Journal of Advances and Scholarly Researches in Allied Education
Vol. 16, Issue No. 1, January-2019, ISSN 2230-7540

Differential in Population Growth rates in Jharkhand: A Geographical Analysis

Nir Kumar*

Research Scholar, Department of Geography, Kurukshetra University, Kurukshetra, Haryana

Abstract – This is an attempt to measure the differential in the growth rate of the population of Jharkhand at districts level. For this, population growth rates of two-time period have been taking likewise 2001 and 2011. The average growth rate was in 2001 and in 2011. There is a huge differential in population growth rates at districts level. Population growth rates are maximum in the district while the lowest in the district. To measure the spatial differences in growth rates pattern standard deviation method has been used.

Key Words: Population, Growth Rates, Spatial Pattern, Disparities

----------X----------

INTRODUCTION

The pivotal importance of population growth rate has been recognized for a long time. The historical background has been described by Cole (1958) and Hutchinson (1978), on which some of the following outline is based. The idea of geometric population growth restrained at higher densities by the carrying capacity of the environment was put forward in a book by Botero (1588), and was famously elaborated and brought to general attention by Malthus (1798).

Detailed interest in tables of mortality began in the late seventeenth century, with mathematical analyses by Huygens and later Buffon among others. Interestingly, Cole suggests that Newton notably 'failed to grasp the basic concept that life expectancy is a function of age'. Euler (1760), in deriving the equation that bears his name, established the mathematical dependence of population growth rate on age-specific birth rates and death rates, and commented that 'it always comes back to these two principles, that of mortality and that of fertility, which, once they have been established for a certain place, make it easy to resolve all the questions which one could propose.

The proposal that population growth rate declines linearly with population density, known as the logistic equation, was put forward by Verhulst (1838). Population growth rate is central to the work of the modern founding fathers of ecology (Lotka 1925; Fisher 1930; Nicholson 1933; Andrewartha & Birch 1954), but the complexities of its dependence on age-specific birth and death rates have until recently prevented thorough examination of the role of population growth rate. With the advent of modern computing and the development of matrix methods for the analysis of life tables, the importance of population growth rate in the study of population ecology is becoming more widely appreciated (Caswell 2001).

Population growth rate is the summary parameter of trends in population density or abundance. It tells us whether density and abundance are increasing, stable or decreasing, and how fast they are changing. Population growth rate describes the per capita rate of growth of a population. Generally here, population growth rate will refer to r. is referred to variously as 'finite growth rate', 'finite rate of increase', 'net reproductive rate' or 'population multiplication rate'. r is known as 'rate of natural increase', 'instantaneous growth rate', 'exponential rate of increase' or 'fitness'. In the simplest population model all individuals in the population are assumed equivalent, with the same death rates and birth

STUDY AREA

Jharkhand is located in Eastern India and covers an area of 79,714 km^2. It was carved out of Southern Bihar in 2000 to form a separate state. Jharkhand has 24 administrative districts. Ranchi is the state capital and an industrial city. Jamshedpur, Dhanbad, Bokaro, Deoghar, and Hazaribagh are some of the other major cities and industrial areas in the state. Forests and woodlands occupy more than 29 per cent of the state, making it one among the states with greater forest cover. Jharkhand has around 40 per cent of the country's mineral resources such as coal, iron ore, copper, uranium, mica, bauxite, granite, limestone, silver, graphite, magnetite, and dolomite. Commonly spoken languages of the state are Hindi and Santhali. Urdu and Bengali are also

prevalent. English is the primary medium of education.

OBJECTIVES

The main objectives are as under:

- To analyse the population growth rates at districts level
- To examine the spatial pattern of population growth rates

DATABASE AND METHODOLOGY

This paper is utilized as a secondary source data. Data pertaining to growth rates of the population have been collected from the census of India for period 2001 and 2011. Growth rates of population data collected, calculated and tabulated in Microsoft Excel. Standard deviation method is used to measure the disparities in growth rates in Jharkhand. ArcGIS has used a tool to make a thematic map for growth rate during 2001 and 2011.

Population Growth Rate: Jharkhand 2001 To 2011

The population of Jharkhand has increased by about 60 million during the last decade 2001-2011.Although, the net addition in population during the last decade has increased almost the same. The high number of population has increased in Ranchi district followed by such districts Girdih, Palamu, and Hazaribagh while the moderate size of the population has been added in districts likewise Deoghar, Purbi Singhbhum, Dhanbad and Garhwa. Out of 24 districts Simdega, Khunti, Lohardaga, Ramgarh, and Jamtara have contributed low population (table 1.1).

District	Table 1.1: District wise Population: 2001 to 2011		
	2001	2011	Differential
Garhwa	10,35,464	13,22,784	287320
Chatra	8,08,135	10,42,886	234751
Kodarma	5,40,901	7,16,259	175358
Giridih	19,05,343	24,45,474	540131
Deoghar	11,65,390	14,92,073	326683
Godda	10,47,939	13,13,551	265612
Sahibganj	9,27,770	11,50,567	222797
Pakur	7,01,664	9,00,422	198758
Dhanbad	23,97,102	26,84,487	287385
Bokaro	17,77,662	20,62,330	284668
Lohardaga	3,64,521	4,61,790	97269
Purbi Singhbhum	19,82,988	22,93,919	310931
Palamu	15,37,465	19,39,869	402404
Latehar	5,60,894	7,26,978	166084
Hazaribagh	13,78,881	17,34,495	355614
Ramgarh	8,39,482	9,49,443	109961
Dumka	11,06,521	13,21,442	214921
Jamtara	6,53,081	7,91,042	137961
Ranchi	23,50,245	29,14,253	564008
Khunti	4,34,819	5,31,885	97066
Gumla	8,32,447	10,25,213	192766
Simdega	5,14,320	5,99,578	85258
Pashchimi Singhbhum	12,33,945	15,02,338	268393
Saraikela-Kharsawan	8,48,850	10,65,056	216206
Jharkhand	2,69,45,829	3,29,88,134	6042305

Population Growth Rates: Jharkhand 2001 to 2011

It is important that the decadal growth rate of Jharkhand has recorded a decline in -1.01 per cent of population growth rate from 2001 to 2011. It is decreased from 23.35 per cent in 2001 to 22.34 in 2011.

Population Growth Rates: Districts 2001 to 2011

Kodarma district continues to be the highest growth rate of population in Jharkhand with 32.59 per cent. Nine districts now have a growth rate below the Jharkhand average (22.34 per cent). They are as Khunti, Paschim Singhbhum, Jamtara, Dumka, Simdega and Bokaro districts. While Latehar (29.38 per cent), Chatra (28.98), Gardih (28.33), Pakur (24.35), Deoghar (28.02) and Garhwa (27.21 per cent) have scored the top rank in terms of population growth rate ranking in 2011 as compared to 2001 (table 1.2).

Districts	Table 1.2: District wise Population Growth rates		
	2001	2011	Differential
Garhwa	29.21	27.71	-1.5
Chatra	29.51	28.98	-0.53
Kodarma	26.48	32.59	6.11
Giridih	27.28	28.33	1.05
Deoghar	24.89	28.02	3.13
Godda	21.68	25.14	3.46
Sahibganj	25.91	23.96	-1.95
Pakur	24.35	28.15	3.8
Dhanbad	22.95	11.91	-11.04
Bokaro	22.22	15.99	-6.23
Lohardaga	26.18	26.67	0.49
Purbi Singhbhum	22.93	15.53	-7.4
Palamu	28.89	25.94	-2.95
Latehar	22.72	29.38	6.66
Hazaribagh	26.13	25.75	-0.38
Ramgarh	20.25	13.06	-7.19
Dumka	16.37	19.39	3.02
Jamtara	19.85	21	1.15
Ranchi	28.58	23.9	-4.68
Khunti	12.55	21.96	9.41
Gumla	17.65	23.21	5.56
Simdega	15.2	16.62	1.42
Pashchimi Singhbhum	13.48	21.69	8.21
Saraikela-Kharsawan	21.15	25.28	4.13
Jharkhand	23.35	22.34	-1.01

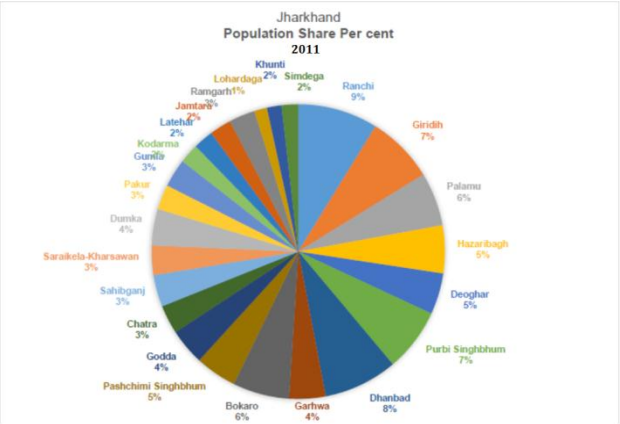

Fig. 1.1

Population Density: Jharkhand 2001 to 2011

'Density of population" is defined as the number of persons per square kilometre. It is an important index of the population which shows the concentration of population in a particular area. The population density of Jharkhand has gone up to 414 persons per square kilometre in 2011 from 338 persons per square kilometre in 2001. The population density of Jharkhand (414) is marginally above the national average (382) as per the 2011 Census.

The population densities of 13 states/UT have been returned higher than that of Jharkhand at the 2011 census. The population density for the state as also for the Districts during 2001 & 2011 Censuses is shown in statement below:- Density in Districts:- Change in population density mainly depends on the rate of population growth and the land utilization patterns. Accordingly, the density varies from place to place and from district to district. Dhanbad is the most densely populated (1284), Sahibganj occupies the second rank in the state, and however, Sahibhanj was at 4th position in 2001 Census. Bokaro and Ramgarh were at 2nd and 3rd rank respectively in 2001 Census and are now behind Sahibganj at 3rd and 4th place.

Lohardaga and Dumka, as well as Latehar and Gumla, have now exchanged their ranks with each other against their ranks in 2001 Census from 17th to 18th and from 22nd to 23rd. Remaining districts have retained their rank in 2011 Census vis-a-vis in 2001 Census. It is a common phenomenon that the density increases in all districts including the state over the decades on account of the growth of population in every Census while the geographical area remains almost the same. 12 Districts in the state have registered higher population density than the state average of 414. These are Dhanbad, Sahibganj, Bokaro, Ramgarh, Purbi Singhbhum, Godda, Deoghar, Ranchi, Pakur, Giridih, Jamtara, and Kodarma (Population density ranging between 427 and 1284). The highest density of population is in Dhanbad (1284) and the -106- lowest density of Population is found in Simdega (160) both the districts having ranking akin to 2001 Census.

CONCLUSION

The central aim is that population growth rate is the vaiable linking with various faces of populatin ecology as population density, population dependency, population regulation, and effects of environmental stress. The largest population growth rate is found in Kodarma district off Jharkhand. Some districts have negative growth rate in growth rate during 2001 to 2011 likewise Chatra, Garhwa, Palamu, Hazaribag, and Sahibganj. Dhanbad, Ramgarh, and Bokaro districts have the largest negative ifferential in population growth rate in Jharkhand**.**

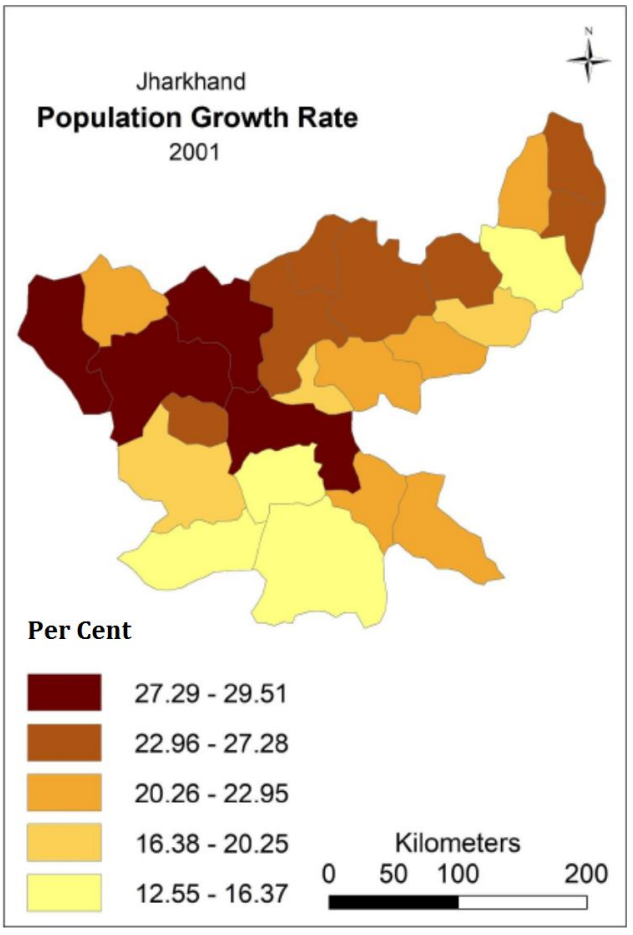

Fig. 1.2

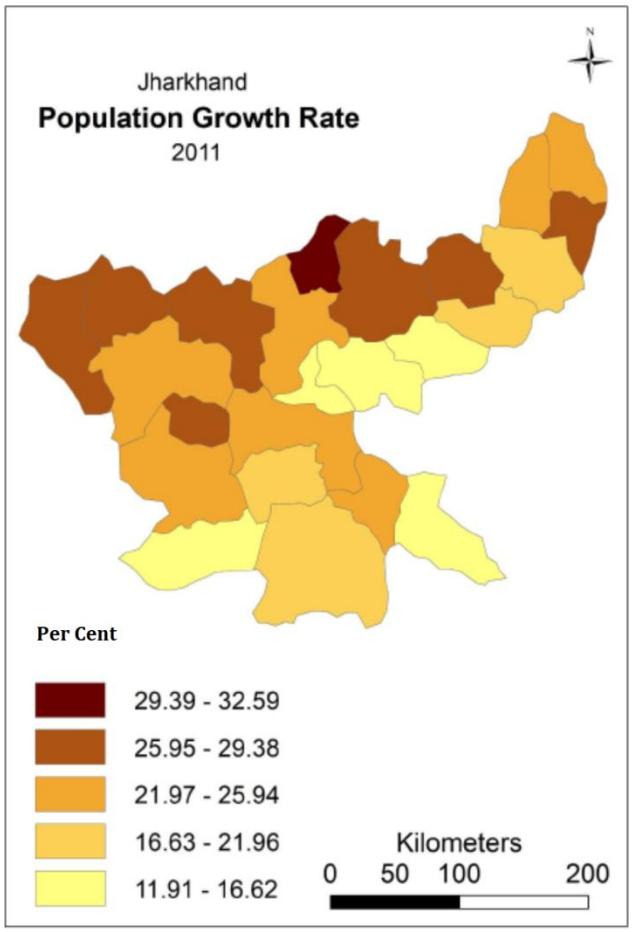

Fig. 1.3

REFERENCES

1. Birch, L. C. 1953 Experimental background to the study of the distribution and abundance of insects. I. The influence of temperature, moisture, and food on the innate capacity for increase of three grain beetles. Ecology 34, pp. 698–711.

2. Botero, G. (1588), the magnificence and greatness of cities. Translated by R. Peterson, 1606. Reprinted1979. Amsterdam: Theatrum Orbis Terrarum; Norwood, NJ: Walter J. Johnson

3. Cole, L. C. (1958), Sketches of general and comparative demography. Cold Spring Harbor Symp. Quant. Biol. 22, pp. 1–15.

4. Euler, L. (1760), A general investigation into the mortality and multiplication of the human species. (Translated by N. and B. Keyfitz and republished 1970). Theor. Popul. Biol. 1, pp. 307–314.

5. Hutchinson, G. E. 1957 Concluding remarks. Cold Spring Harbor Symp. Quant. Biol. 22, pp. 415–427.

6. Malthus, T. R. (1798), an essay on the principle of population. London: J. Johnson.

7. Nicholson, A. J. (1933) the balance of animal populations. J. Anim. Ecol. 2, pp. 132–178.

8. Primary Census Abstract, 2011

9. Verhulst, P. F. (1838) Notice sur la loi que la population suit dans son accroisissement. Corresp. Math. Phys. A. Quetelet 10, pp. 113–121.

Corresponding Author

Nir Kumar*

Research Scholar, Department of Geography, Kurukshetra University, Kurukshetra, Haryana

kumarni94@gmail.com