

Growth & Changes in Scheduled Caste Population and Sex Ratio in Bhagalpur District, Bihar, India

Dr. Manmohan Kumar

University Department of Geography, Tilka Manjhi Bhagalpur University, Bhagalpur, Bihar, India.

Abstract

The Scheduled Caste population and sex ratio are important demographic indicators that reflect the socio-economic and gender dimensions of regional development. This study examines the growth and changes in the Scheduled Caste population and sex ratio across the sixteen blocks of Bhagalpur District, Bihar, during 2001–2011. The study aims to analyse the decadal growth of the Scheduled Caste population, evaluate block-wise changes in the sex ratio, and compare spatial variations between these two demographic indicators. The analysis is based entirely on secondary data obtained from the Census of India (2001 and 2011) and the District Census Handbook. A descriptive and comparative approach was adopted using MS Excel for data analysis and QGIS for thematic mapping. The findings reveal that the Scheduled Caste population increased by 25.08% during the study period, although the growth pattern varied considerably among the blocks. While seven blocks recorded improvements in the sex ratio, the district-level sex ratio remained unchanged at 877 females per 1,000 males, indicating persistent spatial disparities in the demographic characteristics of the Scheduled Caste population.

Keywords: SC Population, Decadal Change, Growth Pattern, Gender Dimensions, Spatial Disparities

1. INTRODUCTION

Population composition is an important component of demographic and geographical studies, as it reflects the social, economic, and cultural characteristics of a region. The analysis of population growth, distribution, and sex composition provides valuable insights into the changing demographic structure and level of socio-economic development. In India, Scheduled Castes constitute a significant section of the population and have historically experienced social and economic disadvantages. The growth and spatial distribution of the Scheduled Caste population are influenced by several factors, including natural population increase, migration, employment opportunities, urbanisation, socio-economic conditions, and access to basic amenities. An analysis of changes in the Scheduled Caste population over time is therefore important for understanding the demographic transformation and spatial disparities occurring within a region. Sex ratio is another significant demographic indicator that represents the numerical balance between females and males in a population. It is commonly expressed as the number of females per thousand males. The sex ratio provides an important indication of gender composition and the demographic and socio-economic characteristics of society. Spatial and temporal variations in sex ratio may be associated with differences in mortality, migration, socio-cultural conditions, educational development, employment patterns, and access to healthcare facilities. Therefore, examining changes in

the sex ratio of the Scheduled Caste population is essential for identifying areas of gender imbalance and understanding regional demographic disparities. The Scheduled Caste population forms an important component of the district's population structure and is unevenly distributed across its administrative units. Differences in population growth, concentration, and sex composition indicate the existence of spatial disparities within the district. However, detailed geographical studies focusing specifically on the temporal changes and spatial patterns of the Scheduled Caste population and sex ratio in Bhagalpur District.

2. LITERATURE REVIEW

The Scheduled Caste (SC) population and sex ratio have been widely recognised as important demographic indicators reflecting the socio-economic status, gender equity, and regional development of marginalised communities. Earlier studies have examined the growth, spatial distribution, literacy, and sex ratio of the Scheduled Caste population across different regions of India, revealing significant spatial and temporal variations and providing valuable insights into demographic change.

Gangadhar (2005) examined the socio-economic conditions of the Adikarnataka Scheduled Caste community in Karnataka and observed that, although the community had historically experienced economic deprivation and social segregation, modernisation and constitutional safeguards had contributed to improved residential integration, particularly in urban areas. **Vipin and Yadav (2018)** analysed the Scheduled Caste sex ratio in Haryana and highlighted sex ratio as an important indicator of the status of women and the social structure of marginalised communities, emphasising the need to understand regional disparities despite various government welfare initiatives. **Ravikumar S. (2018)** examined the growth and socio-economic conditions of the Scheduled Caste population in Karnataka and found gradual improvement, while highlighting the need for effective welfare programmes to achieve inclusive development. **Sutar (2020)** investigated the demographic characteristics of the Scheduled Caste population in Maharashtra with special reference to literacy and sex ratio. The study found that the Scheduled Caste sex ratio was higher than the state average, whereas the literacy rate remained substantially lower. It also reported poor educational attainment among Scheduled Caste women and identified a strong positive relationship between literacy and sex ratio using Spearman's rank correlation. **Salve (2022)** examined the spatio-temporal changes in the Scheduled Caste sex ratio in Ahmednagar District and reported improvements in the overall sex ratio, although considerable regional disparities persisted. The study attributed these variations to factors such as son preference, inadequate healthcare facilities, neglect of the girl child, and low literacy levels. **Yadav and Singh (2023)** analysed population dynamics in Gorakhpur District by considering indicators such as population growth, density, sex ratio, literacy, caste composition, and workforce participation. They emphasised that these demographic variables are essential for understanding regional development patterns. Similarly, **Kumari (2024)**, in a study of Ranchi District, examined spatial and temporal changes in sex structure and concluded that demographic characteristics exhibit considerable regional variation and are not uniformly associated with socio-economic development. More recently, Here is a shorter academic version: **Kumar et al. (2025)** analysed the growth and changes in population and sex ratio in Munger District, Bihar, using Census data (2001–2011). The study found moderate population growth, slight improvement in the overall sex ratio, and emphasised the need for women's education, maternal healthcare, and gender-sensitive policies to achieve balanced demographic development.

Although several studies have examined the demographic characteristics of the Scheduled Caste population in India, limited research has focused on block-level changes in the Scheduled Caste population

and sex ratio in Bhagalpur District, Bihar. Therefore, the present study analyses their spatial and temporal patterns using Census data from 2001 and 2011.

3. STUDY AREA

Bhagalpur District is located in the southeastern part of Bihar, India, extending approximately between 25°03' and 25°30' North latitudes and 86°30' and 87°30' East longitudes. The River Ganga flows through the district and significantly influences its physical and socio-economic characteristics. Covering an area of approximately 2,569 square kilometres, the district is administratively divided into three subdivisions, Bhagalpur Sadar, Kahalgaon, and Naugachia and sixteen community development blocks. According to the Census of India 2011, the district had a population of approximately 3.03 million, characterised by considerable social and demographic diversity. The Scheduled Caste population forms an important component of the district's demographic structure, with notable block-wise variations in population growth and sex ratio. Therefore, Bhagalpur District provides a suitable geographical unit for analysing changes in the Scheduled Caste population and sex ratio between 2001 and 2011.

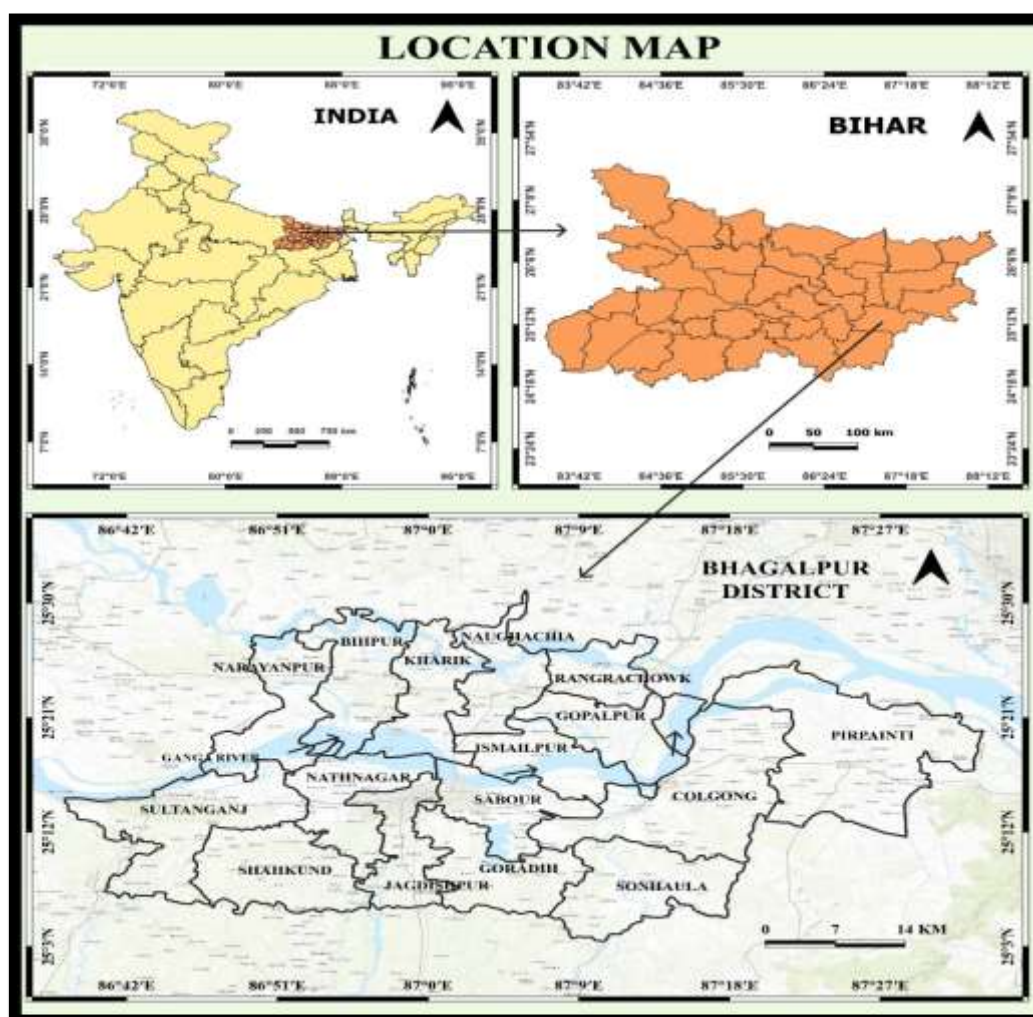


Figure 1: Location Map of the Study Area

4. OBJECTIVES

Here are the specific objectives of the study:

- To analyse the growth rate of the Scheduled Caste population in Bhagalpur District between 2001 and

2011.

- To evaluate the block-wise changes in the Scheduled Caste sex ratio between 2001 and 2011.
- To compare the changes in Scheduled Caste population growth rate and sex ratio across the blocks of Bhagalpur District.

5. DATA SOURCES AND METHODOLOGY

The present study is entirely based on secondary data obtained from the 2001 and 2011 Census of India and the District Census Handbook for Bhagalpur. These sources provide demographic information on the total Scheduled Caste population and its male–female composition. MS Excel was used for data tabulation, calculation of decadal population growth rates and sex ratios, and preparation of charts and graphs. QGIS was employed for spatial analysis and the cartographic representation of block-wise variations in the Scheduled Caste sex ratio. A comparative analytical approach was adopted to assess demographic changes between 2001 and 2011. Descriptive statistical methods, graphical presentation, and thematic mapping techniques were used to analyse and interpret the temporal and spatial patterns of the Scheduled Caste population and sex ratio across the blocks of Bhagalpur District.

6. RESULT AND DISCUSSION

1. The Growth of the Scheduled Population in Bhagalpur District Between 2001 and 2011

As given in **Table 1**, the Scheduled Caste population in Bhagalpur District between 2001 and 2011 reveals considerable spatial variation in growth across different blocks. At the district level, the Scheduled Caste population increased from 254,686 in 2001 to 318,569 in 2011, recording an overall growth rate of 25.08 per cent. Among the blocks, Narayanpur recorded the highest growth rate of 37.02 per cent, followed by Kharik (35.28 per cent) and Colgong (31.10 per cent). Ismailpur (29.78 per cent) and Sabour (27.13 per cent) also experienced relatively high growth during the study period. Moderate growth rates were observed in Sultanganj (25.25 per cent), Nathnagar (25.19 per cent), Rangra Chowk (25.09 per cent), Pirpainti (24.37 per cent), Bihpur (24.36 per cent), Goradih (24.07 per cent), Jagdishpur (23.36 per cent), Shahkund (23.29 per cent), and Gopalpur (20.76 per cent).

In contrast, Sonhaura recorded a comparatively low growth rate of 19.52 per cent, while Naugachia experienced the lowest growth rate of only 9.58 per cent. Overall, this indicates that the Scheduled Caste population increased in all blocks of Bhagalpur District during 2001–2011, although the rate and magnitude of growth varied considerably. The district-level growth rate of 25.08 per cent indicates a substantial increase in the Scheduled Caste population during the decade. The relatively high growth rates in Narayanpur, Kharik, and Colgong and the low growth rate in Naugachia demonstrate clear spatial variations in the growth pattern of the Scheduled Caste population across the study area. The higher growth observed in Narayanpur, Kharik, and Colgong may be associated with higher natural population increase, improved survival rates, and relatively stable settlement patterns. Conversely, the lower growth recorded in Naugachia may be influenced by migration, changing fertility behaviour, or local socio-economic conditions.

Table 1: Scheduled Caste Population & Growth Rate of Bhagalpur District (2001- 2011)

Sl. No.	Blocks	Scheduled Caste Population		Growth Rate (%)
		2001	2011	
1.	Narayanpur	4651	6373	37.02

2.	Bihpur	8911	11082	24.36
3.	Kharik	8029	10862	35.28
4.	Naugachia	8065	8838	9.58
5.	RangraChowk	6123	7659	25.09
6.	Gopalpur	6343	7660	20.76
7.	Pirpainti	24098	29971	24.37
8.	Colgong	37825	49589	31.10
9.	Ismailpur	1958	2541	29.78
10.	Sabour	13675	17384	27.13
11.	Nathnagar	13626	17059	25.19
12.	Sultanganj	25089	31425	25.25
13.	Shahkund	20381	25127	23.29
14.	Goradih	16293	20215	24.07
15.	Jagdishpur	39746	49031	23.36
16.	Sonhaulula	19873	23753	19.52
District Total		254686	318569	25.08

Sources: Census Handbook of Bhagalpur District (2001 & 2011)

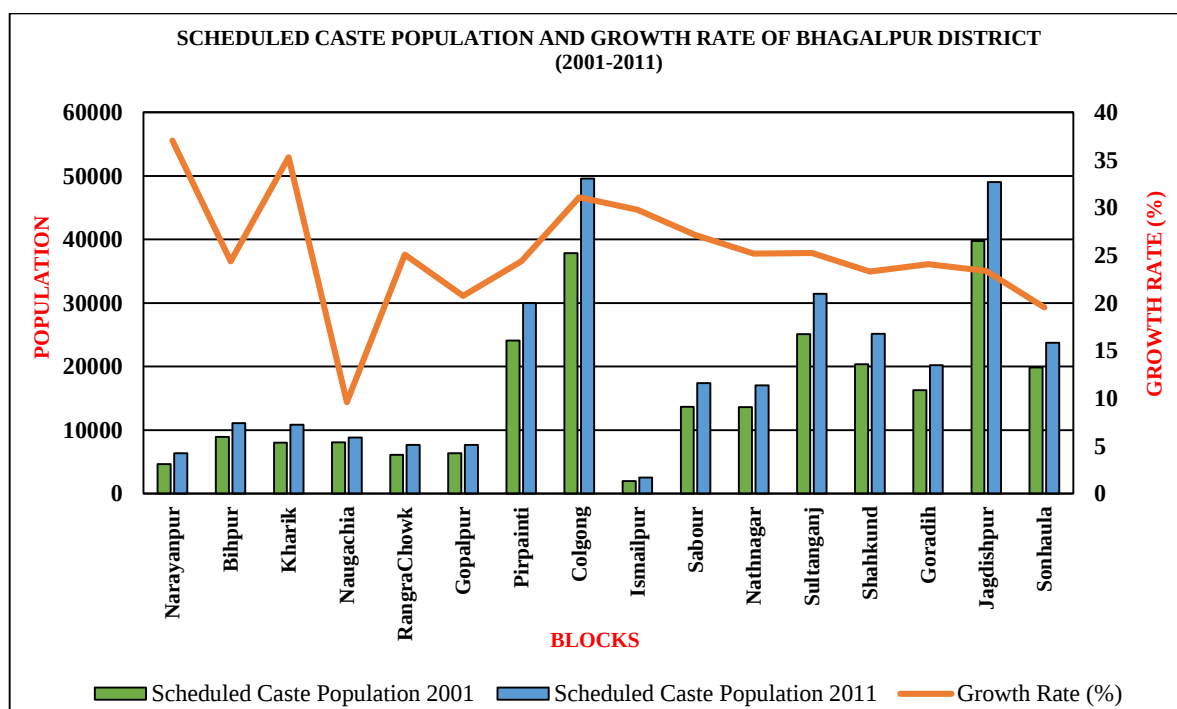


Figure 2: Scheduled Caste Population & Growth Rate of Bhagalpur District (2001- 2011)

2. Block-Wise Changes in the Scheduled Caste Sex Ratio (2001-2011)

The Scheduled Caste sex ratio in Bhagalpur District during 2001–2011 reveals considerable spatial variation among the blocks, as shown in **Table 2**. At the district level, the Scheduled Caste sex ratio remained unchanged at 877 females per 1,000 males in both census years. Among the sixteen blocks, seven blocks recorded an improvement in the Scheduled Caste sex ratio. Bihpur experienced the greatest

positive change, increasing by 28 points from 855 in 2001 to 883 in 2011. It was followed by Sultanganj (+15), Narayanpur (+14), Naugachia (+13), Kharik (+9), Rangra Chowk (+9), and Nathnagar (+9). Shahkund recorded no change, maintaining a sex ratio of 881 in both census years. In contrast, eight blocks experienced a decline in the Scheduled Caste sex ratio. The most significant decline was observed in Ismailpur, where the sex ratio decreased by 96 points from 958 in 2001 to 862 in 2011. Gopalpur also recorded a considerable decline of 28 points. Other blocks showing negative changes were Goradih (−8), Pirpainti (−6), Colgong (−3), Sonhaura (−3), Jagdishpur (−2), and Sabour (−1). Overall, this indicates an uneven pattern of change in the Scheduled Caste sex ratio across Bhagalpur District. Although several blocks recorded improvement during 2001–2011, the district-level sex ratio remained stagnant due to declining trends in other blocks. The findings highlight significant block-level disparities in the gender composition of the Scheduled Caste population during the study period. The improvement in the sex ratio in some blocks may indicate gradual progress in female survival, healthcare access, and awareness regarding gender equality. On the other hand, the decline observed in blocks such as Ismailpur and Gopalpur may reflect differences in migration, socio-cultural practices, or unequal access to health and educational facilities.

Table 2: Block-wise changes in Scheduled Caste Sex Ratio of Bhagalpur district (2001-2011)

Sl. No.	Blocks	Scheduled Caste Sex - Ratio		Changes
		2001	2011	
1.	Narayanpur	869	883	+14
2.	Bihpur	855	883	+28
3.	Kharik	871	880	+9
4.	Naugachia	847	860	+13
5.	RangraChowk	861	870	+9
6.	Gopalpur	899	871	-28
7.	Pirpainti	876	870	-6
8.	Colgong	878	875	-3
9.	Ismailpur	958	862	-96
10.	Sabour	867	866	-1
11.	Nathnagar	880	889	+9
12.	Sultanganj	871	886	+15
13.	Shahkund	881	881	0
14.	Goradih	870	862	-8
15.	Jagdishpur	873	871	-2
16.	Sonhaura	903	900	-3
District Total		877	877	0

Sources: Census Handbook of Bhagalpur District (2001 & 2011)

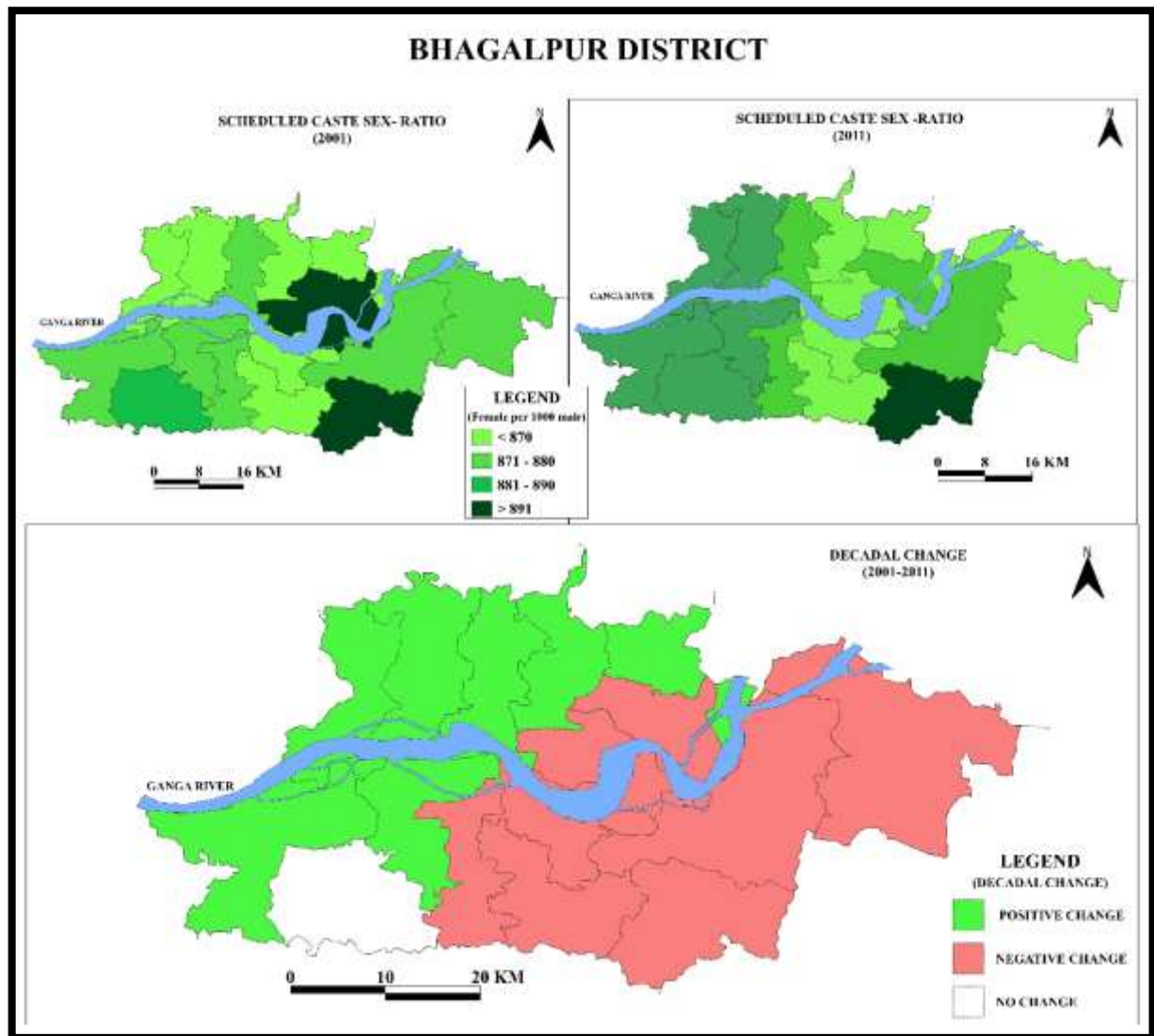


Figure 3: Map of Scheduled Caste Sex Ratio of Bhagalpur District (2001-2011)

3. Changes In Scheduled Caste Population Growth and Sex Ratio

The comparative analysis of Scheduled Caste population growth and sex ratio across the blocks of Bhagalpur District reveals considerable spatial variation during 2001–2011. At the district level, the Scheduled Caste population recorded a growth rate of 25.08 per cent, while the sex ratio remained unchanged at 877 females per 1,000 males. Among the sixteen blocks, Narayanpur recorded the highest population growth rate of 37.02 per cent, followed by Kharik (35.28 per cent) and Colgong (31.10 per cent). In contrast, Naugachia recorded the lowest population growth rate of 9.58 per cent. However, a higher population growth rate did not always correspond with an improvement in the sex ratio. For example, Narayanpur and Kharik experienced high population growth along with positive changes in sex ratio, whereas Colgong recorded high population growth but a decline of 3 points in sex ratio. The pattern of sex ratio changes also varied considerably among the blocks. Bihpur recorded the greatest improvement of 28 points, followed by Sultanganj (15 points) and Narayanpur (14 points). On the other hand, Ismailpur experienced the largest decline of 96 points despite recording a relatively high population growth rate of 29.78 per cent. Similarly, Gopalpur showed a decline of 28 points in sex ratio with a population growth

rate of 20.76 per cent. Shahkund recorded no change in sex ratio, while its Scheduled Caste population increased by 23.29 per cent. Overall, the comparison indicates that all blocks experienced growth in the Scheduled Caste population, but changes in the sex ratio showed an uneven pattern. Seven blocks recorded an improvement, eight blocks experienced a decline, and one block showed no change in sex ratio. Thus, the findings suggest that population growth and changes in sex ratio did not follow a uniform pattern across the blocks of Bhagalpur District, highlighting clear spatial disparities in the demographic characteristics of the Scheduled Caste population during 2001–2011. The comparison demonstrates that higher population growth does not necessarily correspond to improvement in the sex ratio. This suggests that different demographic and socio-economic processes influence population growth and gender composition. Therefore, block-specific planning is required instead of adopting a uniform development strategy.

Table 3: Block-wise Scheduled Caste Population Growth and Sex Ratio Change (2001–2011)

Sl. No.	Blocks	Scheduled Caste Population (2001)	Scheduled Caste Population (2011)	Growth Rate (%)	Scheduled Caste Sex Ratio		Changes
					2001	2011	
1.	Narayanpur	4651	6373	37.02	869	883	+14
2.	Bihpur	8911	11082	24.36	855	883	+28
3.	Kharik	8029	10862	35.28	871	880	+9
4.	Naugachia	8065	8838	9.58	847	860	+13
5.	RangraChowk	6123	7659	25.09	861	870	+9
6.	Gopalpur	6343	7660	20.76	899	871	-28
7.	Pirpanti	24098	29971	24.37	876	870	-6
8.	Colgong	37825	49589	31.10	878	875	-3
9.	Ismailpur	1958	2541	29.78	958	862	-96
10.	Sabour	13675	17384	27.13	867	866	-1
11.	Nathnagar	13626	17059	25.19	880	889	+9
12.	Sultanganj	25089	31425	25.25	871	886	+15
13.	Shahkund	20381	25127	23.29	881	881	0
14.	Goradih	16293	20215	24.07	870	862	-8
15.	Jagdishpur	39746	49031	23.36	873	871	-2
16.	Sonhaura	19873	23753	19.52	903	900	-3
District Total		254686	318569	25.08	877	877	0

Sources: Compiled by Author

7. SUGGESTIONS

The study suggests that special attention should be given to Ismailpur, Gopalpur, Goradih, and Pirpainti, as these blocks recorded a decline in the Scheduled Caste sex ratio during 2001–2011. This indicates the need for targeted interventions in women's education, maternal and child healthcare, gender awareness programmes, and the effective implementation of government welfare schemes to improve the demographic status of the Scheduled Caste population. Efforts should be made to improve access to education, healthcare, maternal and child welfare services, and employment opportunities for the Scheduled Caste population. Government agencies should strengthen the implementation of schemes related to women's empowerment and the protection of the girl child to improve the sex ratio. Regular monitoring of demographic indicators at the block level should be undertaken to identify emerging regional disparities. Furthermore, future studies may incorporate socio-economic variables such as literacy, occupational structure, migration, and urbanisation to better understand the factors influencing changes in the Scheduled Caste population and sex ratio in the district.

8. CONCLUSION

The present study demonstrates that the Scheduled Caste population in Bhagalpur District has undergone notable demographic changes over the study period, with considerable spatial variation across the blocks. The analysis reveals that the patterns of population growth and sex ratio are not uniform, indicating significant regional disparities within the district. The findings further suggest that changes in population growth are not necessarily accompanied by improvements in the sex ratio, highlighting the influence of socio-economic, cultural, and demographic factors on the gender composition of the Scheduled Caste population. The observed block-level variations underscore the importance of adopting a geographically informed approach to demographic analysis. The observed spatial disparities indicate that demographic change among the Scheduled Caste population is not uniform across Bhagalpur District. The findings suggest that local socio-economic and geographical conditions influence demographic outcomes differently across the blocks. Therefore, development policies should adopt a block-specific approach to reduce regional inequalities. Overall, the study provides valuable insights into the spatial dynamics of the Scheduled Caste population and sex ratio, which can support evidence-based planning and policy formulation for achieving balanced and inclusive regional development in Bhagalpur District.

REFERENCES

1. Census of India, 2001. District Census Handbook: Munger. Series 11, Part XII-A & B. Directorate of Census Operations, Bihar: Government of India.
2. Census of India, 2011. District Census Handbook: Munger. Series 11, Part XII-A & B. Directorate of Census Operations, Bihar: Government of India.
3. Chandna, R. C. (2014). Geography of population: Concept, determinants and patterns. Kalyani Publications.
4. Kumar, R., & Kumar, P. (2025). Growth & changes in population and sex ratio in Munger District, Bihar, India. *International Journal for Multidisciplinary Research*, 7(6).
5. Kumari, S. (2024). Analysis of distribution and changes in the sex structure of Ranchi District (Jharkhand). *International Journal of Social Sciences and Management Review*, 7(1), 176.
6. Majumdar, P. K. (2013). India's demography: Changing demographic scenario in India. Rawat Publications.

7. Poonia, M. (2015). A micro-level study of sex ratio in Birbhum and Murshidabad districts of West Bengal (2011). *International Journal of Research in Social Sciences*, 5, 325–338.
8. Ravikumar, S. (2018). Inclusive growth of Scheduled Caste population in Karnataka. *Journal of Emerging Technologies and Innovative Research*, 5(7).
9. Salve, P. N. (2022). Investigation of sex ratio in Scheduled Castes (SC) in Ahmednagar District. *International Journal of Science and Research*, 11(1).
10. Sutar, S. V. (2020). A study on demographic parameters: Sex ratio and literacy rate of Scheduled Caste people of Maharashtra: Census 2011 statistical approach. *International Journal of Advanced Research, Ideas and Innovations in Technology*, 6, 359–363.
11. Vipin, K., & Yadav, A. (2018). The study of sex ratio among the Scheduled Castes population in Haryana (2001–2011). *International Journal of Research and Analytical Reviews*, 5(1), 234–240.
12. Yadav, H. R., & Singh, S. (2023). Demographic changes and population growth in Gorakhpur District: Recent trends and status. *Research Journal of Humanities and Social Sciences*.
13. Yadav, J. P. (2004). *Population geography* (Vol. 1). Institute for Sustainable Development.