



## Study of demographic models with reference to some districts of western Uttar Pradesh

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### Abstract

In this paper we are examines the structure change and population growth trend in Uttar Pradesh. Uttar Pradesh is the most populous state in the country, accounting for 16.4 percent of the country's population. The structure of state income shows that the contribution of primary sector has declined to 41 percent of the state income, though the sector still sustain 73 percent of the total working force. Availability of land & natural resource and environment play an important role in the development of any country or states. But utilization of these resources and best use of economic development is possible only by people. People are searching and best utilize these natural resources according to their needs. The demographics population of Western Uttar Pradesh is a multifarious subject, which is undergoing dynamic change. To understand the population it is very important to understand its all charterstic in which age composition has an important role. The working population and work participation rate highlights the occupational distribution of a states. The information is essential for calculating state domestic product at factor cost popularly known as "State Income" for important tertiary sectors by adopting statistical methods of interpolation/extrapolation.

**Keywords:** Population growth, density, literacy

### Introduction

Demography's primary focus is on the study of human population. Determining the population in a region, interpreting the change from a previous census, explaining the change, and projecting future patterns in population change are the main goals of demography. The study of demography tracks the causes and effects of shifts in the human population. Demographers evaluate and gather information that is helpful in comprehending various social structures and formulating public policy in areas like housing, unemployment, and education. Most people refer to John Graunt as the father of demographics. During the time of Graunt, Petty, and Malthus in the 17th and 18th centuries, population growth, mortality, and birth rates were studied as aspects of political economics. These days, the study of human populations-their traits and fluctuating numbers-is included in the field of demographics. Three crucial demographic factors determine a region's population growth: migration, births, and deaths. Low fertility increases the proportion of the elderly population in relation to the overall population of the nation or region, while high fertility produces a young population in the future. While emigration and out migration cause the population in that

area to age, immigration and inmigration tend to lower the average age of the population.

### A population that is younger is typically the outcome of declining death rates

- As a result, changes in the sex ratio at birth, fertility, migration, and mobility characteristics that can be measured and computed lead to changes in the age structure and age-sex composition of the population.
- Demography, therefore, is the statistical analysis of the human population.

A population that is dynamic-that is, one that fluctuates over time or space-can benefit from the general science of demography 2. Demography is an extremely fascinating field of study that recognizes the many natural and cultural characteristics of the human race.

Demography is the study of population distribution, size, and structure as well as the changes in these populations across time and space as a result of aging, migration, births, and deaths.

Any study, whether basic or advanced, loses its meaning if it fails to recognize that humans are social animals who

created social structures. We live in diversely organized communities rather than only on the surface of the planet, which is filled with significant blessings and challenges. In actuality, the works of White, Bruhnes, Huntington, Renner, and others establish human geography as a potent field. Therefore, the study of people or humans must be at the center of the demography discipline in order to attain academic coherence.

### **Demographic characteristics**

The study of a population's characteristics, including its age, race, religion, and place of birth, is known as demography. Population issues and regional inequities must be reduced and eliminated, and this requires an analysis of demographic factors. Many demographic traits are included in the field of demography, including language, income level, wealth, education, family size, sex ratio, births, deaths, migration, population growth, age structure, gender, marriage, and profession structure. A few significant population-related demographic traits have been chosen for further investigation in the current study.

These demographic factors include, in that order, migration, births, deaths, population change, dispersion, density, and work participation rates.

### **Significance of the Theme**

A dynamic factor is population. It is a crucial component of demography that gives all research on the human population its focus. It is a focal point for environment and development, which are important because of "man" or "population," who are the "developer" and "inhibitor," respectively.

The demographic research and its various aspects, including population distribution, migration, growth, and composition, have been prepared in part independently of other studies, in order to maintain some degree of novelty. However, it must be acknowledged that a population cannot exist in a vacuum from the environment in which it lives, works, and is shaped, whether positively or negatively. Human civilization and the environment have complex relationships whose characteristics can change over time and space, exposing people to a variety of environmental effects. Demography is the study of a region's natural and cultural features.

In modern demography, not only is the nature and distribution of cultural and physical elements researched, but also the sort of cultural and physical environment that predominates in a particular place and is given emphasis—that is, the cause-and-effect correlation-in that particular region. Understanding the traits of various human populations is crucial when researching the relationship between humans and their surroundings. This helps us understand how humans adapt to their natural surroundings. Therefore, the study of demographics is essential to geography.

Demographers and population geographers are very interested in the topic of "birth rate." It represents the number of live births annually per 1,000 people. For a nation to develop, its birth and mortality rates must be in balance. High birth rates and rapid population expansion are issues affecting underdeveloped and developing nations, while low birth rates and a small labor force are problems

facing some established nations, such as Germany, France, Sweden, and Norway. Therefore, a country or region's balanced development is aided by having an optimal birth rate.

"Death Rate" is another crucial demographic factor, similar to birth rate.

The number of deaths per 1000 people is known as the death rate.

Different death rates exist, such as the newborn mortality rate and the crude death rate. The population's expansion is regulated by the death rate. It has an impact on the labor supply, employment, marriage rate, and birth rate. The death rate of a nation provides insight into its level of development. Lower mortality rates demonstrate that a nation is developed, while higher death rates indicate that an area or country is underdeveloped or in the developing stage of development. The employment of contemporary tools and technologies to avoid deaths is the primary cause of the low death rate in developed nations.

The most important demographic process, "population change," is linked to all other demographic traits either directly or indirectly.

Economic factors like standard of living and per capita income have an impact on population change, which determines the distribution pattern, density, and composition of the population. Therefore, a comprehension of the process of population change is essential to demographic research.

The "Population Distribution" is not uniform across the surface of the world. The distribution of any other natural resource is similar to this one. Clarifying population distribution disparities in terms of all the variables or factors that contribute to this geographical pattern in temporal dimensions is the primary responsibility of demographers. Uneven population distribution has a significant impact on many facets of human existence. Therefore, population distribution research is crucial since it affects future development strategies, political decisions, and the pace of development.

The "Population Density" is another crucial demography issue, similar to population dispersion. In order to evaluate the impact of the human population on the region's resources in an imprecise way, the "population density" displays the relationship between man and land. An improved knowledge of the interaction between population and resources is the goal that has been reached.

Instead of referring to the difference between the economically active and non-active populations, emerging nations like India refer to the difference between the "working population and non-working population."

In India, the term "worker" was first used in 1961 and was further divided into main and marginal workers by the time of the 1981 census. "The work participation rate is defined as the proportion of total workers to total population," according to the 2011 Census. A demographer studies a region's patterns of subsistence to uncover its diverse economic, cultural, and demographic attributes. The region's occupation structure offers contextual data that helps design policies and initiatives for the social and economic advancement of that area.

"Migration" is yet another crucial component of demographic research.

Mobility maintains balance between the distribution of the population and the availability of natural resources. Mobility is increased in part by migration. It is a necessary procedure to alter the population's arrangement and greatly advances our knowledge of the space-content and space-relations of a given geographic area (Gosal). 10. According to Bogue, human mobility serves as a tool for social integration and cultural dispersion, which leads to a more meaningful distribution of the population. It is an insightful indicator of how the economic opportunities in a certain area are changing over time.

### Review of Literature

A relatively new and still-developing subfield of population studies is demography. The last time it was discussed was in 1953, when Professor Glenn T. Trewartha argued that population geography should be considered a subfield of systematic geography. In light of this, demography gains significance and naturally develops into a crucial, methodical area of population research.

India's systematic population geography was established by G.S. Gosal's doctoral study, "A Geographical Analysis of India's Population," completed in the middle of the 1950s. Many academics have now published research papers and PhD dissertations in this emerging field of study, using Gosal's methods and subject. The latest research trends in this 10 subject area include improvements in technique and scales (macro, meso, and micro) in addition to coverage of the various demographic features.

However, an extensive assessment of the demographic advancements would require a review of the study conducted on each aspect separately.

### Population change

Misra (1973) <sup>[15]</sup> examined geographical elements of population while summarizing the population growth and dispersion in the Lower Ganga-Ghaghara Doab. Misra claims that the differences in population are directly related to the carrying capacity of the land, the types of soil and irrigation systems, the fertility of the soil, the types of crops grown there, trade and commerce practices, high birth rates, low mortality rates, and complete control over diseases.

Gosal (1974) <sup>[16]</sup> conducted an exhaustive analysis of India's population growth from 1961 to 1971 in order to emphasize the seriousness of the problem, starting with the country's persistent and startling population expansion. Gosal's prior contributions to the same theme for the years 1881–1951 and 1951–1961 were continued in this study of him. Emphasizing the need for coordinated research at the micro, meso, and macro levels, Gosal conducted a follow-up study on the population shift in Punjab between 1961 and 1971.

Punjab's growth rate was significantly lower than the country as a whole since there were more out-migrations than in-migrations.

Chandna (1979) found that there is an inverse relationship between population density and population growth rate while researching the rate of population expansion in Haryana. Additionally, he discovered that the demographic history of Haryana was significantly divided between the census years 1921 and 1951. Chandana studied the rise of the rural population in the districts of Rohtak and Gurgaon. She examined how Delhi's close proximity affected this

using data pertaining to individual villages. She discovered that the communities along the routes that radiate out from Delhi had the highest growth rates. Mrs. Prabha Shastri looked on the variations in Vidarbha's population growth rate by area in 1975.

According to Shastri's research, Vidarbha's population has grown at a fairly modest rate in the western region while it has increased significantly in the eastern region over the same time period, accounting for a larger portion of the state's overall population.

Gosal<sup>14</sup> conducted a thorough analysis of India's population growth in 1982. Gosal noted that the development of industries, the extension of irrigation systems into dry and semi-arid regions, mining and commercial activity, the reclamation of wastelands, and the expansion of farming into marginal hill lands were all associated with areas of high population growth.

In his doctoral thesis, Gaikwad (2012) <sup>[14]</sup> examined the demographic shift in the Sangli district. He investigated the population shift in the Sangli district between 1961 and 2001.

### Population distribution and density

The two main issues in demography are population dispersion and density. This is the case because density and dispersion affect all other population characteristics, either directly or indirectly.

Ghosh (1970) <sup>[17]</sup> looked at the population distribution pattern of Bihar in light of variations in the physical and economic environments throughout the state.

Mehta (1973) <sup>[18]</sup> established that the spatial variance in population allocation in Rajasthan was mostly caused by the intensity of cropping, not the percentage of cultivated area.

Investigated changes in physiographic density in Uttar Pradesh between 1961 and 1971. Agriculture density pattern was found to be mostly influenced by the socioeconomic and physiographic characteristics of the area. Examined the population redistribution in West Bengal from 1901 to 1971. He computed the population concentration index and found the mean centers of population for different census years.

Gaikwad (2012) <sup>[12]</sup> classified the tahsils into three categories based on his study of the population density in the Sangli district: high, moderate, and low.

### Birth rate

In a brief analysis, Malhotra (1998) <sup>[10]</sup> examined the trend and transition in Indian fertility. He looked at India's crude birth and death rates from 1901 to 1984 and talked about the family planning initiative. Das conducted yet another significant study on fertility. Das conducted research on the south Gujarat region and looked at the factors that affect women's fertility there.

He got his information from the Baroda Population Research Center. Timaeus and Moultrie investigated the disparity in fertility in South Africa. They discovered a few socioeconomic variables influencing fertility in South Africa. Women's educational attainment, household income, and place of living are a few examples of these variables.

Husain (2012) <sup>[19]</sup> looked at various fertility metrics, including age-specific birth rates, standard birth rates, child-women ratios, crude birth rates, and general fertility rates. He researched the overall fertility rate, standard birth rate,

and age-specific birth rate in England and Wales. Husain examined India's birth rate from 1901 to 2011 and determined the country's death and birth rates.

Quzi examined the global trends in both birth and mortality rates. He researched the birth, death, and natural increase rates in a few global nations. In the Solapur district, Conducted a thorough analysis of the variance in tahsil-wise birth rates, classifying tahsils as having high or low birth rates.

### **Death rate**

He has distinguished between many types of death rates, such as infant mortality, standard death rate, age and sex specific death rate, and crude death rate. In his book, he also examined the age- and sex-specific death rates in Costa Rica and the United States. He has employed many death rate formulas.

Swartz conducted research in South Africa and found a link between women's poverty and mortality there.

Examined the death rates in the Solapur district and conducted a thorough investigation on the variations in the death rates each tahsil. He classified the death rates of the tahsils as high or low.

### **Work participation rate**

Despite the fact that there are many different types and numbers of occupations, classifying professions into disparate groups presents a significant challenge. Because the definition of a "worker" in the Indian Censuses changed frequently, demographers paid little attention to this attribute. Nonetheless, a number of geographers have made contributions to the field's and demography's evolution through their studies.

### **Objectives of the study**

- To research the Districts of Western Uttar Pradesh structure, both physical and non-physical.
- To investigate the temporal trends and spatial patterns of birth rates and to pinpoint the regions with extremely low and extremely high birth rates.
- To identify the regions with low and high mortality rates, as well as the spatial patterns and temporal variations in death rates.
- To look into the temporal and spatial patterns of population change.
- To analyze the relationship between population and space in the Districts of Western Uttar Pradesh, as well as population distribution and density patterns.
- To research the region under study's rates of labor force participation.
- To research in-migrations and out-migrations by tahsil as well as case studies of chosen sample communities.
- To endorse the ideas for the general socioeconomic development of the research area.

### **Research methodology**

#### **Choice of the study area**

The Some Districts of Western Uttar Pradesh has been chosen as the study area. By making this choice, it designates the 'Some Districts of Western Uttar Pradesh' as the focal point of India's executive or administrative system. Of all the administrative units, the district is the most

important. Today, a district is the best location for the physical and functional aggregation of administrative branches and units. It is reasonable in respect to its population, resources, and region. In order to analyze diverse population features, 8 tahsils, 8 urban areas, and 733 villages are included in the study.

#### **The significance of the current topic and the choice of the study area were determined by the following factors**

- Some Districts of Western Uttar Pradesh, which is located in Uttar Pradesh state and is elevated above sea level by 600 meters, is a component. In terms of population features, it is one of the most changeable regions.
- As the investigator's neighbor, he is familiar with the local climate, geography, and demographic patterns.
- The main rivers that have an impact on the region under investigation are the major rivers.
- The research area includes, river plains in the east, south, and center, and irregular topography in the majority of the district.
- Population distribution, migration, change in population, literacy, population density, and occupational structure are spatially diverse within the area under examination.
- The study region has abundant human, material, and physical resources that enable it to withstand nature's whims and persistently harsh conditions.
- Within the district, there is interregional inequality in the demographics. While certain areas of the study region, such as the river plains, have high densities, rapid population growth, low sex ratios, and significant levels of out-migration, others, such as the urban areas, have low densities, slow population growth, and few employment possibilities.
- The study area has a variety of population-related issues that present difficulties for academics and planners.
- There are numerous areas of the district's economy that create challenges and concerns hidden underneath these fairly spectacular features.

All of these factors led to the Some Districts of Western Uttar Pradesh being chosen as the study region.

#### **Sources of data**

A demographer needs information on the population's various characteristics at a specific period as well as information on how these characteristics have changed over time. The majority of the current study is based on secondary data, with primary data serving as a supplement. As a result, the essential information is gathered from the various sources.

#### **Primary data**

The primary data for this research project is gathered using the purposively selected sample survey approach, with a focus on human migration. There are a total of 22 villages chosen from four tahsils based on the intensity index of in-migration and out-migration. 371 migrants in total are evaluated. The procedures of a questionnaire and a schedule are used to gather data for the study.

## Secondary data

### The census

Fortunately, The Census, a single official source, provides the population numbers that demographers and population need. The Census is an incredibly useful source of data, and the knowledge that is made available through it on a worldwide scale "is participating to a revolutionary development of global economic, demographic, and sociological knowledge." The following census publications are referenced in the current study:

1. The Uttar Pradesh Census Directorate, published the District Census Handbooks from 1991 to 2011.
2. The Primary Census Abstracts of Uttar Pradesh, 1991–2011, a publication of the Census of India.
3. Uttar Pradesh Series 28 of the final population totals from the Census of India, 1991 to 2011.
4. Uttar Pradesh Administrative Atlas from the Census of India from 1991 to 2011.

Different methods are applied for various population aspects, these are following:

### Decadal population variations

To calculate *decadal population variations* in terms of population change /population growth, following formula has been used.

$$r = \frac{P_n - P_o}{P_o} \times 100$$

Where,

$r$  = rate of population change.

$P_n$  = population at the end of the period.

$P_o$  = population at the beginning of the period.

### Birth rate

For the calculation of the birth rates following formula has been used

$$B_r = \frac{B_1}{P} \times 100$$

Where,

$B_r$  = Birth Rate

$B_1$  = Number of live births in a year.

$P$  = Total population

### Death rate

For the calculation of the death rates following formula has been used

Where,

$D_r$  = Death Rate

$D_1$  = Number of deaths in a year.

$P$  = Total population

The researcher employed a variety of suitable statistical, quantitative procedures for these computations, including mean, standard deviation (SD), and cartographic techniques such proportionally divided circles, various graph kinds (bar

graphs, line graphs, pie charts, etc.), choropleth maps, etc. More focus is placed on cartography since it effectively and forcefully conveys concepts and information. The primary area of applied cartography is the methods of accurate map drawing. Maps establish the groundwork for the development of attitudes by encouraging thinking and comprehension about the facts.

### Conclusion

The problems of education system are exacting. Due to public apathy the school is in disarray, privately run school are functional, but beyond the reach of ordinary people. Availability of land & natural resource and environment play an important role in the development of any country or states. But utilization of these resources and best use of economic development is possible only by people. When we compare the Uttar Pradesh population growth rate in national level, we found many interesting facts. Since census year 1901 to 1971, the growth rate of population of Uttar Pradesh have been lower as compare to national level. And the difference was higher. Experience shows that a very populous city can rarely, if ever, be well governed. To the size of states there is a limit, as there is to other things (plants, animals, implements), for none of these retain their natural power when they are too large or too small. 'Density of Population' is denned as the number of persons per square kilometer. It is an important index of population which shows concentration of population in a particular area. The possible factors are marital status poverty, son preference and female feticide etc.

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