



Demographic and Spatial Analysis of Tribal Population in Ahilyanagar District, Maharashtra

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Abstract:

This study explores the spatial and temporal patterns of tribal population distribution in Ahilyanagar district of Maharashtra, with a focus on population growth, density, literacy, and sex ratio. The research is based on secondary data obtained from the Census of India for 2001 and 2011. Geographical factors, including physiography, climate, land use, natural resource availability, and accessibility, significantly influence the settlement and concentration of tribal communities across the district. The analysis reveals notable inter-tehsil variations in tribal population density and distribution, reflecting the impact of both physical environment and socio-economic factors.

Spatio-temporal analysis shows a steady increase in tribal population over the decade, indicating improved survival conditions and demographic transition. The sex ratio also improved from 974 females per 1000 males in 2001 to 979 in 2011, suggesting gradual progress in health care access and social conditions. Literacy among the tribal population is increasing, though at a slower pace compared to non-tribal groups, with persistent gender disparities as female literacy continues to lag behind male literacy in most tehsils.

The study emphasizes the importance of understanding tribal population structure for regional planning and development. Improving literacy, especially among tribal women, emerges as a key strategy for reducing poverty, addressing social inequalities, and promoting sustainable socio-economic development in tribal regions.

Keywords: Tribal Population, Sex Ratio, Literacy Rate, Population Growth, Spatial Distribution.

Introduction:

India is the second-largest country in the world in terms of tribal population, after Africa, and is home to a rich diversity of indigenous communities commonly referred to as Scheduled Tribes or Adivasis (Xaxa, 2001). These tribal societies represent one of the oldest human civilizations, with their origins tracing back nearly 5000–6000 B.C. Historically, tribal communities gradually retreated into relatively inaccessible regions such as hills, forests, plateaus, and valleys due to successive migrations and invasions by Indo-Aryans, Dravidians, and

Mongoloid groups from the northwest, south, and northeast, respectively. This historical process has significantly influenced the present spatial distribution of tribal populations in India (Subramanian et al., 2006).

In Ahilyanagar district of Maharashtra, tribal communities are predominantly concentrated in hilly terrains, forested tracts, valleys, and hill slopes, where physical isolation has provided both protection and a suitable ecological setting for their traditional livelihood systems. Living in close harmony with nature, these communities have developed indigenous

knowledge systems related to the sustainable use of land, water, forests, and other natural resources (Chanana, 1993). The interaction between physical geography and socio-cultural practices has shaped distinct settlement patterns and population characteristics among tribal groups in the district.

Despite India's recent economic growth, the health, education, and human development indicators of Scheduled Tribes continue to lag behind national and regional averages. Persistent disparities are observed in literacy levels, nutritional status, health outcomes, and access to basic amenities among tribal populations (Salunke, 2013; Sarkar et al., 2006). Several studies emphasize the need for targeted public health and development interventions to reduce morbidity, mortality, and overall socio-economic vulnerability among tribal communities (Mohindra & Labonté, 2010; Bisen & Kudnar, 2013; Salunke et al., 2020).

In this context, geographical analysis of tribal population characteristics becomes crucial for understanding spatial inequalities and for framing effective, region-specific planning strategies. The examination of demographic indicators such as population distribution, literacy, and health outcomes within a spatial framework provides valuable insights for inclusive and sustainable tribal development.

Study Area:

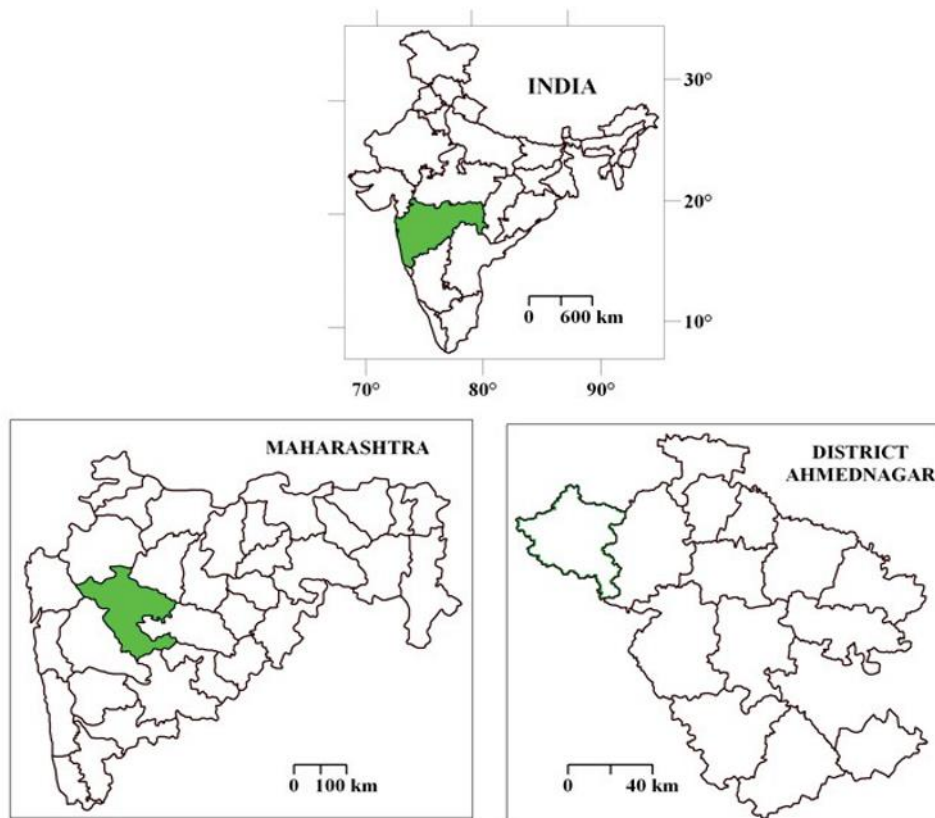
Ahilyanagar district is located in the central part of Maharashtra and occupies an

important geographical position between the upper Godavari and Bhima river basins. The district lies between 18°02' and 19°09' North latitudes and 73°09' and 75°05' East longitudes. It is the largest district in the state in terms of areal extent, covering about 17,053 sq. km, which constitutes nearly 5.66 per cent of Maharashtra's total geographical area. According to Census records, the district has a population of approximately 3.37 million.

Physiographically, Ahilyanagar district is dominated by an extensive plateau region that forms an interfluvium between the Godavari and Bhima river systems. The relief shows considerable variation, ranging from the highest elevation at Kalsubai Peak (1,646 metres) in Akole tehsil to the lowest elevation of about 450 metres in the Godavari valley of Shevgaon tehsil. These variations in altitude strongly influence drainage characteristics, land use patterns, and settlement distribution.

Climatically, the district lies in the rain-shadow zone of the Western Ghats and experiences a predominantly hot and dry climate. The average annual rainfall is around 579 mm, with noticeable spatial variation across the district. Summers are marked by high temperatures, with average maximum temperatures reaching about 36°C, while winters are comparatively mild, with minimum temperatures around 10°C. These climatic conditions significantly affect agriculture, water availability, and the socio-economic life of the region.

Location, Situation and Site Map of Study Area

**Objectives:**

The present study aims to analyse the demographic characteristics of the tribal population in Ahilyanagar district with reference to spatial and temporal variations. The specific objectives of the study are as follows:

1. To examine key demographic characteristics such as population growth rate, sex ratio, literacy level, and urban–rural composition of both tribal and non-tribal populations in Ahilyanagar district.
2. To compare these demographic indicators of the tribal and non-tribal populations at the district level with corresponding state and national averages based on Census data for the years 2001 and 2011.

Data and Methodology:

The present study is primarily based on secondary data sources. Demographic data related to the tribal and non-tribal population were obtained from the Census of India for the years 2001 and 2011. Additional information was collected from the Ahilyanagar District Gazetteer and the District Socio-Economic Abstract to supplement census data. Data specifically related to Scheduled Tribe population characteristics were sourced from the Tribal Research and Training Institute (TRTI), Pune. These sources provided reliable and comprehensive information for analysing the demographic and spatial characteristics of the study area.

A comparative and temporal approach was adopted to examine changes in population characteristics over the study period. Key demographic indicators such as population

growth rate, population distribution, sex ratio, literacy rate, and level of urbanization were computed using simple statistical indices. These indicators were analysed to identify spatial and temporal variations among tribal and non-tribal populations within the district.

In addition, relevant peer-reviewed literature was systematically reviewed to understand population health and development interventions undertaken in tribal areas. Only studies involving Scheduled Tribe populations, primary data collection, and measurable population health outcomes were considered.

The spatial distribution of Scheduled Tribes in Ahilyanagar district is closely linked to

physical geography. Tribal communities generally inhabit relatively inaccessible areas such as hill slopes, forested regions, and river valleys, which help preserve their distinct cultural identity, language, and traditions. Akole tehsil, characterized by dense forest cover, the valleys of the Pravara and Mula rivers, and the rugged terrain of the Sahyadri ranges including Kalsubai and Harishchandragad, provides a favourable ecological setting for tribal habitation. Consequently, Akole tehsil alone accounts for nearly 45 per cent of the total tribal population of the district.

Table No .01 Distribution of Scheduled Tribe in Ahilyanagar District

Sr.No.	Tehsils	Total Population	Total Population	Tribal population	Tribal population	% of tribal Population	%of tribal Population
		2001	2011	2001	2011	2001	2011
1	Akole	2,66,638	291950	1,21,566	139730	45.6	47.86
2	Sangamner	4,14,439	487939	41,297	51652	09.4	10.58
3	Kopergaon	2,77,170	302452	27,457	34377	09.9	11.36
4	Rahata	2,88,279	320485	15,425	20130	05.4	06.28
5	Shrirampur	2,56,458	287500	14,016	19556	05.5	06.80
6	Shevgaon	2,03,676	245714	3,277	4681	01.6	01.90
7	Newasa	3,26,698	357829	15,720	18894	04.5	05.28
8	Pathardi	2,14,872	258109	2,792	4118	01.3	01.59
9	Nagar	6,06,690	684044	10,228	14396	01.7	02.10
10	Rahuri	2,94,924	322823	27,913	34036	09.5	10.54
11	Parner	2,46,552	274167	12,074	17054	04.9	06.22
12	Shrigonda	2,77,356	315975	701	13870	02.7	04.38
13	Karjat	2,05,674	235792	2,310	3464	01.1	01.46
14	Jamkhed	1,34,216	158380	1,879	2272	01.4	01.43
	Ahilyanagar District	4040642	4543159	303255	378230	07.50	08.32

Source: 2001 and 2011 Census Report

In contrast, tehsils such as Karjat (1.1 per cent), Jamkhed (1.4 per cent), Pathardi (1.3 per cent), and Nagar (1.7 per cent) record a very low proportion of tribal population. This can be largely attributed to the absence of favourable physical and ecological conditions, such as dense vegetation cover, hill-valley terrain, and forest-based natural resources. These tehsils are predominantly characterized by open plateau

landscapes and intensive agricultural or urban land use, which are less conducive to traditional tribal livelihoods.

Social and cultural factors also influence this spatial pattern. Tribal communities generally prefer relatively isolated environments that support their traditional way of life and help preserve their socio-cultural identity. Areas with higher levels of road connectivity, accessibility,

and urban influence tend to attract non-tribal populations and promote rapid socio-economic transformation, thereby reducing the relative concentration of tribal groups. In tehsils such as Nagar, Karjat, Jamkhed, and Pathardi, improved transportation networks and greater accessibility have encouraged integration with mainstream economic activities.

Thus, it can be observed that the concentration of tribal population shows an inverse relationship with village accessibility and road connectivity. Regions with limited accessibility and rugged terrain continue to support higher tribal population concentration, while well-connected and developed areas exhibit a comparatively lower presence of tribal communities.

Population Growth:

The total population of Ahilyanagar district increased from 8,20,346 in 1901 to 42,38,318 in 2001, registering nearly a fivefold growth over a century. Except for the 1921 Census, all decadal enumerations show positive population growth, reflecting steady demographic expansion. During the decade 1991–2001, rapid population growth was observed in certain tehsils such as Parner (+43.19%), Shrigonda (+44.35%), and Sangamner (+35.57%). In contrast, Shrirampur tehsil recorded a negative growth rate (–18.58%), primarily due to administrative reorganization and the formation of Rahata as a separate tehsil. These variations highlight the influence of administrative and regional factors on population growth patterns.

Table No.02 Growth of Tribal Population in District

Sr. No.	Tehsils	1991 Tribal population	2001 Tribal population	(1991-2001) Growth Rate	2001 Tribal population	2011 Tribal population	2001-2011 Growth Rate
1	Akole	1,01,966	1,21,566	+19.22	1,21,566	139730	14.94
2	Sangamner	30,524	41,297	+35.57	41,297	51652	25.07
3	Kopargaon	25,713	27,457	+6.78	27,457	34377	25.20
4	Rahata	---	15,425	---	15,425	20130	30.50
5	Shrirampur	17,280	14,016	-18.58	14,016	19556	39.52
6	Shevgaon	2,526	3,277	+29.73	3,277	4681	42.84
7	Newasa	12,999	15,720	+20.93	15,720	18894	20.19
8	Pathardi	2,601	2,792	+7.34	2,792	4118	47.49
9	Nagar	8,371	10,208	+21.94	10,208	14396	41.02
10	Rahuri	20,981	27,913	+33.03	27,913	34036	21.93
11	Parner	8,432	12,074	+43.19	12,074	17054	41.24
12	Shrigonda	5127	7401	+44.35	7401	13870	87.40
13	Karjat	2,229	2,310	+ 3.90	2,310	3464	49.95
14	Jamkhed	1338	1879	+35.56	1879	2272	20.91
Ahilyanagar District		2,40,087	4,04,0642	15.82	4040642	4543159	12.43

Source: 2001 and 2011 Census Report

Sex Ratio:

Sex ratio is widely regarded as a sensitive indicator of the social, economic, and cultural development of a region, as it reflects gender relations, migration patterns, and societal values. In general, tribal societies tend to exhibit a comparatively higher proportion of females than non-tribal societies, which distinguishes them

from the broader demographic pattern observed in many parts of India.

Within Ahilyanagar district, considerable spatial variation in sex ratio is observed across tehsils. Parner tehsil records a relatively high sex ratio of 988 females per 1000 males. This can largely be attributed to its unfavourable physical environment and drought-prone conditions, which have resulted in large-scale out-migration of

males to urban and industrial centres such as Mumbai and Pune in search of employment. Such male-selective migration leads to a higher proportion of females in the source region. In contrast, Nagar tehsil records the lowest sex ratio in the district (901 females per 1000 males). The presence of the Maharashtra Industrial Development Corporation (MIDC) area and Ahilyanagar city has generated employment opportunities, attracting predominantly male migrants and thereby lowering the sex ratio.

Tribal-dominated tehsils generally display higher sex ratios compared to non-tribal areas. Akole (985) and Rahata (986) show relatively favourable sex ratios, while tehsils such as Ahilyanagar (963) and Newasa (966) record comparatively lower values. However, Pathardi

and Shevgaon tehsils present exceptions to the general pattern, indicating the influence of local socio-economic conditions.

The consistently higher sex ratio in tribal regions can also be explained by socio-cultural factors. In many tribal communities, women enjoy a relatively higher social status and play an important role in household and economic activities. Certain tribal groups follow matriarchal or mother-dominated social systems, where women hold significant decision-making power. Girls actively contribute to household work, and traditional practices such as bride price further enhance their social value. These cultural characteristics collectively contribute to a higher and more balanced sex ratio in tribal society.

Table No.03: Sex Ratio in Tribals

Sr.No.	Tehsils	Sex Ratio of Total Population	Sex Ratio of Tribal Population	Sex Ratio of Total Population	Sex Ratio of Tribal Population
		(2001)	(2001)	(2011)	(2011)
1	Akole	974	985	974	987
2	Sangamner	945	956	943	962
3	Kopargaon	929	953	942	982
4	Rahata	938	986	940	980
5	Shrirampur	949	973	962	999
6	Shevgaon	953	980	953	969
7	Newasa	937	966	934	987
8	Pathardi	951	988	926	963
9	Nagar	901	963	931	946
10	Rahuri	934	976	934	981
11	Parner	988	977	955	993
12	Shrigonda	939	976	923	933
13	Karjat	933	978	914	960
14	Jamkhed	949	974	920	935
Ahilyanagar District		940	974	939	979

Source: 2001 and 2011 Census Report

Rural–Urban Composition and Literacy Ratio:

The level of urbanization plays a significant role in shaping the economic and social structure of any region, offering opportunities for employment, education, and overall prosperity (Musmade, 2013). In Maharashtra, approximately 45.2 per cent of the population resides in urban areas. In contrast, Ahilyanagar district has a lower urban population,

with only 20.10 per cent of residents living in towns and cities according to the 2011 Census. Among Scheduled Tribes, the pattern is even more pronounced, as tribal communities tend to prefer rural and remote areas. Only 6.14 per cent of the tribal population resides in urban centres, compared to 20.10 per cent of the district population.

Ahilyanagar tehsil shows the highest urban concentration of tribal population at 31 per cent, followed by Rahuri (18%). In contrast, Pathardi and Shrigonda tehsils report very low urban tribal populations, less than 2.2 per cent. This limited urban presence reflects both the traditional lifestyle of tribal communities and their social preference for isolated habitats, as many of their subsistence activities—such as agriculture, forest gathering, hunting, and

fishing—cannot be carried out in urban environments.

Literacy among tribal communities continues to lag behind non-tribal populations. While the overall literacy rate of Maharashtra stands at 76.9 per cent, Ahilyanagar district reports a similar figure of 75.3 per cent. However, tribal literacy is considerably lower, with only 53.87 per cent of Scheduled Tribe individuals being literate.

Table No.04: Literacy Rate in Tribes

Region	1981		1991		2001		2011	
	Total	Tribal	Total	Tribal	Total	Tribal	Total	Tribal
Maharashtra	47.18	22.29	64.87	36.37	76.88	55.21	82.34	NA
Ahilyanagar	43.16	16.86	61.00	30.05	73.30	53.87	79.05	NA

Source: 2001 and 2011 Census Report

Akole tehsil records the highest literacy among tribes at 59.04 per cent, largely due to the presence of 27 Ashram schools providing boarding and lodging facilities under the Integrated Tribal Development Programme. Despite these initiatives, other tribal-concentrated tehsils such as Kopargaon, which has a significant tribal population, show much lower literacy levels (43.3%). Although tribal literacy has steadily increased over the decades, significant gaps remain between tribal and non-tribal populations, reflecting persistent socio-economic and cultural challenges in access to education.

Conclusion:

The analysis of demographic characteristics of the Scheduled Tribe population in Ahilyanagar district highlights that these communities are currently in a transitional phase. Despite over six decades of independence, many tribal areas continue to face socio-economic challenges, and the benefits of development schemes have often been limited due to administrative inefficiencies and corruption.

Nevertheless, gradual positive changes are evident.

Tribal communities consistently exhibit a higher sex ratio compared to the non-tribal population, reflecting their relatively balanced gender dynamics. Urbanization among tribal groups remains low, as they predominantly inhabit rural and remote areas, yet there is slow but steady progress. Literacy rates and educational attainment are improving, supported by initiatives such as Ashram schools and other tribal development programs.

Understanding the population structure of tribal communities is essential for effective planning and policy-making. Improved literacy and education can play a transformative role in reducing poverty, addressing social disparities, and enhancing overall quality of life. Empowering these communities through education and targeted development interventions remains a key pathway toward integrating them into the broader socio-economic fabric while preserving their unique cultural identity.

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