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TYPOLOGY OF SERVICE AREAS OF PERIODIC MARKETING SYSTEM AND NETWORK

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ABSTRACT : The paper attempts to analyse critically the resultant of the spatital interaction among Periodic Market--Places, stemming from the buyer travel behaviour. The phenomenon gives rise to the proposed tentative typology of service areas, embracing (1) Embedded service area/areas with single, double or/and multiple overlaps (2) Single overlap service area (3) Double overlap service area (4) Multiple overlap service area (5) Exclusive service area (6) Negative service area (7) Mutually contiguous service area and (8) Discrete service area, marking a distinct departure from the regular and uniform hexagonal shape of market areas (service areas) in the real world situtation, as against postulated in the Central Place Theory. An attempt has also been made to establish correlationship between exclusive service area and single overlap area.

Introduction

Though it has been fully recognised that overlaps among service areas (called Market-Foci by Tamaskar, 1966; Karve and Acharya, 1970; Shrivastava and Shrivastava 1975; Tamaskar, 1966 and 1978), of periodic market-places occur, it still remains to make an indepth examination and critical analysis of nature, character, magnitude, causes and consequences, and categories of this phenomenon of spatial interaction among existing periodic market-places. The authors of this paper venture to claim that they have broken a new ground by proposing a tenta tive typology of different categories of service areas of periodic market-places. The satisfactory solution for semantic problem posed by the indiscriminate use of corresponding equivalent terms by other scholars in this sub-field of studies, namely Market Area (Bradford and Kant, 1978), Market Area Region (Shrivastava and Shrivastava, 1975), etc. has been found by the authors of this academic exercise by adhering to the term, viz. service area, chosen by them and defining it for the exposition of the postulated typology. The conceptual constructs of simple or complex intersections of service areas of adjacent Periodic Market-Places have been visualised earlier vaguely (Karve and Acharya, 1970), without indepth comprehension of their taxonomy.

The causes of overlaps of service areas of adjacent Periodic Market-Places may be attributable to the non-existence of an isomorphic surface and uneven distribution of populations, irregular network of unequally spaced Periodic Market Places and differing intensities of marketing activitis, associated with high and low order of goods and services at relatively vigorous and less active Market Centres respectively, coupled with differing degrees of commu-

nication and transport links and service frequencies in the real world situation.

The spatial arrangement of Periodic Market Places gives quite a wide latitude to the buyer to select anyone of their nearby counterparts for visit at one's own convenience, combining sometimes this trip with some purpose other than mere purchase of commodities / services needed for every day life.

The nature, degree and other allied attributes of overlaps of service areas of Periodic Market-Places have been ignored by learned scholars for want of relevant and suitable data available for them.

Hypothesis

From the above premises, it may be hypothised that the spatial interaction of the buyer travel behaviour generates overlaps of service areas of adjacent Periodic Market-Places of varying magnitude and categories. This is a telling empirical evidence of the notable departure in the real world situation from the regular and idealiesd model of hexagonal shape of service areas of 'markets' (Market-Places/Central Places), postulated in the Central Place Theory. However, some service areas of Periodic Market-Places are discrete, being immune from the spatial interactions of Proximate Periodic Market-Places, caused by their isolation, imposed by interposing negative areas of forests, blocks of deserted villages, other physical barriers such as hills, swamps, etc.

Methodology

The methodology involves data collection from the field inquiry as well as from the Government Publications, such as relative District Gazetteers.' Both the sources of information are not entirely reliable and fully exhaustive. The data collected from the field inquiry, it may be admitted, are unconsciously subjective without any professed intention therefor, and hence, fragmentary and partially reliable. A close examination of District Gazettees reveals the omission of names of Periodic Market-Places visited by residents of certain villages due to the indifferent attitude of compilers of the information. Nowhere do we come across names of villages from which their residents visit more than one Market-Place, which is far from empirical evidence, available from the field inquiry.

Secondly it has been defined that the service area of any Periodic Market-Place coincides with the area from which buyers attend a given Weekly Market-Place to obtain goods and services of everyday need (Tamaskar and Gedam, 1979A) Evidently, this defintion does not conform to the concepts of threshold population and the range of a good as postulated in the Central Place Theory. It has been maintained elsewhere that sites of Periodic Market-Places in the recent past exhibit focussing points of very different order than those of settlements and are even independent of the existence of their placements, when located in them (Hodder, 1965).

Illustrative examples of such interactions and their resultants have been culled out from studies of Periodic Market-Places of the Sagar-Damoh Plateau (Tamaskar 1966); the Chhastisgarh Plain (Tamaskar 1978), the Arvi Upland (Tamaskar 1979 unpublished typescript) and the Wardha Valley (Gedam 1979).

Exposition

It stems from the methodology adopted for the analysis of the chosen spatial problem that spatial interaction of travel behaviour pattern of buyers to Periodic Market-Places gives rise to a number of different categories of their service areas. The analysis discloses the following theoretical typology of service areas of Periodic Market-Places, which do not exactly conform to intersections in the Venn Diagram.

(1) Embedded service area

This can be further sub-divided in-to

(a) Embedded- cum-single overlap service area

(b) Embedded-cum-double overlap service area and,

(c) Embedded – cum– multiple overlap service area,
(2) Single overlsp service area
(3) Double overlap service area
(4) Multiple overlap service area
(5) Exclusive service area
(6) Negative service area
(7) Mutually contiguous service area
(8) Discrete service area

The followlng brief comments on this typology will serve to highlight the nature and character of various categories of service areas of Periodic Market Places.

(1) Embedded service area

Service areas of less vigorous Periodic Market–Places lie within the service area of their more vigorous prototype.

(a) Embedded–cum–single overlap service area

Mutually intersecting service areas of two adjacent less vigorous Periodic Market-Places, which lie embedded within the service of their more vigorous counterpart

(b) Embedded–cum–double overlap service area

Double overlapping portions of service areas of three adjacent less vigorous Periodic Market Places, which lie embedded eithin the service area of their more vigorous prototype.

(c) Embedded-cum multiple overlap service areas

Multiple overlapping portions of service areas of more than three adjacent less vigorous Periodic Market Places, lying embedded within the service area of their more vigorous counterpart.

The above – mentioned categories – of embedd service areas are exemplified by the service area of Morshi in the Wardha valley

(2) Single overlap service area

Portion or portions of service areas of two or more than two Periodic Market-Places merely intersect each other on their margins. The interaction of this category may be instanced by Periodic Market-Places,namely Morshi, Vijaygopal and a few others of the Wardha Valley, (Table–I, 1 to 5) and Tarasawanga and Kannamwargram of the Arvi upland (Table II).

(3) Double overlap service area

A partial overlap of service area of a third adjacent Periodic Market–Place over the intersected margins of service areas of two other prototypes.

The Periodic Market– Places, namely Vijaygopal and Kurha (Table I) of the Wardha Valley, and Mowar and Jalal-kheda of the Arvi upland (Table II) are examples in point of this category.

(4) Multiple overlap service area

This category be identified in which more than two overlaps of service areas of adjacent Periodic Market-Places may occur but no example of this category has yet been found, excluding embedded–cum–multiple overlaps of service areas, already cited in the supra.

(5) Exclusive service area

The residual service area under the exclusive command of a single Periodic Market Place. Obviously, this portion of the service area discloses immunity from the spatial interaction of proximate Periodic Market–Places.

(6) Negative service area

This represents vecuum in the spatial interaction among Periodic Maket – Places corresponding to forest–clad tracts, blocks of deserted villages, other effective physical barriers such as hills, swamps, etc. among service areas of adjacent Periodic Market–Places.

The occurrence of such negative areas can be observed in Table–I, evidenced by the existence of interposed forected tracts, isolating nearby Periodic Market–Places.

(7) Mutually contiguous area

This category of service area can be theoretically conceptualised in the spatial arrangement of Periodic Market–Places positioned in adjacent villages, with their closely packed cluster/clusters of irregular net work/ networks, fully integrated by temporal synchoronization. A striking example of this

Table—I

Number of Buyers and Areas of Different Categories

Serial No.	Names of Market Place	No. of buyers	Categories of service Areas (Sq. Kms.)										
			(1)	(1/a)	(1/b)	(1/c)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Morshi	5500	154.9	115.9	33,15	33.41	44.03	—	—	176.20	19.1	—	—
2.	Vijayagopal	1000	—	9.85	—	—	48.17	7.92	—	209.53	9.1	—	—
3.	Kurha	2250	—	—	—	—	48.43	6.73	—	318.30	24.2	—	—
4.	Nandgaon Khandeshwar	1250	—	—	—	—	41.4S	—	—	162.39	3.0	—	—
5.	Kandhali	8.50	—	—	—	—	105.15	—	—	615.90	3.4	—	—
6.	Rajura	2250	—	—	—	—	—	—	—	546.23	2.6	—	—
7.	Bewarti (F) Patanda (M) Salhetola (T) Sagoda (Sa) Markatola Lehegaon (Su) Kanhanpuri(Th) Chanara (T) Chavada (W)	Not available	—	—	—	—	—	—	—	—	—	—	—
8.	Masod and Borgaon Gondi	222 98 (Estimated)		—	—	—	—	—	—	—	—	—	29.40 12.40

Explanations ; + From the Chhattisgarh Plain From the Arvi and the rest are from the Wardha Valley.
(Su) : Sunday, (M) : Monday, (T) : Tuesday, (W) : Wednesday, (Th) : Thursday, (F) : Friday and (Sa) : Saturday.

has been noticed in the vicinity of Kanker close to the upper course of the Mahanadi River in the Chhattisgarh Plain. The thickly populated riverain tracts of the Kankar Basin constitute a part of the most extensive and closely packed cluster of irregular network of Periodic Market-Places, adjacent to each other in contiguous villages. Manifestly, itinerant sellers choose to approach their patrons in their residential villages rather than buyers going to the farmer in such areas. This mobile seller behavioural pattern is repeated in the southern part of the Mahanadi-Sheonath Doab of the Chhattisgarh plain. Obviously enough, the buyer travel distance in such cases is minimised normally, not exceeding an average of 2.5 Kms. The close spatio-temporal spacing of Periodic Market-Places highlights a wide latitude to any buyer to visit any adjacent Market-Place at one's will and convenience with ease and facility. The resultant of this interacting process implies the hypothetical overlap of the service area of a given Periodic Market-Place with service areas of its adjacent counterparts, with local buyers, outnumbered by those visiting from juxtaposed villages. The example cited violates the generally accepted rule, namely, 'spatial proximity is inversely related to temporal proximity (Bromley, 1971).

(8) **Discrete service area**

Mutually independent and exclusive service area of one of the two or more proximate Periodic Market-Places is marked out for the absence of spatial interaction among them in that particular Market-Place to generate discrete service area. The best examples of discrete service areas are offered by the Periodic Market-Place, namely, Masod and Borgaon Gondi on the Arvi Upland.

The above typology can lend itself to statistical analysis of each category of service area of the sampled Periodic Market-Places and number of buyers in each service area, wherever available. The statiscal values of these itemes are set forth in Table. I

In addition to the above, in the Table II, the different categories of overlap of service areas of five accidental samples of Periodic Market-Places of the Arvi upland are set forth to bring out the possible correlationship between single overlap service areas and their corresponding exclusive service areas.

The calculated value of Spearman's rank correlation between single overlap service areas and corresponding exclusive areas is less than the critical value at 4 degrees of freedom with 0.05 significance level of one-tailed test (Ebdon, 1977). Ho hypothesis, namely, there is no correlationship between these two variables is rejected and, in other words, there is a significant statistical correlationship between these two variables.

The above table spotlights the occurrence of exclusive and single overlap service areas in all the Periodic Market-Places with two instances of additional double overlap service areas also.

Conclusion

The hypothesis posed at the beginning of this paper has been tested and stands verified in a large measure, except the non-occurrence of overlaps of service areas of Periodic Market-Places, giving rise to **dicerete** service areas due to the inertness of spatial interaction among their proximate counterparts, resulting from the socio-economic and physical variables already mentioned above. Manifestly, the magnitude of spatio-temporal spacing and, spatial arrangements of Periodic Market-Places have generated their varying extents and shapes of service areas, marking notable departures from uniformity of service area extents and their regular hexagonal shape, as postulated in the Central Place Theory.

The authors can hardly claim to advance the final word on the typology of and taxonomy of service areas of Periodic Market-Places, since it still leaves several points unexplored, concerning the undiscovered nature and precise nature and

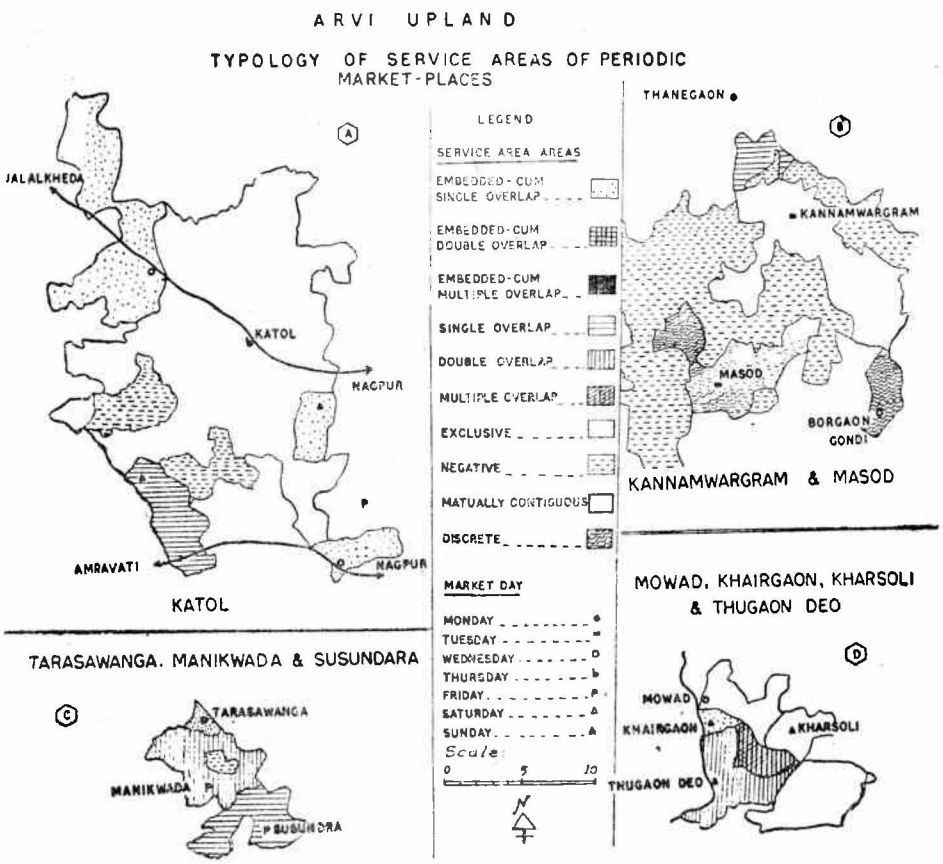

Table II

Overlaps of Five Sampled Periodic Market-Places
Arvi Upland

Sr. No.	Market place	Observed No. of buyers.	Double overlap area in Sq. Kms.	Single overlap service area in Sq. Kms.	Exclusive service area in Sq. Kms.
1.	Tarasawanga	50	—	14.50	5.71
2.	Mowad	3000	96	10.18	12.86
3.	Katol	12000	—	41.22	102.31
4.	Kannamwargram	500	—	7.02	31.31
5.	Jalalkheda	1000	5.16	5.95	37.34
	TOTAL :	16050	12.12	71.83	96.55

degree of overlap of service areas, degree, and precise nature of mutual correlationship between various categories of overlaps dependent on variables such as populations, areal extents of service areas, transport links, opportunities for the purchase of several orders of commodities and services at different Periodic Market-places. It would be quite interesting, illuminating and enlightening to develop suitable conceptual / mathematical model / models to incorporate one and all implcaitions of spatial-interactions among proximate Periodic Market-Places.

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