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NATURE OF DISPERSION OF SETTLEMENTS IN JAIPUR DISTRICT, RAJASTHAN

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ABSTRACT :

Dispersion of Rural Settlement is a function of several factors, including the process of evolution, the time lag, and ever changing socio-economic conditions under the influence of scientific and technological progress several statistical techniques of measuring degree of dispersion and concentration have been evolved by stone and Hudson but these two have no precise connotations and their significance levels vary from region to region, due to physio-cultural variation. An attempt has been made here to measure the degree of dispersion, taking on the basis of the observed mean of nearest inter—vi11age straight line distance (o), village density (d) and expected distance (E). This method is known as nearest neighbor approximation analysis. In this analysis it is assumed that points are distributed randomly in accordance with a Poisson probability function, which assumes that each location has an equal chance of containing a point, while, in the real world settlements are neither always evenly spaced, nor are they spaced in a strictly random patter.[1] Thus dispersion may be defined as degree of deviation of set of points from random relative to some delimited areas[2].

KEYWORDS : *Indian society and social life , commercial problems.*

INTRODUCTION

It is true that the actual establishment pattern can hardly be predicted through any statistical analysis because every unit has its own trend and identity. It is more so in an ancient settled area where the settling process has seldom been in accordance with any geometrical pattern.

The first suitable approach towards dispersion analysis has been initiated by plant ecologists Clark and Evans in their analysis of distributional pattern of various species over a given space. According to them the index

[1] Dacey, M.F., "A Country Seat Model for the Areal Pattern of an Urban System", Geographical Review, Vol.56, 1966, pp. 527-42.
[2] Singh, R.P.B., "Clan Settlement in the Saran Plain (Middle Ganga Valley): A Study in Cultural Geography N.S.G.I., Research Publication No.18 (Varanasi,p.57)

of Randomness (Rill) can be completed by using the following formula.[3]

RN = o/E Where E = ½ (/d)

$= 2 o\sqrt{d}$

For the present analysis, panchayat simiti has been taken as standard areal unit for measurement of RN values, and all the inhabited settlements in the Panchayat simities of Jaipur district have been taken into consideration in the present study.

The index of randomness (RN) has been calculated by applying above mentioned formula. This provides a measure of the degree to which the distributional pattern of the observed inter-village

distance deviates from random expectation. The value of this index ranges from 0.0 (complete confrontation) through 1.0 (random) to 2.149 (ideal or normative hexagonal lattice). This index of RN value can be correlated with variance (V) for further testing, which can be computed by mathematical formula.[1]

V = (4—N)/4 dn = 0.0683086/d

When the value of E is greater than the distribution is termed regular, when the value of V is greater than E, it is termed clustered, and term random is applied to a case when V and E are equal, i.e. variance- mean ratio is one. In the present study, the ' value of E is always move than V, thus representing a regular rather than random pattern.

Table 4.7 shows the result of RN values and different indices calculated with reference to the nearest neighbor analysis for each panchayat simiti of the District while figure 4.7 gives the measurement of spatial pattern of rural settlement in study area. The RN values

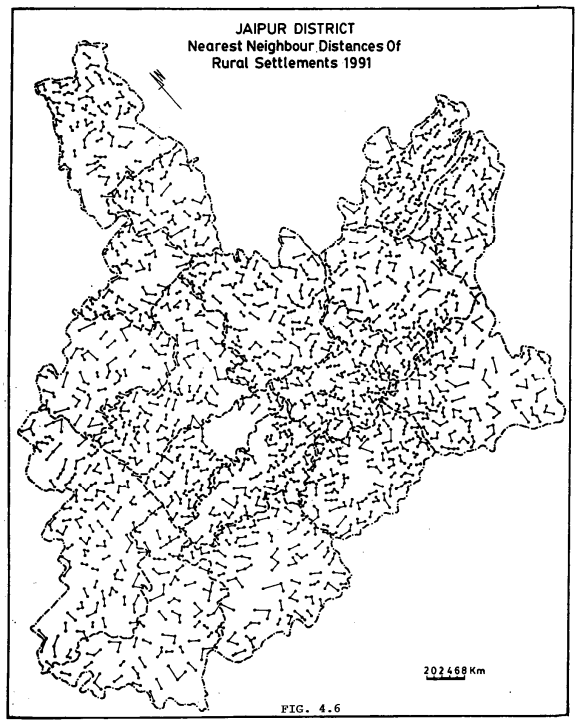


FIG. 4.6

[3] Clark, P.J. and F.C. Evans," Distance to Nearest Neighbour as measure of relationship in population", Ecology, Vol.35, 1954, pp. 445-453.

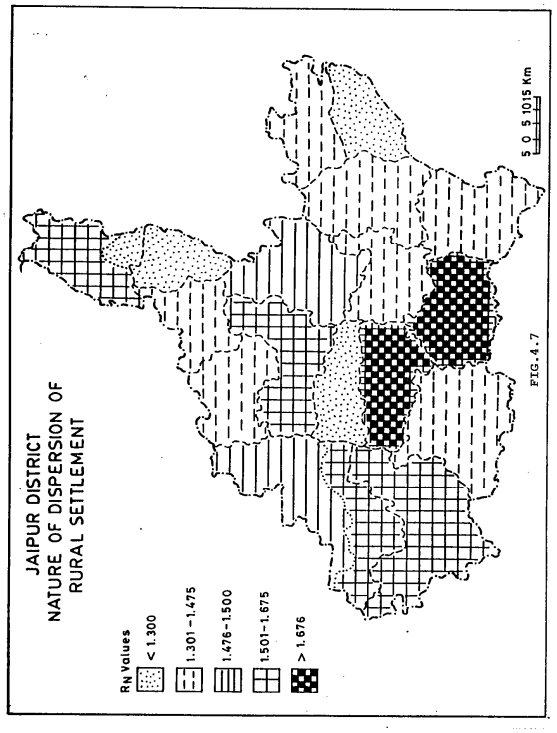
[1] Dacey, M.F., "Order Distance in an Inhomogenous Randan Point Patterns", Canadian Geographer, Vol.9, 1965, pp. 144-152

TABLE - 4.7

SPACING AND NATURE OF DISPERSON OF RURAL SETTLEMENT

S. No.	Panchayat Simiti	d/km^2	D	o	E	RN	V	Di
1.	Kotputli	0.179	2.536	1.822	1.182	1.541	0.381	0.740
2.	Virat Nagar	0.183	2.510	1.485	1.169	1.270	0.373	0.631
3.	Shahpura	0.193	2.441	1.565	1.138	1.375	0.353	0.641
4.	Govindgarh	0.142	2.845	1.815	1.328	1.366	0.480	0.636
5.	Sambhar	0.171	2.592	1.798	1.209	1.487	0.399	0.691
6.	Dudu	0.131	3.187	2.138	1.383	1.545	0.521	0.719
7.	Phagi	0.151	2.763	1.742	1.287	1.353	0.452	0.628
8.	Sanganer	0.351	1.812	1.464	0.844	1.734	0.194	0.810
9.	Jhotwara	0.264	2.087	1.217	0.973	1.250	0.258	0.756
10.	Amber	0.233	2.223	1.641	1.036	1.583	0.293	0.735 '
11.	Jamwa Ramgarh	0.231	2.235	1.547	1.040	1.487	0.295	0.693
12.	Bassi	0.331	1.865	1.175	0.869	1.352	0.206	0.631
13.	Chaksu	0.344	1.831	1.634	0.852	1.917	0.198	0.892
14.	Lalsot	0.345	1.827	1.210	0.851	1.421	0.197	0.661
15.	Dausa	0.246	2.162	1.432	1.009	1.419	0.277	0.659
16.	Bandikui	0.345	1.829	1.147	0.851	1.347	0.197	0.626
17.	Dikrai	0.274	2.050	1.112	0.956	1.163	0.249	0.542

Source: Primary District Census Handbook of Jaipur – 1991



ranging from 0.844 (Sanganer) to 1.383 (Dudu) panchayat simities, reveals clear tendency towards regularly. On the basis of RN value, the dispersion in different panchayat simities of Jaipur district may be classified under five categories as indicated in Figure

Least Regularity (<1.300):

This group include three panchayat simities namely virat nagar, Jhotwara and Sikrai, having RN value 1.270, 1.250 and 1.163 respectively. Covering 11.96 per cent (358) villages of the District and 1531.4 km^2 of area. Average area per village being 5.573 sq. km (Virat Nagar) 3.774 sq. km. (Jhotwara) and 3.642 sq. km. (Sikrai). The observed inter—village distance (o) is 1.485 km (Virat Nagar), 1.217 km (Jhotwara) and 1.112 km (Sikari) while expected inter village distance (E) in the panchayat simities are 1.169 km. in (Viral Nagar), 0.973 km. (Jhotwara) and 0.956 km^2. in (Sikrai), which is lower than the observed value distance. The intensity of villages per 2 100 km is 18,26 and 27 respectively which lies in medium range. These panchayat simities are located in three different locations in the district.

Low Regularity (1.301 — 1.475):

Low regularity found in seven panchayat simities of the District covering an area of 5657.9 sq. km. and containing 1272 villages which is 42.54 per cent of total villages. These seven panchayat simnities shahpura, Govind garh Phagi, Barsi, Laisot, Dausa and bandikui have average village density in between 14 (Govind garh 34 in (Lalsot, Bandikui). The area is inhabited by small to large villages, the value varying from 7.01 sq. km. (Govind garh) to 2.89 sq. km. (Lalsot). The observed inter—village distance ranges from 1.815 km (Govindgarh) 1.147 km. (Bandikui). The inter village spacing (D) is 2.845 km. (Govind garh) to 1.827 km. (Lalsot). The expected intervillage distance (E) shows lower value ranging from 1.328 km. to 0.851 km. so the RN value is always above 1.

Moderate Regularity (1.476 - 1.500):

Areas of moderate regularity comprise of two panchayat simities in Jaipur District are Sambhar and Jamwa Ramgarh. This group covers 1832.3 sq. km. area and 374 villages which is 12.5 per cent of the total villages of the district Inter—village spacing is 2.592 km. and 2.235 km. respectively. Average area in these panchayat simities are 5.82 sq. km. and 4.32 sq. The village density per 100 km^2 is 17 and 23, observed distances (o) in these panchayat simities, i.e. Sambhar and Jammu Ramgarh is 1.798 km., and 1.547 km. respectively, while expected distances (E) is 1.209 km. 1.040 km., which is lower than the observed distances. *So* RN values above one which are 1.487, and 1.487 of both.

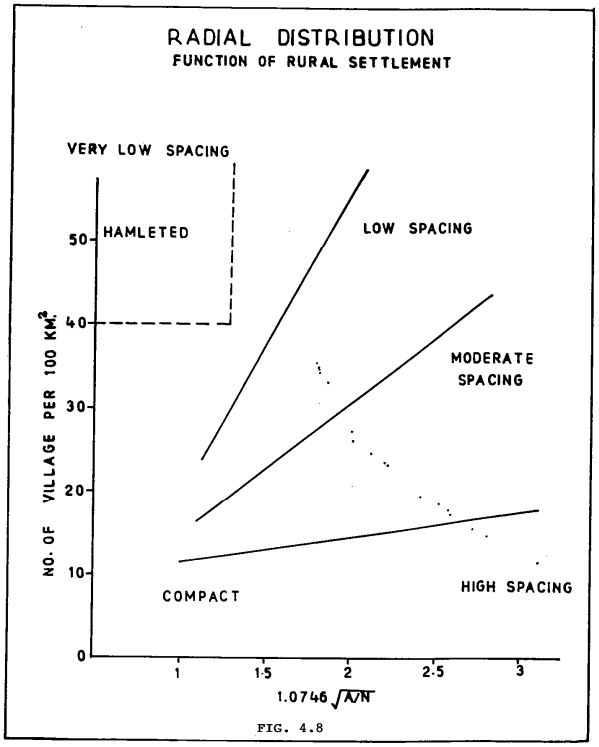


FIG. 4.8

Moderatly High Regularity (1.501 — 1.675);

Moderately high regularity has been found in three panchayat simities namely Kotputli, Amber and Dudu. They cover 3341.4 sq. km. area of district and 17.49 per cent (523) villages of the District. They are in rugged and bad land areas of Jaipur district. The inter-village spacing of these panchayat simities varies from 3.187 (Dudu) to 2.223 km (Amber). These panchayat simities have average village area between 8.79 km. (Dudu) 5.57 sq. km. (Kolputli), 4.28 sq. km. (Amber) observed distances (o) are 2.138 km. in Dadu to 1.641 km. Amber, while the expected distance of Dudu, Kolpulti and Amber are 1.383, 1.182 and 1.036 km. respectively. The Rn value of these panchayat simities are 1.545 (Dudu), 1.541 (Kotputli) and 1.583 (Amber).

High Regularity (> 1.676):

This area include only the two panchayat simities (Sanganer and Chaksu) with RN value 1.734 and 1.917, incorporating 1334 sq. km. area and 483 villages 915.48%) of total villages of Jaipur district. The observed intervillage distance (o) in these panchayat simities are 1.464 (Sanganer), and 1.634 (Chaksu) while expected inters village distance (E) is 0.844 (Sanganer), 0.852 (Chaksu). These two panchayat simities are located in south-central parts of the district having high regular distributional pattern of settlement in it.

On the basis of the for going discussion in it may be concluded that trend of dispersion has in every case been found towards regularity. So Dacey's Regular poisson probability law^ is quite applicable in thus case, because the emperical variance mean ratio here is always less than 1. The deviation index of nearest neighbour has also been tested with use of normalizing index of random disturbances whose intensity has been measured by using following mathematical formula[2].

$$Di = o/(l.0750 / \sqrt{2})$$

Table 4.7 shows that the normalizing index (Di) values, in various panchayat simities of the district ranges from 0.542 (Sikrai) 0.810 (Sanganer) indicating clear tendency towards regularity.