POPULATION GROWTH BY MALE-FEMALE DIFFERENCES IN HARYANA: AN INTER-DISTRICTS ANALYSIS

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ABSTRACT

One sociological indication of a nation, region, or society's progress is the pace of population increase. The region's rapid population expansion demonstrates the level of economic and educational progress there. In light of all of this, we make an effort to analyse Haryana's population growth patterns and the variations between male and female growth. For this project, data from several Indian censuses taken at the district level in Haryana have been computed. The study's primary goals are to first examine the growth pattern and then to pinpoint the pattern of differences between males and females. From 1991 to 2011, the growth rates of men and women were shown to be similar. Faridabad and Panchkula districts saw their greatest growth rates between 1991 and 2001, while Gurugram district experienced the biggest population growth during the same period, with a 73.04 percent increase in the total population. Haryana's centre region has not experienced any notable growth changes. In the meantime, the area as a whole saw a moderate growth rate. Mewat (38.65%) and Palwal (25.76%) in southern Haryana are the two districts where the natural growth rate has typically grown.

Keywords: Population growth, Male, Female, Differences, Pattern

INTRODUCTION

The population of the entire planet was modest and expanded slowly during the most of human history. Around 500 million people were thought to be living on the planet during the beginning of the seventeenth century, just before a quicker population growth regime began. Since then, improvements in nutrition, sanitation, and medicine have made it possible for the world's population to expand more quickly.

Understanding many of the underlying problems in modern society, including as war, resource consumption, environmental degradation, and interactions between nations and their peoples, begins with seeing demographic processes, such as fertility, mortality, and population mobility, at work throughout the world. The demographic processes and features that make up a society's population define or shape it. For instance, disparities in mortality and fertility processes may be used to describe populations and geographical areas. For instance, the infant mortality rate, which counts the number of infants under one year of age who pass away for per 1,000 live births, was six in wealthy nations.

Average life expectancy at birth, which indicates how long a person is anticipated to live, was seventy-seven years in industrialized nations but just sixty-seven in underdeveloped ones. Numerous times, low life expectancy results and high mortality rates are a result of poor or insufficient health care, governments' inability to supply basic requirements, or disparities in educational attainment.

Population growth rate has long been seen as important. Some of the following overview is based on Cole (1958) and Hutchinson (1978)'s descriptions of the historical backdrop. In a work published in 1588, Botero advanced the notion that geometric population growth is constrained at greater densities by the environment's carrying capacity. Malthus famously developed this theory and popularized it (1798). Early mathematical investigations of mortality tables by Huygens and subsequently Buffon, among others, sparked a detailed interest in them in the late seventeenth century. Interestingly, Cole claims that Newton notably 'failed to comprehend the basic premise that life expectancy is a function of age'. 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, said Euler (1760), who established the mathematical dependence of population growth rate on age-specific birth rates and death rates. Verhulst proposed the logistic equation, which states that population growth rate decreases linearly with population density (1838).

When used to high-density populations, the census approach has better statistical power to detect a population fall than the demographic method, and the opposite is true for low-density populations (Taylor &Gerrodette, 1993). A population that endures through time and space has a frequency distribution that is positively skewed, with the highest value being more to the right of the mode than the minimum value. R's frequency distribution often resembles a normal distribution more closely (Hone 1999). Population growth rate is a key component of the work of the modern founding fathers of ecology (Lotka, 1925; Fisher 1930; Nicholson 1933; Andrewartha & Birch 1954), but up until recently, a thorough examination of its function had been hampered by the complexity of its dependence on age-specific birth and death rates.

The method used to analyse census data with zeros, the presence of geographical variation and spatial-temporal covariance, as well as the size of the region under study, can all have an impact on how accurately the limited population growth rate is predicted (Steen & Haydon 2000). The significance of population growth rate in the study of population ecology is increasingly recognized thanks to the development of contemporary computing and matrix methods for the analysis of life tables (Fujiwara & Caswell, 2001).

The primary stages of a secular process known as the demographic transition are characterized by the recent period of very fast demographic change that has occurred in the majority of countries throughout the world. During this transition, declining birth rates and

declining mortality rates result in a period of high population increase. This change often occurs as a result of the shift from an agrarian to an industrial civilization. Population growth before to the start of the transition is almost negative since high mortality rates roughly balance the high birth rates typical of rural cultures prior to the industrial revolution. After the transition is complete, population growth is once more close to zero as both the birth and death rates in the most advanced cultures reach low levels. Rapid demographic change that happens during the interim transition period is divided into two separate periods. The population growth rate increases during the first phase as the mortality rate decreases and the birth rate stays high.

Objectives

The main objectives of this work paper are under as:
- ➢ To identify the pattern of decennial growth rate of population in Haryana
- ➢ To identify the pattern of difference between male and female growth rate

Database and Methodology

This work is based on secondary sources of data. All secondary data are collected from a census of Haryana for 2011. The data like population growth rate and difference between male and female have been collected. The decadal growth rate and difference have been calculated by using such formula likewise as under:

Decadal Growth Rate $= \dfrac{A(Population\ of\ Present\ year) - B(Population\ of\ Past\ Year)}{B(Population\ of\ past\ Year)} X100$

Whereas, A= Population of 2011 year, and B= Population of 2001

Male-Female Difference Index $= \dfrac{Male\ Population\ Growth - Female\ Population\ Growth}{Male\ Population\ Growth\ Rate} X100$

To prepare the thematic map of the variables ArcGIS has been used as cartographic tool and Microsoft excel has been used as to make bar diagram and to show the trend line of population growth rate in Haryana.
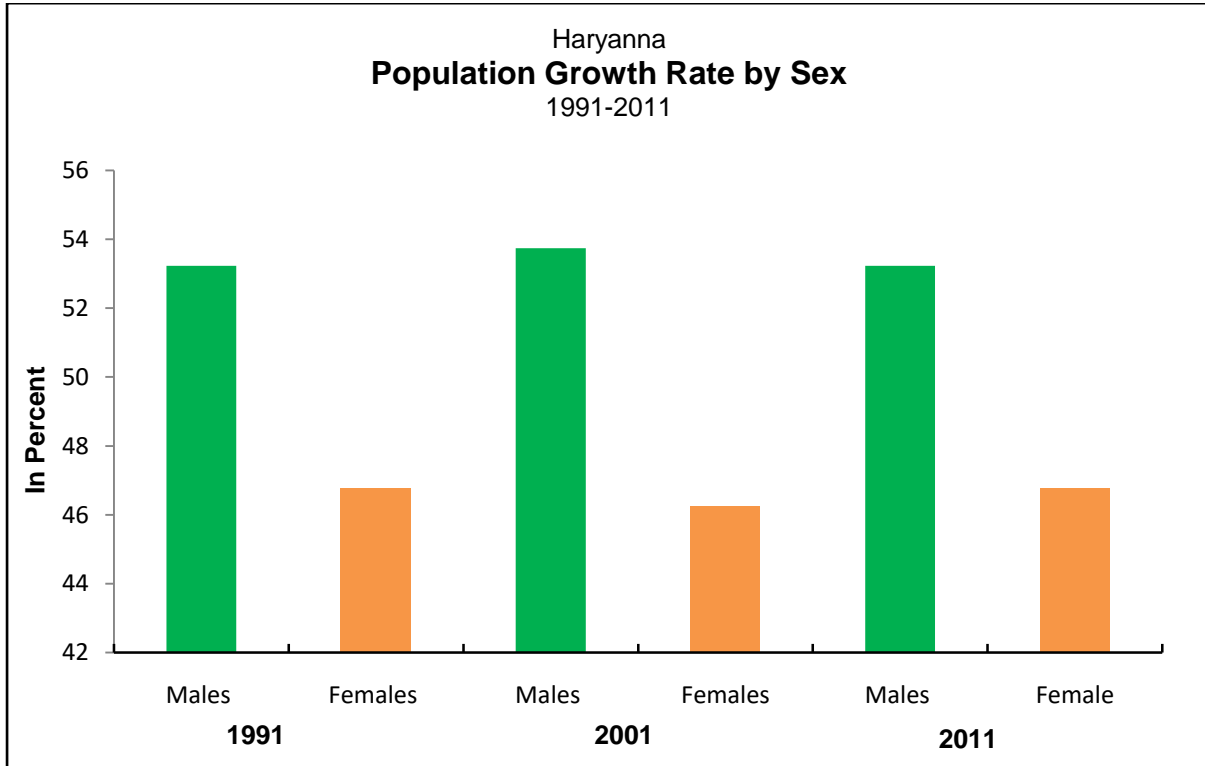
Result & Analysis

The projected medical-dependent response was that the population growth rate fell as medical innovation rose over time. However, while the population growth rate was larger at the higher food concentration, population growth alone could not explain all of the observed difference. This is simple to understand since those who have access to more food should grow and reproduce more quickly, leading to a larger population growth rate. There was no linear relationship between the population growth rate and the availability of food, industrialization, urbanization, and medical advancement. It appears that the huge population's access to food interacts with variations in the pace of population expansion. Government policies, food availability, educational attainment, and per capita income all have major impacts on population growth rates.

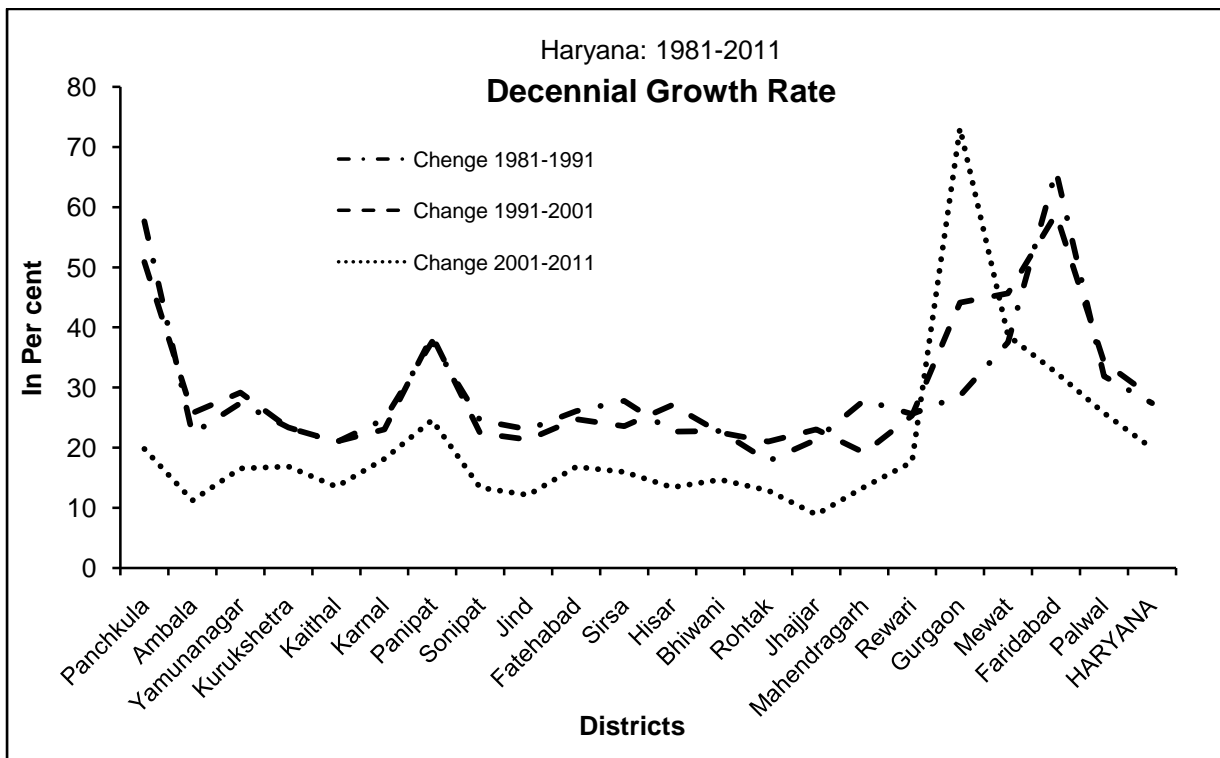**Table 1: Population Decennial Growth Rate & Decadal differences between Sex: 1991- 2011**

Districts	Decennial Growth			Differences between Male & Female Growth Rate		
	1981-1991	1991-2001	2001-2011	1991	2001	2011
Ambala	22.31	25.78	11.23	5.08	7.06	6.12
Bhiwani	22.8	22.49	14.7	6.48	6.42	6.06
Faridabad	66.04	58.88	32.54	10.2	9.52	6.76
Fatehabad	26.08	24.76	16.85	6.54	6.14	5.18
Gurgaon	28.64	44.15	73.14	6.92	8.08	7.86
Hisar	22.67	27.11	13.45	7.96	8.06	6.84
Jhajjar	21.37	23.06	8.9	7.5	8.28	7.4
Jind	23.03	21.36	12.13	8.82	7.96	6.88
Kaithal	20.92	21.02	13.55	7.92	7.92	6.3
Karnal	24.76	23.06	18.14	7.26	7.26	5.98
Kurukshetra	23.4	23.32	16.86	6.42	7.18	5.94
Mahendragarh	27.91	19.16	13.48	4.72	4.26	5.56
Mewat	37.52	45.67	38.65	6.88	5.34	4.88
Palwal	31.87	34.21	25.76	8.34	7.44	6.36
Panchkula	57.61	50.91	19.83	8.78	9.7	6.78
Panipat	37.65	38.58	24.6	8	9.34	7.32
Rewari	25.62	25.34	17.64	3.78	5.32	5.36
Rohtak	17.79	21	12.88	8.18	8.3	7.14
Sirsa	27.79	23.59	15.99	6.12	6.26	5.4
Sonipat	24.53	22.39	13.35	8.68	8.78	7.76
Yamuna Nagar	27.41	29.19	16.57	6.22	7.42	6.52
HARYANA	**27.41**	**28.43**	**19.9**	**7.24**	**7.48**	**6.46**

Source: Census of India, 2011.

Haryanna
Population Growth Rate by Sex
1991-2011

Source: Census of India, 2011.

Fig. 1

Haryana: 1981-2011
Decennial Growth Rate

Source: Census of India, 2011.

Fig. 2

Decadal Population Growth: 1981-2011

Three rounds of analysis have been done on the share of extremely high growth rates. Faridabad and Panchkula districts saw particularly rapid population increase between the years of 1981 and 1991 and 2001, respectively, whereas Gurugram district in Haryana experienced the greatest growth rate over the most recent ten years. The southern districts of Haryana, such as Gurugram, Mewat, Palwal, and Faridabad, have a high rate of population increase, while Panipat district from the centre region has demonstrated the same. In these districts, such as Panipat, Gurugram, and Faridabad, immigration from rural areas of Bihar, Madhya Pradesh, Uttar Pradesh, and Chhattisgarh, among others, is a key source of population growth. Palwal, a recently separated district from Mewat, has a high rate of population increase as a result of poor economic conditions, low educational attainment, and bad religious performance.

The state of Haryana is experiencing a geographically diverse modest pace of population increase. However, areas like Jind, Ambala, Rohtak, Jhajjar, Kaithal, and the whole central section of the Haryana state have low and very poor growth rates. These areas have exceedingly poor industrial economic conditions. Although the economy of the central region of Haryana is mostly focused on agriculture, the educational level, particularly for women, is about higher than the national average.

In light of this, seasonal immigrants do not significantly contribute to population increase. Jind Kaithal, Rohtak, and Rewari districts have progressively seen population growth over the past ten years. Figures 3, 4, and 5 depict the decadal shift in district-level population increase. The district of Faridabad saw the largest increase between 1991 and 2001 (58.88 percent) and 66.04 percent between 1981 and 1991. The lowest growth rates were seen in Rohtak, where they were 17.79% between 1981 and 1991 and 21% between 1991 and 2001. However, due to significant numbers of immigrants from neighbouring states, Gurugram saw the highest population increase in the previous ten years (73.14%), whereas Jhajjar saw the lowest growth rate (8.9%) between 2001 and 2011.
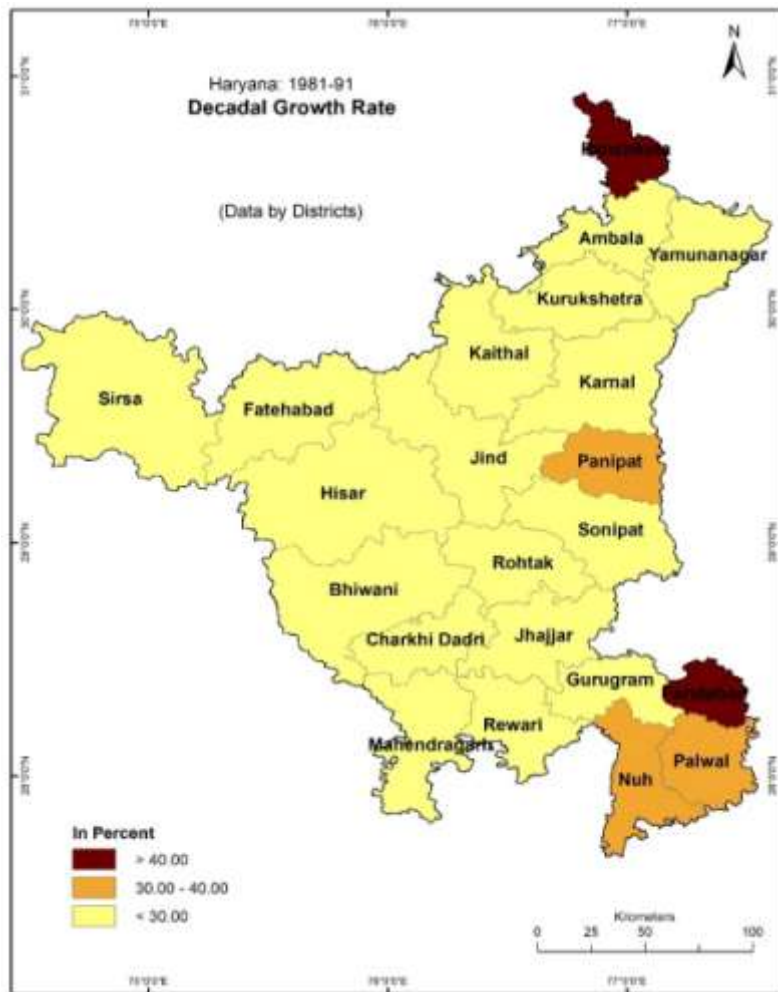
Difference Male-Female Growth: 1981-2011

In the districts of Faridabad (8.78%), Sonipat (8.68%), Panchkula (8.78), Jind (8.82), Palwal (8.34), Rohtak (8.18), and Panipat (8.34%) during the 1981–1991 census year, the proportion of variances between male and female exhibits big magnitude like 8 and above. A significant gender gap exists in Haryana's Faridabad area as a result of the enormous number of male immigrants. However, Palwal district exhibits significant disparities as a result of Haryana's extreme backwardness. The southern region of Haryana has variations that are minor and extremely low in magnitude. They have similar demographics to Rewari (3.78%), Madras (4.72%), Ambala (5.08), Sirsa (6.12), and Bhiwani. Two districts have disparities that are on par with the state average. Men and women differ significantly in Panchkula (9.7), Faridabad (9.52), Panipat (9.34), Sonipat (8.78), and Rohtak between 1991 and 2001. (8.3 percent).]
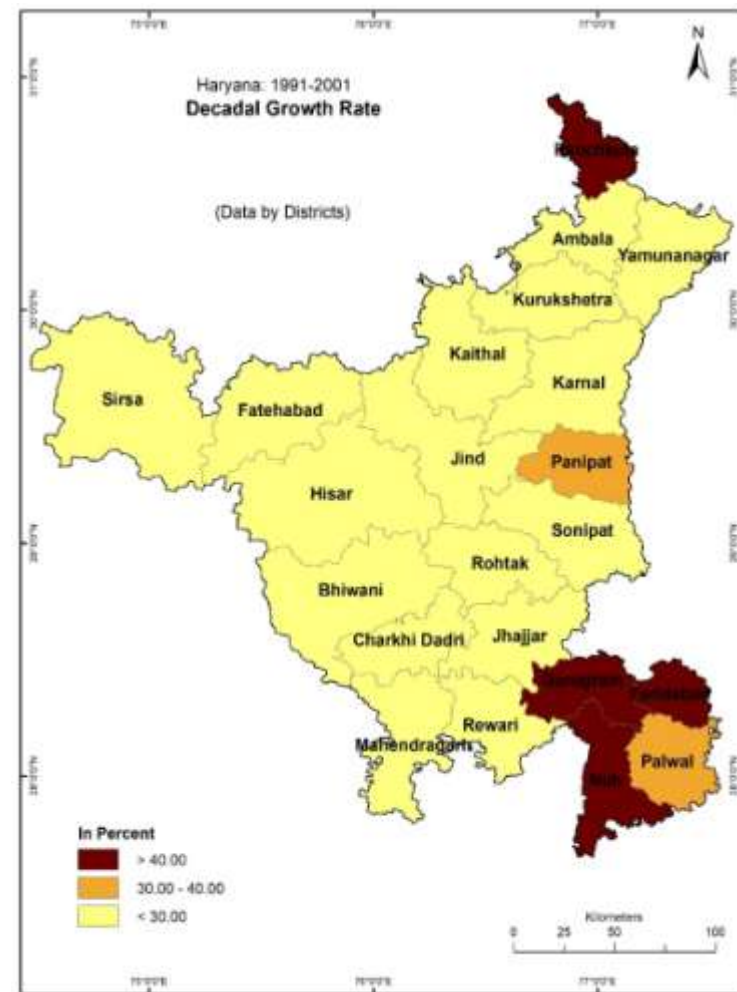
Both Panchkula and Faridabad districts in Haryana have experienced a sharp increase in the number of immigrants. But although Faridabad receives immigration from outside the state, including Bihar, Uttar Pradesh, MP, Chhattigarh, and West Bengal, Pachkula district receives immigration from neighbouring Haryana districts. According to the 2001 Indian census, the differences between Mahendragarh (4.25), Rewari (5.32), Fatehabad (6.34), and Mewat are of a low and extremely low size (5.34). In the districts of Gurgaon (7.86), Sonipat (7.32), Jhajjar (7.4), Panipat (7.32), Rohtak (7.14), and Jind, the male-female inequalities were quite high in 2011. (6.88). The southern region of Haryana, including the districts of Mewat (4.88), Fatehabad (5.18), Rewari (5.56), Sirsa (5.4), and Mahendragarh (5.56), has smaller variances. This pattern of gender disparities indicates that the district-level migration rate has also shifted. In Haryana, the rates of industrialization and urbanisation are also steadily varying from district to district.
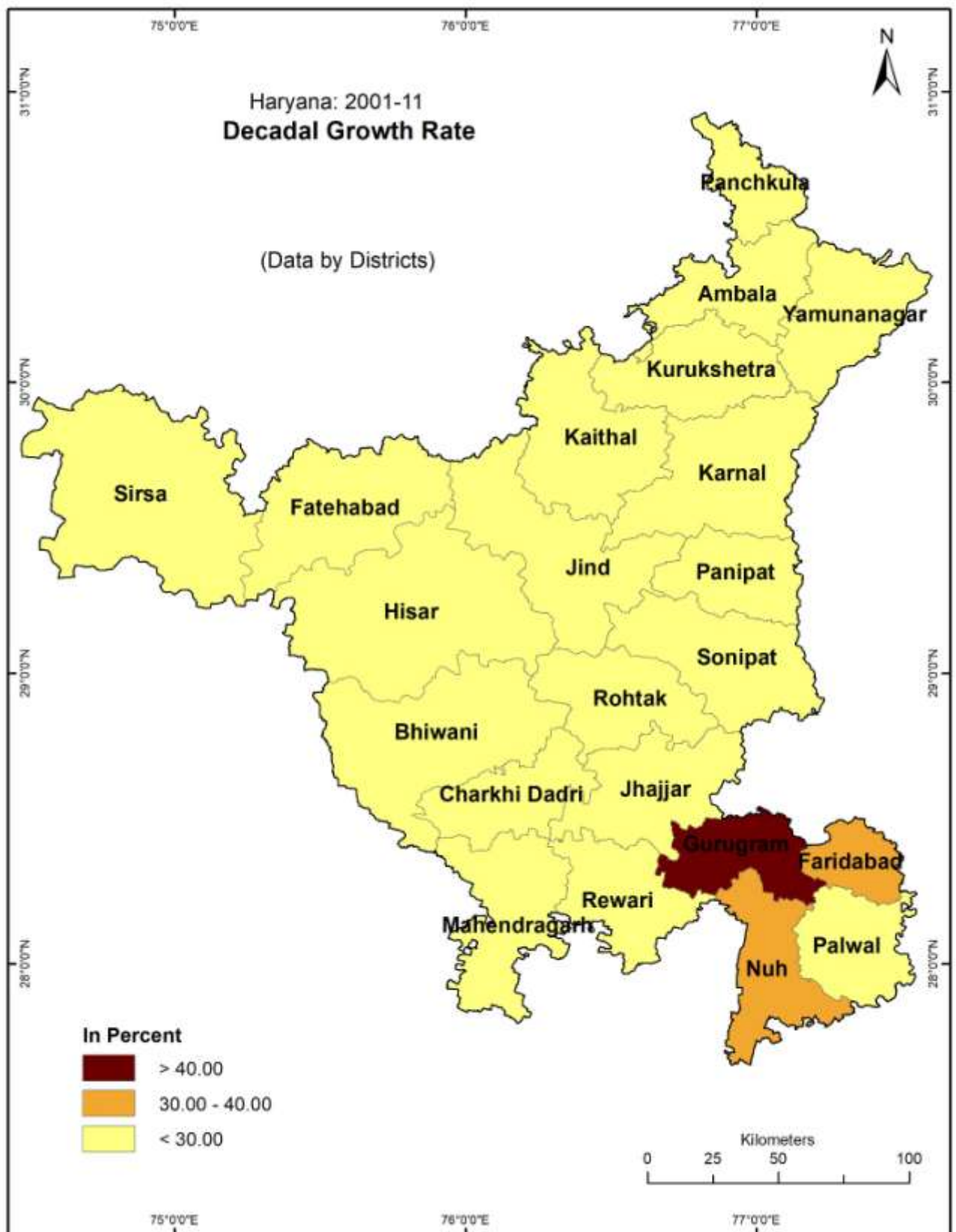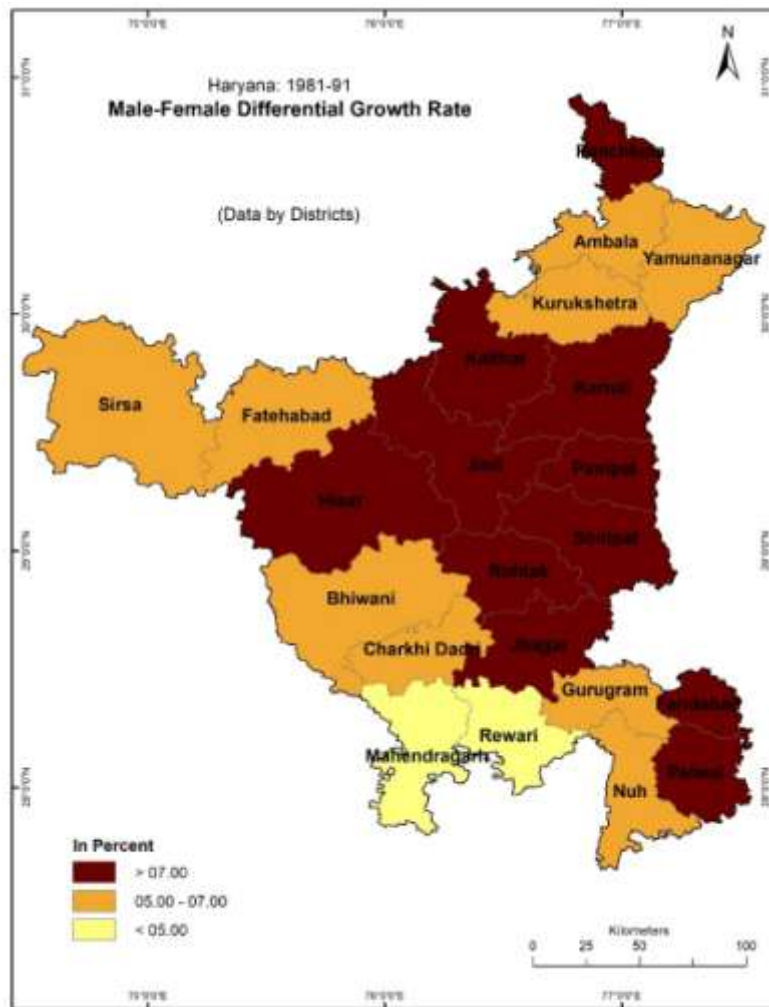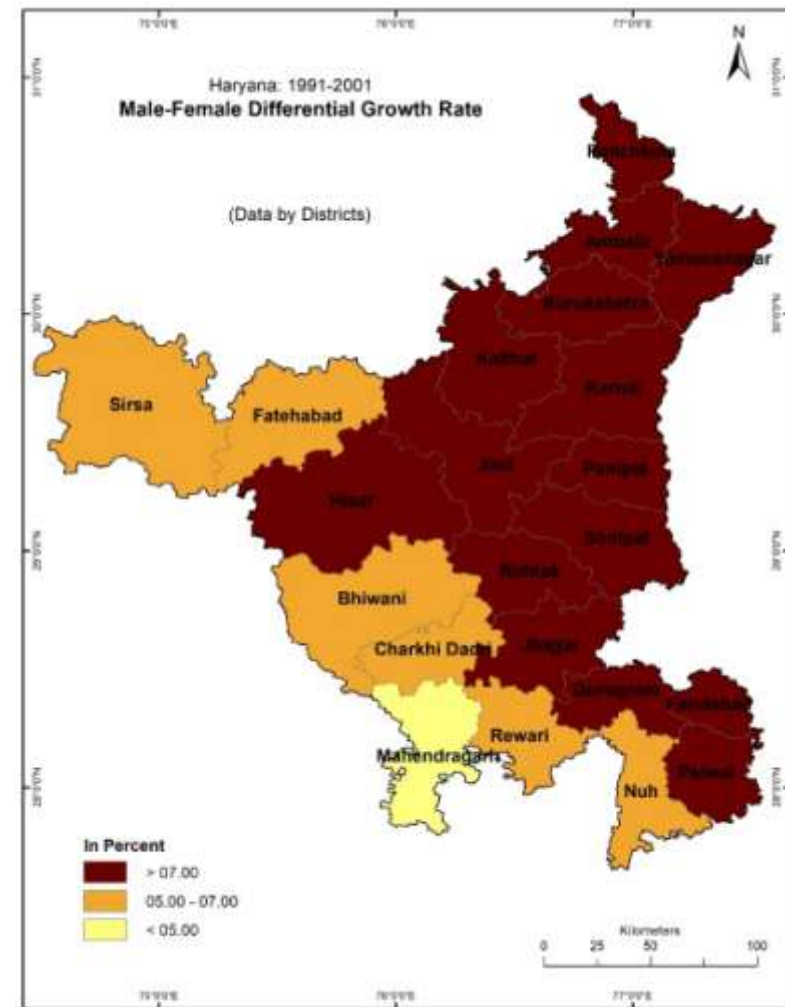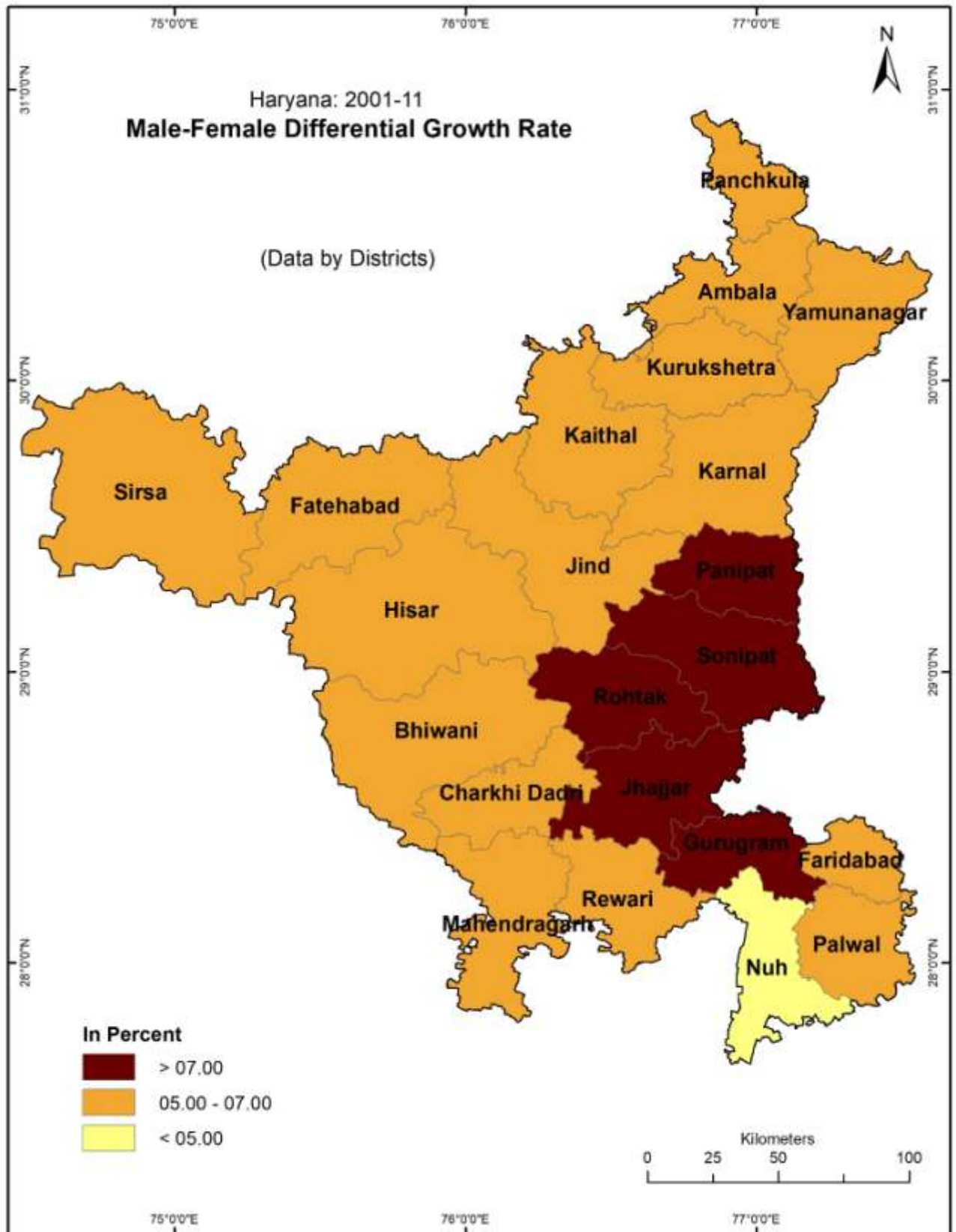
Map 1

Map 2

Haryana: 2001-11
Decadal Growth Rate

(Data by Districts)

In Percent
- > 40.00
- 30.00 - 40.00
- < 30.00

Map 3

Map 5

Map 6

Map 6

CONCLUSION

A society's population increase is a good measure of its economic progress. Additional high-quality living space is also made available by population increase. Calculations of Haryana's male-female population differences for the census years 1981–1991; 1991–2001; and 2001–2011 have been made. The extent of the disparity depends on the area's social structure, economic status, educational attainment, and attitudes toward female children. The state of Haryana saw a modest amount of population increase during the census years of 1981 and 1991. However, areas like Jind, Ambala, Rohtak, Jhajjar, Kaithal, and the whole central section of the Haryana state have low and very poor growth rates. Although from 1991 to 2011, the male-female disparities in the districts of Gurgaon (7.86), Sonipat (7.32), Jhajjar (7.4), Panipat (7.32), Rohtak (7.14), and Jind recorded very high levels (6.88). The southern region of Haryana, including the districts of Mewat (4.88), Fatehabad (5.18), Rewari (5.56), Sirsa (5.4), and Mahendragarh (5.56), has smaller variances. This pattern of gender disparities indicates that the district-level migration rate has also shifted. In Haryana, the rates of industrialization and urbanisation are also steadily varying from district to district.

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