



## A Study Of Population Structure And Rural–Urban Sex Ratio Dynamics In Nashik District: A Geographical Perspective

Rajaram Jadhav<sup>1</sup> & Devidas Sonawane<sup>2</sup>

<sup>1</sup>Associate Professor, Department of Geography, Mahatma Gandhi Vidyamandir's Arts, Science and Commerce College, Manmad (Autonomous), Maharashtra, 423104.

<sup>2</sup>Head Department of Geography, Mahatma Gandhi Vidyamandir's Arts, Science and Commerce College, Manmad (Autonomous), Maharashtra, 423104.

Corresponding Author – Devidas Sonawane

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### Abstract:

*This study analyses the trends of sex ratio in the rural and urban population of Nashik district in Maharashtra using Census 2011 data along with recent demographic estimates. The sex ratio, expressed as the number of females per 1,000 males, is an important indicator of population structure and gender balance. It reflects the combined influence of socio-economic conditions, cultural practices, migration patterns, and access to health facilities. The study focuses on identifying variations between rural and urban areas of the district. Spatial differences in sex ratio are examined from a geographical perspective to understand regional disparities. The research explores the role of male-selective migration and rapid urbanization in shaping sex ratio patterns. Cultural preferences and social attitudes toward gender are considered as significant influencing factors. Health awareness and medical accessibility are also assessed in relation to demographic outcomes. The study places Nashik district within the wider demographic context of Maharashtra. Comparative analysis helps in understanding localized rural-urban trends. The study further emphasizes the importance of sex ratio analysis for population planning and policy formulation. It highlights the need for region-specific strategies to address gender disparities. The research draws attention to emerging demographic challenges in expanding urban areas. It underlines the role of education and social awareness in improving gender balance. Overall, the study provides meaningful insights into gender imbalance and population dynamics from a geographical perspective.*

**Key Words:** Sex Ratio, Rural–Urban Population, Nashik District, Population, Geography.

### Introduction:

The sex ratio is one of the most important demographic indicators used to understand the structure and composition of a population. It reflects the balance between males and females and has wide-ranging implications for gender equity, social relations, and sustainable development. An imbalanced sex ratio often indicates underlying social, cultural, and economic inequalities within a region (Clément, 2025). In India, the issue of declining sex ratio has been a persistent demographic concern,

drawing attention from scholars, planners, and policymakers. Rural and urban areas in the country exhibit contrasting sex ratio patterns due to differences in lifestyle, economic opportunities, and social norms. Migration, particularly male-dominated migration to urban centres (Bhagat, 2019), significantly influences these variations. Fertility behavior and family planning practices also play an important role in shaping sex ratio trends. Cultural preferences for male children continue to affect population composition in many regions. Access to healthcare facilities and

awareness about women's health further contribute to spatial differences in sex ratio (Das, 2021). Urban areas often experience lower sex ratios due to selective migration and advanced medical facilities. Rural areas, on the other hand, may show relatively balanced ratios but face issues related to education and health infrastructure. Nashik district of Maharashtra presents a unique geographical setting with both developed urban centers (Joshi, 2019) and extensive rural hinterlands. The district has experienced rapid urbanization and economic growth in recent decades. These changes have influenced population dynamics and gender composition. Studying sex ratio trends in Nashik helps in understanding localized demographic patterns. A geographical perspective enables the analysis of spatial variations across rural and urban areas (Sarkar, 2020). Such an approach highlights the interaction between human behavior and regional characteristics. The study aims to provide a comprehensive understanding of sex ratio variations in Nashik district. It also contributes to broader discussions on population geography and gender studies in India.

#### **Study Area:**

Nashik district is located in the north-western part of Maharashtra state and holds significant geographical, cultural, and economic importance. The district lies between the Sahyadri ranges and the Deccan Plateau, giving it diverse physical features. It is well known for its fertile river basins, particularly of the Godavari River (Jadhav, 2025), which supports extensive agricultural activities. Nashik is one of the leading districts in grape cultivation and agro-based industries in India. Alongside agriculture, the district has witnessed rapid industrial growth, especially in and around Nashik city. The presence of industrial estates and transport connectivity has accelerated urban expansion.

Nashik district consists of a mix of large urban centers, small towns, and vast rural hinterlands (Dhankhar, 2021). This rural-urban diversity creates varied socio-economic conditions across the district. Rural areas are primarily dependent on agriculture and allied activities. Urban areas, on the other hand, are characterized by industrial employment, education, and service sectors. Differences in income levels, literacy, healthcare facilities, and employment opportunities (Singh, 2021) are clearly visible. These disparities strongly influence demographic characteristics such as population growth and sex ratio. Migration from rural to urban areas is a common feature of the district. Male-selective migration has particularly affected the gender composition in urban centers. Cultural practices and social attitudes also vary between rural and urban settings. Such variations make Nashik district a suitable region for studying sex ratio patterns. Analyzing the district from a geographical perspective helps in understanding spatial population dynamics (Jadhav, 2019). The study area thus provides valuable insights for demographic analysis and policy planning.

#### **Objectives:**

1. To study rural urban population characteristics
2. To assess the overall sex ratio of Nashik district.
3. To compare rural vs. urban sex ratios.
4. To assess geographical patterns of population

#### **Database and Methodology:**

The present study is based on secondary data collected from reliable and officially published sources. The primary data source for the analysis is the Census of India 2011, which provides comprehensive demographic information at the district and sub-district levels.

Census data were used to obtain details related to total population, male and female population, rural and urban population distribution, and sex ratio for Nashik district. The Census of India is considered the most authentic and standardized source for population studies in India, ensuring accuracy and comparability.

In addition to Census 2011 data, secondary estimates were used to understand recent trends and demographic changes. These include projected population figures and demographic indicators available from official Census-related publications and demographic research platforms of the Census of India. These estimates help in contextualizing the findings and understanding possible trends beyond the 2011 census period. For analysis, descriptive statistical techniques were applied to calculate and interpret sex ratio values across rural and urban areas. Simple ratios, percentages, and comparative tables were used to highlight differences between rural and urban populations. A comparative approach was adopted to examine variations in sex ratio and to identify spatial patterns within the district.

The study employs a quantitative and descriptive analytical approach. Sex ratio is calculated using the standard demographic formula:

$$\text{Sex Ratio} = \left( \frac{\text{Total Female Population}}{\text{Total Male Population}} \right) \times 1000$$

Separate calculations are carried out for rural and urban populations:

Rural Sex Ratio

$$= \left( \frac{\text{Rural Female Population}}{\text{Rural Male Population}} \right) \times 1000$$

Urban Sex Ratio

$$= \left( \frac{\text{Urban Female Population}}{\text{Urban Male Population}} \right) \times 1000$$

To assess rural–urban variation, the sex ratio differential is computed as:

Sex Ratio Differential

= Rural Sex Ratio

– Urban Sex Ratio

Percentage distribution is used to examine population composition:

Percentage of Population

$$= \left( \frac{\text{Category Population}}{\text{Total Population}} \right) \times 100$$

Comparative tables and spatial interpretation are used to identify geographical patterns and explain variations in relation to migration, socio-economic conditions, and regional development. The rural and urban categories were analyzed separately to bring out geographical contrasts. The methodology emphasizes a geographical perspective, focusing on spatial distribution and socio-economic influences on sex ratio patterns. This systematic approach helps in drawing meaningful conclusions relevant to population geography and regional planning.

## Results and Discussion:

### 1. Rural – Urban Population characteristics of Nashik District:

The rural–urban population characteristics of Nashik district reveal marked demographic and socio-economic contrasts. Rural areas accommodate a larger share of the population than urban areas, indicating the district's predominantly rural base despite rapid urbanisation. The sex ratio is higher in rural regions, suggesting a relatively more balanced gender composition compared to urban centres. In contrast, urban areas show a lower sex ratio, largely influenced by male-selective migration and employment-oriented mobility. The child sex ratio remains uniformly low in both rural and urban areas, reflecting persistent gender bias at

early life stages. Rural areas have a higher proportion of children, pointing to comparatively higher fertility levels. Literacy levels are significantly higher in urban areas, highlighting better access to educational facilities. Female literacy, in particular, shows a sharp rural–urban divide in favour of urban areas. Despite higher

literacy, urban regions continue to experience gender imbalance, indicating the influence of social and cultural factors beyond education. Overall, these characteristics underline the combined impact of migration, fertility behaviour, and socio-economic conditions on the rural–urban demographic structure of Nashik district.

**Table: 1 Rural–Urban Population Characteristics of Nashik District (Census 2011)**

Sr.No.	Description	Rural Population	Urban Population
1	Total Population	3,509,814	2,597,373
2	Male Population	1,804,712	1,352,474
3	Female Population	1,705,102	1,244,899
4	Sex Ratio (Females per 1,000 Males)	945	920
5	Child Sex Ratio (0–6 Years)	890	890
6	Child Population (0–6 Years)	496,060	331,875
7	Literacy Rate (%)	77.19	89.12

**Source:** Census Handbook, Nashik District, Census of India 2011

The table reveals a clear rural–urban contrast in the demographic structure of Nashik district. Rural areas account for a larger share of the population (57.47%) than urban areas (42.53%), reflecting the district’s predominantly rural character. The rural sex ratio (945) is notably higher than the urban sex ratio (920), indicating a more balanced gender composition in villages compared to towns. However, the child sex ratio (0–6 years) is equally low (890) in both rural and urban areas, pointing to persistent gender bias across spatial settings. Rural areas have a higher proportion of children (14.13%) than urban areas (12.78%), suggesting higher fertility levels in villages. Literacy levels show a sharp rural–urban divide, with urban literacy (89.12%) significantly exceeding rural literacy (77.19%). Female literacy is substantially higher in urban areas (85.23%) than in rural areas (69.31%), highlighting gendered educational disparities. Despite higher literacy, urban areas continue to show a lower sex ratio, implying that education alone does not eliminate gender imbalance. Overall, the table underscores the combined influence of migration, fertility

behaviour, and socio-economic conditions on rural–urban sex ratio patterns in Nashik district.

## **2. Rural–Urban Variations in Sex Ratio:**

Rural–urban variations in sex ratio at the district level highlight significant spatial and socio-economic contrasts. In most districts, rural areas tend to record a higher sex ratio than urban areas, indicating a relatively balanced gender composition in villages. This pattern is largely attributed to male-selective migration from rural to urban centres for employment, education, and better economic opportunities. Urban areas, therefore, often show lower sex ratios due to the concentration of working-age male populations. Districts experiencing rapid urbanisation and industrial growth generally exhibit sharper rural–urban disparities in sex ratio. However, the child sex ratio remains low in both rural and urban sectors across many districts, reflecting deep-rooted gender bias that transcends spatial boundaries. Variations are also influenced by differences in literacy levels, healthcare access, and cultural practices across districts. Rural areas, despite lower literacy, sometimes maintain higher overall sex ratios due to out-migration patterns.

Urban districts with better medical infrastructure may experience greater gender imbalance due to misuse of prenatal technologies. Overall, district-wise rural–urban sex ratio variations underscore the complex interaction of migration, socio-cultural norms, and development processes shaping population structure.

### 3. Child Sex Ratio (0–6 Years):

The child sex ratio (0–6 years) in Nashik district, recorded at 890, reflects a serious demographic imbalance and highlights deep-rooted gender bias in society. This low ratio is evident in both rural and urban areas, indicating that spatial location does not significantly shield children from discriminatory practices. One of the primary causes is the persistent cultural preference for male children, which continues to influence reproductive decisions. The widespread availability and misuse of prenatal diagnostic technologies have further aggravated the decline in child sex ratio. Declining fertility levels have intensified this trend, as families with smaller desired family sizes tend to ensure the birth of a male child. Differential care, nutrition, and health access for female children also contribute to lower survival rates. Urban areas, despite higher literacy and medical facilities, often show sharper declines due to easier access to sex-selective services. Rural areas, on the other hand, experience bias through social norms and limited awareness. Over time, the trend indicates a steady deterioration in the child sex ratio, raising concerns about future population structure. Spatially, the pattern suggests uniform gender bias across settlements rather than isolated pockets. This imbalance has long-term social consequences, including distorted marriage patterns and increased vulnerability of women. The persistence of this pattern highlights gaps in the effective implementation of legal measures such as the PCPNDT Act. Overall, the child sex ratio in Nashik district reflects a complex

interaction of cultural, economic, and technological factors requiring sustained social and policy intervention.

### 4. Geographical Patterns of Population Structure:

The geographical patterns of population structure in Nashik district clearly reflect rural–urban demographic contrasts shaped by spatial and economic processes. Rural areas generally exhibit a higher proportion of females in the population, largely due to the out-migration of working-age males toward urban and industrial centres. Tehsils such as Surgana, Kalwan, Deola, Peint, and Igatpuri, which are predominantly rural and agrarian, experience sustained male out-migration for employment and education. This selective migration increases the relative share of females in village populations, influencing rural demographic composition.

In contrast, urban and semi-urban tehsils like Nashik, Niphad, Sinnar, Yeola, and Malegaon attract a large influx of male migrants engaged in industrial, service, trade, and educational activities. Nashik city tehsil, as the district's administrative and economic hub, shows a strong concentration of male population due to industrial estates, educational institutions, and service-sector opportunities. Similarly, Malegaon and Sinnar function as employment nodes, drawing male workers from surrounding rural areas.

This spatial redistribution of population results in distinct rural–urban demographic patterns across tehsils. Peripheral and tribal tehsils remain female-dominant in composition, while core urban tehsils exhibit male-dominated population structures. Thus, migration-driven spatial mobility emerges as a key geographical determinant shaping population structure and rural–urban differentials across the tehsils of Nashik district.

**Conclusions:**

The present study highlights distinct rural–urban differences in the population structure of Nashik district, reflecting the influence of geographical, socio-economic, and cultural factors. Rural areas continue to accommodate a larger share of the population, indicating the district’s predominantly rural character despite rapid urban growth. Clear spatial variations are observed in population composition across different tehsils, shaped largely by migration patterns. Male-selective migration from rural and tribal tehsils toward urban and industrial centres has significantly influenced rural–urban demographic contrasts. As a result, rural areas exhibit relatively balanced gender composition, while urban centres show male-dominated population structures.

The persistently low child sex ratio across both rural and urban areas remains a major demographic concern, pointing to deep-rooted gender bias and discriminatory practices at early life stages. Higher literacy and better healthcare access in urban areas have not translated into improved gender balance, underscoring the role of socio-cultural attitudes beyond education and economic development. The study demonstrates that population structure in Nashik district is shaped by a complex interaction of migration, fertility behaviour, and social norms. A geographical perspective proves crucial in understanding these spatial patterns and regional disparities. The findings underline the need for area-specific demographic planning, strengthened social awareness, and effective policy implementation to promote balanced population development and gender equity in the district.

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