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# A Study Of Dispersion Of Population In Amravati District-2011

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***Abstract***

*Populations are not uniformly distributed over the earth's landmass. Physical environments differ from place to place. Hence, it is essential for geographers to recognize how and where populations are distributed. The Hoover Index is the most widely used measure for assessing the concentration or deconcentration tendencies of a country's evolving population dispersion. In this paper, the authors propose alternative variants of the index designed to explore the influences of the various demographic components of change on settlement dynamics. The aim of this paper was to describe and analyze the geographical distribution of the population by using the Hoover index. This measure was introduced by Edgar Hoover in 1936 and it has been widely used in geography. By computing this index, we can allocate the region of population concentration and deconcentration in Amravati. General, conceptual structure of concentration and dispersion of population at different geographical levels is presented here. These differences in the pull off level of concentration in Amravati District are correlated with the development of population.*

***Keywords:****-Hoover Index , Dispersion, demographic components, Rural, Male, Female.*

**Introduction :-**

Populations are not uniformly distributed over the earth's landmass. Physical environments differ from place to place. Hence, it is essential for demographers to recognize how and where populations are distributed. Present spatial distribution as well as projections for the prospect is essential to a demographer's work. With an understanding of certain outlines, and of the factors that have noteworthy brunt on population density and the total population, it is possible to make projections of the development (or possible decline) in the universal population, and its spatial distribution.

The replica of population distribution, as well as the features that affect it, has been initiated by the American school of regional science in the 50s and 60s, and it was first recognized by the geographers in Sweden and England. The spatial distribution of populations and settlements across a country and their inter connectivity and convenience from urban centers are significant for delivering healthcare, distributing resources and economic growth. Three spatial characteristics persuade the economic progress of a region: the density (e.g. agglomeration, scale economies), the distance (e.g. spatial mobility and access) and division (e.g. the spatial integration of economies). The purpose of this note is to analyze mathematically the concentration of the spatial distribution of people in the negative exponential model of urban population density (Stewart 1947; Clark 1951). The knowledge of population distribution is the key to understand the individuality of geographic region. Old models of distribution generally treated dispersion, and the newer models, mainly from the 70s, treated polarization, that is, clustering of the population through spatial concentration (Hooson,1961).

**Study Area :-**

Amravati District is situated right in the centre of the northern border of Maharashtra state. It lies between 20° 30' and 21° 50' North latitudes and 76° 35' and 78° 27' East longitudes. It is bounded in the North by Madhya Pradesh State, in the East by Nagpur and Wardha Districts, in the south by Yavatmal and in the West by Washim, Akola and Buldhana Districts. The District headquarters is located at Amravati.It has been known as a principal cotton market. The District has an area of 12,210.0 sq.kms. and a population of 2,888,445 persons as recorded in Census 2011.

**Objectives :-**

To analyze the dispersion of population.

An attempt has been made to illustrate the dispersion of the above population with the help of this formula.

**Methodology :-**

Hoover's formula is used to measure the dispersion of the population.( Monkhouse,1972).

$$Ht = 1/2 (pit-ait)*100$$

Ht = Index for a specific period
pit = fraction of the population in the same year
ait = fraction of a specific area in a region taken in the same year

According to this formula, If the population is uniform throughout the nation then all sub areas will have similar population dispersion and Ht=0.The larger the value of Ht, the closer it is to 100, the more concentration the population is in particular areas.The closer the value is to 0 the less the population concentration. The Ht value is dependent upon the sub-area used.

Two regional scientists, Vining & Strauss , working at the University of Pennsylvania, have used the Hoover index to measure population concentration in the USA. They calculated the index for different area units from 1950 to 1976.

The dispersal of the population has been occurring at all levels since 1970.They suggest that this represents a 'clean break' with past patterns.(Vining, 1977). This formula is used to show the population of Amravati district. Using this formula, the population of Amravati district in the year 2011 is calculated as follows in terms of total population and rural population of Amravati district.

**Result and Discussion:**

**Dispersion of total population in Amravati district :-**

The Hoover Index is the most widely used measure for assessing the concentration or decon centration tendencies of a country's evolving population distribution. In this paper, the authors propose alternative variants of the index designed to explore the influences of the various demographic components of change on settlement dynamics. (Rogerson ,2012).

As per the Hoover's Index, if the total population of Amravati district is calculated for the 2011 census, the following points come to light. According to this formula, Fig No.1, we can see a continuous strip of the area or taluka where the Ht value is almost zero or the lowest. It is clear that the population is the same in all these areas.

According to the map, Amravati taluka has the highest population dispersion, followed by Chikhaldara taluka. The dispersion of moderate population is seen in Dharani taluka while the dispersion at Anjangaon Surji, Achalpur, Chandur Bazar, Warud, Nandgaon Khandeshwar, and Chandur Railway is between 1 to 4. Also, the total population of Morshi, Teosa, Bhatkuli Daryapur and Dhamangaon Railway is around 0.

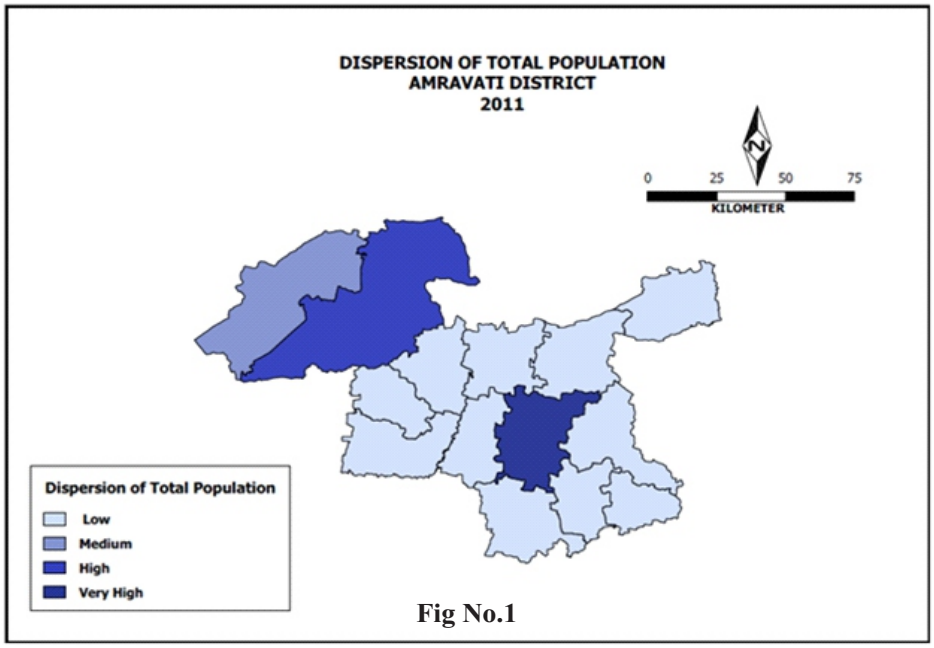



**Fig No.1**

Fig. No. 2, indicates that almost all the talukas in Amravati district are close to 0 to 3 Ht value. These include Dharani, Anjangaon Surji, Achalpur, Chandur Bazar, Morshi, Warud Tivasa, Amravati, Bhatkuli, Daryapur, Nandgaon, Khandeshwar, Chandur Railway, Dhamangaon Railway, Talukas is 0.6.

According to the presented map, only Chikhaldara taluka has Ht value of 14.9 Receipt Ht value of total rural population in the district is 19.02. This value is close to 0. This shows that the value of Ht is based on the sub area.

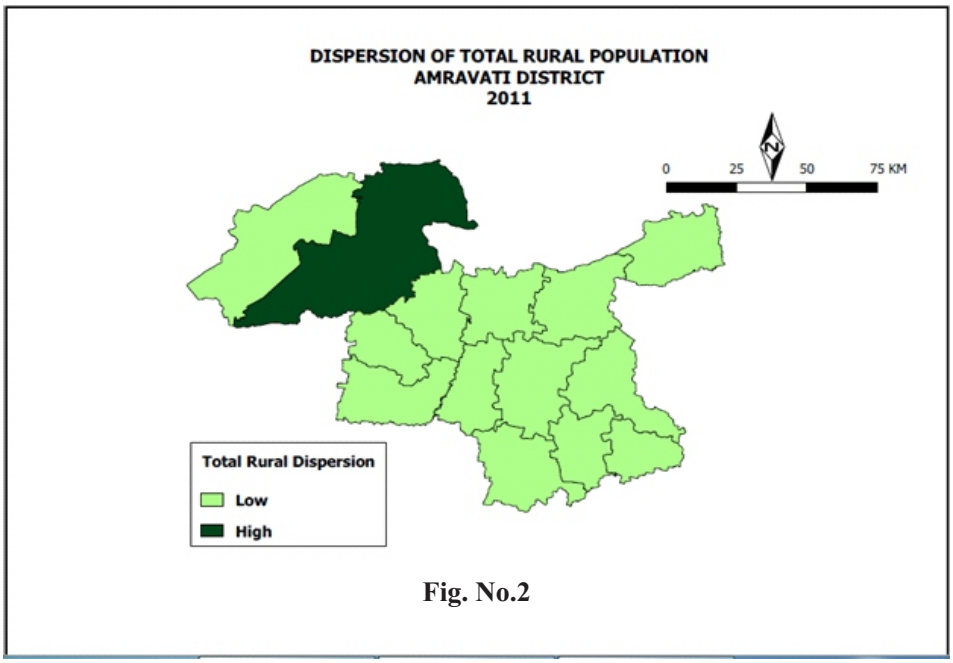



**Fig. No.2**

An observation of Fig. No. 3, shows that Hoover's index applies to the dispersion of the male population. According to Hoover's index, even in Fig. No. 3, the concentration of total males in the area with the lowest Ht value is uniformly homogeneous.

These include Dharani, Anjangaon Surji, Achalpur, Chandur Bazar, Morshi, Warud, Teosa, Bhatkuli, Daryapur, Nandgaon Khandeshwar, Chandur Railway, Dhamangaon Railway in Amravati district and their Ht value is 6.1, 1.1, 4.2, 1.08, 0.23, 2.1, 0.9,0.9,0.4, 2.06,1.3,0.7,respectively. So, the concentration of men is more in the specific area where the value Ht is higher.These two talukas of Amravati district have Chikhaldara with Ht value of 16.5 and Amravati taluka has 20.6. The total Ht value of Amravati district is 29.3 and this number is close to 0. This shows that the value of Ht is based on the area of the taluka.

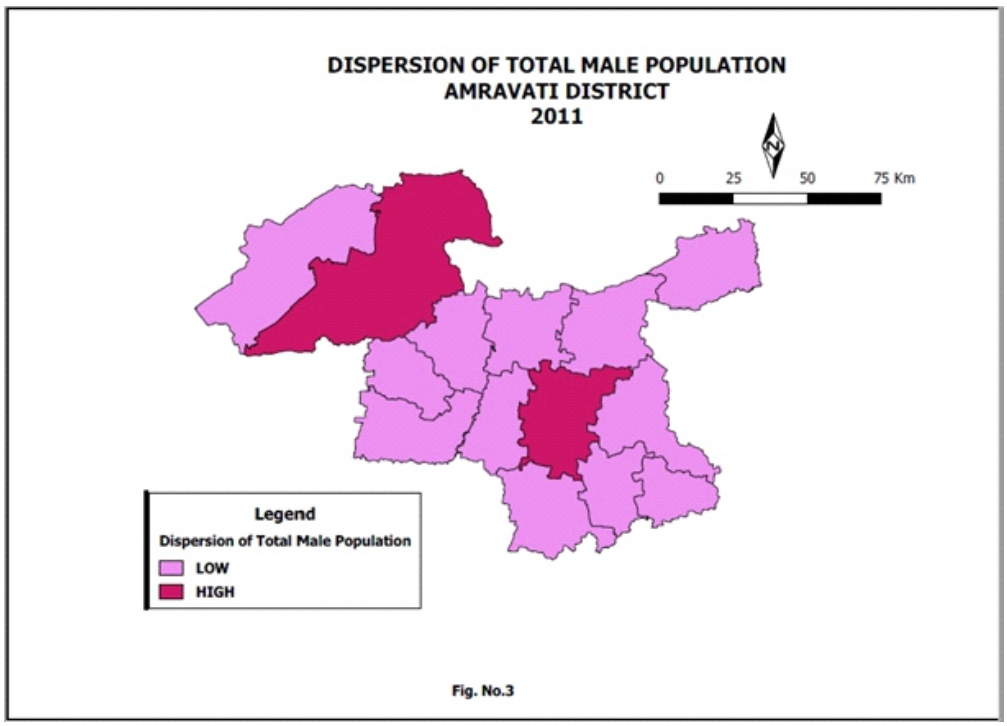



Fig. No.3

According to Fig. No. 4, Ht value is found in all other talukas except Chikhaldara, found between 0 to 3.7. Since, the value of Ht is low in this area, the population is uniform everywhere. In the present map, the Ht value of Chikhaldara taluka is 14.9 and the internal balance of the people is getting less and less.

Chikhaldara is a mountainous region where decentralization of rural men has been reduced. The circulation of the total rural male population in the presented map is 19.15 and this Ht value is found to be close to 0. It shows that the Ht value is based on the subcategory.

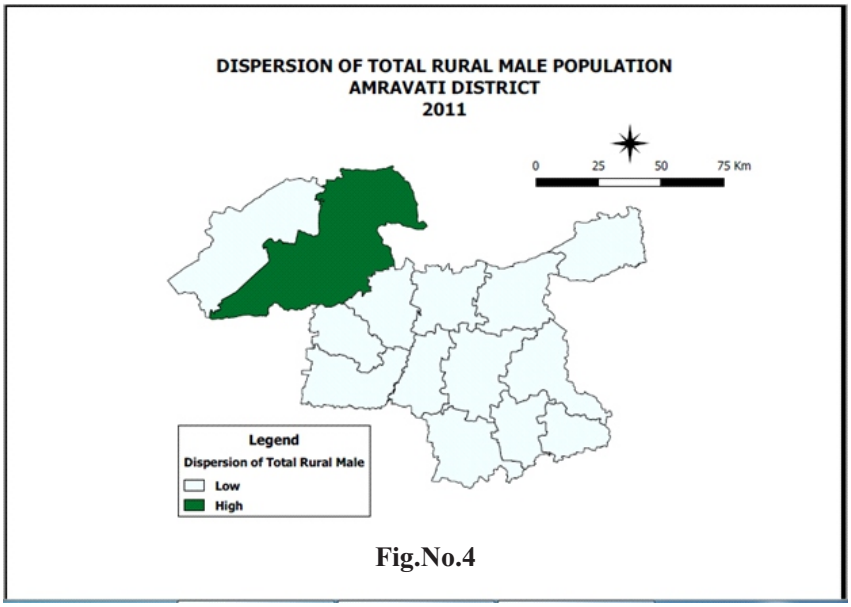



**Fig.No.4**

The dispersion of the female population in Amravati district is shown in Fig. No. 5. As per the Fig. No. 5, it is found that in areas where the level of Ht is low or moderate, the circulation of females is similar. These include Dharani, Anjangaon Surji, Achalpur, Chandur Bazar, Morshi, Warud, Teosa, Bhatkuli, Daryapur, Nandgaon Khandeshwar, Chandur Railway, Dhamangaon Railway talukas and their Ht value is 6,1.1, 4.2,1, 0.2, 2, 0.9 ,0.9, 0.4, 2.0, 8, 1.3, 0.7, respectively..As the Ht value increases, so does the concentration of women in a particular area. In the presented map the area where the Ht value is higher is where the concentration of females is higher. Chikhaldara and Amravati talukas and their Ht value is 16.5 and 20.8, respectively. The total Ht value of Amravati district is 29.30 depending on the area.

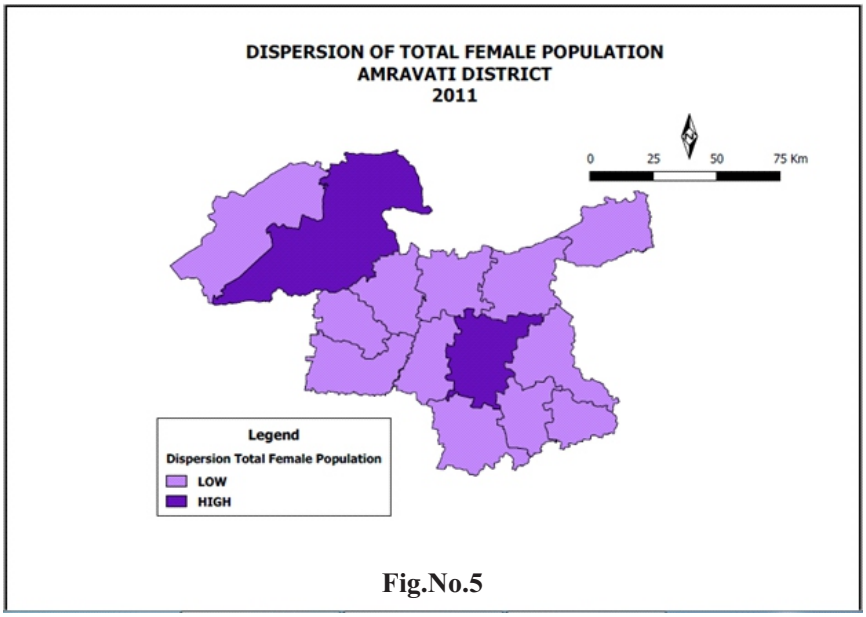
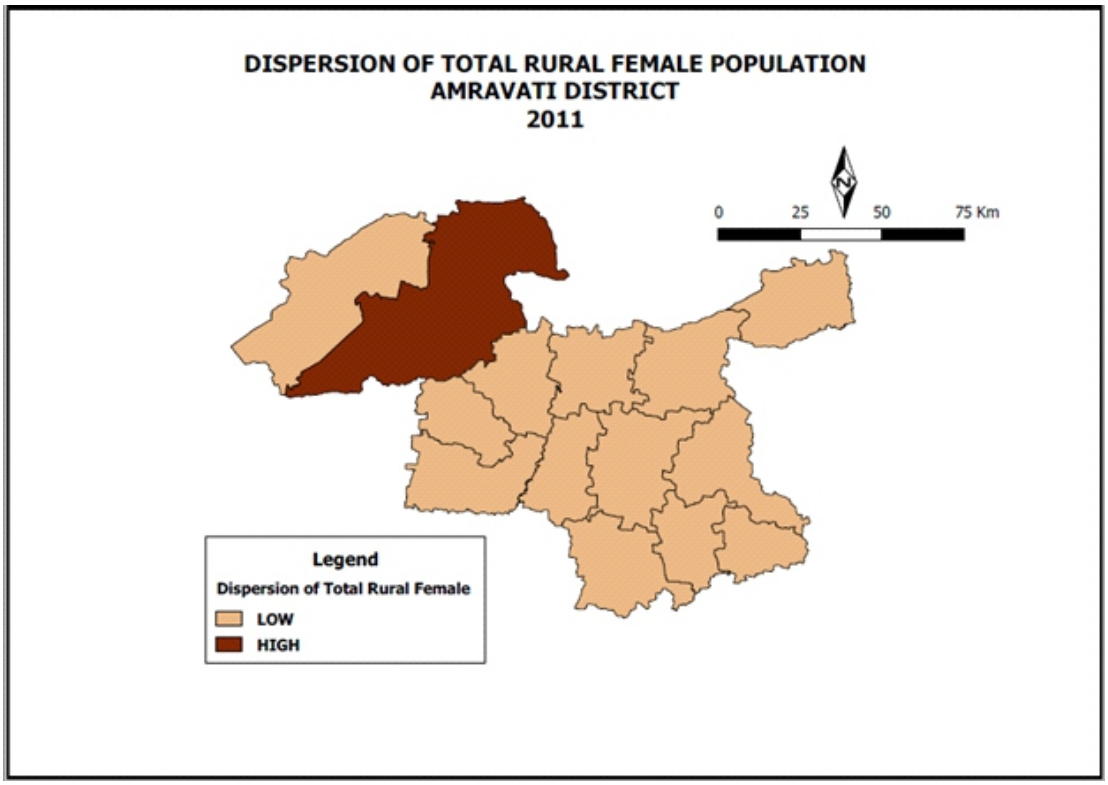



**Fig.No.5**

While discussing the migration of female population in rural areas of Amravati district, it is pointed out that the dispersion of women in Amravati district is similar to other talukas except Amravati taluka.

According to Fig. No. 6, women are more active in rural areas where Ht value is lowest. These include Dharani, Anjangaon Surji, Achalpur, Chandur Bazar, Morshi, Warud,Teosa, Amravati Bhatkuli, Daryapur, Nandgaon Khandeshwar, Chandur Railway, Dhamangaon Railway and their Ht value is equal to 0.5. Also, in Chikhaldara taluka, the value of Ht is 14.8 and the dispersion of women in this area is equal.In the rest of the rural areas, the dispersion of women is similar. The appearance of women in this area is homogeneous. Since, the Ht value is less than 4 in most areas, the area wise variance is the same. The dispersion of the total rural population is 18.89 and which is close to Ht value 0.




**Fig,No.6 : Comparison of the dispersion of male and female population**

As per Hoover's formula, we can easily study the nature of population dispersion. It is easy to figure out from this index in which areas the population is homogeneous by region.

In the same way, on this principle, we can compare the movement of male and female population. A study of Fig. No. 4 and Fig. No. 6, reveals that when the value of Ht is low, the dispersion of females is similar in the same area where the rural male population appears to be homogenous everywhere. Also, when the value of Ht is higher than the dispersion of the population is homogeneous in a particular area.In considering the passage of the above map, it is clear that the dispersion of men is in the same area as the dispersion of women. It is clear from this that in the area where the male variance is found to be homogeneous, the female variance is also found to be the same.

**Conclusion**

Population dispersion, the index drawn according to Hoover's formula shows the equilibrium between population and area. The ratio of area to density indicates density but because of the fact that the dispersion of people is even or unequal, this formula has to be adopted. Considering various features in terms of population, one thing is clear that the population dispersion in Amravati district is even. From all these considerations it can be clearly concluded that when the value of Ht is less than the population is found to be the same everywhere. So, when the value of Ht is higher than population balance is found in a particular area. In the same way, Hoover's Index applies to the population of a country, a state, a region, or a region, whether it is to measure the female and male population, or to traverse rural and urban areas.Using Hoover's formula, the indices of total population, rural population, total female population, total male population have been calculated and given a regional form. Most of these tend to be in balance.The dispersion index of the rural female population varies from 0 to 14 in Amravati district as compared to the most migratory area.There is also a balance between the area and population of a rural man. This indirectly leads to the conclusion that the rural gender ratio in Amravati district is shifting towards equality.

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