Study of Growth Populationof Sheohar District

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Abstract: *This paper presents the study of growth population of Sheohar district.*

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1. Introduction

Demographic dynamics in a region constitutes one of the most significant aspects of its population geography. Population dynamics is an equilibrium between force of increment and decrement. Perhaps no other attributes of population in an area contributes as much to its demographic, dynamics as does the growth of its population. Recent decades have witnessed growing interest of social scientists including population geographers, in the ever increasing demographic dynamism, especially in the less developed realm. This growing consciousness among the social scientists about the need for exploring the trends in population change may be attributed to (a) the recent population explosion resulting in a great demand for food-stuff and other resources, (b) the world economic recession of 1980-83; (c) widening gap between the per capita income of developed and 1ess developed countries; (d) increasing environmental damage; (e) increasing population pressure upon the limited resources of the less developed world. For a student of geography, the phenomenon of population growth has special significance. He values it as a vital index of region's economic development, social' awakening, historical and cultural background and political ideology. Population growth is, thus pivotal to the region's demographic dynamism. In fine, the understanding of population growth in an area holds the key to the understanding of the entire demographic structure of the area.

2. Growth of Population

The term "growth of population" connotes 'a change in population numbers inhabiting a territory during a specific period of time, irrespective of the change is positive or negative. 'This change or growth can be measured both in terms of absolute numbers and percentage. There are four ways in which the number of people in an area can change (A) someone may be born in the area, (B) an inhabitant may die, (C) an outsider may move into the area, (D) a resident may move-out. Thus the population growth is not a unitary phenomenon, but it consists of "four major components - fertility, mortality, immigration and emigration". The ynamic elements of population include vital events that change the location or gross number of people, birth, death and movement into and out of a given area (Zelinsky, W. 1966). The balance between births and deaths is known as natural increase or reproductive change. "Population growth of an area is a combination of two factors natural increase and net migration".

2.1 Early Census:

"A Census is a sort of social photograph of certain conditions of a population at a given moment which are expressible in numbers, while registration is a continuous, contemporary, movie-camera , record of births, marriages, divorces or deaths. Prior to 1872 A.D.no record of population is available, as there was no regular enumeration of the population. During the year 1811-12 A.D. Dr. Buchanan Hamilton who carried a survey of the districts Patna and Gaya, mentioned no population data. Actually the census work in India in general is a late affair.

The first probable attempt of rough estimate of population in India was made by Moreland in his reputed book entitled "India at the death of Akbar : An Economic Study".10 'The Census of 1872 gave the population of Patna city at 1,58,900 souls, or rather more than half Buchanan-Hamilton's estimate of 3,12,000; but he included an area of twenty square miles, while the present municipal boundaries comprise an area of only about nine square miles".

The table no. 3.1 shows that the period between 1872 to 1921 has witnessed several variations in population growth which is mainly due to the high birth and death rates consequent upon a series of natural calamities e.g. droughts, floods, epidemics of plague, cholera, fever and influenza. A series of crop failure induced ; excess of emigration over immigrations which was accelerated by the opening of new lines of communications - railways and roads.

During the period of 1891 to 1921, Plague, epidemic of Cholera was also frequent". The cause of this decrease is analysed by O'Mallay in the last District Gazetteers of Gaya. "... the decrease was due to two causes — the outbreak of plague and the general in healthiness which prevailed in those years. In the decades the conditions were on the whole unfavorable and the state of the poorer classes was unsatisfactory. During the earlier years fever was very prevalent; and though its ravages were not so great in subsequent years, the death-rate was swelled by epidemics of Cholera. According to Dr. R.L.Singh, "This period was unfavourable for the growth of urban population over almost the whole of India. During this period nearly all the factors which cause a general decline of population were in operation; namely, poor harvest consequent upon drought and other irregularities of weather, floods, epidemics and the post-war effects of the World War-I.

3. The Period of Rapid Growth (1931 -2011)

The growth pattern of population within the last seven decades (1931-2001) in the State has witnessed a regular and rapid growth which is obvious from the above table no 12. The constant upward growth of population in the last 70 years is due both to natural increase as well as migration. The highest increase of population was recorded in the preindependence period was during the decade of 1941. This period in general was conducive for the urban growth as "the growth of military activities and industries related to the war efforts, the scarcity of general consumer's goods and the consequent rise in prices, all gave an incentive for the movement of population into the city. During "this decade (1931- 40), public health conditions were even better than during 1921-30. Plague had disappeared completely. There were mild epidemics of Cholera in 1930 and 1934 and a further fall in the fever death rate". In the next census decade (1941-51) population has increased by 10.27% over 1941population. This increase may mainly be attributed to a large number of refugees who came either in search of employment or take shelter in the urban centres. From 1951 to 1981, there had been a steep rise in population. The census decade of 1961 exhibits an increase of 19.76%. It was mainly for reasons of postwar developments. The general improvement in sanitation and drainage of these urban centres and the availability of better medical facilities, the death rate had fallen considerably in this decade. 'One of the factors having an important bearing on the growth of population in Patna is migration which is dependent upon the general economic conditions prevailing in the city and its environs. The city with the State capital in it has always attracted large number of people from other parts of the State as well as outside.18 "The tremendous growth of population after 1930 is attributed to two major factors. Firstly, a large number of immigrants poured into the city from the rural areas during the period of the World War II and during the post partition days, the cities had to accommodate a huge rush of displaced persons from Pakistan. Secondly, the mortality rate has considerably declined in the post-independence period due to increase in medical facilities. The two decades (1951-1961) of post-independence period which registered a very high rate of population increase were favoured from improvement in the general hygienic conditions, decline in out-migration of population and enhancement of population in migration. The spectacular growth of population during the decade of 1981 was 24.06 percent.

The steep ,rise of population in 1981-2001 censuses is mainly due to natural increase. And in urban areas in particular due to the "mass exodus" of rural population to the urban centres due to the 'pull

factors' of the cities and 'push factors' of the rural areas. The urban population has a lower birth-rate then that of the rural population, so the only explanation of the high growth rate of the urban population, therefore, lies in large scale migration from the villages to the towns.

3.1 Growth Categories:

Degree of growth or the trend of growth of population is not always and everywhere alike. It varies from time to time and region to region. Various attempts to categorise it have been made by several scholars. Dodge made an attempt to distinguish four categories of population trend. They are:(i) Continued growth,(ii) Decline of 25 percent from a peak,(iii) Decline of 25-50 percent from a peak, and(iv) Decline of over 50 percent from a peak.

He based these categories on the study of patterns of population growth for parts of New England, which is not suitable for our study centres. Another scholar, H.M. Kendall based his analysis of population of Balgium on the Choropleth technique. This type of method comprises three types of growth:(A) Continued growth,(B) Less than 20 percent decline from a peak number, and(C) Over 25 percent decline from a peak number.This is also not applicable to our case. C.F. Kohn in his work on population trends in the United States used six categories:(I) Increase and subsequent decline,(II) Decline and subsequent increase,(III) Accelerated decline,(IV) Decelerated decline,(V) Decelerated increase and(VI) Accelerated increase.

By analysing the categories of growth pattern of the population, we may find only three types, of Kohn's classification:(A) Increase and subsequent decline,(B) Decline and subsequent increase, and(C) Accelerated increase.

Table No. 1 portrays these three types of population growth categories. During the early 1911-1921, we observe decline in population growth- pattern during the Census year of 1921 - 0.66%). After the decade of 1921, there is a rapid growth with the accelerated increase after 1951, specially during the last census decades of 1981 -2011.

Table no. 1

DECADAL VARIATION (GROWTH) OF POPULATION IN BIHAR1901-2011.

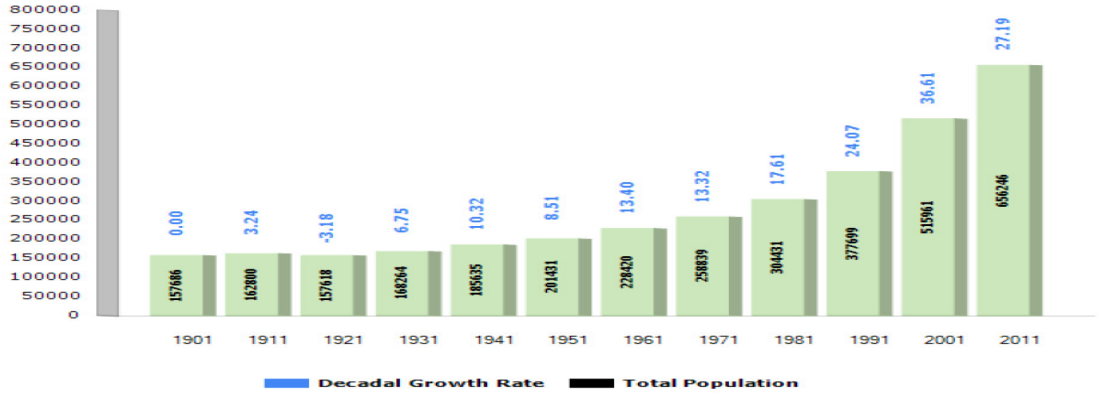
Sl.No.	Census Year	Total Population (In crore)	Decadal growth (in percentage)	growth rate inIndia	Population of increase (in percentage)	Annual rate
1.	1901	2.73	...		23.84	...
2.	1911	2.83	+ 3.67		25.21	0.36
3.	1921	2.81	- 0.66		25.13	0.06
4.	1931	3.13	+11.45		27.30	1.14
5.	1941	3.51	+12.20		31.87	1.22
6.	1951	3.81	+10.27		36.11	1.02
7.	1961	4.64	+19.76		43.92	1.97
8.	1971	5.63	+21.33		54.81	2.13
9.	1981	6.99	+24.06		68.38	2.40
10.	1991	8.63	+23.34		84.39	2.34
11.	2001	8.29	+28.62		102.87	2.50
Increase in 1901-1951		...	1.08	12.27		...
	1951-2001	...	4.48	66.76	...	
	1901-2001	...	5.56	79.03		...
	2001-2011	....	6.65	89.01	....	

SOURCES: Census of India, and self calculation.

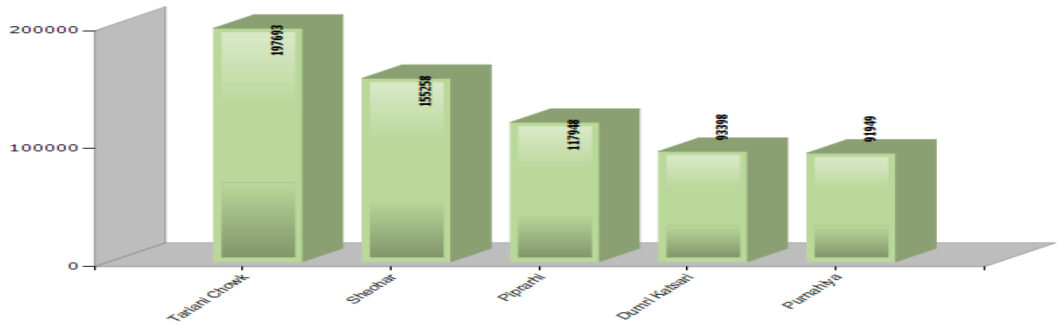
It is obvious from the above table that there has been constant increase of population in Bihar State since 1901, except the census year of 1921, when population is decreased by 0.66% (-0.66%) of the preceding census year of 1911. In the first fifty years (1901-51) there has been an increase of 12.27%.

While in the next fifty years (1951-2011) it was 66.76%. It is due to the accelerated upward growth of population. Net increase during the period of one hundred years (1901-2011) was 79.03%.

POPULATION GROWTH OF SHEOHAR DISTRICT (1901-2011)



Sub-district wise Population of Sheohar District (2011)



3.2 Causes of Growth:

Growth of population is the function of natural increase and migration. The factors that determine the growth of population in any area are those that govern the patterns of births, deaths and migration. Natural increase or decrease depends upon the age structure, marriages, pattern, economic level, socio-religious beliefs and values. "Actually, "Birth, death and migration complete the balance about of a country's population movement." Growth is the balance of births, deaths, immigrations and emigrations. If P is the population of a given area at early time t_1 and P_2 the population at later time t_2 then,

$$P_2 = P_1 + (B\text{-}D) + (I\text{-}E)$$

Where,B- is the births,D- is the deaths,I- is the immigration, andE- is the emigration of the area between t_1 and t_2. But the equation holds for a limited period beyond the date of Census by means of vital statistics.

3.3 Measures of Population Growth and Future Estimate:

Apart from the absolute increase or decrease per annum, one of the most common measures of growth is the ANNUAL RATE OF INCREASE. The U.N. Demographic Yearbooks use the following formula:-

$$\left(\sqrt[t]{\frac{P_1}{P_0}} - 1\right) \times 100$$

Where,

P_0 is the population at the beginning of the period,

P_1 is the population at the end of the period, and
t is the number of years.

The two main components may be census returns of population estimate, and so the rate is subject to the general qualification of such data. It is a useful rate, and may be helpful in assessisng the accuracy of vital and migration statistics. Population Projection are calculations which represent the future course of fertility, mortality, and migration. They are never exact, sure to be realised. They are, a sort of forecasts based on certain 'ifs'. "Population Projections are not intended to be statements of future, or past reality. They simply represent a range of possibilities which are entirely dependent upon the generating assumption (Woods, Robert, 1979, 226). Population projections are classified according to the method of estimation used. They are necessary for setting employment targets, for manpower, planning for planning productivity increase, etc.

3.3 Methods of projection:

There are a number of ways and formulae to calculate Population Projection. It is also estimated by arithmetical progression. The method assumes in yearly increase by a constant amount. As, population begets population, it has very often been suggested that a preferable hypothesis will be that of geometrical progression, under which a constant rate of increase is assumed. This principle is frequently applicable.The future growth of Population Projection of Bihar State may be deduced with the help of the various formulae separately.

3.4 Arithmetic Progressions

To verify the utility of this techniques in our case, firstly we will find out the population for 1991 on the basis of 1921-1981 population as such:

$$F = P_i + (ri \times y)$$

Where,

F is the future population or the population estimated.
P_i is the population of the first year,
ri is the rate of increase,
y is the time interval between the first and the last year.

It is, therefore, firstly we have to find out the rate of increase as such

$$r_i = \frac{(P_2 - P_1)}{Y}$$

Where,

r_i is the rate of increase,
P_2 is the population at last point,
P_1 is the population at first point,
Y is the time interval between the first year for which the population is to be estimated.

So, the population for 1991 will be

$$= \frac{(\text{Pop,of } 1981 - \text{Pop,of } 1921)}{60}$$

$$= \frac{(6.99 \text{ Crore} - 2.81)}{60}$$

$$= \frac{(41800000)}{60}$$

= 696667 *persons*

Now, population of 1991 (Bihar State) will be

= (Pop. of 1921) + (rate of increase x time interval)
= 2.81 +(696667 x 70 years)
= 28100000 + 48766690 = 76866690 persons.

Now, the population of **Sheohar District** for 1991 will be

$$= \frac{(\text{Pop,of } 1981 - \text{Pop,of } 1921)}{60}$$

$$= \frac{(304431 - 157618)}{60}$$

$= \frac{(146813)}{60}$
= 2447 *persons*
Now, population of 1991 (**Sheohar District**) will be
= (Pop. of 1921) + (rate of increase x time interval)
= 157618 + (2447 x 70 years)
= 157618 + 171290 = 328908 persons.

In this way, the future population for any other year may be calculated. But in this method, we find a gap between the estimated population of 1991 and the actual population of 1991 Census. The Census figure for 1991 is 8,63,00,000 persons for Bihar state and 3,77,699 persons for **Sheohar district**, but on the basis of present calculation the estimated population of 1991 comes to only 7,68,66,690 persons for Bihar state and 3,28,908 persons for **Sheohar district**.

Thus for Bihar State

$$r_i = \frac{8.29\ Crore\ (2001) - 2.81(1921)}{80}$$
$$= \frac{5.48\ Crore}{80}$$
= 6,85,000 persons.

So, the population estimate for 2021 will be
= (Population of 1921) + (rate of increase x time interval)
= 28100000 + (685000 x 100)
or, 28100000+ 68500000
= 9,66,00,000 persons.

Now, for **Sheohar district**

$$r_i = \frac{515961\ (2001) - 157618(1921)}{80}$$
$$= \frac{358343}{80}$$
= 4479 persons.

So, the population of **Sheohar district** estimate for 2021 will be
= (Population of 1921) + (rate of increase x time interval)
= 157618 + (4479 x 100)
or, 157618+ 447900
= 6,05,518 persons.

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