

## A Geographical Analysis of Distribution of Population in Marathwada.

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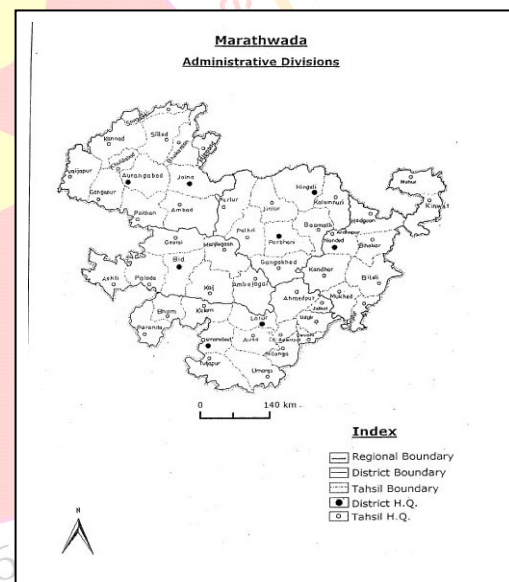
The concept of population distribution and density is a very useful tool to major the degree of population concentration or dispersion. Density of population per unit of area represents the ratio of population to land (Desai, 1985). Distribution of population of the study region is not only influenced by physiography and climate but-also the factors like historical events, soci-economic developments, cultural factors, urbanization and industrialization. Like any other region in India, the study region also showed an uneven pattern of population distribution. The districts located in river basins and have developed in agriculture and industrial sectors exhibits higher concentration of population. On the other hand, the districts having rugged terrain, scanty rainfall and infertile soils have very low concentration of population.

### Introduction :

The distribution of population is expressed in different ways to understand the population resource relationship. These ratios have been designated as arithmetic density, caloric density, physiological density and agricultural density. Population and land constitute the vital elements of on area. Hence the ratio between the two is important in all population studies. In this paper an attempt has been made to find out the relationship between geographical and socio-economic factors on the one hand and the distribution of population on the others.

### Study Region :

Marathwada, the study region occurs in the upper Godavari basin, which extends from 17°35' North latitude to 20° 41' North latitude and from 74°40' East longitude to 78° 16' East longitude. The study area is bordered on the north by Jalgaon, Buldhana, Washim and Yavatmal districts; to the east by Kamareddi, Nizamabad and Adilabad districts of Andhra Pradesh; to the south by Gulbarga and Bidar districts of Karanataka and to the west by Nasik, Ahmednagar and Solapur districts. Its shape is roughly triangular. East-west maximum extent is about 394 kms. and north-south extent is about 330 kms. Aurangabad is its divisional headquarter and the region is administratively known as, Aurangabad division of Maharashtra.



It has a total area of 64,663 sq. kms. which is 21.01 percent of the state and its population is 15589223 which is 16.11 percent of the state in the year 2001. Administratively the area is divided into eight districts that are further sub-divided into 75 tahsils in all (Fig. 1).

### Objectives:

1. To show the relationship between population and area.
2. To study the disparity in the distribution of population
3. To understand the concentration of population
4. To find out area per village, no of villages per 100km<sup>2</sup> and average population of the village.

**Methodology :**

Population data has been collected from socio-economic sources and Census handbook. The data was processed and tabulated in proportions. The Lorenz Curve is used to study the nature of distribution of population. Gini concentration ratio for the same data has been calculated using following formula :

$$\begin{aligned} &\text{Gini concentration index} \\ &= \left( \sum x_i y_i + 1 \right) - \left( \sum x_i + 1 y_i \right) \\ &= G_1 - G_2 \end{aligned}$$

$x_i$  is cumulative proportion of population  
 $y_i$  is cumulative proportion of units

**The Distribution of Population :**

There is profound impact of Geographical environment on the spatial distribution of population. Rural areas are marked by sparse distribution of population as compared with urban areas. The disparity is also felt when class one cities are compared with medium and small towns and when the latter are compared with villages.

According to 2001 census Marathwada has relatively high proportion of rural population which accounts for 75.42 percent population of the region. There are about 24.52% people living in 57 urban centres. There is a close relationship between relief features, usability of land, pattern of transport system and nature of economic activities, on the one hand and the distribution of population on the other. The population is thinly distributed due to the impact of relief particularly due to the Ajantha and Stamala hills and the Balaghat ranges.

On the other hand the population is thickly concentrated in the Godavari and the Manjara river basins, where the development of agriculture is relatively high. The impact of industrialization and consequent urbanization on distribution of population is clearly evident so that the urbanized areas, like Aurangabad-Jalana region, Nanded-Purna region and Latur-Parbhani regions, have thick population.

The distribution of population is directly influenced by accessibility and pattern of transport network. Hence the population is thick along Nanded-Aurangabad railway route. A second zone of relatively high concentration of population extends from Udgir to Parbhani along the Bangalore-

Manmad railway route. The regions which have larger urban centers show high percentage of the concentration of population. These are Nanded, Aurangabad and Parbhani districts of the region. It is concluded that the distribution of population is influenced by relief, fertility of soil and accessibility. Areas with better accessibility have high population concentration. The nature of the distribution of population in the study area has been studied with the help of Lorenz Curve for the year 2001. This shows that the distribution of population in Marathwada is relatively even. The disparity in the distribution of population is very limited due to limited disparity in the nature of relief and climate.

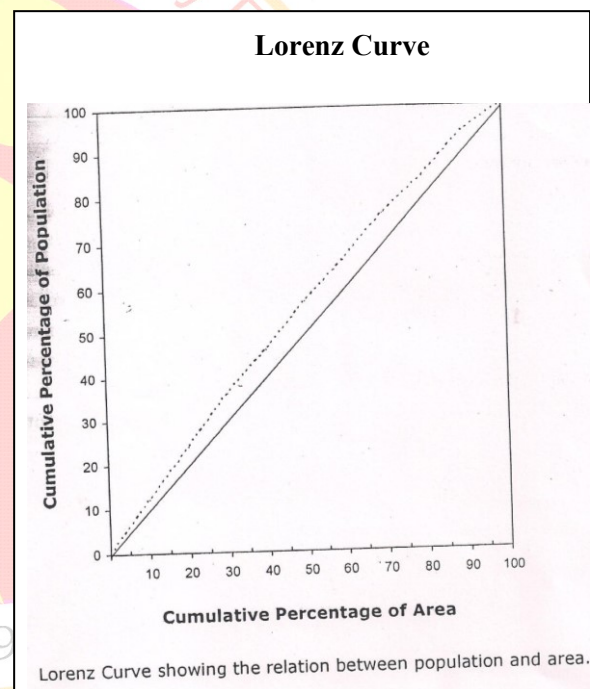


Fig No.2

The Gini concentration ratio is calculated to identify the concentration of population and shown in Table No. 01 The ratio computed for the region was 0.018. Which also shows uniform distribution of population (Fig.2).

**Table No.1**  
**Gini Concentration Ratio (2001)**

S r. N o	Districts	Proporti on		Cumula tive Proport ion		$X_1 \times Y_1$	$X_1 + 1 \times Y_1$
		Localities	Population	Localities	Population		
1	Beed	0.17	0.14	0.17	0.14	0.000	0.000
2	Nanded	0.16	0.08	0.33	0.32	0.046	0.054
3	Aurangabad	0.16	0.09	0.49	0.51	0.157	0.168
4	Jalana	0.12	0.10	0.61	0.61	0.311	0.299
5	Osmanabad	0.12	0.09	0.71	0.70	0.445	0.427
6	Latur	0.11	0.10	0.84	0.83	0.588	0.606
7	Parbhani	0.10	0.10	0.94	0.93	0.780	0.781
8	Hingoli	0.06	0.07	1.00	1.00	0.930	0.940
	Marathwada	1.00	1.00			3.257	3.275

The nature of distribution of population was analyzed by computing location quotient for different districts of Marathwada for the year 2001. Table No.2 showing location quotient levels that there is very limited disparity in the ratios calculated for different districts. This shows that there is limited disparity in the distribution of population in the region.

**Table No.2**  
**Location Quotients for Marathwada (2001)**

Sr. No.	Districts	Percent Population	Percent Area	Location Quotients
1	Latur	13.34	11.04	1.21
2	Nanded	18.40	16.24	1.13
3	Beed	13.85	16.50	0.84
4	Osmanabad	9.45	11.68	0.81
5	Aurangabad	18.73	15.59	1.20
6	Jalana	10.34	11.91	0.87
7	Parbhani	9.56	10.05	0.95
8	Hingoli	6.33	6.99	0.91
	Marathwada	16.11	21.08	0.76

Source : Based on census of India, 2001

Variations in the distribution of rural population are also reflected in rural settlement-density. Number of villages per 100 km<sup>2</sup> area varied from 16 for Hingoli and 15 for Nanded to 9 for Osmanabad and 10 for Jalana. In Hingoli district the villages are small both by population size and by area and consequently density of rural settlement is high, while in Osmanabad district the village area is large both by population size and by area and consequently rural settlement density is low.

Population is unevenly distributed even in rural areas of Marathwada. In 2001 the average population per village for the region was 1449. It was highest in Latur district, which was as high as 1738. This was followed by Osmanabad and Nanded districts. The lowest average population size was observed in Hingoli district, where it was as low as 1142. The average population per village is influenced by the proportion of flat-land and agriculture prosperity in general.

Higher location quotients above 1 were noticed for Latur, Nanded and Aurangabad districts. These districts are either agriculturally prosperous or industrially developed in Marathwada. The values of location quotient below 1 were found for Osmanabad, Beed and Jalana districts. These are economically backward districts of the study region where concentration of population is relatively less.

**Distribution of Rural Population and of villages by Population Size :**

Area per village, no. of village per 100 km<sup>2</sup> and average population per village have calculated and shown in table no. 3.

**Table No.3**

**Area per village, number of villages per 100 km<sup>2</sup> and population per village in Marathwada**

Sr.No.	Districts	Area per village km <sup>2</sup>	No. of villages per 100 km <sup>2</sup>	Average population of the villages
1	Latur	7.83	11	1738
2	Nanded	6.94	15	1438
3	Beed	8.42	12	1397
4	Osmanabad	10.57	09	1730
5	Aurangabad	7.77	11	1411
6	Jalana	8.07	10	1365
7	Parbhani	7.51	11	1360
8	Hingoli	6.80	16	1142
	Marathwada	7.99	11.88	1449

Based on census of India, 2001

It reveals that average area per village for the region was 7.99 km<sup>2</sup>, which varies from region to region. Highest area per village was noticed in Osmanabad district which was as high as 10.57 km<sup>2</sup> followed by Beed district having 8.42 km<sup>2</sup> area. These two district are characterized by hilly terrain and low fertility of soil. Lower area per village was noticed in Hingoli and Nanded districts which were 6.80 km<sup>2</sup> and 6.94 km<sup>2</sup> respectively.

**Conclusion**

The nature of distribution of population in the study area has been studied with the help of Lorenz curve, Gini concentration ratio and Location quotients. They reveal that the distribution of population in the region is uniform. This may be due to limited disparity in the nature of relief, climatic conditions, nature of economy, level of economic development and limited disparity in the level of industrialization and consequent urbanization in different parts of the study region.

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