



**SPATIAL DISTRIBUTION OF AGRICULTURAL REGULATED MARKET
CENTRES IN SOLAPUR DISTRICT OF MAHARASHTRA**

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ABSTRACT

Agricultural regulated market centres is a key component of the economy where agriculture forms a resource base of economy. Thus they play a very important role

in economic development of the region. Agricultural regulated market centres also helps in increasing social contact and serve as centres of diffusion of innovation and ideas and become focus for political and other activities. The aim of present investigation is to analyses the spatial distribution of agricultural regulated market centres in Solapur District of Maharashtra. The distribution of market centres has been examined by the technique of 'Nearest Neighbour analyses. The distribution of agricultural regulated market centres is influenced by physio-cultural, historical and many other unique qualities prevailing in the region. In the study region the agricultural regulated market centres are unevenly distribution.

INTRODUCTION:

Agricultural regulated market centres is a key component of the economy where agriculture forms a resource base of economy. Thus they play a very important role in economic development of the region. Agricultural regulated market centres also helps in increasing social contact and serve as centres of diffusion of innovation and ideas and become focus for political and other activities. Agricultural regulated market centres not only perform the functions of service centres but also they play very important role in economic development of the region. Agricultural marketing is the performance of all business activities involved in the flow of goods and services from the point of initial agricultural production until they are in the hands of the ultimate consumer (Kohls, 1967).

Agricultural regulated market can easily be considered as the barometer of the Indian economy. Agricultural regulated market centres play a vital role not only in the marketing system of the country but also in rural development. The distribution of agricultural regulated market centres is influenced by physio-cultural, historical and many other unique qualities prevailing in the region. In the study region the agricultural regulated market centres are unevenly distribution. Even at tahsil level there is great variation in the distribution of agricultural regulated market centres.

OBJECTIVES

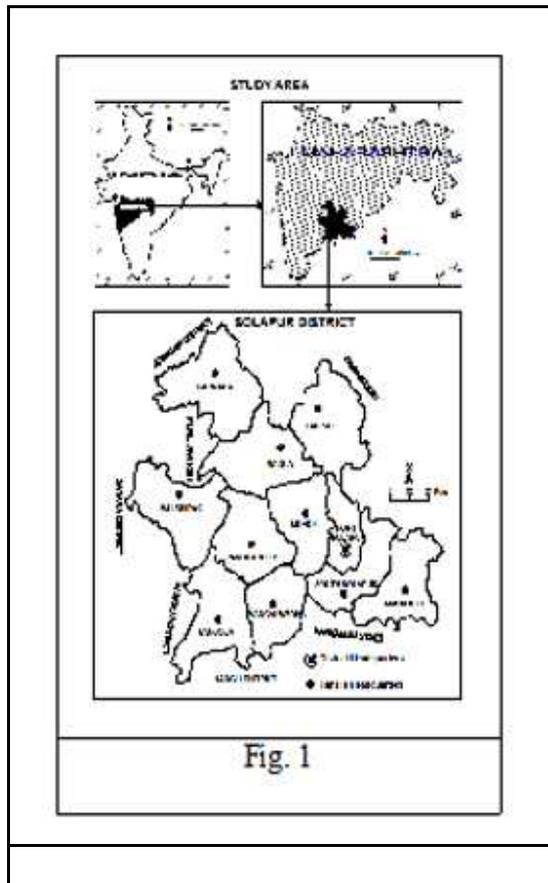
- To analyses the spatial distribution of agricultural regulated market centres with reference to area, population, inhabited villages and net sown area and with agricultural density.
- To analyses the spatial distribution of agricultural regulated market centres.

DATA BASE AND METHODOLOGY

The entire investigation is based on field work supplemented by secondary sources of data from socioeconomic review and district statistical abstract. The correlation analysis has been used to find out the relationship. The distribution of market centres has been examined by the technique of 'Nearest Neighbour analysis' The statistical technique called the 'Nearest Neighbour analysis' first developed by plant ecologists Clark and Evens (1954), has been used to measure the pattern of incidence of different species of plants.

STUDY REGION

For the present investigation Solapur district is selected as a study region. It is one of the southern district of Maharashtra. The Solapur district lies between 17⁰ 10' north to 18⁰ 32' north latitude and 74⁰ 42' east to 75⁰ 15' east longitude. It covers an area of 14895sq.km. and has population 3849543. The region has 1150 inhabited villages and 10 urban centers, is administratively sub divided in to 11 tahsils. It located in the Bhima, Sina and Man basin just before the Bhima River leaves Maharashtra to enter in to Karnataka state. At present the region have eleven principal market yards and 26 have categorized as a sub-market yards.



DISTRIBUTIONAL ANALYSIS OF MARKET CENTRES

Agricultural regulated market centres is a key component of the economy where agriculture forms a resource base of economy. Geographers are mainly concerned with the spatial distribution of geographical phenomena. In case of agricultural regulated market centres their origin, growth, development and spatial distribution are the combined effect of various factors. Therefore, correlation between number of such phenomena with area, population, inhabited villages, and net sown area etc, may give more elastic picture (Gharpure and Pawar 1981). It has been observed that, the greater number of talukas fall in the classes above \bar{x} of the number of agricultural regulated market centres. Out of which Akkalkot, Pandharpur, Karmala, Madha fall in the class $\bar{x} + 1S.D.$ and Mohol, Malshiras in the class $\bar{x} + 2S.D.$ Remaining 4 talukas are below \bar{x} . In which Barshi, Mangalwedha, Sangola talukas fall in the class $\bar{x} - 1S.D.$ and rest of talukas fall in the class $\bar{x} - 2S.D.$ (Table 1).

AREA AND MARKET CENTRES

It is clearly demonstrated by table -1 that the number of agricultural regulated market centres per 1000 km² area 2.48 for the entire study region. The spatial variation at tahsil level remarkable .The highest number of market centres ratio in Mohol tahsil is 4.97. This is considerably decreased to 1.29 in Sangola tahsil, 1.34 in North Solapur and 1.35 in Barshi tahsil. It is observed that six tahsil fall in class above \bar{x} .Out of which Malshiras and Pandharpur are fall in the class $\bar{x} = +2S.D.$ and Akkolkot, Mangalwedha, Karmala and Madha tahsils fall I the class $\bar{x} = +1 S.D.$ and remaining four tahsils are fall in below class $\bar{x} = -1S.D.$ (Table 1). However it is observed that correlation ($r = 0.45$). It is simply because the area does not matter much but it is location and fertility status are important to support a threshold population to support the market centres.

POPULATION AND MARKET CENTRES

The ratio of population and market centres per 10000 of population comes to 0.10 for whole study region. However, the ratio comes to 0.28 in case of Mohol tahsil, which decreased to 0.01 in case of North Solapur. The six tahsils have their value above the $\bar{x} = 0.13$.Out of which Mohol Mangalwedha and Karmala tahsils fall in the class $\bar{x} = +2S.D.$ and Akkalkot Malshiras and Madha in the class $\bar{x} = 1+S.D.$ The remaining tahsils are below the $\bar{x} (0.10)$ they are North Solapur, Barshi, Pandharpur and Sangola falls in the class $\bar{x} = -2S.D.$ the correlation analysis between market centres and population is variables insignificant relationship ($r = 0.43$). While considering the ratio between population and market centres in the North Solapur lies dens population due to this, there is less market centres. Apart from these low populations occurring in Mohol tahsil hence market centres are more.

INHABITED VILLAGES AND MARKET CENTRES

When the question of the quantitative relationship between market centres and the number of inhabited villages is considered it is seen that for every 1000 villages the ratio comes to 11.42 in the district. This relationship ranges from 3.39 in Karmala tahsil to 0.54 in North Solapur tahsil. The relationships also show that Karmala tahsil fall in class above the mean (3.19) Remaining three tahsils are Barshi, Akkalkot and Madha tahsils fall in class $\bar{x} = -1S.D.$ and remaining tahsils are fall in class $\bar{x} = - 2S.D.$ The correlation analysis between two variables indicated the insignificance relationship ($r =0.43$).

**Table: 1. Solapur District Agricultural Regulated Market Centres-
Distributional Relationships**

Sr · No	Tahsil	No. of Agricultural Regulated Market Centres				
		$\bar{x} = 3.7$ S.D. = 1.82	Per 1000 sq. k. m $\bar{x} = 2.4$ S.D.=1.38	Per 10000 populatio n $\bar{x} = 0.12$ S.D.=0.07	Per 1000 inhabited villages $\bar{x} = 3.19$ S.D.=1.88	Per 1000 hectares net sown area $\bar{x} = 0.03$ S.D.=0.01
1	Solapur North	1	1.34	0.01	0.54	0.02
2	Barshi	2	1.35	0.06	1.36	0.02
3	Akkalkot	4	2.88	0.14	1.37	0.03
4	Mohol	7	4.97	0.28	1.04	0.07
5	Mangalwedha	3	2.63	0.18	0.81	0.04
6	Pandharpur	4	3.07	0.10	0.95	0.04
7	Sangola	2	1.29	0.07	1.01	0.02
8	Malshiras	6	3.94	0.14	1.10	0.05
9	Karmala	4	1.61	0.17	3.39	0.03
10	Madha	4	2.59	0.14	1.17	0.03
Solapur District		37	2.48	0.10	11.42	0.03

Note: The tahsil (South Solapur) which has not market centre is not considered.

Source: Based on District Census Handbook, Solapur District, 2001 and District Stastical Abstract and Socio-Economic Review, 2010, Solapur District.

NET SOWN AREA AND MARKET CENTRES

The number of market centres per 1000 hectors of net sown area comes to 0.03 for the study region a whole. However this ratio is highest 0.07 in the case of Mohol tahsil and lowest 0.02 in the case of North Solapur Barshi, Sangola. It is also observed that the four tahsils fall in the class above the \bar{x} (0.03). Out of which Mohol, Malshiras tahsils falls in the class $\bar{x} = +2$ S.D.andMangalwedha, Pandharpur tahsils fall in the class $\bar{x} = +1$ S.D. and Whereas Akkalkot, Karmala, Madha tahsils fall in the class \bar{x} (0.03) level. Remaining three tahsils which are North Solapur, Barshi and Sangola falls in the class $\bar{x} = -1$ S.D. The analysis

reveals that the correlation between these two variables is insignificant ($r = 0.34$) because the net sown area not only support the population of area but also supplies the agricultural surplus for the development of market centres.

AGRICULTURAL DENSITY AND MARKET CENTRES

Agricultural population and total geographical area of the study region have also a co-relation. The agricultural development depends upon the agricultural land. Agricultural land is the basic factor of agricultural development. So here also study these factors.

Table2: Agricultural Density and distribution of Agricultural regulated Market Centres of Solapur District

Sr. No.	Tahsil	Agricul tural Populat ion	Total Geographical Area (hectors)	Agricul tural Density	No.of Regul ated Mark ets
1.	North Solapur	35344	159580	0.22	01
2.	Barshi	82045	152600	0.54	02
3.	Akkalko t	75695	152250	0.50	04
4.	Mohol	86231	68303	1.26	07
5.	Mangal wedha	58358	131689	0.44	03
6.	Pandhar pur	104024	129437	0.80	04
7.	Sangola	82816	160801	0.52	02
8.	Malshira s	125173	159431	0.79	06
9.	Karmala	84874	114159	0.74	04
10.	Madha	99121	119463	0.83	04
11.	South Solapur	69488	140130	0.50	00
Solapur District		903169	1487843	0.61	37

Source: Based on District Census Handbook, Solapur District, 2001 and District Statistical Abstract and Socio-Economic Review, 2010, Solapur District.

The worker of agricultural practices and producer farmer are included in agricultural population its mean cultivators and agricultural laborers are included in considering the agricultural population. For the distribution of agricultural regulated market centres the total geographical area also considered. J.B. Patil has been used the following formula to calculate the agricultural density in his work "Spatial Organization and Linkage of Agricultural Regulated Market Centres in Upper Krishna Basin". The agricultural density is calculated by the following formulas.



The regional agricultural density is also found out for the study of distribution market centres. For the distribution of agricultural regulated market centres the regional agricultural density is find out (Table2). In the study region there have 11 tahsils having 1487843 hectares of geographical land and 903169 of agricultural population. The share of agricultural population is high because, the land which is available for cultivation is fertile and source of irrigation are also available. The region is agricultural prosperous. In the Solapur district the agricultural density for the district is 1.26 which is in Mohol tahsil.

The agricultural density for study region is 0.61 out of 11 tahsils 5 tahsil namely Mohol (1.26), Madha (0.83), Pandharpur (0.80), Malshiras (0.79) and Karmala (0.74) have a more agricultural density than study region. These 5 tahsil have 25 agricultural regulated market centres which is 67.56 percent of the study region. In the Solapur district there are 37 agricultural regulated market centres out of 25 agricultural regulated market centres in this 05 tahsil. Out of 25 agricultural regulated market centres there are 05 main agricultural regulated market centres and 20 have sub- agricultural regulated market centres. The higher order agricultural regulated market centres are located in this high agricultural density zone. Mohol, Kurdwadi, Pandharpur, Akluj and Karmala are the main agricultural regulated market centres established in this zone.

Remaining 06 market centres are in low agricultural density zone which are Barshi (0.54), Sangola (0.52), South Solapur (0.50), Akkalkot (0.50), Mangalwedha (0.44) and North Solapur (0.22) tahsils. In these tahsils the agricultural density is lower

Dran =

Where,

N- Is the number of market centres
 In the study region.

- Is the area of study / spatial

Hence,

It can be expressed in the simplified form as below

Since the study area presents a visible contrast in the density pattern and spacing of market centres, the 'R_n' value at tahsil level are calculated. In such situation different 'R_n' values for different tahsil are obtained. 'R_n' value for the district has been calculated in order to find out the association of market centres with each other. The results have been summarized in table 3 and positions of various tahsil have been on the 'R_n' value scale (Fig. 2).

Table 3 - Solapur District: Market Center's Nearest Neighbour Statistics

Sr. No.	Tahsil	MarketCentres	Dobs. km	Dran. km	Rn Values
1.	Solapur North	01	0	0	0
2.	Barshi	02	22.81	14.09	1.61
3.	Akkalkot	04	14.51	9.35	1.55
4.	Mohol	07	12	6.86	1.75

5.	Mangalwedha	03	12.09	9.72	1.24
6.	Pandharpur	04	13.22	8.98	1.47
7.	Malshiras	02	12.95	8.16	1.58
8.	Sangola	06	20.74	13.89	1.49
9.	Karmala	04	19.07	9.94	1.98
10.	Madha	04	18	9.8	1.8
Solapur District		37	20.74	10.03	2.06

Note: The tahsil (South Solapur) which has not market centre is not considered.

Source: Based on District Census Handbook, Solapur District, 2001 and District Stastical Abstract and Socio-Economic Review, 2010, Solapur District.

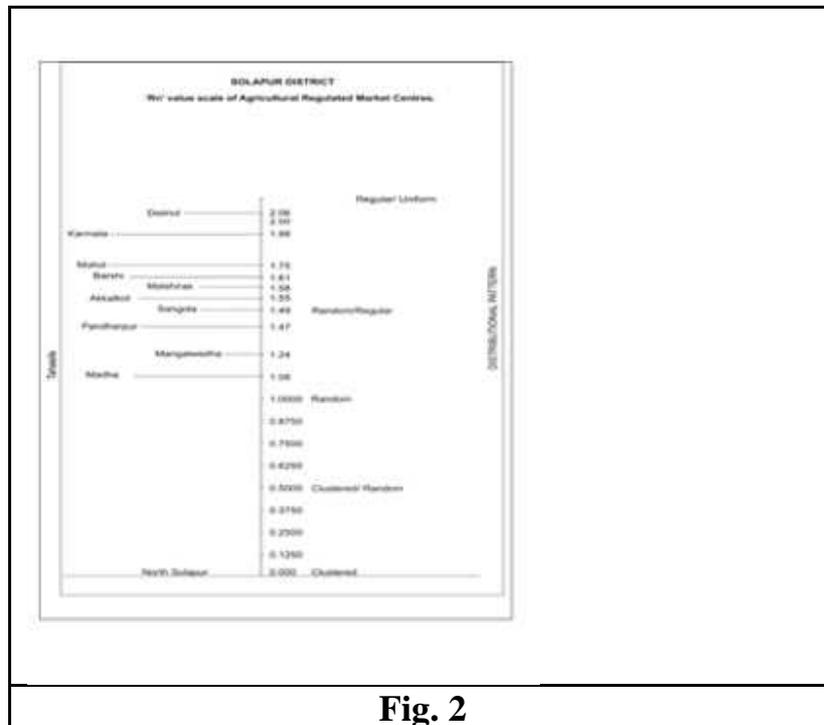


Fig. 2

The analyses reveals that, the agricultural regulated market centres have noticed a near to regular distribution (Lokhande and Pawar 1999). Where the degree of uniformness is 2.06. The comparative analyses of the values of randomness shows that tahsil like Mangalwedha, Pandharpur, Sangola have the range of 1.24 - 1.49 where the agricultural regulated market centres are distributed in a random manner. In case of Akkalkot, Malshiras, Barshi, Mohol, Madha, Karmala having R_n value above 1.50 has regular uniform pattern.

CONCLUSION

The forgoing analysis reveals that, the spatial distribution of agricultural regulated market centres is uneven in the region. Agricultural regulated market centres their origin, growth; development and spatial distribution are the effect combination of various factors. The agricultural density for the district is 0.61 which is highest in Mohol, Madha, Pandharpur, Malshiras and Karmala tahsils. Because this part enjoys good facilities of transport, Irrigation and developed agriculture. These factors also lead to near to regular / uniform distribution of agricultural regulated market centres in this part. In other words the spatial distribution of agricultural regulated market centres is largely influenced by physiography and population of the region. In case of remaining tahsils located in low agricultural developed and low agricultural density region have different situation.

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