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Spatial Aspects of Sex Composition and Population Density in an Indian City

DO Indian cities exhibit certain patterns with respect to spatial distribution of sex composition and population density? The two important questions in this regard are: are there certain zones within Indian cities which have moro males than females? And in which zone(s)-inner, middle or peripheral—males outnumber females? Data from Western countries, particularly from the United States, show that generally speaking, the city center is dominated by males, and as the distance from the center increases males and females tend to be distributed evenly; in the outlying districts females predominate in numbers over males. For example, McKenzie's investigation in Seattle, U.S.A. shows $

> In the city of Seattle, which has in general a sex composition of 113 males to 100 females, the downtown district, comprising an area inscribed by a radius of a half mile or so, has from 300 to 500 males to every 100 females. But in the outlying districts of the city, except in one or two industrial sections, these ratios are reversed. Females predominate in numbers over males in all the, residential neighbourhoods and in the suburbs of the city (1967 : 78).

Newcomb's study in Chicago (1959) and investigations by sociologists in some other large-sized urban centers in the United States largely support McKenzie's conclusions. We have some data on cities in India also. For example, Bopegamage's research in Delhi supports McKcnzie's findings. He observes, "'as in some American cities so here (in Delhi) there is a pattern in the distribution of sex proportion, i.e , a tendency towards an even proportion among

Sexes, as one proceeds from the center of the city to the periphery" (1960 : 93).

Berry and Ress* investigation in Calcutta reveals, "The commercial core houses most of the 'side-walk sleepers*, largely young males, whereas the dominantly residential areas of the outer zones of the city have more balanced sex ratios and concentration of mudwalled dwelling" (1969 : 470).

A second question is concerned with, the spatial distribution of population density ; are there certain zones within Indian urban centres which have a higher population density and in which zones(s)—inner, middle or peripheral—they are located? Again, investigations in the cities of the United States show that there are certain variations as between the central and outlying zones. About two decades and half ago Colin Clark (1951) developed his density-gradient theory. He argues that population density decreases with distance from the city center. Latter researches in Western urban centres have largely supported him (Berry *et al*, 1963). Studies in Indian cities have emphasized the "striking contrasts between densities of inner and peripheral wards" (Breese, 1966 : 62). For example, gross densities in Delhi "range from an average of 13.6 persons per acre in New Delhi to an average of 213.34 persons per acre in old Delhi" (Breese, 1966 : 62). Basing himself in Ellefsen's data, Breese points out, "In what he (Ellefsen) refers to as 'British Period Developed Cities' (Bangalore, Bombay, Calcutta and Madras) the differences in persons per inner and peripheral square mile range from 3 :1 to 5 : 1; 'in Pre-British Period Developed Cities* the ratios of inner to peripheral densities are approximately Ahmedabad 8:1, Allahabad 6:1, Banaras 8:1, Baroda 9:1, Delhi 13 :1, Hyderabad 4:1, Kolhapur 5:1, Lucknow 4 : 1, and Poona 8 : 1" (Breese, 1966 : 62).

:Keeping the above considerations in mind an attempt is made in this paper to throw some light on the spatial aspects of sex composition and population density in Hyderabad. More specifically, this paper is concerned with an examination of the following question: does Hyderabad resemble large cities in the 'United States with respect to the spatial aspects of sex composition and population density?

Sex Composition

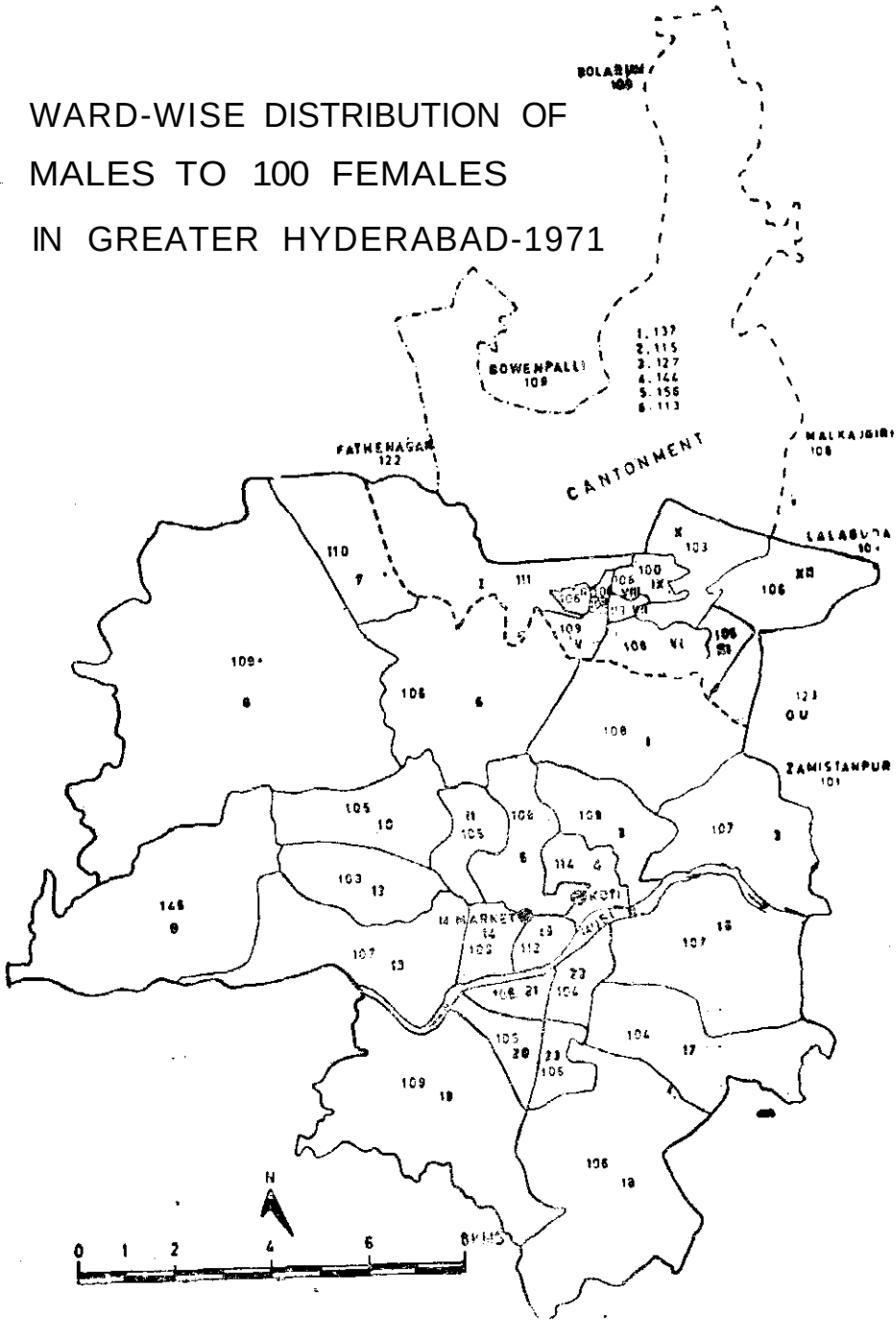
According to 1971 census, Hyderabad Urban Agglomeration has a general sex composition of 109.11 males to 100 females. This is slightly lower for the Hyderabad Corporation area (108). The Hyderabad Urban Agglomeration consists of 35 wards in the Hyderabad Corporation, six in the Cantonment and Seven other towns. A careful examination, of ward-wise distribution of sex Composition (Table 1, Fig. 1) shows that it ranges from 103 to 156 males to 100

TABLE 1—WARD WISE DISTRIBUTION OF MALES TO 100 FEMALES HYDERABAD URBAN AGGLOMERATION, 1971

General Sex Composition for the Agglomeration 109.11
General Sex Composition for the Hyderabad Corporation 108.00

Ward	*Males*	*Ward*	*Malts*
Hyderabad Division			
1	*108*	*13*	107
2	106.8	14	106
3	109	15	112
4	*114*	16	107
5	108	17	104
6	106	18	106
7	110	*19*	109
8	109.8	20	105
9	145	21	105
10	105	*22*	104
11	105	23	106
12	108		
Secunderabad Division			
I	111	VII	113
II	106	VIII	106
III	108	IX	100
IV	106	X	103
V	109	XI	105
VI	108	XII	106
Cantonment and other Units			
1 ..	137	Osmania University ..	123
2 ..	115	Zamisthanpur ..	101
3 ..	127	Fatehnagar Town ..	122
4 ..	144	Bowenpalli Town ..	109
5 ..	156	Macha Bolaram Town ..	109
6 ..	113	Lallaguda .	109
		Malkajgiri ..	108

SOURCE : Census of India, Hyderabad District Handbook, 1971.


WARD-WISE DISTRIBUTION OF
MALES TO 100 FEMALES
IN GREATER HYDERABAD-1971
BOLARUM
BOWENPALLI
CANTONMENT
FATHENAGAR
MALKAJGIRI
LALAGUDA
ZAMISTANPUR
N
0 1 2 4 6 8 KMS

rig. 1

females. *16 out of 41* wards and other towns have more males **than the city's general sex** composition.

However, only 4 of them (Ward 9 in the Hyderabad division and Wards **1,4** and 5 in the Cantonment) show considerable number of males; they have 145, **137, 144,** and 156 males, respectively. What deserves special emphasis here is that, contrary to what is found in large American cities, they are located at the periphery of Hyderabad and in no inner ward do males outnumber females substantially. These four zones have more males because they primarily perform military functions and the number of residential structures is very small. **Further,** here one rarely comes across multistory residential buildings.

Of the other *12* wards which show more males than the city's general average, two are at the center (wards *4* and 15; some blocks of which are a part of the central business district), the remaining 10 are in the middle and peripheral zones of the city (Table 2).

Ward being a larger unit for analysis, sex ratio at block level has been computed for the central area in Hyderabad with a view to gain a better under-Standing of this problem. There are 19 blocks in the central business district and 11 of them have more males than the city's general sex composition; the sex ratio varies from 100.5 to 128.23. Except block I in Ward 4, which has 128 mates no significant inter block variation in sex ratio exists to support the view that Hyderabad resembles cities in the United States. As pointed out earlier, the centra) area in the American city has, some times, as high a sex ratio as 500.

If the ward-wise distribution of sex composition is examined, without taking into consideration Hyderabad's general average, in all wards except one, males outnumber females. Wards with more males are found not only at the city's center but also in the middle and peripheral zones.

The proceeding discussion suggests the following conclusions: (1) areas with higher than the city's general sex ratio are mostly located at the periphery of Hyderabad, (2) Wards with more males than females are found not only at the center but also in the middle and outlying zones, and (3) the sex ratio lacks consistent variation with distance. In other words, one does not come across a more balanced distribution of males and females with distance from the city center; and there is no zone in the city where females predominate in numbers over males.

Why does not Hyderabad resemble large American cities? The most important factor that seems to account for lack of consistent variation in sex ratio between the central, middle and peripheral wards of Hyderabad is related to the functions of the central business district. Unlike in large American cities, Hyderabad's centra! business district performs both commercial and residential

TABLE 2-AREA WISE DISTRIBUTION OF MALES TO 100 FEMALES, HYDERABAD URBAN AGGLOMERATION, 1971

Area	*Males*
General Sex Composition for the Urban Age lomeration	109.11
General Sex Composition for the Hyderabad Corporation	log.00
Central **Areas :**	
Hyderabad Division	106, 108, 112, 114
Secunderabad Division	106, 106, 106, 113
Middle Areas:	
Hyderabad Division	104, 105, 105, 105, 105, 106, 106, 108, 109
Secunderabad Division	100, 103
Peripheral Area :	
Hyderabad Division	104, 105, 106, 106.8, 107, 109, 109, 145
Secunderabad Division	105, 106, 108, 109, 111
Cantonment and Other Units	101, 108, 109, 109, 109, 113, 115, 122. 123, 127, 137, 144, 156

SOURCE : Census of India, Hyderabad District Handbook, 1971.

functions. In a vast majority of cases only the ground floor is used for business and upper floors and the rear rooms are utilised for residential purposes. But, strictly speaking central areas of large American cities are devoid of residential functions. As Blumenfeld observes "The most conspicuous occupant of the center is diversified retail business: large department stores and speciality shops. It is, surpassed in importance, however, by the closely inter-related complex of business services that occupy the giant office buildings characteristic of the central areas of metropolis: the headquarters of corporations, fianancial institutions and public administration and professionals who serve them, such as lawyers, accountants and organizations engaged in public relations*' (Blum enfeld, 1970 : 49-50).

Population Density

The average population density of Hyderabad Urban Agglomeration is 28 persons per acre (17,934 per square mile). However, the density will be much more if it is computed only for Hyderabad Corporation area; it is 38.42 persons per acre (24,589.2 per square mile). This difference is caused by the presence of enormous vacant lands in the Cantonement and other parts of the Agglomeration. Hyderabad Corporation covers an area of 65.37 square miles (41,836.8 acres). This accounts for 67 per cent of the Agglomeration's total area; but 91.5 per cent of the city's population live here. Though the Cantonment and other 6 units cover 33 percent (little over l/3rd) area, less than l/10th of the population (8.5 per cent) live here.

As can be seen from Table 2, Fig. 2, gross densities in the Hyderabad Urban Agglomeration range from as low as 1.55 persons per acre in the outlying zones to as high as 283 per acre in the inner zones.

The ratio of maximum to densities is 190 : 1. Generally speaking, highest densities occur in the oldest parts of the city. Wards 20, 21, 22, 23, 14 and 15 on either side of the Musi river are the oldest districts where population density varies from 131 to 188 per acre. What has to be stressed here is that the oldest areas and the central zone do not coincide; only some parts of Wards 14 and 15 can be considered as parts of the city's commercial core. Next oldest districts are located in the Secunderbad division where densities are much higher. These are wards 2, 3, 4, 7 and 8, which have 147, 189, 283, 198 and 207 persons per acre respectively. Unlike Hyderabad, here, the oldest zone and the commercial core coincide. Though all these wards are fully built up$_t$ some blocks within them, are more intensively built up; consequently, one comes across many multistory residential buildings. In addition, some of the narrowest

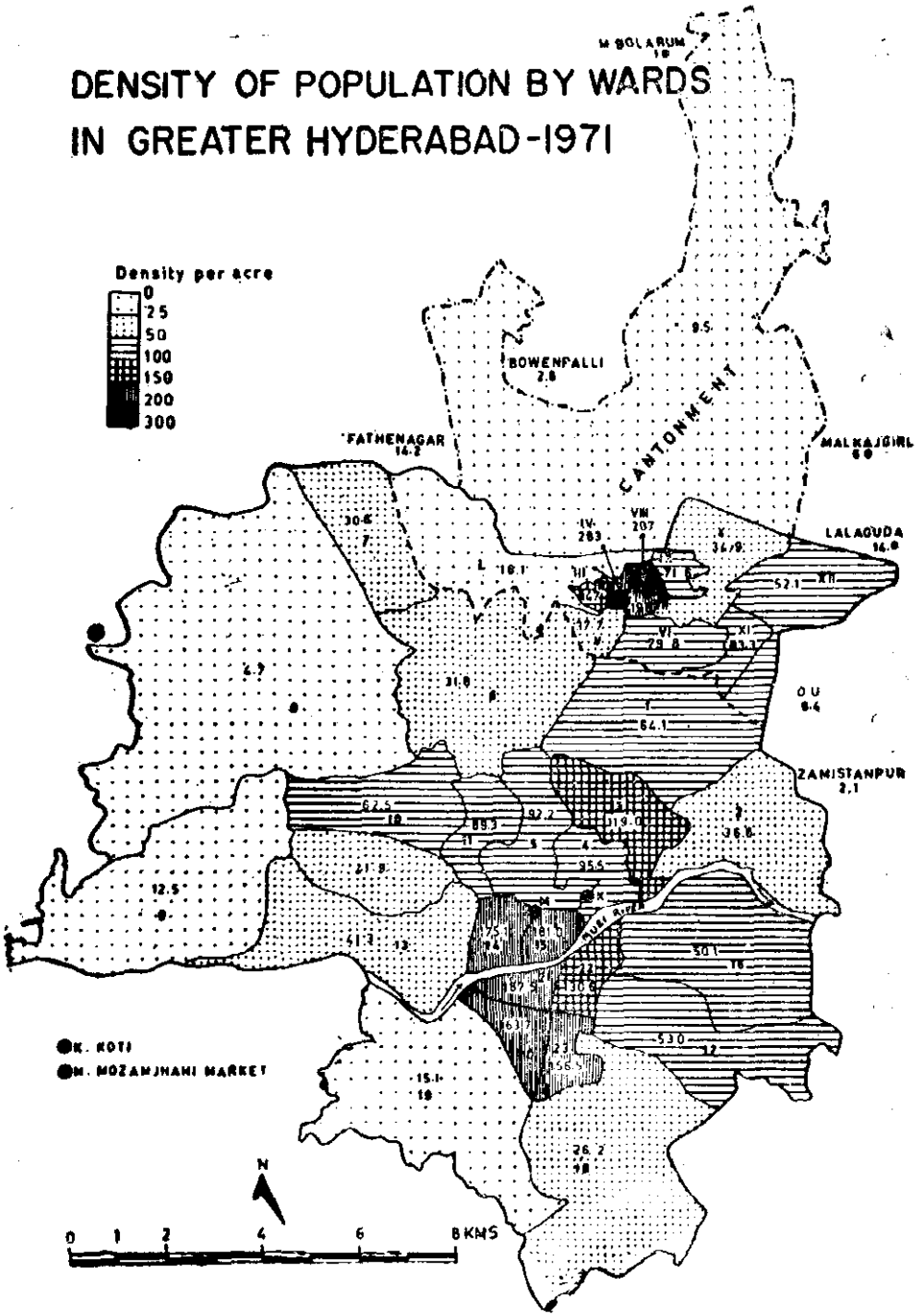

DENSITY OF POPULATION BY WARDS
IN GREATER HYDERABAD-1971
Density per acre
0
25
50
100
150
200
300
M. SOLARUM
BOWENPALLI
2.8
CANTONMENT
FATHENAGAR
14.2
MALKAJGIRI
6.0
LALAGUDA
14.0
ZANISTANPUR
2.1
OU
8.4
K. KOTI
M. MOZAMJHAHI MARKET
N
0 1 2 4 6 8 KMS

Fig. 2

TABLE 3—WARD WISE DISTRIBUTION OF POPULATION DENSITY, HYDERABAD URBAN AGGLOMERATION, 1971

Ward	*Population Density per Acre*
Mean Population Density of Hyderabad Urban Agglomeration	28 per acre (17,934 per sq. mile)
Mean Population Density of Hyderabad Corporation	38.42 per acre (24,589.2 per sq. mile)
Hyderabad Corporation Area (Hyderabad and Secunderabad)	
Hyderabad Division	
1	64.12
2	38.82
3	119.0
4	95.5
5	92.23
6	31.78
7	30.61
8	4.68
9	12.53
10	62.53
11	89.25
12	41.91
13	41.29
14	175.1
15	181.0
16	50-14
17	52.97
18	26.19
19	15.13
20	163.7
21	187.5
22	130.6
23	156.5
Secunderabad Division	
I	16-1
II	147.0
III	189.8
IV	283.1
V	37,72
VI	79.75
VII	1983
VIII	207.1
IX	71.61
X	34.89
XI	83.28
XII	52-12
Cantonment and Other Units	
Cantonment	9.51
Osmania University	6.40
Zamistanpur	2.10
Fatehnagar Town	14.23
Macha Bolaram Town	1.55
Bowenpalle Town	2.82
Lallaguda Town	14.85
Malkajgiri	5.96

SOURCE : Census of India, Hyderabad District Handbook, 1971.

TABLE 4—AREA WISE DISTRIBUTION OF POPULATION DENSITY IN HYDERABAD, 1971

Area		*Population Density*	*Mean Area Density per acre*
Mean Population Density of Hyderabad Urban Agglomeration		28 per acre (17,934 per sq. mile)	
Mean Population Density of Hyderabad Corporation		38.42 per acre (24,589.2 per sq. mile)	
Inner Wards			
Hyderabad Division	92.23, 95.5, 175.1, 181		108.76
Secunderabad Division	147, 189.8, 283.1, 198.3, 207.1		170.88
Middle Wards			
Hyderabad Division	31.78, 41, 63.53, 89.25, 91, 119, 130.6, 156.6, 163.7, 187.5		107.40
Secunderabad Division	71.61, 34.89		53.25
Peripheral Wards			
Hyderabad Division	4.68, 12.53, 15.13, 26.19, 30.61, 36.82, 41.29, 50.14, 52.97, 64.12		33.46
Secunderabad Division	16.1, 37.72, 52.12, 79.75, 83.28		53.79
Other Units of Agglomeration	1.55, 2.10, 2.82, 5.96		
(Cantonment)	6.40, 9.51, 14.23, 14.85		7.18

SOURCE: Census of India, Hyderabad District Handbook, 1971.

streets in the Agglomeration are found here,

If the Agglomeration's population density average is taken-which is 28 per acre—30 out of 35 wards in the Hyderabad Corporation have higher density than the city's average; all other units have lower density. However, if Hyderabad Corporation's average is taken—which is 38.42 per acre—25 out of 35 wards have more than city's average; they are all either central or middle wards. Those with less than the city's average density are at the periphery.

Ward being a large unit, density at block level has been calculated for the central wards with a view to gain a better understanding of the density at the center. The findings are revealing ; there are 19 blocks in the central area and all Of them have density higher than the city average. 11 out of 19 blocks have well over 100 persons per acre. Sultan Bazar, Bank street, parts of Moti Market and Essamia Bazar, Gowliguda, Putli Bowli, Jambagh and parts of Osman Gunj, Kishan Gunj, Begum Bazar and Feel Khana have population densities several times higher than the city average; it ranges from 122 to 369 persons per acre (over 240,000 per square mile). Within these blocks, there are areas which are more intensively built and likely to have still higher densities. They are all business-cum-residential districts.

In any study of population density in Hyderabad what cannot be glossed over is the difference between gross and net densities. As in many other large Indian cities, gross densities in several inner, middle and outer wards of Hyderabad are much lower than the net densities, (Gross densities are calculated on the basis of total acreage, where as in net densities acreage devoted to public gardens, railway yards, street areas, etc., are excluded.) In Hyderabad one comes across two patterns: (1) two patterns : (1) in the central areas (for instance, wards 4 and 5) large tracts of land are devoted to public gardens, railway yards, educational institutions, a big stadium places of worship etc., and (2) in the peripheral zones small patches of residential districts are surrounded by enormous vacant lands. As a result, gross population densities here are much lower than net densities.

Summary and Conclusions

It is evident from the proceeding discussion that the sex ratio in Hyderabad lacks consistent variation with distance. As in some large American cities the sex composition does not change radically as the distance from the city center increases. Areas with more males than females are found not only at the ©enter but also in the middle and peripheral zones. There is one factor which seem to account for this difference; the. central business district of Hyderabad is characterized by the presence of a large residential population. This is not true of

American cities where the central business district is strictly a place of work.

With regard to population density, Hyderabad appears to show some similarities with those of American cities. Generally speaking, central areas have higher densities than the middle and outer wards. Thus, the density-gradient pattern appears to hold true. But there are atleast two important differences between Hyderabad and American cities : (1) in the cities of the United States the central business district is less densely populated than the surrounding residential areas. This is not true of Hyderabad. (2) Not all wards in Hyderabad show the highest densities; more specifically, in the Hyderabad Division, some of the middle wards have revealed higher densities than the central zones (Fig . 2).

Though the present paper is explorative in nature, the foregoing findings do highlight the crisis in Indian urban demography : First, theories developed in the West seem to be inadequate to understand the demographic structure of the Indian city, and second, sufficient number of studies have not been conducted, without which no sound theories can be generated. What is stressed here is the need for well-designed empirical researches for a good understanding of the demographic structure of the Indian city.

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