households changed to a deteriorating position due to unemployment of female labour in agriculture due to cropping pattern change, it opens up opportunities for further study using more information collected in a series, covering years, and including a large sample to conduct a more serious study of impacts of changes in cropping pattern in Kerala agriculture. (Leiithbhai K. N. 2008, pp209-224).

### **2.2.11 Gupta Sarbani Das (2006)**

**Gupta Sarbani Das (2006)** has authored “*The Position of Women In Meghalaya, 1981-2001: A Study Of Some Demographic, Health and Socio-Economic Indicators*” covering a period from 1981 to 2001 in Meghalaya. Among others, the objectives present study is to analyse the variables that are indicative of the demographic, educational, health, socio-cultural and economic conditions of women in the state of Meghalaya so as to assess the level of general wellbeing of its women population. The present study evaluates the position of women not in terms of her 'status' but in terms of her 'autonomy'. Accordingly, the present study is based on the secondary data spanning over a period of twenty-one years available in mainly five sources.

The findings of the study revealed the following:

In case of Meghalaya, the mean age at marriage of the female has been much higher than that of both the Indian women in general and Indian ST population and it has even registered a marginal rise during the period from 1981 to 2001. However, side by side with rising mean age at marriage for female, the female literacy rate has also been rising and has been found to be much higher than the corresponding national figure. TFR has also registered a marginal rise and continues to be almost double of the corresponding national figure over the period from 1981 to 2001. During the entire period of time, there has been a sharp reduction in the proportion of births to adolescent mothers in both the rural and urban areas while the proportion of births in the high-risk category has been one of the highest in the region during 1992-01.

In short **conclusion** The survival chances of female infants and children have been uniform in the rural and urban areas, though with respect to the adult population, those based in the urban areas no doubt seems to be more advantageously placed. The provision of basic facilities has been inferior in the rural areas and the employment situation has also worsened therein. As the inheritance of property is through the female line, women in general seem to be better placed. The women of the state fail to translate the advantages that they get in terms of higher age at marriage and higher literacy into a lower fertility and better living standard. (Gupta Sarbani Das, 2006, pp172-185).

### **2.2.12 Yadav Anita (2008)**

**Yadav Anita (2008)** has authored “*Educational Attainment and Occupations of Women in Haryana*” covering a period from 1901 to 2001 in Haryana. Among others, the objectives of present study is to understand the status of literacy and education of

female population in Haryana. to identify the regional patterns of female literacy and education in Haryana. to analyze the rural! urban disparity in female literacy with its causes and consequences. to identify the gender gap in overall literacy rates and education -levels with regional variations. to analyse the parents attitude and awareness towards education of girls. to analyse the impact of education on women in distribution of their occupations. Accordingly, the present study is based on the secondary data spanning over a period of twenty-one years available in mainly five sources.

The findings of the study revealed the following:

**One** in rural areas, noticeable inter-district gender gap disparities have been observed in 12 to 14 years' age group as well as 15 to 34 years' age group. **Second** findings the highest female literacy in Haryana is still lower than the lowest male literacy. **Third** findings The Gender gap has been recorded less in the younger age group than the older age group in all the educational levels. **Fourth** findings The rural urban gender gap has reduced in younger age groups in all the educational level. **Fifth** findings the female are working more as main workers on attainment of graduation and above education level.

In short **conclusion** the policies and programmes instituted from time to time has resulted in a positive impact on educational attainment of female and their active participation in the category of main workers and hence prove as a better Human Resource in Haryana. the most distinctive feature is that the range of female Literacy in rural areas is higher than the urban (Yadav Anita, 2008, pp197-202).

### **2.2.13 Nirmala Vijaya P. (2008)**

**Nirmala Vijaya P. (2008)** has authored "*Socio - Economic Empowerment of Rural Women Through DWCRA (Development of women and Children in Rural Area) : A Study*" The present study, after reviewing various earlier studies, uses the most suitable methodology with utmost conceptual clarity in analysing the income and employment generation through DWCRA programmes in Kadiri Rural mandal of **Anantapur** district in general and in the three selected villages in particular (1997-98 to 2006-2007). Among others, the objectives of the study included to study the socio-economic status of women in general; to estimate the income and employment among the rural women through DWCRA programme in the sample villages. to compare the active involvement of various categories of rural women in various activities under DWCRA

in the sample villages. to suggest required measures for the effective implementation of DWCRA programme for the economic empowerment of various categories of rural women who are in poverty-ridden conditions in the society. Accordingly, the data required for the study are mainly collected from the secondary data also The primary data was collected from the sample beneficiaries to assess the income and employment generation among the DWCRA members.

The findings of the study revealed the following:

**One** the income levels of rural poor women were increased with the active involvement in various DWCRA activities in the sample villages of Kadiri Rural mandal. The net income of various categories of DWCRA members before and after the programme.

**Second** findings There was an increasing trend in the number of women beneficiaries under DWCRA during the period under study on an average 239 SCs, 99 STs, 205 BCs and 209 Other community beneficiaries were covered under DWCRA with a share of 31.75%, 13.24%, 27.22% and 27.79% which helps to women empowerment.

In short **conclusion** DWCRA has change the standard of living of women in selected districts which women members involved in various other activities also. It shows that there is a socio-economic transformation among the also weaker sections due to participation in DWCRA activities. The work culture among all sections of the DWCRA women has been significantly changed after the joining in DWCRA. Before and after the joining of DWCRA, the income levels among the DWCRA women members were significantly transformed. The purpose or aim of the establishment of DWCRA is also to generate additional income among the families of DWCRA women members and empower to them. The main objective of DWCRA programme is to generate additional gainful employment for rural women to generate additional income among the DWCRA women members. Women produces were made invisible in history that adequate importance was not given as it was given to the male producers. It proves that women could also efficiently perform men's role in agriculture. Study also point out that to maintain the balance male and female to the supply of labour force high sex-ratio is has been must (Nirmala Vijaya, 2008, pp130-163).

#### 2.2.14 Singh Punia Mehar (2012)

**Singh Punia Mehar (2012)** has authored “*Longitudinal Profile of Sex Ratio at Birth in Erstwhile Rohtak District Since 1966 to date (2010)*” covering a period from 1966 to 2010 in Rohtak District. Among others, the objectives of the study included studying the to know the sex ratio at birth (SRB) in erstwhile Rohtak district since the formation of Haryana in 1966 to date (2010). To study the association of various economical, techno-medicals and socio-cultural factors and sex ratio at birth. To develop a model for the prediction of sex ratio at birth for any future date under given conditions. Accordingly, the present study was carried out in the field practice i.e. primary data also use secondary data to properly analysis them.

The findings of the study revealed the following:

**One** Prejudice against women still continues. With the advancement in reproductive technologies, the prejudice which was mainly after birth has shifted to before birth and before conception periods to avoid the birth of a female baby resulting in adverse female sex ratio at birth. **Secondly** findings Son preference continues to be very high. Under pressure of socio-economic constraints (dowry etc.) and for keeping the family size small, birth of a daughter in the family is hardly a welcome event. **Thirdly** findings Adverse sex ratio will continue to increase until the mindset of the society is changed in favor of a girl child and it can be achieved primarily through mass movements preferably led by women. **Fourthly** findings As the inter-relationship of problem of adverse sex ratio with other factors is highly intricate, the mere developments in socio-economic and physical aspects may have counterproductive impacts on sex ratio.

In short **conclusion** The custom of considering lower social status of the parents of a girl child in comparison to the parents of a boy in all social relations; just in the similar way as a girl is considered inferior to a boy, needs total re-definition. Rather, it should be reversed for the time being. Such types of gender based social hierarchy must be eradicated totally if we think of equalization of sex ratio. The problem of safety of girl child which has acquired serious dimensions because of the escalating number of unmarried male youths and adults needs urgent attention of all of us for its remedy as the safety of girl child in the present circumstances is going beyond the competence of parents alone. Impending social catastrophic impact of adverse female sex ratio must be perceived in proper perspective by all of us and we all need to be actively involved



in effective mitigation and preventive interventions for adverse sex ratio. (Sing Punia Mehar, 2012, pp99-103).

#### **2.2.15 Swapna M.S. (2014)**

**Swapna M.S. (2014)** has authored “*Entitlements and Gender Disparities in Human Development of Karnataka: An Empirical Analysis.*” Covering for study there are thirty districts in Karnataka and therefor the state has been divided in to two groups based on supported development. Among others, the objectives of the study included studying the to research the regional disparities in human development of Karnataka. To look at the gender disparities in human development of Karnataka. To estimate the disparities between women in house place and market place. To observe the impact of level of development, level of education, nature of work, social status, level of family income and with urban and rural dimensions on the process of women empowerment. To make policy suggestions based on the study. Accordingly, the present study researcher has used descriptive, comparative and analytical methods for the analysis. The present study has used both primary and secondary data.

The findings of the study revealed the following:

**One** there are disparities between male and female, in terms of educational performance, allocation of resources for male and female child, disparities in income, disparities in health standards, regional based disparities, and others. **Secondly** findings gender equality and human development have circular linkages, within the initial stages of development, gender equality leads to women empowerment. **Thirdly** findings There has been direct (positive) correlation among economic development, development of education and health and human development. **Fourthly** findings the child sex ratio significantly decreased in Karnataka over the period. **Fifthly** findings the gap between male and female in terms of literacy rate has not been reduced significantly.

In short **conclusion** this present study has analyzed three kinds of disparities; regional disparities, gender disparities and disparities within women folk. Development is crucial for eliminating regional disparities. Human development found to be played vital role in reducing gender disparities. The impact of entitlements, like, education is immense in reducing gender disparities in human development. Therefore, there has

been inverse relationship between entitlements and gender disparities in human development. Hence the study strongly advocates to enhance the entitlements of women in order to reduce the gender disparities in human development. (Swapna M. S., 2014, pp222-233).

#### **2.2.16 Salve Prakash Nivrutti (2015)**

**Salve Prakash Nivrutti (2015)** has authored “*Declining Sex Ratio and Its Impact on Socioeconomic Condition of Maharashtra: A Case Study of Ahmednagar District.*” covering a period from 1971-2011 in Ahmednagar district in Maharashtra. Among others, the objectives of the study included studying the to know the trend in declining sex ratio of last 50 years (1971-2011) in Ahmednagar district. To spot and to research the result of declining sex ratio within the sociocultural, economic conditions of Ahmednagar district. To assess the various demographic, socio-cultural, economic and other factors contributing to the declining sex ratio. To identify strategies and to suggest different measures to manage the declining sex ratio and their impact on the adverse sex ratio. To determine sex ratio of age group and to identify strategies and suggest different measures to control the declining sex ratio. Identify sex ratio of educated and uneducated people from urban rural area. Accordingly, the study is generally based on secondary as well as primary data sources.

The findings of the study revealed the following:

**One** the sex ratio of Maharashtra state large variation during the study period, proportion of female per thousand male is not satisfactory in the study region. **Secondly** findings Attitude of preference of lad and neglecting daughter result this kind of imbalance. **Thirdly** findings the research study examined the temporal and spatial trends and socio-economic of the spatial variation within the relative neglect of girl child in Maharashtra. **Fourthly** findings The argument that economic value of women increases, higher educational attainment and participation in economic activity rather the aggregate evidence could be interpreted as the improving female education and despite the improving socio-economic characteristics. **Fifthly** findings the existence of gender discriminatory practices which starts even before birth, which requires urgent attention of public policy, as improving literacy and economic value of women is necessary but not sufficient for enhancing the relative life chances of girl Child.

In short **conclusion** the sex ratio of Maharashtra state large variation during the study period, proportion of female per thousand male is not satisfactory in the study region. According to 2011 there are 929 female per thousand male. Attitude of preference of male child and neglecting female child result this type of imbalance. The research study examined the temporal and spatial trends and socio-economic of the spatial variation in the relative neglect of girl child in Maharashtra. The argument that economic value of women increases, higher educational attainment and participation in economic activity rather the aggregate evidence could be interpreted as the improving female education and despite the improving socio-economic characteristics. The existence of gender discriminatory practices which starts even before birth, which needs urgent attention of public policy, as improving literacy and economic value of women is necessary but not sufficient for enhancing the relative life chances of girl child. (Salve Prakash Nivrutti , 2015, pp290-300)

#### **2.2.17 Yadav Ajit Kumar (2018)**

**Yadav Ajit Kumar (2018)** has authored “*Dynamics of Child Sex Ratio in India and Major States: An Investigation within the Context of Fertility and Mortality Transitions*” covering a period from 1981 to 2011 in major states in India i.e. Bihar, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Orissa, Punjab, Rajasthan, Uttar Pradesh. Among others, the objectives of the study included studying the to assess the levels and trends in child sex ratio from the historical perspective considering the fertility, mortality and data quality. To measure the socioeconomic and demographic determinants of changes in the sex ratio among the child population in India: A panel study among districts for major states. To assess the role of prenatal and postnatal factors in the changing child sex ratio. To observe the role of data quality in the declining child sex ratio. To study the relationship between the sex ratio at birth and fertility by different stopping behaviors of women. Accordingly, the present study was carried out in the field practice i.e. primary data also use secondary data to properly analysis them.

The findings of the study revealed the following:

**One** within the early two to three decades of the 20th century, female survival, as estimated by using census survival life tables was higher compared to male survival in India, meaning that girl child mortality was not up to teenager mortality, especially

when considering that girls are more likely to be undercounted in a very census than boys. **Secondly** findings an equivalent analysis on literacy, particularly effective female literacy indicated a fairly good improvement over the decades in all the States. **Thirdly** findings effective female literacy also affects the relationship between expected family and expected better family size. **Fourthly** findings within the central region of India, Gujarat and **Maharashtra** have both reached below replacement level fertility, leading to the child sex ratio becoming skewed over time in both of them.

In short **conclusion** Changes within the child sex ratios may be decomposed into a fertility component adue to prenatal sex selection and a mortality component attributable to sex differentials in postnatal survival during 1985-2011. It might be interesting to understanding the contribution of sex selection and excess female child offspring mortality to the decline within the child sex ratio. Women who had attained the highest level of education had a 56% lower preference for sons than others. Women in the northern region preferred boy child more than those in the southern and western regions. Girl education is one of the key interventions. If more and more girls go to school and acquire an education, then women's participation in employment and political affairs increases. These are very progressive developments for any country, and that they reduce the gender gaps and gender based inequality. Although women-oriented policies and programs can yield positive results to improve the child sex ratio, their impact may not be sustainable. (Yadhav Ajit Kumar, 2018, pp138-163).

## **2.3 Books. – 15**

### **2.3.1 Hertz Rosanna (1986)**

**Hertz Rosanna (1986)** In contrast to the normative model of the traditional marriage, the majority of couples during this study did not base a family division of labor on separate spheres of activity and knowledge. The traditional role of bread winner and, by extension, husband is shared by both men and women. Neither can claim that status solely, by virtue of equivalent career demands, and neither may be relegated to the position of nonproductive spouse. Thus, the standard implicit exchange between husbands and wives—he supports the family economically and in exchange she maintains the home—is abrogated. The couples during this study demonstrate that an

independent income brings to the surface questions of equity and symmetry that are largely unprecedented and infrequently actively discouraged in the traditional family. The keeping of separate financial accounts makes the equity issue more visible. Husbands can't longer legitimate their authority over financial and political matters on the basis of their greater experience with or knowledge of the outside world. In dual-career marriages, both partners have intimate knowledge of that world (Hertz Rosanna, 1986, pp211-212).

### **2.3.2 Gelb Joyce (1989)**

**Gelb Joyce (1989)** A 1983 survey found more Britons "disagreeing with women who claim there should be fewer differences between men's and women's role in society" than in any other European nation surveyed, yet profounder disagreements regarding female family roles than elsewhere in Europe. More British men preferred that their wives not be in paid employment. These findings are confirmed by a recent survey that found that British husbands weren't supportive of working wives: only 41 % of women said their husbands were enthusiastic about their working. While in many instances working wives were tolerated by their husbands, this was true only if their employment did not interfere with their domestic life or the husband's work (Gelb Joyceb, 1989, pp-193).

### **2.3.3 Boserup Ester (1989)**

**Boserup Ester (1989)** The identical question was within the foreground of the discussions at three international conferences within the following year. In one of these, the Indian delegate, Mrs. Lakshmi Menon made a plea the 'developing countries couldn't afford to deprive themselves of the contribution of their women's but other delegates suggested that 'in certain countries women seeking employment shouldn't lose sight of the actual fact that underemployment and unemployment were still a feature of their national life'. The discussions at the African meeting of the ILO in 1964 showed considerable disagreement. Some delegates took recommended that women's employment should be very carefully considered, and suggested that there may be need for giving priority to men in the employment market, while other delegates thought that Africa's development in all spheres required that contribution of its woman power as

well as its manpower (Boserup Ester, Introduced by: Kanji Nazneed, Tan Su Fai & Toulmin Camills 1989, pp-183).

#### **2.3.4 Charlotte Perkins Gilman (1998)**

**Gilman Charlotte Parkins (1998)** women's economic dependence is drawing to a detailed because its racial usefulness is wearing out. We have got already reached a stage of human relation where we feel the strength of social duty pull against the sex-ties that have been for so long the sole ties that we have got recognized. The common consciousness of humanity, the sense of social need and social duty, is making itself felt in both men and women. The time has come after we are receptive deeper and wider impulses than the sex-instinct; the social instincts are strong enough to come into full use at last. This is often shown by the dual struggle that convulses the world to-day, in sex ratio and economics, the woman's movement and the labor movement. Neither name is wholly correct. Both make a class issue of what is in truth a social issue, a question involving every human interest. But the women naturally feel most the growing healthful pain of their position. They personally revolt, and think it is they who are most to be benefited. Similarly, since the laboring classes feel most the growing healthful pain of their position, they as naturally revolt under the similar conviction. Sociologically, these conditions, which some find so painful and alarming, mean but one thing, the rise of social consciousness (Gilman Charlotte Perkins, 1998, pp-138).

#### **2.3.5 Devi Uma (2000)**

**Devi Uma (2000)** has authored "*Women's Equality in India: A Myth or Reality?*" covering an aria of study is Status of woman worker problems of discrimination against woman workers in agricultural sector it Andhra Pradesh – with special relevance Triupatim in rural Mandal. Among others, the objectives of the study included studying the to look at the multiple roles of women labour in agriculture and their household activities which are underestimated and undervalued. To study and examine the issues of women labourers in agriculture and realization of the goals of varied labour laws and welfare schemes with regarded to them. No, where women agricultural labourers are paid equal wages along with men. Therefore, this research aimed at examining the issues of discrimination against women workers with regarded to wages and to analyses

causes and consequences for wages differentials. There are special provisions and portions for women in generally and woman labourers in particularly within the constitution of India and other legislations. Accordingly, data collection through fields survey, that purpose the study is empirical one.

The findings of the study revealed the following:

Several factors are liable for change within the status and condition of women in India. National Commission on Labour women continued to be discriminated in payment of wages, hours or work, division of labour. The worst sufferers are those women who are ignorant, illiterate, unskilled and unorganized. This continues to be the reality even though women account for one-third of the labour force in India and more than one-third in Andhra Pradesh. Estimates of unemployment and underemployment clearly indicate that the position is worse for women.

In short **conclusion** the saga of discrimination against woman worker in unorganized sector continues to be the identical in most the countries throughout the world. Discrimination against women workers is writ large in European countries, wherein on paper they are provide with unequal works leading to unequal payment of wages. If all women come together for wage rate demand, then can be change. (Devi Uma, 2000, pp07-13).

### **2.3.6 Momsen Janet Henshall (2004)**

**Momen Janet Henshall (2004)** has authored “*Women and Development in the Third World*” covering an aria of study the development process affects women and men in numerous countries, **duration** is after colonialism. Among others, the objectives of the study included studying the to know flexible gender identities and roles. To appreciate the gender impact of sudden economic change. To remember the various approaches to gender and development. To be acquainted with the essential spatial patterns of gender and development. To identify the main reasons for the differences within the proportions of men and women in national and regional populations. To appreciate changes in gender differences in life expectancy. To know the underlying reasons for gendered patterns of migration. Accordingly, data collection through fields survey, for that purpose the study is empirical one.

The findings of the study revealed the following:

**one** Economic development has tended to make the lives of the majority of women in the Third world more difficult. **Secondly** findings the universal validity of both gender-neutral development theory and of feminist concepts derived from white, western middle-class women's experience is being questioned. **Thirdly** findings indicators of quality of life show great variation between countries and between women and men. **Fourthly** findings Measures describing the role and standing of women display distinct regional patterns. **Fifthly** Overwork and shortage of time are often ignored as barriers to women's participation in development projects. **Lastly** findings the increased opportunities for women to be economically independent are leading to change in gender relations.

In short **conclusion** Equality does not necessarily mean equal numbers of men and women for girls and boys in all activities, nor does it mean treating them within the same way. it means equality of opportunity and Society during which women and men Are able to lead equality fulfilling leaves. the aim of gender equality recognizes that men and women often have different it needs and priorities, face different constraints and have different aspirations. These all above absence of gender equality means for huge loss of human potential and it has caused for both men and women and also for development. (Momsen Janet, 2004, pp01-14).

### **2.3.7 Maree Keating (2004)**

**Keating Maree (2004)** Women all over the world are increasingly employed and exploited – at far and of the worldwide supply chain. Whether by picking fruit in Chile, processing cashews in Mozambique, sewing in China's Export Processing Zones, of providing biotech companies with indigenous knowledge in India, women's labour and skill are crucial elements in the scaling up of globalized production processes. It might be argued that women benefit in terms of status and income form this trend, but what are the hidden costs of new trade regimes, and do they outweigh the benefits? What do women stand to lose from trade agreements on agricultural products, intellectual property, and therefore the movement labour? In brief, hear show how women are finding ways to influence international trade policy agendas in developed countries and are joining forces in global forms to campaign for reforms (Keating Maree, 2004, pp-7).



### **2.3.8 Jasodhara Bagchi, Sarmistha Dutta Gupta (2005)**

**Mukhopadhyay Ishita, Edited by Bagchi Jasodhara, Gupta Sarmistha Dutta, (2005)** As is well-known, India is one the few counters of the world where there's a deficit within the relative number of women as compared to men. What is more, this ratio between female and male umbers in the population sex ratio had been declining almost steadily in every decade of the twentieth century. Demographers are that neither the deficit in the overall numbers of women nor the decline in the sex ratio over the years can be entirely due to natural cause.

An inquiry into women's work has also been essential for assessing women's empowerment. Consistent with the UNDP guideline women's economic participation is a vital element of the gender empowerment measure (GEM). GEM examines whether women and men are able to actively participate in economic and political life and participate in higher cognitive process. It is basically composed of economic, political and professional components. Though here we are going to not try to measure GEM, we are going to infer the contribution of labor participation induced empowerment to the total empowerment index. Then we are going to try and study the extent marginalization and casualization of female labour form the available official statics. The extent and types of livelihoods supported on female economic activity will also be assessed. Both the variety also as stereotyping with regard to female economic activity are to be understood for policy recommendations (Mukhopadhyay Ishita, Edited by Bagchi Jasodhara, Gupta Sarmistha Dutta, 2005, pp-71).

### **2.3.9 Dube Rashmi, Dube Renu, Dube Renu (2005)**

**Dube Rashmi, Dube Renu, Dube Reena (2005)** Another indicator of this genocide is that the declining sex ratio in India. In colonial India the gender imbalance indicated by the 1901 census is sex ratio of 972 females per 1000 males. After India's independence, this gender imbalance is exacerbated instead of redressed: the 1981 census shows that the female to male ratio drops to 935 females per 1000 males. The number of missing women increased to 22 million in independent India from 3 million under colonial rule. This trend continues unabated, currently the females to male ratio is 933 female per

1000 males. While the world over women outnumber men, India is exclusive in this here men outnumber women. The traditional sex ratio favors the birth of female babies; however, India includes a steadily declining sex ratio skewed in favor of male births. This phenomenon of missing women is proof that it is not only the female fetus that's endangered but the general conditions for several Indian women are life-threatening (Dube Rashmi, Renu Dube, Dube Reena, 2005, pp-2).

### **2.3.10 M. P. Boraian (2008)**

**Borajan M. P. (2008)** has authored "*Empowerment of Rural Women: The Deterrents & Determinants*"; covering the study has been undertaken with the objective of examining the status of women and understand the development of empowerment taking place among the rural women in India to views of Self Help Group women members on the indicators of women empowerment in **study area** Dindigul (Tamil Nadu). Among others, the objectives of the study included studying to assess the status of rural women and locate the deterrents hindering their empowerment. To evolve a set of determinants of women empowerment through consultations and study their relevance among a cross section of rural women. To elicit the views of men on the deterrents and determinants of women empowerment. To create an in-depth analysis of the life and work of select rural women. To investigate the policy implications of those deterrents and determinants to the Government and NGOs. Accordingly, data the current study has used both primary and secondary data.

The findings of the study revealed the following:

one men's share was limited about 2 or 3 % in respect of fetching drinking water during summer, maintenance of house and collection of fuel wood. Secondly findings Joint decision about by the spouses prevailed predominantly in respect of number of children to be had, adoption of family planning, education of children employment of women/children, marriage of sons/daughters and borrowing and lending. In brief **conclusion** men have always been dominating women and suppressing them wherever and whenever possible. Empowerment of women's not a matter relished but only resented by men. Men's desire to reign supreme over women will hardly vanish during a substantial manner a minimum of within the near future. (Boraian M. P., 2008, pp22-50).

### **2.3.11 Mathu Anuradha (2008)**

**Mathu Anuradha (2008)** Gender equality means that women and men have equal conditions for realizing their full human rights and for contributing to, and benefiting from, economic, social, cultural and political development. Gender equality is therefore the equal valuing by society of the similarities and also the differences of men and women, and therefore the roles, they play. It is supported women and men being full partners in their home, their community and their society. Gender equality starts with equal valuing of girls and boys.

Gender Equity means fairness of treatment for women and men, in keeping with their respective needs which has each treatment or treat considered equivalent in terms of rights, benefits, obligations and opportunities. To ensure, measures must often be put in place to compensate for the historical and social disadvantages that prevent women and men from operating on a level playing field (Mathu Anuradha, 2008, pp14-15).

### **2.3.12 Goel Aruna (2009)**

**Goel Aruna (2009)** has authored “*Women Empowerment: Myth or Reality*” covering an area of attention on existing framework also research and analysis there to within the 21<sup>st</sup> century to feel proud in achieving to cherished goal of Women Development and Empowerment. Among others, the objectives of the study included studying the to enshrined in their constitution moreover as legislation for Women Development and Empowerment suffering from object poverty, disease, squalor, hunger, unemployment, law status and other socio-economic ailments. To requires an overhaul of the old administrative structures and creating a brand-new administrative set-up required for socio-economic development of women. To prevailing administrative system dealing with woman development and empowerment could be a basic aid to the achievement of woman welfare objectives. To avoid violence against women and improve their status. Accordingly, data collection through fields survey, that purpose the study is empirical one.

The findings of the study revealed the following:

**one** study shows the status of women rightly mentions that development in its wider perspective covers all aspects of community life. **Secondly** findings the accepted goals of national development like maximum production, full employment and attainment of economic equality and social justice apply equally to men and women. **Thirdly** findings the main focus on educational planning of women has shifted from their traditional role as housewives and mother to non-traditional roles as producers, partners and partakers within the national development.

Briefly **conclusion** women have shown the potential of challenging the iniquitous power relations within the public domains. The processes of social mobilization and women are reinventing gender roles in private and public spaces. Women's status can then be analyzed in terms of their participation in decision-making, access to opportunities in education, training, employment and income. In recent years, there has been an increasing recognition of the interface between women's ability to manage their fertility and their exercise and pleasure of the other options in life ( Goel Aruna, 2009, pp37-49).

### **2.3.13 Bipin Kumar (2009)**

**Kumar Bapin (2009)** Education is that the prime factor for women's development and empowerment. Through education it is possible to enhance women's opportunities for participation in the various fields of life. The National Council of Women's education emphasized the potential significance of the mass-media to generate public opinion in rural areas in favour of girl's education, least preference is being given to the education of a girl child. In our socio-cultural structure an educated son is 'important because he will be responsible for caring their aging parents but an educated daughter is viewed as an asset by her husband's family. The parents will not benefit directly from their daughter's education. This is often a negative parental attitude which might even be a barrier to a girl's education (Kumar Bipin., 2009, pp144-145).

#### **2.3.14 Islam Baharul (2014)**

**Islam Baharual (2014)** In the issue of women missing, the women are missing various situations which includes lopsided sex ratio in several states of India. The juvenile sex ratio in even a state such as Kerala which is held out by planners and economists as the model performer on the population front is one area where women and teenaged girls go 'missing'. Homicide in the matrimonial home is mostly identified as being dowry related death. The issue of unnatural death of women in their marital home has acquired prominence in the country. This includes domestic violence. It is not the identity of the perpetrator alone which can be allowed to work out whether a victim has been subjected to a human right violation or not: that it is a man, or his family, who exercise their power to harass, assault and injure a woman, and not the state which is the perpetrator who should make no difference for this kind of violence in human rights matter (Islam Baharul, 2014, pp-12).

#### **2.3.15 Siuli Sarkar (2016)**

**Sarkar Siuli (2016)** In India, too as in many other developing countries, cultural, social and economic factors still prevent girls from getting education opportunities, and hence the question of gender equality here is continues to be a mirage. Within the rural areas this picture is gloomier. Particularly because the girl child here is formed to perform household and chores. Cleaning the house, preparing food for the family, looking after her sibling, the elderly and also the sick, grazing the cattle and collecting firewood are some of the key tasks, which a rural girl child is expected to perform. Households are there reluctant to spare them for schooling. Within the urban areas of India, there is, however, a big difference within the opportunities that girl can get for education. Though the figures for girls in urban areas would still be lower as compared to boys, what's amazing to determine is that whenever given the equal opportunity. Girls have performed extraordinarily well. As an example within the Indian school leaving examinations girls bag a good number of top ranks (Sarkar Siuli, 2016, pp177-178).

## 2.4. Research paper – 09

### 2.4.1 Barakade A. J. (2012)

**Barakade A. J. (2012)** This study mentions the sex ratio for the Maharashtra state. Proportion of females per thousand males isn't satisfactory within the study region. According to 2011 there are 925 females per thousand males. Attitude of preference of lad and neglecting female child result this kind of imbalance. Study explains within the temporal and spatial trends and socioeconomic of the spatial variations in the relative neglect of girl child in Maharashtra. The argument that economic value of women increases, higher educational attainment and participation in economic activity. Rather, the aggregate evidence could be interpreted as the improving female education and despite the improving socioeconomic characteristics. The existence of gender discriminatory practices which starts even before birth, which needs urgent attention of public policy, as improving literacy and economic value of women is necessary but not sufficient for enhancing the relative life chances of girl child (Barakade A. J., 2012, pp92-95).

### 2.4.2 Bhattacharya C. Prabir

**Bhattacharya Prabir (2012)** has authored "*Gender Inequality and the Sex Ratio in Three Emerging Economies*". Covering the actual focus is on three emerging economies, viz., Russia, India and China about sex ratio. Among others, the objectives of the study included studying the to review inequality and deprivations as reflected within the human sex ratio. To suggested that India and China probably have better prospects of sustained economic growth in the foreseeable future than does Russia. Accordingly, data the present study has used both primary and secondary data.

The findings of the study revealed the following:

Firstly, attempt to possible that India and China will follow the South Korean path and eventually transit towards a more balanced sex ratio. It's also interesting to notice that, unlike in China, in Russia, the relative position of men and women within the labour market has remained more or less unchanged after the collapse of communism.

**Conclusion** The sex ratio of a population is influenced by both the present and also the past pattern of fertility, mortality, sex-selective abortions and migration rates, and reflects not only a society's attitude towards gender equality, but also the consequences of events such as wars, famines, and economic dislocations. Disentangling the

contribution of those various factors is critical to a correct understanding of the implications of any changes in the sex ratio over time. While the feminist perspective on the issues surrounding the sex ratio is important, it would be wrong to view these issues always or exclusively through the prism of that perspective. (Bhattacharya Prabir, 2012, pp01-29).

#### **2.4.3 More Vijay, Ingale Aniket and Shinde Vitthal**

**More Vijay, Ingale Aniket and Shinde Vitthal (2012)** has authored "*Generation and District Wise Study of Sex Ratio*". try to explain the this study also shows that the study region has (Sangli, Kolhapur and Solapur) decline within the sex ratio in respect of generation further because the truncation of two children. The proportion of the females per thousand males isn't satisfactory within the study region. Sex ratio at birth isn't equal. It's partly because of higher mortality of female children and sizeable maternal mortality. Attitude of preference of male child and neglecting female child result this kind of imbalance. Abortions of female child still performed in the society. Therefore, strict implementation of legal provisions is necessary to stop such type of abortion (More Vijay, Ingale Aniket and Shinde Vitthal, 2012, p07-13).

#### **2.4.4 Lohani Jitendra Kumar (2013)**

**Lohani Jitendra Kumar (2013)** Research paper explains the reveals that these differentials in sex ratio across the districts are mainly attributed to differences in migration and mortality and supply an index of the neglect of the girl child. The low sex ratio is also attributable to low female literacy, lack of nutrition, poor health facilities and also the patriarchal order in the society of India and all these factors seem presented in the state's society in the context of Uttarakhand women. Study also explains the sex ratio in hilly districts is quiet high. One of the main causes behind this can be said that this is the trend in these areas that due to non-economic activities in the areas men have migrated for employment or other issues while women still stick at their origin place and heads the family (Lohani Jitendra Kumar, 2013, pp49-50).

#### **2.4.5 Kumar Ashish and Kamal (2014)**

**Kumar Ashish and Kamal (2014)** This paper mentions that besides the several legal laws and women's specific developmental programmed, the child sex ratio still

continues in Haryana. The continuously declining child sex ratio is an example of gender bias in Haryana districts. The causes of this decline are identified illiteracy of individuals. However, the most powerful factor that has affected the sex ratio in the Haryana state may be a strong son preference, have a son in reality with the spread of technology become very easy to produce, abortion laws do not have any control over couples, any law like obstetricians, gynecologists and sperm injectors don't seem to be acceptable in Haryana. Increase the family size getting smaller the government must apply strongly polices one son one daughter; these types of policies helps in avoid the gender bias in Haryana state (Kamal and Kumar Ashish, 2014, pp44-48).

#### **2.4.6 Lonavath Ashok Kumar (2014)**

**Lonavath Ashok Kumar (2014)** has authored "*Urban Sex Ratio: A Study on Regional Wise Towns in Erstwhile Andhra Pradesh, India*" the changing pattern of urban sex ration within the erstwhile Andhra Pradesh is studied with the assistance of the census data from 1961 to 2011. Among others, the objectives of the study included studying the to check and examine the urban sex ratio district wise, regional wise and state wide from 1961 to 2011. To recognize and examine level of sex ratio from 1961-2011 in various districts. To check the factors responsible for variation in sex ratio with the variation of places.

The findings of the study revealed the following:

**One** the urban sex ratio is minimum of 849 and maximum of 1037 females per thousand males during the study period (1961 to 2011). **Secondly** findings the minimum and maximum urban sex ratio in 1981 is 903 and 997. **Thirdly** findings the overall picture in 2011 indicates that variation in urban sex ratio is high in the districts of Coastal Andhra patterns. Accordingly, data the current study has used both primary and secondary data.

**Conclusion** the urban sex ratio in Andhra Pradesh seems to be high in Coastal Andhra through the study period. Improved medical facilities, developed infrastructure, better education, employment opportunity and fertile agricultural land availability, good water resource have contributed for increase of the urban sex ratio in Coastal Andhra region. (Lonavath Ashok Kumar, 2014, pp137-139).



#### **2.4.7 Khadke P. A. and Waghmare P. B.**

**Khadke P. A. and Waghmare P. B. (2015)** has authored “*Analysis of Urban Sex Ratio with A Case Study of Jalgaon City*”. The current study reveals the sector wise sex ratio in Jalgaon city during 1991 -2011. Among others, the objectives of the study included studying the Changing pattern of sex ratio in Jalgaon City. To comparative study urban sex ratio. To evaluate the decadal changes in sex ratio changing pattern of sex ratio in Jalgaon City. Comparative study urban sex ratio. To investigate the decadal changes in sex ratio. The study relies based on secondary data collected from census Reports of Government of India.

The findings of the study revealed the following:

As compare to rural area, urban area having more sex ratio and it steadily increase from 1971 to 2011 in India, Maharashtra and Jalgaon city. Overall Jalgaon city’s sex ratio has increase from 907 to 912 female per 1000 male.

**Conclusion** finally it is concluded that the urban area having higher and increasing sex ratio due to higher literacy rate, attitude of peoples toward life, female participation in employment and improvement in medical facilities in urban areas. (Khadke Parag & Waghmare Pramod, 2015, pp113-118).

#### **2.4.8 Sinha Anindita**

**Sinha Anindita (2015)** has authored “*Gender Bias in India’s North-Eastern Region: Its Manifestations, Causes and Consequences*”. Research Scholar attempt to explain the within the North East Region (NER) of course, while endogamous marriages had been a standard feature among a majority of the tribes of the region, the recent trend of ‘love’ marriages, related to religious conversion to Christianity, has led to increasing distance between the bride and her natal family. This could possibly imply a diminution of the economic additionally as emotional value of daughters and encourage a patriarchal outlook in these societies. Similar changes will be found in other marriage practices as well. As is well known, as against the custom of dowry payment in non-tribal societies, the payment of the bride price among tribal is a formal recognition of the economic value of women to their natal families. However, this feature is fast disappearing from the tribal marriage scene. In fact, the tribes of NER are switching over to dowry payment as a way of gaining upward social mobility. Under these

conditions, it's not very difficult to envisage a situation where the cultural peculiarities of tribes encouraging the relatively high social status of women pass into oblivion in the not so distant future (Sinha Anindita, 2015, p12-29).

#### **2.4.9 Singh Renu and Panwr Mohan**

**Renu and Mohan Singh Panwar (2019)** has authored "Changing Pattern of Sex ratio (1901 of Sex Ratio (1901-2011) of Garwal Region and its impacts". Research Scholar examine at the overall trend of the sex ratio in the region it indicates that there is an increase in the sex ratio from 1901 to 2011 within the region. But it's very fluctuating during the decades. If we glance at the distribution pattern of the sex ratio it shows that there's low sex ratio within the more urbanized districts of the Utrakhand i.e. Dehradun and Haridwar. There's high sex ratio in the middle districts of Garhwal region. The correlation between the sex ratio and the literacy rate is highly positive which is showing that the areas where the sex ratio is high there will be the high sex ratio of the region. The correlation between the sex ratio and therefore the urbanization is extremely negative which indicates that if the urbanization will increase the sex ratio will decrease or urbanization will decrease the sex ratio will decrease itself (Singh Renu and Panwr Mohan, 2019, pp01-10 ).

### **2.5. Articles – 6 (Magazines / Journals)**

#### **2.5.1 Wynarczyk Pooran**

**Wynarczyk Pooran (2010)** According to the author, the gender imbalance captured in current statistics and media headlines masks the wonderful contributions that are already being made by women to the educational community in research and teaching, and thereby to the general public as an entire. Existing research and policy tend to focus mainly on the barriers to participation, which could even have an adverse effect and discourage women from pursuing a career in academia. Less attention is paid to find success factors, and there is an absence of target how some women have managed to beat barriers and 'have it all'. If successful women academics are neither visible nor seen to be enjoying a rewarding and progressive academic career, they are unlikely to

be able to act as role models for further recruitment, retention and progression of girls – at a time of cumulative demand for teaching and research within the academic community (Wynarczyk Pooran, 2010, pp-19).

### **2.5.2 Hudson Valeriem M. (2011)**

**Hudson Valeriem (2011)** Whatever success of those efforts may have had, they're apparently not enough. Indeed, because as the average family size drops in India, the preference for sons only intensifies. It's sons who inherit land, pass on the family name, financially provide for parents in adulthood and perform rituals for deceased parents. Daughters, on the other hand, will cost the family dearly when it's time for them to be married, with a dowry at times costing maximum amount as a family makes in an exceedingly year. For all of those reasons, as families choose to have fewer children, they fight to sure the presence of a sufficient number of sons and as few daughters as possible (Hudson Valeriem, 2011, pp01-03).

### **2.5.3 Joshi Hemalatha Sudhakar (2013)**

**Joshi Hemalatha (2013)** The author feels that the environment in our country is as conducive to women's development as it is an obstacle, which is why such a lot of women are now struggling to enter the field. With the adoption of democracy in an exceedingly country like India, the basic right of each Indian woman to live with dignity, to induce an education, freedom of thought, freedom of speech, freedom of writing and economic freedom has been granted by the Constitution for the primary time.

Indian women power has made a good contribution in the freedom struggle. Senior Presidents like Mahatma Gandhi actively supported this participation. He believed that if a woman was educated within the family, she would save the whole house. 'Educate the women and you may educate the nation'. It absolutely was a really meaningful idea (Joshi Hemalatha, 2013, pp01-09).

### **2.5.4 Kulkarni Deepti**

**Kulkarni Deepti (2016)** All movements throughout the last century were seeking prestige. They were there to demand a change within the social mindset. Women's dignity is rarely just a woman's question; It's an issue of the health and well-being of

the entire human race. It's very important to make a mindset of respect for the female caste together with the worship of "Jagat Janani". The author doesn't tolerate atrocities against women. Discrimination between boys and girls isn't acceptable. The concept of not wanting a girl child has been ingrained in the patriarchal culture for generations. What the baby knows at birth is that he's visiting change state to be born as a girl. The author wants girls to have equal opportunities and equal rights.

Today, within the twenty first century, these are the 'Women Icons' like Marisa Mire, Hillary Clinton, Melinda Gates, Arundhati Bhattacharya, Sunita Williams. In many areas, women's behavior has become easy and trustworthy. Areas that cover the sky are trying to trample on female power. The woman works for the family and also runs an independent business. She walks the streets, agitates, becomes a pilot, and flies within the sky, and on the other hand, the woman still can't spread her wings fearlessly, she can't breathe freely. She still endures injustice to herself and lives as every Week Entity within the community she does jobs; and not financially independent. She takes care of everyone's health; But there's no time to listen to one's own health. She was a pilot; But during this world, one cannot board in peace (Kulkarni Deepti, 2016, pp01-05).

### **2.5.5 Varma, Pavan K. (2018)**

**Varma Pavan K. (2018)** It must require an exceptional level of illiteracy and prejudice to cite ancient Indian tradition as a reason to discriminate against women. For, the incontrovertible truth is that Hinduism must be one of every of the only a few religions within the world that both in philosophy and mythology accord a standing of absolute equality to women. In philosophy, the highly evolved Shakta tradition equates Shiva with Parvati, in her form as Shakti. If Brahman is that the omnipresent, omnipotent, immanent, formless energy pulsating through the cosmos, Shiva is chitta, the pure attribute-less consciousness within all people, and Shakti is chittarupini, the facility inherent in this consciousness. Shiva is powerless without Shakti. The two are complimentary to the purpose that they are indistinguishable. They are equal in every respect, be it abode, occupation, condition, form and name.

In short **conclusion** it's not surprising, therefore, that each the mutts founded by Adi Shankaracharya also are Shakti Peethas, the abode of the Feminine Power. In fact,

Shakti upasana or worship of feminine power was compulsory in his mutts. (Varma Pavan, 2018, pp-21).

### **2.5.6 Purie Aroon (2018)**

**Purie Aroon (2018)** This has been a landmark year for women breaking into traditional male bastions. In February, an IAF pilot became the primary Indian woman to fly a fighter jet solo and just three months later, in May, a six-member Indian Navy crew became the primary Indian women to circumnavigate the world. Their unique achievements go down within the hall of fame for a country that already has more women commercial pilots than other does, and where women who are successful politicians, sport stars and CEOs now don't attract a reassessment. However, one glass ceiling keeps women out religion. The doors of an outsized number of shrines are still closed to women. This bastion too is now being challenged.

Women's emancipation and gender equality has been a movement for over a century and still continues. Women form half our population and can't in today's age be denied their fundamental freedoms. Most significantly, they must have the freedom to choose. After all, if women can fly fighter jets, surely, they'll be allowed the identical access to places of worship as men, or perhaps become priests. The world are a stronger place for it (Purie Aroon, 2018, pp-01).

## **2.6 Influencing Factors on Sex Ratio:**

There are many factors influencing on sex ratio which we already learn these prime factors in the chapter one i.e. 1) Gender discrimination (Preference for son), 2) Discrimination against girl child, 3) Failure of stringent laws, 4) Abortion, Female Feticide and Infanticide, 5) Dowry 6) Higher mortality of female (young girls, maternal mortality, and female infanticide), 7) Family and societal, 8) Religion etc.

## 2.7 Conclusion:

**Our review shows that developing** a comprehensive understanding of women's lives has now become a challenge for researchers and many multi-disciplinary efforts have brought to the center the complex relationships between women's existence, family dynamics and socio-economic developmental processes.

**Lal Nilawma** explains his study the progress of Mizoram where women are affected by a variety of religious, political, economic, social and educational factors. Some of the major factors which have retarded the progress of Mizo women, **Nayak D.** explains the problem of women's participation in economic activity in terms of social differentiation in strikingly different eco-regions. **Pushpa Shresths** in his study socio-cultural bondage of female and encourage them to participate within the workforce, **Singh Manju** trying to the concept of equality of status is acceptable to our respondents in study, Prof. **Nabi explain** the these studies explain the processes of development are of crucial concern to women and children who constitute the majority of the population in any society in the world, writer **Aruna Goel** try to explain in his thesis women's status can then be analyzed in terms of their participation in decision-making, access to opportunities in education, training, employment and income, writer **Sing Renuka** explain the role empowerment and participatory status about women also importance in the decision making process, writer **Saha Karabi** explain the aspects of women empowerment show very consistently higher positive correlation, another writer **Datta, Anindita** explain the matter of female marginalisation that would be seen as rooted within the intertwining of three exploitative systems that sustain and reinforce each other, prof. **Shah Trupti** trying to clarify the patterns of women's activity are greatly affected by social attitudes and institutions, writer **Leiithabhai** says that women's employment and their income earning capacity not only increases the status of women at home and in the society, Prof. **Mathews** explain the Sex ratio is the most important for balance of nature, writer **Das Gupta** says his study also finds that, be it female children or adult women, their entitlements and capabilities in every sphere of life where to keep up the sex ratio, Prof. **Anita** says study explains very simply where achievements of the education greater longevity for women may not cause problems for women section can develop more. Writer **Nirmala Vijaya** explain the omen produces were made invisible in history that adequate importance wasn't given as it was given to the male producers also she efficiently perform men's role in agriculture,

prof. **Punia Mehar** attempt to explain the unfairness against women still continues also Son preference continues to be very high which negatively impact on sex ratio, prof. **Yadav Ajit** says in short if more and more girls go to school and acquire education, then women's participation in employment and political affairs increases.

Author **Janet Momsen** try to explain his book when studies in many countries have shown the education for girls is the single most effectively of reducing poverty, prof. **Aruna Goel** explain her book women's status can then be analyzed in terms of their participation in decision-making, access to opportunities in education, training, employment and income, Author **Bipin Kumar** write his book a women's education emphasized the potential significance of the mass-media to generate public opinion in rural areas in favor of girl's education, least preference is being given to the education of a girl child, writer **Baharul Islam** focus on the issue of women are missing various situations which includes lopsided sex ratio in several states of India, prof. **Anuradha Mathu** write her book about women as gender equality means that women and men have equal conditions for realizing their full human rights and for contributing to, and benefiting from, economic, social, cultural and political development. Writer **Ester Bose up** try to focus on in certain countries women seeking employment should not lose sight of the fact that underemployment and unemployment were still a feature of their national life.

**Barakade A. J** in his research paper the argument that economic value of women increases, higher educational attainment and participation in economic activity, **Swapna** explain in her research paper about Human development found to be played vital role in reducing gender disparities. **Ashish and Kamal** say in research paper increase the family size getting smaller the government need to apply strongly polices one son one daughter. **Renu and Mohan** try to explain the correlation between the sex ratio and the urbanization is highly negative, Prof. **Deepti Kulkarni** write in her article about women's dignity is never just a woman's question; It is a question of the health and well-being of the entire human race, **Aroon Purie** say about the women's emancipation and gender equality has been a movement for over a century and still continues.

**Editorial** write them in short India is change and Indian women also change, A one **Documentary on Female Foeticide** by **George** where shown girl Wings to fly and not the pains to try and die it to be remembered that there can be no He without She

seeking Men without Women and there can be no Beta without Beti given to the reasons of elimination of girl. Bharat Mata will only become the mother of sons or the mother of daughters which shown by on T. V. show by **Kiran Rao**, Sex ratio can be closely related to a general preference for sons in India which shown by UNDP in documentray programme.

## **2.8 Research Gap:**

The various studies described above focus on different aspects of women's development. The have brought out several problems that women face even at present in India and in other developing countries. These problems include not only lack of education, unemployment, low income, poor nutrition and health facilities, etc. but there is a threat to their life in the form of female foeticide and infanticide. All these problems are reflected in very low sex ratios, that is, the number of women is much less than the number of men in several societies.

However, it was observed that there was very less focus on the actual factors that are responsible for high sex ratios in some areas and low sex ratios in others. Particularly, no such study was found with reference to Maharashtra.

Thus a gap was identified in the existing literature on sex ratio. This research was carried out to study the sex ratio patterns among the districts of Maharashtra. The present study in different from earlier studies in the following ways:

1. This study has selected two district in Maharashtra with high sex ratio and two with low sex ratio and has identified the reasons for this difference during the period 1951 to 2011.
2. Earlier studies did not focus on education and occupation as factors determining sex ratio whereas this research has tried to highlight the educational and occupational structure of women in the selected districts during the study period to show its impact on the sex ratio.



3. This study has shown a statistical correlation between sex ratio and some socio – economic variable such as education, income, employment, urbanisation, etc.
4. This is micro – level study of only four selected district in Maharashtra. This limited area enabled the researcher to make an in – depth study of social and economic characteristics of the four districts and to show how they influenced the sex ratio.

The use of this frame to understand and analyse sex ratio however, is wide. Most studies on women's empowerment use the objective assessment of women's own perceptions, socio-economic constraints, family attitudes towards them and their economic independence. We see this as a major area of study as these factors are the prime determinants of women's role. Our review helped us delineate the research problem and identify an appropriate methodology.

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## Chapter: III

### Research Design

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## **Chapter 03**

### **Research Design**

#### **3.1. Introduction**

Half of the population of India is women, for the last few years they have been getting great opportunities for progress and development. The ability of the women to make use of this opportunity has been proved by the women (Singhal Vinita, 2019, pp-05).

Mahatma Phule, Savitribai Phule, Bharat Ratna Dr. Babasaheb Ambedkar recognized the importance of women's power in society. Through their efforts, women could get breathe freely. They got the wings to leap in the sky. The woman became aware of herself. (Singhal Vinita, 2019, pp-05).

There are various types of new economic, social, political, industrial, cultural problems and questions in the society. One of these is the falling proportion of women as compared to men in India. The 'social equilibrium' can be spoiled due to the fact that the number of women is decreasing after every thousand men and the possibility of disturbing of natural equilibrium cannot be ruled out.

This research has been done to study this problem in the state of Maharashtra by selecting four districts and analysing the reasons for the different sex ratios in these districts. The methodology used for this research is described in this chapter.

#### **3.2 Research Question:**

- 1) What are the important factors affecting sex ratio?
- 2) Is there any significant correlation between economic factors and sex ratio in the selected districts?
- 3) Is there any significant correlation between social factors and sex ratio in the selected districts?

### **3.3 Research Problem:**

Ratnagiri and Sindhudurg are the districts with highest sex ratio and Mumbai (Suburban) and Mumbai have lowest sex ratio in Maharashtra. Each selected district has been quite different from the rest of the country in terms of the indicators of women's development. In Ratnagiri and Sindhudurg districts, sex ratio was favorable in the year 2011 - Ratnagiri: 1123 & Sindhudurg: 1037. Vice versa Mumbai (Suburban): 857 & Mumbai: 838. Ratnagiri and Sindhudurg are the districts comparatively good compared to the all Indian districts where the sex ratio is low and it is worth mentioning that Ratnagiri and Sindhudurg are the districts have never had low female-male ratio during the selected duration. Similarly in terms of literacy, Life expectancy and mean age of marriage, women in selected districts score higher than any other district in Maharashtra, but Mumbai (Suburban) and Mumbai lowest sex ratio in Maharashtra where not favorable conditions against women. The aim of the study is to find out the reasons for the difference sex ratio between the selected districts.

### **3.4 Significance of study:**

The present research work addresses the issues related to the various aspects of population structure in the context of selected districts in Maharashtra state with cause and effect analysis, on sex ratio. The importance and the utilisation value of research work are listed below.

- 1.** The knowledge of selected districts population structure is useful to the economist, policy makers teachers and students of Economics in particular and other social sciences like Sociology, Political Science, Demography, etc. in general.
- 2.** It is a comparative and analytical study of sex ratio covering many aspects of Society structure. Hence, it will provide guide lines to the planners and will be helpful in social development.
- 3.** It includes the analysis of gender equality, literacy, women empowerment, which will guide the administrators and social workers for the implementation of programmes of improvement of sex ratio. Thus the study is useful to both GOs and NGOs.
- 4.** The study will provide guide lines to the administrators for the regular administration work.
- 5.** The study will provide a guide line to the researchers in the field of Sex ratio and Gender Development.

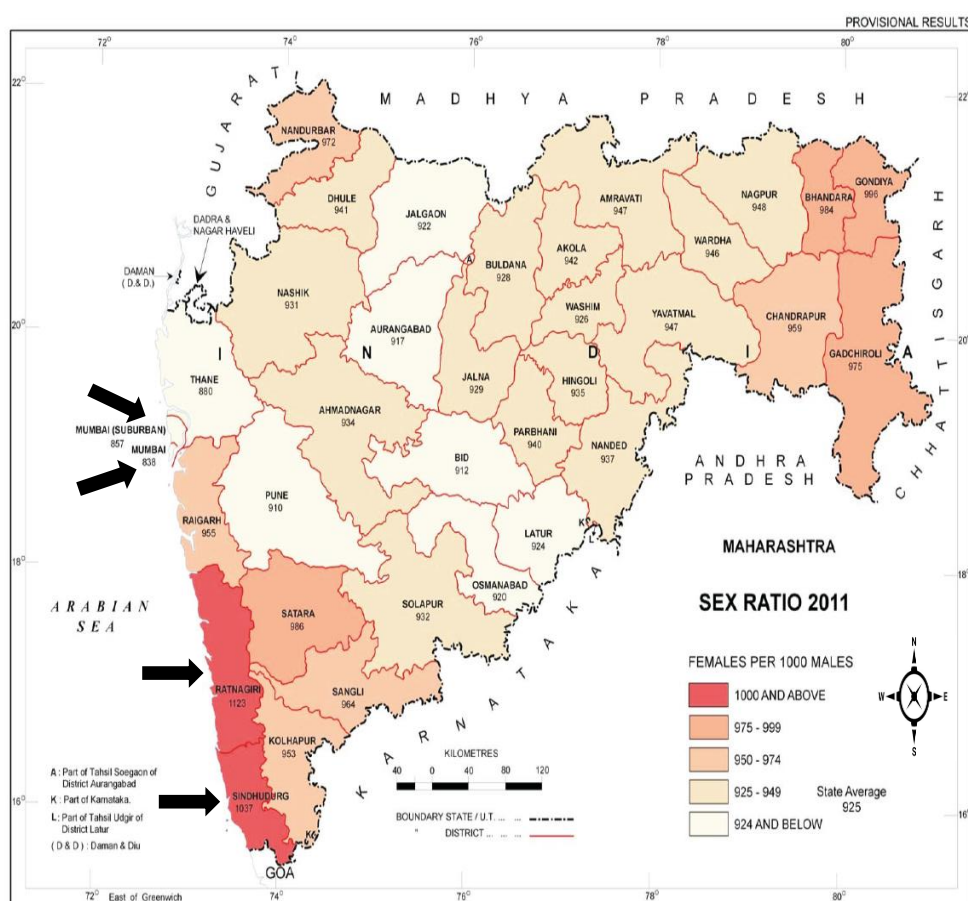
### 3.5 Scope of the study:

A) Area of study: The area taken for this study is limited to four districts in Maharashtra only. Other districts in Maharashtra are not considered. The districts selected are Ratnagiri, Sindhudurg, Mumbai and Mumbai Suburban. (See map below). All four districts are located in the Konkan region of Maharashtra.

B) Period of Study: Period selected is after independence i. e. 1951 to 2011.

**Map 3.1**

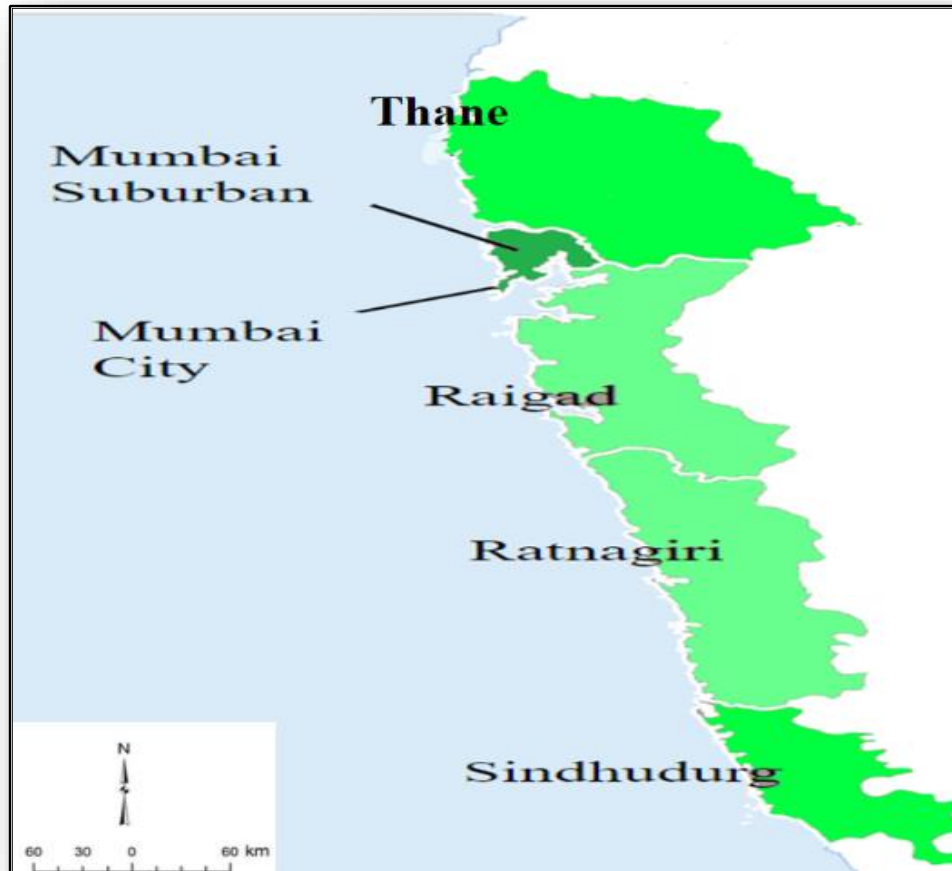
Ratnagiri, Sindhudurg, Mumbai (Suburban) and Mumbai are the districts with highest and lowest sex ratio in Maharashtra shown by black arrow (→) in the below map



Source : Census of Maharashtra 2011

### Map 3.2

Ratnagiri, Sindhudurg, Mumbai (Suburban) and Mumbai district Map



Source : Census of Maharaashtra 2011

#### 3.6 Objectives:

- 1) To study the trends in the Sex Ratio in the selected districts.
- 2) To study the economic factors affecting the Sex Ratio in the selected districts.
- 3) To study the social factors affecting the Sex Ratio in the selected districts.
- 4) To analyse the gap in the Sex Ratio between the districts selected for study.
- 5) To give suggestions for the improvement and maintenance of sex ratio in the selected area and in India in general.

### **3.7 Hypothesis:**

#### **Hypothesis 1**

- a.  $H_0$  = There is no significant relation between economic variables and sex-ratio in the selected districts.
- b.  $H_1$  = There is a significant relation between economic variables and the sex ratio in the selected districts.

#### **Hypothesis 2**

- a.  $H_0$  = There is no significant relation between social variables and the sex ratio in the selected districts.
- b.  $H_1$  = There is a significant relation between social variables and the sex ratio in the selected districts.

### **3.8 Research Methodology:**

For the present study researcher has used descriptive method. This method was useful in giving a better understanding regarding the sex ratio in all selected districts in relation to Maharashtra and India. For a detailed study of changes in sex ratio of all selected districts, a descriptive study of specific socio-economic variables was made.

### **3.9 Source of data:**

The present study has used secondary data. Information has been collected from published books and journals, periodicals, and internet sources.

While studying all the districts of Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai Districts, data was collected from District Wise Handbooks of all these

districts from the Census Reports of each Census between 1951 and 2011. The Economic Survey of Maharashtra and Maharashtra Human Development Report were also used. World Health Organization and United Nations Development Programme Reports were referred for data on sex ratio at global level. Several Books, Journals and Ph.D. theses were referred for the review of literature.

### **3.10 Sampling:**

For this study, four districts i.e., Ratnagiri, Sindhudurg, Mumbai (Suburban) and Mumbai have been selected. The sample was selected based on purposive sampling, because these four districts have the highest and lowest sex ratio in Maharashtra. According to the 2011 census, Ratnagiri and Sindhudurg districts have the highest sex ratio. Mumbai suburban and Mumbai district, on the other hand, have the lowest sex ratio in Maharashtra. An important factor in the case of Ratnagiri and Sindhudurg districts is that the sex ratio of these two districts has never been less than 1100 in the last 120 years.

The sex ratio in Ratnagiri and Sindhudurg districts, as compared to other districts of Maharashtra is high. In the Census of 2011, the average sex ratio in Maharashtra is found to be 925, which is considerably low. From 1951 onwards, in every Census, the sex ratio in Sindhudurg and Ratnagiri is high and Mumbai (Suburban) and Mumbai sex ratio is low. More importantly here also we can observe the same condition at the state level where in last 70 years Ratnagiri district has had the highest sex-ratio among all the districts in Maharashtra. (Maharashtra State Data Bank Reports, 2016).

**Table No. 3.1 Sample size**

<b>Year</b>	<b>Ratnagiri</b>	<b>Sindhudurg</b>	<b>Mumbai (suburban)</b>	<b>Mumbai</b>
<b>1951</b>	1239	1200	712	574
<b>1961</b>	1264	1194	744	626
<b>1971</b>	1263	1213	769	670
<b>1981</b>	1258	1205	801	729
<b>1991</b>	1205	1137	831	791
<b>2001</b>	1136	1079	822	777
<b>2011</b>	1122	1037	857	838

**Source:** District wise hand book 1951 to 2011.

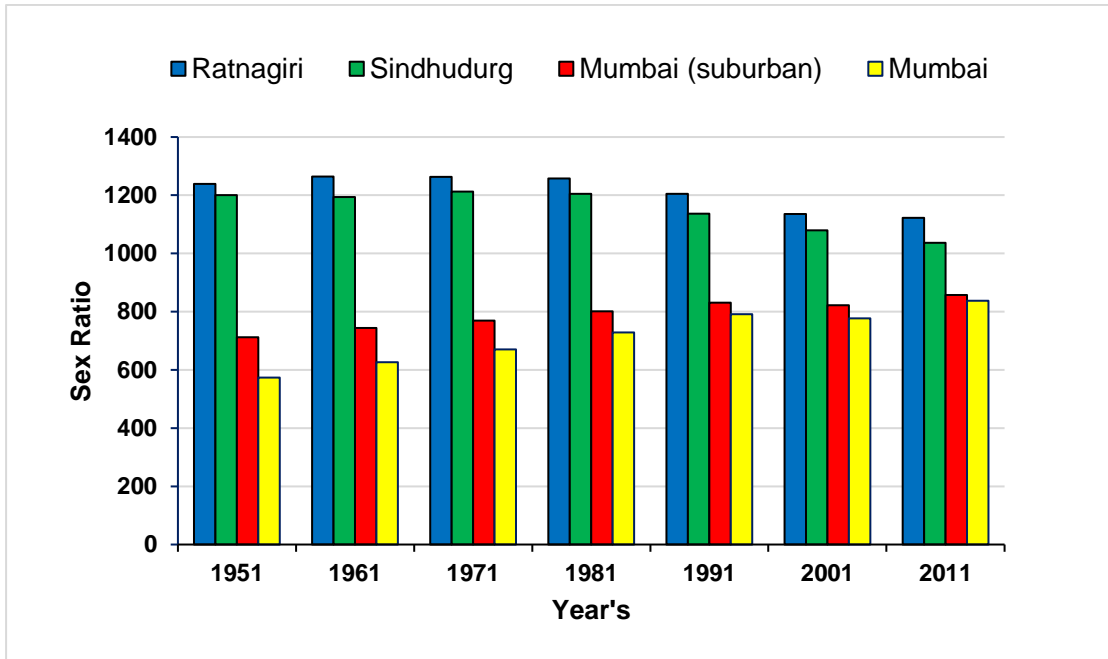
In short, a district-wise study of Sex Ratio in Selected Districts in Maharashtra reveals that from the very beginning, the sex ratio of Ratnagiri & Sindhudurg has always been high. On the contrary, the sex ratio of Mumbai and Mumbai Suburban has been low from the beginning and has been improving since 1981. This is mainly seen in the above table.

**When all the districts of Maharashtra are studied, it is noticed that Ratnagiri and Sindhudurg have the highest sex ratio. On the other hand, Mumbai Suburban and Mumbai have the lowest sex ratio** (Chapter 1, Table No. 1.5).



**Figure No. 3.1**

Sex Ratio in Selected Districts in Maharashtra (1951-2011)



**Source:** Table No. 3.1

The above figure no. 3.1 is drawn from the table no. 3.1 on Sex Ratio in Selected Districts in Maharashtra. The bar graph above clearly shows that the blue color bar shows the sex ratio of Ratnagiri district. That is, according to the 1951 census, the sex ratio of Ratnagiri district was 1239, while according to the 2011 census, the sex ratio was 1122. Similarly, the sex ratio of Sindhudurg district is 1239 as per 1951 census and it has been gradually changed to 1037 as per 2011 census, it is shown by light green color bar. This means that a study of these two districts reveals that there are not many fluctuations in the sex ratio. Also, a study of Mumbai and Mumbai suburban districts reveals that according to the 1951 census, the sex ratio of Mumbai district is 574, as shown by the yellow color bar. According to the 2011 census, the sex ratio of Mumbai district is 834. Also in the bar diagram above, the red color bar shows the sex ratio of Mumbai suburban district from 1951 to 2011. According to the 1951 census, the sex ratio of Mumbai suburban district is 712, while according to the 2011 census, the sex ratio is 857.

### 3.11 Analysis Techniques:

To make the study scientific and more realistic researcher has used statistical techniques like average, correlation coefficient, regression and percentage. Hypothesis testing was done using the T-test technique.

#### i) Correlation -

Correlation is a statistical tool to study the relation between two variables. Whenever two variables are so related that the increase or decrease in one corresponds to the increase or decrease in another, they are said to be correlated. Here, Economic and social factors are considered as independent variables, while sex ratio is considered as dependent variable. The Karl Pearson's coefficient of correlation has been applied to assess the correlation between economic and social factors and sex ratio in the selected districts. The Pearson correlation evaluates the linear relationship between two continuous variables. A relationship is linear when a change in one variable is associated with a proportional change in the other variable.

For analysing the relation between Sex ratio and other socio-economic variables, the correlation between social factors like female literacy rate and economic factors like urbanization on one hand and the sex ratio on the other, in all selected districts (1951 to 2011) has been calculated with the help of following formula.

For Correlation -

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

E. g. Here, 'x' variable is the social or economic factor, 'y' variable is sex ratio and 'n' is the number of years. With the help of above method, the value of correlation has been calculated.

## Positive correlation

A positive correlation - when the correlation coefficient is greater than 0 it signifies that both variables move in the same direction. When the two variables being compared have a perfect positive relationship; when one variable moves higher or lower, the other variable moves in the same direction with the same magnitude.

## Negative Correlation:

If, on the other hand, the increase in one variable results in a corresponding decrease in the other variable, the correlation is said to be negative correlation.

## ii) Regression

Multiple linear regression analysis is essentially similar to the simple linear model, with the exception that multiple independent variables are used in the model. The mathematical representation of multiple linear regression is:

$$Y = a + bX_1 + cX_2 + dX_3 + \epsilon$$

- Y – Dependent variable
- X1, X2, X3 – Independent (explanatory) variables
- a – Intercept
- b, c, d – Slopes

The benefits of this approach can include a more accurate and detailed view of the relationship between each particular factor and the outcome. Another great advantage of multiple linear regression is the application of the multiple regression model in scientific research. Researchers may use multiple regression analysis to evaluate the strength of the relationship between an outcome (the dependent variable) and several predictor variables and the contribution of each predictor to the relationship can be

worked out, often with the influence of other predictors statistically eliminated. (Patel Kartik, 2021, pp01-04).

Multiple regression was used to understand whether sex ratio performance can be predicted based on type of employment, i.e., female main workers, female marginal workers and female non-workers.

### **3.12 Chapter scheme:**

#### **Chapter I : Introduction**

This chapter includes the Introduction to the Sex Ratio and its importance and effects. In this Chapter the meaning and significance of population and the relationship between population and sex ratio is explained. In this chapter we have also tried to understand the relationship between population policy and demography. The significance of sex ratio in society, the benefits of a balanced sex ratio and problems of unequal sex ratio are also studied. The trends in global sex ratio and in India's neighboring countries are followed by a brief study of the sex ratio in India and the States in India. Also, the current situation of sex ratio in Maharashtra State and changes in the sex ratio of Maharashtra from 1951 to 2011 are given. The study also found that there are several factors that affect sex ratio. That is why the sex ratio is low. At the same time, the Government of India has from time to time taken many measures to increase the sex ratio, which has also been studied in this chapter. It is also true that the gap in the sex ratio has been showing an imbalance in the sex ratio in India since the British era.

#### **Chapter II: Review of Literature**

This chapter presents review of literature and research gap. A review of the related literature is a significant part of the research work. Because, it avoids duplication of work and it helps the researcher to go deep into the problem. An attempt has been made here to present some of the studies carried out in selected districts, in India and abroad which are related to the present research problem. Reviews have been presented chronologically.

Here for review of literature 17 Ph. D. theses, 15 Books, 10 Research papers, 5 Articles, 5 Newspaper articles and 5 T. V. / Media videos collating information have been taken.

### **Chapter III: Research Design and Conceptual Framework**

This Chapter deals with Choice of the topic, objectives, hypothesis and research methodology. Also, it focuses on database and research design i.e., selection of sample, sources of data, and statistical tools used. The conceptual and theoretical framework of the topic of study is given in this chapter.

### **Chapter IV : Study Area**

Detailed information of the selected districts i.e. Ratnagiri, Sindhudurg, Mumbai (Suburban) and Mumbai has been given. Researcher has presented the information of these districts regarding age, population literacy etc.

In Chapter we studied Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai Districts. In order to study the selected districts in detail, the researcher has studied selected characteristics of each district. It mainly involved physical structure, history, physiography, climate condition, forest, transportation and irrigation. As sex ratio is a core part of the study, the population of the district as well as the sex ratio and its history, literacy, women entrepreneurship, employment and other factors were included in it. While studying the sex ratio history in this chapter, it has been noticed that Ratnagiri and Sindhudurg districts are always in surplus in sex ratio. Mumbai suburban and Mumbai district, on the other hand, have the worst sex ratio. In this chapter it has been found that women entrepreneurship has much more scope in Mumbai suburban and Mumbai district than in Ratnagiri and Sindhudurg districts. But despite this, the ultimate truth is that this scope cannot fill the gap in the sex ratio.

### **Chapter V: Analysis and Data Interpretation**

This chapter includes the analysis of data collected from various secondary sources. Analysis of data was done in this chapter to find the following.

1. Trends of sex ratio in the selected districts.
2. Correlation between selected socio-economic variables and sex ratio in the four districts.
3. Comparison of the four districts on the basis of various socio-economic variables.

#### 4. Hypothesis testing.

Population and sex ratio studies have shown that the population of women is higher in Ratnagiri and Sindhudurg districts from the very beginning. In contrast, the population of women is less in Mumbai suburban and Mumbai districts. The study of age structure and sex ratio shows that Ratnagiri and Sindhudurg districts have high population of marriageable age and fertility i.e. women in the age group of 18 to 40 years. On the contrary, the situation is quite different in Mumbai suburban and Mumbai district. While studying female literacy, it has been noticed that there is a negative correlation between sex ratio and literacy in Ratnagiri and Sindhudurg districts. On the contrary, there is a positive correlation in Mumbai suburban and Mumbai district.

### **Chapter VI : Findings, Conclusions and suggestion**

This chapter presents brief summary of the study in the form of findings. From the analysis in Chapter 5, conclusions have been drawn to identify the factors that cause sex ratio to be high out of the various socio-economic factors.

The **first section** presents the main Findings of the study. The **second section** presents the Conclusion. The **third section** presents the hypothesis testing and last i. e. **fourth section** presents the Suggestion.

The main objective of this chapter is to sum up the important conclusions. Taking into consideration the inferences of the investigation the researcher is aware of the problems related to the sex ratio in selected districts of the study area. All these issues are presented together in Findings. The important problems are also listed in the present chapter. It is difficult task to rectify the shortcomings or to solve the problems. However, some recommendations have been made, which will be helpful to have solution to these problems. At the end of the chapter the researcher has given some suggestions for further research in this field. Nature of these suggestions is interdisciplinary and multidisciplinary. The suggestions are based on the issues which the researcher came across in the process of investigation.

### **Bibliography:**

Shows the sources used for each chapter in this study.

### **3.13 Limitations of the Study**

1. This study is based entirely on secondary data, taken from the Census reports. The data has been used exactly as it appears in the Census Reports. It was not possible to verify the data hence it has been accepted as correct.
2. Sindhudurg district was formed in 1981 and Mumbai Suburban in 1991 hence in some cases the data pertaining to these two districts for the period before their formation was not available.

### **3.14 Conceptual Framework of Sex Ratio:**

#### **Introduction:**

Sex ratio is the ratio of males to females in a population. As per Fisher's principle, this ratio is 1:1 for many sexually reproducing species. The human sex ratio is, for obvious reasons, studied more than the ratio for any other species. It is of major importance to the studies of sociology, anthropology and demography. The sex ratio at birth for the world is 107:100 i.e., 107 males to 100 females. This is often due to the higher foetal mortality in females. The sex ratio is 943 in India as per the 2011 census. That is, there are 943 females for every 1000 males. A skewed sex ratio, which is not in favor of women, could be a dangerous sign because it indicates a higher female foetal mortality rate. This can be a selective problem in certain states where there is active sex selection by parents and girls are killed even before they are born. Haryana has the lowest sex ratio in India among states at 879 girls for 1000 boys. Decreasing sex ratios pose dangers for the future female population in the country.

#### **Meaning and Definition of Sex Ratio:**

Sex ratio is defined in India as the number of females per thousand males. It is a crucial social indicator that shows the extent of prevailing equality between males and females within a society at a given point of time. The sex ratio in the country had always remained unfavorable to females. It was 940 in 2011.

Sex ratio in other countries is defined as "The proportion of males to females in a population as expressed by the number of males per hundred females." (Merriam-Webster, 2010, pp-01)

### How to calculate sex ratio?

Commonly sex ratio calculates the composition of a given population - the quantity of males per 100 females within the population of a given locale.

$$\text{Sex ratio} = \frac{\text{Population}_{\text{males}}}{\text{Population}_{\text{females}}} * 100$$

Sex ratios can be calculated for a whole country, region, or district.

Note:

- If the ratio = 100, there is an ideal balance between the sexes.
- If the ratio is < 100, there are more females than males.
- If the ratio is > 100, there are more males than females.

Example Calculating the Sex Ratio for India

$$\text{Sex ratio for India census 2011} = \frac{623,724,248_{\text{males}}}{586,469,174_{\text{females}}} * 100 = \mathbf{106.35}$$

There are 106.35 males per 100 females in India in census 2011.

### Why Use the Sex Ratio?

It is extremely difficult to record migration (population movements in and out of locales). Sex ratios, however, are used to get insights on population movement. If the sex ratio is constructed by 5-year age groups, it crudely indicates in- or out-migration among age groups. In later years, the sex ratio crudely indicates mortality. In general, there are larger number of males than females in the earlier years as there are typically more male births than female births. In rural areas, there tend to be more females, especially for communities that experience out-migration of men to urban areas. In cities with heavy in-migration, there tend to be more men than women who are in the working age groups. In later years, after age 55, there are usually more women than men as a result of higher deaths among men in their later years of life.



### **Significance of Sex Ratio:**

Biologically normal sex ratio at birth is 1,050 males to 1,000 females or 950 females to 1,000 males. The SRS (Sample Registration System) reports show that sex ratio at birth in India, measured as the number of females per 1,000 males, declined marginally from 906 in 2011 to 899 in 2018. There is considerable son preference in all states, except possibly in Kerala and Chhattisgarh. The UNFPA State of World Population 2020 estimated the sex ratio at birth in India as 910 below all the countries within the world except China. This is often a cause for concern because this adverse ratio leads to a gross imbalance within the number of men and women and its inevitable impact on marriage systems creates yet another harm to women.

Increasing female education and economic prosperity help to enhance the ratio, as indicated in several studies. It is hoped that a balanced sex ratio at birth may be realized over time, although this does not seem to be happening during the period 2011-18. In sight of the complexity of son preference leading to gender-biased sex selection, government actions need to be supplemented by improving women's status in the society. In conclusion, there is an urgent need to reach youngsters both for reproductive health education and services and in addition to cultivate gender equity norms. This might reduce the effect of population momentum and accelerate progress towards reaching a more normal sex-ratio at birth. India's population future depends on that.

### **3.15. Theoretical framework**

Population implies all the inhabitants of a particular place. Population is the people who inhabit a territory or state or the number of inhabitants in a given place. The ideological and ethical foundations of population theory are examined in the light of the supposed ethical neutrality of scientific enquiry. The Malthusian Theory of Population, The Optimum Theory of Population by Cannan Edwin, Theory of Demographic Transition by Thompson Warren and Zero Population Growth theory by Paul Ehrlich are some of the theories of population that are relevant to India. All these theories are described in detail as follows.

### 1) Thomas Malthus (1798)

**Thomas Malthus (1798)** has authored "*An Essay on the Principle of Population*" covering the period 1738 to 1751 in England. This book was first published anonymously in 1798, but the author was soon identified as Thomas Robert Malthus. The universe of study includes size of the population in the Kingdom of Great Britain. The book predicted a grim future, as population would increase geometrically, doubling every 25 years, but food production would only grow arithmetically, which would result in famine and starvation, unless births were controlled.

The main observations he made are the following:

Malthus has predicted an impending crisis generated by population growth. The population of Britain and other countries was increasing rapidly along with industrialization. He rejected the essentially optimistic theories of human development that were popular at the time. These theories stated that human progress would continue unabated and ultimately create a prosperous world for all.

In short, Malthus's theory began by laying out the current situation of population growth before going into detail about what Malthus thought was going to happen when population growth outstripped resource production. At the end of the essay, Malthus proposed a number of solutions that he thought could help human societies deal with the impacts of population growth. Malthus's essay was the first to describe this phenomenon in detail. However, Malthus went on to explain that population growth was exponential and that populations would, at some point grow too fast for their society to sustain them.

Malthus states that correction of the imbalance can be done by introducing 'preventive checks' such as late marriage, moral restraint etc. He also mentions about 'positive or natural checks' such as natural calamities. Natural checks operate and wash out the excess population and thus balance is maintained. However, preventive checks are more dependable out of the two. (Thomas Malthus, 1798, pp06-11).

## 2. Cannan Edwin (1924)

**Cannan Edwin (1924)** has authored **The Optimum Theory of Population** in his book 'Wealth' published in 1924. This theory was later popularized by Robbins, Dalton and Carr-Saunders. This theory says that the population which just makes the maximum returns possible is the optimum population or the best possible population, that population which produces maximum economic welfare. Optimum population is that which gives the maximum income per head. Theory of Optimum Population studies the relationship between population size and the production of wealth. Optimum population refers to a state where the size of the population is neither greater nor lower than the socially desirable level.

The optimum population is the ideal population which combined with other available resources or means of production of the country will yield the maximum returns or income per head. Given these assumptions, the optimum population is that ideal size of population which provides the maximum income per head. Any rise or diminution in the size of the population above or below the optimum level will diminish income per head. Given the stock of natural resources, the technique of production and the stock of capital in a country, there is a definite size of population corresponding to the highest per capita income. Other things being equal, any deviation from this optimum-sized population will lead to a reduction in the per capita income.

This theory revealed the following:

**One** When population is too small it is not possible to exploit the country's resources with maximum efficiency. **Secondly**, when population is too large, the efficiency falls to give only a subsistence income to the labor force. **Thirdly** the preservation of personal freedom and the preservation of biodiversity are potential end targets. **Fourthly**, unlike the Malthusian theory, the optimum theory does not establish relationship between population growth and food supply.

In **conclusion**, Modern economists have rejected the Malthusian theory of maximum population, which if exceeded will spell misery in the country. Instead of the maximum population the modern economists have substituted the idea of optimum population. Despite of so much criticism leveled against optimum theory, it is surely said that it is an improvement over Malthusian Theory. The optimum theory is an important landmark in the science of demography. It is valuable because it enables us to overcome

the bogey of Malthusianism and give us a test of progress (in per capita income). But this theory is not useful in social life due to its static nature. Thus, it is not a guiding principle to any economic policy. It requires being re-casted in a dynamic setting for making it more successful. (Cannan Edwin, 1924, pp20-23).

### 3. Thompson Warren (1929)

**Thompson Warren (1929)** and later on Notestein Frank (1945) both developed a “*Theory of Demographic Transition*” covering an area of study the referring to a historical process of change which accounts for the trends in births, deaths and population growth that occurred in today’s industrialized societies, especially European societies. This process of demographic change began for the most part in the later 18th century. The theory of demographic transition is based on the actual population trends of advanced countries of the world. According to this theory, every country passes through five different stages of population growth.

In the first stage, in a pre-industrial society, the birth rate and the death rate are high and the growth rate of population is low. In the second stage, that of a developing country, the birth rate remains stable but the death rate falls rapidly due to better health and education. The countries in this stage experience a large increase in population. In stage three, birth rates fall due to various factors such as better access to health and education facilities, higher wages, urbanization and changes in social values. As a result, population growth slows down. During stage four, there are both low birth rates and low death rates, leading to a falling and then stable population. Stage five is one of below replacement fertility levels. Population may start shrinking as is seen in some European countries, or remain stable at a low level.

In short **conclusion** the demographic transition theory does provide an effective portrayal of the world’s demographic history at macro level of generalizations. As an empirical generalization developed based on observing the demographic trend in the West, the transition process for any country can easily be understood. In all fairness, it must be mentioned at this point that Notestein, who propounded this theory, was aware of its limitations. Nonetheless, he was of the opinion that the principle drawn from the European experience would be applicable to other parts of the world. The most crucial question to be considered is ‘Can the theory demographic transition be applied to

developing countries?’ It is well known that developing countries have recently experienced a phenomenal reduction in death rates, as a result of which there has been a tremendous increase in the rates of population growth. (Thompson Warren-1929 & Notestein Frank-1945, pp20-23).

#### **4. Paul R. Ehrlich (1968)**

**Paul R. Ehrlich (1968)** has authored “*The Population Bomb.*” A neo-Malthusian researcher, he brought Malthus’s predictions into the twentieth century in **Zero Population Growth theory**. He tried to explain in this theory that population control is the conscious regulation of the numbers of human beings to meet the needs not just of individual families, but of society as a whole. According to Ehrlich, it is the environment, and specifically the food supply that will play a crucial role in the continued health of the planet’s population. This theory maintained that population is far outstripping food production. More than half of the world is hungry; many are dying of starvation. Population growth must come to an end. Our only choices are a lower birth rate or a bigger death rate. The world is running short of vital resources, and the American economic system must adjust to this reality. Government attention to this entire problem has been insignificant in proportion to the seriousness of the situation. Accordingly, data collection through fields survey is required, for that purpose the study is empirical one.

Ehrlich's ideas suggest that the human population is moving rapidly toward complete environmental collapse, as privileged people use up or pollute a number of environmental resources such as water and air. This collapse can be avoided by reaching the goal of zero population growth (ZPG), in which the number of people entering a population through birth or immigration is equal to the number of people leaving it via death or emigration. While support for this concept is mixed, it is still considered a possible solution to global overpopulation. Change of attitudes is more important than contraceptive technology in population control. In the short term the only feasible way to increase food production greatly is by increasing yield on land already under production.

In short **conclusion** the current situation of global overpopulation is so serious, and the built-in potential for further population increase is so great, that the only sensible

strategy for humanity today is to end population growth and start a population decline as rapidly as is humanely possible, simultaneously striving to achieve a more equitable distribution of the food and other goods of this planet. Limiting births and increasing social justice are not alternative strategies to preserving society, they are necessary complements. (Paul R. Ehrlich, 1968, pp159-178).

**In Short** The Malthusian doctrine may not be applicable now to its place of origin, but its influence spreads over two-third of this universe. Excluding Japan, the whole of Asia, Africa and South America come under its purview. India is one of the first countries to adopt family planning on state level to control population. The demographic transition model, in isolation, can be taken to predict that birth rates will continue to go down, as societies grow increasingly wealthy. The optimum theory is an important landmark in the science of demography. It is valuable because it enables us to overcome the bogey of Malthusianism and give us a test of progress (in per capita income). However, this theory is not useful in social life due to its static nature. Thus, it is not a guiding principle to any economic policy. It requires being re-casted in a dynamic setting for making it more successful.

### **3.16 Conclusion**

Half of the population of India is women, for the last few years they have been getting great opportunities for progress and development. The ability of the women to make the best of this opportunity has been proved by them. The 'social equilibrium' can be spoiled due to the fact that the number of women is decreasing after every thousand men and the possibility of disadvantage of natural equilibrium cannot be ruled out.

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## Chapter: IV

### Study Area

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# The analysis is based on the above points.



## **Chapter: 04**

### **Study Area**

#### **4.1 Introduction**

Declining sex ratio has become national problem. In the present research an attempt has been made to study impact of imbalance of population on society's economic condition and domestic life. In this study report the scenario of world population, Indian population, the population of Maharashtra has been presented. (Salve Prakash, 2015, pp-27)

Ratnagiri and Sindhudurg are the districts with highest sex ratio and Mumbai (Suburban) and Mumbai lowest sex ratio in Maharashtra. Each selected district has been quite different from the rest of the country in terms of the indicators of women's development. Ratnagiri and Sindhudurg are the districts, sex ratio was favorable in the year 2011 - Ratnagiri: 1123 & Sindhudurg: 1037. Vice versa Mumbai (Suburban): 857 & Mumbai: 838. Ratnagiri and Sindhudurg are the districts comparatively good compared to the all Indian districts where the sex ratio is low and it is worth mentioning that Ratnagiri and Sindhudurg are the districts have never had low female-male ratio during the selected duration. Similarly in terms of literacy, Life expectancy and mean age of marriage, women in selected districts score higher than any other district in Maharashtra, but Mumbai (Suburban) and Mumbai lowest sex ratio in Maharashtra where not favorable conditions against women.

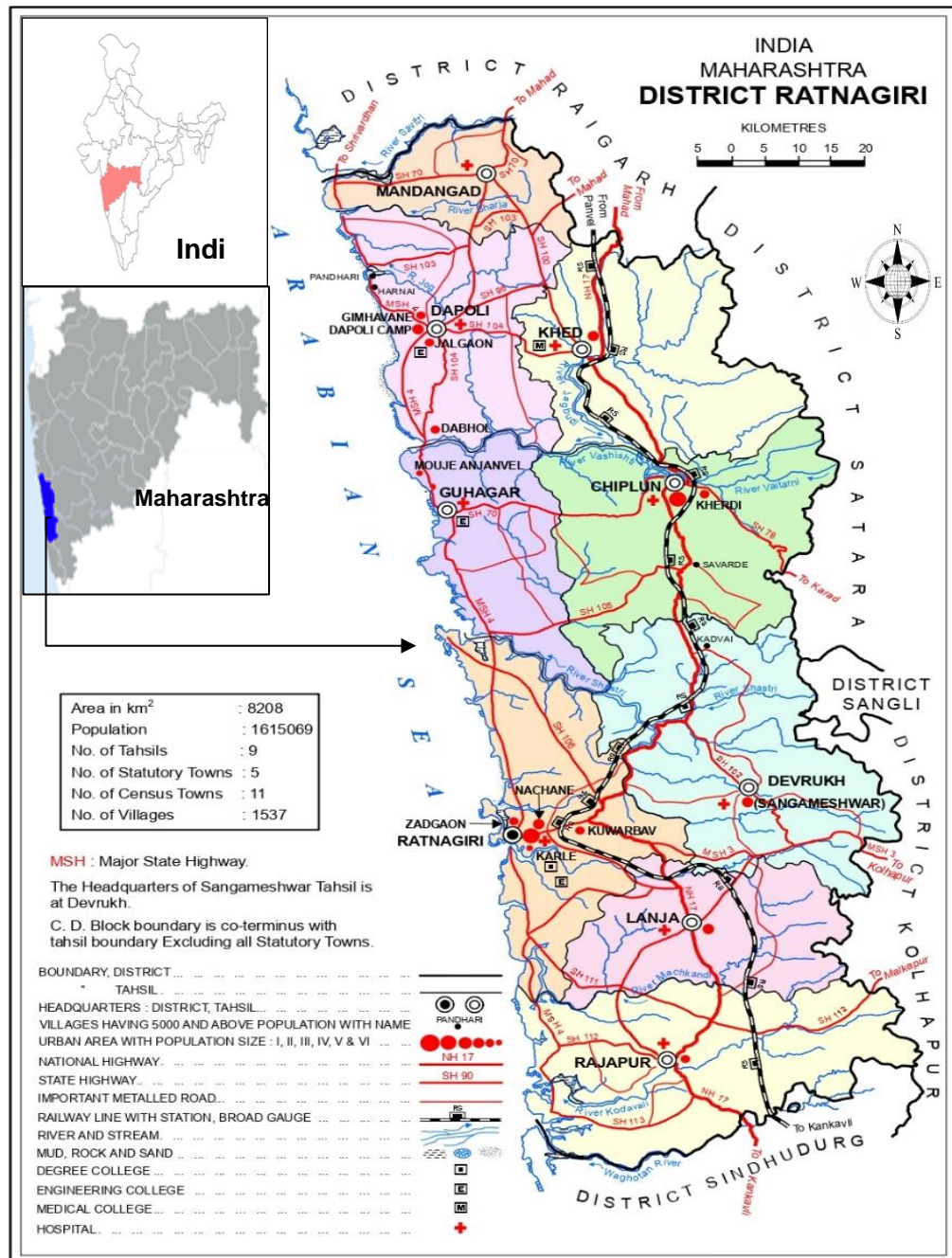
#### **4.2 Ratnagiri**

Ratnagiri district is a large district with a beautiful and attractive beach in the Konkan region. Researcher has briefly get information about Ratnagiri district here. Ratnagiri district is made up of nine talukas and Ratnagiri is the district headquarters. The special feature of Ratnagiri district is that we can spend our leisure time here comfortably as this district has got natural beauty which makes our mind very happy. Special mention should be made of this district as it has a beautiful Arabian Sea coast and some other features which researcher has understand in detail on the basis of the following points. (Registrar General & Census Commissioner, 2014, pp-07)

## 2.2.1 Physical Structure

In Physical Structure we also know the Location, Site and Situation of Ratnagiri District and also the Administrative Setup of the district we are going to study.

**Map 4.1**  
**Ratnagiri District Map**



Source: 2011 Ratnagiri District hand book

#### **4.2.1.1 Location, Site and Situation.**

Brief introduction of Ratnagiri district is that Ratnagiri district is one of the 36 districts of the state of Maharashtra in western India and also the headquarters of this district is Ratnagiri. Even today only 11.33% of the district is urbanized. A study of the boundaries of Ratnagiri district reveals that the district is bounded on the west by the Arabian Sea, on the south by Sindhudurg district, on the north by Raigad district and on the east by Satara, Sangli and Kolhapur districts.

Ratnagiri is a geographically important district located on the west coast of India. The north-south length of the district is about 180 kms and the average east-west extension is about 64 kms. This shows the geographical importance of this district. The district is between 16.30 to 18.04 North latitude and 73.02 to 73.53 East longitude. As per 2011 census, the population of Ratnagiri district is 16, 126, 72. Which is almost identical to Guinea-Bissau or Idaho in the United States. As a result, the district ranks 311st in India (out of 640 total). The population density of Ratnagiri district is about 196 inhabitants per square (510 / sq. mi). The population growth rate in the decade 2001-2011 was -4.96%. Ratnagiri has a sex ratio of 1123 female per 1000 male and a literacy rate of 82.43%. This suggests that the overall sex ratio has declined as the population has shrunk. (Registrar General & Census Commissioner, 2014, pp-09)

#### **4.2.1.2 Administrative Setup**

In Administration in Ratnagiri Districts, they have 9 Revenue Blocks i.e. Ratnagiri, Sangameshwar, Chiplun, Khed, Dapoli, Guhagar, Mandangad, Lanja, Rajapur. Also 5 Revenue Subdivisions i.e. Chiplun, Ratnagiri, Dapoli, Khed, Rajapur. In Ratnagiri districts 9 municipalities i.e. Ratnagiri, Sangameshwar, Chiplun, Khed, Dapoli, Guhagar, Mandangad, Lanja, Rajapur. Also in the districts 9 Panchayat Samitis i.e. Ratnagiri, Sangameshwar, Chiplun, Khed, Dapoli, Guhagar, Mandangad, Lanja, Rajapur. In Ratnagiri districts 1537 Villages and 844 Grampanchayats (National Informatics Centre, 2018, Web pp-01).

#### **4.2.2 History**

Researchers studying the history of Ratnagiri districts have noticed that in 1731, Ratnagiri district came under the rule of the kings of Satara. In 1818 he surrendered to the British and meanwhile a fort was built in Bijapur dynasty and was fortified in 1670

by the Maratha king Chhatrapati Shivaji, which is at the head near the port. It is one of the important ports on the Konkan coast. This is the same historical place where the last king of Burma was kept in the palace of Thibaw and later Veer Savarkar was imprisoned in this place. At the same time, another feature of this district is the legend that the Pandavas settled in the vicinity of Ratnagiri district after 13 years of pilgrimage and when the famous battle of Pandavas and Kauravas took place at Kurukshetra, the king of this region, Veervat Ray, had gone there with them. Another feature of Ratnagiri district is that it is located on the shores of the Arabian Sea in the southwestern part of the state of Maharashtra. The surrounding area is bounded on the east by the Sahyadri range and on the west by the Arabian Sea. It forms part of a larger area known as the Konkan. The region was under the rule of Maurya, Nala, Silhar, Chalukya, Kadamba, Portuguese, Marathas and later British. In 1948, Sawantwadi became an independent state of India and in 1956, it merged with Mumbai. Ratnagiri district was formed on May 1, 1960 with the formation of the state of Maharashtra. However, later in 1981, Ratnagiri district was divided and Sindhudurg became an independent district (Maharashtra State Gazetteers of Ratnagiri District, 1962).

### **4.2.3 Physiography**

An important feature of Ratnagiri district is that it is located on the west coast of the Indian state of Maharashtra. The north-south length of this coast is about 180 kms and the east-west extension of this district is 64 kms. Ratnagiri district is geographically divided into three zones. It is bounded on the east by Sahyadri mountain ranges, on the other by Satara, Sangli and Kolhapur districts, on the north by Raigad district, on the west by Arabian Sea and on the south by Sindhudurg district.

**4.2.3.1 Coastal Zone** – This zone stretches for about 10 to 15 kilometers from the coast. Due to its low altitude, it receives about 2500 mm of rainfall every year. Most of the activities in this area are connected to the sea. In short, this coastline is having a huge impact on the economy of Ratnagiri district. The area is home to numerous beaches, creeks, sea forts, and harbors, hot springs, caves, temples and other religious sites, scenic spots as well as the birthplace of some great personalities. Ratnagiri district is known as one of the leading districts in tourism. As a possibility tourism activities include water sports such as inland and sea waterways, boating, water scooters, canoeing, fishing, camping, marinas, coastal resorts and marine park examples. But at

the same time, the lack of infrastructure and the poor condition of the roads are causing problems in the development of tourism here.

**4.2.3.2 Hill area Zone** – This area covers the western slope of the Sahyadri and extends for about 10-15 km. normally medium to high altitude with maximum rainfall of 3500 mm. Although much of this zone is forested, it has been declining rapidly in recent times. Hence the significant drop in temperature is observed in places exposed to increasing westerly winds. In this area hill forts, ghat roads, forests, wildlife etc. There are panoramic views in many places. Possible tourism activities include trekking, hiking, forest camps, holiday resorts, bird sanctuaries, wildlife safaris etc.

**4.2.3.3 Middle Zone** – This area is in coastal and mountainous areas and is generally of medium height. It is easier due to Mumbai-Goa-Highway and Konkan Railway. However, it has a lot of tourist attractions, most of the religious sites and hot springs. Generally, between November and March, Ratnagiri district has a lot of tourists.

#### **4.2.4 Climatic**

Although the climate of Ratnagiri district is humid, it is generally very comfortable, but for that you should visit at the time mentioned above. Climate of the Ratnagiri district is hot and humid. Ratnagiri district receives regular rainfall. So this district can be divided into four seasons. It consists mainly of March to May summer, as well as the monsoon season, which is June to September and most importantly, the last period is October to November winter in this district from December to February. Humidity is more in summer. Maximum temperature of the district is around 34.35<sup>0</sup> c and minimum temperature is around 19<sup>0</sup> c (Maharashtra State Gazetteers of Ratnagiri District, 1962).

##### **4.2.4.1 Temperature**

During the hot season, generally, the temperature has been rising slowly since March and it may be the hottest month in Ratnagiri district. As soon as it starts raining, the temperature usually drops by three to four degrees. On rainy days, the district temperature is almost as cold as the freezing point. During the rainy season of October and November the daytime temperature rises. Also, the days of November are just as hot as the month of May. January nights usually have the lowest temperatures in the winter season. Temperatures are generally favorable at a distance of 20 to 25 km from

the coast. Characteristics In summer days, sea breezes blow almost all day long. Along the coast the maximum temperature rarely goes beyond 38°C (100.40 F) but in the interior may reach 40<sup>o</sup> or 41<sup>o</sup>C (104<sup>o</sup> or 106<sup>o</sup>F) (Maharashtra State Gazetteers of Ratnagiri District, 1962).

#### **4.2.4.2 Rainfall**

Konkan is a place of rain. Ratnagiri experiences high rainfall in July. Rainfall is not uniform in all areas. It rains a lot in the highlands. The average rainfall in 2008 was 3486.2 mm and the highest rainfall was in Rajapur. i. e. 4939 mm and the lowest rainfall is 2116.6 mm in Lanza taluka.

#### **4.2.5 Forest**

The total forest area of Ratnagiri district is 7001.67 hector. In this forest, trees like teak, Nilgiri, Khair, Cashew, Mango, Cashew, Fanas, Mother, Dhaman, Shivan, Sugar, Khayar, Jambhul, Chinch and Shivari are found. The district has area of 8208 sq.km out of which the reserve forest area is 48.91% . , the protected forest area is 0.03% and the classified forest area is 23. 88%. (Geographical area of Maharashtra-Ratnagiri district, 2016)

#### **4.2.6 Transport**

According to Census 2011, the overall urban pucca road density (pucca road length in Km per 100 sq. km of area) of the district was 320.6. This ranges from near-zero in Gimhavane to 1,407.9 km per 100 sq. km in Kuwarbav. The State average urban pucca road density was reported to be 397.3. There are 117,197 two-wheelers in the transport district. There were 934 buses, 14,390 cars and station wagons, 5,126 jeeps, 585 taxis and 15,229 auto rickshaws (14,991 three-seater and 238 six-seater). Recently, the number of CNG-powered vehicles is increasing in Konkan.

Moreover, there are 564 other modes of transport, the District also had 511 tractors and 561 Trailer as a means of transportation. The district has 8,815 light vehicle permit holders, 5,178 heavy vehicle permit holders and 14,636 auto rickshaw permit holders (Ministry of Micro & Medium Enterprises, 2018, pp-09).

#### **4.2.7 Irrigation**

The total crop area in the district is 2.91 lakh hectares. Irrigation area is only 7126 of them. 2.45% of the total area. In short, there is no major irrigation project in Ratnagiri district. The total crop area in the district is 2.91 lakh hectares. Of these, only 7126 are irrigated areas. 2.45% of the total area. In short, there is no major irrigation project in Ratnagiri district.

The rainfall is high in the district. However, due to lack of conservation and steep mountainous terrain, most of the water goes to sea. The main source of irrigation is through Minor Irrigation project and Dug well. 7126 hectares. Irrigation is done by canal irrigation and by Dug well (Ministry of Micro & Medium Enterprises, 2018, pp-04).

#### **4.2.8 Population**

According to the 2011 Census, the District has a total population of 16,15,069 comprising of 7,61,121 male and 8,53,948 female. In the total population, 1,351,346 persons constituting 83.7 percent of the total population is in rural, while 2,63,723 persons constituting 16.3 percent are in urban. The number of people living in rural areas has decreased from 15,04,568 in 2001 to 13,51,346 in 2011 and hence the percentage share of rural population has decreased from 88.7 percent to 83.7 during 2001-11. While in urban areas their number has increased from 1,92,209 in 2001 to 2,63,723 in 2011 and in terms of percentage share, it has increased from 11.3 percent in 2001 to 16.3 percent in 2011 Census (Registrar General & Census Commissioner, 2014, pp37-38)

#### **4.2.9 Sex Ratio**

Whereas the whole country is struggling with “missing women” due to preference for sons and discrimination against daughters, the extraordinary statistics of the districts in the region including Ratnagiri, show the phenomenon of “missing men” persisting for more than a Century.

According to the 2011 census, the sex ratio of the district is 1122, which is much higher than other districts. Its total is more than 929 compared to the state level. The same ratio is 1144 in rural areas and 1015 in urban areas. Within the District the sex ratio varies from 1,253 in Guhagar Tahsil to 1,053 in Ratnagiri Tahsil (Registrar General & Census Commissioner, 2014, pp42-43).

#### 4.2.9.1 Sex Ratio history: Ratnagiri

The sex-ratio of the Maharashtra State and the Ratnagiri District with rural-urban break-up are given for the census years from 1901 to 2011.

Table No. 4.1 Sex ratio of the Maharashtra State and Ratnagiri District, 1901-2011 is shown. According to the 1901 census, the rural sex ratio in Maharashtra is 1003 and urban 862, with a GSR of 978. Ratnagiri district also has rural sex ratio of 1126, urban 962 and GSR 1119. In short, Ratnagiri district has a high sex ratio from the very beginning. A study of Maharashtra's sex ratio for a total of 110 years from 1901 to 2011 reveals that the sex ratio of Maharashtra GSR has never been higher than 978, nor less than 922. On the other hand, Ratnagiri district's GSR has remained the same in 110 years is more than 1100, and GSR is highest in rural and also good in urban, never less than 944, in below table.

**Table No 4.1**

Sex ratio of the Maharashtra State and Ratnagiri District, 1901-2011

Census Year	Maharashtra State			Ratnagiri District		
	GSR	Rural	Urban	GSR	Rural	Urban
<b>1</b>	2	3	4	5	6	7
<b>1901</b>	978	1003	862	1119	1126	962
<b>1911</b>	966	1000	796	1164	1171	1007
<b>1921</b>	950	994	776	1187	1195	992
<b>1931</b>	947	987	790	1129	1135	966
<b>1941</b>	949	989	810	1158	1168	977
<b>1951</b>	941	100	807	1239	1256	1027
<b>1961</b>	936	995	801	1264	1292	993
<b>1971</b>	930	985	820	1263	1294	992
<b>1981</b>	937	987	850	1258	1289	979
<b>1991</b>	934	972	875	1205	1230	981
<b>2001</b>	922	960	873	1136	1163	944
<b>2011</b>	929	952	903	1122	1144	1015

Source: Census 1951 to 2011



The table no. 4.1 shows the sex ratio of the Maharashtra State and Ratnagiri District, 1901-2011. According to the census of 1901 and 1911, the rural sex ratio of Maharashtra is more than 1000 is more. On the contrary, the rural sex ratio of Ratnagiri district is more than 1000 for 110 consecutive years. In short, during the British rule and even after India gained independence, the sex ratio in Ratnagiri district did not fluctuate much. On the other hand, the state of Maharashtra has undergone a lot of changes. The sex ratio of Maharashtra is always between 900 or less than 900. On the other hand, this proves that the sex ratio of Ratnagiri district is always more than 1000. (Registrar General & Census Commissioner, 2014, pp42-43).

#### **4.2.10 Literacy**

Anyone 7 years of age or older who can read or write intelligently in a language is generally considered literate. But if a person can only read but cannot come or can write but cannot read then we cannot consider him literate. There is no requirement that a person should have any formal education in order to be literate or that he or she should have passed the academic standard. But it is important to understand how to write and speak a language. In short, literacy can be achieved through adult literacy classes or even through any non-formal education system. People who are blind and can read in Braille are considered literate.

Table No. 4.2 shows Ratnagiri District Literacy Rate, 1951-2011. According to the 1951 census, the literacy rate of women in Ratnagiri district was 8.80 %, male literacy was 28.70 % and average literacy was 17.70 %. According to the 1961 census, female literacy is 17.44 % & male literacy is 42.16 %, while average literacy is 28.49 %. A comparison of the 1951 and 1961 censuses shows an increase in the literacy rate. According to the 1971 census, female literacy was 26.20 %, male literacy was 48.20 % and average literacy was 35.90 %. According to the 1981 census, female literacy was 34.50 %, male literacy was 55.70 % and average Literacy Ratnagiri district literacy was 43.90 %. According to the 1991 census, female literacy was 51.60 %, male literacy was 76.70 % and average literacy was 62.70. The literacy rate in the district has been steadily increasing from 1951 to 1991. According to the 2001 census, female literacy is 65.80 %, male literacy is 85.90 % and average literacy is 75.10 %. According to the 2011 census, Ratnagiri district has the highest female literacy at 74.55 % and male literacy at 91.43 % with an average literacy is 82.43 %. In short, from 1951 to 2011,

Ratnagiri district has seen a steady increase in male and female literacy % (Registrar General & Census Commissioner, 2014, pp53-55).

The literacy rate in Ratnagiri District in the year is 2011 82.18 percent and area-wise it is 80.13 in rural and 92.75 in urban. Among male the literacy rate is 90.93 and for female it is 74.53 which show a gap in male female literacy rate of 16.40 % points. This gap is wide as 18.31 points in rural and small as 5.25 in urban.

**Table No. 4.2**

Ratnagiri District Literacy Rate, 1951-2011

<b>Year</b>	<b>Female Literacy %</b>	<b>Male Literacy %</b>	<b>Average Literacy %</b>
<b>1951</b>	08.80	28.70	17.70
<b>1961</b>	17.44	42.16	28.49
<b>1971</b>	26.20	48.20	35.90
<b>1981</b>	34.50	55.70	43.90
<b>1991</b>	51.60	76.70	62.70
<b>2001</b>	65.80	85.90	75.10
<b>2011</b>	74.55	91.43	82.43

Source: Socio-Economic Review and District Statistical Abstract of Ratnagiri 2018-19.

The literacy rate in Ratnagiri District in the year is 2011, 82.18 percent and area-wise it is 80.13 in rural and 92.75 in urban. Among male the literacy rate is 90.93 and for female it is 74.53 which show a gap in male female literacy rate of 16.4 % points. This gap is wide as 18.31 points in rural and small as 5.25 in urban.

#### **4.2.11 Women entrepreneurship**

It is important to recognize the need of the hour and invest in such programs. Which help women living in challenging socioeconomic conditions to build marketable skills, start small businesses and secure decent wages and ethical work. When all women are building their own power to make money and have control over how they use it. So it is a great way to help them not only financially, but also to reduce poverty. Research

also shows that women spend up to 90 percent of their income on something that directly benefits their children and families. At the same time, things like food security, clean water, school fees and medicine are given priority for a healthy life. In short, the prosperity and empowerment of children will be possible only when women are financially capable.

The most important thing for women in Ratnagiri district is when all the Chakarmanis go to Mumbai. In short, in the absence of men, the responsibility of the house falls directly or indirectly on these women. At such times this responsibility has to be dealt with competently. In such a time, running a house is not only a responsibility, but also a good etiquette for the child and other social and economic factors affecting the house. At the same time, as mentioned at the outset, the role of women is paramount in the coastal life of the Konkan and hence the fishing in the coastal villages.

#### **4.2.12 Women employment**

The nature of one's activities and the extent of participation in financially productive activities are crucial factors for such classification. The level of economic development of different regions of the district is characterized by the desire of women to work, besides the job opportunities available to them as well as the initiative taken by women to get that job. In general, the initiative and entrepreneurship shown by men in these activities are important factors. These have an impact on the distribution of the population within the class. It consists mainly of main workers, border workers and non-workers.

**Work Participation Rate (WPR) :** Work participation rate( as per population census) is defined as the percentage of total workers (main and marginal) to total population.

$$\text{Work Participation Rate} = \frac{\text{Total workers(Main + Marginal)}}{\text{Total population}} \times 100$$

Table No. 4.3 shows Work Participation Rates by Sex, Ratnagiri District: 1951– 2011. According to the 1961 census, male work participation rate in Ratnagiri district is 48.31, female 42.18 and total 44.92. According to the same census, Maharashtra's work participation rate is 57.09 male, 38.10 female and total 47.91. According to the 1971 census, the work participation rate is 43.54 female, 28.18 male and 28.48 total. The

male population of Maharashtra is 52.09 female 19.70 and the total is 36.50. According to the 1981 census, Ratnagiri district has a work participation rate of 43.01 male, 26.83 female and a total of 40.55 male, while according to the same census, Maharashtra has a work participation rate of 52.51 male, 23.98 female and a total of 42.60.

According to the 1991 census, Ratnagiri has a work participation rate of 47.72 male, 42.74 female and a total of 45.00. Maharashtra has a work participation rate of 39.28 male, 26.47 female and a total of 43.00. According to 2001 census, Ratnagiri district has a work participation rate of male 51.20, female 39.50 and total 45.00. According to the same census, Maharashtra's work participation rate for male is 36.76, female 23.95 and total 42.50. According to 2011 census, Ratnagiri district has a work participation rate of male 53.47, female 35.90 & total 46.49. According to the same census, Maharashtra's work participation rate is male 64.30, female 35.97 & total 44.00. (Registrar General & Census Commissioner, 2014, pp37-38).

**Table No 4.3**

Work Participation Rates by Sex, Ratnagiri District: 1961– 2011

Census Year	Work Participation Rates (%)					
	Ratnagiri			Maharashtra		
	Male	Female	Total	Male	Female	Total
1961	48.31	42.18	44.92	57.09	38.10	47.91
1971	43.54	28.18	28.48	52.09	19.70	36.50
1981	43.01	26.83	40.55	52.51	23.98	42.60
1991	47.72	42.74	45.00	39.28	26.47	43.00
2001	51.20	39.50	45.00	36.78	23.95	42.50
2011	53.47	35.90	46.49	64.30	35.97	44.00

**Source:** Calculated from NSS Data Round 2011-12

#### 4.2.13 Conclusion

Though Ratnagiri district is underdeveloped regarding to industrialization and urbanization, it has an abundance of natural resources. The district's connectivity is well to Mumbai, Pune, Goa and Kolhapur by road and railways. So it has scope in future to development in industrialization. Fishery sector is also providing large extent of

employment to the people in the district. As far as agriculture sector in the district is concern the climatic and non-climatic factors are favorable for the development of fruit processing industry in the Region. Sandy soil, heavy rainfall, humidity these are also favorable climate for coconut cultivation is increased in the district.it means that Ratnagiri district is in developing stage and near future it has become a developed one.

### **4.3 Sindhudurg**

Sindhudurg is the least populous district in Maharashtra! Sindhudurg is a sweet and juicy district like "Fanasa" in Konkan! The district which gave birth to the historical Sindhudurg fort of Chhatrapati Shivaji Maharaj! The district has a wide coastline. Some inscriptions found at Nerur indicate that the Chalukyas once ruled here. This is the second district after Ratnagiri district in which sex ratio is exactly the same as in Ratnagiri district. Initially, the two districts were one and the same. But in 1981, the two districts were separated, so the sex ratio is the highest in both the districts (Registrar General & Census Commissioner, 1992, pp-13)

The Socio-Economic background of a study area has a direct influence on tourism activities carried out in that region. The various physical factors like agro climatic conditions, soil type, cropping pattern, marketing and communication facilities decide the suitability of a particular enterprise to that area. As the present study was conducted in Sindhudurg district, a brief account of geographical and socio-economic conditions prevailing in Sindhudurg district is given in this chapter, so as to have better understanding of study area.

#### **4.3.1. Physical Structure : Sindhudurg**

In Physical Structure we also know the Location, Site and Situation of Sindhudurg District and also the Administrative Setup of the district we are going to study.

#### **4.3.1.1 Location, Site and Situation.**

Sindhudurg district is located in the southern part of the state on the west coast of India. It spreads between 15° 37' and 16° 40' north latitude and 73° 19' and 74° 13' east longitude. Sindhudurg district has a wide coastline of 121 km. It is bounded on the east by Kolhapur district, on the north by Ratnagiri district, and on the west by the Arabian Sea and on the south by the states of Karnataka and Goa. The district is also bounded on the west by the Arabian Sea. As per 2011 census, the population of Sindhudurg district is 84965. The area of this district is 5207.0 sq. Km. Sindhudurg district today occupies 1.69% of the total area of the state. The district accounts for 7.56% of the total population of the state. This shows the importance of this district. The population per capita density of the district is 163 sq. Km. Out of 35 districts in the state, the district ranks 30th in terms of area, 35th in terms of population and 34th in terms of density.

According to the 2011 census, Sindhudurg district is headquartered in Sindhudurg (Oras Budruk) and has a population of 5911. Sindhudurg Nagri is one of the newly planned cities of Maharashtra's Urban and Industrial Development Corporation. Also, from Mumbai to Kanyakumari in South India, a large number of passengers travel through this district via the Konkan Railway. At the same time, another important feature of this district is that you can see a good network of roads connecting other parts of the country (Registrar General & Census Commissioner, 2014, pp-09).

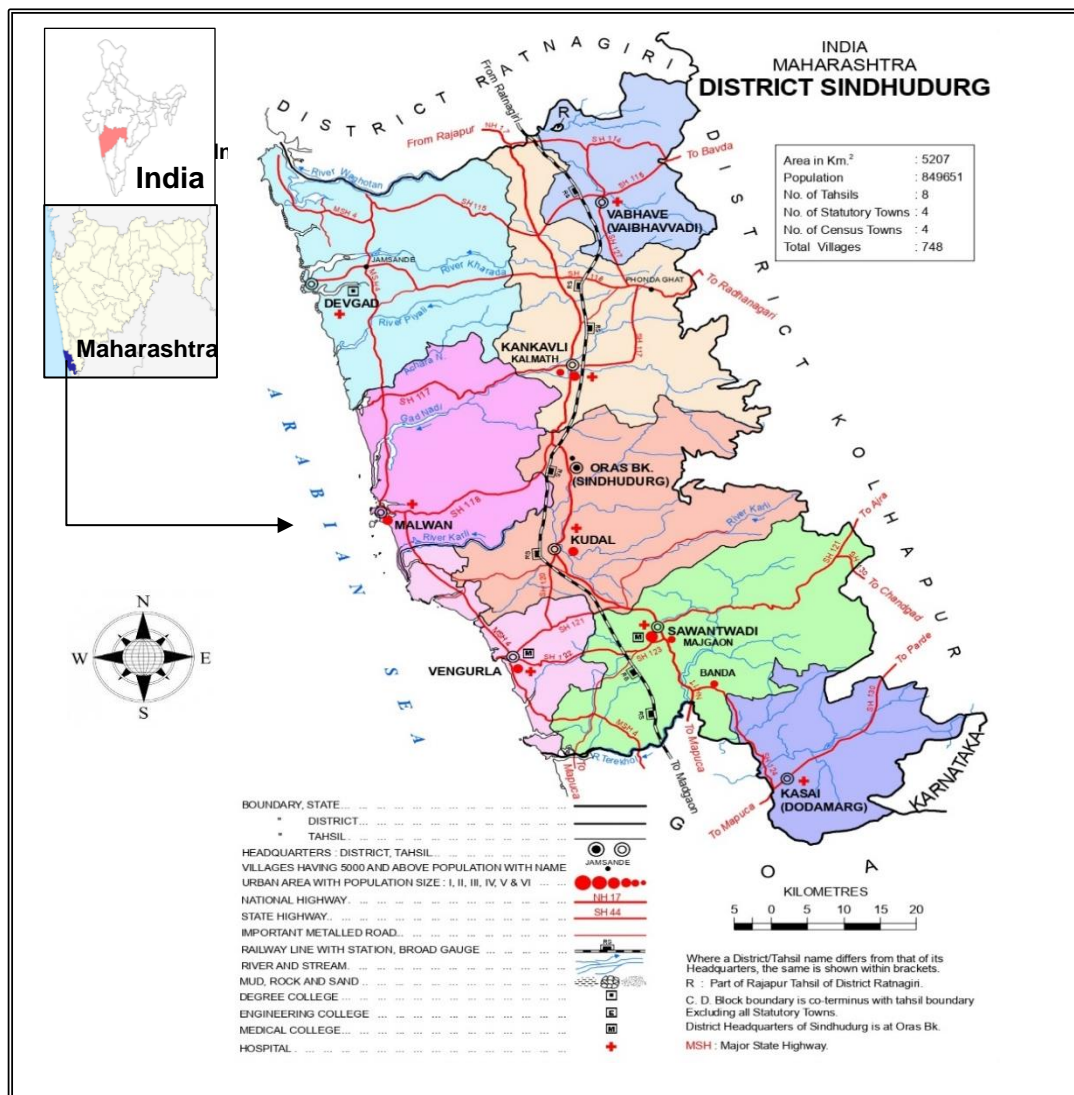
#### **4.3.1.2 Administrative Setup**

According to the 1991 census, During this time, there were major changes in the total districts of Maharashtra, resulting in the creation of five new districts at the same time. According to the 1991 census, Brihanmumbai district was mainly divided into Mumbai and Mumbai suburban districts. Besides, Nandurbar Washim Hingoli and Gondia districts were divided into Dhule, Akola, Parbhani and Bhandara districts respectively. At the time of 2001 census, there were 6 districts in Konkan division, 5 districts in Nashik division, 5 districts in Pune division and 8 districts in Aurangabad division, 5 districts in Amravati division and 6 districts in Nagpur division. Sindhudurg district is included in the Konkan division. Thus, for the 2011 census, there are 35 districts in 6 divisions of Maharashtra in the state. Thus in Sindhudurg there are presently 8 cities, 8 talukas in Devgad (98), Vaibhavwadi (59),

Kankavali (105), Malvan (135), Vengurla (83), Kudal (124), Sawantwadi (82) and Dodamarg (82). There are 748 villages. 62) Tehsil (Sindhudurg District Survey Report, 2017, pp05-06).

### Location map of Sindhudurg District

**Map 4.2**  
Sindhudurg District Map



Source: 2011 Sindhudurg District hand book

### 4.3.2 History

The name is derived from the famous sea fort in Sindhudurg district. Shivaji Maharaj had built a fort near Malvan in Sindhudurg district, and this literally means

"sea fort". Construction of this Sindhudurg fort started on 25th November 1664 and was completed in the next three years. Any enemy coming from the Arabian Sea can be easily seen from this fort. This shows the importance of this fort.

Sindhudurg is one of the famous districts of Konkan which shows the identity of Konkan. The southern part of the district covers a large area. Which is historically famous for its long and clean beaches and safe harbors Sindhudurg District was formed by dividing Ratnagiri Districts from 1st May 1981. Sindhudurg District was a part of Ratnagiri District. But the district was divided for administrative convenience and for industrial and agricultural development and its progress. After the 1991 census, 56 villages were transferred from Sawantwadi tehsil and a new tehsil runway was created. Sindhudurg district now includes Devgad, Vaibhavwadi, Kankavali, Malvan, Vengurla, Kudal and Sawantwadi talukas (Gazetteer of the Bombay Presidency related to Ratnagiri and Sawantwadi, 1880, pp192-195).

The word "Konkan" is very important and the origin of the name has never been clarified, even though it is related to the ancient times of Indian descent. A peek into the history of the Konkan reveals that the Hindu mythology refers to the It is said in the "Hindu history of Kashmir" that it covers seven states in the Konkan and almost the entire west coast of India. There is a legend that the Pandavas went through this region during their 13 years of exile and stayed there for some time. It is said that Virat Ray, the king of the region, accompanied the Kauravas in the famous battle of Kurukshetra. In the second century AD, when the Mauryan Empire was in full swing, the Mauryan Empire took over the entire Konkan coast, and later in There is evidence that the Mauryan and Lal dynasty kings ruled the Konkan till the middle of the twentieth century. Studies have also shown that Ratnagiri district was under the rule of Shilahars and Goa should be their capital. But later on, the capital may have shifted to a central place around Ratnagiri or Kharepatan. This is also evident from the historical evidence. Chandrapur was one of the oldest cities in the Konkan, probably founded by Chandraditya, the son of the Chalukya king Pulakeshi II (Gazetteer of the Bombay Presidency related to Ratnagiri and Sawantwadi, 1880, pp192-195).

The Portuguese power on the west coast of India rose and fell in the 16th century. Sindhudurg district was no exception. In 1675, Eventually, the Sultan lost control of the district and after the rise of Chhatrapati Shivaji Maharaj, Sindhudurg



district came under the control of Marathas. Sindhudurg district was ruled by Marathas till 1817. In the later period, the British came to India and there was a great conflict between the British and the Peshwas and eventually the whole Konkan came under the control of the British.

Meanwhile, a significant change took place in 1819 when South Konkan was established as an independent district. It was headquartered at Bankot and later at Ratnagiri. In 1830, three northern subdivisions were transferred to Thane district and the district was reduced to the level of Deputy Collector under Thane district. In 1832, it became a full district again and was renamed as Ratnagiri District. In 1945, a new mahal (tehsil) named 8 Kankavali Mahal (Tehsil) was constructed. Later, the former state of India was merged with Sawantwadi district and in 1949, the taluka boundaries were reorganized. During this time a new taluka called Sawantwadi was created and also two new palaces (tehsils) Kudal and Lanja were formed. With the reorganization of the state in 1956, the district was incorporated into the state of Mumbai and has been a part of Maharashtra since 1960. (Gazetteer of the Bombay Presidency related to Ratnagiri and Sawantwadi, 1880, pp192-195).

### **4.3.3 Physiography**

The boundaries of Sindhudurg district are as follows. Kholhapur district to the east, Ratnagiri district to the north, Arabian Sea to the west and the states of Karnataka and Goa to the south. It is bounded on the west by the Arabian Sea and has a coastline of 121 km. Sindhudurg district is physically divided into three zones.

#### **4.3.3.1 Coastal Zone**

Sindhudurg district has a very different geographical identity. In 111978, this part of the coast was covered by lowland, coast, terraces, sand dunes, rocks, numerous sandy ponds, beaches, tides, creeks and group-specific study areas. It covers 22.23% of the total geographical area of the district and is covered by a thin layer of alluvial silt on flat and coastal terraces. Another feature of this zone is that it lies to the west of the RB coastal zone, west of the central transition belt. The western part of Devgad, Malvan and Vengurla talukas is also covered by small hills and low lying areas. The soil found in this area is known locally as "Khalati soil". This soil is made up of alluvial soil. Their average height is less than 150 meters. The special feature of

the coastline of this district is that it produces waves of 2 to 10 meters. These waves make their mark on the beach at high tide (Registrar General & Census Commissioner. 2014, pp09-10).

#### **4.3.3.2 Hill Area Zone**

The eastern part of Sindhudurg district is covered by Sahyadri Mountain range. Its coverage height is above 450m. The special feature of Sindhudurg district is that the eastern part of this district is covered by Sahyadri mountain range. It is almost 450 meters higher than their height. The hilly region of the district covers an area of 208349 ha which covers 41.34% of the total geographical area of the district. Many spurs and saddles occur in the area. The Shivgad, Manohargad, Ranganagad, Pargad are the important forts located on Sahyadri range. This region is extended into north – south direction having steep slopes, occupied by spurs and saddles. Manohargad, Mansantoshgad and Mahadevgad are the important peaks near Amboli pass east of Sawantwadi town. Prassiddhgad or Ranganaga Fort north of Sawantwadi. Kupicha dongar near village Valaval and in the west are the isolated hills near Vagheri. There are seven chief passes crossing Sahyadri range and Dodamarg in Sawantwadi (now Dodamarg) limits, two of them the Amboli ghat and the Ramghat suitable for carts and five others namely Ghotge, Ranagana, Hanmant, Talkat and Mangeli are suitable only for foot passengers and pack cattle. Amboli pass about 22 kms. East of Sawantwadi town has a motorable road. It is close to and nearly on the same old parpoli pass. The Ram pass is located about 46 kms. east of Banda (Registrar General & Census Commissioner. 2014, pp09-10).

#### **4.3.3.3 Middle Zone**

The central zone or the transitional belt covers the middle part of the region. This plateau region covers 183623 hectares area of the study region which is 36.43% of total geographical area of the district. The central zone which is covered by small hills and ridges having height above 150 meters to 450 meters from the sea level. It includes western parts of the Kankavali, Kudal and Sawantwadi tahsils and eastern parts of the Devgad and Malvan tahsils. This part of the study region is locally known as “Valati”. Another characteristic of this John is that his general slope is from east to

west, and it is composed of rock disintegration and formation. The sub region is well traversed by the north – south road and rail links (Registrar General & Census Commissioner. 2014, pp09-10).

#### **4.3.4 Climatic**

As Sindhudurg is a coastal district, the temperature of this district fluctuates less with the seasons. Due to its proximity to the sea, Sindhudurg district has high humidity and hence the climate is generally humid and humid. Generally this district can be divided into three seasons of the year. The summer season is May to June, as well as the rainy season, as well as June to October and the season in which most of the tourists visit this district is November to February (Registrar General & Census Commissioner. 2014, pp11).

##### **4.3.4.1 Temperature**

In Konkan, almost all the seasons are always intense. During the hot season March to May the temperature rises gradually. Then, when the rains begin, the temperature drops by three to four degrees. During the rainy season, the average day temperature is slightly lower than on a cold day. Daytime temperatures rise in October and November. The month of May in October feels the same temperature. Humidity in the atmosphere during the next inland day and night temperatures can make the night temperature oppressive as the night temperature rises. But in the region at the foot of the Western Ghats, the opposite is true. At the same time, the maximum coastal temperature rarely goes beyond 38<sup>0</sup> C (Registrar General & Census Commissioner. 2014, pp11).

##### **4.3.4.2 Rainfall**

Especially in rainy days, the sky in this district is completely cloudy and there are winds blowing mainly to the west or southwest. The monsoon usually arrives in the district in early June and the rains continue after a short interval till mid-October. Another feature of rainfall in this district is that not all parts of the district receive uniform rainfall. It grows rapidly from the eastern edge of the district to the Western Ghats and at the same time the rainfall in the Ghats is very high. Another

feature of rainfall in the district is that Amboli station in Sawantwadi tehsil at the foothills of Western Ghats receives almost three times more rainfall than some other stations. This is a unique new look of nature that we get to see here. The same Amboli is about 7446 m per year. m. It rains. The coastal stations of Malvan and Vengurla receive 2575.0 and 2447.0 m per annum respectively. m. It rains respectively. The total annual rainfall usually falls from June to October. The month of July usually receives one-third of the total annual rainfall, and the normal rainfall in the district is normal. There is not much difference in the rainfall over the years. (Registrar General & Census Commissioner. 2014, pp-11).

#### **4.3.5 Forest**

Sindhudurg district is covered by forests covering an area of 519.24 sq km. Under Forest Department, out of this 122.28 sq.km. Kudal and Kankavali talukas have 115.87 sq. Km. From this we can understand the total forest area of Sindhudurg district While studying the forest cover, it has been noticed that the lowest forest cover is in Devgad taluka. This means that the 0.6 sq. km forest covers about 57 21 sq. km and covers about 10.00% of the total geographical area of the district.

The forests of the district are not in a narrow strip. The forest is a low-lying shallow soil on a mountain slope. No cultivation can be done in this soil. Sawantwadi and Dodamarg talukas have the largest forest area. In this forest you can see a lot of different trees and vines. Teak is the main product of the forest. Apart from these, other important species like Ain, Kinjal, Nana, Siddam, Kosumb, Savar, Shiras, Shisham are found in this region. Bamboo e.g. Kalak or velu is also found in some parts of forests. The main forest products are transported to Kolhapur, Nipani, Belgaum, Gadhinglaj, Ajra and Mumbai (Registrar General & Census Commissioner. 2014, pp11).

#### **4.3.6 Transport**

Konkan Railway has an inseparable relationship. An important point in transportation is that if a village has a bus stand or a railway station or a portable waterway within its territorial jurisdiction, then that place is considered to be connected to transport. In short, it may be a short distance from the settlement. The main means of transportation in the district is provided by bus and railway services. This facility is

relatively good. There are navigable rivers in Malvan, Devgad and Kankavali talukas and it is fully utilized for navigation. Due to the maritime district, the district has excellent transportation facilities by sea

The Konkan Railway is mainly used for passenger transport in Sindhudurg district which is a 102 km long railway line in the district and of course this railway line passes through the center of the district and hence passengers as well as goods are transported by road, rail or coast shipping. As most of the traffic in the district is by road, all the roads are connected to the district headquarters and talukas by roads. Through this road, Kolhapur-Ratnagiri, Mumbai, Nipani, Belgaum and Panjim are connected to these trading centers. Konkan is basically a mountainous region. This causes a lot of obstacles to road traffic. Due to the network of rivers and nallas in the district, they have to face many obstacles. Especially on rainy days, landslides are a common occurrence and many roads pass through the ghats.

Amboli and Fonda are important ghats, railway line and National Highway no. 17 (Mumbai-Konkan Goa Road) passing through the district. Its total length in this district is 102 km. And 107.91 km. Respectively. National Highways and Railways are a major contributor to the development of the Konkan. The National Highway passes from Ratnagiri District to Sindhudurg District at Kharepatan and continues through the district at Sawantwadi where Goa begins at the end of Maharashtra State boundary (Registrar General & Census Commissioner. 2014, pp14-15).

#### **4.3.7 Irrigation**

Konkan is basically a mountainous region. Therefore, in 2008 only 16876 hectares of land in this district was under oligopoly. It was only 16,514 hectares. The region was very rugged in 1991 and due to its complexity, irrigation facilities were not developed. At the same time, since farmers are mainly dependent on monsoon rains, little thought has been given to the construction of irrigation facilities. The area is hilly compared to the plains so dams and canals are not economically viable. Irrigation wells are available to meet the water needs. Only 3.25% of the total area is under irrigation. This gives us an idea of the current situation. Out of this irrigated area 1.47 per cent (i.e. 7674 ha) is irrigated by surface facilities and only 1.77 per cent (i.e. 9202 ha) area is irrigated by wells. In Malvan taluka the area under irrigation is 3828 hectares more

and in Vaibhavwadi taluka the area under irrigation is only 634 hectares. (Registrar General & Census Commissioner. 2014, pp13-14).

#### **4.3.8 Population**

According to the 2011 Census, the District has recorded a population of 8,49,651 comprising 4,17,332 male and 4,32,319 female. Thus, during the 2001-2011 decade, there a decrease in population by 19,174 persons. The rural areas of the District reported a population of 7,42,645 persons and in urban it is 107,006 persons. (Registrar General & Census Commissioner. 2014, pp-09).

#### **4.3.9 Sex Ratio**

The feature of Sindhudurg district is that the sex ratio in the district from 1901 to 2011 is higher than the sex ratio of the state. According to the 2011 census, there are approximately 1036 female for every 1000 male in the district.

##### **4.3.9.1 Sex Ratio history in selected districts**

The sex-ratio of the State and District with rural-urban break-up is given for the census years from 1901 to 2011.

Table No.4.4 Sex ratio of the Maharashtra State and Sindhudurg District, 1901-2011 is shown. According to the 1901 census, Maharashtra has a rural sex ratio of 1003, urban 862 and a GSR is 978. Sindhudurg district has 1118 rural, 1042 urban and 1111 GSR. According to the 1911 census, Maharashtra has a rural sex ratio of 1000, urban 796 and a GSR is 966. Sindhudurg district has 1160 rural, 1089 urban and 1154 GSR. According to the 1921 census, Maharashtra's rural sex ratio is 994, urban 776 and GSR 950. According to the 1931 census, Maharashtra has a rural sex ratio of 987, urban 790 and a GSR of 947. Sindhudurg district has 1125 rural, 1036 urban and 1119 GSR. According to the 1941 census, Maharashtra's rural sex ratio is 989, urban 810 and GSR 949. Sindhudurg district has 1154 rural, 1061 urban and 1148 GSR. According to the 1951 census, Maharashtra has a rural sex ratio of 1000, urban 807 and a GSR of 941. Sindhudurg district has 1205 rural, 1146 urban and 1200 GSR. According to the 1961 census, Maharashtra has a rural sex ratio of 995, urban 801 and a GSR of 936. Sindhudurg district has 1214 rural, 977 urban and 1194 GSR.

After the independence of India, the sex of Maharashtra seems to have decreased without increasing. At the same time, the sex ratio of Sindhudurg district is slightly lower than the previous sex ratio. This is due to the overall reduction in pollution in Sindhudurg district.

According to the 2001 census, Maharashtra has a rural sex ratio of 960, urban 873 and a GSR is 922. Sindhudurg district has 1090 rural, 978 urban and 1079 GSR. According to the 2011 census, Maharashtra has a rural sex ratio of 852, urban 903 and a GSR is 929. Sindhudurg district has 1044 rural, 979 urban and 1036 GSR (Registrar General & Census Commissioner. 2014, pp41-42).

**Table No.4.4**

Sex ratio of the Maharashtra State and Sindhudurg District, 1901-2011

Census Year	Maharashtra State			Sindhudurg District		
	GSR	Rural	Urban	GSR	Rural	Urban
<b>1</b>	2	3	4	5	6	7
<b>1901</b>	978	1,003	862	1111	1118	1042
<b>1911</b>	966	1,000	796	1154	1160	1089
<b>1921</b>	950	994	776	1174	1181	1066
<b>1931</b>	947	987	790	1119	1125	1036
<b>1941</b>	949	989	810	1148	1154	1061
<b>1951</b>	941	1,000	807	1200	1205	1146
<b>1961</b>	936	995	801	1194	1214	977
<b>1971</b>	930	985	820	1213	1225	1063
<b>1981</b>	937	987	850	1205	1217	1047
<b>1991</b>	934	972	875	1137	1149	998
<b>2001</b>	922	960	873	1079	1090	978
<b>2011</b>	929	952	903	1036	1044	979

**Source:** Census 1951 to 2011

Considering the total area, the sex ratio at the state level has occurred. On the other hand, the sex ratio of Ratnagiri and Sindhudurg districts in Konkan has increased. The sex ratio in the urban areas of the state from 1901 to 2011 is worrisome.

#### **4.3.10 Literacy**

Sindhudurg district has been at the forefront of literacy since its inception. The literacy rate of the district is 85.56% as per 2011 census. 84.63% in rural areas and 92.07% in urban areas. This suggests that urban literacy is higher than rural literacy. Another feature of the district in terms of literacy is that the male literacy rate is higher than the female literacy rate. In both sexes the urban literacy rate is much higher than their average literacy rate (Registrar General & Census Commissioner. 2014, pp-52).

Table no. 4.5 shows the Sindhudurg District Literacy Rate, 1951-2011. In the year 1991, the percentage of literate persons for total population is 62.45 and in rural areas are nearly 74.80 per cent. As a result, the literacy rate of Sindhudurg district is higher than the state average of 64.87%. This high percentage can be attributed to the mass movement in the education sector in the district. The compulsory primary education scheme under the new education law could of course be a major reason for the rapid progress in female literacy rates. In addition, school education is now available in almost every village in the district.

According to 1971 census, Sindhudurg district has female literacy is 35.60 %, male of 60.30 and average literacy is 47.10 %. According to the 1981 census, female literacy is 44.60 %, male 66.10 % and average literacy 54.00 %. According to 1991 census, female literacy of Sindhudurg district is 52.99 %, male 71.89 and average literacy 62.45 %. According to the 2001 census, female literacy is 71.20 %, while male literacy is 90.30 % and average literacy 80.30 %. According to the 2011 census, female literacy is 79.73 % and male is 93.68 % & average literacy 88.54 % (Registrar General & Census Commissioner. 1961-2011).



**Table No 4.5**

Sindhudurg District Literacy Rate, 1951-2011

<b>Year</b>	<b>Female Literacy %</b>	<b>Male Literacy %</b>	<b>Average Literacy %</b>
<b>1951</b>	N. A.	N. A.	N. A.
<b>1961</b>	N. A.	N. A.	N. A.
<b>1971</b>	35.60	60.30	47.10
<b>1981</b>	44.60	66.10	54.00
<b>1991</b>	52.99	71.89	62.45
<b>2001</b>	71.20	90.30	80.30
<b>2011</b>	79.73	93.68	86.54

**Source:** Sindhudurg District hand books 1981 to 2011.

#### **4.3.11. Women entrepreneurship**

Sindhudurg district in Kokan region of Maharashtra is famous for its cashew. Though the district produces large quantity of cashew, yet there is great untapped potential of cashew processing. Cashew are procured during the months of February to May and stored for processing. At the same time, due to the vast coastline of Sindhudurg district, many housewives are leading the fishing industry. At the same time, the new economic policy has had a very long lasting effect on Sindhudurg district. Attributes in the last few years, tourism has also become a business in which many women in Sindhudurg district are getting employment opportunities through tourism. Many housewives have also set up their own small hotels. They may be small but from this we can see in this district that the women of Sindhudurg district are not far behind in the tourism business.

#### **4.3.12. Women employment**

Table No 4.6 shows the Work Participation Rates by Sex, Sindhudurg District: 1991–2011. According to the 1991 census, Sindhudurg district has a work participation rate of 38.27 male, 29.86 female and a total of 44.36 male. Also according to the same census, the work participation rate of Maharashtra is male 39.28, female 26.47 and total 43.00 %. According to the 2001 census, the male work participation rate of Sindhudurg district male is 28.04 and female is 18.20, and the total is 45.00. According to 2011 census, Sindhudurg district has male work participation rate of 55.04, female 44.96 and

total 46.88. According to the same census, the male work participation rate in Maharashtra is 64.30, female 35.97 and total is 44.00 (Registrar General & Census Commissioner. 2011, pp-59-60).

**Table No 4.6**

Work Participation Rates by Sex, Sindhudurg District: 1961– 2011

Census Year	Work Participation Rates (%)					
	Sindhudurg			Maharashtra		
	Male	Female	Total	Male	Female	Total
<b>1961</b>	N.A.	N.A.	N.A.	57.09	38.10	47.91
<b>1971</b>	N.A.	N.A.	N.A.	52.09	19.70	36.50
<b>1981</b>	N.A.	N.A.	N.A.	52.51	23.98	42.60
<b>1991</b>	38.27	29.86	44.36	39.28	26.47	43.00
<b>2001</b>	28.04	18.20	45.00	36.78	23.95	42.50
<b>2011</b>	55.04	44.96	46.88	64.30	35.97	44.00

**Source:** Census 1951 to 2011

#### **4.3.13. Conclusion**

Sindhudurg is one of the famous districts in the Konkan region. The two districts of Sindhudurg and Ratnagiri have a lot in common. These two districts are continuously connected to Mumbai, Pune, Goa and Kolhapur, and also all the districts of Konkan from Mumbai to Goa are connected to each other by rail. Sindhudurg district is no exception. The main occupation of Sindhudurg district is tourism, as well as fishing, mango and cashew cultivation. Besides, Sindhudurg district has a special share in mango production. Wide mountain ranges, abundant rainfall, humidity in the air all have an effect on the overall climate condition of Sindhudurg district. The role of women in these districts is also very important and they have a special contribution in the socio-economic and cultural development of this district. That is why literacy and sex ratio is higher than other districts.

## **2.4 Mumbai (Suburban)**

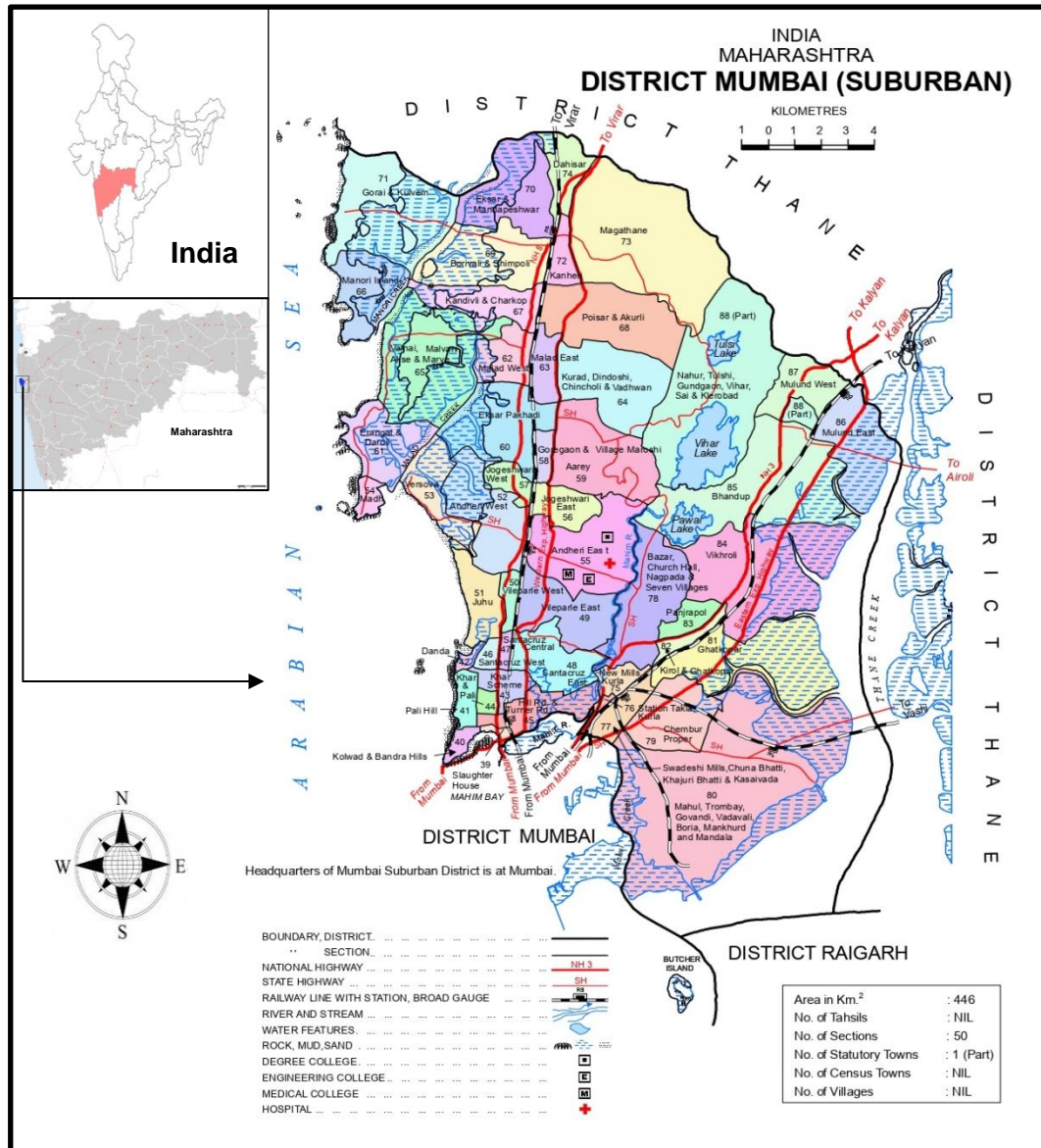
Mumbai Suburban is the second smallest district in the state of Maharashtra in terms of area. Due to the limited area of the city and the importance of Mumbai in terms of industry, culture and education, two separate districts, Mumbai City and Mumbai Suburban, came into existence today. Mumbai suburban is the district of Maharashtra. This is the second smallest district of Maharashtra. Maharashtra consists of different zones for different districts. These are the six zones of Maharashtra Konkan, Paschim, Khandesh, Marathwada, and Vidarbha. Mumbai city and Mumbai suburban come under the Konkan zone. Mumbai Suburban is also known as the deepest water port in western India. It is also a transportation hub and industrial hub. A wide variety of products are grown in this Mumbai suburban. In short, there are different types of industries here. These mainly include automobiles, machinery, clothing, chemicals, pharmaceuticals, electronics equipment, and refined petroleum. Mumbai is not only the capital of Maharashtra but also the financial capital of India. It is home to some of the largest banks and financial houses in India. The city of Mumbai is also known as Mayanagari. Because Mumbai is also the hub of India's domestic film and entertainment industry. Which is the largest in the world. Apart from this, shipbuilding and fish processing are also important industries here. Even though Mumbai is known as a city of rich people, the other side of Mumbai is the slum of Dharavi which we can never deny. But it is also true that most of the revenue tax in India comes from Mumbai. It also has a wide range of hydroelectric power plants, most notably a reactor near Trombay (Registrar General & Census Commissioner, 2014, pp-10).

### **4.4.1. Physical Structure**

In Physical Structure we also know the Location, Site and Situation of Mumbai Suburban District and also the Administrative Setup of the district we are going to study.

## Location map of Mumbai Suburban District

**Map 4.3**  
Mumbai Suburban District Map



**Source:** 2011 Mumbai Suburban District hand book

### 4.4.1.1. Location, Site and Situation.

The true identity of Mumbai Suburban is that it is a coastal district located on the west coast of India. It is between 18° 58 'and 19° 17' north latitude and 72° 46 'and 72° 60' east longitude. Mumbai suburban district is bounded on the west by the Arabian Sea, on the east by Thane district, and on the north by Mumbai district, on the south. The northern part of BMC is spread over an area of 446.0 sq. km according to the

Surveyor General of India and according to the 2011 census the population of the city is 9356962. The district accounts for 0.14% of the State's area and 8.33% of the total population in the area expansion of the State of Maharashtra. With a total of 534 urban centers, this city alone accounts for 18.41% of the total urban population of Maharashtra. From this we can see the share of the city in the population. At the same time the population density of this suburb is 201980 persons per square kilometer. The district ranks 34th out of 35 districts in the state in terms of area. The district ranks third in terms of population and first in terms of density.

One of the most important features of this district is that it is connected to all other roads, railways and airways of the country. Sahara has an international airport. There is also a well-developed international seaport. Which is only 15 kilometers away from this city (Directorate of Census Operations Maharashtra, 2014, pp-09).

#### **4.4.1.2 Administrative Setup**

The Mumbai Suburban District is further divided into wards and sub-divisions, taking into account its administrative facilities and its reputation as the financial capital of India. Originally in 1971 there was only an increase of 15 wards. They have increased to 21 in 1981 and then 23 in 1991 and 24 in the 1991 census. Mumbai City District and Mumbai Suburban District, are both single local bodies; The entire area is divided into six zones, 24 wards and 88 divisions (50 divisions in suburban district and 38 divisions in Mumbai city district). While understanding the administrative structure of this city, it is noticed that there are 9 wards in total in Mumbai city district and 15 wards in Mumbai suburban district. There are also a total of 88 divisions, 50 of which belong to Mumbai Suburban District. There are 38 in Mumbai city district. From this we understand the expansion of this city. Wards are given alphabetically A, B, C, etc. Such names have been given. Wards A to G / South are in Mumbai city district and H / West to T wards are in Mumbai suburban district. Recently a new ward R / Central has been formed from R / North. The divisional classification of wards is based on the relative orientation of East, West, North and South in general for the convenience of the people (Kulkarni Akshata, 2015, pp35-36).

#### 4.4.2 History

The history of Mumbai Suburban is very interesting. On 23rd December, 1534, In the later period, political changes took place from King Mohammad of Gujarat to the Portuguese. For more than 100 years, Mumbai and its environs were under Portuguese rule. The island was ceded to the British during the British rule on 18 February 1665, following a marriage treaty of 23 June 1661. The rest of the territory is bounded on the north by Vasai creek, on the south by Mahim creek, on the west by the Arabian Sea and on the east by Meanwhile, Thane district came to be known as Sashti. Of course, the Portuguese at that time controlled this district as well as Goa. The main reason for this was the short good rule of the Portuguese which led to the rule of Sashti Portuguese till 1737. But in 1772-73 and after that the British took over the area.

In the subsequent period when Thane district was formed in 1817. This area then known as Sashti was added as a tehsil in Thane district. In 1917, 50 villages were separated from this tehsil and Bandra Mahal was built. In 1920, Salset tehsil was divided into two separate tehsils namely North Salset (Thane District) and South Salset (Mumbai Suburban District). The villages in South Salset were scattered from Bandra to Dahisar and from Kurla to Mulund. Mumbai Suburban District was formed in 1920, comprising 84 villages of South Salset tehsil. Many changes were made in later times. Later some villages in Borivali taluka of Thane district were converted into Mumbai suburban district and South Salset tehsil was converted into Andheri taluka. In 1962, some villages in Borivali and South Salset talukas were shifted to Kurla and Andheri tehsils. The present Mumbai Suburban District has three talukas, mainly Borivali, Andheri and Kurla, with a total of 87 villages. In the pre-independence period, in 1932, the additional charge of Mumbai Suburban District was given to the District Collector of Mumbai. Also, the post of Independent District Collector of Mumbai Suburban District was canceled at that time. But the rapid development of Mumbai city people come to Mumbai from all over the country in search of jobs. But once again, this failed and in 1958, due to the great workload, the revenue was handed over to the newly created Additional Collector. Since 1990, he has been the Chief District Officer and has been directly appointed as the Head of Revenue Administration of Mumbai Suburban District, with the main objective of overall reform. The city of Mumbai is not easily named but it has a history. The name Mumbai comes from the patron deity Mumbadevi.

It was worshiped by the Koli people and was later renamed Bombay by the Portuguese (Kulkarni Akshata, 2015, pp64-66).

#### **4.4.3 Physiography**

Mumbai suburban district is in seismically active zone due to 23 fault lines. The region is classified as a seismic zone III, meaning an earthquake of magnitude 6.5 on the Richter scale is expected. Another highlight of the city is the 66 million year old monolith rock structure in the form of Gilbert Hill in the dark west.

##### **4.4.3.1 Coastal Zone**

The true identity of Mumbai is as an island city. Mumbai Suburban District falls under the Littoral of Maharashtra, which is a subdivision of coastal plains and islands. At the same time, another feature of the island is that it is completely separated from the mainland by narrow Thane Bay and wide Harbor Bay. The island is basically made up of eight separate islands, which have been merged into one due to human intervention and central tidal pressure between the islands. Another feature of Mahim Bay is that the land north of this bay is also known as Salset Bhet. Which forms the Mumbai suburban district with the Trombay area. The district is spread from Bandra to Dahisar of Western Railway and from Kurla to Mulund of Central Railway with Chembur and Chembur camps.

##### **4.4.3.2 Hill Area Zone**

Pali Hill in Bandra has three mountain ranges along the city limits. Ghatkopar hills are near Ghatkopar station. The hills, parallel to the tracks of the Central Railway, are surrounded by slums. Land reclamation is a common occurrence during monsoons. Trombay Hill, to the east of the city, covers much of Trombay. The highest hill at Kanheri Caves is about 302 meters (991 feet) above sea level. A special feature of the city of Mumbai is that Gilbert Hill is a 200 feet high volcanic monolith rock in the dark west. Which is 66 million years old and is included in the World Heritage Sites. It is planned to develop it for the benefit of tourists.

#### **4.4.3.3 Middle Zone**

The west coast of the district, north of Mahim Bay, is a living beach in a creek, with a rocky eye view and a steep shoreline with stable sand dunes. Further inland, at a distance of about one kilometer from the sea, are wide tidal marshes and swamps near the tidal creeks that have deep penetrations. The eastern shore of the district from Chembur to Mulund is at the head of Thane creek, which is covered by a large tidal swamp which has been reclaimed for salt production as well as for urban residential purposes (Registrar General & Census Commissioner, 2014, pp09-10).

#### **4.4.4. Climatic**

Mumbai has a tropical climate characterized by tropical wet and dry climate which falls under the Climate (AW) classification, with seven months of drought and maximum rainfall in July. The period from June to the end of September each year is known as the southwest monsoon period. This is followed by monsoon from October to November. December to February is the cold season followed by March to June. The average annual temperature is 27.2 C and the average annual rainfall is 2,167mm (85in). In the Suburban, the average daily maximum temperature ranges from 29.1 C to 33.3 ° C while the average minimum temperature. 16.3 C to 26.2 C (Registrar General & Census Commissioner, 2014, pp-11).

##### **4.4.4.1. Temperature**

The average annual temperature of this suburb is 27.2 C and the average annual rainfall is 2,167mm (85in). In the Suburban, the average daily maximum temperature ranges from 29.1 C to 33.3 ° C while the average minimum temperature. 16.3 C to 26.2 C. There is a weather observatory at Santa Cruz. In general, Santa Cruz is slightly warmer during the day and cooler at night than the nearest observatory in Colaba, especially during the cold season. Temperatures have been rising steadily since February and May is generally the hottest month. Due to prevailing high humidity, the weather is very oppressive in summer. The afternoon breeze provides some relief from the heat. After the withdrawal of the monsoon, the temperature of the city continues to rise but the night temperature gradually decreases. After November, however, daytime temperatures begin to drop. The month of January when it reaches the lowest temperature is known as the coldest month. Generally, Mumbai has higher humidity



than the rest of Maharashtra. Temperatures are especially humid, especially in the morning hours. In the southwest monsoon, the sky is normal, but with the withdrawal of the monsoon, the cloudiness decreases in later times. They appear less between December and March. But at the same time, as the monsoon approaches, the winds intensify. The rest of the year the winds are moderate. (Registrar General & Census Commissioner, 2014, pp-11).

#### **2.4.4.2 Rainfall**

The average annual rainfall is 2422.1 mm. and about 800 mm, or one third of that, falls in July. July is the wettest month. In the post-monsoon months, some rainfall is accompanied by thunderstorms. (Directorate of Census Operations Maharashtra, 2014, pp-11).

#### **4.4.5 Forest**

Mumbai Suburban is basically an island city and moreover, the present Mumbai Suburban District is where South Salset Island is currently devoid of any forests. The district is basically deforested and is the only national park in the district, It is on the northern border of the western Suburban of the district. Some forests are also found in the catchment areas of Tulshi, Vihar and Powai lakes. In the past, there was significant vegetation growth in many areas. Now with the tremendous growth of urbanization and industrialization, the city's floral wealth has dwindled.

The forest area in Mumbai Suburban District has been brought under the purview of the Forest Department to preserve its natural flora, fauna, geological, historical and archeological features for future generations. Teak, Khair, Shisav, Kalamb and Bamboo are important species found in the forest (Registrar General & Census Commissioner, 2014, pp-11).

#### **4.4.6 Transport**

The real lifeline of the city of Mumbai is the railways, of course, the local trains, the local trains for long journeys in the city and suburban, and the buses for short journeys. BEST is the only operator of urban road transport in Mumbai. Maharashtra State Road Transport Corporation operates buses from Mumbai Central and Parol to all major

destinations and district headquarters. Mumbai is the headquarters of Central and Western Railway. Mumbai Metro is a fast transport system serving the city of Mumbai. It opened to the public in 2014. Mumbai Monorail is another important means of transportation in Mumbai. This is a monorail system in Mumbai city. Which has been built as part of a major expansion of public transport in the city. Monorail service runs from Chembur to Wadala (Registrar General & Census Commissioner, 2014, pp09-13).

#### **4.4.7 Irrigation / Water Supply**

Mumbai's water supply schemes date back to the mid-nineteenth century. Initially, taps were connected to Vihar, Tulshi and Powai lakes in the suburban belt for water supply. Towards the end of the 19th century, the supply increased when the Tansa Plan was completed in four phases between 1892 and 1948. As a result, water availability increased by 900 MLD. It was realized that the demand for water would increase further by the middle of the twentieth century and so the Vaitarna scheme was implemented. Water was taken from Vaitarna Lake to Tansa Lake and then to the city. In 1973, an additional dam was built on top of Vaitarna Lake, the Upper Vaitarna Dam, allowing the city to tap more water. Between 1971 and 1998, three phases of the Bhatsai project increased the supply by 910 MLD. Due to these various schemes, Mumbai gets about 2800 MLD of water. The municipality has been experimenting with rainwater harvesting for all new buildings since October 2008; However, the RWH scheme is not fully implemented in Mumbai as no strict action is being taken against the violators by the higher authorities (Registrar General & Census Commissioner, 2014, pp12).

#### **4.4.8 Population**

Mumbai Suburban District is the 31st district formed in 1990 in the state of Maharashtra followed by the formation of other four districts after 1991. Area wise it is the 2nd smallest district but population wise it ranks 1st in Maharashtra as per the 2001 and 2011 census. As per 2011 census of India the population of Mumbai Suburban District is 93, 32,481 including 50, 25,165 male and 43, 07,306 are female. Mumbai Suburban District is located on the Salsette Island (Registrar General & Census Commissioner, 2014, pp31).

#### **4.4.9 Sex Ratio**

Gender Ratio of Mumbai District and State since 1901 Census is presented in the table below. Mumbai suburban district has 860 female for every 1000 male. The district's sex ratio is lower than the state average of 903 in the 2011 census. In the decade 1901-2011, it can be concluded that the sex ratio of Mumbai Suburban District has remained below the state average. The wisdom that everything will be comfortable and convenient is yet to be seen in these cities as much progress is being made in the sex ratio (Registrar General & Census Commissioner, 2014, pp40).

##### **4.4.9.1 Sex Ratio history in selected districts.**

At the beginning of the century the sex ratio in the district was very low as there were 652 female for every 1000 male. The declining trend of sex ratio in the district continued till 1921, after which it increased till 2011 except 2001. In a few decades, the gap between men and women has narrowed from 348 points to 140 points. Compared to the state statistics, the sex ratio in urban Maharashtra has improved by only 41 points in the last 110 years, while it has improved 10 times compared to the state statistics in Mumbai suburban district. The difference between the sex ratio of the district and the sex ratio of the state has decreased from 421 points to 43 points in the last 110 years.

Table No. 4.7 shows the sex ratio of Maharashtra State and Mumbai Suburban District from 1901 to 2011. According to the 1901 to 1951 census, Mumbai Suburban had a sex ratio of rural area, but after the 1961 census, Mumbai Suburban became completely urbanized. Data on urban female to male ratio is available. According to the 1961 census, the sex ratio of rural areas in Maharashtra is 995 and that of urban areas is 801 and the GSR is 936. Similarly, the urban sex ratio of Mumbai Suburban is 744. In short, both urban and rural are the same. According to the 1971 census, the sex ratio in rural Maharashtra is 985, in urban areas it is 820 and the GSR is 930, while in Mumbai it is 769. According to the 1981 census, the sex ratio of rural areas in Maharashtra is 987, urban 850 and GSR 937, and Mumbai suburban 801. According to the 1991 census, the sex ratio of rural areas in Maharashtra is 972, urban 875 and GSR 934, while Mumbai Suburban have 831. In other words, the sex ratio of Mumbai Suburban is increasing for the first time since the 1951 census. According to the 2001 census, the sex ratio in Maharashtra is 972 in rural areas, 873 in urban areas, a GSR of 922, and 822 in Mumbai

Suburban. According to the 2011 census, the sex ratio in rural Maharashtra is 952 and in urban areas it is 903 with a GSR of 929, and in Mumbai Suburban it is 860. (Registrar General & Census Commissioner, 2014, pp40-41).

**Table No 4.7**

Sex ratio of the Maharashtra State and Mumbai Suburban District, 1901-2011

Census Year	Maharashtra State			Mumbai Suburban		
	GSR	Rural	Urban	GSR	Rural	Urban
1	2	3	4	5	6	7
1901	978	1,003	862	652	868	441
1911	966	1,000	796	570	876	342
1921	950	994	776	561	852	388
1931	947	987	790	592	886	432
1941	949	989	810	616	902	523
1951	941	1,000	807	712	729	711
1961	936	995	801	744	-	744
1971	930	985	820	769	-	769
1981	937	987	850	801	-	801
1991	934	972	875	831	-	831
2001	922	960	873	822	-	822
2011	929	952	903	860	-	860

Source: Census 2011, District Hand Book Page No. 40

#### 4.4.10 Literacy

Below table No. 4. 8 shows that Mumbai Suburban District has returned 75, 75,485 literates in 2011. The literacy rate of the district is 89.90 % (excluding age group 0-6). In 2001, the literacy rate in Mumbai Suburban District was 86.90 percent. The gender gap in literacy was reduced to 6.5 points in the 2011 census, compared to 10.5 points in the 2001 census. The Literacy rate in 2001 is 86.90 as compared to 82.50 in 1991 Census for the district while the male literacy rate has improved to 91.60 in 2001

from 88.30 in 1991, the female literacy rate has improved to 81.10 in 2001 from 75.40 in 1991 Census.

According to the 1951 census, the female literacy of Mumbai suburban district is 38.25, male 55.93 % & average literacy 49.33 %. According to the 1961 census, the female literacy of Mumbai suburban district is 44.02 %, male is 61.36 and average literacy is 56.88 %. In short, according to the 1961 census, this shows an increase in the overall literacy rate, compared to the 1951 survival. According to 1971 census, female literacy in Mumbai suburban is 55.72 % and male 69.65 %, average literacy is 63.84%. According to the 1981 census, female literacy in Mumbai suburban is 60.75 %, male 73.91 % & average literacy is 68.18 %. According to the 1991 census, female literacy in Mumbai suburban is 75.40 %, male literacy is 88.30 % and average literacy is 82.50 %. According to the 2001 census, the female literacy of Mumbai suburban is 81.10 %, male literacy is 91.60 % and average literacy is 86.90 %. According to 2011 census, female literacy in Mumbai suburban is 86.40 %, male literacy is 92.90 % and average literacy is 89.90 %. (Registrar General & Census Commissioner, 2014, pp51).

**Table No 4.8**

Mumbai Suburban District Literacy Rate, 1951-2011

<b>Year</b>	<b>Female Literacy %</b>	<b>Male Literacy %</b>	<b>Average Literacy %</b>
<b>1951</b>	38.25	55.93	49.33
<b>1961</b>	44.02	61.36	56.88
<b>1971</b>	55.72	69.65	63.84
<b>1981</b>	60.75	73.91	68.18
<b>1991</b>	75.40	88.30	82.50
<b>2001</b>	81.10	91.60	86.90
<b>2011</b>	86.40	92.90	89.90

**Source:** Census 2011, Mumbai Suburban District Hand Book Page No. 42

#### **4.4.11 Women entrepreneurship**

Women are the core of every society and they have proved to be a reliable drivers in creating a new social mindset for entrepreneurship, in India. Women exposed to self-

employment and entrepreneurship can easily change the social mindset of success defined in India today through secure and stable jobs. The Women Entrepreneur Forum seeks to enable members to set up and run exemplary, scalable and sustainable businesses, with skills training, extensive knowledge of various business opportunities, national best practices for business, access to finance, keys to innovative driving, risk and growth mantras. This is sure to have a positive direct impact on the economy as well as the entrepreneurial ecosystem for generations to come.

Mumbai is literally called *Mayanagari*, the city of dreams. The city is known as the home of some of the greatest stories of overcoming the situation. At the same time, this is exactly what women entrepreneurs in Mumbai are doing. These women entrepreneurs from Mumbai in fashion, beauty, logistics, parenting, crowdfunding and fitness have made their mark in every field. Overcoming all difficulties, many women in India are turning to entrepreneurship. According to a 2015 report released by the BNP Paribas covering the US, Europe, the Middle East and Asia, India ranks first among the most active countries for women entrepreneurs. Surprisingly, 49% of the entrepreneurs in the country are women.

By overseeing their own activities, women gain independence and the necessary work-life balance. While this is a traditional reason for many women to start a business, there are also women whose first priority is to break the big market and build a high-growth and profitable business. Mumbai is a city of dreams, home to some of the most successful women entrepreneurs who will captivate you with their perseverance and determination. (Arora Sonalika, 2019, web pp-01)

#### **4.4.12 Women employment**

Total labor participation is defined as the percentage of total population of total workers. It is similarly defined for main and border workers. There was no ideological change in the concept of workers during the 2001 to 2011 census.

Table No 4.9 shows the Work Participation Rates by Sex, Mumbai Suburban District: 1981– 2011. According to the 1981 census, Mumbai Suburban district has a work participation rate of 53.70 male, 08.40 female and a total of 34.21. Also according to the same census, the work participation rate of Maharashtra is male 52.51, female 23.98

and total 42.60 %. According to the 1991 census, Mumbai Suburban district has a work participation rate of 54.30 % male, 10.60 % female and a total of 35.02 %. Also according to the same census, the work participation rate of Maharashtra is male 39.28 %, female 26.47 % and total 43.00 %. According to the 2001 census, the male work participation rate of Mumbai Suburban district male is 56.00 and female is 12.80, and the total is 36.09. According to 2011 census, Maharashtra has male work participation rate of 36.78, female 23.95 and total 42.50 %. According to the 2001 census, the male work participation rate of Mumbai Suburban district male is 58.50 % and female is 18.30 %, and the total is 36.09 %. According to the same census, the male work participation rate in Maharashtra is 64.30 %, female 35.97 % and average literacy is 44.00 % (Registrar General & Census Commissioner, 1981 to 2011 census reports).

**Table No 4.9**

Work Participation Rates by Sex, Mumbai Suburban 1981– 2011

Census Year	Work Participation Rates (%)					
	Mumbai Suburban			Maharashtra		
	Male	Female	Total	Male	Female	Total
<b>1961</b>	N.A.	N.A.	N.A.	57.09	38.10	47.91
<b>1971</b>	N.A.	N.A.	N.A.	52.09	19.70	36.50
<b>1981</b>	53.70	08.40	34.21	52.51	23.98	42.60
<b>1991</b>	54.30	10.60	35.02	39.28	26.47	43.00
<b>2001</b>	56.00	12.80	36.09	36.78	23.95	42.50
<b>2011</b>	58.50	18.30	40.34	64.30	35.97	44.00

**Source:** Census 1981 to 2011

#### **4.4.13. Conclusion**

The Suburban of Mumbai have made a significant contribution to the formation of modern India. For the first time in Mumbai, numerous political, social, cultural and economic events / movements have started. In it, many great personalities like industrialists, social workers, scholars and researchers, writers, artists have been given to the country. Cultural diversity is a major feature of the district. Cultural activities are

cherished by the locals especially the Maharashtrians. Mumbai is the hub of various political, social, economic and art movements and a place of evolution.

#### **4.5 Mumbai**

Mumbai District (Mumbai City District) is a very important district in the Konkan Division of Maharashtra. As Mumbai is known as a city district, it has no headquarters or subdivision. He and Mumbai Suburban District together form Mumbai Metropolitan. This area of the city is also known as "Island City" or South Mumbai or Old Mumbai as another identity of this district. It extends from Colaba in the south to Mahim and Sion in the north. Until 1960, the area was known as Mumbai. Today, Mumbai Municipal Corporation includes both the districts.

All cities are best seen in the dawn, but in Mumbai this is especially the case, for only when the day is fresh and young, and the city still uncrowded, can you see that this swampy spit of land is, what it was, what it will be. Mumbai, you will be told, it the only city India has, in the sense the word city is understood in the west. Other Indian metropolises like Calcutta, Madras and Delhi are like oversized villages. It is true that Mumbai has many more high-rise buildings than any other Indian city. Mumbai is much the richest city of India. More than half of India's income-tax comes from this one city. It attracts an endless stream of outsiders who hope to make their fortunes here. (Iyer Pico, edited by Pinto Jerry, Farnades Naresh, 2003, pp-02)

##### **4.5.1 Physical Structure: Mumbai**

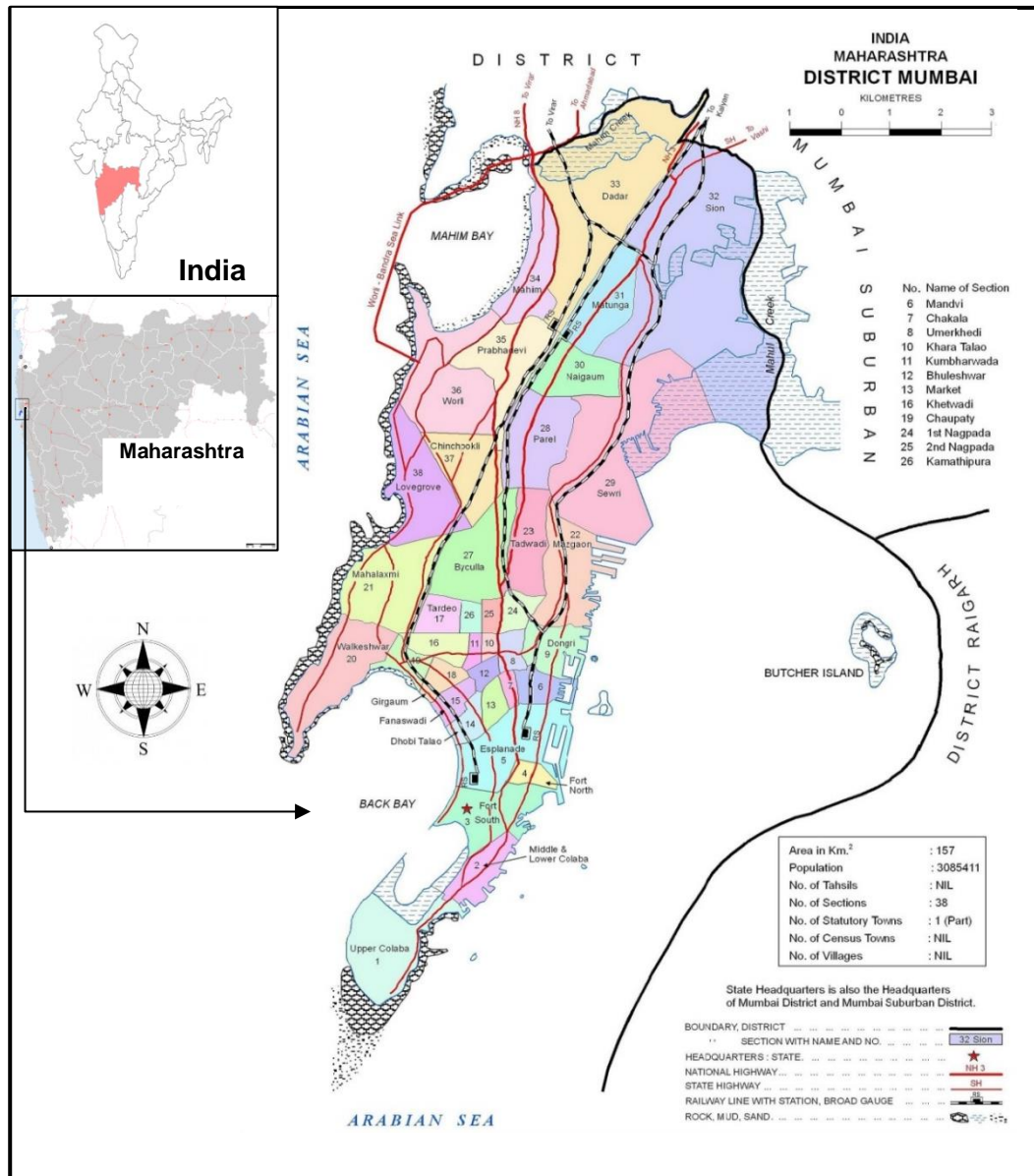
In Physical Structure we also know the Location, Site and Situation of Mumbai Suburban District and also the Administrative Setup of the district we are going to study.



## Location map of Mumbai District

**Map 4.4**

Mumbai District Map



Source: District hand book 2011

### 4.5.1.1 Location, Site and Situation.

Mumbai district is situated on the west coast of India between 18°52' and 19°04' north latitudes and 72°47' and 72°54' east longitudes. It is bounded on the south by the open Arabian Sea and on the east by Thane Bay, and on the north by the borders of Mumbai Suburban District. Mumbai District is the southern part of the

Greater Mumbai Municipal Corporation, which according to the Surveyor General of India covers an area of 157.0 sq km and has a population of 30,85,411 as per 2011 census. The importance of this district is evident from the fact that the area of Mumbai district is 0.05% of the total area of the state and the population of this district is 2.75% of the total population of the state.

The population density of this district is 19652 per square kilometer. However, in terms of area of the district, it ranks 35th out of 35 districts in the state. It ranks 12th in terms of population and 2nd in terms of density (Registrar General & Census Commissioner, 2014, pp-11).

#### **4.5.1.2 Administrative Setup**

The Greater Bombay Unit came into existence in April 1950 with the merger of Mumbai Suburban Bombay for the purpose of Municipal Administration. There is also Colaba Point south of Mahim along the Western Railway and Bombay Island with coverage up to Sion along the Central Railway. Another feature of Mumbai's transport is the Suburban from Bandra to Jogeshwari on the Western Railway and from Kurla to Bhandup along the Chembur and Chembur camps along the Central Railway. Until 1990, an independent Collector was appointed for the district administration of Bombay and Bombay Suburban, and an additional Collector was appointed to oversee the administration of the Mumbai Suburban, to ensure smooth running of the administration.

Later, Bombay was renamed as Mumbai in 1995-96. Mumbai Suburban District was already separated from Mumbai city on 4th October 1990. After that, Mumbai Suburban District came into existence with an independent district administration and a new District Collector has been appointed as the District Head (Disaster Risk Management Master Plan., 2010, pp-06).

#### **4.5.2 History**

A peek into the history of the Mumbai district reveals that the seven Vahanas, the Kalchuri kings, the Mauryas, the Chalukyas and the Rashtrakutas have wielded considerable power in the Konkan. Rashtrakuta and Shilahar kings were made in charge

of North Konkan at that time. He ruled North Konkan for about five centuries. The city of Mumbai has a distinct identity in architecture. Mumbai one way of Hemadpanti architecture has been found. The Portuguese period in the history of Mumbai From 1534, during the Portuguese rule, they occupied Bombay Island and built seven villages. Apart from the two main stations on which custom duty was being levied, there are also many carved buildings by British architects during the British period.

There are so many types it's hard to say. Most importantly, the East India Company rule came to an end in 1857 and India was completely ruled by the British. In short, it had a huge impact on the overall lifestyle of Mumbai and a new era had just begun. . Bombay is a city intended to be built by God said Gerald Aungier, the first British Governor of Bombay when he shifted his office and residence from Surat settlement in 1672. According to some historians, Bombay is a city built by God. Gerald Aungier, the first British Governor General of Mumbai, moved his first office and residence from Surat to Mumbai in 1672. The name Bombay is also derived from the patron deity Mother Goddess Bombay, while the port has been rebuilt by the Portuguese. At that time it was inhabited by small fishermen. In short, we see a lot of changes in the history of Mumbai (Registrar General & Census Commissioner, 2014, pp-07).

### **4.5.3 Physiography**

Physically this part of Mumbai district falls within the coast of Maharashtra, coastal plains and islands. Mumbai district is basically a part of an island (till today). It is separated from the mainland by a narrow Thane creek and a slightly wider Harbor creek. The island is made up of eight separate islands. These are (i) Salset, (ii) Kolaba, (iii) Old Woman, (iv) Apollo Port, (v) Mazgaon, (vi) Paral-Shivri-Sion, (vii) Mahim Bardbet (Desert Island) and (viii) Worli (Registrar General & Census Commissioner, 2014, pp11-12).

#### **4.5.3.1 Coastal Zone**

Back Bay near Malabar Hill Headland is partially reclaimed from the south, with the beach at its head at Chowpatty and incense further south where it is in direct contact with strong waves. Considering the increasing expansion of Mumbai, the

coastal area has been largely protected by human intervention along Marine Drive. Mumbai's East Harbor Front is a completely man-made shore stretching from Sasson Docks in the south to Shivri-Wadala in the north. Which has valleys, bumps and dividing walls and is artificially deepened by continuous dredging.

#### **4.5.3.2 Hill Area Zone**

Many low hills have been dug for road and plinth material. Then flattened and built. However, in Sion, Shivari, Antop, Worli and Love Grove, some high hills between 40 m and 70 m in height are partially built. The district has been transformed into one of the largest cities and is the only man-made forest of concrete buildings. At the same time, a large part of the district is above the recruitment level. So in short, we have to admit that there is no such natural balance in the district.

#### **4.5.3.2 Middle Zone**

Mumbai was already an island city but all these islands were merged. In short, human intervention has had a huge impact on the current migration of Mumbai district. The city is formed by removing parts of the original islands and filling in the middle tides in the island. A significant area below sea level has been reclaimed by filling the sea in and out by dyke walls such as back bay reclamation (Registrar General & Census Commissioner, 2014, pp11-12).

#### **4.5.4 Climatic**

Since Mumbai is close to the sea, there is not much difference in daily temperature. We can divide the whole year into four seasons. The rainy season in this district is generally from June to September and the winter season is generally from October to November. The winter season is usually from December to February and the summer season is from March to May in this district. The summer season in the district is a bit stressful as there is a lot of humidity in the air during this season. Overall, the climate of this district is more or less humid throughout the year.

##### **4.5.4.1 Temperature**

Colaba is a meteorological observatory located at the southern tip of Mumbai district. It records weather indicators for the entire region. January has an average temperature

of 19 C, while May has an average daily maximum of 33 ° C and a minimum of 26.5° C. Some days in May the maximum temperature rises above 40 degrees Celsius. Due to prevailing high humidity, the weather is very oppressive in summer. The afternoon breeze provides some relief from the heat. Temperatures have been steadily rising since the monsoon receded. But the night temperature is slowly dropping. Daytime temperatures begin to drop after November, reaching its lowest point in January. The area built on most of the surface area of Mumbai district is 2 ° to 4 ° C higher than the surrounding urban heat. It forms more heat and produces a heat glow that can be seen miles away from the air (Registrar General & Census Commissioner, 2014, pp13).

#### **4.5.4.2 Rainfall**

The average annual rainfall in the district is 1800 mm. But about 600 mm of this, which is about one third of the rainfall, falls in the month of July. Which is known as the wettest month in the district. There is some rain with thunderstorms in the post-monsoon months. The rains have had a devastating effect on the district and flooding in Mumbai has often disrupted public life (Registrar General & Census Commissioner, 2014, pp-13).

#### **4.5.5 Forest**

Due to the massive urbanization and industrialization of Mumbai district, the city is completely detached from the forest. Due to the rapid growth of industrialization, natural resources are not widely available here. Due to the increasing use of residential, commercial and industrial areas in the district, the natural resources are almost non-existent (Registrar General & Census Commissioner, 2014, pp-13).

#### **4.5.6 Transport**

Mumbai is an important mode of transportation in the city and local trains for long journeys in urban and suburban areas and buses for short journeys are the most used means of transport. BEST is the only operator of urban road passenger transport in Mumbai. The Maharashtra State Road Transport Corporation operates buses at all major destinations and from Mumbai Central to the district headquarters and Paral Mumbai is the headquarters of the Central and Western Railways.

The real life of Mumbai is the Mumbai local connected to the interior of the body as well as the Mumbai Metro is known as the fastest transport service to the city of Mumbai. Traffic jams are not a new issue for the city of Mumbai as there are always traffic jams in the city. Because it is a bustling city. That is why the Mumbai Metro has been started as a complement to the suburban railway network in Mumbai. So both of them have a huge contribution in the development of Mumbai. Mumbai and the monorail is an important mode of transport in the city of Mumbai. Which has been built as part of a major expansion of public transport in the city (Registrar General & Census Commissioner, 2014, pp-15).

#### **4.5.7 Irrigation / Water Supply**

Mumbai and the Suburban of Mumbai are in dire need of water. In 1860 water was supplied to Mumbai by pipeline from Tulsi and Vihar lakes. The open wells around Mumbai have been sealed off with a guaranteed large reservoir of water. They are also banned because they are a potential breeding ground for diseases. Initially, there was a lot of opposition to such measures, but these wells were later used to supplement the lake and make it potable. This resulted in adequate water storage in these wells in the catchment area even after the end of monsoon. The city will not only have a water supply system but also a good drainage system (Disaster Risk Management Master Plan., 2010, pp-75).

#### **4.5.8 Population**

According to the 2011 census, the total population of the district is 30,85,411 with 16,84,608 male and 14,00,803 female. Thus, in the decade 2001-2011, there was a decrease of 2,52,620 persons, which represents a negative decade-long increase of 7.6 per cent (minus) in the last decade. The district is entirely urban, with only a portion of the Brihanmumbai (M Corp) area (Registrar General & Census Commissioner, 2014, pp-34).

#### **4.5.9 Sex Ratio**

Since the census of 1901, there have been many changes in the sex ratio of Mumbai district and state which researcher has seen in Chapter 05. As shown in the table, there are 832 female for every 1000 male in Mumbai district. The sex ratio of Mumbai district is not satisfactory. The state average is less than 903, according to the 2011 census. Also, from 1901 to 2011, the sex ratio of Mumbai district has been lower than the average of the states. It is easy to draw such a conclusion.

##### **4.5.9.1 Sex Ratio history in selected districts**

Since the turn of the century, the sex ratio in the district has been very low. It was 652. The declining sex ratio in the district was what it was till the 1931 census but then it increased till 2011 except 1951 and 2001. In a few decades, the gap between men and women has narrowed from 348 points to 168 points.

Table No 4.10 shows the sex ratio of the Maharashtra State and Mumbai District, 1901-2011. According to the 1901 census, the rural sex ratio of Maharashtra is 1003, urban 862 and GSR 978, and according to the same census, the urban sex ratio of Mumbai district is 652. In short, Mumbai district has been completely urban from the very beginning. According to the 1911 census, Maharashtra has an urban sex ratio of 1000, urban 796 and GSR 966, while Mumbai district has 570. According to the 1921 census, the rural sex ratio of Maharashtra is 994, that of urban sex is 776 and that of Mumbai district is 561. According to the 1931 census, Maharashtra has a rural sex ratio of 987 and urban 790, with a GSR of 947, and Mumbai district has a GSR is 592. According to the 1941 census, Maharashtra has a rural sex ratio of 989, urban 810 and GSR 949, and Mumbai district has a sex ratio of 616. According to the 1951 census, Maharashtra has a rural sex ratio of 1000, urban 807 and a GSR is 941, while Mumbai district has a sex ratio of 574. According to the 1961 census, Maharashtra has an urban sex ratio of 995, urban 801 and a GSR is 936, while Mumbai district has 626. According to the 1971 census, the rural sex ratio of Maharashtra is 985, that of urban sex is 820 and that of Mumbai district is 670. According to the 1981 census, the rural sex ratio of Maharashtra is 987 and urban is 850, with a GSR is 937, and the GSR of Mumbai district is 729. According to the 1991 census, the rural sex ratio of Maharashtra is 972,

urban 875 and GSR is 934, and Mumbai district has a sex ratio of 791. According to the 2001 census, Maharashtra has a rural sex ratio of 960, urban 873 and a GSR is 922, and Mumbai district has a sex ratio of 777. According to the 2011 census, Maharashtra has a rural sex ratio of 952, urban 903 and a GSR of 929, while Mumbai district has a sex ratio of 832 (Registrar General & Census Commissioner, 2014, pp-42-43).

**Table No 4.10**

Sex ratio of the Maharashtra State and Mumbai District, 1901-2011

Census Year	Maharashtra State			Mumbai District		
	GSR	Rural	Urban	GSR	Rural	Urban
1	2	3	4	5	6	7
1901	978	1003	862	652	-	652
1911	966	1000	796	570	-	570
1921	950	994	776	561	-	561
1931	947	987	790	592	-	592
1941	949	989	810	616	-	616
1951	941	1000	807	574	-	574
1961	936	995	801	626	-	626
1971	930	985	820	670	-	670
1981	937	987	850	729	-	729
1991	934	972	875	791	-	791
2001	922	960	873	777	-	777
2011	929	952	903	832	-	832

**Source:** Census 2011, Mumbai District Handbook, P. No. 42

#### 4.5.10 Literacy

Mumbai district has an average literacy rate of 89.20%. In 2001, the literacy rate in Mumbai district was 86.40%. In the 2011 census, the gender gap in literacy rate was reduced to 5 points, while in the 2001 census, it was 8.8 points.



Table No. 4.11 shows Mumbai District Literacy Rate, 1951-2011. According to the 1951 census, the literacy rate of female in Mumbai district was 12.85, male literacy was 35.46 % and average literacy was 24.56 %. According to the 1961 census, female literacy is 31.66 % & male literacy is 52.36 %, while average literacy is 46.02 %. A comparison of the 1951 and 1961 censuses shows an increase in the literacy rate. According to the 1971 census, female literacy was 55.72 %, male literacy was 69.65 % and average literacy was 63.84 %. According to the 1981 census, female literacy was 60.75 %, male literacy was 73.91 % and average literacy Mumbai district literacy was 68.18 %. According to the 1991 census, female literacy was 80.81 %, male literacy was 80.90 % and average literacy was 82.50 %. The literacy rate in the district has been steadily increasing from 1951 to 1991. According to the 2001 census, female literacy is 81.40 %, male literacy is 90.20 % and average literacy is 83.70 %. According to the 2011 census, Mumbai district has the highest female literacy at 86.03 % and male literacy at 90.54 % with an average literacy of 88.48 %. In short, from 1951 to 2011, Mumbai district has seen a steady increase in male and female literacy (Directorate of Census Operations Maharashtra, District hand book 1951-2011).

**Table No 4.11**

Mumbai District Literacy Rate, 1951-2011

<b>Year</b>	<b>Female Literacy %</b>	<b>Male Literacy %</b>	<b>Average Literacy %</b>
<b>1951</b>	12.85	35.46	24.56
<b>1961</b>	31.66	52.36	46.02
<b>1971</b>	55.72	69.65	63.84
<b>1981</b>	60.75	73.91	68.18
<b>1991</b>	80.81	80.90	82.50
<b>2001</b>	81.40	90.20	83.70
<b>2011</b>	86.03	90.54	88.48

**Source:** Socio- Bombay, Saurashtra and Kutch Report and Subsidiary Tables

Page no 139, Economic Reports of all districts and Census Handbook-1971-

2011 Page No. 48

#### **4.5.11. Women entrepreneurship**

Women entrepreneurs in India are boosting the startup ecosystem. India saw the most number of women-led startups turning unicorns in 2021. In the past decade, India has experienced a rapid growth in entrepreneurship, with women in business having made much progress. These entrepreneurs thus need to be celebrated, empowered and supported every day.

Growing up in Mumbai, she started noticing women who had corporate careers or were entrepreneurs. She soon realized that there was no Indian brand that made affordable work wear for them. This meant an opportunity and many woman decided to take her interest in fashion and turn it into a clothing brand for the modern, working woman. (Express Computer, 2022, web pp-01)

#### **4.5.12. Women employment**

The development of Mumbai has not been done in a day or a year but for many years. For this he has the help of the hard working people who come here. In 1981, 57.90 per cent male participation was 60.60 per cent in the 2011 census. For women, it has increased from 9.9 % to 18.8 % in the same period. Compared to the 1981 census, the participation rate of women in work is double. Table No 4.12 shows the Work Participation Rates by Sex, Mumbai District: 1951– 2011. According to the 1961 census, Mumbai district has a work participation rate of 61.73 % male, 08.81 % female and a total of 40.62 %. Also according to the same census, the work participation rate of Maharashtra is male 57.09, female 38.10 and total 47.91 %. According to the 1971 census, Mumbai district has a work participation rate of 57.66 males, 07.72 female and a total of 36.82. Also according to the same census, the work participation rate of Maharashtra is male 52.09, female 19.70 and total 36.50 %.

According to the 1981 census, Mumbai district has a work participation rate of 57.90 males, 09.90 females and a total of 35.21. Also according to the same census, the work participation rate of Maharashtra is male 52.51, female 23.98 and total 42.60 %. According to the 1991 census, Mumbai district has a work participation rate of 56.70 males, 12.00 females and a total of 35.25. Also according to the same census, the work participation rate of Maharashtra is male 39.28, female 26.47 and total 43.00 %.

According to the 2001 census, the male work participation rate of Mumbai district male is 59.20 and female is 13.70, and the total is 37.27. According to 2001 census, Maharashtra has male work participation rate of 36.7, female 23.95 and total 42.50 %. According to the 2001 census, the male work participation rate of Mumbai district male is 60.60 and female is 18.80, and the total is 39.70. According to the same census, the male work participation rate in Maharashtra is 64.30, female 35.97 and total is 44.00 % (Registrar General & Census Commissioner, 2014, pp53-55).

**Table No 4.12**

Work Participation Rates by Sex, Mumbai 1981– 2011

Census Year	Work Participation Rates (%)					
	Mumbai			Maharashtra		
	Male	Female	Total	Male	Female	Total
1961	61.73	08.81	40.62	57.09	38.10	47.91
1971	57.66	07.72	36.82	52.09	19.70	36.50
1981	57.90	09.90	35.21	52.51	23.98	42.60
1991	56.70	12.00	35.25	39.28	26.47	43.00
2001	59.20	13.70	37.27	36.78	23.95	42.50
2011	60.60	18.80	39.70	64.30	35.97	44.00

**Source:** Census of India, Handbook: Mumbai District 1961 to 2011

#### 4.3.13 Conclusion (Mumbai District)

Mumbai is no longer a small city. Is as an international city. The district is at the forefront of national and international business, manufacturing industry, home appliance market and financial management business in this Mumbai district. That is why it is also known as the financial capital of India. That is why Mumbai is also called the megapolis leader. The city is the headquarters of the Reserve Bank of India and the State Bank of India. The Bombay Stock Exchange, which controls the stock market, is the pride of Mumbai. Many industries are headquartered here. It is also an important hub for the production of Hindi Motion Pictures and Tele Serials.

#### **4.14 Conclusion**

The Konkan region of India is a strip of land in the middle of the Sahyadri mountain range, parallel to the west coast of India. The Konkan coast is a 720 km long. (450 miles) long beach. The region borders the three states of Maharashtra, Goa and Karnataka. The land of Konkan is rich in natural beauty. The Konkan region has benefited from the abundance of nature, such as coconut tree, mango, betel nut, banana orchards, locusts, cashews, kokma trees and paddy cultivation on the slopes. The capital of Maharashtra is Mumbai and Mumbai is the headquarters of the Konkan region, and all this is in the Konkan belt. Konkan is paradise. Konkan is called 'Aparant' in Sanskrit. Konkan is one of the six administrative divisions of Maharashtra. This division covers a total of seven districts. The seven districts are Mumbai City, Mumbai Suburban, Raigad, Ratnagiri, Sindhudurg Thane and Palghar. Recently, on 1st August 2014, Thane district was divided and Palghar district came into existence. Konkan is the administrative region with the lowest area in Maharashtra. The total area of Konkan is 30728 sq. Km. Mumbai is the smallest district in Konkan in terms of area. Its area is only 157 sq. Km. Ratnagiri is the largest district in the Konkan region with an area of 8208 sq. Km.

The Konkan is not only a tourist destination but also a distinct identity in the social and cultural development of the Konkan. The male-female ratio is very good from the very beginning in the two districts of Konkan, namely Sindhudurg and Ratnagiri. In other words, the development of women in the Konkan region is very fast. At the same time, out of the districts selected by the Research Scholars, Mumbai Suburban and Mumbai districts are very economically viable. But it is also true that the sex ratio is lower in Mumbai than in Ratnagiri, Sindhudurg and Raigad district where the sex ratio is very good.

The Konkan region has the highest GDP in the state of Maharashtra and also has the highest population. But at the same time this department represents the highest level of development in the state. Even so, a closer look at the further division of the Konkan region reveals the disparity between Mumbai and the rest of the Konkan. In the Konkan region, the GDP of Mumbai and Mumbai Suburban is more than 50 per cent. If the Konkan is to be truly assessed, regional disparities must first be understood. Because

except for Mumbai and Mumbai suburban districts in the Konkan region, you still see economic inequality.

Konkan has the highest GDP and also the highest population which represents the highest level of development in the state. However, a closer look at the Konkan region reveals the disparity between Mumbai and the rest of the Konkan. Studies show that in the Konkan region, Mumbai and its Suburban account for more than 50% of GDP. Thus, in order to understand the developmental disparities in the Konkan region, Mumbai has to be excluded so that the regional disparities in the region can be truly eliminated.

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**Chapter: V**  
**Analysis and Data Interpretation**

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## Chapter 05

### Analysis and Data Interpretation

#### 5.1. Introduction

A study of the population of Maharashtra reveals that according to the 1991 census, it was the third largest state in the country in terms of population, but according to the 2011 census, Maharashtra has emerged as the second largest state in the country. According to the 2011 census, the population of Maharashtra was 11.24 crores which is 9.28 percent of the country's population. Also, according to the same census, the sex ratio of the state is 929 which is less than the national sex ratio of 943. At the same time, the sex ratio for the age group of 0 to 6 years is 894. This is a very frightening situation, as evidenced by the sex ratio. In short, it indicates the status of women in a society. The state has formulated a population policy to ensure gender parity and strict measures will be taken. The state has adopted a policy of implementing reproductive health and child health programs. This shows that the state of Maharashtra has always been at the forefront of consistently innovating plans in the field of health programs.

A study of the sex ratio in the 35 districts of Maharashtra shows a large variation. This study has been carried out to identify the factors that affect sex ratio in these districts. The two districts with the highest sex ratio are Ratnagiri and Sindhudurg and the districts with the lowest sex ratio are Mumbai Suburban and Mumbai. In this chapter the economic and social factors affecting the sex ratio in these districts are studied in order to find the reasons for the difference in the sex ratios in these districts.

This chapter is organized in the subsequent manner. In the first part is presented the population and sex ratios from the Census – 1951 to 2011 for the selected districts i.e. Ratnagiri, Sindhudurg, Mumbai District and Mumbai Suburban; in the second part, data pertaining to economic factors affecting sex ratio in the selected districts is given. Social factors affecting sex ratio are discussed in the next section. The Child Sex Ratio in the selected districts is described in the next section and compared to the general sex ratio. The last section gives the conclusion of this chapter.

The objective of this study is to identify the factors that affect sex ratio in the selected districts. Since the sex ratio in any area is affected by several economic and social

factors an attempt has been made in this chapter to identify such factors and find out whether they have an impact on the sex ratio in selected districts.

The following factors have been studied:

- a) Economic Factors: Dowry and Poverty, Income, Urbanisation, Employment status, Slum Population and Migration.
- b) Social Factors: Age Structure, Literacy, Community, Religion and Health Facilities.

## **5.2 Methodology**

For the present study researcher has used descriptive method for the analysis. The present study has used secondary data. Data was collected from Census Reports (1951 to 2011) and Economic Survey of Maharashtra on the above factors and correlation with the Sex Ratio in the four selected districts was worked out. In some cases, regression analysis was also done to show the strength of the relationship between the sex ratio (Dependent Variable) and the factor influencing it (Independent Variable).

There are many factors that affect the Sex Ratio. Some of these factors can be measured quantitatively (like income or age). Whereas some cannot be quantified e.g., cultural factors like son preference. For this study, five economic and five social factors that can be quantified have been selected.

## **5.3 Population and Sex Ratio in Selected Districts**

The following table shows the population and sex ratio of Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai districts (1951-2011).

**Table No. 5.1**

Total population and Sex Ratio in Selected Districts (1951-2011)

Year	Ratnagiri District						Sindhudurg District						Mumbai suburban						Mumbai Districts					
	Male	%	Female	%	Total	Sex Ratio	Male	%	Female	%	Total	Sex Ratio	Male	%	Female	%	Total	Sex Ratio	Male	%	Female	%	Total	Sex Ratio
1951	4,80,706	44.67	595374	55.33	1076080	1239	307425	45.45	368910	54.55	676335	1200	388682	58.41	276742	41.59	665424	712	1884944	63.53	1081958	36.47	2966902	574
1961	5,06,211	44.16	6,40,032	55.84	11,46,243	1264	330363	45.58	394454	54.42	724817	1194	791354	57.34	588769	42.66	1380123	744	2553539	61.50	1598517	38.50	4152056	626
1971	5,65,096	44.19	7,13,646	55.81	12,78,742	1263	342483	45.19	415434	54.81	757917	1213	1,63,945	56.53	1,26,074	43.47	2,90,197	769	3,57,519	59.88	2,39,538	40.12	5,97,057	670
1981	6,11,029	44.29	7,68,626	55.71	13,79,655	1258	354145	45.35	426746	54.65	780891	1205	2,75,311	55.52	2,20,524	44.48	4,95,836	801	4,75,846	57.84	3,46,892	42.16	8,22,738	729
1991	7,00,190	45.36	8,43,367	54.64	15,43,557	1205	389384	46.79	442768	53.21	832152	1137	3,68,705	54.61	3,06,394	45.39	6,75,102	831	6,97,934	55.83	5,52,065	44.17	12,50,000	791
2001	7,94,498	46.82	9,02,279	53.18	16,96,777	1136	4,17,890	48.10	4,50,935	51.90	8,68,825	1,079	4,74,227	54.88	3,89,814	45.12	8,64,041	822	9,21,107	56.27	7,15,707	43.73	16,36,808	777
2011	7,61,121	47.13	8,53,948	52.87	16,15,069	1122	4,17,332	49.12	4,32,319	50.88	8,49,651	1,037	5,03,132	53.77	4,32,539	46.23	9,35,692	857	10,04,912	54.59	8,36,087	45.41	18,41,000	838

**Source:** Census of India, 1951- 2011

**According to the 1951 census**, Ratnagiri district has a sex ratio of 1239, Sindhudurg has 1200, Mumbai has 574 and Mumbai suburban has 712. According to the 1951 census, the male population of Ratnagiri district is 44.67%, while female population is 55.53%. According to the same census, the male population of Sindhudurg district is 45.45% and the female population is 54.55%. In short, male population is low in these two districts and female population is high. According to the 1951 census, the male population of Mumbai Suburban is 58.41%, the female population is 41.59%, the male population of Mumbai district is 63.53% and the female population is 36.47%.

**A study of the 1961 census**, similar to the 1951 census, reveals that the sex ratio of Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai district is as follows, i. e. 1264, 1194, 626 and 744. At the same time, when the population of this district is studied, as mentioned above, according to the 1961 census, the male population in Ratnagiri and Sindhudurg districts is less than the female population. As above, the population of women in Mumbai and Mumbai suburban districts is low from the very beginning. According to the 1961 census, Ratnagiri district has a male population of 44.16% and a female population of 55.84%. Also the male population of Sindhudurg district is 45.58% & female population is 54.42%. Similarly, the male population of Mumbai suburban district is 57.34%, the female population is relatively low i.e. 42.66%, the male population of Mumbai district is 61.50% and the female population is 38.50%.

**According to the 1971 census**, Ratnagiri district has a sex ratio of 1263, Sindhudurg has 1213, Mumbai suburban has 769 and Mumbai district has 670. According to the 1971 census, the male population of Ratnagiri district is 44.19% while the female population is 55.81%. Besides, the male population of Sindhudurg district is 45.19%

while female population is 58.81%. In short, male population is low in these two districts and female population is high. According to the 1971 census, the total male population of Mumbai Suburban District is 56.53% while the female population is 43.47%. According to the same census, the total male population of Mumbai district is 59.88% and the female population is 40.12%.

**According to the 1981 census**, a study of Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai district shows that the sex ratio of Mumbai and Mumbai suburban is increasing. At the same time, the sex ratio of Ratnagiri and Sindhudurg is still more than 1200. According to the 1981 census of Ratnagiri district, the sex ratio is 1258, that of Sindhudurg is 1205, Mumbai suburban is 801 and Mumbai is 729. According to the 1981 census, the male population of Ratnagiri district was 44.29% and the female population was 55.71%. According to the 1981 census, the male population of Sindhudurg district was 45.35% and the female population was 54.65%. According to the 1981 census, the male population of Mumbai suburban district was 55.52% and the female population was 44.48%; of course, the male population is less than the female population and according to the same Mumbai districts census, the male population is 57.84% and the female population is 42.16%.

**According to the 1991 census**, Ratnagiri district has a sex ratio of 1205, Sindhudurg has 1137, Mumbai suburban has 831 and Mumbai district has 791. According to the 1991 census, the male population of Ratnagiri district is 45.36% and the female population is 54.64%. Besides, the male population of Sindhudurg district is 46.79% while female population is 53.21%. In short, male population is low in these two districts and female population is high. According to the 1991 census, the male population of Mumbai suburban is 54.61%, the female population is 45.39%, the male population of Mumbai district is 55.83% and the female population is 44.17%.

**According to the 2001 census** of Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai districts, the sex ratio of all these districts is 1136, 1079, 822 and 777 respectively. In short, according to the 2001 census, the sex ratio of Ratnagiri and Sindhudurg districts has declined, but the main reason for this is the decline in population. In contrast, the sex ratio of Mumbai and Mumbai suburban districts has improved. According to the 2001 census, the male population of Ratnagiri district is 46.82% and the female population is 53.18% and Sindhudurg district male population

is 48.10% while female population is 51.90%. In short, male population is low in these two districts and female population is high. According to the 2001 census, the male population of Mumbai suburban district is 54.88%, the female population is 45.12%, the male population of Mumbai district is 56.27% and the female population is 43.73%.

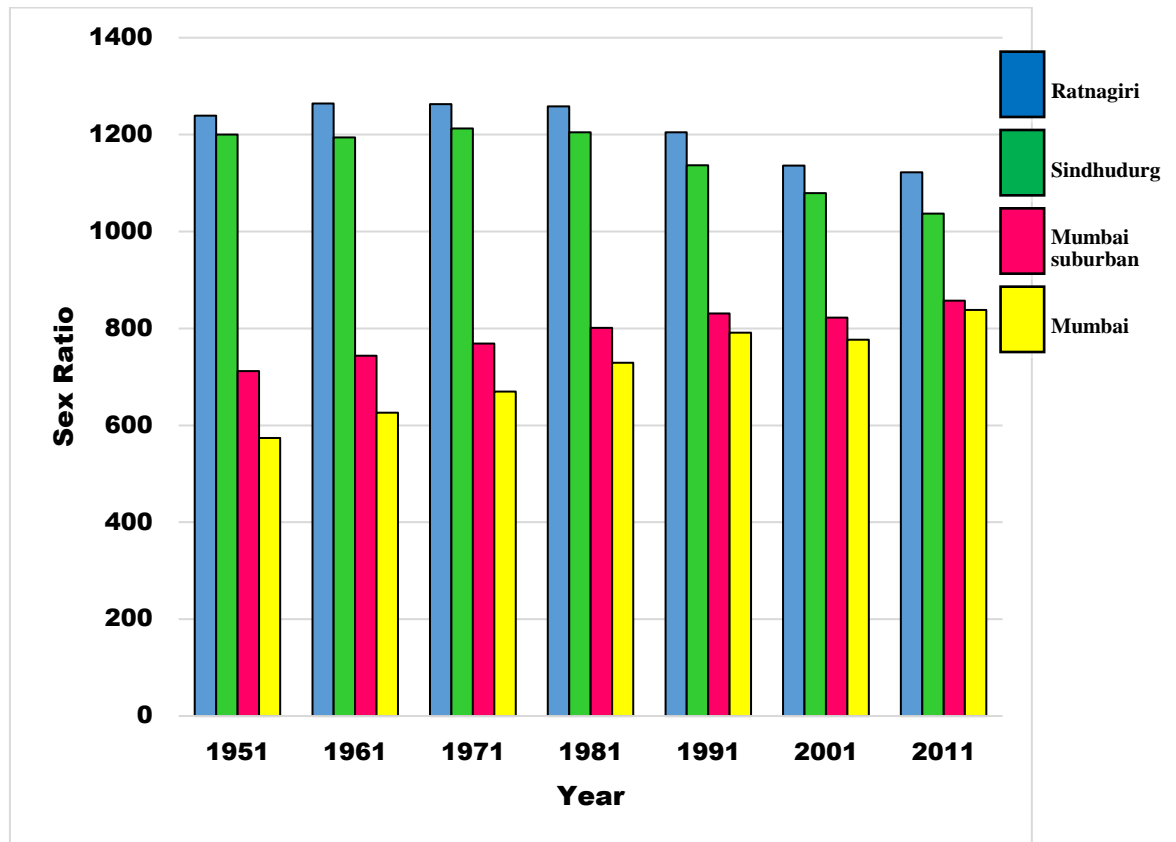
**According to the 2011 census**, a study of Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai district shows that the sex ratio of Mumbai and Mumbai suburban is increasing. At the same time, the sex ratio of Ratnagiri and Sindhudurg is still more than 1000. According to the 2011 census of Ratnagiri district, the sex ratio is 1122, that of Sindhudurg is 1037, Mumbai suburban is 857 and Mumbai is 838. According to the 2011 census, the male population of Ratnagiri district was 47.13% and the female male population was 52.87%. According to the 2011 census, the male population of Sindhudurg district was 49.12% and the female population was 50.88%; this population is more than male. According to the 2011 census, the male population of Mumbai suburban district was 53.77% and the female population was 46.23%. Of course, the male population is less than the female population and according to the same Mumbai district census, the male population is 54.59% and the female population is 45.41%.

A brief study of the four districts selected for the study reveals that there is a close relationship between population and sex ratio. Ratnagiri and Sindhudurg districts have had a high number of women from the very beginning and hence the sex ratio of this district has always been high. But it is seen to be reducing over the study period. This is because the percentage share of female population reduced slightly and percentage share of male population increased. At the same time, out of the four districts selected for the study, two districts namely Mumbai and Mumbai Suburban districts have low sex ratio from the very beginning. In general, sex ratio is gradually improving in both districts, particularly from 1981 onwards.

The following diagram shows the sex ratio of Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai district. The following bar diagram shows the sex ratio of 04 selected districts according to the census from 1951 to 2011.

**Figure: 5.1**

Total Population and Sex Ratio in Selected Districts (1951-2011)



**Source:** Table – 5.1

The above figure is drawn from the table No. 5.1 Population and Sex Ratio in Selected Districts. The bar graph above clearly shows that the blue colour bar shows the sex ratio of Ratnagiri district. That is, according to the 1951 census, the sex ratio of Ratnagiri district was 1239, while in keeping with the 2011 census, the sex ratio was 1122. Similarly, the sex ratio of Sindhudurg district is 1200 as per 1951 census and it's been gradually changed to 1037 as per 2011 census, it's shown by light green colour bar. This implies that a study of those two districts reveals that there are not many fluctuations within the sex ratio. Also, a study of Mumbai and Mumbai suburban districts reveals that in keeping with the 1951 census, the sex ratio of Mumbai district is 574, as shown by the purple colour bar. According to the 2011 census, the sex ratio of Mumbai district is 838. According to the 1951 census, the sex ratio of Mumbai suburban is 712, while according to the 2011 census, the sex ratio is 857.

**Although the four districts selected for the study (the two districts with highest sex ratio and two with the lowest sex ratio in Maharashtra) are all located in the**

**Konkan region of Maharashtra, they can be clearly divided into two distinct sets or groups. The two districts of Mumbai and Mumbai Suburban lie in the northern part of this region while Ratnagiri and Sindhudurg are in the southern part. Although these districts are located so near each other, the two northern districts have had low sex ratios while the two southern districts have had high sex ratios for over 100 years. The objective of this study is to find the reasons for this difference by studying the various social and economic factors that affect the sex ratio in these districts.**

The next two sections examine the economic and social factors that influence sex ratio and the correlation between these factors and the sex ratio in each of these districts.

#### **5.4 Economic Factors**

Sex ratio is influenced by many social and economic factors. Here we are first going to study the effect of economic factors on sex ratio. In this the economic factors are dowry and poverty, Income and Sex Ratio, Urbanisation and Sex Ratio, Employment status of women / Men and Sex Ratio, The Slum and Sex Ratio etc. researcher has been study them in detail as follows.

##### **5.4.1 Dowry and Poverty**

Dowry and poverty are two major economic causes important for female infanticide. Dowry has been an integral aspect of traditional arranged Hindu marriage. The higher the socioeconomic status of the groom's family, the higher is the dowry demanded. The acts and provisions against dowry in Indian legal code are largely ineffective. Dowry system ends up in wife abuse and female infanticide. Due to lack of legal enforcement, female infanticide is prevalent in Indian Society (particularly in rural communities). To bring an end to abortions of female foetuses, it is necessary for Indian Society to bring an end to the ritual of dowry. Elimination of dowry will eliminate its negative impact on sex ratio (Goyal Harsha Bharat, 2016, pp-141).

Poverty is not new to India. Millions of people in India die due to poverty and starvation every year. Poverty results in poor health and clothing, poor nutrition, absence of provision of survival in an emergency. To avoid this material deprivation, poor people conclude that they do not want daughters and practice female infanticide. Poverty thus,



makes a strong impact on the sex ratio of the society. Poverty can be measured by income.

#### **5.4.2 Income**

In order to find the effect of income on sex ratio in the selected districts, the Per Capita Net District Domestic Product of each district has been taken as it represents the average income of the population in each district.

The Net District Domestic Product is calculated as follows:

$$\text{NDDP} = \text{NDVA} + \text{Taxes on products} - \text{Subsidies on products}$$

Where -

NDDP = Net District Domestic Product

NDVA = Sector Wise Net District Value Added

The net district value added shows the value of the actual production of goods and services in a district during a year. Taxes and subsidies on products are taken into consideration to reach at GDDP/ NDDP. Districtwide taxes and subsidies are allocated within the proportion of district wise value added. The Per Capita NDDP is calculated by dividing the total aggregate income from all sources by the total mid – year population. (Government of Maharashtra, 2021)

The Per Capita NDDP for the four selected districts is given in the following table. The NDDP for Mumbai and Mumbai Suburban has been calculated together since it is not available separately.

**Table No. 5.2**

Effect of Income Level on Sex Ratio in selected districts (Rs. Crore)

Sr. No.	District Name	2000- 2001	GSR 2001	2011-2012	2019-2020	GSR 2011
		NDDP		NDDP	NDDP	
1	Ratnagiri	2894	1136	13,765	22,347	1122
2	Sindhudurg	1576	1079	8,145	12,893	1037
3	Mumbai	46141	777	2,14,229	3,88,314	838
4	Mumbai (Suburban)		822			857

**Source:** Eco. Survey of Maharashtra 2001, 2012 & 2020

Form the above table it is be seen that, -

1. Although data only for the selected district is presented here, the table for all 34 district as given in the Economic Survey of Maharashtra 2011 shows that Mumbai (including Mumbai Suburban) is the district with the highest Per Capita NDDP. Ratnagiri and Sindhudurg districts have a much lower Per Capita NDDP in 2000-2001 and in 2011-12.
2. On the other hand, the Sex Ratio in Ratnagiri and Sindhudurg is higher than that of Mumbai in 2001 and 2011. Mumbai and Mumbai Suburban districts have the lowest Sex Ratio among all 34 districts whereas Ratnagiri and Sindhudurg have the highest sex ratio.
3. Per Capita Income of every district has shown an increasing trend during the study period.

Thus, Mumbai has highest per capita income and lowest sex ratio. Ratnagiri and Sindhudurg have one of the lowest per capita incomes but highest Sex Ratio.

With a view to seek out **does income have any effect on sex ratio** following table has been prepared,

Using district level data, an attempt has been made to examine empirical validity of relationship between Income Level and Sex Ratio of the selected districts of

Maharashtra, Spearman's rank correlation is used for testing whether there exists any relationship between income and sex ratio.

Correlation simply means relation between two variables (Independent Variable and Dependent Variable). The factor which is meant to be the cause is termed as independent variable and the factor which is supposed to be the effect is called as dependant variable. During this research, income is independent variable whereas sex ratio is a dependant variable. Spearman's Rank Correlation is a measure of relationship between two variables using the ranked data, for a rank correlation the data is converted into ranked form. The formula for computing Spearman's Rank Correlation is-

$$P = 1 - 6 \sum d^2 / n^3 - n$$

Where, n is the total number of observations and d is that the difference within the ranks of the two variables within the observation. The following table shows the correlation between income and sex ratio in the selected districts.

**Table No. 5.3**

Relationship between Income & Sex ratio in Selected Districts, 2001

S.N.	District Name	G S R	NDDP	R <sub>1</sub>	R <sub>2</sub>	d	d <sup>2</sup>
1	Ratnagiri	1136	2894	1	2	1	1
2	Sindhudurg	1079	1576	2	3	1	1
3	Mumbai	777	46141	4	1	3	9
4	Mumbai (Suburban)	822		3	1	2	4
							$\sum d^2 = 15$

Source: Table no. 5.2

$$\begin{aligned} \text{Spearman's rank correlation} &= 1 - 6 \sum d^2 / n^3 - n \\ &= 1 - 6 * 15 / 64 - 04 \end{aligned}$$

$$= 1 - 90 / 60$$

$$= 1 - 1.5$$

$$= -0.50$$

From the above, -

P = -0.50 i.e., 50% - it is relevant.

**Table No. 5.4**

Relationship between Income & Sex ratio in Selected Districts, 2011

S.N.	District Name	G S R	NDDP	R <sub>1</sub>	R <sub>2</sub>	d	d <sub>2</sub>	
1	Ratnagiri	1122	13,765	1	2	1	1	
2	Sindhudurg	1037	8,145	2	3	1	1	
3	Mumbai	838	2,14,229	4	1	3	9	
4	Mumbai (Suburban)	857		3	1	2	4	
							<b>∑ d<sup>2</sup> = 15</b>	

**Source:** Table no. 5.2

$$\text{Spearman's rank correlation} = 1 - 6 \sum d^2 / n^3 - n$$

$$= 1 - 6 * 15 / 64 - 04$$

$$= 1 - 90 / 60$$

$$= 1 - 1.5$$

$$= -0.50$$

From the above, -

P = -0.50 i.e., 50% - it is relevant.

The rank correlation between the district Per Capita Income and sex ratio is -0.50 in 2001 and -0.50 in 2011. The negative correlation shows that there is an inverse relationship between the two variables that is, at higher levels of income the sex ratio is lower.

Relationship is negative -0.50 this means that as income increases sex ratio goes down. This is important. This can be seen in the table where Mumbai income is more but Sex Ratio is less. In Ratnagiri and Sindhudurg income is less and Sex Ratio is high.

The above two tables clearly show that there is a significant inverse relationship between income of a district and its Sex Ratio. The Sex Ratio in the two districts with low income is not only higher than the districts with the higher income, it is also favourable to females i.e., more than 1000. The reason for this could be that economically prosperous families with higher Per Capita Income want to maintain the higher standard of living they have attained, so they wish to limit their family size. Combined with the wish to have to least one son, these families adopt sex – selective techniques. They also have easy access to better infrastructure for sex selection before the birth of a child and more doctors to perform the tests followed by sex selective abortions. In the less developed districts where per capita income is low, this technology is not widely available nor do families have the resources to make use of it. Hence a larger number of girls are born in districts with lower income, leading to a higher sex ratio.

Thus, researcher has concluded that though theoretically it has been mentioned by several researchers and authors that poverty affects sex ratio, empirically also it is found that poverty and sex ratio have significant relationship.

### **5.4.3 Migration**

Migration into and out of a district is a major factor influencing the size and composition of its population. The four districts selected for this study are also affected by the migration pattern within the state of Maharashtra. These movements of individuals from one district to another were male dominated, as seen from census data as well as several studies on this subject. This migration of mostly only men resulted in a change in the number of men and women in the population, thus directly affecting the Sex Ratio of these districts.

The two factors about migration that have a direct impact on Sex Ratio are a) the direction of migration and b) the gender composition of migrants. Each of these factors is explained below with relation to the selected districts.

**a) Direction of Migration** – Census of India uses the place of birth to define a person as a migrant. That is, a person born at a place different from the place of enumeration is counted as a migrant. The data from the census reports shows a high volume of in – migration into Mumbai and Mumbai Suburban (together called Greater Bombay before 1991). On the other hand, data shows that there is clearly a net out –migration from the districts of Ratnagiri and Sindhudurg.

Migration has played a the most significant role in changing the demographic profile of Mumbai. In the first half of the 20<sup>th</sup> century, Mumbai grew mainly on account of an influx of people from other areas of the country.

**Table No. 5.5**

Composition of Population Growth of Greater Mumbai 1951-2001

Decade	% Share of Natural Increase	% Share of Migration
1951-61	48.19	51.81
1961-71	50.50	49.50
1971-81	60.42	39.58
1981-91	83.23	16.77
1991-2001	61.08	38.92

**Source:** Singh (2007), page no. 317

Although the share of migrants in the growth of Mumbai’s population has slowed down from about 50% during 1951 to 1971 to around 40% between 1971 – 2001, it is still a substantial amount.

The place of birth data collected by the census shows that migrants to Mumbai come from all states in India, but the largest number of migrants are from within the state of Maharashtra, about 37% in census 2001 (Singh, 2007, Table 3, page no. 318). The following table shows the inter-district in-migration and out-migration from Greater Mumbai (Mumbai and Mumbai Suburban).

**Table No. 5.6**

Inter-district in and out migration in Greater Mumbai: 1961-2001

Sr. No.	District	In-Migrants					Out-migrants			
		1961	1971	1981	1991	2001	1971	1981	1991	2001
1	Ratnagiri	494404	564890	628887	519917	612688	58059	68920	65868	59900
2	Satara	140520	146802	190522	165380	217529	15645	27855	31250	24028
3	Poona	117711	145934	194571	163220	196331	38281	59555	45860	119933
4	Kolaba	109204	129924	150000	126090	159644	21444	27805	37865	47247
5	Sangli	NA	51241	73508	64710	83262	6080	10369	10680	10906
6	Thane	45349	55695	67053	48480	61352	67019	132540	107660	732889
7	Nasik	40509	49319	60143	49040	57601	10685	16039	18913	37205
8	Ahmednagar	38749	50140	71064	55150	67955	7685	9860	11760	15740
9	Kolhapur	36792	56336	70038	59700	81190	8650	11516	13550	14745
10	Sholapur	25179	39213	63579	58010	75905	3785	5526	9010	6337
11	Jalgaon	14423	27793	34400	28970	36845	2305	3555	5381	3857
12	Aurangabad division	NA	33523	93949	95270	132712	3015	6601	10939	15707
13	Amravati division	NA	22041	34755	35700	51636	2955	4534	7350	9562
14	Nagpur division	NA	12021	16643	15350	22551	3890	5124	5300	7938
15	Other Dist.	47713	17116	36890	38060	82290	1095	2100	2680	2522
	<b>Total</b>	<b>1110553</b>	<b>1401988</b>	<b>1786002</b>	<b>1523047</b>	<b>1939491</b>	<b>250593</b>	<b>391899</b>	<b>384066</b>	<b>1108516</b>

Source: Singh (2007), page 323.

It can be seen from the table that the maximum number of migrants originate from the districts of Ratnagiri (includes Sindhudurg district up to 1981). This trend started as far back as the late nineteenth century when men migrated from the southern Konkan area to Mumbai to work in the fast-growing textile industry. (REF) Nearly 60% inter district in – migrants to Greater Mumbai are from four districts – Ratnagiri, Satara, Pune and Raigarh (earlier known as Kolaba). Of these, Ratnagiri and Raigarh are in the Konkan, the coastal area of Maharashtra which is south of Mumbai.

During 1961 to 2001 the percentage of in-migrants from Ratnagiri district has declined from 44.50% of total in-migration from districts in Maharashtra to 31.50% while the share of other districts, mainly from Marathwada region, has increased.

The out – migration from Greater Mumbai (persons born in Greater Mumbai and enumerated in other districts in the state) indicates that nearly half of migrants were found in Ratnagiri and Thane districts in 1971 and 1981. However, the 2001 census indicates that nearly two-third of out migration from Mumbai went to Thane as new areas there were developed for residential purpose. A large number are also seen to move to Pune district.

**b) Sex Ratio among Inter –district migrants.**

The second factor affecting sex ratio of a district is the gender of the migrants. The table below gives the Sex Ratio among inter-district in and out migrants in Maharashtra. The male domination among in-migrants is clearly observed in 1961. However, this domination appears to have reduced by the 2001 census, as there is a substantial improvement in Sex Ratios. This means that the number of female migrants has increased considerably.



**Table No. 5.7**

Sex Ratio among Inter-District In and Out-Migrants - Greater Mumbai:1961-  
2001

Sr.No.	District	In-Migrants					Out-migrants			
		1961	1971	1981	1991	2001	1971	1981	1991	2001
1	Ratnagiri	521	564	657	763	810	1191	1269	1215	1210
2	Satara	424	460	494	619	682	1021	1134	1083	1148
3	Poona	730	775	817	958	997	1078	1193	1391	1292
4	Kolaba	584	615	700	839	848	1334	1407	1443	1264
5	Sangli	N.A.	565	631	765	801	955	1099	1239	1245
6	Thane	950	1001	1108	1295	1315	1063	1119	1095	1020
7	Nasik	914	971	1060	1206	1178	927	1110	1204	1202
8	Ahmednagar	847	857	860	974	974	965	1167	1415	1324
9	Kolhapur	422	489	513	626	661	1138	1188	1189	1313
10	Sholapur	839	910	902	951	975	1154	1283	1365	1524
11	Jalgaon	890	796	852	908	915	1282	1232	1457	1501
12	Aurangabad division	N.A.	855	881	942	914	958	1247	1421	1501
13	Amravati division	N.A.	729	816	873	878	1273	1505	1483	1357
14	Nagpur division	N.A.	862	915	981	945	1021	1347	1325	1585
15	Other Dist.	737	534	879	882	861	1100	1349	1414	1370
	<b>Total</b>	<b>585</b>	<b>631</b>	<b>714</b>	<b>825</b>	<b>855</b>	<b>1107</b>	<b>1191</b>	<b>1232</b>	<b>1100</b>

Source: Singh Dharmendra (2007), page No. 324.

N.B.: Out-migration Data for 1961 were not published.

Particularly in the case of Ratnagiri, it can be seen from the table that in 1961 female migrants into Mumbai were just about half of male migrants (521 women for every 1000 men).

This proportion has steadily increased till 2001 where there are as many as 810 women per 1000 men. There could be a similar pattern in the migration from Ratnagiri and

Sindhudurg to other districts as well. But census data shows that the largest migration from Ratnagiri and Sindhudurg is to Mumbai & Mumbai Suburban districts.

The number of out-migrants from Greater Mumbai to Ratnagiri and Sindhudurg show a sex ratio above 1000 indicating that a large number of women (about 1200 women per 1000 men) moved from Mumbai to Ratnagiri during the period 1971 to 2001.

It may be inferred that most women move out of Mumbai on account of marriage and family related factors while men move to Mumbai for education and employment. Since many of the men are temporary migrants, their families remain in their homes and so the sex ratio of in – migrants is low. However, the table shows that there has been an improvement in the sex ratio between 1961 and 2001 for both in-migrants and out-migrants between Ratnagiri and Mumbai.

This migration pattern between the 2 sets of districts can account for

- a) The difference in the sex ratios between the two districts with the highest sex ratios (Ratnagiri and Sindhudurg) and the 2 districts with the lowest sex ratios in Maharashtra (Mumbai Suburban and Mumbai)
- b) The changes in the sex ratio in each of these districts during the period 1951 to 2011.

Both these factors are explained below.

- a) The difference between the sex ratios of the two sets of districts can be explained to a large extent by the migration pattern between them. A sizeable number of men from Ratnagiri and Sindhudurg migrated to the Mumbai and Mumbai Suburban area for education & employment. Their families, however, stayed behind due to problems like lack of housing, high cost of living in Mumbai and the need to continue farming in their villages. Hence the number of men in Mumbai and Mumbai Suburban districts increased relative to women, resulting in low sex ratios (less than 700 women per 1000 men) particularly before 1981. On the other hand, since a large number of men had moved out, the number of women were more than men in Ratnagiri & Sindhudurg districts leading to a high sex ratio, well above 1200 women per 1000 men.
- b) Over the study period, however, the sex ratio in Ratnagiri and Sindhudurg has been steadily falling whereas the ratio in Mumbai and Mumbai Suburban area

has been increasing. This could be due to a change in the migration pattern. The number of men migrating to the Mumbai area reduced and the number of women migrating into Mumbai increased.

Several studies have shown (Singh Dharmendra, 2007 and Tumbe Chinmay, 2015) that after 1961 the rate of migration from Ratnagiri and Sindhudurg to Mumbai slowed down. This reduction in the rate of migration was due to the contraction in Mumbai's textile industry, which was the largest employer of migrants from the Konkan. At the same time, as economic development spread to Ratnagiri and Sindhudurg, many employment opportunities became available for the male population, thus reducing the necessity to migrate. As a result, fewer men were added to Mumbai's population.

At the same time, as more women become educated in Ratnagiri and Sindhudurg, they also started migrating to Mumbai. Thus, the number of women in Mumbai started increasing over and above the natural growth of the existing population. This led to an improvement in the sex ratio in Mumbai & Mumbai Suburban districts and a simultaneous fall in the sex ratio in Ratnagiri and Sindhudurg.

Ratnagiri and Sindhudurg still retain their position as the districts with the highest Sex Ratio in Maharashtra and Mumbai Suburban and Mumbai continue to be at the lowest rank. The gap between the sex ratios in these two areas has, however, reduced significantly.

#### **5.4.4 Urbanisation**

When the demographer Kingsley Davis asked a query on India's relatively slow pace of urbanisation over five decades ago, he proceeded to answer that question on the idea of the "relative slowness of economic development in India." Since then and particularly within the past 20 years, India's economic growth rates have risen but the

question asked by Davis continues to be relevant. For its level of income, urbanisation appears to be low in India, though the size of its urban population is significant and higher than the population of the United States of America (Kingsley Davis, Ana Casis, 1946).

India is one of the few countries in the world where urban sex ratios are relatively more masculine than rural sex ratios. While most parts of India have female deficits in their aggregate sex ratios, this deficit is more pronounced in urban areas than rural areas, is widespread across districts and has been a persistent feature for over a century. It occurs primarily because migration to cities for work is overwhelmingly male-dominated in nature. Major cities like Mumbai and Kolkata were male ghettos within the early 20th century with sex ratios hovering around 500 females per 1,000 males and rising over time mainly on account of natural growth within the cities. Delhi and Surat's phenomenal growth in the first and second halves of the 20<sup>th</sup> century respectively were closely related to worsening of sex ratios because of large inflows of male migrants. In these male-dominated migration streams, younger cohorts of migrants often replace older cohorts of migrants who leave the cities to retire in the native regions with their left-behind families. Families are separated for long periods of time because of restrictions on female mobility either due to cultural norms or adverse housing conditions. These migration streams also are not seasonal but semi-permanent in nature yielding large remittance flows to the source regions. This phenomenon has a vital implication that net rural-urban migration flows are considerably smaller than gross rural-urban migration flows due to return migration, leading to slower urban growth and urbanisation.

**Table No. 5.8**

Urbanisation and sex ratio in Ratnagiri district (1951-2011)

Ratnagiri District							
Year	Rural Sex Ratio	Rural Population %	Urban Sex Ratio	Urban Population %	Sex Ratio	Sex Ratio (%)	Correlation between urbanization and sex ratio
1951	1,256	92.32	1027	7.68	1239	123.9	-0.851929373
1961	1,292	91.98	993	8.02	1264	126.4	
1971	1294	91.01	992	8.99	1263	126.3	
1981	1289	91.27	979	8.73	1258	125.8	
1991	1230	91.06	981	8.94	1205	120.5	
2001	1163	88.70	944	11.30	1136	113.6	
2011	1144	83.70	1015	16.30	1122	112.2	

**Source:** Census of India, 1951- 2011

Table Number No. 5.8 shows the district wise rural and urban sex ratio and correlation between urbanisation and sex ratio. The value of correlation is negative in Ratnagiri district because as urbanisation rises sex ratio declines. Above information shown in below graph.

### Correlation

Correlation is a statistical tool to review the relation between two variables. Whenever two variables are so related that the rise or decrease in one corresponds to the rise or decrease in another, they are said to be correlated. Here, urbanisation is taken as independent variable, while sex ratio is taken as dependent variable. The Karl Pearson's coefficient of correlation has been applied to assess the correlation between urbanisation and sex ratio in Ratnagiri district. The Pearson correlation evaluates the linear relationship between two continuous variables. A relationship is linear when a change in one variable is related to a proportional change within the other variable.

The formula suggested by **Karl Pearson** is applied to calculate the correlation between urbanisation and sex ratio-

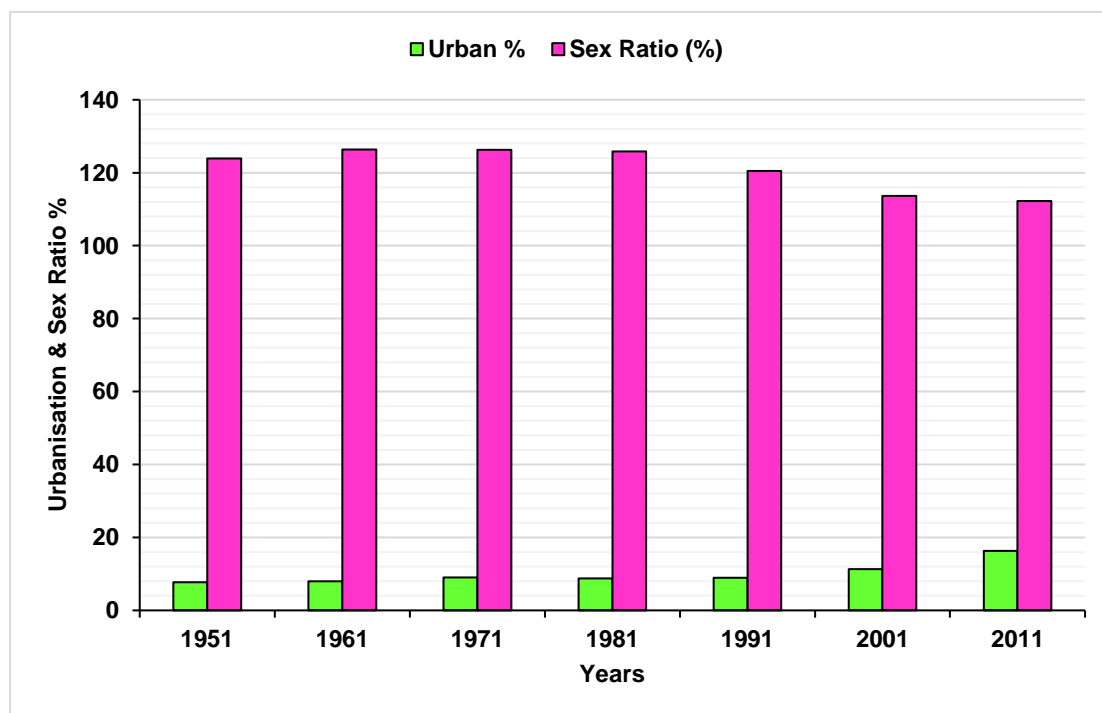
$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Here, 'x' variable is urbanisation, 'y' variable is sex ratio and 'n' is the number of years. Urbanisation is measured by the percentage of urban population and sex ratio by sex ratio percentage. With the help of above method, the value of correlation between **Urbanisation and sex ratio in Ratnagiri district from 1951 to 2011 is -0.8519**, which indicates a negative but very high negative relation between these two variables. This shows that both variables are **inversely related** to each other.

The effect of urbanisation is seen in Ratnagiri district. The sex ratio in urban areas is declining as urbanisation is increasing. In short, the number of family members is limited to maintain the standard of living in urban areas and this has an effect on the sex ratio as sons are preferred to daughters. Hence the **negative correlation** of urbanisation and sex ratio of Ratnagiri district.

**Figure: 5.2**

Urbanisation and Sex ratio in Ratnagiri District (1951-2011)



Source: Table No. 5.8

Above Graph shows the Urbanisation and sex ratio (1951 -2011) in Ratnagiri district. When urbanisation is very less i.e., 7.68 %, the sex ratio is 1239 in 1951. After some duration 1961 to 1991 rise in urbanisation 8.02% (1961), 8.99% (1971), 8.73% (1981) and 8.94% (1991) at the same time there was a fall in sex ratio. After new economic policy implemented by Central Government there was a change in urbanization. Many individuals migrated from rural to urban areas. All of this resulted in an exceedingly unequal male female ratio. This had a direct and indirect effect on the Ratnagiri district. In census 2001 and 2011 rapid rise in urbanisation i.e. 11.30% and 16.30% which also impact on sex ratio that's 1136 and 1122. Ratnagiri district total population also fell within the same duration.

### Hypothesis Testing

Here researcher has tested whether this correlation coefficient given above is significant or not using t-test. Our null hypothesis would be

$H_0$  : There is no significant correlation between urbanisation and sex ratio in Ratnagiri district.

Researcher has tested this against the alternative hypothesis

$H_1$  : There is a significant correlation between urbanisation and sex ratio in Ratnagiri district.

For doing this we use t-statistic given by

$$t = r \sqrt{\frac{n-2}{1-r^2}} \sim t_{n-2}$$

Where  $r$  = Pearson's correlation coefficient

$n$  = number of pairs of observations

Here the test statistic follows t-distribution with  $(n-2)$  degrees of freedom.

Putting  $r = -0.851929$  and  $n = 7$  the calculated value of test statistic is

$$t = -0.851929 \sqrt{\frac{7-2}{1-(-0.851929)^2}} = -3.6389$$

Comparing this calculated value with the table value of  $t$  at 5 % level of significance and 5 degrees of freedom i.e.  $t_{(5,0.05)} = 2.57$

Since  $|t_{cal}| = 3.6389 > t_{table} = 2.57$ ,

We reject  $H_0$  at 5 % Level of significance and accept  $H_1$ .

**Conclusion:** There is significant negative correlation between urbanisation and sex ratio in Ratnagiri district.

**Table No. 5.9**

Urbanisation and Sex ratio in Sindhudurg District (1951-2011)

Sindhudurg District							
Year	Rural Sex Ratio	Rural Population %	Urban Sex Ratio	Urban Population %	Sex Ratio	Sex Ratio (%)	Correlation between urbanization and sex ratio
1951	1205	95.77	1146	4.23	1200	120.00	-0.827191335
1961	1,214	94.98	977	5.02	1194	119.40	
1971	1225	93.12	1063	6.88	1213	121.30	
1981	1217	91.52	1047	8.48	1205	120.50	
1991	1149	92.42	998	7.58	1137	113.70	
2001	1090	90.53	978	9.47	1079	107.90	
2011	1,044	87.41	979	12.59	1037	103.70	

**Source:** Census of India, 1951- 2011

The above schedule shows the Sindhudurg district rural and urban sex ratio from 1951 to 2011. In the beginning Sindhudurg district in 1951 urbanisation is 4.23 % and sex ratio is 1200, but after some duration that is 1961, 1971, 1981, 1991 change in urbanisation which was 5.02%, 6.88%, 8.48%, and 7.58%. Simultaneously decline in sex ratio that is 1194, 1213, 1205, 1137 and 1079. When new economic reforms started in the state from 1991, they had an impact on urbanisation which then also change within the sex ratio. In Sindhudurg district after new economic policy in 2001 sex ratio is 1079 and urbanisation is 9.47% and year 2011 sex ratio is 1037 and urbanisation is 12.59%.

**Correlation**

When the correlation between urbanisation and sex ratio in Sindhudurg district is calculated, it is -0.8271, which shows the negative relationship between urbanisation and sex ratio i.e., when there is rise in urbanization, sex ratio is continuously declining.

**Negative Correlation**

A negative (inverse) correlation occurs when the correlation coefficient is less than 0. This can be sign that both variables move in the opposite direction. In short, any reading

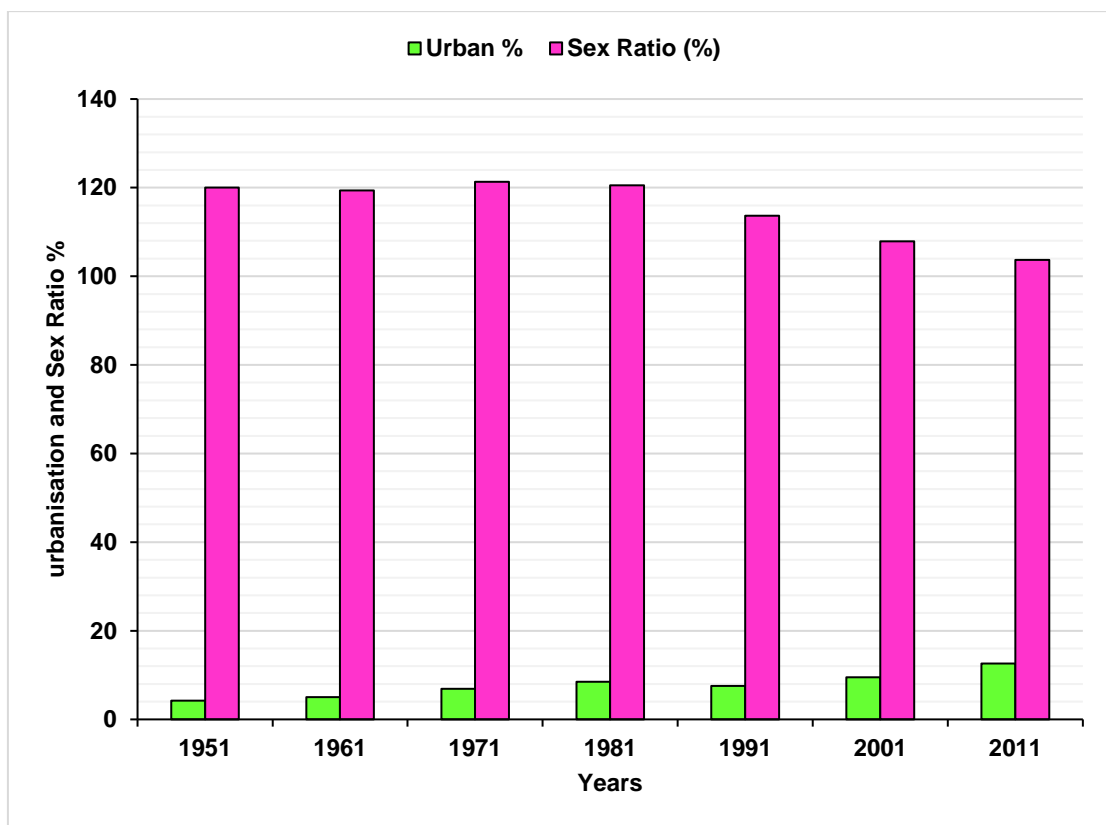


between 0 and -1 means that the two variables move in opposite directions. Then the relationship is said to be negatively correlated.

Like Ratnagiri district, Sindhudurg district also has **negative correlation** of urbanisation and sex ratio. The reason for this is very similar to Ratnagiri district. urbanisation has a strong effect on the quality of life in the city, family practices, and sources of income. In short, the emphasis is on family planning. Of course, the direct and indirect effect of this is seen when the sex ratio goes down.

**Figure: 5.3**

Urbanisation and Sex ratio in Sindhudurg District (1951-2011)



**Source:** Table No. 5.9

Above bar graph shows the urbanisation and sex ratio (1951-2011) in Sindhudurg district. In 1951 sex ratio was 1220 and urbanisation is very low i. e. 4.23%. In 1961 sex ratio was 1194 and urbanisation here little bit that is 5.02%; then 1971, 1981 and 1991 urbanisation is 6.88%, 8.48% and 7.58% but decline in sex ratio 1213, 1205 and 1137. After implementation of new economic policy, in 2001 urbanisation was is 9.47% and sex ratio 1079. Finally, 2011 sex ratio

is 1037 and urbanisation is highest level i.e., 12.59%. Above graph shows that as urbanisation rises there is decline in sex ratio.

### **Hypothesis Testing**

Here researcher has tested whether this correlation coefficient is significant or not using t-test. Our null hypothesis would be

$H_0$  : There is no significant correlation between urbanisation and sex ratio in Sindhurg district.

Researcher has tested this against the alternative hypothesis

$H_1$  : There is a significant correlation between urbanisation and sex ratio in Sindhurg district.

For doing this we use t-statistic given by

$$t = r \sqrt{\frac{n-2}{1-r^2}} \sim t_{n-2}$$

Where  $r$  = Pearson's correlation coefficient

$n$  = number of pairs of observations

Here the test statistic follows t-distribution with  $(n-2)$  degrees of freedom.

Putting  $r = -0.82719$  and  $n = 7$  he calculated value of test statistic is

$$t = -0.82719 \sqrt{\frac{7-2}{1-(-0.82719)^2}} = -3.2916$$

Comparing this calculated value with the table value of  $t$  at 5 % level of significance and 5 degrees of freedom i.e.  $t_{(5,0.05)} = 2.57$

Since  $|t_{cal}| = 3.2916 > t_{table} = 2.57$ ,

We reject  $H_0$  at 5 % Level of significance and accept  $H_1$ .

**Conclusion: There is significant negative correlation between urbanisation and sex ratio in Sindhurg district.**

**Table No. 5.10**

Urbanisation and Sex ratio in Mumbai Suburban District (1951-2011)

Mumbai suburban							
Year	Rural Sex Ratio	Rural Population %	Urban Sex Ratio	Urban Population %	Sex Ratio	Sex Ratio (%)	Correlation between urbanization and sex ratio
1951	728	3.98	711	96.02	712	71.20	0.674407544
1961	0	0.00	744	100.00	744	74.40	
1971	0	0.00	769	100.00	769	76.90	
1981	0	0.00	801	100.00	801	80.10	
1991	0	0.00	931	100.00	831	83.10	
2001	0	0.00	822	100.00	822	82.20	
2011	0	0.00	860	100.00	857	85.70	

**Source:** Census of India, 1951- 2011

The table above shows the sex ratio and urbanisation of Mumbai Suburban from 1951 to 2011. It shows that the sex ratio is increasing as urbanisation takes place but at the same time comparing Mumbai suburban with Ratnagiri and Sindhudurg districts shows that the more urbanisation there is, the less sex ratio there is and the more rural the population is, the sex ratio is high there.

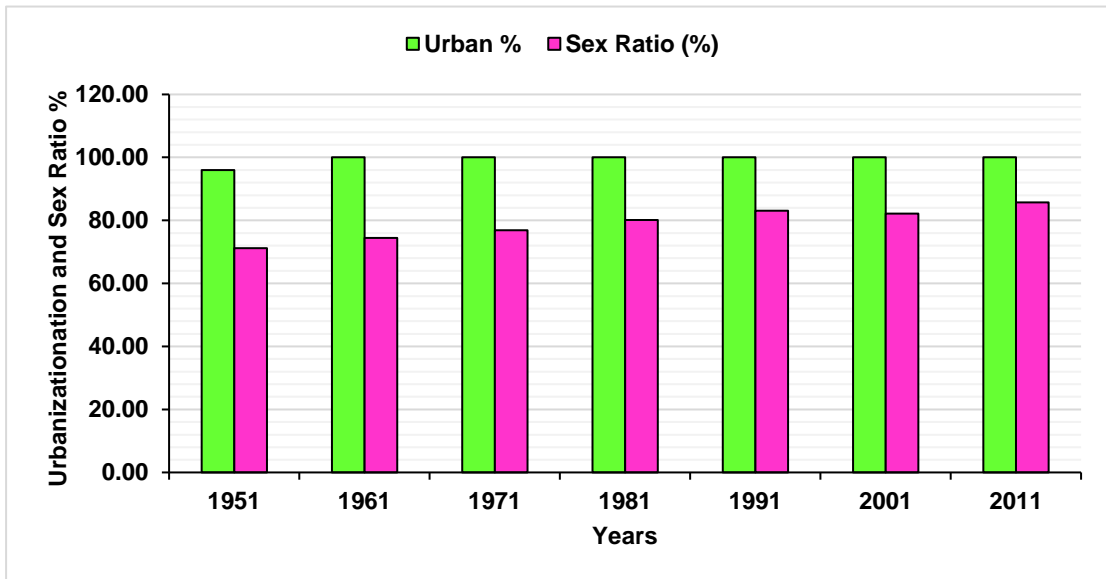
Understanding the above table shows that urbanisation is almost 100 percent, which implies that in keeping with the 1951 census, the sex ratio is 712, urbanisation is 96.02, and in the 1961 census, the sex ratio is 744, and urbanisation is 100%. Also, consistent with the census of 1971, 1981 and 1991, urbanisation is 100% and the sex ratio is 769, 801 and 831 respectively. This shows even after reaching 100% urbanization, the sex ratio is additionally increasing. As per the 2001 census, the sex ratio is 822, urbanisation is 100% and in the 2011 census, urbanisation is 100% and the sex ratio is 857.

### Positive correlation

A positive correlation—when the parametric statistic (correlation coefficient) is larger than 0—signifies that both variables move in the same direction. When the two variables being compared have an ideal positive relationship; when one variable moves higher or lower, the other variable moves in the same direction with the identical magnitude. The correlation between urbanisation and Sex Ratio in Mumbai Suburban districts is fairly high at 0.67.

**Figure: 5.4**

Urbanisation and Sex Ratio in Mumbai Suburban District (1951-2011)



**Source:** Table No. 5.10

The above bar diagram shows the urbanisation of Mumbai suburban and the sex ratio from 1951 to 2011. The bar diagram shows that Mumbai suburban was completely urbanized from 1961 to 2011. The Sex Ratio has steadily increased from 1951 to 2011.

### Hypothesis Testing

Here researcher has tested whether this correlation coefficient is significant or not using t-test. Our null hypothesis would be

$H_0$  : There is no significant correlation between urbanisation and sex ratio in Mumbai suburban district.

Researcher has tested this against the alternative hypothesis

$H_1$  : There is a significant correlation between urbanisation and sex ratio in Mumbai suburban district.

For doing this we use t-statistic given by

$$t = r \sqrt{\frac{n-2}{1-r^2}} \sim t_{n-2}$$

Where  $r$  = Pearson's correlation coefficient

$n$  = number of pairs of observations

Here the test statistic follows t-distribution with  $(n-2)$  degrees of freedom.

Putting  $r = 0.6744$  and  $n = 7$  the calculated value of test statistic is

$$t = 0.6744 \sqrt{\frac{7-2}{1-(0.6744)^2}} = 2.0424$$

Comparing this calculated value with the table value of t at 5 % level of significance and 5 degrees of freedom i.e.  $t_{(5,0.05)} = 2.57$

Since  $|t_{cal}| = 2.0424 < t_{table} = 2.57$ ,

We accept  $H_0$  at 5 % Level of significance.

**Conclusion:** There is no significant positive correlation between urbanisation and sex ratio in Mumbai suburban district.

**Table No. 5.11**

Urbanisation and Sex ratio in Mumbai District (1951-2011)

Mumbai Districts							
Year	Rural Sex Ratio	Rural Population %	Urban Sex Ratio	Urban Population %	Sex Ratio	Sex Ratio (%)	Correlation between urbanization and sex ratio
1951	0	0.00	574	100.00	574	57.40	Infinite
1961	0	0.00	626	100.00	626	62.60	
1971	0	0.00	670	100.00	670	67.00	
1981	0	0.00	729	100.00	729	72.90	
1991	0	0.00	791	100.00	791	79.10	
2001	0	0.00	777	100.00	777	77.70	
2011	0	0.00	832	100.00	838	83.80	

**Source:** Census of India, 1951- 2011

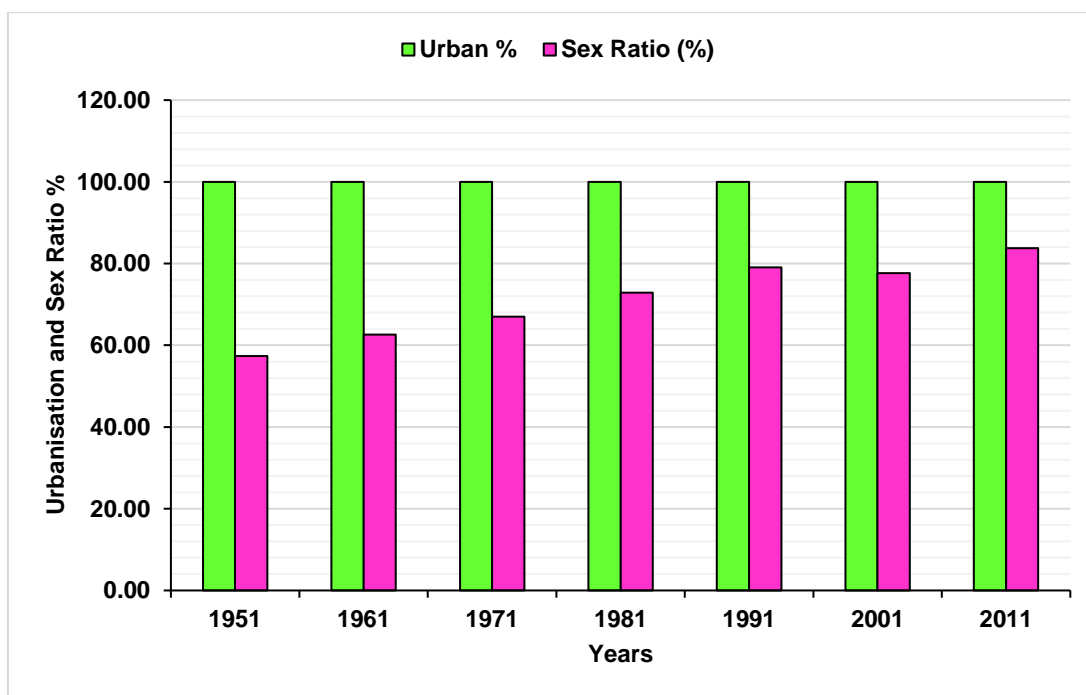
The table above shows the sex ratio of Mumbai district and compares it with urbanization. From this table it is seen that Mumbai district has been 100% urbanized since 1951. In 1951, the sex ratio was 574 and urbanisation was 100%. After the 1961, 1971 and 1981 censuses, the sex ratio changed to 626, 670 and 729. We see the effect of the new economic policy within the country after 1991. The sex ratio was 791 in 1991, 777 in 2001 and 838 in 2011, indicating that at the time of independence, the male-female ratio in Mumbai district was 574 and in 2011 it had been 838. It is seen that with the speed of urbanization, the sex ratio has also increased to some extent.

## Infinite correlation

Since there was no change in the urbanisation variable throughout the selected period, the correlation between the two variables being studied was infinite.

**Figure: 5.5**

Urbanisation and Sex Ratio in Mumbai District (1951-2011)



**Source:** Table No. 5.11

The above bar diagram shows the urbanisation of Mumbai district and the sex ratio from 1951 to 2011. The bar diagram shows that Mumbai district was completely urbanized from 1951 to 2011. Although there was no change in urbanization, Sex Ratio continued to improve in every census during the study period.

**Comparing** the four districts, it can be seen that there is a strong inverse relationship between urbanisation and sex ratio in Ratnagiri and Sindhudurg and a positive relationship in Mumbai Suburban and Mumbai. This could be due to the migration flows between the two sets of districts.

Census data shows that migration took place from the less developed Ratnagiri and Sindhudurg districts to the more developed districts of Mumbai and Mumbai suburban, as individuals moved in search of education and employment. Since most

migrants were male, the number of men in the districts of Mumbai and Mumbai Suburban increased. The number of men become more than the number women. This caused the sex ratio to be low. On the other hand, the families of the migrants continued to live in Ratnagiri and Sindhudurg and so the number of women became more than the number of men, causing a high sex ratio.

However, as urbanisation spread in Ratnagiri and Sindhudurg districts, education and employment opportunities became available and the number of men migrating to the more developed districts reduced. At the same time, more women become educated and started migrating to more developed districts, including Mumbai and Mumbai Suburban. Hence, the number of women in Mumbai increased and the sex ratio improved. In Ratnagiri and Sindhudurg, the number of men increased, causing the sex ratio to fall gradually over the period 1951 to 2011.

#### **5. 4. 5 Employment**

There is a close correlation between the sex ratio and the female workforce. In a broad sense, if women are financially capable, they will have to make relatively small adjustments at the time of marriage. Researchers have also found that married women are being exploited on a large scale, and that if this is to be stopped, it is imperative that women be included in the wider labour market. Only then have there be equality in the sex ratio, not otherwise. At the same time, unmarried women are largely financially capable. As women get job opportunities in the labour market, the result has been a higher status for women as wives and mothers. It is important to have a high sex ratio, but it is also important to have a good one. So, the only solution right now is to empower women financially in the labour market to reduce marital discord. If women want to get their rights in the true sense, then at the core of it is to make women financially active. In fact, a study by Marianne Ferber & Helen Berg in 2006 showed that women, including wives and mothers, can at the same time gain a respectable place in society. The assumption of the study here is that only if women are included in the labour market and they are accommodated, will satisfactory results be seen in the sex ratio (Ferber Marianne & Berg Helen, 2006, pp-02).

The nature of an activity and the extent of participation among economically productive workers are also crucial factors in identifying the status of women. When it comes to measuring the status of women in the society, the level of economic development of various sectors in the district, as well as the willingness of women to take the lead, as well as the entrepreneurship shown by women along with men in general enterprises, are important factors affecting the population distribution.

The Census in India has classified the population into main workers, marginal workers and non-workers. This classification is applicable to women and men.

#### **Main worker**

A person who has worked in a financially productive job for a selected period of time (i.e., at least six months or more in a year prior to the date of the previous census) is called a main worker. In short, “Workers who worked for more than six months (180 days) within the reference period are termed as main workers”.

#### **Marginal worker**

A person who worked for fewer than six months of the reference period (i.e. in the last one year preceding the date of enumeration) in any economic activity is termed as 'Marginal worker'. In short, “Workers who worked for less than six months (180 days) within the reference period are termed as marginal workers.”

#### **Non worker**

The person concerned is a person who has not worked in any financially productive activities during the selected reference period (i.e. last one year preceding the date of enumeration) is termed as 'Non worker'. Persons engaged in household duties, students, dependents, retired persons, rentiers, beggars are a few of the categories grouped as non-workers. (Census of India, 2001)

### **Ratnagiri District Analysis**

Table 5 .12 compiles data of Ratnagiri District Main Workers, Marginal Workers and Non-Workers including male-female as per Census of 1951 to 2011. One among the findings of the research is that there is a **correlation** between main worker, marginal workers and non-workers and sex ratio which can be seen by viewing this table. Also, since more than one parameter is taken in this table, **regression** of all these parameters is additionally shown.



**Table No. 5.12**

Number and percentage of main workers, marginal workers and non-workers in Ratnagiri District (1951-2011)

Ratnagiri District													
Year	Main workers				Marginal workers				Non workers				Sex Ratio
	Numbe		Percentage		Numbe		Percentage		Numbe		Percentage		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
1951	3756	539	0.78	0.09	51135	10532	10.64	1.77	429135	387119.114	89.27	98.14	1,239
1961	226573	246431	44.76	38.50	36,205	46,082	7.15	7.20	243433	347519	48.09	54.30	1264
1971	2,48,520	2,09,984	43.97	29.42	82221	12346	14.55	1.73	3,16,576	4,91,316	56.02	68.85	1263
1981	3,28,767	277470	43.01	26.83	20702	94451	6.49	2.73	415474	593419	54.26	63.65	1258
1991	319599	256157	45.74	10.78	14533	10451	0.78	1.09	366058	483189	52.47	88.13	1205
2001	337788	2,19,825	42.50	24.40	68,992	1,36,782	8.70	15.20	3,87,718	5,45,672	48.80	60.50	1136
2011	34408	21088	45.21	24.70	62919	96184	8.27	11.26	354113	546880	46.53	64.04	1122

**Source:** Census of India, 1951- 2011

Table 5.12 shows the total population and percentage wise male-female data of main, marginal and non-workers. **According to the 1951 census**, the total male population among main workers is 3756 (0.78%) and female 539 (0.09%). Also, the total male population in marginal workers is 51135 (10.64%) and female 10532 (1.77%). In short, the marginal workers population is higher than the main workers. The total male population among non-workers is 429135 (89.27%) and female 387119 (98.14%). According to the 1951 census, Ratnagiri district has a high number of marginal workers and non-workers. The male population is higher among main workers and non-workers and this has an effect on sex ratio. According to this census, the sex ratio is 1239. **According to the 1961 census**, the total male population among main workers is 226573 (44.76%) and female 246431 (38.50%). The total male population among marginal workers is 36205 (7.15%) and female 46082 (7.15%). In short, there was an increase in both main workers and marginal workers in 1961 compared to 1951. According to the same census, the total male population among non-workers is 243433 (48.09%) and female population is 347519 (54.30%) and the sex ratio is 1264 according to the census. **According to the 1971 census**, the total male population among the main workers is 248520 (43.97%) and female 209984 (29.42%). Also, the total male population in marginal workers is 82221 (14.55%) and female population is 12346 (1.73%). According to the same census, the number of non-workers is higher and the total male population is 316576 (56.02%) and female 491316 (68.85%). In short, with

the increase in female population among main workers and marginal workers, the sex ratio is decreasing. According to the same census, the sex ratio is 1263.

**According to the 1981 census**, the total male population among main workers is 328767 (43.01%) and female 277470 (26.83%). The total male population of marginal workers is 20702 (6.49%) and that of female is 94451 (2.73%). The total male population among non-workers is 415474 (54.26%) and female 593419 (63.65%). According to this census, the sex ratio is 1258. **According to the 1991 census**, the total male population among main workers is 319599 (45.74%) and female 256157 (45.74%). The total male population of marginal workers is 14533 (0.78%) and that of female is 10451 (1.09%). The total male population among non-workers is 366058 (52.47%) and female 483189 (88.13%). According to this census, the sex ratio is 1205.

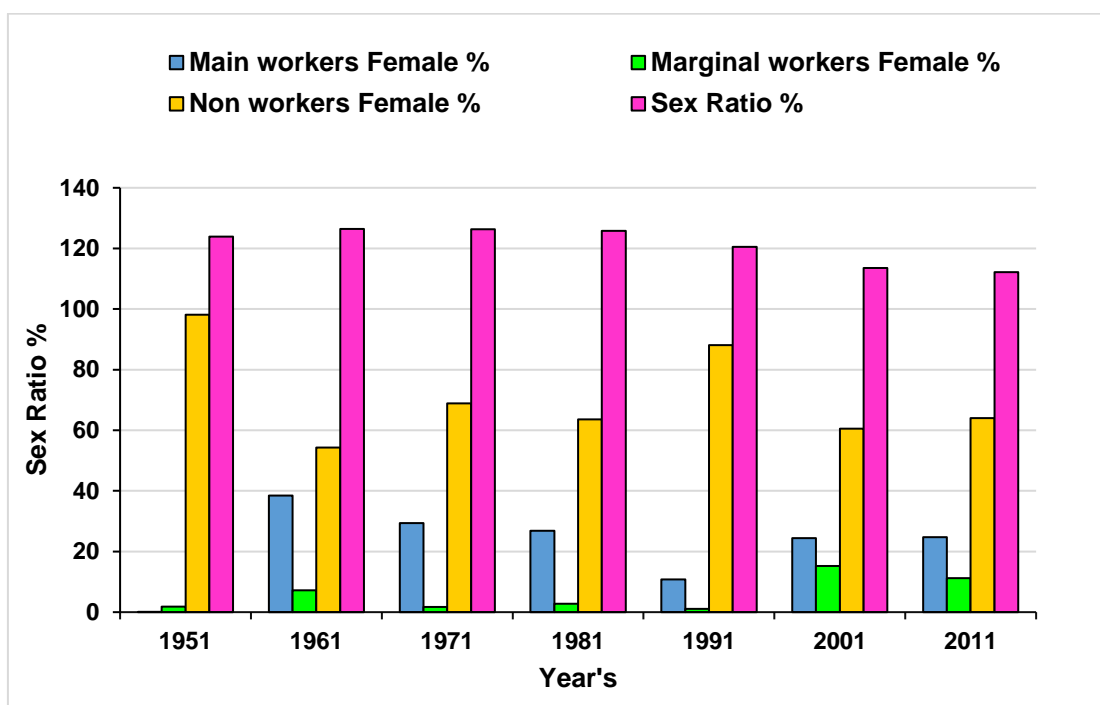
**According to the 2001 census**, Ratnagiri district has a total male population of 337788 (45.74%) and female 219825 (24.40%) of the main workers. The marginal workers in the same district have a total male population of 68992 (8.70%) and female 136782 (15.20%) while the total male population of non-workers is 38718 (48.80%) and female 545672 (60.50%). In short, according to the census, the overall population of Ratnagiri district has declined. That is why when compared to the previous census, according to the 2001 census, the sex ratio of this district is 1136.

**According to the 2011 census**, Ratnagiri district has a total male population of 34408 (45.21%) and female 21088 (24.70%) of the main workers. The marginal workers in the same district have a total male population of 62919 (8.27%) and female 96184 (11.26%) while the total male population of non-workers is 354113 (46.53%) and female 546880 (64.04%). In short, according to the census, the overall population of Ratnagiri district has declined. That is why when compared to the previous census, according to the 2011 census, the sex ratio of this district is 1122.

**Figure 5.6** shows sex ratio and bar diagram of main, marginal and non-workers in Ratnagiri district. This clearly shows that there is a close relationship between sex ratio and main and non-workers female. This can be seen in the figure below.

**Figure: 5.6**

Sex ratio and Percentage of main, marginal and non-workers in Ratnagiri District  
(1951-2011)



Source: Table No. 5.12

### Correlation

If the change in one variable appears to be accompanied by a change within the other variable, the two variables are said to be correlated and this interdependence is named correlation or covariation. Here the correlation is shown with the sex ratio, in which the researcher has tried to indicate whether the correlation of main, marginal and non-workers is with the sex ratio.

**Table No. 5.13**

Correlation & Regression between sex ratio and Percentage of main, marginal and non-workers in Ratnagiri District (1951-2011)

Year	Main workers Female %	Marginal workers Female %	Non workers Female %	Sex Ratio %	Correlation With	Corr. Coeff.	Regression
1951	0.09	1.77	98.14	123.9	Main workers Female	0.112405252	<b>0.77975</b>
1961	38.5	7.2	54.3	126.4			
1971	29.42	1.73	68.85	126.3			
1981	26.83	2.73	63.65	125.8	Marginal workers Female	-0.771866249	
1991	10.78	1.09	88.13	120.5			
2001	24.4	15.2	60.5	113.6	Non workers Female	0.124167879	
2011	24.7	11.26	64.04	112.2			

**Source:** Table No. 5.12

#### **Positive Correlation:**

Positive correlation is defined here as the same corresponding increase in another variable when one variable increases. The table above shows the aggregate data from the 1951 to 2011 census. There is a positive correlation between main workers and non-workers as shown in this table. Briefly, main workers female is 0.112 and non-workers female is 0.124.

#### **Negative Correlation:**

In negative correlation, we can define it here in such a way that the change in one variable is accompanied by a change in the other variable in the opposite direction. This is called negative correlation

On the other hand, the correlation of marginal workers female is negative and it is -0.771. In short, it is a positive correlation between main worker female and non-workers. Marginal workers, on the other hand, have a negative correlation with sex ratio.

## Regression

Regression analysis is a statistical method that helps us to analyse and understand the relationship between two or more variables of interest. The method that is adopted to perform regression analysis helps to understand which factors are important, which factors have been ignored, and the way they are influencing one another. (Christer, 2019)

### Multiple Linear Regression

Multiple linear regression analysis is basically similar to the simple linear model, with the exception that multiple independent variables are used in the model. The mathematical representation of multiple linear regression is:

$$Y = a + bX_1 + cX_2 + dX_3 + \epsilon$$

- Y – Dependent variable
- X1, X2, X3 – Independent (explanatory) variables
- a – Intercept
- b, c, d – Slopes

The benefits of this approach can include a more accurate and detailed view of the relationship between each particular factor and also the outcome. Another great advantage of multiple linear regression is the application of the multiple regression model in scientific research. Researchers may use multiple regression analysis to evaluate the strength of the relationship between an outcome (the dependent variable) and several predictor variables and the contribution of each predictor to the relationship, often with the influence of other predictors statistically eliminated.

Multiple regression shows that sex ratio performance can be predicted based on number of main female workers, marginal female workers and female-non workers.

**Table No. 5.14**

Regression Analysis between Types of Workers and Sex Ratio in Ratnagiri District  
for the period 1951 to 2011

Regression Statistics Ratnagiri								
Multiple R	0.883036383							
R Square	0.779753253							
Adjusted R Square	0.559506507							
Standard Error	4.02561124							
Observations	7							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	3	172.1205053	57.37350176	3.540362186	0.163379725			
Residual	3	48.61663757	16.20554586					
Total	6	220.7371429						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	127.8743101	68.69291487	1.861535652	0.159586683	-90.73720305	346.4858232	-90.73720305	346.4858232
Main workers Female	0.161739535	0.745304259	0.21701142	0.842120032	-2.210151251	2.533630322	-2.210151251	2.533630322
Marginal workers Female	-1.076305963	0.655030176	-1.643139511	0.198897923	-3.160904326	1.0082924	-3.160904326	1.0082924
Non workers Female	-0.054941298	0.690415419	-0.079577159	0.941584581	-2.252151298	2.142268703	-2.252151298	2.142268703

**Source:** Table No. 5.12

From the above table, it may be seen that,

1. **Multiple R** - is the positive square root of  $R^2$  i. e. **0.88303** this is shown in the above table about Ratnagiri district.
2.  **$R^2$  (R Square)** - represents the power of a model. It shows the amount of variation in the dependent variable the independent variable explains and always lies between values 0 and 1. From this it can be seen that, as there is a very close correlation between Main workers female, Marginal workers female & Non-workers female and sex ratio, its Regression value is **0.77975**.  **$R^2$ , this is 77%. Which means that selected factors are seen to affect the sex ratio by 77%.**
3. **Adjusted  $R^2$** - is  $R^2$  multiplied by an adjustment factor. This is used while comparing different regression models with different independent variables. This number comes in handy while deciding on the right independent variables in multiple regression models. The Adjusted  $R^2$  value here is **0.55950**.
4. **Standard Error** - is different from the standard error of the coefficients. This is the estimated standard deviation of the error of the regression equation and is a good measure of the accuracy of the regression line. The Standard Error value here is **4.025611**.

5. **Observations** - At this point the observation value is 07, in short data has been collected from 7 census reports from 1951 to 2011 at this place, which is a total of **70 years**.
6. **Analysis of Variance (ANOVA)** - Is an analysis tool used in statistics that splits an observed aggregate variability found inside a data set into two parts: systematic factors and random factors. The systematic factors have a statistical influence on the given data set, while the random factors do not. Here researcher have seen in detail whether the selected factors affect the sex ratio as follows.
7. **Degrees of freedom (df)** - Regression df is the number of independent variables in our regression model. Here the sex ratio depends on the selected 03 factors.
8. **Residual df** - Is the total number of observations (rows) of the dataset subtracted by the number of variables being estimated. Here residual df is value 03.
9. **Total df** - Is the sum of the regression and residual degrees of freedom i.e. 06.
10. **Regression SS** - is the total variation in the dependent variable that is explained by the regression model. It is the sum of the square of the difference between the predicted value and mean of the value of all the data points. From the ANOVA table, the regression SS is 172 and the total SS is 220, which means the regression model explains about  $172/220$  (around 77%) of all the variability in the dataset.
11. **Residual SS** - Is the total variation in the dependent variable that is left unexplained by the regression model. It is also called the Error Sum of Squares and is the sum of the square of the difference between the actual and predicted values of all the data points. From the ANOVA table, the residual SS is about **48**. In general, the comparatively smaller the error, the better the regression model explains the variation in the data set and so we would usually want to minimize this error.
12. **Total SS** - The sum of both regression and residual is SS. Total ss value is 220.73714.
13. **Mean Squared Errors (MS)** - are the mean of the sum of squares or the sum of squares divided by the degrees of freedom for both, regression (57.37) and residuals (16.20).
14. **F** - is used to test the hypothesis that the slope of the independent variable is zero ( $57.37/16.20$ ).
15. **Significance F** - is nothing but the p-value for the null hypothesis that the coefficient of the independent variable is zero and as with any p-value, a low p-

value indicates that a significant relationship exists between dependent and independent variables. Here the value of significance F is 0.16337.

16. **Intercept** - Is the point at which the line intersects the y-axis at  $x = 0$ . It is also the value the model would take or predict when  $x$  is 0. Main workers female (0.1617), Marginal workers female (-1.0763) and Non workers female (-0.0549) these are included here.

17. **Coefficients** - provide the impact or weight of a variable towards the entire model. In other words, it provides the amount of change in the dependent variable for a unit change in the independent variable. Coefficients value of Ratnagiri district has been taken here. In this mainly Main worker female, Marginal workers female and non-workers female is taken into account.

18. **Standard Error** - provides the estimated standard deviation of the distribution of coefficients. It is the amount by which the coefficient varies across different cases. A coefficient much greater than its standard error implies a probability that the coefficient is not 0. Main workers female (0.745), Marginal workers female (0.655) and Non workers female (0.690) these are included here under standard error.

19. **t-Stat** - is the t-statistic or t-value of the test and its value is equal to the coefficient divided by the standard error. Main workers female (0.217), Marginal workers female ((-1.643) and Non workers female (-0.079) these are included this all t- stat value.

20. **P - value** — The t-statistic is compared with the t distribution to determine the p-value. We usually only consider the p-value of the independent variable which provides the likelihood of obtaining a sample as close to the one used to derive the regression equation and verify if the slope of the regression line is actually zero or the coefficient is close to the coefficient obtained.

A p-value below 0.15 indicates 85% confidence that the slope of the regression line is not zero and hence there is a significant linear relationship between the dependent and independent variables.

A p-value greater than 0.15 indicates that the slope of the regression line may be zero and that there is not sufficient evidence at the 85% confidence level that a significant linear relationship exists between the dependent and independent variables.

The linear relationship between sex ratio and factors affecting it is as follows, Main workers female (0.84212), Marginal workers female (0.198897) and non-workers



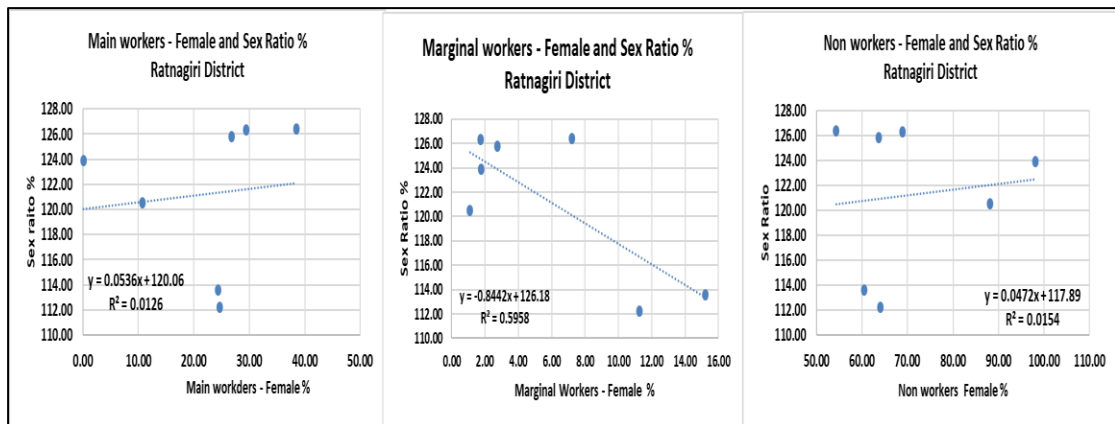
female (0.941584). confident that there is a significant linear relationship between sex ratio and the selected determinants.

21. **Lower and Upper 95%** - Since we mostly use a sample of data to estimate the regression line and its coefficients, they are mostly an approximation of the true coefficients and in turn the true regression line. The lower and upper 95% boundaries give the 95th confidence interval of lower and upper bounds for each coefficient (Vijalapuram Sharad, 2019, pp01-13).

In the Table no. 5.8 show the Regression also gives you an R squared value, which for this graph is 0.7795. This number tells researcher how good your model is. The values range from 0 to 1, with 0 being a bad model and 1 being an ideal model. So 0.7 could be a fairly decent model so researcher may be fairly confident in sex ratio prediction.

**Figure: 5.7**

Linear regression with Sex ratio, Percentage of main, marginal and non-workers in Ratnagiri District (1951-2011)



Source: Table No. 5.12

From this figure 5.7 it would appear there is a relationship between sex ratio and the Percentage of main, marginal and non – workers female.

### Hypothesis Testing

Since the R square value is 77% between sex ratio and selected determinants i.e. Main workers female is -2.21015 (Lower 95%) & 2.53363 (Upper 95%); Marginal workers female is -3.16090 (Lower 95%) & 1.00829 (Upper 95%) and Non-workers female is -

2.25215 (Lower 95%) & 1.00829 (Upper 95%); the boundaries do contain zero and hence the coefficients may be zero for some sample and so, we can be 77% confident that there is a significant linear relationship between sex ratio and the selected determinants in Ratnagiri district.

### **Sindhudurg District Analysis**

The following table shows the quantity and percentage of main workers, marginal workers and non-workers in Sindhudurg.

**According to the 1951 census**, the number of male workers was 1544 (0.50%) and feminine workers 117 (0.03%). Marginal workers male 32141 (10.45%) and female workers 11832 (3.21%) and non-workers male 273740 (89.04%) while female non-workers 356961 (96.76%) and according to this census the sex ratio was 1200.

**According to the 1961 census**, the main male workers are 8091 (2.45%) & female workers 4814 (1.22%). There are more male workers and less female workers.

According to the same census, non-workers male is 273740 (82.86%) and female non-workers 356961 (90.49%). According to this census, sex ratio is 1194.

**According to the 1971 census**, male main workers are 96864 (28.28%) and female main workers are 69233 (16.67%). Among the marginal workers, male workers are 122022 (35.63%), female workers are 155328 (37.39%) and male non-workers are 123597 (36.09%) and female non-workers are 190873 (45.95%). According to this census, sex ratio is 1213.

**According to the 1981 census**, among the main workers, male is 136981 (38.68%) and female workers is 103585 (24.27%). Among marginal workers, male constitute 42475 (11.99%) and female 77105 (18.07%). Non-workers include 174689 male (49.33%) and female 246056 (57.66%). According to the census, the sex ratio is 1205.

**According to the 1991 census**, the main workers are 186281 (47.84%) male and 132210 (29.86%) female. Among the marginal workers, male constitute 13005 (3.14%) and female 63714 (14.39%). Non-workers include 188150 male (48.32%) and female 246843 (55.75%) with a sex ratio of 1137.

**According to the 2001 census**, male are 161489 (38.60%) and female 72338 (16.00%) in the main workers, while male are 66868 (16.00%) male and 104290 female (23.10%) in the marginal workers. According to the same census, there are 189533 (45.40%) male and 274307 (60.80%) female among non-workers. According to this census, the sex ratio is 1079.

**According to the 2011 census**, among

the main workers, male constitute 164720 (39.47%) and female 61778 (14.29%). male constitute 64936 (15.36%) and female 55682 (12.88%) in marginal workers, while male constitute 187676 (49.33%) and female 314859 (57.66%) in non-workers. According to the census, the sex ratio is 1037.

A study of main, marginal and non-workers of Sindhudurg district shows that as the number of main female workers increases, so does the female to male ratio. According to the 1991, 2001 and 2011 censuses, the sex ratio has declined, mainly due to the overall decline within the population of the district.

**Table No. 5.15**

Number and percentage of main workers, marginal workers and non-workers in Sindhudurg District (1951-2011)

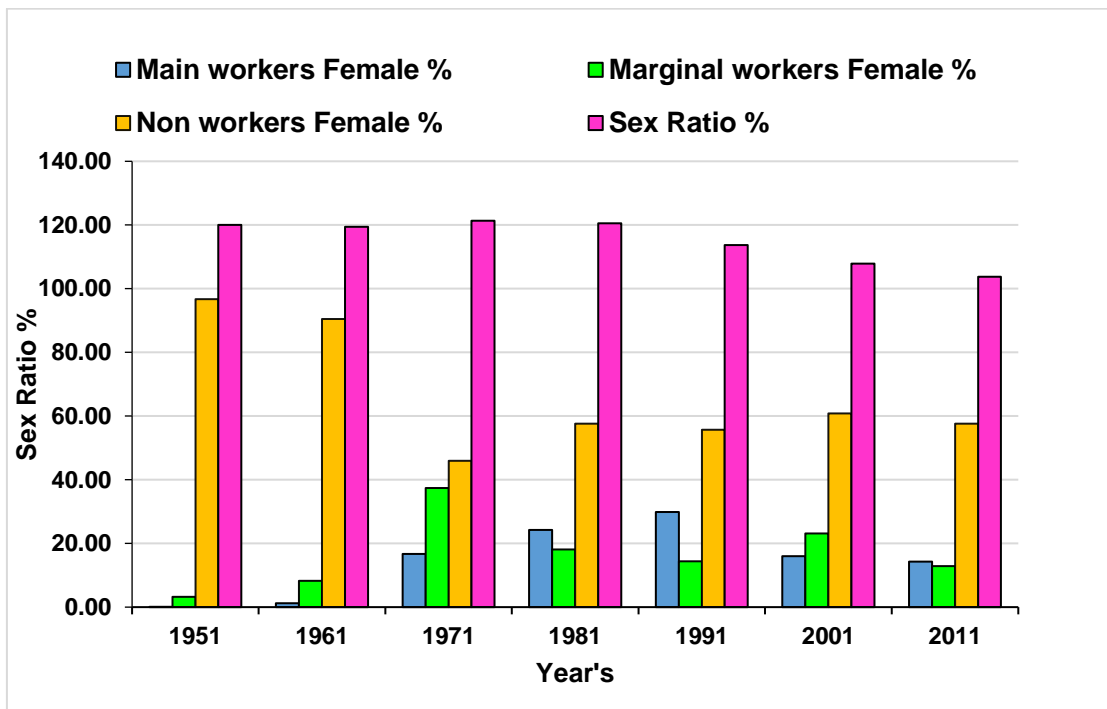
Sindhudurgha District													
Year	Main workers				Marginal workers				Non workers				Sex Ratio
	Numbe		Percentage		Numbe		Percentage		Numbe		Percentage		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
1951	1544	117	0.50	0.03	32141	11832	10.45	3.21	273740	356961	89.04	96.76	1200
1961	8,091	4,814	2.45	1.22	48,532	32679	14.69	8.28	2,73,740	3,56,961	82.86	90.49	1194
1971	96,864	69,233	28.28	16.67	1,22,022	1,55,328	35.63	37.39	1,23,597	1,90,873	36.09	45.95	1213
1981	1,36,981	103585	38.68	24.27	42,475	77,105	11.99	18.07	174689	246056	49.33	57.66	1205
1991	186281	132210	47.84	29.86	13005	63714	3.34	14.39	188150	246843	48.32	55.75	1137
2001	161489	72,338	38.60	16.00	66,868	1,04,290	16.00	23.10	1,89,533	2,74,307	45.40	60.80	1079
2011	164720	61778	39.47	14.29	64936	55682	15.56	12.88	1,87,676	314859	49.33	57.66	1037

**Source:** Census of India, 1951- 2011

**Figure 5.8** shows sex ratio and bar diagram of main, marginal and non-workers within Sindhudurg district. This clearly shows that there is a close relationship between sex ratio and main and non-workers female. This can be seen within the figure below.

**Figure: 5.8**

Sex ratio and Percentage of main, marginal and non-workers in Sindhudurg District (1951-2011)



Source: Table No. 5.15

**Correlation and Regression about Sindhudurg district with main, marginal and non-workers.**

After this, in the following table of Sindhudurg district, the researcher has shown whether there is a Correlation and Regression between the sex ratio of main marginal and non-workers.

**Table No. 5.16**

Correlations & Regression between sex ratio and Percentage of main, marginal and non-workers in Sindhudurg District (1951-2011)

Year	Main workers Female %	Marginal workers Female %	Non workers Female %	Sex Ratio %	Correlation With	Corr. Coeff.	Regression
1951	0.03	3.21	96.76	120.00	Main workers Female	-0.199059869	<b>0.57995</b>
1961	1.22	8.28	90.49	119.40			
1971	16.67	37.39	45.95	121.30			
1981	24.27	18.07	57.66	120.50	Marginal workers Female	0.072775718	
1991	29.86	14.39	55.75	113.70			
2001	16.00	23.10	60.80	107.90	Non workers Female	0.288884069	
2011	14.29	12.88	57.66	103.70			

**Source:** Table No. 5.15

#### **Positive Correlation:**

When the rise in one variable is followed by a corresponding increase within the other variable; the correlation is alleged to be positive correlation. The table above shows the aggregate data from the 1951 to 2011 census. There is a positive correlation between marginal workers, non-workers and sex ratio as shown in this table. Briefly, correlation of sex ratio with marginal workers female is 0.072 and non-workers female is 0.288.

#### **Negative Correlation:**

If, on the other hand, the increase in one variable leads to a corresponding decrease within the other variable, the correlation is said to be negative correlation.

On the other hand, the correlation of sex ratio and main workers female is negative and it is - 0.199. In short, it is a positive correlation between sex ratio and marginal worker female and non-workers. Female Main workers, on the other hand, have a negative correlation with sex ratio.

**Table No. 5.17**

Regression Analysis between Types of Workers and Sex Ratio in Sindhudurg District  
for the period 1951 to 2011

Regression Statistics Sindhudurg								
Multiple R	0.761545065							
R Square	0.579950886							
Adjusted R Square	0.159901771							
Standard Error	6.413455342							
Observations	7							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	170.3713432	56.79044772	1.380673987	0.398638849			
Residual	3	123.3972283	41.13240942					
Total	6	293.7685714						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	30.5246795	45.12978824	0.676375421	0.547280697	-113.0984483	174.1478073	-113.0984483	174.1478073
Main workers Female	0.72567419	0.551290917	1.316318059	0.279603577	-1.028779552	2.480127932	-1.028779552	2.480127932
Marginal workers Female	0.928493549	0.496054853	1.8717558	0.15797857	-0.650174387	2.507161484	-0.650174387	2.507161484
Non workers Female	0.880796847	0.463489384	1.900360348	0.15357699	-0.594233231	2.355826925	-0.594233231	2.355826925

**Source:** Table No. 5.15

From the above table, it may be seen that,

1. **Multiple R** - is the positive square root of  $R^2$  i. e. **0.76154** this is shown in the above table about Sindhudurg district.
2.  **$R^2$  (R Square)** - From this it can be seen that, as there is a very close correlation between Main workers female, Marginal workers female & Non-workers female and sex ratio, its Regression value is **0.57995**.  **$R^2$ , this is 57%. Which means that selected factors are seen to affect the sex ratio by 57%.**
3. **Adjusted  $R^2$** - is  $R^2$  multiplied by an adjustment factor. The Adjusted  $R^2$  value here is 0.15990.
4. **Standard Error** - The Standard Error value here is 6.41345.
5. **Observations** - At this point the observation value is 07, in short data has been collected from 1951 to 2011 at this place, which is a total of 70 years.
6. **Analysis of Variance (ANOVA)** - The systematic factors have a statistical influence on the given data set, while the random factors do not. Here researcher have seen in detail whether the selected factors affect the sex ratio as follows.
7. **Degrees of freedom (df)** - Regression df is the number of independent variables in our regression model. Here the sex ratio depends on the selected 03 factors.

8. **Residual df** - Is the total number of observations (rows) of the dataset subtracted by the number of variables being estimated. Here residual df is value 03.
9. **Total df** - Is the sum of the regression and residual degrees of freedom i.e. 06.
10. **Regression SS** - From the ANOVA table, the regression SS is 170 and the total SS is 293, which means the regression model explains about  $170/293$  (around 57%) of all the variability in the dataset.
11. **Residual SS** - From the ANOVA table, the residual SS is about 123. In general, the comparatively smaller the error, the better the regression model explains the variation in the data set and so we would usually want to minimize this error.
12. **Total SS** - The sum of both regression and residual is SS or if this factor affecting the sex ratio is not taken into account, the results may be different. Total ss value is 293.768571.
13. **Mean Squared Errors (MS)** - are the mean of the sum of squares or the sum of squares divided by the degrees of freedom for both, regression (56.79) and residuals (41.13).
14. **F** - is used to test the hypothesis that the slope of the independent variable is zero ( $56.79/41.13$ ).
15. **Significance F** - Here the value of significance F is 0.39863
16. **Intercept** - Is the point at which the line intersects the y-axis at  $x = 0$ . It is also the value the model would take or predict when  $x$  is 0. Main workers female (0.72567), Marginal workers female 0.92849) and non-workers female (0.88079) these are included here.
17. **Coefficients** - Coefficients value of Sindhudurg district has been taken here. In this mainly Main workers female, Marginal workers female and non-workers female.
18. **Standard Error** - Main workers female (0.55129), Marginal workers female (0.49605) and Non-workers female (0.46348) these are included here under standard error.
19. **t- Stat** - Main workers female (1.31631), Marginal workers female (1.87175) and Non-workers female (1.90036) these are included this all t- stat value.
20. **P - value** —The linear relationship between sex ratio and factors affecting it is as follows, Main workers female (0.27960), Marginal workers female (0.15797) and non-workers female (0.15357). Confident that there is a significant linear relationship between sex ratio and the selected determinants.

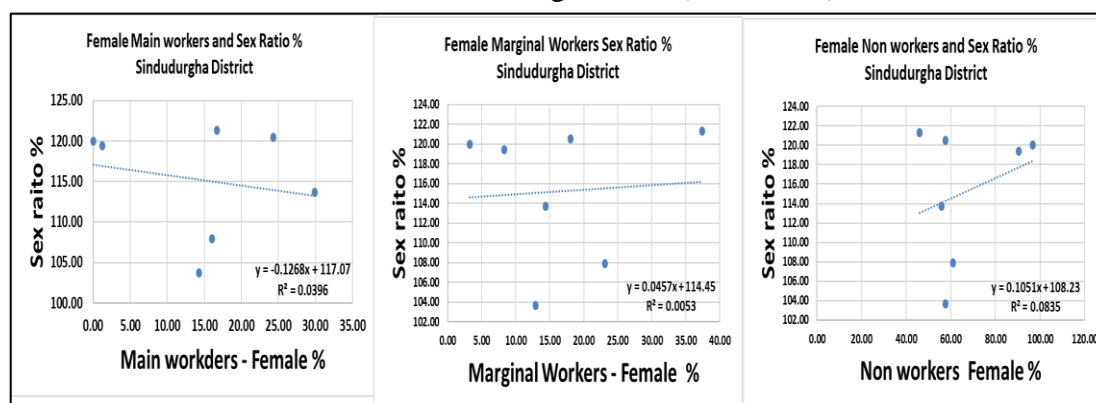
21. **Lower and Upper 95%** - Since the 57% confidence sex ratio and selected determinants i.e. Main workers female is -1.02877 (Lower 95%) & 2.48012 (Upper 95%); Marginal workers female is -0.65017 (Lower 95%) & 2.507161 (Upper 95%) and Non-workers female is -0.594233 (Lower 95%) & 2.35582 (Upper 95%); the boundaries do not contain zero and so, we can be 57% confident that there is a significant linear relationship between sex ratio and the chance of selected determinants in Sindhudurg district.

### Regression

In the Table no. 5.17 show the Regression also gives you an R squared value, which for this graph is 0.57995. This number tells researcher how good your model is. The values range from 0 to 1, with 0 being a bad model and 1 being an ideal model. So 0.57 is a fairly decent model so researcher can be fairly confident in sex ratio prediction.

**Figure: 5.9**

Linear regression with Sex ratio, Percentage of main, marginal and non-workers female in Sindhudurg District (1951-2011)



**Source:** Table 5.15

As shown in the figure 5.9, slope of female worker and sex ratio is left to right downward and it is  $R^2$  0.0396. Also, the slope of female marginal workers and sex ratio is left to right upward with  $R^2$  0.0053 and slope of female non-workers and sex ratio is left to right upward slope, and  $R^2$  value is 0.0835. Since these values are very low, correlation between sex ratio and individual female worker factor is negligible in Sindhudurg district.



## Hypothesis Testing

Since the  $R^2$  value is 57% between sex ratio and selected determinants i.e. Main workers female is -1.02877 (Lower 95%) & 2.48012 (Upper 95%); Marginal workers female is -0.65017 (Lower 95%) & 2.507161 (Upper 95%) and Non-workers female is -0.594233 (Lower 95%) & 2.35582 (Upper 95%); the boundaries do contain zero and hence the coefficients may be zero for some sample and so, we can be 57% confident that there is a significant linear relationship between sex ratio and the chance of selected determinants in Sindhudurg district.

## Mumbai Suburban district Analysis

Table 5.16 shows the total population and percentage wise male-female data of main, marginal and non-workers in **Mumbai Suburban district**. **According to the 1951 census**, the total male population among workers is 15197 (3.91%) and female 2048 (0.74%). Also the total male population in marginal workers is 193913 (49.89%) and female 996 (0.36%). In short, the marginal workers population is higher than the main workers. The total male population among non-workers is 225046 (57.89%) and female 273697 (98.90%). According to the 1951 census, Mumbai Suburban district has the highest number of marginal workers and non-workers. The male population is higher among main workers and non-workers and this has an effect on sex ratio. According to this census, the sex ratio is 712. **According to the 1961 census**, the total male population among main workers is 1540861 (60.34%) and female 145807 (09.12%). The total male population among marginal workers is 57.363 (2.25%) and female 13637 (0.85%). In short, there was an increase in both main workers and female workers in 1961 compared to 1951. According to the same census, the total male population among non-workers is 955315 (37.41%) and female population is 1439073 (90.03%) and the sex ratio is 744 according to the census. **According to the 1971 census**, the total male population among the main workers is 2005728 (56.10%) and female 172947 (7.12%). Also, the total male population in marginal workers is 55416 (1.55%) and female population is 19402 (0.81%). According to the same census, the

number of non-workers is higher and the total male population is 1514050 (42.35%) and female 2203032 (91.97%). In short, with the increase in female population among main workers and marginal workers, the sex ratio is also increasing. According to the same census, the sex ratio is 769.

**According to the 1981 census**, the total male population among main workers is 1592953 (54.86%) and female 188769 (8.56%). The total male population of marginal workers is 16243 (0.59%) and that of female is 9041 (0.41%). The total male population among non-workers is 1227890 (44.60%) and female 2007437 (91.03%). According to this census, the sex ratio is 801. **According to the 1991 census**, the total male population among main workers is 3007332 (43.08%) and female 492010 (8.91%). The total male population of marginal workers is 28021 (0.76%) and that of female is 28707 (0.52%). The total male population among non-workers is 3943988 (56.51%) and female 4999942 (90.57%). According to this census, the sex ratio is 831.

**According to the 2001 census**, Mumbai suburban district has a total male population of 2524384 (53.20%) and female 446655 (11.50%) of the main workers. The marginal workers in the same district have a total male population of 128751 (02.70%) and female 52719 (01.40%) while the total male population of non-workers is 2088585 (44.00%) and female 3399325 (87.20%). In short, according to the census, the overall population of Mumbai Suburban district has risen. That is why when compared to the previous census, according to the 2001 census, the sex ratio of this district is 822.

**According to the 2011 census**, Mumbai suburban district has a total male population of 2811481 (55.88%) and female 704441 (16.29%) of the main workers. The marginal workers in the same district have a total male population of 132541 (2.64%) and female 86258 (1.99%) while the total male population of non-workers is 2087001 (41.48%) and female 3534940 (81.72%). In short, according to the census, the overall population of Mumbai Suburban district has risen. That is why when compared to the previous census, according to the 2011 census, the sex ratio of this district is 857.

**Table No. 5.18**

Number and percentage of main workers, marginal workers and non-workers in Mumbai Suburban District (1951-2011)

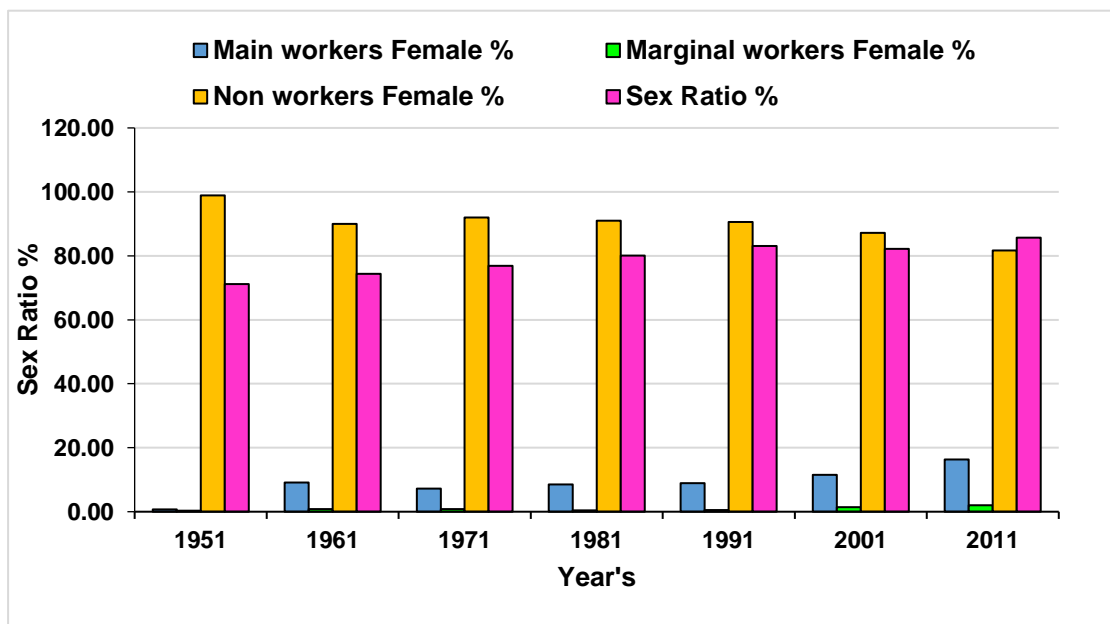
Mumbai Suburban													
Year	Main workers				Marginal workers				Non workers				Sex Ratio
	Numbe		Percentage		Numbe		Percentage		Numbe		Percentage		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
1951	15197	2048	3.91	0.74	193913	996	49.89	0.36	225046	273697	57.89	98.90	712
1961	1540861	145807	60.34	9.12	57363	13637	2.25	0.85	955315	1439073	37.41	90.03	744
1971	20,05,728	1,72,947	56.10	7.22	55,416	19,402	1.55	0.81	15,14,050	22,03,032	42.35	91.97	769
1981	15,92,953	1,88,769	54.86	8.56	16,243	9,041	0.59	0.41	12,27,890	2,00,74,37	44.60	91.03	801
1991	3,00,73,32	4,92,010	43.08	8.91	28,021	2,87,07	0.76	0.52	3,94,39,88	4,99,99,42	56.51	90.57	831
2001	2,52,43,84	4,46,655	53.20	11.50	1,28,751	52,719	2.70	1.40	20,88,585	33,99,325	44.00	87.20	822
2011	2,81,14,81	7,04,441	55.88	16.29	1,32,541	86,258	2.64	1.99	20,87,001	35,34,940	41.48	81.72	857

Source: Census of India, 1951- 2011

Figure 5.10 shows sex ratio and bar diagram of main, marginal and non-workers in Sindhudurg district. This clearly shows that there is a close relationship between sex ratio and main and non-workers female. This can be seen in the figure below.

**Figure: 5.10**

Sex ratio and Percentage of main, marginal and non-workers in Mumbai Suburban District (1951-2011)



Source: Table 5.18

**Correlation and Regression about Mumbai Suburban district with main, marginal and non-workers.**

After this, within the following table of Mumbai Suburban district, the researcher has shown whether there is a Correlation and Regression between the sex ratio of main marginal and non-workers.

**Table No. 5.19**

Correlations & Regression between sex ratio and Percentage of main, marginal and non-workers in Mumbai Suburban District (1951-2011)

Year	Main workers Female %	Marginal workers Female %	Non workers Female %	Sex Ratio %	Correlation With	Corr. Coeff.	Regression
1951	0.74	0.36	98.90	71.20	Main workers Female	0.855603563	<b>0.78106717</b>
1961	9.12	0.85	90.03	74.40			
1971	7.22	0.81	91.97	76.90			
1981	8.56	0.41	91.03	80.10	Marginal workers Female	0.620348959	
1991	8.91	0.52	90.57	83.10			
2001	11.50	1.40	87.20	82.20	Non workers Female	-0.842065192	
2011	16.29	1.99	81.72	85.70			

**Source:** Table No. 5.18

**Positive Correlation:**

When the increase in one variable is followed by a corresponding increase within the other variable; the correlation is said to be positive correlation. The above table indicates the aggregate data from the 1951 to 2011 census. There is a positive correlation between main workers and marginal workers and sex ratio as shown in this table. Briefly, the correlation of sex ratio with main workers female is 0.855 and marginal female is 0.620.

## Negative Correlation:

If, on the other hand, the increase in one variable leads to in a corresponding decrease within the other variable, the correlation is said to be negative correlation.

On the other hand, the correlation of non-workers female is negative and it is - 0.842. In short, it is a positive correlation between main worker female and marginal workers. Female Non-workers, on the other hand, have a negative correlation with sex ratio.

**Table No. 5.20**

Regression Analysis between Types of Workers and Sex Ratio in Mumbai Suburban District for the period 1951 to 2011

Regression Statistics								
Mumbai Suburban								
Multiple R	0.883780045							
R Square	0.781067168							
Adjusted R Square	0.562134336							
Standard Error	3.411825673							
Observations	7							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	124.5869082	41.52896939	3.567610947	0.161994646			
Residual	3	34.92166327	11.64055442					
Total	6	159.5085714						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-1649.30719	3990.844554	-0.413272722	0.707171103	-14349.9557	11051.34132	-14349.9557	11051.34132
Main workers Female	18.50229268	39.99014027	0.462671362	0.675094013	-108.7641815	145.7687668	-108.7641815	145.7687668
Marginal workers Female	13.53578324	38.70097396	0.349753039	0.749636922	-109.6279884	136.6995548	-109.6279884	136.6995548
Non workers Female	17.19861115	39.90916322	0.430943918	0.69559673	-109.8101579	144.2073802	-109.8101579	144.2073802

**Source:** Table No. 5.18

From the above table, it may be seen that,

1. **Multiple R** - is the positive square root of  $R^2$  i. e. 0.88378 this is shown in the above table about Mumbai Suburban district.
2.  **$R^2$  (R Square)** - From this it can be seen that, as there is a very close correlation between Main workers female, Marginal workers female & Non-workers female and sex ratio, its Regression value is **0.781063**.  **$R^2$ , this is 78%. Which means that selected factors are seen to affect the sex ratio by 78%.**
3. **Adjusted  $R^2$** - is  $R^2$  multiplied by an adjustment factor. The Adjusted  $R^2$  value here is 0.56213.
4. **Standard Error** - The Standard Error value here is 3.41182.

5. **Observations** - At this point the observation value is 07, in short data has been collected from 1951 to 2011 at this place, which is a total of 70 years.
6. **Analysis of Variance (ANOVA)** - The systematic factors have a statistical influence on the given data set, while the random factors do not. Here researcher have seen in detail whether the selected factors affect the sex ratio as follows.
7. **Degrees of freedom (df)** - Regression df is the number of independent variables in our regression model. Here the sex ratio depends on the selected 03 factors.
8. **Residual df** - Is the total number of observations (rows) of the dataset subtracted by the number of variables being estimated. Here residual df is value 03.
9. **Total df** - Is the sum of the regression and residual degrees of freedom i.e. 06.
10. **Regression SS** - From the ANOVA table, the regression SS is 124 and the total SS is 159, which means the regression model explains about 124/159 (around 78%) of all the variability in the dataset.
11. **Residual SS** - From the ANOVA table, the residual SS is about 34. In general, the comparatively smaller the error, the better the regression model explains the variation in the data set and so we would usually want to minimize this error.
12. **Total SS** - The sum of both regression and residual ss is or if this factor affecting the sex ratio is not taken into account, the results may be different. Total ss value is 159.5085.
13. **Mean Squared Errors (MS)** - are the mean of the sum of squares or the sum of squares divided by the degrees of freedom for both, regression (41.52) and residuals (11.64).
14. **F** - is used to test the hypothesis that the slope of the independent variable is zero (41.52/11.64).
15. **Significance F** - Here the value of significance F is 0.16199.
16. **Intercept** - Is the point at which the line intersects the y-axis at  $x = 0$ . It is also the value the model would take or predict when  $x$  is 0. Main workers female (18.50229), Marginal workers female (13.53578) and Non-workers female (17.198611) these are included here.
17. **Coefficients** - Coefficients value of Mumbai Suburban district has been taken here. In this mainly Main workers female, Marginal workers female and Includes non-workers female.

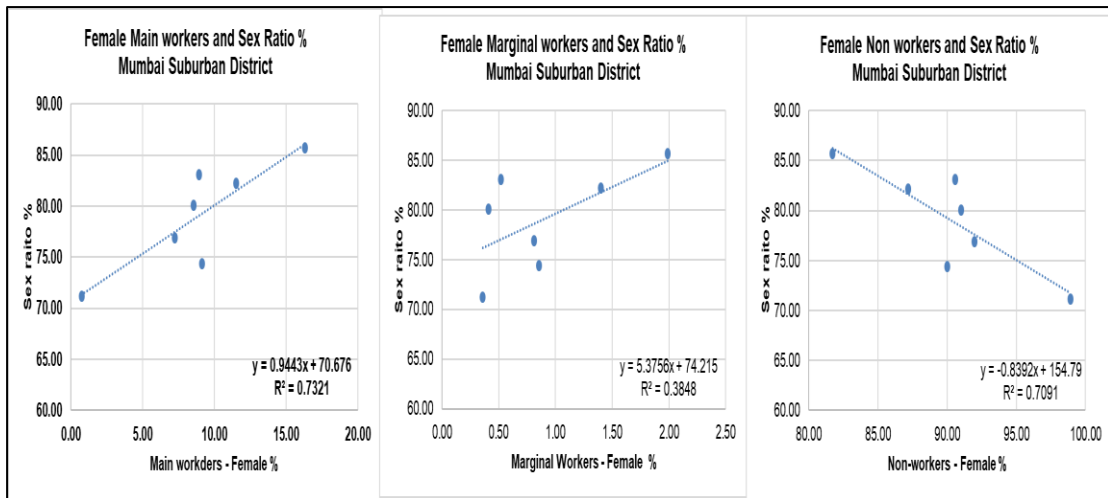
18. **Standard Error** - Main workers female (39.99014), Marginal workers female (38.70097) and Non-workers female (39.90916) these are included here under standard error.
19. **t- Stat** - Main workers female (0.462671), Marginal workers female (0.34975) and Non-workers female (0.43094) these are included this all t- stat value.
20. **P - value** —The linear relationship between sex ratio and factors affecting it is as follows, Main workers female (0.67509), Marginal workers female (0.74963) and Includes non-workers female (0.69559). Confident that there is a significant linear relationship between sex ratio and the selected determinants.
21. **Lower and Upper 95%** - Since the 78% confidence sex ratio and selected determinants i.e. Main workers female is -108.7641 (Lower 95%) & 145.7687 (Upper 95%); Marginal workers female is -109.62798 (Lower 95%) & 136.6995 (Upper 95%) and Non-workers female is -109.81015 (Lower 95%) & 144.20738 (Upper 95%); the boundaries do not contain zero and so, we can be 78% confident that there is a significant linear relationship between sex ratio and the chance of selected determinants in Mumbai Suburban district.

### **Regression**

In the Table no. 5.20 show the Regression also gives you an R squared value, which for this graph is 0.7810671. This number tells researcher how good your model is. The values range from 0 to 1, with 0 being a bad model and 1 being a perfect model. It can be seen that 0.7 is a fairly decent model so researcher can be fairly confident in sex ratio prediction.

**Figure: 5.11**

Linear regression with Sex ratio, Percentage of main, marginal and non-workers female in Mumbai Suburban District (1951-2011)



**Source:** Table no. 5.18

As shown in the Figure 5.11, slope of main female worker and sex ratio is left to right upward and it is  $R^2$  0.2321. The slope of female marginal workers and sex ratio is left to right upward with  $R^2$  0.3848 and slope of female non-workers and sex ratio is left to right downward slope, and  $R^2$  value is 0.7091. Here  $R^2$  values are fairly high and hence these variables can be used for prediction of sex ration.

### Hypothesis Testing

Since the  $R^2$  value is 78% between sex ratio and selected determinants i.e. Main workers female is -108.7641 (Lower 95%) & 145.7687 (Upper 95%); Marginal workers female is -109.62798 (Lower 95%) & 136.6995 (Upper 95%) and Non-workers female is -109.81015 (Lower 95%) & 144.20738 (Upper 95%); the boundaries do contain zero and hence the coefficients may be zero for some sample and so, we can be 78% confident that there is a significant linear relationship between sex ratio and the chance of selected determinants in Mumbai Suburban district.



## Mumbai District Analysis

The following table 5.21 shows the quantity and percentage of main workers, marginal workers and non-workers in Mumbai District. **According to the 1951 census**, the number of male workers was 73701 (3.91%) and female workers 8006 (0.74%). Marginal workers male 940398 (49.89%) and female workers 3895 (0.36%) and non-workers male workers 1091382 (57.89%) while female workers 1070056 (98.90%) and as stated by this census the sex ratio was 574. **According to the 1961 census**, the main male workers are 1540861 (60.34%) & female workers 145807 (9.12%). There are more male workers and less female workers. In keeping with the identical census, Marginal workers male 57363 (2.25%) and female workers 13637 (0.85%) non-workers male is 955315 (37.41%) and female non-workers 1439073 (90.03%). According to this census, sex ratio is 626. **According to the 1971 census**, main male workers are 2005728 (56.10%) and female workers are 172947 (7.22%). Among the marginal male workers are 55416 (1.55%), female workers are 19402 (0.81%) and non-workers male are 1514050 (42.35%) and female non-workers are 2203032 (91.97%). According to this census, sex ratio is 670. **According to the 1981 census**, among the main workers, male is 2610492 (54.86%) and female workers is 29867 (8.56%). Among marginal workers, male constitute 28074 (0.59%) and female 1431 (0.41%). Non-workers include 2122274 male (44.55%) and female 317622 (91.03%). In keeping with the census, the sex ratio is 729. **According to the 1991 census**, the main workers are 3007332 (43.08%) male and 492010 (8.91%) female. Among the marginal workers, male constitute 28021 (0.76%) and female 28707 (0.52%). Non-workers include 3943988 male (56.51%) and female 4999942 (90.57%) with a sex ratio of 791. **According to the 2001 census**, male are 1068656 (56.90%) and female 182054 (12.50%) in the main workers, while male are 42759 (2.30%) and 18270 female (1.20%) in the marginal workers. According to the same census, there are 766831 (40.80%) male and 1259461 (86.30%) female among non-workers. According to this census, the sex ratio is 777. **According to the 2011 census**, among the main workers, male constitute 975508 (57.91%) and female 233826 (16.69%). Male constitute 45501 (2.70%) and female 2956 (2.71%) in marginal workers, while male constitute 663599 (39.39%) and female 1137416 (81.20%) in non-workers. According to the census, the sex ratio is 838.

**Table No. 5.21**

Number and percentage of main workers, marginal workers and non-workers in Mumbai District (1951-2011)

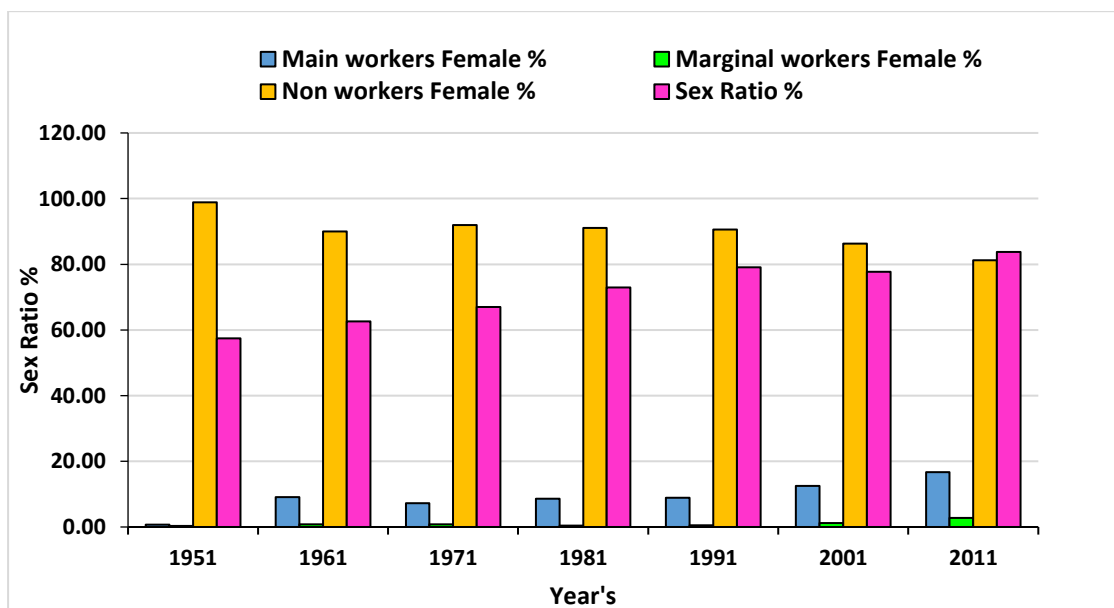
Mumbai District													
Year	Main workers				Marginal workers				Non workers				Sex Ratio
	Numbe		Percentage		Numbe		Percentage		Numbe		Percentage		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
1951	73701	8006	3.91	0.74	940398	3895	49.89	0.36	1091382	1070056	57.89	98.90	574
1961	1540861	145807	60.34	9.12	57363	13637	2.25	0.85	955315	1439073	37.41	90.03	626
1971	20,05,728	1,72,947	56.10	7.22	55,416	19402	1.55	0.81	15,14,050	22,03,032	42.35	91.97	670
1981	26,10,492	29867	54.86	8.56	28074	1431	0.59	0.41	21,22,274	317622	44.55	91.03	729
1991	3007332	492010	43.08	8.91	28021	28707	0.76	0.52	3943988	4999942	56.51	90.57	791
2001	1068656	1,82,054	56.90	12.50	42,759	18,270	2.30	1.20	7,66,831	12,59,461	40.80	86.30	777
2011	975508	233826	57.91	16.69	45501	2956	2.70	2.71	663599	1137416	39.39	81.20	838

Source: Census of India, 1951- 2011

Figure 5.12 shows bar diagram of main, marginal and non-workers and sex ratio in Mumbai district. This clearly shows that there is a close relationship between sex ratio and main and non-workers female. This can be seen in the figure below.

**Figure: 5.12**

Sex ratio and Percentage of main, marginal and non-workers in Mumbai district (1951-2011)



Source: Table no. 21

## Correlation and Regression about Mumbai district with main, marginal and non-workers.

After this, in the following table of Mumbai district, the researcher has shown whether there is a Correlation and Regression between the sex ratio of main marginal and non-workers.

**Table No. 5.22**

Correlation & Regression between sex ratio and Percentage of main, marginal and non-workers in a Mumbai District (1951-2011)

Year	Main workers Female %	Marginal workers Female %	Non workers Female %	Sex Ratio %	Correlation With	Corr. Coeff.	Regression
1951	0.74	0.36	98.90	57.40	Main workers Female	0.852017964	<b>0.81205846</b>
1961	9.12	0.85	90.03	62.60			
1971	7.22	0.81	91.97	67.00			
1981	8.56	0.41	91.03	72.90	Marginal workers Female	0.618698599	
1991	8.91	0.52	90.57	79.10			
2001	12.50	1.20	86.30	77.70	Non workers Female	-0.838364782	
2011	16.69	2.71	81.20	83.80			

**Source:** Table No. 5.21

### Positive Correlation:

When the increase in one variable is followed by a corresponding increase in the other variable; the correlation is said to be positive correlation. The table above shows the aggregate data from the 1951 to 2011 census. There is a positive correlation between female main workers and marginal workers and the sex ratio of the district as shown in this table. Briefly, the correlation between sex ratio and main workers female is 0.852 and marginal workers female is 0.618.

### Negative Correlation:

If, on the other hand, the increase in one variable results in a corresponding decrease in the other variable, the correlation is said to be negative correlation.

On the other hand, the correlation of non-workers female is negative and it is - 0.838. In short, it is a positive correlation between main worker female and marginal workers

female and the sex ratio. Female Non-workers, on the other hand, have a negative correlation with sex ratio.

**Table No. 5.23**

Regression Analysis between Types of Workers and Sex Ratio in Mumbai District for the period 1951 to 2011

Regression Statistics Mumbai District								
Multiple R	0.901142861							
<b>R Square</b>	<b>0.812058456</b>							
Adjusted R Square	0.624116912							
Standard Error	5.857739682							
Observations	7							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	444.7806574	148.2602191	4.320803362	0.130237658			
Residual	3	102.9393426	34.31311419					
Total	6	547.72						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-3208.902858	3250.373652	-0.987241222	0.396311658	-13553.04248	7135.236762	-13553.04248	7135.236762
Main workers Female	35.19800669	32.96501152	1.06773834	0.363930077	-69.71137242	140.1073858	-69.71137242	140.1073858
Marginal workers Female	19.02150827	22.67341793	0.838934312	0.463090122	-53.13542686	91.17844341	-53.13542686	91.17844341
Non workers Female	32.68082639	32.54099793	1.004296993	0.389229241	-70.87915226	136.240805	-70.87915226	136.240805

Source: Table No. 5.21

From the above table, it may be seen that,

1. **Multiple R** - is the positive square root of  $R^2$  i. e. 0.901142 this is shown in the above table about Mumbai district.
2.  **$R^2$  (R Square)** - From this it can be seen that, as there is a very close correlation between Main workers female, Marginal workers female & Non-workers female and sex ratio, its Regression value is 0.81205.  **$R^2$ , this is 81%. Which means that selected factors are seen to affect the sex ratio by 81%.**
3. **Adjusted  $R^2$** - is  $R^2$  multiplied by an adjustment factor. The Adjusted  $R^2$  value here is 0.62411.
4. **Standard Error** - The Standard Error value here is 5.85773.
5. **Observations** - At this point the observation value is 07, in short data has been collected from 1951 to 2011 at this place, which is a total of 70 years.
6. **Analysis of Variance (ANOVA)** - The systematic factors have a statistical influence on the given data set, while the random factors do not. Here researcher have seen in detail whether the selected factors affect the sex ratio as follows.

7. **Degrees of freedom (df)** - Regression df is the number of independent variables in our regression model. Here the sex ratio depends on the selected 03 factors.
8. **Residual df** - Is the total number of observations (rows) of the dataset subtracted by the number of variables being estimated. Here residual df is value 03.
9. **Total df** - Is the sum of the regression and residual degrees of freedom i.e. 06.
10. **Regression SS** - From the ANOVA table, the regression SS is 444 and the total SS is 547, which means the regression model explains about  $444/547$  (around 81%) of all the variability in the dataset.
11. **Residual SS** - From the ANOVA table, the residual SS is about 102. In general, the comparatively smaller the error, the better the regression model explains the variation in the data set and so we would usually want to minimize this error.
12. **Total SS** - The sum of both regression and residual ss is or if this factor affecting the sex ratio is not taken into account, the results may be different. Total ss value is 547.72.
13. **Mean Squared Errors (MS)** - are the mean of the sum of squares or the sum of squares divided by the degrees of freedom for both, regression (148.26) and residuals (34.31).
14. **F** - is used to test the hypothesis that the slope of the independent variable is zero (148.26/34.31).
15. **Significance F** - Here the value of significance F is 0.13023.
16. **Intercept** - Is the point at which the line intersects the y-axis at  $x = 0$ . It is also the value the model would take or predict when  $x$  is 0. Main workers female (35.19800), Marginal workers female (19.02150) and Non-workers female (32.68082) these are included here.
17. **Coefficients** - Coefficients value of Mumbai Suburban district has been taken here. In this mainly Main workers female, Marginal workers female and Includes non-workers female.
18. **Standard Error** - Main workers female (32.96501), Marginal workers female (22.67341) and Non-workers female (32.54099) these are included here under standard error.
19. **t- Stat** - Main workers female (1.06773), Marginal workers female (0.83893) and Non-workers female (1.00429) these are included in t- stat value.
20. **P - value** —The linear relationship between sex ratio and factors affecting it is as follows, Main workers female (0.36393), Marginal workers female (0.463090) and

non-workers female (0.38922). Confident that there is a significant linear relationship between sex ratio and the selected determinants.

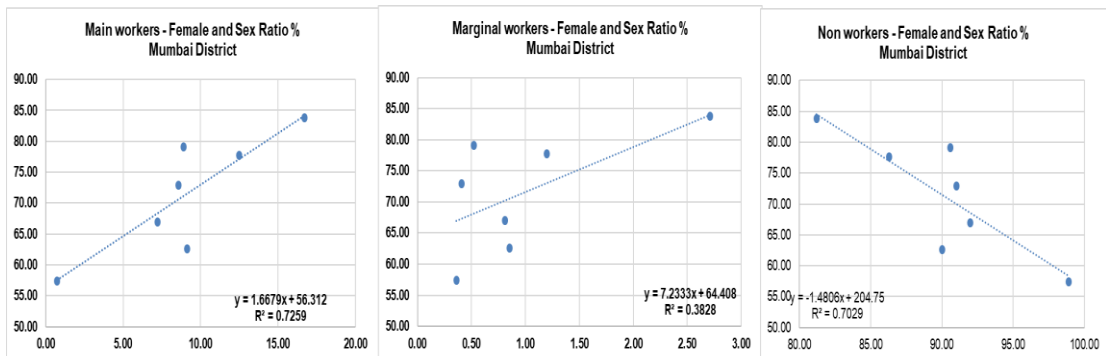
21. **Lower and Upper 95%** - Since there is 81% confidence between sex ratio and selected determinants i.e. Main workers female is -69.711372 (Lower 95%) & 140.10738 (Upper 95%); Marginal workers female is 53.135426 (Lower 95%) & 91.17844 (Upper 95%) and Non-workers female is -70.87915 (Lower 95%) & 136.24080 (Upper 95%); the boundaries do not contain zero and so, we can be 81% confident that there is a significant linear relationship between sex ratio and the selected determinants in Mumbai district.

### Regression

In the Table no. 5.22 show the Regression also gives you an R squared value, which for this graph is 0.812058. This number tells researcher how good your model is. The values range from 0 to 1, with 0 being a bad model and 1 being a perfect model. Hence, 0.8 is a fairly decent model so researcher can be fairly confident in sex ratio prediction.

**Figure: 5.13**

Linear regression with Sex ratio, Percentage of main, marginal and non-workers female in Mumbai District (1951-2011)



Source: Table no. 5.21

As shown in the above figure 5.13, slope of main female worker and sex ratio is left to right upward and it is  $R^2$  0.7259. Also the slope of female marginal workers and sex ratio is left to right upward with  $R^2$  0.3828 and slope of female non-workers and sex ratio is left to right downward slope, and  $R^2$  value is 0.7029. These  $R^2$  values are fairly high hence these variables are significantly related with sex ratio for Mumbai district.

### **Hypothesis Testing**

Since the  $R^2$  value is 81% between sex ratio and selected determinants i.e. Main workers female is -69.711372 (Lower 95%) & 140.10738 (Upper 95%); Marginal workers female is 53.135426 (Lower 95%) & 91.17844 (Upper 95%) and Non-workers female is -70.87915 (Lower 95%) & 136.24080 (Upper 95%); the boundaries do contain zero and hence the coefficients may be zero for some sample and so, we can be 81% confident that there is a significant linear relationship between sex ratio and the selected determinants in Mumbai district.

### **5.4.6 The Slum**

A slum is nearly an inevitable feature thanks to unaffordable housing and migration from less endowed regions of the state and therefore the country. In Maharashtra, slum is a reality. Mumbai holds the credit of being the host to Asia's as well as India's biggest slum - Dharavi.

A slum is often defined as "An area of a minimum of 300 population or some 70 households of poorly built congested living accommodations, often illegally on lands that do not belong to the owner / occupant of the tenements". The environment is usually unhygienic and the infrastructure to support the habitation is insufficient. The concerning issue of slums is that it weakens the urbanisation effect of the region. There is a desire to enhance the health services for slum areas by strengthening the urban health infrastructure. The fertility in slum areas is lower than other urban areas. Therefore, there it is essential to reinforce the birth prevention services to change their attitude about family size and to convince them to adopt family planning measures at an earlier stage. The following table shows the proportion of slum households in Metros in 2011.

**Table No. 5.24**

Proportion of Slum Households in Metros 2011

Million Plus Cities	Proportion of slum HHs to Total Urban Population HHs ( % )
<b>Greater Mumbai (M. Corp)</b>	<b>41.30</b>
<b>Kolkata (M. Corp)</b>	<b>29.60</b>
<b>Chennai (M. Corp)</b>	<b>28.50</b>
<b>Delhi Municipal Corp ( U )</b>	<b>14.60</b>
<b>BBMP (M. Corp)</b>	<b>08.50</b>

**Source:** “Housing Stock, Amenities and Assets in slums Census 2011”, Registrar General and Census Commissioner of India, P – 17.

From the above table it can be seen that, -

1. 41.30 percent of households in Mumbai reside in slums, followed by Kolkata (29.60 percent) and Chennai (28.50 percent).
2. It may be concluded that Mumbai is a host to Maharashtra’s as well as India’s biggest slum.

Though the fertility rate of such slum areas is higher but the sex ratio of such slum areas is higher than other non-slum areas in most of the districts of Maharashtra. The following table shows district wise slum areas and their sex ratio in Maharashtra,

**Table No. 5.25**

Slum and Non-Slum Population and Sex Ratio 2011

S.N.	District	Slum		Non – Slum	
		Population	Sex Ratio	Population	Sex Ratio
1	Ratnagiri	12023	932	58312	891
2	Sindhudurg	1036	956	50922	890
3	Mumbai (Suburban)	138621	788	565326	736
4	Mumbai	5823510	853	6090888	769

**Source:** Director of Census Operations, Maharashtra State, Mumbai - Census of India 2011, Maharashtra Population Data



Form the above table it will be seen that, -

1. Sex ratio of slum population is higher than non-slum population in almost districts.
2. Hence, it has been concluded that richer the district poorer is the sex ratio. Sex ratio is poor in non-slum areas as compared to sex ratio of slum areas in all four districts.

As seen within the above table the slum dwellers have developed an awareness among themselves not only in terms of literacy but also about utilization of health services. Utilization of such services is far better in slum areas than their use in other urban areas of Maharashtra. If noticed carefully, even today the slum indicators in Mumbai on some aspects are better than other urban areas in Maharashtra though they are far worse than non-slum areas.

**Table No. 5.26**

Utilization of Health Services and its impact on Fertility and Mortality

Indicators of NFHS-2	Ratnagiri	Sindhudurg	Mumbai Non-Slum	Mumbai Slum	Other Urban Areas of Maharashtra
Infant Mortality Rate	33.00	23.00	16.30	28.10	34.40
% Institutional Deliveries	97.08	97.30	92.00	84.00	79.00
% Receiving Antenatal Check Up	85.07	83.80	97.60	95.10	94.80
% Using Contraception	41.20	64.20	63.00	52.00	59.00
% Higher Order Births (3+)	22.50	16.10	25.00	35.00	33.00
Total Fertility Rate	1.62	1.70	01.40	02.70	02.20

**Source:** National Family Health Survey-2010-11 and 2015-16

From the above table, it can be seen that-

1. Utilization of health services in Mumbai's slum is healthier than their use in other urban areas of Maharashtra, However, the district has not made satisfactory progress in sex ratio.

2. The utilization of contraception in slum areas is lower than other urban areas, despite better utilization of antenatal services.
3. IMR is lower in slum areas as compared to other urban areas where better health facilities are available. Therefore, the sex ratio of the slum area is comparatively higher (788, 853) than that of Mumbai suburban (736) and Mumbai district (769).
4. It is concluded that slum areas of Maharashtra are better on some aspects, however, more efficient service delivery together with Information, Education, Communication activities to vary the attitude of slum dwellers is termed for.
5. The above Utilization of Health Services and its impact on Fertility and Mortality data, in short, shows that improvement in healthcare alone does not necessarily improve the sex ratio. Other social and economic factors are equally important.
6. Ratnagiri and Sindhudurg districts lack health facilities as compared to Mumbai and Mumbai Suburban districts but still the sex ratio in these districts is very satisfactory. Hence the effect of other factors in this place is seen in the effect on the sex ratio.

## **5.5 Social Factors**

Just as economic factors affect the sex ratio, social factors also affect it, they are Age Structure, Literacy Rate, Communities, Religion and Availability of Primary Health Centres etc. These factors are studied in detail as follows.

### **5.5.1 Age Structure**

While studying demographics, it is noticed that not all individuals contribute equally to the population. Sometimes researchers, after a detailed study, find it useful to characterize the different contributions made by different individuals. It first classifies

individuals into specific age groups, such as adolescents or sub adults. The real responsibility of the researcher then is to create a profile of the size and structure of the group to study the reproductive potential of the population in order to predict the current and future growth. Generally, a rapidly expanding population consists of a large number of reproductive groups. In contrast, a stable population has a more even distribution of age. Another important aspect is that the declining population consists of a large number of older groups.

Age structure may be represented graphically. Although a population's age structure is not always pyramidal in shape, most populations have younger cohorts that are larger than older cohorts. For instance, Sherman and Morton's studies of the Tioga Pass Belding's ground squirrels revealed birth cohorts larger than 300 individuals and less than 10 individuals in cohorts over the age of six.

In the following table age structure in selected districts in Maharashtra i. e. Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai district is shown. By compiling all the information of the census from 1951 to 2011, it is tried to indicate different age group wise in it. The population of all the chosen districts is split into four groups. This includes a group of 0 to 17, a group of 18 to 30, a group of 31 to 40 and a group of population over 40 years of age. The main purpose of age wise population distribution is to show the close correlation between sex ratio and population distribution. Characteristic in Ratnagiri and Sindhudurg districts have high female population in age group 18 to 30 and 31 to 40, so these districts have high sex ratio. On the other hand, a study of Mumbai and Mumbai Suburban districts in the same group reveals that the female population of these districts is less in the group of 18 to 30 and 31 to 40 and the male population is also higher. That is why we have studied the population of the district concerned in four groups.

**Table No. 5.27**

Age structure in selected districts (1951-2011)

Age Structure in Selected Districts													
Year	Age	Ratnagiri			Sindhudurg			Mumbai Suburban			Mumabi		
		Male	Female	SR	Male	Female	SR	Male	Female	SR	Male	Female	SR
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1951	0-17	38548	38372	1239	N.A.	N.A.	1200	N.A.	N.A.	712	52160	44346	574
	18-30	13023	19663		N.A.	N.A.		N.A.	N.A.		55425	28032	
	31-40	7716	12518		N.A.	N.A.		N.A.	N.A.		33003	14669	
	40 Above	17820	22977		N.A.	N.A.		N.A.	N.A.		31333	16950	
1961	0-17	421440	428548	1264	N.A.	N.A.	1194	N.A.	N.A.	744	873399	717604	626
	18-30	133893	210531		N.A.	N.A.		N.A.	N.A.		720773	457287	
	31-40	79850	125631		N.A.	N.A.		N.A.	N.A.		451405	213532	
	40 Above	181622	191363		N.A.	N.A.		N.A.	N.A.		450696	256678	
1971	0-17	463404	468686	1263	N.A.	N.A.	1213	N.A.	N.A.	769	2286269	1205698	670
	18-30	112971	189425		N.A.	N.A.		N.A.	N.A.		1677010	1021596	
	31-40	86369	149688		N.A.	N.A.		N.A.	N.A.		932210	682315	
	40 Above	203754	274878		N.A.	N.A.		N.A.	N.A.		1075086	640829	
1981	0-17	458499	473900	1258	N.A.	N.A.	1205	N.A.	N.A.	801	1627406	1467972	729
	18-30	148857	225413		N.A.	N.A.		N.A.	N.A.		1346147	951688	
	31-40	89464	148757		N.A.	N.A.		N.A.	N.A.		719510	475962	
	40 Above	245475	318757		N.A.	N.A.		N.A.	N.A.		952672	589673	
1991	0-17	308774	311859	1205	152000	150733	1137	N.A.	N.A.	831	2373113	2151817	791
	18-30	131336	186307		80527	97219		N.A.	N.A.		1853312	1528063	
	31-40	75261	108548		43947	53722		N.A.	N.A.		1157512	876255	
	40 Above	184819	237154		112911	141094		N.A.	N.A.		1507285	1148886	
2001	0-17	315825	308439	1136	146863	141154	1079	1531806	1342937	822	531680	456132	777
	18-30	156428	191765		86352	97242		1342197	1010302		566087	374264	
	31-40	55555	125120		57990	62746		774390	629503		308041	229272	
	40 Above	220691	276956		126685	149793		1093327	915957		472438	400117	
2011	0-17	248516	235801	1122	117276	109967	1037	1391388	1226443	857	420087	367412	838
	18-30	146716	168170		83183	83537		1381699	1104240		475749	344343	
	31-40	92079	113907		59977	64043		842752	721310		284781	227946	
	40 Above	253751	312049		156897	174772		1415484	1273647		503990	461102	

Source: Census of India, 1951- 2011

## **Year 1951**

### **0 to 17 age group**

A study of age Structure in Selected Districts reveals that according to the 1961 Census, Ratnagiri District has age group 0 to 17 male population is 38548 and female population is 38372. As Ratnagiri and Sindhudurg districts were not initially divided, the age structure of Ratnagiri and Sindhudurg districts remained the same between 1951 and 1981. At the same time, a study of Mumbai district reveals that the population of Mumbai is 0 to 17 with a male population of 52160 and a female population of 44346. Like Ratnagiri & Sindhudurg districts, Mumbai and Mumbai suburban districts were not divided till 1991, so the data of Mumbai and Mumbai suburban is the same.

**According to the 1951** census of Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai district, the sex ratio between Ratnagiri, Sindhudurg, Mumbai and Mumbai is 1239, 1200, 712 and 574 respectively. This shows that Ratnagiri and Sindhudurg districts have high female population. At the same time, Mumbai and Mumbai suburban have a relatively small female population. Therefore, their sex ratio is low.

### **18 to 30 age Female**

A subsequent study of groups 18 to 30 reveals that in Ratnagiri district the male population in this group is 13023, female population is relatively high which is 19663, and in the same group Mumbai district population is 55425 while female population is comparatively less is 28032.

### **31 to 40 age Female**

A subsequent study of groups 31 to 40 reveals that in Ratnagiri district the male population in this group is 7716, female population is relatively high i.e. 12518, and in the same group Mumbai district population is 33003 and female population is relatively low i.e. 14669. Compared to the previous group i.e. 18 to 30 age group and 31 to 40 group, it is noticed that there is a big difference in the population of male and female between Ratnagiri and Mumbai districts. The only similarity is that in groups 31 to 40, the total population in both the districts is less than in group 18 to 30.

### **Age 40 and above**

A study of age group 40 and above reveals that in Ratnagiri district male population is 17820 and female population is 22977, i.e., the population of women in this group is relatively high. A study of Mumbai district shows that the male population in Mumbai district is 31333 and the female population is 16950 which is relatively low.

### **Year 1961**

#### **0 to 17 age group**

A study of Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai district according to the 1961 census reveals that in the age group 0 to 17, according to the 1961 census, the proportion of women in this group is higher in Ratnagiri district. In short male population 421440, female population 428548 and population of Mumbai district in the same group is 873399 and female population is 717604. Which is relatively less.

**According to the 1961** census of Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai district, the sex ratio between Ratnagiri, Sindhudurg, Mumbai and Mumbai is 1264, 1194, 744 and 626 respectively. This shows that Ratnagiri and Sindhudurg districts have high female population. At the same time, Mumbai and Mumbai suburban have a relatively less female population. Therefore, their sex ratio is low.

#### **18 to 30 age group**

A study of Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai district according to the 1961 census reveals that in the age group 18 to 30, according to the 1961 census, the proportion of women in this group is higher in Ratnagiri district. In short male population 133893, female population 210531 and population of Mumbai district in the same group is 770773 and female population is 457287. Which is relatively less.

#### **31 to 40 age group**

A subsequent study of groups 31 to 40 reveals that in Ratnagiri district the male population in this group is 79850, female population is relatively high i.e. 125631, and in the same group Mumbai district population is 451405 and female population is relatively low i.e. 213532. Compared to the previous group i.e. 18 to 30 age group and 31 to 40 group, it is noticed that there is a big difference in the population of male and

female between Ratnagiri and Mumbai districts. The only exception is that in groups 31 to 40, the total population in both the districts is less than in groups 18 to 30.

### **Age 40 and above**

A study of age group 40 and above reveals that in Ratnagiri district male population is 181622 and female population is 191363, of course, as usual, the population of women in this group is relatively high also, a study of Mumbai district shows that the male population in Mumbai district is 450696 and the female population is 256678 which is relatively low.

### **Year 1971**

#### **0 to 17 age group**

As compared to the 1951 and 1961 census, the male and female population in Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai district was changing. Due to population growth, male and female population is increasing and also the sex ratio in Ratnagiri and Sindhudurg districts is 1263 as per 1971 census, Sindhudurg 1213, Mumbai 670 and Mumbai suburban 769. This means an increase in sex ratio between Mumbai and Mumbai suburban. In Ratnagiri and Sindhudurg, the sex ratio is still stable.

Studying age group 0 to 17, the population in Ratnagiri district is 463404 and female population is 468686, which is relatively high. Similarly, in the study of Mumbai district, the male population in Mumbai district is 2286269 and the female population is 1205698 which is relatively less.

#### **18 to 30 age group**

A subsequent study of groups 18 to 30 reveals that in Ratnagiri district the male population in this group is 112971, female population is relatively high which is 189425, and in the same group Mumbai district population is 1677010 while female population is comparatively less is 1021596.

#### **31 to 40 age group**

A subsequent study of groups 31 to 40 reveals that in Ratnagiri district the male population in this group is 86369, female population is relatively high i.e. 149688, and in the same group Mumbai district population is 932210 and female population is relatively low i.e. 682315. Compared to the previous group i.e. 18 to 30 age group and

31 to 40 group, it is noticed that there is a big difference in the population of male and female between Ratnagiri and Mumbai districts. In group 31 to 40, the total population in both the districts is less than in groups 18 to 30.

### **Age 40 and above**

A study of age group 40 and above reveals that in Ratnagiri district male population is 203754 and female population is 274878, the population of women in this group is relatively high. Also, a study of Mumbai district shows that the male population in Mumbai district is 1075086 and the female population is 640829 which is relatively low.

### **Year 1981**

#### **0 to 17 age group**

According to the 1981 census, the sex ratio of Mumbai district has increased from the 1971 (670) census to 729. Mumbai Suburban's sex ratio has gone up from 769 to 801. In short, the sex ratio of Mumbai and Mumbai suburban has increased. The sex ratio of Ratnagiri district is stable at 1258 and that of Sindhudurg district is 1205.

Studying age group 0 to 17, the population in Ratnagiri district is 458499 and female population is 473900, which is relatively high. Similarly, in the study of Mumbai district, the male population in Mumbai district is 1627406 and the female population is 1467972 which is relatively less.

#### **18 to 30 age group**

A subsequent study of groups 18 to 30 reveals that in Ratnagiri district the male population in this group is 148857, female population is relatively high which is 225413. In the same group Mumbai district population is 1346147 while female population is comparatively less is 951688.

#### **31 to 40 age group**

A subsequent study of groups 31 to 40 reveals that in Ratnagiri district the male population in this group is 896464, female population is relatively high i.e. 148757, and in the same group Mumbai district population is 719510 and female population is relatively low i.e. 475962. Compared to the previous group i.e. 18 to 30 age group and 31 to 40 group, it is noticed that there is a big difference in the population of male and



female between Ratnagiri and Mumbai districts. In age group 31 to 40, the total population in both the districts is less than in group 18 to 30.

### **Age 40 and above**

A study of age group 40 and above reveals that in Ratnagiri district male population is 245475 and female population is 318757, the population of women in this group is relatively high also, a study of Mumbai district shows that the male population in Mumbai district is 952672 and the female population is 589673 which is relatively low.

### **Year 1991**

#### **0 to 17 age group**

Sindhudurg district was formed on May 1, 1981 by dividing it from Ratnagiri districts and then the data of this district was separated according to the 1991 census. According to the 1991 census, Ratnagiri district had a sex ratio of 1205 and Sindhudurg district had a ratio of 1137, while Mumbai district had a sex ratio of 791 and Mumbai suburban 831.

According to the 1991 census, a study of Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai district shows an increase in the population of all the districts. In group 0 to 17 in Ratnagiri district male population is 308774 and female population is 311859 while in Sindhudurg district male population is 152000 and male population of Mumbai is 2373113 while female population is relatively less that is 2151817.

#### **18 to 30 age group**

A subsequent study of groups 18 to 30 reveals that in Ratnagiri district the male population in this group is 131336, female population is relatively high which is 186307, while the male population of Sindhudurg district is 80527 and female population is 97219. In the same group Mumbai district male population is 1853312 while female population is comparatively less is 1528063.

#### **31 to 40 age group**

A study of age group 40 and above reveals that in Ratnagiri district male population is 75261 and female population is 108548, as in previous years, the population of women in this group is relatively high also while the male population of Sindhudurg district is 43947 and female population is 53722. A study of Mumbai district shows that the male

population in Mumbai district is 1157512 and the female population is 876255 which is relatively low.

### **Age 40 and above**

A study of age group 40 and above reveals that in Ratnagiri district male population is 184819 and female population is 237154, as in other age groups, the population of women in this group is relatively high also, while the male population of Sindhudurg district is 112911 and female population is 141094. A study of Mumbai district shows that the male population in district is 1507285 and the female population is 1148886 which is relatively low.

### **Year 2001**

#### **0 to 17 age group**

With the division of Greater Mumbai on 1st October 1990, Mumbai Suburban and Mumbai District were formed. According to the 2001 census, a study of the sex ratio of Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai district reveals that in 2001, Ratnagiri had a sex ratio of 1136, Sindhudurg 1079, Mumbai district 777 and Mumbai suburban 822. Overall, this seems to be higher than the sex ratio in previous years in Mumbai district and Mumbai suburban. The sex ratio of Ratnagiri and Sindhudurg shows that the sex ratio has decreased according to the 2001 census.

According to 2001 census, age group 0 to 17 in Ratnagiri district has 315825 male population and 308439 female population. In Sindhudurg district, male population is 146863 and female population is 141154. In the same group of Mumbai district 531680, female population is 456132, male population of Mumbai suburban is 1531806 and female population is 134937.

#### **18 to 30 age group**

According to the 2001 census, a study of age groups 18 to 30 reveals that the male population in Ratnagiri district is 156428 and the female population is 191765. In Sindhudurg district, the male population in the age group of 18 to 30 is 86352 and the female population is 97242. Then the male population in the age group of 18 to 30 in Mumbai district is 566087 and the female population is 374264, while the male population of Mumbai suburban is 1342197 and the female population is 1010302.

### **31 to 40 age group**

According to the 2001 census, a study of age groups 31 to 40 reveals that the male population in Ratnagiri district is 55555 and the female population is 125120. In Sindhudurg district, the male population in the age group of 18 to 30 is 57990 and the female population is 62746. Then the male population in the age group of 31 to 40 in Mumbai district is 308041 and the female population is 229272, while the male population of Mumbai suburban is 774390 and the female population is 629503.

### **Age 40 and above**

According to the 2001 census, a study of the population aged 40 and above shows that the population over the age of 40 fluctuates a lot in Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai district. Male population of Ratnagiri district above 40 years of age is 220691 and female population is 276956, while male population of Sindhudurg district above 40 years of age is 126685 and female population is 149793. Besides, the male population of Mumbai district for more than 40 years is 472438, the female population is 400117, the male population of Mumbai suburban is 1093327 and the female population is 915957.

### **Year 2011**

#### **0 to 17 age group**

According to the 2011 census, a study of the sex ratio of Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai district reveals that in 2011, Ratnagiri had a sex ratio of 1122, Sindhudurg 1037, Mumbai district 838 and Mumbai suburban 857. Overall, this seems to be higher than the earlier sex ratio in Mumbai district and Mumbai suburban. The sex ratio of Ratnagiri and Sindhudurg shows that the sex ratio has decreased according to the 2011 census.

According to 2001 census, age group 0 to 17 in Ratnagiri district has 248516 male population and 235801 female population. In Sindhudurg district, male population is 117276 and female population is 109967. In the same group of Mumbai district 420087, female population is 367412, male population of Mumbai suburban is 1391388 and female population is 1226443.

### **18 to 30 age group**

According to the 2011 census, a study of age groups 18 to 30 reveals that the male population in Ratnagiri district is 146716 and the female population is 168170. In Sindhudurg district, the male population in the age group of 18 to 30 is 83183 and the female population is 83537. Then the male population in the age group of 18 to 30 in Mumbai district is 475749 and the female population is 344343, while the male population of Mumbai suburban is 1381699 and the female population is 1104240.

### **31 to 40 age group**

According to the 2011 census, a study of age groups 31 to 40 reveals that the male population in Ratnagiri district is 92079 and the female population is 113907. In Sindhudurg district, the male population in the age group of 18 to 30 is 59977 and the female population is 64043. Then the male population in the age group of 31 to 40 in Mumbai district is 284781 and the female population is 227946, while the male population of Mumbai suburban is 842752 and the female population is 721310.

### **Age 40 and above**

According to the 2011 census, a study of the population aged 40 and above shows that the population over the age of 40 fluctuates a lot in Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai district. Male population of Ratnagiri district above 40 years of age is 253751 and female population is 312049, while male population of Sindhudurg district above 40 years of age is 156897 and female population is 174772. Besides, the male population of Mumbai district for more than 40 years is 503990, the female population is 461102, the male population of all Mumbai suburban is 1415484 and the female population is 1273647.

A brief summary of the table above reveals that, a study of the total census from 1951 to 2011 in the age structure in selected districts in Maharashtra shows that Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai district are different groups i.e. 0 to 17, 18 to 30, 31 to 40 and over 40 years of age. A study shows that in Ratnagiri and Sindhudurg districts, the proportion of female is always higher than that of male. In contrast, a study of the population of Mumbai and Mumbai suburban reveals that from the very beginning, Mumbai and Mumbai suburban districts have low female

population and high male population. Due to this, the sex ratio of Mumbai and Mumbai suburban is low. In contrast, Ratnagiri and Sindhudurg districts have higher sex ratio from 1951 to 2011

### **5.5.2 Literacy**

Literally, a person who is 7 years of age or older is considered literate who can read and write with understanding in any language. A person who can only read but cannot write is not literate. It is not necessary for a person to have any formal education or to have passed a minimum academic standard in order to be considered literate. A large segment of the population has achieved literacy through literacy classes or any informal education system. Also, people who are blind and can read in Braille are considered literate.

#### **Literacy rate**

The literacy rate of the population is the percentage of literate people in the age group of seven years and above. In short, the percentage of literacy in that age group reflects the literacy rate for the population.

**Literacy in Konkan Region:** According to the Indian Census, any person who is able to read and write any language is registered as literate. Literacy is one among the important population characteristics and has its links with population growth, fertility, mortality, sex ratio, etc. Therefore, the main concern of the study is to look into the spatial patterns of literacy, male-female and rural-urban literacy in areas of Konkan region and tehsils of Ratnagiri district for the period of 70 years that is 1951 to 2011. It is observed that the position of literacy rate within the Konkan region is relatively better than for the identical section at state and national level. In the state of Maharashtra, the literacy rate increased by almost 43.34 per cent from 45.77 to 82.11 per cent between 1971 and 2011. At national level, it is observed that it increased almost two and half times from 29.45 per cent to 74.00 per cent between the same periods. At division level, it is found that literacy rate in Konkan division of Maharashtra increased by 40.42 per cent from 45.98 to 86.40 per cent. Even in the last four decades, literacy rate of Konkan Region has mostly remained higher than state and national average. Literacy rate has rapidly increased during 1951-2011 within the region. A developing country like India

is characterized not only by low literacy rate but also by a wide disparity in literacy rates particularly between male and female. It is confirmed from the fact that the overall female literacy rate in 1971 in Maharashtra state was low (31.00) but increased up to 75.5 in 2011. Male literacy rate was always above female literacy rate and it increased faster than national average throughout the period. In Konkan region male literacy rate was always above the state and the nation literacy rate in 40 years period. It is due to the impact of industrialization and urbanisation have made a better progress within the attainment of literacy level in the region in comparison to the state and nation.

**Table No. 5.28**

Female literacy and Sex Ratio in Ratnagiri District (1951-2011)

Census Year	Female Literacy and Sex Ratio (1951-2011) Ratnagiri District								Correlation	
	literate Population		Total	Literacy rate		Average Literacy %	Gap in male female literacy rate	Sex Ratio		Sex Ratio %
	Female	Male		Female Literacy %	Male Literacy %					
1951	7026	20844	27870	8.80	28.70	17.70	19.90	<b>1,239</b>	<b>123.90</b>	-1
1961	84586	147771	232357	17.44	42.16	28.49	24.72	<b>1264</b>	<b>126.40</b>	
1971	327075	465831	792906	26.20	48.20	39.83	22.00	<b>1263</b>	<b>126.30</b>	
1981	1167916	943395	211311	38.15	59.52	47.75	21.37	<b>1258</b>	<b>125.80</b>	
1991	375274	443527	818801	51.61	76.64	62.70	25.03	<b>1205</b>	<b>120.50</b>	
2001	517503	5,78,330	1095833	65.80	85.90	71.10	20.10	<b>1136</b>	<b>113.60</b>	
2011	580380	619012	1199392	74.53	90.93	82.18	16.40	<b>1122</b>	<b>112.20</b>	

**Source:** Census of India, 1951- 2011

The table above shows the correlation between female literacy of Ratnagiri district and sex ratio from 1951 to 2011. Looking at the above table, it is seen that female literacy and sex ratio are very closely related. Female literacy was 17.44% and 1264 was the sex ratio in census 1961. According to the 1971 census, female literacy was 26.20% and sex ratio was 1263. At the same time, according to the 1981 and 1991 censuses, the literacy rate of women has increased from 26.20% to 38.15% and 51.61%. According to the 1981 census, the proportion of women in Ratnagiri district was 1258 and in 1991 the same proportion was 1205, which is smaller than the previous proportion of female per 1000 male. From 65.80% literacy went straight to 74.53% and at the identical time the sex ratio fell to 1122.

But this does not mean that the female population has decreased in Ratnagiri because of increase in literacy. It implies that the participation of girls in family planning has

increased due to the increase in literacy rate of females. The total population of Ratnagiri district is lower in 2011 than in 2001 census. The fact that the population is less than before suggests that the effect of literacy is unquestionably favourable on the decrease in birth rate.

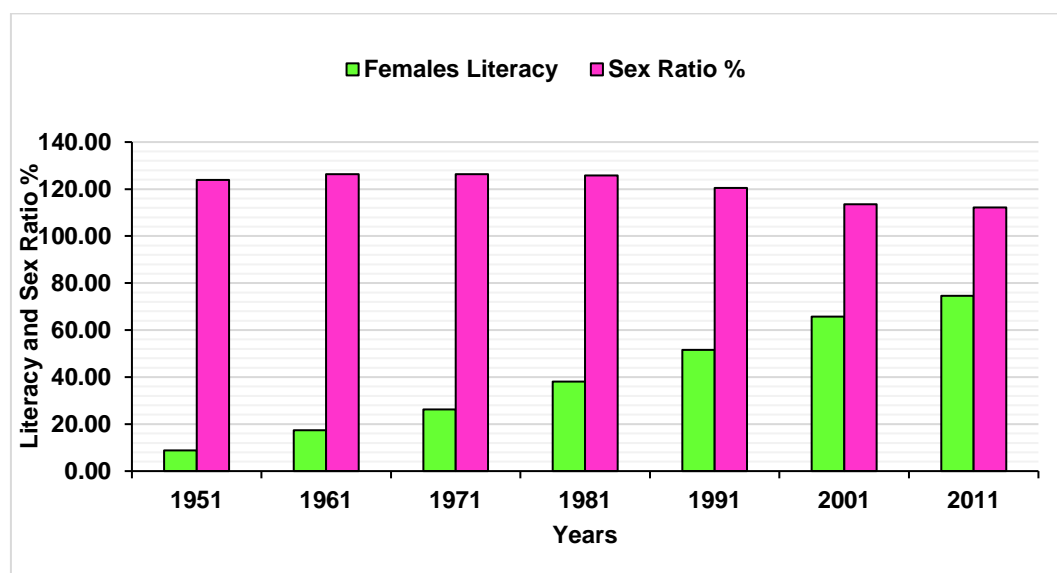
### Negative Correlation

Negative or inverse correlation describes when two variables tend to interchange in opposite size and direction from each other, such that when one increases the opposite variable decreases, and vice-versa.

Correlation between two variables can vary widely over time. Female literacy and sex ratio generally have a positive correlation. Calculating the correlation between sex ratio and female literacy over a period of 70 years from 1951 to 2011 in Ratnagiri, it shows a negative correlation of -1.

**Figure: 5.14**

Female Literacy and Sex Ratio in Ratnagiri District (1951-2011)



**Source:** Table 5.28

Calculating the correlation between sex ratio and feminine literacy over a period of 70 years from 1951 to 2011, it shows a negative correlation statistic of -1. From the above bar diagram it is easy to determine that originally the sex ratio was one of the highest,

then over time the sex ratio has been declining and at the identical time the literacy rate of women in Ratnagiri district has been steadily increasing from 1951 to 2011.

This shows that the correlation between the literacy and sex ratio of women in Ratnagiri and Sindhudurg districts is **negative**.

The fact that Ratnagiri district has a **negative correlation between** literacy and sex ratio does not mean that literacy has reduced the sex ratio. Not only that, but due to the decline in the overall population of Ratnagiri district as well as a large number of people (especially women) migrating to Mumbai, the Sex Ratio has fallen and so there is a negative correlation here. Migration of girls taken place for education.

**Table No. 5.29**

Female Literacy and Sex Ratio in Sindhudurg District (1951-2011)

Census Year	Female Literacy and Sex Ratio (1951-2011) Sindhudurg District									Correlation
	literate Population		Total	Literacy rate		Average Literacy %	Gap in male female literacy rate	Sex Ratio	Sex Ratio %	
	Female	Male		Female Literacy %	Male Literacy %					
1951	28998	76902	1,05,900	8.80	28.70	17.70	19.90	1200	120.00	-0.892900294
1961	N. A.	N. A.	N. A.	17.44	42.16	28.49	24.72	1194	119.40	
1971	N. A.	N. A.	N. A.	26.20	48.20	35.90	22.00	1213	121.30	
1981	123916	148395	2,72,311	38.15	59.52	47.75	21.37	1205	120.50	
1991	260362	2,87,914	5,48,276	66.87	86.23	47.49	19.36	1137	113.70	
2001	284720	3,28,199	6,12,919	71.20	90.30	80.30	19.10	1079	107.90	
2011	317778	348289	666067	79.81	91.58	85.56	11.77	1037	103.70	

**Source:** Census of India, 1951- 2011

The above table shows the correlation between female literacy and sex ratio of Sindhudurg district. It is easy to work out from the above table that there is not much difference between Ratnagiri district and Sindhudurg district in terms of female literacy rate and sex ratio. At the identical time, it is noticed that as the literacy rate in this district increased, the sex ratio decreased after 1971.

The table above shows the correlation between literacy of Sindhudurg district and sex ratio from 1951 to 2011. Looking at the table above, it is seen that literacy and sex ratio



are very closely related. Female literacy was 17.44% and 1194 was the sex ratio in census 1961. According to the 1971 census, female literacy was 26.20% and sex ratio was 1213. According to the 1981 and 1991 censuses, the literacy rate of women has increased from 26.20% to 38.15% and 66.87%. According to the 1981 census, the proportion of women in Sindhudurg district was 1205 and in 1991 the same proportion was 1137, which is smaller than the previous number of women per 1000 males. From 80.30% is average literacy, which went straight to 85.56% and at the same time the sex ratio was 1037.

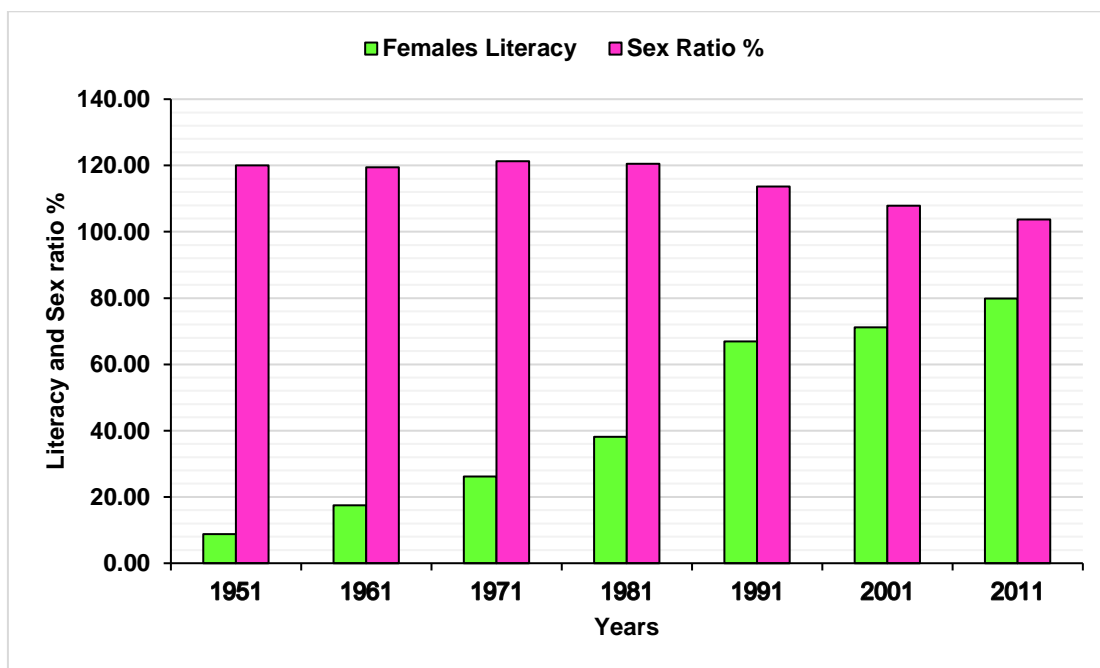
### Negative Correlation

Negative or inverse correlation describes when two variables tend to move in opposite size and direction from each other, such that when one increases the other variable decreases, and vice-versa.

Calculating the correlation between sex ratio and female literacy over a period of 70 years from 1951 to 2011, it shows a negative correlation i.e., -0.892.

**Figure: 5.15**

Female Literacy and Sex Ratio in Sindhudurg District (1951-2011)



Source: Table 5.29

From the above bar diagram it is easy to determine that originally the sex ratio was one of the highest, then over time the sex ratio has been declining and at the identical time the literacy rate of women in Sindhudurg district has been steadily increasing from 1951 to 2011.

This shows that the correlation between the literacy and sex ratio of women in Ratnagiri and Sindhudurg districts is **negative**.

Like Ratnagiri district, the correlation of literacy rate and sex ratio of Sindhudurg district is also negative and here also the reason of Ratnagiri district is applicable.

**Table No. 5.30**

Female Literacy and Sex Ratio in Mumbai Suburban (1951-2011)

Census Year	Female Literacy and Sex Ratio (1951-2011)									Correlation
	literate Population		Total	Literacy rate		Average Literacy %	Gap in male female literacy rate	Sex Ratio	Sex Ratio %	
	Female	Male		Female Literacy %	Male Literacy %					
1951	N. A.	N. A.	N. A.	38.25	55.93	49.33	17.68	712	71.20	0.974524449
1961	N. A.	N. A.	N. A.	48.81	65.10	58.60	16.29	744	74.40	
1971	N. A.	N. A.	N. A.	55.72	69.65	63.84	13.93	769	76.90	
1981	N. A.	N. A.	N. A.	60.65	73.91	68.18	13.26	801	80.10	
1991	1961529	28,10,070	47,71,599	75.40	88.30	82.50	12.90	831	83.10	
2001	2763888	38,53,376	66,17,264	81.10	91.60	86.90	10.50	822	82.20	
2011	3352456	19,61,529	53,13,985	86.40	92.90	89.90	6.50	857	85.70	

**Source:** Census of India, 1951- 2011

The table above shows the female literacy and sex ratio of Mumbai suburban. The female literacy and sex ratio of both Mumbai suburban and Mumbai district is the same between 1951 and 1981. Because from 1951 to 1981 only Mumbai was shown under this name but since 1991 Mumbai district and Mumbai suburban were separated so the female literacy and sex ratio of Mumbai district and Mumbai suburban are different.

Although Delhi is that the capital of India, Mumbai is the financial capital of India, and also the new economic reforms introduced since 1991 have certainly had an effect on Mumbai's female literacy and sex ratio. According to the 2001 and 2011 censuses, female literacy was 81.10 and 86.40, while sex ratio was 822 and 857, respectively. The high literacy implies availability of education facilities. The sex ratio improved due to in-migration of higher number of women from outside this area for education.

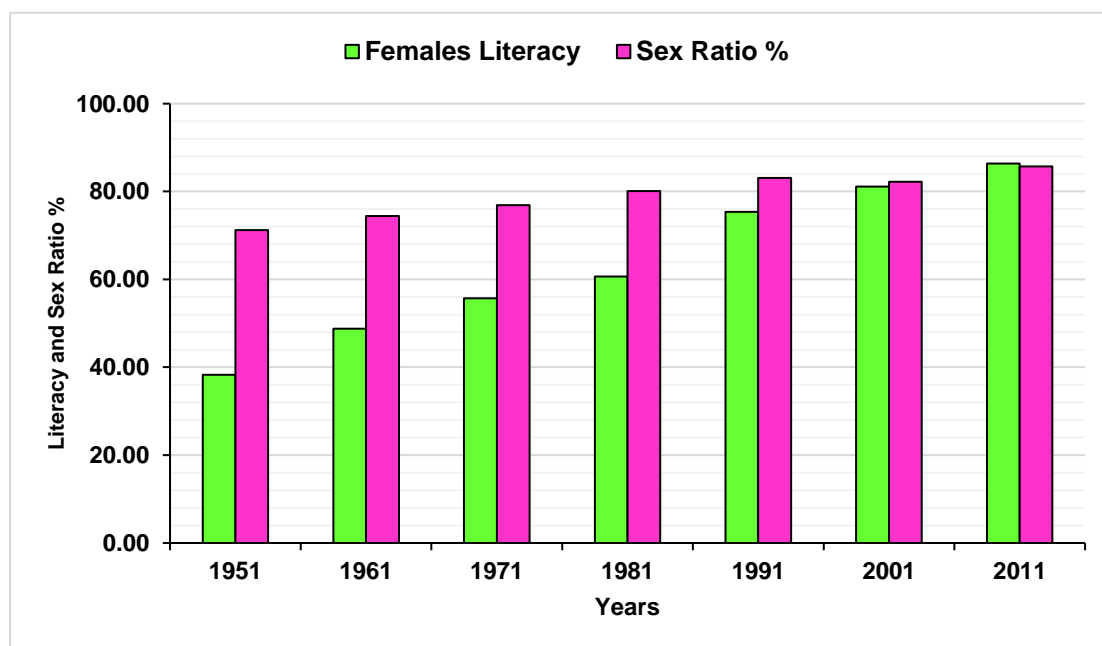
### Positive Correlation

Positive correlation describes when two variables tend to move in same direction from each other, such that when one increases the other variable also increases.

Calculating the correlation between sex ratio and female literacy over a period of 70 years from 1951 to 2011, it shows a positive correlation i.e., 0.974.

**Figure: 5.16**

Female Literacy and Sex Ratio in Mumbai Suburban District (1951-2011)



**Source:** Table No. 5.30

A bar diagram drawn from the above Mumbai Suburban District Female Literacy and Sex Ratio table shows that initially the sex ratio is low and female literacy is also low but then it improves and as the literacy increases so does the Mumbai suburban sex ratio. This bar diagram shows the growth in the district.

**Table No. 5.31****Female Literacy and Sex Ratio in Mumbai District (1951-2011)**

Census Year	Female Literacy and Sex Ratio (1951-2011) Mumbai (District)									Correlation between female literacy and sex ratio
	literate Population		Total	Literacy rate		Average Literacy %	Gap in male female literacy rate	Sex Ratio	Sex Ratio %	
	Female	Male		Female Literacy %	Male Literacy %					
1951	375268	995384	1370652	38.25	55.93	49.33	17.68	574	57.40	0.980939002
1961	560494	1355115	1915609	48.81	65.10	58.60	16.29	626	62.60	
1971	1388594	2422786	3811380	55.72	69.65	63.84	13.93	670	67.00	
1981	1382386	2578964	3961350	60.65	73.91	68.18	13.26	729	72.90	
1991	3449154	52,17,869	86,67,023	76.90	88.90	83.70	12.00	791	79.10	
2001	1055437	15,35,176	25,90,613	81.40	90.20	86.40	8.80	777	77.70	
2011	1098342	14,10,680	25,09,022	86.50	91.50	89.20	5.00	838	83.80	

**Source:** Census of India, 1951- 2011

Above table shows the female literacy and sex ratio (1951-2011) about Mumbai (District). In 1951 sex ratio is 574 and female literacy is 38.25. Initially sex ratio is low and literacy rate also low. Census 1961 sex ratio is 626 and female literacy rate is 48.81. Within the 1971 census sex ratio is 670 and literacy rate is 55.72. Census 1981 female literacy is 60.65 and at the identical year sex ratio is 729 which rises again next year. Census 1991, 2001 and 2011 female literacy continues to rise i. e., 76.90%, 81.40% and 86.50%. Sex ratio in the same year also rise i.e., 791(1991), 777 (2001) and 838 (2011).

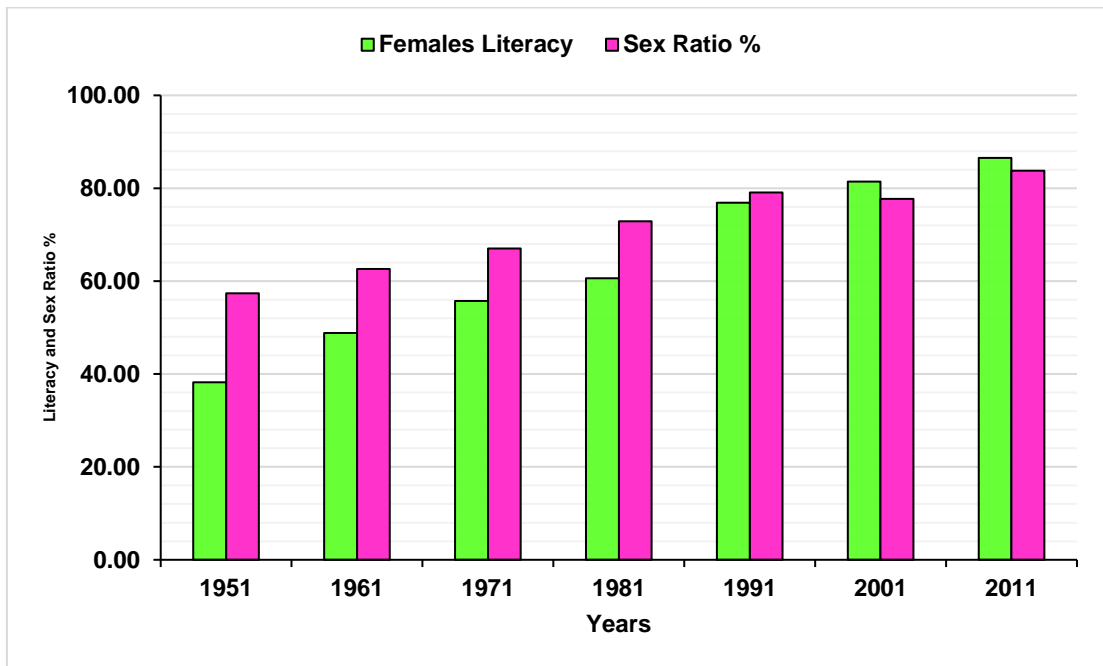
### Positive Correlation

Positive correlation describes when two variables tend to move in same direction from each other, such that when one increases the additional variable increase.

Calculating the correlation between sex ratio and feminine literacy over a period of 70 years from 1951 to 2011, it shows a positive correlation i.e., 0.980. Reason is Migration from other districts or other states into Mumbai, as mentioned above for Mumbai Suburban.

**Figure: 5.17**

Female Literacy and Sex Ratio in Mumbai District (1951-2011)



**Source:** Table No. 5.31

The graph above also shows that as the female literacy increases, so does the sex ratio within the Mumbai district. According to the 1951 census, both the sex ratio and the female literacy were initially low, but gradually it increased and in 2011 the sex ratio and the female literacy increased to 86.50 in 2011 and 838 in the sex ratio.

This shows that the correlation between the literacy and sex ratio of women in Ratnagiri and Sindhudurg districts is **negative**, while the correlation between female literacy and sex ratio within the two districts of Mumbai and Mumbai Suburban is **positive**.

### **Hypothesis Testing**

As we had tested significance of correlation coefficients between urbanisation and sex ratio, similar testing can be done in this case also. The results of **t-test** are given below in the form of a table :

**Table No. 5.32**

Correlation Coefficients between Literacy and Sex Ratio

District	r <sub>cal</sub>	t <sub>cal</sub>	t <sub>table</sub>	Significance
<b>Ratnagiri</b>	-1	--	2.57	Highly significant
<b>Sindhudurg</b>	-0.8929	-4.4343	2.57	Highly significant
<b>Mumbai suburban</b>	0.9754	9.8940	2.57	Highly significant
<b>Mumbai</b>	0.9809	11.2762	2.57	Highly significant

**Source:** Table No. 5.28, 5.29, 5.30 & 5.31

t-table value corresponds to 5% level of significance and 5 degrees of freedom.

**Conclusions:**

- 1] There is a perfect negative correlation between female literacy and sex ratio in Ratnagiri district.
- 2] There is a significant negative correlation between female literacy and sex ratio in Sindhudurg district.
- 3] There is a significant positive correlation between female literacy and sex ratio in Mumbai Suburban district.
- 4] There is a significant positive correlation between female literacy and sex ratio in Mumbai district.

**5.5.3 Community**

Constitution of India has accorded special status to communities such as Scheduled Castes and Scheduled Tribes within Indian society. These communities were outcaste for many centuries as they were excluded from the “Chaturvarna” social system of Hindu Society. SC and ST population comprises a noticeable chunk in India’s overall population at about 16 and 08% respectively. According to Bhattacharya, it is important to study these minority groups, as their family structure might be different from other groups in the society. “Tribal populations have distinct kinship patterns and gender relations, including higher rates of female labour force

participation that may encourage lower fertility”. Not only this, female labour force participation may encourage more feminine sex ratio (Bhattacharya Sabyasachi, 2002, pp-84-85)

The following table shows the district wise SC, ST Population of selected districts in Maharashtra State and their Sex Ratio.

**Table No. 5.33**

District wise SC, ST Population in selected districts of Maharashtra State

S.N.	District Name	1991					2001					2011				
		% of SC	SR of SC	% of ST	SR of ST	GSR	% of SC	SR of SC	% of ST	SR of ST	GSR	% of SC	SR of SC	% of ST	SR of ST	GSR
1	Ratnagiri	1.77	1072	0.96	1021	1205	1.44	1001	1.3	931	1136	4.15	1094	1.26	959	1122
2	Sindhudurg	5.1	1103	0.46	991	1137	4.44	1089	0.5	969	1079	6.54	1072	0.82	951	1037
3	Mumbai	6.52	944	1.05	920	791	5.5	935	0.6	847	777	5.12	971	11.58	860	838
4	Mumbai (Suburban)	N.A.	N.A.	N.A.	N.A.	831	4.65	903	0.8	887	822	6.23	942	1.12	900	857

**Source:** Census of India, 1991- 2011

From the above,

1. As mentioned in literature, SC and ST population, though present in minority, have shown High Sex Ratio (above 900) in majority districts in past 3 decades
2. In 2011, Only Mumbai and Mumbai Suburban districts have shown low sex ratio (below 940) in case of ST population and SC population has lowest sex ratio only in these districts.
3. The sex ratios of the SC and ST communities are consistently higher than the General Sex Ratio. It can be concluded that minority groups have more feminine sex ratio.

#### 5.5.4 Religion

Preliminary census started in India from 1872. The important thing to note in this census is that religion is an important social, cultural and demographic feature in India. The important thing was that information about religion or religious group was being collected. A lot of changes have been reported in their data in the pre-independence period. After the independence of India, there has been a similarity in the collection and production of religion-wise data since the 1961 census. Besides the six major religions, Hindu, Muslim, Christian, Jain, Buddhist and Sikh, census also collected data on other religious faiths and denominations. There are people of different religions in India. Many religious beliefs and followers are making manifestations of major religious groups. A large list of these other religions was examined, translated, classified, and finally processed to get an accurate picture of the data.

Religion-wise figures were also limited in all censuses prior to 2001. But in the last census of 2001 cross-tabulations were made available. Data showing the distribution of religious groups in the 2001 census is available at state and district level, subdivisions and cities. Another special feature of this available data is that cross-tabulation of different religious groups through the classification of literacy, workers and other characteristics provides new insights. In short, this data provides relatively additional information on the published data of the previous census.

The below table shows Religion Wise Population in Selected Districts (1951 – 2011). These include Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai districts. A really close correlation between religion and sex ratio can be seen in the study. Therefore, it mainly includes the sex ratio of the respective districts and the various religions in that district. The subsequent table analyses data collected mainly from Hindu, Muslim, Christian, Sikh, Buddhist and Jain religions.



**Table No. 5.34**

**Religion wise population in Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai District (1951-2011)**

Religion Wise Population in Selected Districts																	
Year	Religion	Ratnagiri				Sindhudurg				Mumbai Suburban				Mumbai			
		%*	Female	Male	sex Ratio	%*	Female	Male	sex Ratio	%*	Female	Male	sex Ratio	%*	Female	Male	sex Ratio
1951	Hindu	92.96%	872773	7,18,765		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		73.82	748240	12,91,004	
	Muslim	6.37%	60268	43,083		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		15.52	143364	2,68,902	
	Christian	0.85%	8093	6,544		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		7.26	88635	1,17,560	
	Buddhist	0.13%	2	21	1,239	N. A.	N. A.	N. A.	1,200	N. A.	N. A.	N. A.	712	0.49	5367	8617	574
	Jain	0.07%	0	12		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		0.05	448	1,049	
	OR	0.14%	1189	1,199		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		2.82	33000	47,110	
	NRS	0.01%	1	0		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		0.04	379	846	
1961	Hindu	87.46%	882738	7,15,596		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		80.25%	1,111,058	17,58,218	
	Muslim	5.99%	63247	46,224		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		15.05%	207970	3,30,419	
	Christian	0.88%	8591	75,79		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		8.05%	132539	1,55,434	
	Buddhist	0.54%	26	73	1,264	N. A.	N. A.	N. A.	1,194	N. A.	N. A.	N. A.	744	0.71%	10325	15115	626
	Jain	6.29%	54474	45,654		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		5.39%	83645	1,09,072	
	OR*	2.92%	1447	1579		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		4.35%	68599	87,157	
	NRS*	1.14%	72	95		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		1.99%	40711	41,753	
1971	Hindu	87.08%	959928	7,73,386		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		68.85%	2,427,525	16,83,221	
	Muslim	6.33%	71388	54,556		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		14.12%	5,015,67	3,41,791	
	Christian	0.83%	8966	75,07		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		6.29%	2,003,12	1,74,953	
	Buddhist	0.01%	91	92	1,263	N. A.	N. A.	N. A.	1,213	N. A.	N. A.	N. A.	769	0.72%	24,303	18,559	670
	Jain	5.56%	61,239	49,344		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		4.76%	1,57,395	1,26,908	
	OR*	0.17%	1,937	1,925		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		4.10%	1,33,282	1,11,439	
	NRS*	0.00%	2	2		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		1.15%	33,707	35,208	
1981	Hindu	85.57%	998,272	8,08,415		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		69.30%	2,447,048	32,65,395	
	Muslim	7.21%	85,104	67,186		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		14.80%	5,314,44	6,88,486	
	Christian	0.85%	9,849	8,249		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		4.79%	1,90,092	2,04,595	
	Buddhist	0.03%	33	40	1,258	N. A.	N. A.	N. A.	1,205	N. A.	N. A.	N. A.	801	0.63%	23,588	28,220	729
	Jain	6.00%	70,920	55,885		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		5.67%	2,11,802	2,55,914	
	OR*	0.33%	3,567	3,460		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		4.15%	1,59,010	1,82,970	
	NRS*	0.01%	54	65		N. A.	N. A.	N. A.		N. A.	N. A.	N. A.		0.66%	27,416	26,601	
1991	Hindu	82.30%	694,880	5,76,882		92.83%	4,11,240	3,61,283		N. A.	N. A.	N. A.		67.98%	2,997,939	37,49,737	
	Muslim	9.80%	82,945	68,666		2.51%	10,469	10,398		N. A.	N. A.	N. A.		16.91%	748,462	9,29,708	
	Christian	7.50%	514	639		1.85%	8,228	7,164		N. A.	N. A.	N. A.		4.45%	2,16,569	2,24,769	
	Buddhist	0.20%	28	53	1,205	0.00%	7	18	1,137	N. A.	N. A.	N. A.	831	0.78%	35,288	41,684	791
	Jain	0.10%	63,429	51,861		2.68%	12,328	10,001		N. A.	N. A.	N. A.		5.61%	2,65,052	2,92,037	
	OR*	0.00%	1,690	1,793		0.12%	503	519		N. A.	N. A.	N. A.		3.59%	1,74,117	1,82,196	
	NRS*	0.00%	49	71		0.00%	0	0		N. A.	N. A.	N. A.		0.61%	30,780	29,385	
2001	Hindu	82.00%	740,460	6,50,677		92.36%	4,16,399	3,86,099		68.90%	2,651,910	3,301,565		63.50%	9,15,604	12,041,46	
	Muslim	10.40%	93,153	82,519		2.72%	11,790	11,878		17.23%	6,576,17	8,313,70		22.00%	3,062,12	4,282,72	
	Christian	0.20%	1,131	1,735		0.03%	845	754		3.94%	1,70,881	1,69,285		3.18%	52,675	53,565	
	Buddhist	0.00%	177	535	1,136	2.80%	1,21	163	1,079	0.62%	24,705	28,566	822	0.49%	7,573	8,757	777
	Jain	7.10%	64,740	56,115		0.17%	13,131	11,189		5.37%	2,26,076	2,38,278		4.84%	78,989	82,428	
	OR*	0.20%	2,029	2,198		0.01%	720	717		3.70	1,57,432	1,61,907		4.76%	77,746	81,272	
	NRS*	0.00%	48	113		0.06%	27	30		0.21	8,861	8,972		1.18%	20,457	19,025	
2011	Hindu	80.94%	690,957	6,16,254		91.85%	3,96,759	3,83,625		67.73%	2,897,896	34,39,236		60.73%	8,480,42	10,25,720	
	Muslim	11.59%	99,333	87,864		3.09%	13,129	13,135		19.19%	8,149,56	9,80,832		25.06%	3,315,25	4,41,648	
	Christian	0.12%	982	1,008		1.82%	8,075	7,396		3.45%	1,65,183	1,57,293		2.74%	43,628	40,927	
	Buddhist	0.01%	101	129	1,122	0.03%	93	126	1,037	0.51%	22,654	24,634	857	0.44%	6,308	7,163	838
	Jain	7.03%	60,125	53,342		2.91%	13,077	11,685		5.02%	2,33,699	2,35,869		4.35%	67,963	66,294	
	OR*	0.21%	1,628	1,719		0.12%	500	546		3.67%	1,71,597	1,72,042		5.38%	83,050	82,950	
	NRS*	0.01%	32	63		0.01%	17	36		0.20%	9,185	9,160		1.01%	16,031	15,063	
		0.09%	790	742		0.17%	669	783		0.24%	10,469	12,257		0.29%	4,256	4,843	

\*OR = Other Religion  
 \*NRS=No Religion Specified  
 \*%=Percentage

Source: Census of India, 1951- 2011

After the independence of India, Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai districts selected by the researcher for the study were not formed then. All the selected districts were under the Bombay Presidency. After the independence of India, Ratnagiri and Mumbai were the only two districts where data was available. State of Maharashtra was formed on 1<sup>st</sup> May 1960 and Sindhudurg district was formed from Ratnagiri district in 1981. At the same time, Mumbai Suburban District was formed by dividing Mumbai in 1991.

### **1951**

According to the 1951 census, when the researcher studied the selected districts, the sex ratio of Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai districts was 1239, 1200, 574 and 712 respectively.

According to 1951 census, Hindu religion population in Ratnagiri district is 92.96%, male population is 718765 and female population is 872773. Muslim is 6.37%, male population is 43083 and female population is 60268. Christian 0.85%, Sikh 0.13%, Buddhist 0.07%, Jain 0.14%. This shows that in **Hindu and Muslim religion, female population is more than male population in Ratnagiri district**. According to the 1951 census, Hindus constitute 73.82% of the population in Mumbai district and the male population is 1291004 and the female population is 748240. Muslim is 15.52%, male population is 268902 and female population is 143364. , Christian 7.26%, Sikh 0.49%, Buddhist 0.05%, Jain 2.82%. In Mumbai district, male population is more than female population for all religions, so sex ratio is less in this district.

According to the 1961 census, Ratnagiri district has a sex ratio of 1264, Sindhudurg has 1194, Mumbai district has 626 and Mumbai suburban district has 744.

A study of the selected districts according to the 1961 census revealed that in Ratnagiri district, 87.46% of Hindus, the female population is 882738 and the male population is 715596. In Muslim 05.99%, female population is 63247 and male population is 46224. Christian 0.88%, Sikh 0.54%, Buddhist 6.29%, Jain 2.92%. In short, like the census of 1951, in 1961 also, the female population in Ratnagiri district is higher in Hindu and Muslim religion, therefore the sex ratio of this district is higher. According to the 1961 census, a study of Mumbai district shows that among 80.25% Hindus, male population is 1758218 and female population is 1111058. Muslim 15.05% of which male

population is 330419 and female population is 207970. Christian 8.05%, Sikh 0.71%, Buddhist 5.39%, Jain 4.35%.

In short, in Ratnagiri district, it is seen that in Hindu and Muslim religions, female population is more than male. In Mumbai district, on the other hand, male population is high and female population is low and therefore Ratnagiri district has high sex ratio and Mumbai district has low sex ratio.

### **1971**

According to the 1971 census, Ratnagiri district has a sex ratio of 1263, Sindhudurg has 1213, Mumbai district has 670 and Mumbai suburban district has 769.

A study of the selected districts according to the 1971 census revealed that in Ratnagiri district, 87.08% are Hindus, the male population is 773386 and the female population is 959928. In Muslim 06.33%, male population is 54556 and female population is 71388. Christian 0.83%, Sikh 0.01%, Buddhist 5.56%, Jain 0.17%. In short, like the census of 1951 and 1961 also, the female population in Ratnagiri district is higher in Hindu and Muslim religion, therefore the sex ratio of this district is higher. According to the 1971 census, a study of Mumbai district shows that among 68.85% Hindus, male population is 2427525 and female population is 1683221. Muslim 14.12% of which male population is 501567 and female population is 341791. Christian 6.29%, Sikh 0.72%, Buddhist 4.76%, Jain 4.10%.

### **1981**

According to the 1981 census, Ratnagiri district has a sex ratio of 1263, Sindhudurg has 1205, Mumbai district has 729 and Mumbai suburban district has 801.

A study of the selected districts according to the 1981 census revealed that in Ratnagiri district, 85.57% of Hindus, the male population is 808415 and the female population is 998272. In Muslim 07.21%, male population is 67185 and female population is 85104. Christian 0.85%, Sikh 0.03%, Buddhist 06.00%, Jain 0.33%. In short, like the census of 1971, in 1981 also, the female population in Ratnagiri district is higher in Hindu and Muslim religion, therefore the sex ratio of this district is higher. According to the 1981 census, a study of Mumbai district shows that among 69.30% Hindus, male population is 32653965 and female population is 2447048. Muslim 14.80% of which male population is 688486 and female population is 531444. Christian 4.79%, Sikh 0.63% , Buddhist 05.67%, Jain 04.15%.

## **1991**

Sindhudurg district was formed on May 1, 1981 by dividing it from Ratnagiri districts and then the data of this district was separated according to the 1991 census. According to the 1991 census, Ratnagiri district had a sex ratio of 1205 and Sindhudurg district had a ratio of 1137, while Mumbai district had a sex ratio of 791 and Mumbai suburban 831.

A study of the selected districts according to the 1991 census revealed that in Ratnagiri district, 82.30% of Hindus, the male population is 576882 and the female population is 694880. In Muslim 09.80%, male population is 68666 and female population is 82945. Christian 07.50 %, Sikh 0.20%, Buddhist 0.10%, Jain 0.0%. The 1991 census revealed that in Sindhudurg district, 92.83% of Hindus, the male population is 361283 and the female population is 411240. In Muslim 02.51%, male population is 10398 and female population is 10469. Christian 01.85%, Sikh 0.0%, Buddhist 02.68%, Jain 0.12%. According to the 1991 census, a study of Mumbai shows that among 67.98% Hindus, male population is 3749737 and female population is 2997939. Muslim 16.91% of which male population is 929708 and female population is 748462. Christian 04.45%, Sikh 0.78%, Buddhist 05.61%, Jain 03.59%.

According to the 1991 census in all the three districts according to religion wise, the female population in Ratnagiri and Sindhudurg districts is higher than the male population in Hindu and Muslim religions. That is why the sex ratio is high in this district. In Mumbai district, on the other hand, the male population in Hindu and Muslim religions is more than the female population and hence the sex ratio in Mumbai district is lower.

## **2001**

With the division of Greater Mumbai on 1st October 1990, Mumbai suburban and Mumbai District were formed. According to the 2001 census, a study of the sex ratio of Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai district reveals that in 2001, Ratnagiri had a sex ratio of 1136, Sindhudurg 1079, Mumbai Suburban 822 and Mumbai district 777. Overall, this seems to be higher than the sex ratio in earlier years

in Mumbai district and Mumbai suburban. The sex ratio of Ratnagiri and Sindhudurg shows that the sex ratio has decreased according to the 2001 census.

A study of the selected districts according to the 2001 census revealed that in Ratnagiri district, 82.00% of Hindus, the male population is 650677 and the female population is 740460. In Muslim 10.40%, male population is 82519 and female population is 93153. Christian 0.20%, Sikh 0.0%, Buddhist 7.10%, Jain 0.20%. The 2001 census revealed that in Sindhudurg district, 92.36% of Hindus, the male population is 386099 and the female population is 416399. In Muslim 02.72%, male population is 11878 and female population is 11790. Christian 0.3%, Sikh 2.80%, Buddhist 0.17%, Jain 0.1%. According to the 2001 census. According to the 2001 census, a study of Mumbai Suburban district shows that among 68.90% Hindus, male population is 3301565 and female population is 2651910. Muslim 17.23% of which male population is 831370 and female population is 657617. Christian 03.94%, Sikh 0.62 %, Buddhist 05.37%, Jain 0.21%. A study of Mumbai district shows that among 63.50% Hindus, male population is 1204146 and female population is 915604. Muslim 22.00% of which male population is 428272 and female population is 306212. Christian 03.18%, Sikh 0.49%, Buddhist 04.84%, Jain 04.76%.

According to the 2001 census in all the districts according to religion wise, the female population in Ratnagiri and Sindhudurg districts is higher than the male population in Hindu and Muslim religions. That is why the sex ratio is high in these districts. In Mumbai and Mumbai Suburban districts, on the other hand, the male population in Hindu and Muslim religions is more than the female population and hence the sex ratio in Mumbai region is lower.

## **2011**

According to the 2011 census, a study of the sex ratio of Ratnagiri, Sindhudurg, Mumbai suburban and Mumbai district reveals that in 2011, Ratnagiri had a sex ratio of 1122, Sindhudurg 1037, Mumbai district 838 and Mumbai suburban 857. Overall, this seems to be higher than the previous sex ratios in Mumbai district and Mumbai suburban. The sex ratio of Ratnagiri and Sindhudurg shows that the sex ratio has decreased according to the 2011 census.

A study of the selected districts according to the 2011 census revealed that in Ratnagiri district, 80.94% of Hindu, the male population is 616254 and the female population is

690957. In Muslim 11.59%, male population is 87864 and female population is 99333. Christian 0.12%, Sikh 0.01%, Buddhist 7.03%, Jain 0.21%. The 2011 census revealed that in Sindhudurg district, 91.85% of Hindus, the male population is 383625 and the female population is 396759. In Muslim 03.09%, male population is 13135 and female population is 13129. Christian 01.82%, Sikh 0.03%, Buddhist 02.91%, Jain 0.12%. According to the 2011 census, a study of Mumbai district shows that among 60.73% Hindus, male population is 1025720 and female population is 848042. Muslim 25.06% of which male population is 441648 and female population is 331525. Christian 02.74%, Sikh 0.44%, Buddhist 04.35%, Jain 05.38%. According to the 2011 census, a study of Mumbai Suburban district shows that among 67.73% Hindus, male population is 3439236 and female population is 2897896. Muslim 19.19% of which male population is 980832 and female population is 814956. Christian 03.45%, Sikh 0.51%, Buddhist 05.02%, Jain 03.67%.

### **5.5.5 Health Facilities**

As per social custom prevailing in several parts of the country, parents take girls as a burden, while the sons are looked upon as means of support. “Sons are everywhere desired, not only among Hindus where a son is compulsory to his father’s salvation, but almost equally among other communities as well; daughters in many parts of India mean great pecuniary expense in providing for marriage. So strong is indeed the unfairness against the birth of daughters that abortion is reported sometimes to be practiced if the child in womb is thought to be girl.”

Above observation has been made in a health survey conducted in some rural areas of Maharashtra. The survey found, “differential treatment is given to sick male and female children, in the sense that females are given free traditional treatment or don’t receive any treatment, while treatment from qualified medical doctors is searched for male children” and in such scenario, if the general public health Centres do not seem to be available in nearby vicinity, the likelihood of taking baby girl to medical practitioner reduces even further.

The health care infrastructure of Maharashtra State is above national average, however there is a widespread rural-urban gap in health infrastructure and facilities

both quantitatively and qualitatively. Urban areas of Maharashtra State have a significant concentration of hospitals, qualified doctors and nursing homes. Maharashtra is facing a shortage of PHC's and sub-centre facilities, in Maharashtra State, on a mean one PHC serves 31,477 rural populations. This specifies that Maharashtra state is facing shortage of these primary health care units. The following table shows selected district wise availability of health care infrastructure facility of the district -

**Table No. 5.35**

Availability of Health care infrastructure facilities in selected district in Maharashtra State

S.N.	District	Population served per					% in Public sector		% in Urban areas		
		Hospitals @	Dispensaries @	ISM #	All Medical Institution	Beds	Hospitals @	Dispensaries @	Hospitals @	Dispensaries @	Beds
1	Ratnagiri	34529	324577	324577	28472	1234	15.70	10.70	88.40	95.50	66.00
2	Sindhudurg	20337	7110	9016	3325	694	22.00	47.50	79.30	100	81.80
3	Mumbai	13764	5251	65617	3593	355	8.00	100	100	100	100
4	Mumbai (Suburban)										
5	Maharashtra	16891	9972	40811	4535	642	13.40	8.90	86.70	90.20	61.70

**Source:** Statistical Abstract of Maharashtra State 2018-19 and 2019-20, Mumbai: Directorate of Economics and Statistics, Govt. of Maharashtra

@ = includes only allopathic institutions, excludes Private GP Clinics

# = includes Ayurvedic, Unani and Homeopathic institutions

Form the above, it can be seen that, -

1. Wide variation across districts prevails in availability of healthcare infrastructure facilities.
2. The bed population ratio is comparatively higher in Mumbai and Mumbai Suburban, less availability of health care infrastructure facilities in Ratnagiri and Sindhudurg district.
3. Thus, we are able to conclude that the availability of health services in Maharashtra is not adequate. The PHC's and SC's are set as per defined norms but they are not well equipped and supported.
4. An unfavourable relation between availability of health facilities and sex ratio is that where adequate and modern health facilities are available, there is a possibility of sex

selective abortions taking place, which causes sex ratio to be low. This could be one of the reasons for the low sex ratio in Mumbai and Mumbai Suburban which are more developed in terms of infrastructure. On the other hand, the less developed districts of Ratnagiri and Sindhudurg have less facilities for such abortions and the social norms and values are favourable to women. Hence the sex ratio is higher as more girls are born. Since the Indian Government enacted the Pre-Natal Diagnostic Techniques (PNDT) Act in 1994 and its amended version the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act in 2003, female foeticide is being controlled. However, the implementation of this Act does not appear to be effective as seen by the falling child sex ratio (Tabaie, 2017).

5. A favourable relation between health facilities and sex ratio is that lower infant mortality ensures that more girls survive, and adult women also get more access to health care, leading to higher sex ratio.

## **5.6 Child Sex Ratio**

The concept of sex ratio can be summarized as follows: The sex ratio represents the male to female ratio of the population, while internationally it is represented as the number of males per 100 females. India has a different concept of sex ratio. In India, this is represented by the number of females per 1000 males. In our country the sex ratio is expressed in different forms. It studies the sex ratio at birth, the child sex ratio or adolescent sex ratio, and the sex ratio of the general population. The biologically normal sex ratio at birth is 105 male births per 100 female births (952 female births per 1,000 male births) under natural circumstances, affirming a male advantage at birth. But as females have an advantage over males in terms of mortality at most ages, under normal circumstances, the male sex ratio declines during childhood and evens out at 100. The child sex ratio or juvenile sex ratio is defined as the sex ratio in a specific age group, typically 0–6 or 0–4 years, and the global norm suggests that the sex ratio at birth (105 male births per 100 female births or 952 female births per 1,000 male births) persists among children as well (United Nations Population Fund-2013, Edited by: Parikh Rinal, Mehta Kedar, 2018, pp-01).

The sex ratio calculated for the population of all ages is not indicative of any clear picture to recognize whether it is favourable to males or females. The gender ratio at



different ages of population is affected by number of factors. Child Sex Ratio (CSR) is calculated as the number of girls per 1000 boys within the age group of 0-6 years. In India there has been a sharp decline in CSR from 976 in 1961 to 919 in 2011. While CSR of Maharashtra has fallen from 978 in 1961 to 883 in 2011.

The excess of male over the females at the birth has not been a new tendency to India. It is a well-established law of nature that boys exceed girls at the time of birth. As per global trends, the traditional sex ratio should be above 950. It means it may be accepted that there would a deficiency of about 50 girls per 1000 boys in birth cohort. However as seen in previous chapters the whole range of data reveals that sex ratio in the country as well as state is below 950 as per census 2011.

There are two different concepts of sex ratio, defining the general sex ratio (GSR) as the number of females per thousand males, while the child sex ratio (CSR) is defined as the number of girls per thousand boys in the age group of 0 to 6 years.

To calculate the sex-ratio (GSR) of population formula is used as given below.

$$\text{General Sex Ratio} = \frac{\text{Female Population}}{\text{Male Population}} \times 1000$$

To calculate the child sex-ratio (CSR) of population formula is used as given below.

$$\text{Child Sex Ratio} = \frac{\text{Female Population (age 0-6 Years)}}{\text{Male Population (age 0-6 Years)}} \times 1000$$

As seen in Table No. 5.1, the sex ratio in the districts of Ratnagiri and Sindhudurg has been consistently high (above 1000) during the study period whereas the sex ratio in Mumbai and Mumbai Suburban districts has been low (less than 900). In the previous sections of the present chapter, several factors like income, literacy, urbanization, employment pattern, etc., have been examined which are seen to have affected the sex ratio in these districts. But the most important reason for the difference in the sex ratio in the two sets of districts is the migration that takes place from Ratnagiri and Sindhudurg to the Mumbai region. In order to find out whether the difference in sex ratios is because of migration or whether the number of women is actually more in Ratnagiri and Sindhudurg, the Child Sex Ratio has been studied. Since migration takes

place mainly from the adult population, the Child Sex Ratio can show whether actually more girls are born, thus leading to a higher General Sex Ratio, or is the sex ratio high only due to male out-migration from these two districts.

### Ratnagiri District Analysis:

**Table No. 5.36**

Child Sex Ratio in Ratnagiri District and correlation with GSR (1951-2011)

<b>Ratnagiri District</b>						
<b>Population in 0-6 Age Group and Child Sex Ratio</b>						
Year	Female	Male	Total	Child Sex Ratio (CSR)	<b>General Sex Ratio (GSR)</b>	Correlation between Child Sex Ratio and sex ratio
1951	69837	69990	139827	997	<b>1,239</b>	0.65777646
1961	155015	155710	310725	995	<b>1264</b>	
1971	228626	238020	466646	960	<b>1263</b>	
1981	162836	169989	332825	957	<b>1258</b>	
1991	115405	121196	236601	954	<b>1205</b>	
2001	1,15,405	1,21,196	236601	952	<b>1136</b>	
2011	75227	80333	155560	936	<b>1122</b>	

**Source:** Census of India, 1951- 2011

The table above shows the child sex ratio of Ratnagiri district. It clearly shows that there is a really close correlation between child sex ratio and sex ratio. As per the 1951 census, the child sex ratio is 997 and also the sex ratio is 1239, then according to the 1961 census, it is 995 and the sex ratio is 1264. Also, according to the 1971 census, it is 960 and the sex ratio is 1263. According to the 1981 census, the child sex ratio is 957, the sex ratio is 1258, according to the 1991 census, the child sex ratio is 954, the sex ratio is 1205, according to the 2001 census, the child sex ratio is 952, the sex ratio is 1136, and according to the 2011 census, the child sex ratio is 936 and the sex ratio is 1122.

This shows that there is a really close correlation between child sex ratio and sex ratio. Therefore, it is noticed that the child sex ratio of Ratnagiri district has never been less

than 900 and at the same time the average general sex ratio has remained more than eleven hundred.

### **Positive Correlation**

Positive correlation describes when two variables tend to move in similar direction from each other, specified when one increases the other variable increase.

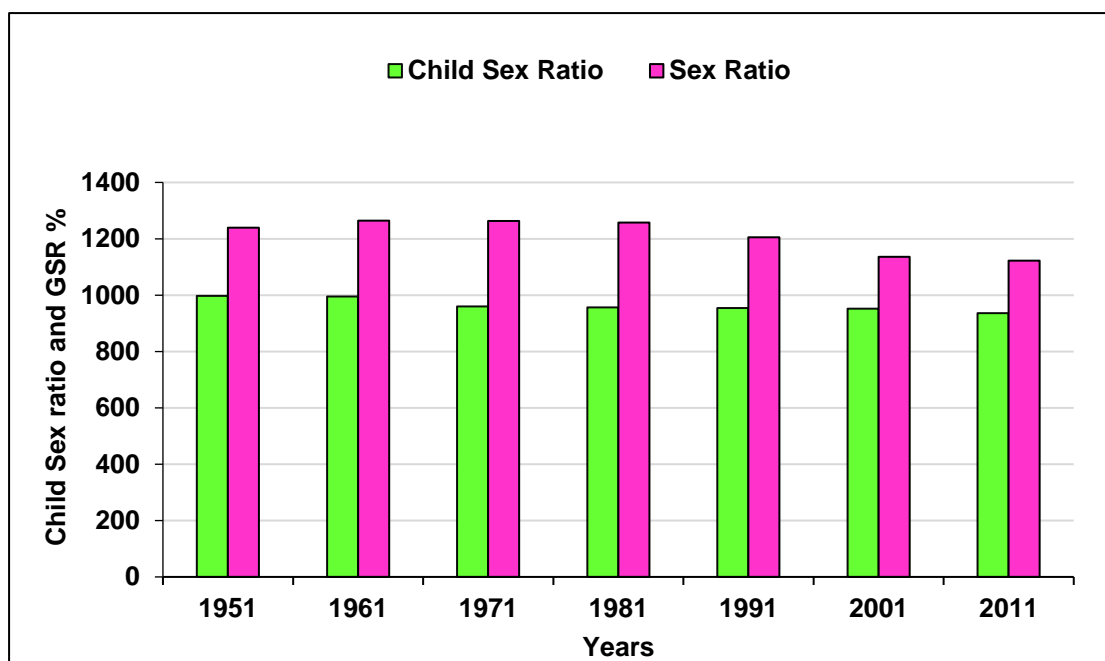
Correlation between two variables can vary widely over time. Child sex ratio and sex ratio generally have a positive correlation, Calculating the correlation between child sex ratio and sex ratio over a period of 70 years from 1951 to 2011, it shows a positive correlation i.e., 0.657.

According to the data given in the table above, figure 5.18 has been prepared which shows the child sex ratio and sex ratio consistent with the census of 1951 to 2011. It clearly shows that the child sex ratio is within a particular range and has never been more than 1000 and never less than 900. At the identical time, censuses over the last 70 years have shown that the general sex ratio has never been less than 1000, suggesting that there is a close relationship between child sex ratio and general sex ratio.

It can be seen that the CSR in 1951 was 997 that is, there were 997 girls per 1000boys in the 0-6 age group, which means the number of girls and boys were almost equal. Girls were 49.95% and boys 50.05% of the total population in this age group. There were only 153 more boys than girls. Over the period the gap between the number of girls and boys has increased so that in 2011 there was 5106 more boys than girls in the 0-6 age group in Ratnagiri district i. e. boys were 51.64% and girls 48.35 of the population in this age group. As a result, the CSR fell to 936 girls per 1000 boys.

**Figure: 5.18**

Child sex ratio and GSR in Ratnagiri district (1951-2011)



Source: Table No. 5.36

Form the above Figure it can be seen that, -

1. The above bar diagram shows the Child sex ratio and General sex ratio in Ratnagiri district.
2. Year 1951 to year 2011 many variations come under General sex ratio and Child sex ratio.
3. Ratnagiri district general sex ratio from 1951 to 2011 continuously more than 1000 but child sex ratio less than 1000.

### **Sindhudurg District Analysis:**

Table No. 5.21 shows the correlation between Sindhudurg district's child sex ratio and general sex ratio. As per the 1951 census, the CSR of Sindhudurg district is 997 and the general sex ratio is 1200. After independence, as Ratnagiri and Sindhudurg districts were united, the CSR of Sindhudurg district of 1961 and 1971 could not be obtained, but the GSR of this district was 1194 & 1213 respectively. Also, consistent with the 1981 census, CSR 972 and GSR 1205 are of course higher than CSR. According to the 1991 census, it is 962 and GSR is 1137. After all the GSR appears to be lower than in 1981, and the CSR is also lower. According to the 2001 census, CSR is 944 and GSR is 1079. This again appears to be even lower than in the 1991 census but the main reason

here is the decline in the GSR due to the decline in the overall population. According to the 2011 census, the CSR of Sindhudurg district is further reduced to 922 and GSR 1037.

**Table No. 5.37**

Child Sex Ratio in Sindhudurg District and correlation with GSR (1951-2011)

<b>Sindhudurg District</b>						
<b>Population in 0-6 Age Group and Child Sex Ratio</b>						
Year		Male	Total	Child Sex Ratio (CSR)	<b>General Sex Ratio (GSR)</b>	Correlation between Child Sex Ratio and sex ratio
1951	39387	39473	78860	997	<b>1200</b>	0.93845285
1961	N. A.	N. A.	N. A.	N. A.	<b>1194</b>	
1971	N. A.	N. A.	N. A.	N. A.	<b>1213</b>	
1981	101933	104825	206758	972	<b>1205</b>	
1991	53412	55493	108905	962	<b>1137</b>	
2001	51241	54277	105518	944	<b>1079</b>	
2011	34159	37034	71193	922	<b>1037</b>	

**Source:** Census of India, 1951- 2011

### **Positive Correlation**

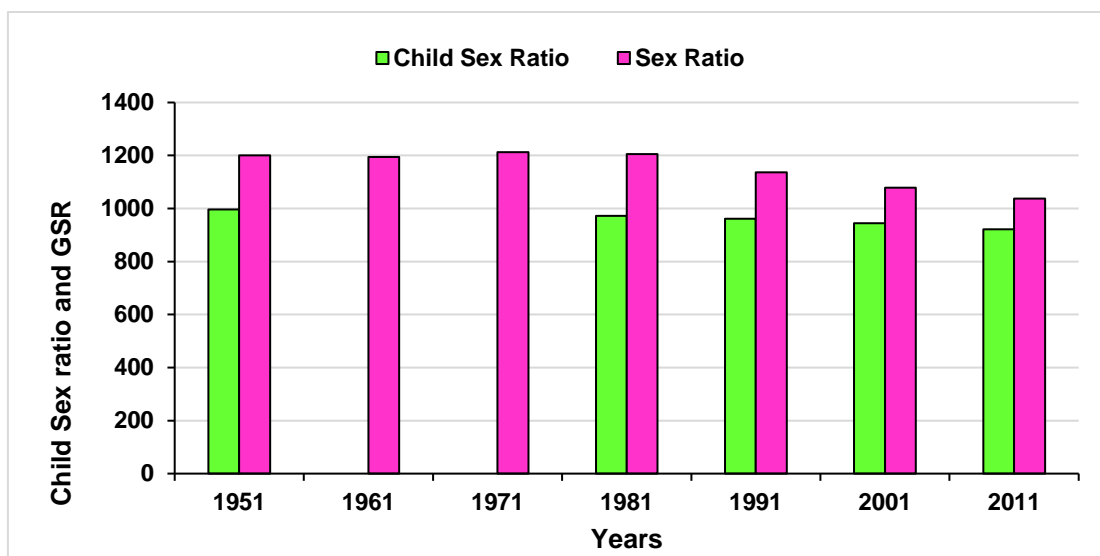
Positive correlation describes when two variables tend to move in same direction from each other, specified when one increases the other variable increase.

Correlation between two variable

s can vary widely over time. Child sex ratio and sex ratio generally have a positive correlation, Calculating the correlation between child sex ratio and sex ratio over a period of 70 years from 1951 to 2011, it shows a positive correlation i.e. 0.938.

**Figure: 5.19**

Child sex ratio and GSR in Sindhudurg district (1951-2011)



**Source:** Table No. 5.37

Form the above Figure it is seen that, -

1. The above Bar Diagram shows the Child sex ratio and General sex ratio in Sindhudurg district.
2. Year 1951 to year 2011 many variations come under General sex ratio and Child sex ratio.
3. Sindhudurg district general sex ratio from 1951 to 2011 continuously more than 1000 but child sex ratio less than 1000. As per the census of 1961 and 1971, only GSR of Sindhudurg district is available but CSR is not available according to this census.

### **Mumbai Suburban District Analysis:**

Table No. 5.19 shows the correlation between **Mumbai Suburban district's** child sex ratio and general sex ratio. After the independence of India, only the town of Mumbai was known as Greater Mumbai. So until 1980, aggregate data of Greater Mumbai was available. But after 1990 Mumbai Suburban and Mumbai District were formed. According to the census of 1951 to 1981, CSR of Mumbai Suburban District is not available, only GSR is available. According to the 1991 census, the CSR of Mumbai

Suburban district is 916 and GSR is 831. As per the 2001 census, the CSR is 923 and the GSR is 822. As per the 2011 census, the CSR of Mumbai Suburban district has once more declined, which is 913 versus GSR 857. This implies that GSR appears to be higher during this census than within the previous one.

**Table No. 5.38**

Child Sex Ratio in Mumbai Suburban District and correlation with GSR  
(1951-2011)

<b>Mumbai Suburban</b>						
<b>Population in 0-6 Age Group and Child Sex Ratio</b>						
Year	Female	Male	Total	Child Sex Ratio (CSR)	General Sex Ratio (GSR)	Correlation between Child Sex Ratio and sex ratio
1951	N. A.	N. A.	N. A.	N. A.	<b>712</b>	-0.87740706
1961	N. A.	N. A.	N. A.	N. A.	<b>744</b>	
1971	N. A.	N. A.	N. A.	N. A.	<b>769</b>	
1981	N. A.	N. A.	N. A.	N. A.	<b>801</b>	
1991	4,62,447	504644	9,67,091	916	<b>831</b>	
2001	4,91,712	5,32,988	10,24,700	923	<b>822</b>	
2011	4,44,188	4,86,696	9,30,884	913	<b>857</b>	

**Source:** Census of India, 1951- 2011

### **Correlation**

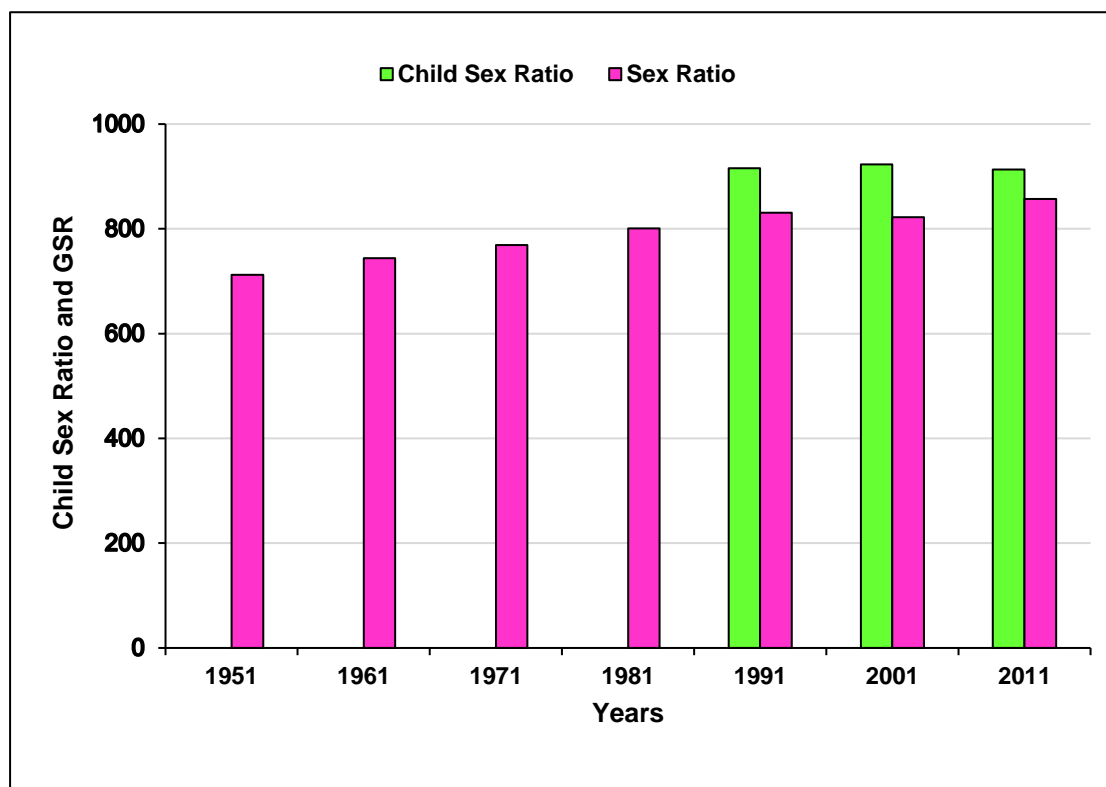
When calculate the correlation between CSR and GSR about Mumbai Suburban district that is -0.877, which shown the negative relationship between Child sex ratio and General sex ratio. While there is rise in general sex ratio, there is continuous decline in CSR.

### **Negative Correlation**

A negative (inverse) correlation occurs when the correlation coefficient is a smaller amount than 0. This can be a sign that both variables move in the opposite direction. In short, any reading between 0 and -1 implies that the two variables move in opposite directions. Then the relationship is said to be negatively correlated.

**Figure: 5.20**

Child Sex Ratio in Mumbai Suburban District with GSR (1951-2011)



Source: Table No. 5.38

Form the above Figure it is seen that, -

1. The above Bar Diagram shows the Child sex ratio and General sex ratio in Mumbai Suburban district.
2. Between year 1991 to year 2011 many variation come in General sex ratio and Child sex ratio.
3. Mumbai Suburban district child sex ratio from 1991 to 2011 continuously more than 900 but General sex ratio less than 900.

### **Mumbai District Analysis:**

Table No. 5.21 shows the correlation between Mumbai district's child sex ratio and general sex ratio. As per the 1951 census, the CSR of Mumbai district is 958 and thus the overall sex ratio is 574. According to the 1961 census, CSR 954. As per the 1971



census, it is 943 and GSR is 670. According to the 1981 census, it's 937 and GSR is 729. According to the 1991 census, it is 932 CSR and GSR is 791. After all the GSR appears to be more than in 1981, and therefore the CSR is additionally lower. As per 2001 census, CSR is 922 and GSR is 777. This again appears to be even below the 1991 census. According to the 2011 census, the CSR of Mumbai district is further reduced to 914 and GSR 838.

**Table No. 5.39**

Population in 0-6 Age Group and Child Sex Ratio

<b>Mumbai District</b>						
<b>Population in 0-6 Age Group and Child Sex Ratio</b>						
Year	Female	Male	Total	Child Sex Ratio (CSR)	<b>General Sex Ratio (GSR)</b>	Correlation between Child Sex Ratio and sex ratio
1951	1,00,865	105247	2,06,112	958	<b>574</b>	-0.96568659
1961	450197	471949	9,22,146	954	<b>626</b>	
1971	91084	96678	1,87,762	943	<b>670</b>	
1981	11,89,635	1269131	24,58,766	937	<b>729</b>	
1991	10,35,413	1109972	21,45,385	932	<b>791</b>	
2001	1,62,934	1,76,789	3,39,723	922	<b>777</b>	
2011	1400803	1684608	30,85,411	914	<b>838</b>	

**Source:** Census of India, 1951- 2011

### **Correlation**

When calculate the correlation between CSR and GSR about Mumbai district that's - 0.965, which shown the negative relationship between Child sex ratio and General sex ratio. When fall in Child sex ratio there is continuous to increase in GSR.

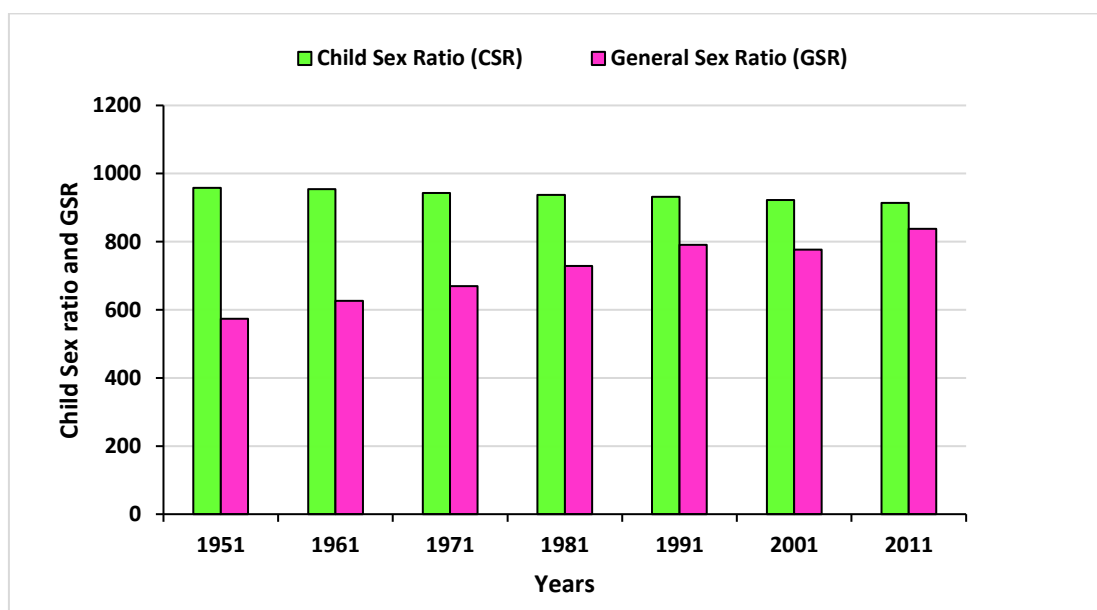
### **Negative Correlation**

A negative (inverse) correlation occurs when the correlation coefficient is smaller amount than 0. This is an indication that both variables move in the opposite direction.

In short, any reading between 0 and -1 implies that the two securities move in opposite directions. When the relationship is alleged to be perfectly negatively correlated.

**Figure: 5.21**

Child Sex Ratio in Mumbai District with GSR (1951-2011)



**Source:** Table No. 5.39

Form the above Figure it will be seen that, -

1. The above Bar Diagram shows the Child sex ratio and General sex ratio in Mumbai district.
2. Year 1951 to year 2011 many variations come under General sex ratio and Child sex ratio.
3. Mumbai district general sex ratio from 1951 to 2011 continuously more than 800 but General sex ratio less than 800.

It can be seen from Table Nos. 5.36 to 5.39 that the Child Sex Ratio in Ratnagiri and Sindhudurg was as high as 997 in 1951 which shows that the number of girls and boys at birth was almost equal (997 girls per 1000 boys). Although there has been a fall in the Child Sex Ratio in both these districts, it is still well above the child sex ratio in Mumbai suburban and Mumbai.

This means the number of girls born in Ratnagiri and Sindhudurg is actually more than the number of girls per thousand boys born in Mumbai Suburban and Mumbai. Since migration cannot be a factor in this case, the difference between the two sets of districts in terms of the number of girls being born can be due to social and cultural factors such as differences in literacy, values and attitudes. The social environment is favourable to women in Ratnagiri and Sindhudurg. The higher proportion of girls in the 0 – 6 age group in Ratnagiri and Sindhudurg caused the general sex ratio to be high also. The general sex ratio is higher than the child sex ratio in all years due to the out-migration of adult males from these districts.

Thus, it can be concluded that the general sex ratio in Ratnagiri and Sindhudurg is higher than that in Mumbai and Mumbai Suburban partly because of the higher proportion of girls being born.

### Hypothesis Testing

Researcher has tested significance of correlation coefficients between urbanisation and sex ratio, female literacy and sex ratio, similar testing can be done in this case also. The results of t-test are given below in the form of a table:

**Table No. 5.40**

Correlation Coefficients between Child Sex Ratio and Sex Ratio

District	r <sub>cal</sub>	t <sub>cal</sub>	t <sub>table</sub>	Significance
Ratnagiri	0.6578	1.9528	2.57	not significant
Sindhudurg	0.9384	5.8852	2.57	Highly significant
Mumbai Suburban	-0.8774	4.0894	2.57	Highly significant
Mumbai	-0.9657	8.3161	2.57	Highly significant

Source: Table No. 5.36, 5.37, 5.38 & 5.39

t-table value corresponds to 5% level of significance and 5 degrees of freedom.

Conclusions :

- 1] There is no significant correlation between child sex ratio and general sex ratio in Ratnagiri district.
- 2] There is a significant positive correlation between child sex ratio and general sex ratio in Sindhudurg district.
- 3] There is a significant negative correlation between child sex ratio and general sex ratio in Mumbai suburban district.
- 4] There is a significant negative correlation between child sex ratio and general sex ratio in Mumbai district.

### **5.7 Conclusion**

In this chapter, the data pertaining to four districts of Maharashtra has been studied and analysed. The data was processed and presented by using appropriate quantitative techniques and statistical approach. From the analysis of data, it was observed that declining trend in sex ratio is seen in majority districts of Maharashtra. District wise analysis shows that, in 2011, two districts of Maharashtra had sex ratio below 900 i. e. Mumbai and Mumbai Suburban which is an alarming problem and needs immediate policy action.

The economic and social indicators studied in this chapter showed that they are significantly related to the sex ratio in the four districts taken for this study. In all the districts studied, a significant rise in income, literacy, urbanisation and women employment was witnessed. However, the factor that most strongly affected the difference in sex ratios was seen to be migration. It was observed that though there has been a rise in economic value of women, it has failed to improve the CSR.

In this chapter, it was also highlighted that minority groups (SC and ST) have more feminine sex ratio. An attempt was made to empirically find whether there exists a relationship between poverty and sex ratio. The researcher applied Spearman's Rank Correlation technique and the result showed  $p=50\%$  which is a significant relationship.

At the end, the availability of health services in Maharashtra was studied. It was observed that such services are not well equipped and supported.

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## **Chapter: VI**

### **Findings, Hypothesis Testing, Conclusions and Suggestion**

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## **Chapter 06**

### **Findings, Hypothesis Testing, Conclusions and Suggestion**

#### **6.1 Introduction**

The previous chapter presented data from the four selected district regarding various socio-economic factors that determine sex ratio. The present chapter gives the Findings, Hypotheses Testing, Conclusions and Suggestions based on the analysis of this data.

There are six sections in this chapter. The first section presents the Findings of the study. The second section presents the Hypothesis Testing. The third section gives the overall conclusions of the study and some useful suggestions are given in the fourth section. The fifth section describes possible areas of further research and the last section concludes this study.

#### **6.2 Findings:**

The findings of this study, based on the analysis of the data collected, are as follows:

##### **6.2.1 Sex Ratio in India and Maharashtra.**

- 1** India has a fairly low sex ratio as compared to other countries at a similar level of economic development. A continuous fall in the sex ratio took place between 1901 and 1991. Since then, between 1991 and 2011, some improvement has taken place.
- 2** Although Maharashtra is one of the more developed states in India, its sex ratio is fairly low, being below the national average.
- 3** Within the state of Maharashtra, a wide disparity can be seen in the sex ratio in the 35 districts of the state, with ratios varying from 1123 in Ratnagiri district to 838 in Mumbai district as per the 2011 Census.

### **6.2.2 Factors Affecting Sex Ratio in the study area.**

The two districts with the highest sex ratio in 2011 in Maharashtra were Ratnagiri and Sindhudurg and the two districts with the lowest sex ratio were Mumbai Suburban and Mumbai. Hence these four districts were selected for this study and an attempt was made to identify various socio - economic factors that could explain the difference in the sex ratio between the two sets of districts. The main findings of this study are given below.

- 1** The data on the sex ratio in the four districts during the period 1951 to 2011 shows that the sex ratio in Ratnagiri and Sindhudurg districts is consistently higher than the sex ratio in Mumbai and Mumbai Suburban districts.
- 2** Not only is the sex ratio higher, it is higher than 1000 in Ratnagiri and Sindhudurg showing a higher number of females than males in the population. On the other hand, the sex ratios in Mumbai and Mumbai Suburban are below 860.
- 3** An interesting finding is that although the Sex ratio in Ratnagiri and Sindhudurg is high, it is seen to be falling throughout the study period. The sex ratio in Mumbai Suburban and Mumbai districts is low, but has been continually increasing over the study period.
- 4** As a result of this trend mentioned above the percentage share of men is increasing in Ratnagiri & Sindhudurg and the percentage share of women is increasing in Mumbai and Mumbai Suburban. The difference between the sex ratios of the 2 sets of districts is reducing.
- 5** There is an inverse relationship between per capita income and the sex ratio in these districts as shown by a negative correlation coefficient. In Mumbai and Mumbai Suburban, per capita income is high but sex ratio is low. In Ratnagiri and Sindhudurg the per capita income is low but sex ratio is high.
- 6** This relationship between income and sex ratio has remained stable between 2001 and 2011.
- 7** Migration of individuals within the four selected districts can be seen to be the most important factor in determining the sex ratio in these districts.
- 8** Census data shows that the largest number of in – migrants into Mumbai came from Ratnagiri and the largest number of out – migrants from Mumbai also went to Ratnagiri.
- 9** Migration from Ratnagiri and Sindhudurg to Mumbai was heavily male dominated as seen from the extremely low sex ratios among migrants up to the 1991 census.



This domination has reduced from 1991 onwards as shown by the substantial improvement in sex ratios among migrants. This means that the number of female migrants has increased considerably since 1991.

- 10** This change in the migration pattern has led to an improvement in the sex ratio in Mumbai and Mumbai Suburban districts and a simultaneous fall in the sex ratio in Ratnagiri and Sindhudurg.
- 11** With an increase in urbanization, the sex ratio is seen to be declining in Ratnagiri and Sindhudurg. This could be the result of two factors. Firstly, as urbanization increases, a smaller family is preferred to maintain a higher standard of living. This has an effect on sex ratio as sons are preferred to daughters. Secondly, with more urbanization, education and employment opportunities become available in less developed areas which reduces out – migration of males. Male population increases and sex ratio falls. This general trend appears to have been repeated in the less developed districts of Ratnagiri and Sindhudurg. The high level of out-migration from these districts to Mumbai, especially of the male population, has slowed down but out-migration of women has increased, leading to a declining sex ratio. Hence the correlation between urbanization and sex ratio is inverse or negative in Ratnagiri and Sindhudurg.
- 12** In Mumbai and Mumbai Suburban districts urbanization was unchanged (100%) but sex ratio continuously increased due to in – migration of a larger number of women and reduction in the in-migration of men throughout the study period. Therefore, there is positive relation between urbanization and sex ratio in these two districts.
- 13** The employment pattern showed that during the study period, the percentage of non – working women is decreasing in the study area. On the other hand, the percentage of female main workers is increasing. The high female work participation has had a positive impact on the sex ratio in all districts in the study area.
- 14** The percentage of female marginal workers is less in all four districts. Women are either main workers or non – workers.
- 15** Based on the age factor, the census data showed that in the productive age group (18-30 and 31-40) there was an excess of males over females in Mumbai and Mumbai Suburban districts and an excess of females over males in Ratnagiri and Sindhudurg.

- 16 Even in the 0-17 age group where migration is negligible, the female population was higher than the male in Ratnagiri and Sindhudurg and male population larger in Mumbai and Mumbai Suburban.** However, the difference between males and females in this age group was quite small, which implied a sex ratio just above 1000 in Ratnagiri and Sindhudurg. The gap between men and women increased with age and was the largest in the 31-40 age group in Ratnagiri and Sindhudurg, with women outnumbering men by a large margin. This is because most men in this age group would be living away from their families for employment whereas women would continue to live in their own villages.
- 17** The population in the above 40 age group was larger than in the younger age group in Ratnagiri and Sindhudurg, clearly showing reverse migration of individuals who are unproductive. But even in this age group, women were more than men in Ratnagiri and Sindhudurg and men more than women in Mumbai and Mumbai Suburban.
- 18** Based on the data concerning literacy in the selected districts, a positive relationship existed between female literacy and sex ratio in Mumbai and Mumbai Suburban districts, as both increased. But in the other study area of Ratnagiri and Sindhudurg, there was inverse relationship between female literacy and sex ratio i.e., literacy increased and sex ratio decreased during the study period.
- 19** Although the two less developed districts showed an inverse relationship between female literacy and sex ratio, **it does not mean that the number of women decreased because of increase in literacy. It could be that as more women become educated, they also migrated to more developed areas, particularly to Mumbai, in search of higher education and employment, causing the sex ratio to fall.** In the more developed districts, in – migration of women caused the sex ratios to increase.
- 20** When the population of the four selected districts was divided between the Scheduled Caste and Scheduled Tribe communities, it was seen that the sex ratio in these communities was high and favorable to women, i. e., more than 1000, particularly in Ratnagiri and Sindhudurg districts. The sex ratio of both these communities was consistently higher than the GSR throughout the study period.
- 21** Comparing the sex ratios of the SC & ST communities in the four districts, a pattern similar to the GSR was observed i.e., the sex ratio in these communities

was higher in Ratnagiri and Sindhudurg as compared to Mumbai and Mumbai Suburban.

- 22 Religion wise data showed that, the Hindu and Muslim communities were the largest in all four districts. In Ratnagiri and Sindhudurg districts the female population in both these communities was higher than the male population. In Mumbai and Mumbai Suburban districts, the male population was higher than the female population in both these communities. This was in keeping with the overall trend in the selected districts.
- 23 The higher proportion of women in the Muslim community in Ratnagiri and Sindhudurg can be said to be the result of socio – cultural factors in that region.
- 24 The Child Sex Ratio (for age group 0 – 6) was higher in Ratnagiri and Sindhudurg as compared to Mumbai and Mumbai Suburban throughout the study period, which showed that a larger number of girls per 1000 boys were born in the two former districts. This could be the result of economic, social and cultural differences between the two sets of districts.

### **6.3 Hypothesis Testing**

The hypotheses taken for this study are:

#### **Hypothesis 1**

- a.  $H_0$  = There is no significant relation between economic variables and sex-ratio in the selected districts.
- b.  $H_1$  = There is a significant relation between economic variables and the sex ratio in the selected districts.

## **Hypothesis 2**

- a.  $H_0$  = There is no significant relation between social variables and the sex ratio in the selected districts.
- b.  $H_1$  = There is a significant relation between social variables and the sex ratio in the selected districts.

In order to test these hypotheses, a **T – test** was carried out in order to measure how significant is the correlation between various economic and social factors present in the four selected districts and their sex ratios. A t – test is a statistical test that is used to compare the means of two groups. It is used in hypothesis testing to determine whether a process or factor actually has an effect on the population of interest (Encyclopedia Britannica, 2022)

The test was performed to measure the significance of the correlation between sex ratio and two economic factors, urbanization and employment and one social factor, literacy. The correlation between the child sex ratio and the General Sex Ratio was also tested.

### **Results of hypothesis testing**

1. Urbanization and Sex Ratio :
  - There is significant negative correlation between urbanization and Sex ratio in Ratnagiri and Sindhudurg districts.
  - There is no significant positive correlation between urbanization and sex ratio in Mumbai Suburban and Mumbai districts. There is positive correlation between urbanization and the sex ratio in these districts, only it is not statistically significant.
2. Employment:
  - There is significant linear relationship between sex ratios and the number of female main workers, marginal workers and non-workers in Ratnagiri, Sindhudurg, Mumbai Suburban and Mumbai districts.
3. Literacy:
  - There is perfect negative correlation between female literacy and sex ratio in Ratnagiri district, which is, therefore, highly significant.

- There is a significant negative correlation between female literacy and sex ratio in Sindhudurg district.
- There is a significant positive correlation between female literacy and sex ratio in Mumbai Suburban district.
- There is a significant positive correlation between female literacy and sex ratio in Mumbai district.

Based on the results of the Hypothesis testing it can be concluded that:

### **Hypothesis 1**

H<sub>0</sub> = There is no significant relation between economic variables and sex-ratio in the selected districts.

This hypothesis can be rejected.

H<sub>1</sub> = There is a significant relation between economic variables and the sex ratio in the selected districts.

This hypothesis can be accepted.

### **Hypothesis 2**

H<sub>0</sub> = There is no significant relation between social variables and the sex ratio in the selected districts.

This hypothesis can be rejected.

H<sub>1</sub> = There is a significant relation between social variables and the sex ratio in the selected districts.

This hypothesis can be accepted.

## 6.4 Conclusions:

The **objectives** of carrying out this study were:

1. To study the trends in the Sex Ratio in the selected districts.
2. To study the economic factors affecting the Sex Ratio in the selected districts.
3. To study the social factors affecting the Sex Ratio in the selected districts.
4. To analyse the gap in the Sex Ratio between the districts selected for study.
5. To give suggestions for the improvement and maintenance of sex ratio in the selected area and in India in general.

Based on the data collected and analysed, the conclusions related to these objectives are as follows:

1. The trends in the sex ratios in the districts selected for this study show that during the period 1951 to 2011, the sex ratios in Ratnagiri and Sindhudurg districts were consistently high but they were declining throughout the study period. The sex ratios in Mumbai Suburban and Mumbai districts were low, but continually increasing over the study period.
2. Various economic variables like income, urbanization, employment pattern of female workers and inter – district migration within the study area have a significant relation to the sex ratio in these districts.
3. A study of urbanization and sex ratio has revealed that urbanization and sex ratio have a negative correlation in Ratnagiri and Sindhudurg districts. Mumbai suburban and Mumbai districts, on the other hand, have a positive correlation relationship between urbanization and sex ratio.
4. While studying female participation in Main, Marginal and Non-workers, it has been noticed that the number of female main workers and marginal workers is higher in Ratnagiri and Sindhudurg districts. At the same time, a study of Mumbai Suburbs and Mumbai Districts has shown that, although these two districts are developed, the number of female main workers and marginal workers in these districts, although relatively high, but absolutely

low. So, while regression of female main, marginal and non-worker is found with sex ratio, regression of all four districts has come positive.

5. While studying Economic Reasons and Sex Ratio, it has been noticed that, Dowry and poverty are two major economic causes leading to female infanticide. But Sindhudurg and Ratnagiri are the exceptions. This is because although the income of these two districts is less than that of Mumbai suburbs and Mumbai district, the sex ratio is higher. In contrast, the sex ratio is lower in both the urban districts.
6. Studying the slum and sex ratio, it has been noticed that Dharavi is the largest slum in Asia. So, it seems that the sex ratio should be higher in this place. But at present the situation is different and even here Ratnagiri and Sindhudurg districts have high slum sex ratio and Mumbai suburban and Mumbai district have low slum sex ratio.
7. Social variables such as literacy, age structure, community and religion of the population in the study area have a significant relation to the sex ratio.
8. Population and sex ratio studies have shown that the population of women is higher in Ratnagiri and Sindhudurg districts from the very beginning. In contrast, the population of women is less in Mumbai suburban and Mumbai districts. The study of age structure and sex ratio shows that Ratnagiri and Sindhudurg districts have high population of women in the age group of 18 to 40 years. On the contrary, the situation is quite different in Mumbai Suburban and Mumbai district.
9. While studying female literacy, it has been noticed that there is a negative correlation between sex ratio and literacy in Ratnagiri and Sindhudurg districts. On the contrary, there is a positive correlation between sex ratio and literacy in Mumbai Suburban and Mumbai districts. But the sex ratio in Mumbai Suburban and Mumbai district is low.
10. Studies on Sex Ratio and Religion have found that the prevalence of women in Hindu and Muslim religions is high, mainly in Ratnagiri and Sindhudurg districts. On the other hand, in Mumbai suburban and Mumbai district, despite the high population of both religions, the proportion of women is low.
11. A study of SC and ST population and sex ratio has revealed that SC and ST sex ratio is satisfactory in Ratnagiri and Sindhudurg districts. On the other

hand, the sex ratio of the same caste is unsatisfactory in Mumbai suburbs and Mumbai district.

- 12.** Availability of Primary Health Centers also has an effect on the sex ratio. Ratnagiri and Sindhudurg districts have comparatively less facilities than Mumbai suburbs and Mumbai district. These facilities are widely available through the government as well as the private sector.
- 13.** Out of all these factors, the most important appeared to be the male-dominated out-migration from Ratnagiri and Sindhudurg to Mumbai and Mumbai Suburban districts. This caused the proportion of women to be higher in Ratnagiri and Sindhudurg resulting in a high sex ratio and the proportion of men to be higher in Mumbai and Mumbai Suburban, resulting in a low sex ratio.
- 14.** The Child Sex Ratio in Ratnagiri and Sindhudurg was higher than in Mumbai and Mumbai Suburban districts, showing that actually more girls per 1000 boys were born in the former districts. Studying child sex ratio and general sex ratio, it has been noticed that Ratnagiri and Sindhudurg districts have a positive correlation between child sex ratio and general sex ratio. On the other hand, the child sex ratio and general sex ratio of Mumbai suburban and Mumbai district have a negative relationship.
- 15.** The overall conclusion of this study is that the difference in the sex ratios of the two districts with the highest sex ratio in Maharashtra i.e., Ratnagiri and Sindhudurg and the two districts with the lowest sex ratio i.e., Mumbai Suburban and Mumbai, was partly due to migration and partly due to economic, social and cultural differences.



## **6.5 Suggestions:**

Some important points for suggestions

1. Policy makers have to increase the skill-based education which could raise employment opportunities in the Ratnagiri and Sindhudurg Districts. Consequently, the out migration from this area will be under control and it will improve the balance between the sex ratio in different age groups especially in productive population.
2. Policy makers have to attempt for providing economical and family friendly living spaces to the migrant people in Mumbai and Mumbai sub-urban district. It may improve the sex ratio if the families of the migrants also relocated to Mumbai. Also, it will create cultural harmony among the different people in Mumbai region.
3. Social welfare organizations must arrange programmes for awakening people to reduce the discriminatory thinking about girl child. Such programmes should be arranged largely in Mumbai, Mumbai sub-urban district and other parts of the country where the gap between male population and female population is wider.
4. Government events must create interest on issue of females' foeticide.
5. Medical regulators must create an activity among doctors, so that physicians do not get involved in females' foeticide.
6. The law against female foeticide must include strict punishment for the families who engage in this activity and not just for the physicians.
7. Government must implement Dowry Prohibition Act.
8. Nations must create interest to stop female foeticide by increasing advertising cost on the issue of females' foeticide.
9. Press must carry out sting operation against erring physicians and thus create some awareness around the issue of foeticide.
10. The government should frame strict laws to stop the violence against women so that their position in the society is elevated.
11. The government should empower women by giving them due recognition and role in all aspects of life.

12. The government should educate the people in general and women in particular through public media that sex determination of fetus through ultrasound is not yet an exact means to find the true sex of baby.
13. The government should work hard to bring more and more females in the fold of education so that they improve their own lot and the lot of their family.
14. The society should accept girl child as a blessing than a curse. People should reverse their attitude and mindset towards the girls.
15. The social evils like dowry should be banned by the government. We as a society should learn to perform zero dowry marriages.

## **6.6 Further scope of study**

It is evident from the present study that many areas of Maharashtra state and other parts of the country exhibit a poor sex ratio. But, the reasoning for the same could be different with respect to the different areas. Hence, the researcher would like to mention that there is wide scope for future study in demographic subjects. Such studies will be helpful to improve the quality of country's human resources.

## **6.7 Conclusion:**

The main objective of this chapter is to sum up the important conclusions. Taking into consideration the inferences of the investigation the researcher is aware of the problems related to the sex ratio in selected districts of the study area. All these issues, research and some other important issues are presented together in Findings. The important problems are also listed in the present chapter. It is difficult task to rectify the shortcomings or to solve the problems. However, some recommendations have been made, which will be helpful to have solution to these problems. At the end of the chapter the researcher has given some suggestions for further research in this field. Nature of these suggestions is interdisciplinary and multidisciplinary. The suggestions are based on the issues which the researcher came across in the process of investigation.



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**TRENDS IN SEX RATIO IN SELECTED  
DISTRICTS IN MAHARASHTRA:  
(1951 TO 2011)**

A Thesis

**SUBMITTED TO  
TILAK MAHARASHTRA VIDYAPEETH, PUNE  
FOR THE DEGREE OF  
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**Under the Board of Moral and Social Sciences**



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## 80\_ Recommendations

### CONCLUSIONS

1. The trends in the sex ratios in the districts selected for this study show that during the period 1951 to 2011, the sex ratios in Ratnagiri and Sindhudurg districts were consistently high but they were declining throughout the study period. The sex ratios in Mumbai Suburban and Mumbai districts were low, but continually increasing over the study period.
2. Various economic variables like income, urbanization, employment pattern of female workers and inter – district migration within the study area have a significant relation to the sex ratio in these districts.
3. A study of urbanization and sex ratio has revealed that urbanization and sex ratio have a **negative correlation** in Ratnagiri and Sindhudurg districts. Mumbai suburban and Mumbai districts, on the other hand, have a **positive correlation** relationship between urbanization and sex ratio.
4. While studying female participation in Main, Marginal and Non-workers, it has been noticed that the number of female main workers and marginal workers is higher in Ratnagiri and Sindhudurg districts. At the same time, a study of Mumbai Suburbs and Mumbai Districts has shown that, although these two districts are developed, the number of female main workers and marginal workers in these districts, although relatively high, but absolutely low. So, while **regression** of female main, marginal and non-worker is found with sex ratio, regression of all four districts has come positive.
5. While studying Economic Reasons and Sex Ratio, it has been noticed that, Dowry and poverty are two major economic causes leading to female infanticide. But Sindhudurg and Ratnagiri are the exceptions. This is because although the income of these two districts is less than that of Mumbai suburbs and Mumbai district, the sex ratio is higher. In contrast, the sex ratio is lower in both the urban districts.
6. Studying the slum and sex ratio, it has been noticed that Dharavi is the largest slum in Asia. So, it seems that the sex ratio should be higher in this place. But at present the situation is different and even here Ratnagiri and Sindhudurg districts have high slum sex ratio and Mumbai suburban and Mumbai district have low slum sex ratio.

7. Social variables such as literacy, age structure, community and religion of the population in the study area have a significant relation to the sex ratio.
8. Population and sex ratio studies have shown that the population of women is higher in Ratnagiri and Sindhudurg districts from the very beginning. In contrast, the population of women is less in Mumbai suburban and Mumbai districts. The study of age structure and sex ratio shows that Ratnagiri and Sindhudurg districts have high population of women in the age group of 18 to 40 years. On the contrary, the situation is quite different in Mumbai Suburban and Mumbai district.
9. While studying female literacy, it has been noticed that there is a **negative correlation** between sex ratio and literacy in Ratnagiri and Sindhudurg districts. On the contrary, there is a positive correlation between sex ratio and literacy in Mumbai Suburban and Mumbai districts. But the sex ratio in Mumbai Suburban and Mumbai district is low.
10. Studies on Sex Ratio and Religion have found that the prevalence of women in Hindu and Muslim religions is high, mainly in Ratnagiri and Sindhudurg districts. On the other hand, in Mumbai suburban and Mumbai district, despite the high population of both religions, the proportion of women is low.
11. A study of SC and ST population and sex ratio has revealed that SC and ST sex ratio is satisfactory in Ratnagiri and Sindhudurg districts. On the other hand, the sex ratio of the same caste is unsatisfactory in Mumbai suburbs and Mumbai district.
12. Availability of Primary Health Centers also has an effect on the sex ratio. Ratnagiri and Sindhudurg districts have comparatively less facilities than Mumbai suburbs and Mumbai district. These facilities are widely available through the government as well as the private sector.
13. Out of all these factors, the most important appeared to be the male-dominated out-migration from Ratnagiri and Sindhudurg to Mumbai and Mumbai Suburban districts. This caused the proportion of women to be higher in Ratnagiri and Sindhudurg resulting in a high sex ratio and the proportion of men to be higher in Mumbai and Mumbai Suburban, resulting in a low sex ratio.
14. The Child Sex Ratio in Ratnagiri and Sindhudurg was higher than in Mumbai and Mumbai Suburban districts, showing that actually more girls per 1000 boys were born in the former districts. Studying child sex ratio and general sex ratio, it has been noticed that Ratnagiri and Sindhudurg districts have a positive correlation

between child sex ratio and general sex ratio. On the other hand, the child sex ratio and general sex ratio of Mumbai suburban and Mumbai district have a negative relationship.

**15.** The overall conclusion of this study is that the difference in the sex ratios of the two districts with the highest sex ratio in Maharashtra i.e., Ratnagiri and Sindhudurg and the two districts with the lowest sex ratio i.e., Mumbai Suburban and Mumbai, was partly due to migration and partly due to economic, social and cultural differences.

**16.** Based on the results of the Hypothesis testing it can be concluded that:

1. There is no significant relation between economic variables and sex-ratio in the selected districts. **This hypothesis can be rejected.**
2. There is a significant relation between economic variables and the sex ratio in the selected districts. **This hypothesis can be accepted.**
3. There is no significant relation between social variables and the sex ratio in the selected districts. **This hypothesis can be rejected.**
4. There is a significant relation between social variables and the sex ratio in the selected districts. **This hypothesis can be accepted.**

## **SUGGESTIONS**

1. Policy makers have to increase the skill-based education which could raise employment opportunities in the Ratnagiri and Sindhudurg Districts. Consequently, the out migration from this area will be under control and it will improve the balance between the sex ratio in different age groups especially in productive population.
2. Policy makers have to attempt for providing economical and family friendly living spaces to the migrant people in Mumbai and Mumbai sub-urban district. It may improve the sex ratio if the families of the migrants also relocated to Mumbai. Also, it will create cultural harmony among the different people in Mumbai region.
3. Social welfare organizations must arrange programmes for awakening people to reduce the discriminatory thinking about girl child. Such programmes should be

arranged largely in Mumbai, Mumbai sub-urban district and other parts of the country where the gap between male population and female population is wider.

4. Government events must create interest on issue of females' foeticide.
5. Medical regulators must create an activity among doctors, so that physicians do not get involved in females' foeticide.
6. The law against female foeticide must include strict punishment for the families who engage in this activity and not just for the physicians.
7. Government must implement Dowry Prohibition Act.
8. Nations must create interest to stop female foeticide by increasing advertising cost on the issue of females' foeticide.
9. Press must carry out sting operation against erring physicians and thus create some awareness around the issue of foeticide.
10. The government should frame strict laws to stop the violence against women so that their position in the society is elevated.
11. The government should empower women by giving them due recognition and role in all aspects of life.
12. The government should educate the people in general and women in particular through public media that sex determination of fetus through ultrasound is not yet an exact means to find the true sex of baby.
13. The government should work hard to bring more and more females in the fold of education so that they improve their own lot and the lot of their family.
14. The society should accept girl child as a blessing than a curse. People should reverse their attitude and mindset towards the girls.
15. The social evils like dowry should be banned by the government. We as a society should learn to perform zero dowry marriages.

## **FINDINGS**

- 1** India has a fairly low sex ratio as compared to other countries at a similar level of economic development. A continuous fall in the sex ratio took place between 1901 and 1991. Since then, between 1991 and 2011, some improvement has taken place.
- 2** Although Maharashtra is one of the more developed states in India, its sex ratio is fairly low, being below the national average.
- 3** Within the state of Maharashtra, a wide disparity can be seen in the sex ratio in the 35 districts of the state, with ratios varying from 1123 in Ratnagiri district to 838 in Mumbai district as per the 2011 Census.
- 4** The data on the sex ratio in the four districts during the period 1951 to 2011 shows that the sex ratio in Ratnagiri and Sindhudurg districts is consistently higher than the sex ratio in Mumbai and Mumbai Suburban districts.
- 5** Not only is the sex ratio higher, it is higher than 1000 in Ratnagiri and Sindhudurg showing a higher number of females than males in the population. On the other hand, the sex ratios in Mumbai and Mumbai Suburban are below 860.
- 6** An interesting finding is that although the Sex ratio in Ratnagiri and Sindhudurg is high, it is seen to be falling throughout the study period. The sex ratio in Mumbai Suburban and Mumbai districts is low, but has been continually increasing over the study period.
- 7** As a result of this trend mentioned above the percentage share of men is increasing in Ratnagiri & Sindhudurg and the percentage share of women is increasing in Mumbai and Mumbai Suburban. The difference between the sex ratios of the 2 sets of districts is reducing.
- 8** There is an inverse relationship between per capita income and the sex ratio in these districts as shown by a negative correlation coefficient. In Mumbai and Mumbai Suburban, per capita income is high but sex ratio is low. In Ratnagiri and Sindhudurg the per capita income is low but sex ratio is high.
- 9** This relationship between income and sex ratio has remained stable between 2001 and 2011.
- 10** Migration of individuals within the four selected districts can be seen to be the most important factor in determining the sex ratio in these districts.

- 11 Census data shows that the largest number of in – migrants into Mumbai came from Ratnagiri and the largest number of out – migrants from Mumbai also went to Ratnagiri.
- 12 Migration from Ratnagiri and Sindhudurg to Mumbai was heavily male dominated as seen from the extremely low sex ratios among migrants up to the 1991 census. This domination has reduced from 1991 onwards as shown by the substantial improvement in sex ratios among migrants. This means that the number of female migrants has increased considerably since 1991.
- 13 This change in the migration pattern has led to an improvement in the sex ratio in Mumbai and Mumbai Suburban districts and a simultaneous fall in the sex ratio in Ratnagiri and Sindhudurg.
- 14 In Mumbai and Mumbai Suburban districts urbanization was unchanged (100%) but sex ratio continuously increased due to in – migration of a larger number of women and reduction in the in-migration of men throughout the study period. Therefore, there is positive relation between urbanization and sex ratio in these two districts.
- 15 The employment pattern showed that during the study period, the percentage of non – working women is decreasing in the study area. On the other hand, the percentage of female main workers is increasing. The high female work participation has had a positive impact on the sex ratio in all districts in the study area.
- 16 The percentage of female marginal workers is less in all four districts. Women are either main workers or non – workers.
- 17 Based on the age factor, the census data showed that in the productive age group (18-30 and 31-40) there was an excess of males over females in Mumbai and Mumbai Suburban districts and an excess of females over males in Ratnagiri and Sindhudurg.
- 18 **Even in the 0-17 age group where migration is negligible, the female population was higher than the male in Ratnagiri and Sindhudurg and male population larger in Mumbai and Mumbai Suburban.**
- 19 The population in the above 40 age group was larger than in the younger age group in Ratnagiri and Sindhudurg, clearly showing reverse migration of individuals who are unproductive. But even in this age group, women were more

than men in Ratnagiri and Sindhudurg and men more than women in Mumbai and Mumbai Suburban.

- 20 Based on the data concerning literacy in the selected districts, a positive relationship existed between female literacy and sex ratio in Mumbai and Mumbai Suburban districts, as both increased. But in the other study area of Ratnagiri and Sindhudurg, there was inverse relationship between female literacy and sex ratio i.e., literacy increased and sex ratio decreased during the study period.
- 21 Although the two less developed districts showed an inverse relationship between female literacy and sex ratio, **it does not mean that the number of women decreased because of increase in literacy. It could be that as more women become educated, they also migrated to more developed areas, particularly to Mumbai, in search of higher education and employment, causing the sex ratio to fall.** In the more developed districts, in – migration of women caused the sex ratios to increase.
- 22 Comparing the sex ratios of the SC & ST communities in the four districts, a pattern similar to the GSR was observed i.e., the sex ratio in these communities was higher in Ratnagiri and Sindhudurg as compared to Mumbai and Mumbai Suburban.
- 23 Religion wise data showed that, the Hindu and Muslim communities were the largest in all four districts. In Ratnagiri and Sindhudurg districts the female population in both these communities was higher than the male population. In Mumbai and Mumbai Suburban districts, the male population was higher than the female population in both these communities. This was in keeping with the overall trend in the selected districts.
- 24 The higher proportion of women in the Muslim community in Ratnagiri and Sindhudurg can be said to be the result of socio – cultural factors in that region.
- 25 The Child Sex Ratio (for age group 0 – 6) was higher in Ratnagiri and Sindhudurg as compared to Mumbai and Mumbai Suburban throughout the study period, which showed that a larger number of girls per 1000 boys were born in the two former districts. This could be the result of economic, social and cultural differences between the two sets of districts.



## **FURTHER RESEARCH**

It is evident from the present study that many areas of Maharashtra state and other parts of the country exhibit a poor sex ratio. But, the reasoning for the same could be different with respect to the different areas. Hence, the researcher would like to mention that there is wide scope for future study in demographic subjects. Such studies will be helpful to improve the quality of country's human resources.

## **SUMMARY**

The main objective of this chapter is to sum up the important conclusions. Taking into consideration the inferences of the investigation the researcher is aware of the problems related to the sex ratio in selected districts of the study area. All these issues, research and some other important issues are presented together in Findings. The important problems are also listed in the present chapter. It is difficult task to rectify the shortcomings or to solve the problems. However, some recommendations have been made, which will be helpful to have solution to these problems. At the end of the chapter the researcher has given some suggestions for further research in this field. Nature of these suggestions is interdisciplinary and multidisciplinary. The suggestions are based on the issues which the researcher came across in the process of investigation.

The economic and social indicators studied in this chapter showed that they are significantly related to the sex ratio in the four districts taken for this study. In all the districts studied, a significant rise in income, literacy, urbanisation and women employment was witnessed. However, the factor that most strongly affected the difference in sex ratios was seen to be migration. It was observed that though there has been a rise in economic value of women, it has failed to improve the CSR.

