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An Analysis of Population Growth and Fertility Rate in India

Dr. Archana Singh[1], Seema Singh[2]

[1]Associate Professor, Department of Economics, Meerut College, Meerut
[2]Research Scholar, Department of Economics, Meerut College, Meerut

ABSTRACT

If we compare to all other aspects of society, population growth is a very significant demographic characteristic. During the second half of the last century, rapid population growth was a serious concern as it was seen as an obstacle to the country's development. India is the second most populous countries after China in the world wit its total population of 139 crores in 2021. India's population is larger than the total population of North America, South America and Australia put together. However, India is going through the last phase of population transition expansion. That's mean total population of the country is increasing but at a declining rate. From 1901 to 2011, the decadal growth rate of India was 5.75% to 12.5%. As we also know that the human fertility rate plays an important role in determine the population growth of a country. According to UN World Population Policy, 2021, India is at replacement level TFR (2.1). In 2021, India with 139 crore people is the second most populous country in the world. According to New NFHS-5, India's total fertility rate (TFR) has declined from 2.2% to 2.0%. The main objective of this paper is to analyze the size and population growth rate of India since 1901 to 2021 and to analyze the trends of total fertility rate in India and its various states.

Keywords:- Population Growth, Fertility, Population, Replacement Level.

INTRODUCTION

In terms of geographical area Russia, China, Canada, Brazil, America and Australia are larger than India. Thus, India is the seventh largest country in the world, accounts only 2.42 percent of the total world area (135.79 million square kilometer). But in terms of population, India is the second most populous country in the world, after China while China is on the top with over 144 crore people. (Indiaonlinepages.com)[1] So, almost 17.85% of the world's population live in India, that means one out of six people on this planet resides in India. According to the population projections for India and state 2001–2026,[2] the population of India is expected to increase from 107 crore to 145 crore during the period 2001–2026 an increase of 36 percent in 25 years at the rate of 1.2 percent annually.

Due to the rapid growth of population of India, demographers, policy makers and other social scientists has increased effort to understand the dynamics of population change because of its relationship with socio-economic development of the society as well as of the country. The demographic changes indicate not only change in the population size but also in its composition, distribution and the related development process. Migration, mortality and fertility are considered as, three basic components of demographic changes of a country. Fertility and mortality influence population within a biological framework, while migration influence the population due to various factors like socio-economic, demographic, cultural environmental and political factors. However, these factors also related to the fertility and mortality.

But since the 1950s, for the stabilization of population, fertility reduction has been a key objective of a country. The most recent expression of this objective can be found in the National Population Policy 2000, which states its medium-term goal as reducing total fertility rate (TFR) to replacement level by 2010 and to achieve a stable population by 2045.[3]

According to Bernard Benjamin[4], "Fertility measures the rate at which a population adds to itself by births and is normally assessed by relating the number of birth to the size of some section of the population, such as the number of married couples, or the number of women of child bearing age i.e., an appropriate yardstick of a potential fertility."

[1] Indiaonlinepages.com. Population of India, www.indiaonlinepages.com.
[2] Population Projections for India and states 2001–2026, report of the technical group on population projections constituted by the national commission on population, May 2006, census of India 2001.
[3] Population of India, Ministry of Statistics and Programme Implementation UN (World Population Prospects 2019)
[4] Benjamin, Bernard, Demographic Analysis, Routledge, Ist Edition, 1968, ISBN: 9781003153290, pp: 1-14.

So, fertility is one of the major components of population growth. To understand the past, current and future trends of population, the study of fertility is very important and also important to socio-economic planning of a country.

So, in this study, we analyse the size and population growth rate of India since 1901 to 2011 and we also analyse the trends of fertility in India and its various states.

Objectives of the Study:–

The main objectives of this research paper–

(1) To analyse the size and population growth rate of India since 1901 to 2021.
(2) To analyse the trends of total fertility rate in India and its various states.

RESEARCH METHODOLOGY

The present paper makes use of secondary data gathered from various sources, journals, articles, websites, books and newspapers. The primary aim of this paper is to provide a comprehensive and detailed description of the topic under consideration.

LITERATURE REVIEW

Chowdhary, A.H. Asma, Sana (2017) in their article analyze the fertility trends and differentials from 1971 to 2011 in Uttar Pradesh. This study was based on secondary data which was collected from census of India, various journals, articles and state statistical handbook. As a measures of fertility they used total fertility rate, age specific fertility rate and crude birth rate. After the analysis, they found the total fertility ratio (6.6 in 1971 and 3.6 in 1971), crude birth ratio (44.9 in 1971 and 27.4 in 2011) and ASFR (244.8 in 2001 and 231 in 2011) decline from 2001 to 2011. According to the study, socio-economic changes which includes the education improved health, provision of income are the main reasons of fertility transition in U.P.

Vohra, M., Dr. Samir (2015), analysed the population problem in India and also analyse the factors which account for high birth rate and decline in the death rate is done. According to the census of population 2011, the total population of India was around 1210 million (121.0 crore) as against 1028 million (102.8 crore) persons in 2001. From 1901 to 2011, the population of India is continuous increasing at very high pace. According to him, population explosion aggravates the poverty, worsens the unemployment situation reduces per capita income and increases proportion of unproductive people.

Kumar, Amit (2014) in his paper, examines the trends, differentials and changes in fertility level of Bihar and its future prospects. After the analysis, he concluded that India will achieve the replacement level of fertility much earlier than Bihar because during 1981-2007, the rate of fertility decline is higher in India than Bihar. The Gompertz curve represent that rate of decline in total fertility rate is decrease after 1997 and in 2007, it was dropped to 1.8. The results of projection report show that current projected total fertility rate for the Bihar is 3.66 (2010), in 2020, it will reach to 2.8 and by 2030, it will be 2.2. He was estimated that around 2035. The TFR of Bihar will achieve at replacement level.

Thukral and Singh (2008), in their paper, analysed the population growth in India in terms of change in specific growth.

According to them, at the present rate of specific growth rate decline, the population by the end of the country will be 2.49 billion. They concluded that for the population to achieve zero growth by the year 2045, a decline in specific growth rate will have to be achieved at the rate of 0.000428 per year.

Guilmoto, C.Z. ...et al. (2002) in their study, analysed that over the last few decades, both fertility and mortality rates has decline but the decreasing rate of mortality was strong enough to offset the fall in fertility rate. Acc. to the census of India 2001, India is passing through the last phase of fertility transition, moving towards moderate to low fertility.

However, due to the differentials in population growth rates across states and union territories, the rate of fertility decline has not been uniform across the country.

Size and Growth Rate of Population In India:–
Since the beginning of the 20th century, the population of India has been growing rapidly. In 1901, the total population of India was 23.8 crore and in 2001, it was 102.7 crore over a decade, it grew almost a double speed and in 2021, it was 139 crore. During the first 50 years from 1901–1951, population grow by 12.3 crore while during the next 50 years from 1951–2001, it increased by more than 5 time, that is by 66.6 crore.

Only during 1911–2021, population has been recorded a marginal decrease and ever since 1921, the population of India has been continuously rising.

The growth of population in India can be divided in 4 distinctive stages–

1. The stage of stagnant growth (1901–1921)
2. The stage of steady growth (1921–1951)
3. The stage of population explosion (1951–1981)
4. The stage of high growth with definite signs of slowing down (1981–2021)

Growth Rate of Population in India:–

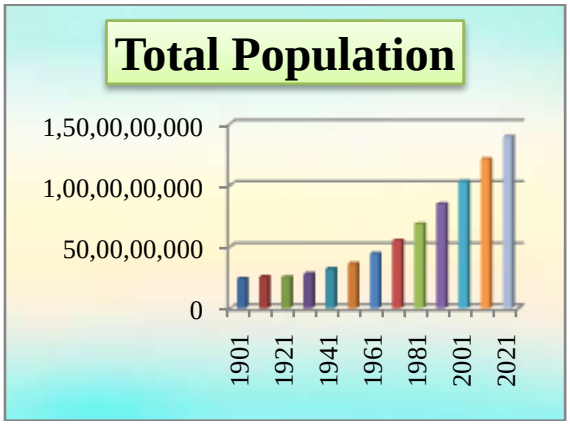
Census Year	Total Population	Decadal Growth Rate (%)	Average Annual Exponential Growth Rate (%)
1901	23,83,96,327	–	–
1911	25,20,93,390	5.75	0.56
1921	25,13,21,213	–0.31	–0.03
1931	27,89,77,238	11.00	1.04
1941	31,86,60,580	14.22	1.33
1951	36,10,88,090	13.31	1.25
1961	43,92,34,771	21.64	1.96
1971	54,81,59,652	24.80	2.22
1981	68,33,29,097	24.66	2.20
1991	84,64,21,039	23.87	2.14
2001	1,02,87,37,436	21.54	1.95
2011	1,21,01,93,422	17.64	1.64
2021	1,393,409,038	12.58	1.0

Source: Compiled from census report, census of India, 2011.

The Stage of Stagnant Growth (1901–1921):–
In 1901, the population of India was 23.8 crore and in 1921, it was 25.2 crore. During this period, population increased by only 1.29 crore. According to the census of 1901–11, the decadal growth rate was only 5.75 percent, as the natural growth rate of population was low (6.6), but in 1911–21, the growth rate of population declined by (–) 0.3 percent.

Infact it is happened only once throughout the history of India's population the census year 1921 registered a negative (–0.3%) growth rate. That's why the year 1921 is after referred as "the year of greater demographic divide." During most of the 19th century, India witnessed a low, infrequent, fluctuated and irregular growth of population, which floated into 20th century until 1921. Thus, during this period, the population growth rate of India can be termed as more or less the stagnant growth stage. During this period, the population growth of India was stagnant because during 1911–21, both birth rate and death rate were high. The high birth rate was counter balanced by high mortality rate. In this period, the main factors which were responsible for high birth and death rate were epidemics (like- Chlorea, Plague, Malaria Small Pox), droughts, feminies, shortage of food, poor health and medical facilities, illiteracy of people, and inefficient system distribution system of food and other basic necessities which took a heavy toll of human lives.

It marked the shift from a pattern of relatively static population size to one of steady increase.



The Stage of Steady Growth (1921–51):–

From 1921 onwards till 1951, the population of India started growing at a rate of more than 1 percent per year. During 1921–1951, population increased by 2.8 crore in 1931 to 4 crore in 1941 and to 5 crore in 1951. But due to the partition of India in 1947, the decadal growth rate in 1951 census was 0.9 percentages less than in the 1941 census.

The decadal growth rate in 1941 was 14.22% and in 1951, it was 13.31%. The period 1921–1951 is considered as the period of steady population growth.

After 1921, India experienced the early expanding stage of demographic transition. In this stage, the death rate started decline while birth rates are relatively higher. The crude death rate in 1921 was 48 per thousand, which started declined to 27 per thousand in 1951. So, during this period, the crude death rate started declined but crude birth rate still very high, that's the reason during 1921–51, the population growth is called mortality induced growth.

The main reason of reducing mortality rate was an overall improvement in health and sanitation facilities, better transport and communication system that improved distribution system and at that time, there was a progressive control of epidemics like cholera, plague and malaria. The aftermath of these factors was the population started increasing steadily.

The Stage of Population Explosion (1951–1981):–

During the last 50 years from 1901 to 1951, the population of India increased by 32.5 crore as against about 12 crore. So, this period is known as the period of rapid population growth. In 1981, the average annual population increased from 1.25% to 2.2%. After 1951, there was a sharper decline in death rate but birth rate still remained very high. Therefore, the decade 1951–1981 is also known as the period of population explosion in India. This period experienced very high growth rate of population, that was 2.2%. The main reason of this growth was better health facilities and accelerated developmental activities that improved the living conditions of people.

The Stage of High Growth with Declining Trend (1981–2021):–

During the last phase of 20^{th} century, a definite declining trend of population growth is found. In the demographic history of the country, the year 1981 is also known as the another year of great divide. From 1981 till present, the growth rate of country's population still very high. However gradually, it started slowing down. In 1971, the highest ever growth rate of 2.22% was recorded which continued till 1980, in 1991, it declined to 2.14% in 2001 and 2011, it was 1.95% and 1.64% and in 2021, it was 1.0%.

The population growth of India show a declining trend but still it is higher than the world population growth rate of 0.9% (2021) (World Bank). The declining trend in the population growth rate of India indicate that India is passing through the last phase of expanding population and it starts a new era in the demographic history of India. The factors which are responsible for population growth in India are declining crude birth rate, improve living standard of people, an increase in the mean age at marriage, and improve the education level of females.

The Trend O Fertility Rate In India And Its Various States:–

India is the largest democracy of the world and the second largest country accounting 139 crore in 2021 after China. The population of India increase from 23.83 crores in 1901 census to 139 crores in 2021. In the last 120 years population in India has multiplied by around 6 times. Before independence, the population growth rate was low because of high fertility and mortality rates. But after independence, the population of India has been increased rapidly, because of the improvement of health facilities, the mortality rate started decline but fertility rate remain continuously increase.

Therefore, in context of population dynamics it is important to note that fertility is one of the major counteractive forces that aids in overcoming mortality (Ketaki and Mondal, 2016) Human fertility is an important part of demography of a region and therefore, has a paramount importance in population studies. Fertility is a way through which human beings biologically replace themselves in order to continue their existence on earth. (Ketaki and Mondal, 2016)

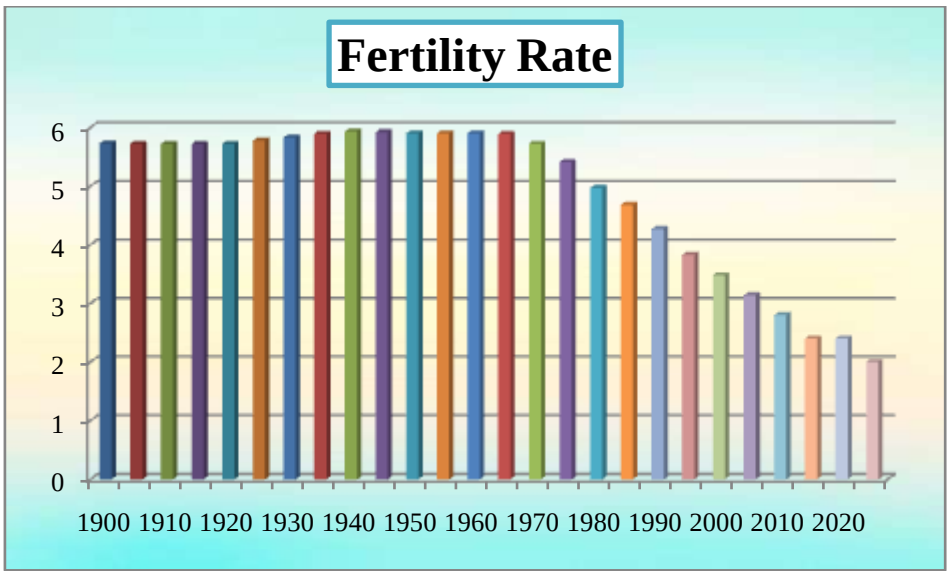
The total fertility rate (TFR) is the average number of children who would be born to any women in her lifetime.

So, in this section, we analyze the trend of fertility rate in India and its various states.

Total Fertility Rate in India from 1900–2021

Sr. No.	Year	Fertility Rate
1.	1900	5.73
2.	1905	5.72
3.	1910	5.72
4.	1915	5.72
5.	1920	5.72
6.	1925	5.78
7.	1930	5.83
8.	1935	5.89
9.	1940	5.93
10.	1945	5.92
11.	1950	5.9
12.	1955	5.9
13.	1960	5.9
14.	1965	5.89
15.	1970	5.72
16.	1975	5.41
17.	1980	4.97
18.	1985	4.68
19.	1990	4.27
20.	1995	3.83
21.	2000	3.48
22.	2005	3.14
23.	2010	2.8
24.	2015	2.4
25.	2020	2.4
26.	2021	2.0

Source: Statista, www.statista.com, published by Aaron O'Neill Jun 21, 2022.



From 1900 until 1925, India's fertility rate was very consistent that was 5.7% during this period. But from 1930 to 1965 the fertility rate of India start increasing, during this period it was around 5.9%. The trends of TFR reflected in the corresponding figures suggest a gradual decline since 1971. The overall TFR decline from 5.41 births per woman in 1971 right down to 3.83 per women in 1995. Decline in the first two decades (1971–91) was slightly lower at 30%, compared to a 33 percent decline registered during last decades (1991–2011).

Similarly, the second half of the last decade 2006–11 recorded a steeper decline of 14%, compared to a 6% decline in 2001–05. The TFR in 2005 was 3.14% has declined to 2.4% in 2015. According to family health survey, the TFR rate in 2020 was 2.24% and 2.0% in 2021. It has been noticed that during the last few decodes, the TFR of India has been

declined frequently. From 1900–2021, the total fertility rate of India declined from 5.73% to 2.0%. (Statista, www.statista.com)

Total Fertility Rate In Different States of India:–
According to the national family health survey –5, released by the Union Health Ministry of India, the total fertility rate of India has declined from 2.2 in NFHS-4 to 2.0 in NFHS-5. Eventually, India's population is start to decline. Currently, India's total fertility rate is below the replacement level of fertility which is 2.1 children per woman. According to the sample registration system (SRS) 2019, replacement TFR is an indicator where a population exactly replaces itself from one generation to the next, without migration.

According to the NFHS-5, among the 28 states and eight union territories, replacement level TFR has been reported by Jammu & Kashmir (1.4), Punjab (1.6), West Bengal (1.6), Delhi (1.6), Maharashtra (1.7), Andhra Pradesh (1.7), Karnataka (1.7), Telangana (1.8).

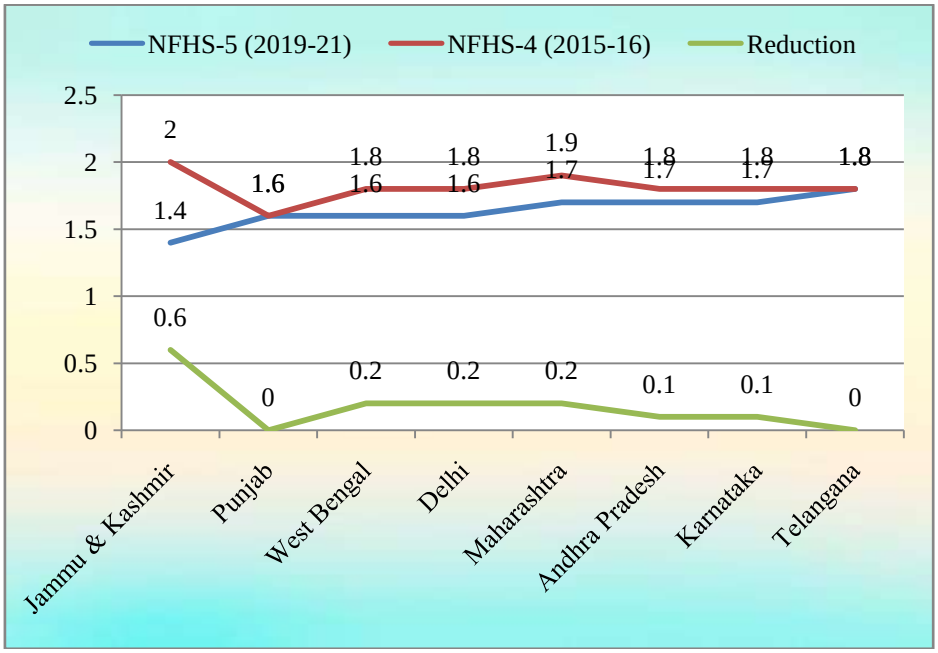
However, Bihar (3.0), Meghalaya (2.9), Uttar Pradesh (2.4), Jharkhand (2.3), Manipur (2.2), Rajasthan (2.0), Madhya Pradesh (2.0) still reported the highest total fertility rate. These states are yet to achieve a replacement level of TFR.

TOTAL FERTILITY RATE IN DIFFERENT STATES OF INDIA

Total Fertility Rate (%)

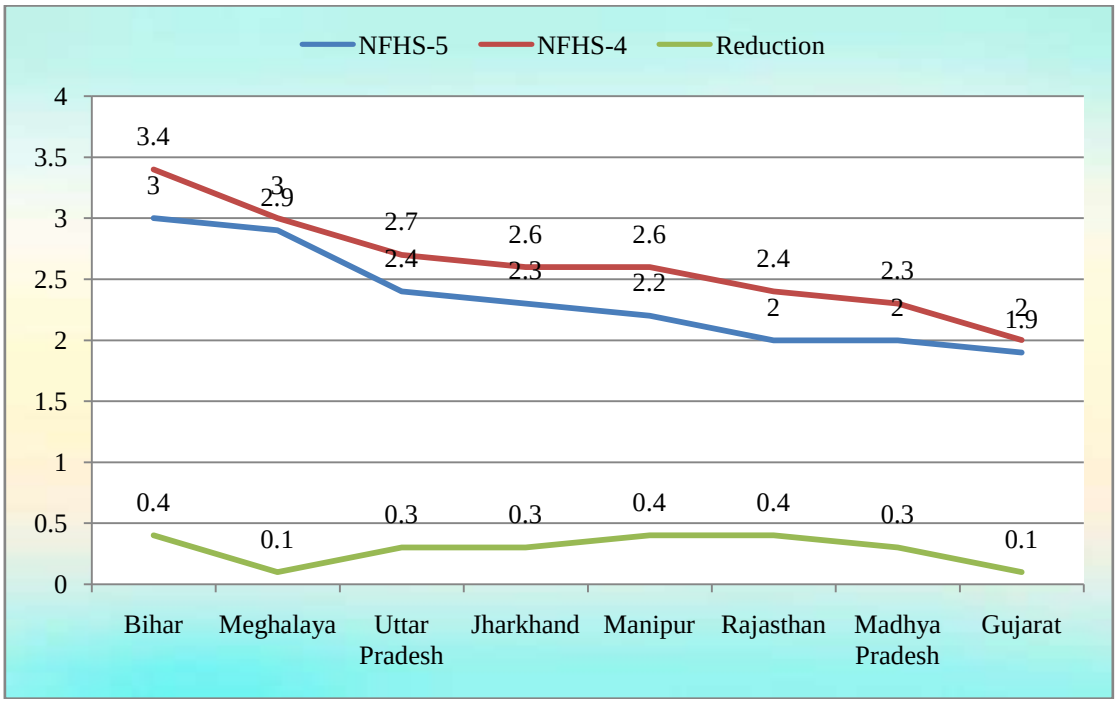
Lowest

Sr.No.	States	NFHS-5 (2019–21)	NFHS-4 (2015–16)	Reduction
1.	Jammu & Kashmir	1.4	2.0	0.6
2.	Punjab	1.6	1.6	0.0
3.	West Bengal	1.6	1.8	0.2
4.	Delhi	1.6	1.8	0.2
5.	Maharashtra	1.7	1.9	0.2
6.	Andhra Pradesh	1.7	1.8	0.1
7.	Karnataka	1.7	1.8	0.1
8.	Telangana	1.8	1.8	0.0



Highest

Sr. No.	States	NFHS-5	NFHS-4	Reduction
1.	Bihar	3.0	3.4	0.4
2.	Meghalaya	2.9	3.0	0.1
3.	Uttar Pradesh	2.4	2.7	0.3
4.	Jharkhand	2.3	2.6	0.3
5.	Manipur	2.2	2.6	0.4
6.	Rajasthan	2.0	2.4	0.4
7.	Madhya Pradesh	2.0	2.3	0.3
8.	Gujarat	1.9	2.0	0.1



CONCLUSION

Over the period of time, it was found that India's population and fertility rate show declining trend but still it is higher than the world population growth rate. India's declining population trend indicates that India is going through the last stage of population expansion and is entering a new era in the demographic history of India. From 1900 until 1925, India's fertility rate was very consistent that was 5.72. After 1925, India's fertility rate still show consistent trend and after that it start decline India is reached at a replacement level that is 2.1. But it is still very high. According to the NFHS-5 among the 28 states and 8 union territories, replacement level TFR has been reported by Jammu & Kashmir (1.4), Punjab (1.6), Maharashtra (1.7) show lowest fertility rate and Bihar (3.0), Meghalaya (2.9), Uttar Pradesh (2.4) reported the highest total fertility rate.

During the study, it is also observed that because of high population, India is facing problems like poverty, unemployment etc. So, it is suggested that education, awareness and improvement in women's 2 children's health will bring down fertility rate and population growth.

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