

SPATIO-TEMPORAL DISTRIBUTION OF RURAL SETTLEMENT IN RAVER AND YAWAL TAHSILS OF JALGAON DISTRICT: A GEOGRAPHICAL ANALYSIS

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Abstract:

The study of settlement is a fundamental aspect of human geography, as the nature of settlement in any region reflects the relationship of human and environment. Settlement reflects human response to his environment as well as to his religious and social customs in the community. The terms distribution of settlement patterns find a place in the geographical literature, particularly in the geography of rural settlements. These terms and meanings are sometimes synonymous and are interchangeable as elements of one another. Therefore, there are analysts on the spatial distribution of rural settlements in the Raver and Yawal tahsils of Jalgaon district.

Keyword: *Rural settlement, geographical literature, interchangeable elements*

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Introduction:

The growth, size, space, and distribution of settlement are particularly important aspects of settlement geography. J.M. Watson (1975) has defined, “Geography as a discipline in distance”. But now it has attracted little attention of the geographer especially the size of rural settlement. “The variation in size and spacing of rural settlements from area to area is a physical established fact in ecological conditions” (Mandal). Variation in size and distribution of rural settlements are governed by environmental conditions. The variation in spacing between the rural settlements and their distribution depends on the fertility of land, cropping pattern, agricultural efficiency, agronomic characteristics, distribution and availability of water, density of rural population, size of settlement, stage of land occupancy, relative strength of tribal population and several other factors.

Methodology and Database:

The existing research work is based on the secondary sources of data. The secondary data is collected from the different government and non-government as well as published and unpublished sources such as Socio-Economic Abstract of Jalgaon District, Census Handbook of Jalgaon District, books, and publication on the electronic media as well as some unpublished documents, records and also unpublished Ph.D. theses. Finally, collected data has been processed by using different statistical techniques. The final result presented in the form of tables, various maps, graphs and diagrams have been constructed and interpreted them. In this way settlement size, growth, spacing and distribution has been studied.

There are some of the important methods which are applied to study of the different size and spacing of the rural settlements in the Raver and Yawal tahsils.

The formula for determining the **spacing of rural settlement** is devised by the Polish Geographer, Walenty Wined as,

Formula

$$D = \sqrt{A/N}$$

Where,

D is the average distance between settlements.

A is the total area of component areal unit.

N is the number of rural settlement within component areal unit.

The following formula is applied for determine the average size of rural settlements.

$$S = P/N$$

Where,

S is considered as the average size of the population of rural settlements.

P is the rural population of the areal unit.

N is the number of rural settlements in the areal unit

This method is applied for all the 10 revenue circles of the study region. Table 2 gives details of the size of the rural population in diverse groups during the decade of 1991, and 2011.

The Growth of Rural Population: In the present study, the growth rate of entire population in rural settlement during the period of 1991 and 2011 in the study region. The rise and fall of the population of rural settlements has been occupied into consideration. They have been grouped into three classes. Table 3.1 shows that the growth rate of rural population in the period of 1991-2011.

Table 1
The Growth of Rural Population in the Study Region (1991- 2011)

Sr. No.	Name of Circle	1991	2011	Absolute Change	Growth of Rural Population in %
1	Khanapur	46514	55516	9002	19.35
2	Khirdi	35963	42348	6385	17.75
3	Khirode Pr. Yawal	51870	60993	9123	17.59
4	Raver	36663	61177	24514	66.86
5	Savada	37917	43380	5463	14.41
6	Bhalod	38553	42750	4197	10.89
7	Faizpur	36516	45622	9106	24.94
8	Kingaon	35888	43970	8082	22.52
9	Sakali	35620	45932	10312	28.95
10	Yawal	29111	30660	1549	5.32
Entire Study Region		384615	472348	87733	22.81

Source- Compiled by the Researcher based on Census handbook of Jalgaon District.

It has been recorded as a surprising picture of the growth pattern of rural settlements in the study region during the period of 1991 and 2011. Table 3.1 indicates that the growth of rural population in the entire study region is 22.81 per cent during the period of 20 twenty years. But the spatial distribution of growth rate of rural population varies from Raver circle of 66.86 per cent to Yawal circle of 5.32 per cent. The high growth rate of rural population is Raver and Sakali circles i.e. more than 25 per cent people rose during the period of investigation. The moderate growth of rural population is occupied in Khanapur, Khirdi, Khirode Pr. Yawal, Faizpur and Kingaon circles. The lowest growth rate of rural population is recorded in Yawal circles i.e., 5.32 per cent only followed by Bhalod circle (10.89 per cent) and Savada circle (14.41 per cent).

Growth of Rural Settlement:

The growth rate of rural population refers to the temporal change in number of settlement as well as change in number of population of these settlements is a particular geographical area in the two point of time. According to census of 1991 and census of 2011, the total numbers of rural settlements are same as 207 settlements in the study region. But the number of rural settlements in the different size of population group is changed due to the population is continuously increased, so the number of rural settlements changed during the period of 1991 and 2011 in the study region. But growth rate of rural settlements are varies throughout the study region.

Table 2

Absolute Growth of Rural Settlements in the Different Population Size, 1991-2011

Sr. No.	Name of Circle	Absolute Growth of Rural Settlements, 1991-2011					
		I	II	III	IV	V	VI
		< 500	500-1000	1000-2000	2000-3000	3000-5000	> 5000
1	Khanapur	0	-3	0	0	3	0
2	Khirdi	0	-1	0	1	0	0
3	Khirode Pr. Yawal	-1	-1	1	0	1	0
4	Raver	-6	3	1	2	-2	2
5	Savada	-1	0	0	1	0	0
6	Bhalod	-3	2	1	0	-1	1
7	Faizpur	-1	-1	2	-1	1	0
8	Kingaon	-3	3	-2	0	1	1
9	Sakali	-3	2	1	-2	1	1
10	Yawal	-2	1	0	0	1	0
	Total	-20	5	4	1	5	5

Source: Compiled by Researcher based on the Census Handbook of Jalgaon District, 1991 and 2011.

The growth analysis of absolute rural settlements has been studied for the period between 1991 and 2011. All the growth of rural settlements is grouped under the six classes according to population size.

The table 2 gives details spatial distribution of the absolute growth of rural settlements in different categories of rural settlements during 1991 and 2011.

In the **first category of populations is less than 500 population**, it is recorded as a negative growth i.e., -20 of rural settlements in the whole study region during the period of 1991 and 2011. It has been observed that all the circles having negative growth of rural settlements. But spatial distribution of growth of rural settlements is differing from circle to circles in this category. The high negative change in rural settlements is recorded in Raver circles due to rapidly development of socio-economic conditions leads to increased population of the villages in the hilly areas. The moderate negative change in rural settlements is registered in Bhalod, Kingaon and Sakali circles. There having 3 villages are declined in this population size settlements. The low negative changes of rural settlements i.e., less than 3 settlements are noted in Khirode Pr. Yawal, Savada, Faizpur and Yawal circles. The no change of rural settlements in this category is recorded in Khanapur and Khirdi circles. In short, it has been observed that the number of rural settlements in the category of less than 500 populations declined due to the continuously increased population in the villages as resulted the size of rural settlements increased.

The **second category of the rural settlements is the population size lies between 500 to 1000 populations**. The table 3.1 shows that the total number of rural settlements in the group is increased in the entire study region. There are 5 rural settlements are increased during the period of entire study region. But the spatial distribution of growth of rural settlements varies from circle to circles. The positive change in the rural settlements in this category is recorded in Raver, Bhalod, Kingaon, Sakali and Yawal circles due to the development of socio-economic factors resulted as increased population in the villages leads to increased size of settlements from less than 500 to more than 500 population. The negative change of rural settlements in this category is registered in Khanapur, Khirdi, Khirode Pr. Yawal and Faizpur circles due to increased population of the rural settlements in these circles resulted as the size of rural settlements increased and number of rural settlements transfer to the next category of the rural settlement. The no changes of number of rural settlements in this category are registered in Savada circles due to the constant population size of the villages.

In short, it has been observed that the growth of rural settlements is negative as well as positive in this category due to dramatic change in population of the settlements.

The **third category of rural settlements is 1000 to 2000 population size**. Table 3.1 indicates that the number of rural settlements has increased by 4 settlements in this category during the period of 1991 and 2011 in the entire study region. There are also some circles having negative growth, some circles having positive growth and some circles having no change in number of rural settlements in the study region during the period of 1991-2011. The positive growth of rural settlements is recorded in Khirode Pr. Yawal, Raver, Bhalod, Faizpur and Sakali circles. The negative growth of rural settlements is noted in Kingaon circle due to increased population of villages and then transfer to next category of the settlements. The no changes of rural settlements in this category are registered in Khanapur, Khirdi, Savada and Yawal circles.

The **fourth category of rural settlements is 2000 to 3000 population size**. In this category only one settlement

increased during the period of 1991 to 2011 in the entire study region. The positive change of rural settlements is recorded in Khirdi, Raver and Savada circles. The negative change of rural settlements is registered in Faizpur and Sakali circles. Whereas no changes in number of rural settlements in study region is noted in Khanapur, Khirode Pr. Yawal, Bhalod, Kingaon and Yawal circles.

The **fifth category of rural settlements is 3000 to 5000 population size**. There 5 villages are increased during the period of 1991 to 2011 in the entire study region. The positive growth of rural settlements in the study region is recorded in Khanapur, Khirode Pr. Yawal, Faizpur, Kingaon, Sakali and Yawal circles. The negative change of rural settlements is found in Raver and Bhalod circles. There are no changes in the number of rural settlements in Khirdi and Savada circles.

Finally, **sixth category of rural settlements is more than 5000 population size** There are 5 rural settlements are increased during the period of 1991 to 2011 in the entire study region. It has been observed that the growth of rural settlements are varies from circle to circle in the study region. The positive growth of actual rural settlements in this category is recorded in Raver, Bhalod, Kingaon and Sakali circles. Because, there are continuously increased population of villages as resulted the size of village is increased leads to number of rural settlements having increased in this category. It is remarkable that the negative growth of actual rural settlements in this category is not recorded due to the volume of villages are continuously increased because of the physical and socio-economic development. The no change in the actual rural settlements is recorded in Khanapur, Khirdi, Khirode Pr. Yawal, Savada, Faizpur, and Yawal circles.

In short, the growth of actual settlements in whole study region is constant to the total number of rural settlements during the period of study. But category-wise number of rural settlements varies in the study region due to the dynamics of population of socio-economic development in the study region during the period of investigation.

Spatial Distribution of Density of Rural Settlements:

According to 2011 census, the total geographical area is 1359.51 sq. km in the study region and found total 207 rural settlements in this area. The density of rural settlements per 100 sq. km is 15 in the study area. But spatial distribution of density of rural settlements varies from circle to circle i.e., 22 densities in Savada circle to 9 rural settlement densities in Faizpur circle. “The density of rural settlements in the area is depended on the physiography, climatic condition; river system, water bodies, natural vegetation etc. as well as economic, social and cultural factors also affect it” (*Baker, 1969, 129*). The distribution of rural settlements density is mainly associated with primary activities, such as agriculture and small-scale relationship between man and nature, as assumed by Blache, still exists to a huge extent in the rural community of the area. Due to this attachment of the rural community with the land, we find that preference to colonization for the areas which are more suitable from the physical point of view. The favorable climate, flat topography, superior quality of the soil, availability of water, etc. is determine the location of rural settlements. But the socio-cultural factors and even random forces also affect the settlements sites. In some cases, socio-cultural and random factors have acted as strongly in attracting for the settlements.

Table 3

The Density of Rural Settlements in the Study Region, 2011

Sr. No.	Name of Circle	Density of Rural Settlements per 100 Sq. Km.
1	Khanapur	18
2	Khirdi	20
3	Khirode Pr. Yawal	11
4	Raver	16
5	Savada	22
6	Bhalod	13
7	Faizpur	9
8	Kingaon	19
9	Sakali	12
10	Yawal	13
Entire Study Region		15

Source: Compiled by researcher based on the Census Handbook of Jalgaon District

The density of rural settlements is one of the key features in the study of settlement geography. Several factors are responsible for the distribution of density of rural settlements. Therefore, the distribution of density of rural settlement is uneven throughout the study region. Settlement density is a measurement of settlements per unit land area. Here, the density of rural settlements is measured as the number of rural settlements per 100 sq. km. land area in the study region.

As expected, the density of rural settlement per 100 squares km of land area was 15 rural settlements in the year 2011. It is resulted that the spatial distribution of rural settlement density varies for different revenue circles of the Raver and Yawal tahsils. The high density of rural settlements i.e., more than 20 rural settlements per 100 sq. km is registered in Khirdi and Savada circles. Because these circles are situated in river basin area, flat topography, fertile good quality soil, enough availability of water as a resulted high development of agriculture and allied activities leads to high concentration of rural settlements.

The moderate concentration of rural settlements i.e., lies between 15 and 20 rural settlements per 100 sq. km are recorded in Khanapur, Raver and Kingaon circles.

The low concentration of rural settlement i.e., less than 15 rural settlements per 100 sq. km. is recorded in Khirode Pr. Yawal, Bhalod, Faizpur, Sakali and Yawal circles. Because these circles are situated in hilly areas, rugged topography, shallow soil, and low development of agriculture resulted as low concentration of rural settlements.

Conclusion:

There are number of factors concerned to the physical, socio-economic and cultural have affected on the size, spacing and the distribution of rural settlements in the study region. The different economic activities such as land utilization, transportation system and physical settings have directly influenced the size and spacing of the rural settlement in the Raver and Yawal tahsils. The distributions of rural settlements have also been influenced by various socio-economic and geographical factors in the study region.

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