CHAPTER - VI

HIERARCHICAL SETUP OF MARKET CENTRES

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CHAPTER - VI

HIERARCHICAL SETUP OF MARKET CENTRES

6.1 THE CONCEPT OF HIERARCHY:

Geography is known as the science of spatial organization. The prime concern of geographical study of marker centres is their location, distribution and spatial interaction. Market centres and their infrastructures are integral parts of a spatial organization. Market centres have a tendency of concentration of activities, which forms a base for spatial interaction. The relative locational pattern of market centres can be examined in terms of hierarchy.

The concept of hierarchy is widely used by geographers, economists and many other specialists of different disciplines. It is used in marketing geography not only for identification of various categories of market centres, but also for organizing market centres within the study area. In every region there are few large in size or regional market centres, a medium size or sub-regional and local or primary market centres performing complementary functions. Market hierarchies can be determined on the basis of numbers of retail/wholesale establishments, threshold, aspects like size of market area, volume of commodity arrivals, total turnover etc. The pattern of market hierarchy based on the detailed analysis will provide a base for planning and development of the market centres.

A study of hierarchical pattern is essential in order to understand the:

i) Spatial interdependence of the centres,
ii) Functional wholeness of the system, and

iii) Clear classification of centres

But the fundamental problem of hierarchy is the determination of successive categories of the market centres in a region. Numbers of geographical studies have been done in this respect but they are of varied nature in terms of selection of variable and also in methodology. These studies can be broadly divided into two categories:

i) Studies based on ‘equipment’, and

ii) Studies based on ‘functioning of equipment’.

According to Scott (1970) classification of market centres must be based on overall importance. He stated by considering composition of different types of trade, froms of organization, size of establishments, size and structure of market area, but in-reality it is very difficult to measure all the elements in terms of numerical value and also to correlate all these elements with each other. The hierarchy determined on the basis of each of the above-mentioned elements will differ from region to region. The total number of shops in a market centres and size of the market area may be considered as two variables, which can be used for determination of hierarchy in a simple manner.

The another method of determining the hierarchy is the functioning of the ‘equipment’. It is based on the sum total of annual turnover, in the form of total value and marketed arrival. But it is very difficult to obtain data regarding annual, turnover, as well as total marketed arrival, especially in a developing region.
6.2 REVIEW OF METHODS:

The hierarchy of central place has been determined by various methods.

The term 'central place' was first used by Mark Jefferson (1931, 1939) to denote a settlement, which is the focal point of one or more economic and social activities of its surrounding area. Walter Christaller (1933) popularised this term, which is in wide use now. Reilley (1929) identified the relationship between the size of settlement and its complementary region and stated that the complexity of functions prevailing in a larger settlement is much more than that of a smaller one and hence size of the central place is highly correlated with the size of its hinterland. According to Christaller, a hierarchical class system is inevitable in a spatial model of central places, which belongs to one or the other class sets/sub sets. Christaller postulated three basic models on the basis of the assumption of an isotropic surface where hexagonal patterns of centrality emerge. Christaller has developed three controlling principles for the central place hierarchy. These are as follows:

i) The marketing principle $K=3$. All areas are served from a minimum set of central places.

ii) The transport principle $K=4$, here the distribution is such that as many places as possible lie on the main transport routes connecting the higher order centres.

iii) The administrative principle, $K=7$. Better administration is the controlling factor of this principle.

Christaller’s central place theory is a much discussed theory and today very few accept all the aspects of his work, despite the criticism, his
work has stimulated some of the most advanced and scientific work in geography.

August Losch (1939), who modified central place theory, was another scholar whose economics of location was concerned with the central problem of the location of economic activity. He gave more importance to the economic factors, which are more important for spatial pattern of service centres or settlements. He, too, presumed the equal distribution pattern over flat plain with self-sufficient farms equally spaced. Spatial differences would emerge due to forces of concentration and of the operation of economies of scale (Saxena, 1990).

Thorpe (1968) on the basis of sales figures of all English centres has developed hierarchy of services and trade centres in the U.K. He has identified seven types of centres. While, Carruthers (1967) proposed a complex method of determining the hierarchy by using three indices. These indices are, first proportion of non-food sales to the total; second, difference between the volume of actual and ‘theoretical’ sales, and the third is related to the presence in each centre of six types of shops, i.e. shoes, men’s wear, female clothing, furniture and furnishing, radio, electrical goods and cycles, jewelry, leather and sports goods.

Berry’s (1967) identification of the hierarchy of central places in southwestern Iowa, South Dakota and Chicago is the most notable work in U.S.A. He has identified seven levels of hierarchy, viz., Hamlet, village, large village, small town, regional centre, regional metropolis and national metropolis; based on different variables and their correlations.

Rechard E. Preston (1971) has tried to give a new method to find out
the hierarchy of central place. He has used the technique of moving average. The cumulative average of differences when plotted on a graph shows more than one slopes. These different slopes can identified as different groups of central places of different orders.

In India, studies on hierarchy of market centres have been carried out by Vishwanath (1967), Mukherjee (1968), Sinha and Mandal (1974), Saxena (1975), Srivastava (1976) and Jana (1978). Jana has claimed to present a composite hierarchy considering the attendance at a market; the equality and quantity of goods trade, the periodicity of market centres and other factors (1978). Srivastava (1976) has put up a new methodology based on the number of shops and the total openings at the market centres on Naougarh tahsil of Basti District, Uttar Pradesh. Dixit (1984) has also made significant attempts in this direction.

The review of the various studies of hierarchic class order indicates that, there is no uniform scale for classifying the central places.

6.3 CHOICE OF THE METHODS FOR PRESENT STUDY:

In the present study, centralities scores are obtained for all the 64 market centres with the help of Location Quotient Method of Davies (1967). However, the centralities scores obtained by Davies method are used to classify market centres into different hierarchic order. All the market centres are ranked in order or their centralities scores, and they are plotted on ‘X’ axis and centralities scores on ‘Y’ axis, then the graph shows clear grouped distribution (Graph 6.1). Class limits on an interval, which varies in some regular ways, are the most difficult to calculate.

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JALNA DISTRICT

Centrality Rank & Hierarchy of Market Centres

Graph 6.1
6.4 REGIONAL ANALYSIS OF HIERARCHIC ORDER OF MARKET CENTRES:

As stated above with the help of semi-log graph the hierarchy of market centres is determined which are grouped into four classes Table No. 6.1 gives details about hierarchic order, centrality range, number of market centres and their percentage to total in each category.

The analysis reveals that nearly 50 percentages of the total market centres are grouped into fourth hierarchic order of market centres, which have low centrality values. These small market centres serve most of the rural population of the study region, which have got more importance because of their nearness. It is an indication of developing stage of study region.

Third order market centres, which have centrality values between 25 to 100 accounts for 40.63 percentages of the total market centres of the study region. Whereas second order market centres have centrality values between 100 to 300, which accounts for 7.81 percentage of the total market centres. The regional analysis of market centres as follows:

i) Regional Market Centre

Only one market centre in the entire region has got the status of regional market centre i.e. Jalna (Map 6.1). Its centrality score is maximum; (1786.64) and it is the district head quarter and biggest town of the region. It has not only high-level functions in all facilities but also high volume in all the funcions, where most of the commercial, social, and administrative district and divisional offices are housed. It is historical, religious and old trade centre also, located on state highway, it is also connected by Railway.
### Table No. 6.1
Jalna District: Hierarchic Order, Centrality Score, NO. of Market Centres and Their Percentage to Total.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Hierarchic order</th>
<th>Category</th>
<th>Centrality Range</th>
<th>No. of market Centres</th>
<th>Percentage to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I</td>
<td>Regional market centre</td>
<td>Above 300</td>
<td>1</td>
<td>1.56</td>
</tr>
<tr>
<td>2.</td>
<td>II</td>
<td>Sub regional Market centres</td>
<td>100 to 300</td>
<td>5</td>
<td>7.81</td>
</tr>
<tr>
<td>3.</td>
<td>III</td>
<td>Intermediary market centres</td>
<td>25 to 100</td>
<td>26</td>
<td>40.63</td>
</tr>
<tr>
<td>4.</td>
<td>IV</td>
<td>Small/Local market centres</td>
<td>Below 25</td>
<td>32</td>
<td>50.00</td>
</tr>
</tbody>
</table>

| Jalna District | 64 | 100.00 |

Source: Compiled by researcher.

Jalna market centre is famous for Dal Mills, Re-Rolling steel and Oil mills. Jalna being a largest market centre in the region, provides goods and services to its next order market centres for further distribution. It has got regional, as well as state status, Jalna is famous for its seeds industry’s also. In this away, Jalna at the apex of hierarchy supplies goods and services to it’s lower order market centres and covers the whole study region and adjacent area too.
ii) Sub Regional Market Centres

The market centres viz; Ambad, Partur, Bhokardan, Mantha and Jafferabad are large market centres (Map 6.1). All these market centres are well endowed by rich hinterland and thus characterized by a wide range of goods and services. They integrate the services of a number of market centres around them. Centrality score of these centres ranges between 100 to 300. Both maximum concentration and variety of functions have characterized these market centres of second order or sub-regional. These sub-regional centres are also clearly distinct from both the higher order centres and the next lower order centres in terms of variety of functions and goods and services provided.

Ambad has got sub-regional importance in agricultural marketing and famous for sugarcane. Mantha is renowned for it's cattle market and it is also important trade centre. It is also linked with parbhani and Jalna to forwarded trade and has got nodal position. Bhokardan has got sub-regional importance in agricultural marketing and famous for chilly. It is located on the right bank of Khelana river and head quarter of Bhokardan tahsil. By means of transportation and communication, number of public and social services are available at this place. Whereas Partur and Jafferabad are the important trade centres of the study region, located in agriculturally prosperous hinterland.

iii) Intermediary Market Centres

These are 26 market centres in the third hierarchic order (Map 6.1) out of which two market centres are tahsil head quarters viz; Badanapur and Ghansawangi, while remaining centres are medium market centres. The centrality score of this class ranges between 25 to 100. Most of the
JALNA DISTRICT
Hierarchy of Market Centres

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Map 6.1

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centres included in this class are comparatively away from the transportation network. In these market centres adjacent people from the villages came to sell their product and purchase goods and services to fulfill their daily needs and for their home consumptions.

iv) Small or Local Market Centres

In the fourth hierarchical class thirty-two market centres have been identified, which have immense local importance. The centrality score of this class range below 25 (Map 6.1). The centres of this group and rural service centres are characterized as small village markets. As they are large in number, their are large variations in their functional character. Most of the centres are actually over growing village and market held once in a week. Here farmers come to sell their produce and purchase the goods required for a week’s period.

6.5 APPLICATION OF CHRISTALLER’S CENTRAL PLACE THEORY:

According to christaller’s central place theory the size and distribution of central places is based mainly on the principle of marketing (K-3). In the widely known important marketing principle (K-3) system model. The frequency of occurrence of different levels of central followed the progression from large to small as 1, 2, 6, 18, 54 and so on.

The observed frequency of central places in the study area is 1,5,26 and 32 (Table 6.2). After a comparative study, it is observed that there is total application of Christaller’s model in the first order where observed number and theoretical number is the same. But at the higher level the
number of observed central places are much more than the theoretical

Table NO. 6.2

Jalna District: Theoretical and Exisitng Hierarchy

<table>
<thead>
<tr>
<th>Order of market Centres</th>
<th>Number of central places</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theoretical</td>
</tr>
<tr>
<td>Fourth</td>
<td>18</td>
</tr>
<tr>
<td>Third</td>
<td>6</td>
</tr>
<tr>
<td>Second</td>
<td>2</td>
</tr>
<tr>
<td>First</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: complied by researcher.

number (expected). Deviation from the theoretical number can be explained by the fact that the preliminary selection of 64 places was arbitrary. Because we consider all the market centre of the study area as a central places; but actually most of them are not fulfilling the criteria of central places. Thus it is concluded that the hierarchy of market centres in the study are is distributed according to the marketing principle of Walter Christaller, he developed his model by considering the following characteristics: (Christaller, 1933).

i) The area was a featureless plain devoid of natural or man made features.

ii) Movement was possible in any and every direction, a situation described as an isotropic surface.

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iii) Population and purchasing power of consumers were uniformly distributed and

iv) Consumers act rationally in space according to the principles of distance minimization.

But the study area presents the contrast picture. The northern part of study region is hilly and undulating, while eastern part is relatively plain, thus the topography is undulating. In the hilly area due to the lack of transportation facilities, freely movement is not possible as the situation described in an isotropic surface. Population and purchasing power of consumers is also unevenly distributed in the study area. However consumer act rationally in space according to the principles of distance minimization and availability of transportation facilities. That is why the results obtained do not match perfectly with his theoretical numbers.
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