CHAPTER VIII

SOCIO-ECONOMIC CHARACTERISTICS OF TOWNS

SEX RATIO

Among the various elements of population composition, sex ratio coupled with age structure, occupies the most crucial position. In any population, a more or less balanced position of both sexes is a prerequisite for healthy socio-economic and cultural life. Through a rather complementary interplay of vital processes of birth and deaths, the overall sex composition of population of countries or similar extensive territorial units rests in a good equilibrium of sexes. Henceforth, unless there be extensive organised wars, genocide etc., large imbalances (in the sex composition) tend to be unusual and temporary. Where they do occur, they tend be removed by passing of generations' (Bogue, D.J., 1969, pp. 165-66). It affects directly the incidence of birth, death and marriage, it appears as a differential in migrant status, occupational distributions and virtually all other characteristics, and it is used as a basis of distinction in almost every aspect of social life (Hawley, A.H., 1959, p. 362).

Notwithstanding this tendency of stability in the balance of sex composition in the large communities of human populations, their sub-units and intra-units may exhibit notable deviations from the national average. Thus it may vary in communities of different age groups, races, occupations, cultures etc. It may likewise vary among rural and urban sectors, among populations of different size of towns. It may vary also from one geographical milieu to another. Rural-urban dichotomy, it goes without saying, is a most real one (despite all advocacies of the rural-urban continuum),


which affects marked difference in terms of host of socio-economic characteristics between the rural and the urban sectors of a population. Deriving from this dual variation of sex ratio the pattern of rural-urban differences itself varies from one part to another.

While the sex composition profoundly affects the demographic processes, it is itself quite as promptly affected by these processes, which are both sex and age selective. In so far as this holds, the present sex and age structure becomes a diagnostic symptom suggestive of the rates of incidence, and the interplay of these processes in the recent past. It is with this point of view of evaluating the role of these processes in the growth of towns and determining the socio-economic forces behind the growth pattern that the sex and age are dealt with at some length. Though in many countries of Europe and America, sex ratio is expressed as number of males per thousand females, in India, it is expressed the other way round, i.e. number of females per thousand males.

PATTERNS OF SEX RATIO

Malwa has notably lower sex ratio (910) in total population than the State average of 941. It is remarkable that sex ratio in urban areas of the region (871) and state (868) are almost the same, while there is wide difference in sex ratio of rural Malwa (923) and the rural population of the State (956). There is, thus, larger difference between the sex ratio of rural and urban population for M.P. than for Malwa, due largely to much larger rural sex ratio over most other parts of M.P. compared to Malwa.

Sex ratio of urban and rural populations, tahsil-wise, varies from one part of the region to another, increasing in
general from eastern to the western part, for towns as well as for rural population (Plate 20-A). It varies also from rural sector to the urban sector.

Rural sex ratio— In rural population the sex ratio varies more strongly. Five eastern districts - Sagar, Guna, Vidisha, Raisen and Sehore have the lowest sex ratio—below 900. However, the northeastern strip comprising Kurwai, Khurai and Banda tahsils and a long east-west belt on the south have medium sex ratio (900 to 940). From south east of Dewas district, the tract of medium sex ratio expands widely, stretching towards northwest. It thus covers, besides the two belts noted above, whole central part of the region, and the northwestern corner of Mandsaur district. However, north-western Shajapur district and Dewas tahsil make two pockets of high sex ratio in this area. The remaining, southwestern Malwa covering Dhar, Jhabua and much of Ratlam district and Depalpur tahsil has high sex ratio from 940 to 980. The large Kukashi and Jhabua tahsil make an area of very high sex ratio, above 980. The low ratio area of the eastern part is but an extension of a distinct pocket of very low sex ratio centred about Gwalior.

Sex ratio in towns— As noted before, there is some feeble trend of increase from east to the west in the sex ratio of towns in the region. However, this persistent territorial variation has been substantially modified diversely by several important factors. A close observation of spatial variation of sex ratio in towns, as portrayed in Plate 20-A reveals the following notable points:

(1) All the large and medium towns of eastern Malwa have very low sex ratio, lower than 860.

(2) In western Malwa, large towns like Ujjain, and medium towns like Dewas, Neemuch, Dhar etc. have somewhat lower ratio but some others, like Ratlam, Mandsaur, Jaora etc. have fairly high ratios (above 900).
Small towns of western part have high or very high ratios, often above 920, distinctly more so than in the eastern part.

Despite the territorial cross-variation, there is discernible inverse relation between the size of towns and their sex ratio. Deriving from the last noted point there obtains...

An inverse relation between the growth dynamism of towns and their sex ratios, and

An inverse relation between the volume of long distance immigrants in the population of towns and their sex ratios.

All these points have one thing in common, that they imply a large proportion of immigrants, particularly from over long distances who are male-selective. These factors have markedly reduced sex ratio in the large of western and also in Bhopal. Sex ratio is also markedly low in a few towns of western Malwa due solely to their peculiar or unusual functional character, such as Mhow, Nagda, Gandhi Sagar. Similarly, recent fast growth also has reduced sex ratios of certain towns such as Jhabua, Shamgarh, Bhopal.

A few small towns in northwestern part have very high sex ratio. High sex ratio in rural or urban areas of certain districts may be ascribed to a notable degree to emigration also.

Rural-Urban differential of sex ratio—At variance with most of Occidental countries, India has an unmistakable preponderance of males in the population, due largely to the high mortality rate of females (Bogue, 1969, p. 167). Also contrary to the west, this sex ratio is markedly lower still in towns than in the rural population, owing to prejudicial values against females employment, their mobility, and to the
scarcity of jobs suitable for them; high cost of living with families in urban areas and, on the other hand, Provision in the rural homes, by virtue of the joint family system, to leave ones family to the care of elders (Copal Krishna and R.C. Chandana, 1973, p. 121).

It has been noted already that difference between the sex ratios of urban and rural areas are much smaller in Malwa, as compared to that obtaining in M.P. as a whole, almost solely due to much higher sex ratio of rural M.P. than that of rural Malwa.

It is surprising to note that 14 tahsils in all have higher sex ratio in rural areas than in towns, the difference ranging from 2 counts to 29 counts. Of the ten more notable of such tahsils five belong to northwestern part of the region, and five to the central part of eastern Malwa. In them towns are small ones and rural sex ratios are lower than in adjoining areas. However, no explanation can be advanced, at the present level of investigation, for such a reversal of sex ratios differentials.

Though there are some scattered cases of large difference in areas of higher rural sex ratio, the tahsil-wise differences of rural and urban population generally shows no systematic relation with any plausible factor, such as growth rates of urban and rural population, degree of urbanization, high or low general sex ratios, size of towns, density of population, functional character of towns, etc. Only where a tahsil contains at least one large town the difference tends to be high, simply due to low ratio of large towns. It appears that the various factors noted above have simultaneously been operative diversely upon sex ratios of urban and rural areas.

Variation in sex ratio by Age groups: A comparison of rural and urban trends— In Malwa, there is a notable difference
in the trends of sex ratios of rural and urban population along the age groups. This has been portrayed in Plate 21-B, showing per cent variation of sex ratio of each age group of rural and urban population from sex ratios of corresponding age group of the total population. The graph is essentially the type of Divergence Graph introduced by Smith, T.L. (1948, pp. 102-105).

As revealed by this diagram, the rural population has a lower sex ratio in the below 10 years segment than the total population. It soon rises steeply over next age groups, reaching 20% higher than that of the total in 15-20 years age group. Hereafter it soon falls first moderately and then very steeply to little over the reference line in 25-30 age group. Declining slowly further, it crosses the reference line in next age group, and at a slow rate continues to decline up to at about 50-55 years age and thereafter steadily rises to level of sex ratio of total population.

The trend of sex ratio of urban population, on the other hand, from its initial position slightly above the reference line declines steadily to about -4% in 15-20 years age group, and gradually rises to the level of total population in 30-35 age group. It continues to rise at a very slow rate to about 2% above the reference line in 50-55 year age group, and tends towards reference line thereafter.

From a comparison of these trends following points can be noted:
(1) Variation in the sex ratio of rural population is much more pronounced than of the urban population.
(2) Rural population has a pronounced high of sex ratio in young persons from 10 to 35 year segments, lower sex ratio in the old adults, and near average among the old.
(3) Urban population is somewhat masculine among the young adults, average in middle range of 30 to 40 year segment, moderately feminine in the old adults, and tends to the average among the old.

These features imply (1) a notable migration of males from rural to the urban areas from the young adults, and a slight and (2) Difference in the death rates of males and females among different age groups - higher among females in rural areas in young age groups.

Functional Character and sex ratio of towns— As regards the role of functional character of towns on their sex ratios, it may be summarized by a reference to Plate 18 that transport and Communication and manufacturing have a lowering effect on sex ratio of towns and Primary production has a raising effect. Trade and Commerce and Services are rather indifferent, however, while the function of construction is immaterial due to its essentially non-basic character.

It can be a matter of dispute, however, whether these lowering or raising effects of various functions upon towns are more real or these are the effects of town sizes. It may, after all, be argued, that function is basic driving force of towns and has profound bearing on various other characteristics of towns.

Trend of Sex ratio, 1901-1971— As Plate 21-E clearly reveals, the rural population of the State presents gradually but persistantly decreasing trend of sex ratio from the high mark of 995 in 1901 to 956 in 1971. But in the urban area of the state it has been more irregular, largely due to rather steep rise in 1951 followed by a steep fall over the next decade, in the otherwise gently declining trend of sex ratio. Contrary to rural M.P., rural Malwa shows a steepening fall in sex
ratio from 1941 to 1961 followed by a notable rise thereafter, while the urban trend of Malwa is much like the urban trend of M.P. The sex ratio of rural Malwa is significantly lower than that of rural M.P. However, the sex ratio of urban Malwa (917) was marginally lower than that of urban M.P. (937), the gap narrows down to nil during 1941-51 and then slightly reverses between them. The trend line of rural and urban population of Malwa, though some distance apart, show some notable measure of parallelism except during the 1941-51 when the sex ratio of rural Malwa decreased notably and that of urban Malwa increased sharply. Consequently, the difference between them which was close to 80 counts over the first 3 decades, suddenly reduced to only 35 counts. Thereafter the gap widened again.

Size-Class wise Trend of Sex ratio, 1901-1971- Plate 21-F portrays the trends of sex ratio for each size class of towns, as adopted in census of India. A scanning of this clearly reveals that the sex ratio steadily decreases towards the large size classes. It thus corroborates the general notion of inverse relationship between sex ratio and the size of towns. Small towns—say, below 20 thousand population, show a very gradual decline in the sex ratio up to 1941, a marked rise in next decade, followed by a marked fall, and then remained almost constant during the last decade. Medium towns (Population from 20 thousand to one lakh) show a steep downward trend up to 1921, and then a steady rise up to 1951, followed by a notable fall during 1951-61, and a little variable trend in the last decade. The towns above one lakh population, emerging in 1921, recorded decline in sex ratio in 1931, whereasafter traced a steep upward trend up to 1951, followed by a steep fall, and then a moderate rise again in the last decade. The trends of upper size classes are more irregular with a notable low about 1921 and 1931, and a steepening rise up 1951, followed by a notable fall. The trend of small towns much more gradual with only a single bump about 1951.
AGE STRUCTURE

SIGNIFICANCE

The proportion of persons of different age groups in a population, commonly called the age structure, is a close companion of sex ratio, and they often go hand in hand in bearing upon many demographic characteristics and processes in a population. 'Age shares the universal recognition accorded to sex' (Hawley, 1959, p. 364). It derives its profound importance from the fact that (1) It delimits the proportion of population in the reproductive age group, which directly bears upon the rates of fertility and mortality; (2) It determines the relative size of labour force and dependency ratio; and (3) It indicates the size, role and recency of migrants in a population (Hawley, 1959, p. 364).

Both age and sex are purely biologically determined traits and are intrinsically subject to systematic variation.

The analysis of age structure probes the superficial, observable homogeneity of areas, and digs out the less obvious social and economic differences of communities (Franklin, 1958, p. 161).

Method- Despite all this widely acclaimed significance of age structure analysis, there is no very satisfactory, standardised method to its effect beyond the time-honoured 'age and sex pyramids'. Smith's (1948, p. 102-5) 'divergene index' and the divergence graph depicting it, are, of course, a notable improvement and have also been adopted in this study with but a slight modification (Plate 21-B).

Very recently, Coulson (1968, p. 156-57) in his analysis of age structure for each census tract of Kansas
city, developed his 'Age Structure Index' of the young or the old structure of population. This index is essentially the equation of the regression line generated by correlating the per cent proportion of a population in each specified age group with the median year of the age group. When plotted as a histogram with age groups on the abscissa and proportions on the ordinate, the steeper regression line signifies a younger age structure and the vice-versa.

Yet, there is no single satisfactory way to portray the age structure of many areal units together. Another method suggested recently by K.P. Dhurandhar (1978) also does not serve the purpose of revealing internal variation. To this effect a new diagram was developed which depicts the age and sex composition i.e. per cent share of males and females in total urban population and sub-divisions thereof into four broad age groups, for each of the fourteen districts together (Fig. 21-A). While the abscissa shows the proportions of age groups, the urban population of districts are shown by the breadth of the strip of each district, which are cumulatively scaled on the ordinate. This diagram thus portrays a composite picture of the age and sex structure, and the size of urban population of each district separately as well as their spatial variation, by virtue of the contiguity of strips of districts (Appendix III).

Regional Variation in Age Structure—Unlike the notable regular variation in sex ratio in the region, the variation in the age structure is much feeble and fickle. The proportions of children i.e. population under 15 years of age, of adults i.e. 15 to 59 years, and the old, i.e. 60 years and above in age, are 42.7, 51.6 and 5.7 per cent respectively for urban Malwa as a whole, whereas the mean of per cent share values of these age groups for 84 towns of the region works out at 44, 54 and 5.7 per cent respectively. The standard deviations of these
values are less than 4% of the respective means for first two
groups, and less than 16% of the mean for the last group.
These features bear a clear testimony for the very small
magnitude of spatial variation of age structures in the region.
Only the smallest age group of old persons has a marked higher
magnitude of variability. This situation stands in good
harmony with the one noted by Desai P.B. (1969, p.161) in his
analysis of variations in age structure for cities, i.e. towns
with one lakh or more population, of India. He found that the
smallest age group, the old persons, to be twice as variable as
other age groups, and a very small difference in the variability
of children (slightly higher) and adults.

Instead, the variation of age structure shows some
good direct relationship with the recent growth rates of towns
particular among the large sized towns.

**DISTRIBUTION OF PROPORTIONS OF BROAD AGE GROUPS**

**Children** - As noted above, there is very little spatial
variation in the proportion of children, all values falling
close to 44-45 per cent and none outside 40 to 49 per cent
range.

In the districts of Jhabua, Dhar and Ratlam all towns
except the district headquarters have rather high proportion—
about 46-47 per cent. Towns of Mandsaur have rather low share
of children, except the Gandhi Sagar which has as high a share
as 47.5%. To the east in Ujjain, Indore and Dewas districts
again large towns have markedly lower share, as do also Nagda
and Mhow (due to their peculiar functional character). Those of
Shajapur and Rajgarh districts are all very near the regional
average. In eastern Malwa except for distinctly low value
(41.8%) in Bhopal, most of the towns have high values, parti-
cularly in Sagar, Vidisha and Guna districts.
The proportion of children in the population of towns thus shows a slight increase towards the east; but more importantly it shows a moderate negative correlation with size of towns, particularly in upper size orders.

**Old Persons**—This small age group has a much larger variability than the other two. Even then, this variability does not materially affect other two groups, due to its own very small size i.e. 5.7% only.

In the southwest, Jhabua and Dhar districts have a lower proportion, less than 5% of old person. In the four eastern most districts also very many towns are below 5% in this value. These, same six districts, have larger share of children. Mandsaur district has again shows a high degree of diversity, values ranging from 4.8% to 7.5%, besides the unusually low value of 3% only in Gandhi Saghar. Here again lower values coincide with the high values of share of children. Over most other parts towns have rather high values of old persons against average values of children.

Thus, while this group shows notable spatial variations, there is hardly any relation between its share and the size of growth rates of towns. Instead, it has a strong negative correlation with the proportion of children (r=-0.65). Also, the dozen towns of Mandsaur reveal good deal of reciprocal heterogeneity in the share of old person and the children. But they too unmistakably bring out the negative relation between these two groups.

**Adults**—This is usually the largest age group, which accounts, on an average, for just over half of the total population of each town. It shows least variation, and values fall within a narrow range of 48 to 53%. Instead, every district shows a good measure of internal diversity in that larger towns — at least
district headquarters have marked larger proportion than do smaller towns. Recently fast grown towns also have larger proportion of adults. Thus, the adults present a direct correlation with size and recent growth rate of towns, particularly among the upper range of town-sizes, because size differences among the small towns are insipid. However, the systematic spatial variations in this proportion, are very weak indeed. Towns of four easternmost districts and of Bhar and Dewas districts on west have somewhat low proportion of adults, while towns in remaining areas very often have larger proportion. There is discernible only a very feeble and gradual increasing trend from the west to the east. As noted already district headquarters and other larger towns, and such other towns large or small, as have recently grown very fast, have large proportions. Out of 14 districts, it is only in 3 districts that the headquarters are exceed by some other towns of respective district such as Indore by Mhow (due to its special functional character), Ujjain by Nalda (due to both functional character and very high growth) while Bhopal, the state capital is an unusual case of very large share of old person (particularly females) at the cost of adults.

Towns with over 40 thousand population invariably have a large proportion of adults, mostly at the cost of children. There is a gradual decrease in the proportion of adults giving way to an increase in children in towns with population upto 20 thousand. Very much similar results are found by Desai (1963) regarding the relation of age structure with size of cities of India, and the correlation of age groups were found to be statistically significant for cities over 2.5 lakh population size. His correlations works at +0.66 for adults, -0.6 for children, and -0.34 for old person. This also corroborates that old age group has much small correlation with town sizes than do other groups. Though Valaoras, V.G. (1958, p.69) made his comment on the stability of proportion of adults in a
temporal sense, it holds good in spatial sense also. He maintains that while the adult group changes only slightly, the relative size of the children and the old persons change more readily, and mutually reciprocally. The marked degree of heterogeneity amid the towns of Mandsaur district emphasises Franklin's (1958, p. 64). comment about utility of such an analysis.

Age and sex pyramid is the most revealing portrayal of details of age and sex structure of a population as a whole. However, detail age data is available only for districts as a whole and not for individual towns. For Indore and Sehore it may reasonably be taken to represent Indore and Bhopal cities respectively. Such diagrams for the districts of the region are so strikingly similar to each other that only a few of them are selected for portrayal finally (Fig. 21 C-1 to C-4). Of them, only Sehore presents a significantly different picture which is rather unusual also in some respects and, therefore, holds one's attention. As should be expected of a vigorously growing city like Bhopal, there is naturally a much larger share of young adults (15-35 year) who have a very low sex ratio. However, the old persons making as much a large share as 1.4 times the regional share with an unusual predominance of females, is an immensely peculiar feature (Fig. 21 C-2).

Though the age and sex data should first be verified from the original records of Census, this peculiarity might have evolved partly due to the peculiar ethnic character of the town. Whatever may be the real position, the rather casual remark made by the Directorate of Town and Country Planning, M.P., Bhopal in the Master Plan for Bhopal (p.30) by way of its explanation, 'that it is through an influx of old females recently' does not seem convincing.

Youthfulness of the Population - A New Approach - The analysis of the proportion of these broad age groups, though furnishes
good indicators of the age structure, this feature can however be studied more precisely. Recently Coulson (1968, p.156) has evolved an index of age structure, which is essentially the tangent value of a regression line generated by correlating the proportion of age groups and the median years of these groups. This index precisely describes the young or the old nature of a population. If plotted as a histogram with proportions of age groups on the ordinate and median years on the abscissa down the increasing age, a steeper regression line indicates a younger age structure and the vice-versa. To make these values more readily intelligible, one would do well to convert them into angular values.

Worked out for total urban population of districts, these angular values again corroborate the spatial pattern of age structure in Malwa (Table 6.1). Larger the angular value steeper the regression lines and, therefore, younger the age structure. There being but a moderate variation in the region in this respect, values for all the 14 districts concentrate within a narrow band of 63 to 65°. For Malwa the value of 64° serves well to divide these districts into comparatively younger and the older types of age structure. Towns of four eastern districts, namely Sagar, Cuna, Vidisha and Raisen as well as the Jhabua district have a somewhat younger age structure, while Dhar is rather marginal. All these districts have larger share of children and lower share of adults and the old, which are respectively 103%, 98%, 85% of the corresponding regional means. Other areas have somewhat older age structure, more so in the western parts. Thus here again one finds the age structure to become progressively younger towards the east.

However, it may be reiteraled that age structure of towns are markedly variable within each district due largely to differences in town sizes and in their recent growth.
Table: 3.1 Index of Age structure for districts of Malwa.

<table>
<thead>
<tr>
<th>Districts</th>
<th>a (intercept on Y axis)</th>
<th>b (inclinat. on of line)</th>
<th>Angular value in degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mandsaur</td>
<td>14.00</td>
<td>-1.985</td>
<td>63.26</td>
</tr>
<tr>
<td>2. Ratlam</td>
<td>14.02</td>
<td>-1.985</td>
<td>63.26</td>
</tr>
<tr>
<td>3. Ujjain</td>
<td>14.08</td>
<td>-1.975</td>
<td>63.15</td>
</tr>
<tr>
<td>4. Jhabua</td>
<td>14.34</td>
<td>-2.091</td>
<td>64.44</td>
</tr>
<tr>
<td>5. Dhar</td>
<td>14.05</td>
<td>-1.986</td>
<td>63.27</td>
</tr>
<tr>
<td>6. Indore</td>
<td>13.96</td>
<td>-1.967</td>
<td>63.05</td>
</tr>
<tr>
<td>7. Dewas</td>
<td>14.04</td>
<td>-1.994</td>
<td>63.34</td>
</tr>
<tr>
<td>9. Rajgarh</td>
<td>14.05</td>
<td>-1.996</td>
<td>63.69</td>
</tr>
<tr>
<td>10. Vidisha</td>
<td>14.07</td>
<td>-2.065</td>
<td>64.16</td>
</tr>
<tr>
<td>11. Sehore</td>
<td>14.01</td>
<td>-1.982</td>
<td>63.23</td>
</tr>
<tr>
<td>12. Raisen</td>
<td>14.87</td>
<td>-2.123</td>
<td>64.78</td>
</tr>
<tr>
<td>13. Sagar</td>
<td>14.40</td>
<td>-2.085</td>
<td>64.38</td>
</tr>
<tr>
<td>14. Guna</td>
<td>14.35</td>
<td>-2.078</td>
<td>64.30</td>
</tr>
<tr>
<td>15. Malwa</td>
<td>14.06</td>
<td>-1.999</td>
<td>63.42</td>
</tr>
</tbody>
</table>

Regression lines are described in the form of Y = a + bx, as well as angular values.

Whereas the eastern districts have young age structure in combination with low sex ratio, the south-western pocket has a combination of rather young age structure and markedly high sex ratio.
LITERACY

Proportion of literates along with their levels of education furnishes a prestigious yardstick of the urban status of towns. It marks the levels of urbanization attained by towns— that is, how far different towns of a region, or the region as a whole, has moved up the ladder of urban status. It is thus one of the qualitative measures of urban status. This cardinal importance of literacy as a criteria of urbanism derives from the fact that modern education is the root agency of whole complex of processes of social, cultural and economic transformation from traditional way of life, denoted by a general term, modernization, which is almost synonymus with urbanization.

Spatial Pattern of Literacy— Malwa as a whole has a literacy rate (i.e. proportion of literates in the population) of 54.2 per cent in population which is markedly higher than the averages of the State (49.5%) (Table 6.2) and of the country (52.4 per cent). Mean of literacy rates of individual towns of Malwa works out 44.1, with standard deviation at 6.42 which is less than 15% of the mean value.

Table : 6.2 Urban Literacy : A comparison, 1971

<table>
<thead>
<tr>
<th>Literacy rate</th>
<th>Malwa</th>
<th>M.P.</th>
<th>India</th>
</tr>
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<tbody>
<tr>
<td>Urban total</td>
<td>54.2</td>
<td>49.5</td>
<td>52.4</td>
</tr>
<tr>
<td>Urban males</td>
<td>67.9</td>
<td>60.5</td>
<td>61.3</td>
</tr>
<tr>
<td>Urban females</td>
<td>34.5</td>
<td>37.0</td>
<td>42.1</td>
</tr>
<tr>
<td>Mean of 84 towns of Malwa (Total)</td>
<td>44.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ratio of F : M literacy rates</td>
<td>50.8</td>
<td>61.2</td>
<td>68.8</td>
</tr>
<tr>
<td>(as per-centage)</td>
<td></td>
<td></td>
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</tbody>
</table>
The literacy rate varies only very slight from town to town in the region. A minute observation of map showing literacy of towns (Plate 20-B) both for the total population as well for male and female segments separately - however reveals following facts:

(1) Towns of Sagar, Indore, Jhabua and Mandsaur districts usually have higher rates of literacy for total population;

(2) Towns of the central and south-eastern parts of the region comprising Rajgarh, Shajapur, Dewas, Sehore and Raisen districts have somewhat lower rates.

(3) Towns over remaining areas mostly have average values.

**Literacy and the size of the towns**- There is obviously a strong, direct relation between the size of towns and their literacy rates. However, the relationship is not equally strong over the whole range of sizes. It diminishes steadily downs the size spectrum. Upto about forty thousand population size, the relation with literacy rate is quite strong and constant, with all but one town having literacy of well over 50%. From this level downwards upto about sixteen thousand level, towns have literacy rates over 45%, except Sironj which has only 35%. Below this size level, i.e. among small and very small towns trend of literacy rate is some much impaired. This inverse relationship of literacy with town sizes is due, largely to the fact that among small towns the size differences are much too incipient to bear upon other characteristics of town; and any very small differences in a multitude of circumstances of these small towns may bring about significant variation in their various characteristics. Investigating the relationship between the level of illiteracy with sizes of communities, Yuan, D.Y. (1964, p.256) found the inverse relation to be strong only in the upper range of size spectrum, and no definite relationship between illiteracy and size is found for townships, while among villages the expected pattern
is reversed? By way of causative factor behind this failing relationship down the size scale, he found the compulsory education by governmental agencies as very effective. From a demographic point of view Yuan (1964, pp. 256-57) found the literacy rate to vary with age structure - younger the age structure, higher the literacy. In Malwa also the there is good deal coincidence between areas of high literacy rates and younger age structure.

**Male-Female differential in literacy** - There are wide differences in the rates of literacy among male and female population. In Malwa, the gap is wider still than in M.P. or even in India. In Malwa, females are only half as literate (34%) as males (68%), where as in M.P. and India female literacy is respectively about 61% and 69% of the corresponding male values. This difference in literacy rates of males and female can best be shown by expressing the female literacy rate as per cent of the male rate, as it eliminates the differences in the sex ratios of populations.

This index of differential literacy rate for sexes varies from 70.0% for Indore and Jhabua to as low as 30.0% for Bhaurasa. The mean value for the region is 54.0% and standard deviation about 8.04 or below 15% of the mean. However, only five towns are above the 65.0% and only two below the 40.0%.

As to the spatial variation in this index, towns of north central part of the region have lower values, below 50%. The same areas have low values of total literacy rates also. Many towns, mostly the small ones, of Guna, Dhar, and Indore districts also have low values, while the towns of Jhabua, Sehore, Vidisha and northern Saggar and southern Indore record this index above 60%. Thus the areas of high literacy rates coincide fairly well, showing a good direct correlation
between them. However, the female literacy rate does not show as strong a correlation with town sizes, as does the total literacy rate. Gosal, G.S. (1964, p. 277), however, found a 'strong inverse correlation between literacy percentage and male female differential in literacy'. It should be noted clearly, this inverse correlation of male - female differential rate, or direct correlation of female literacy rate denote the same thing. This wide difference between literacy of males and females is often not fully realised. This difference in the Indian sub-continent is the widest in the world (Davis, K. 1951, p. 152), and is usually ascribed to the cultural value system against women education and employment in India.

Historical factors and variation in literacy - Among the factors responsible for variation in levels of literacy and male - female differential therein, (Gosal, 1964, p. 277) enlists historical factors like attitude and capacity of ruling powers in the recent past towards liberal education and how early they took measures to this effect, length of time of contacts with Europeans, educational activities of Christian missionaries, and the geographical factors like levels of urbanization and agricultural prosperity, etc.

In Malwa there has been a remarkable disharmony. While geographical factors were all congenial for the development of literacy, the historical factors most often were either not existent or adversely operative. As elaborated elsewhere, Malwa in the recent past was under the internal rule of a jumble of native states, mostly only too unviable, small and rather defunct with hardly any energy and resources to be devoted to civic administration. Under these conditions there was hardly any scope for liberal education. Also, there was much less contact with the English, and much less activity of Christian missionaries in this region.
As to the attitude of rulers and early start of attempts in this direction, Malwa amply displays, this point. Territories under Schindia got an early start than those under the Holkar and other powers. Even within a single district Mandsaur - the northwestern parts under Schindia have high level of literacy than the southern eastern part that was under the Holkars.

ECONOMIC COMPOSITION OF LABOUR FORCE

Significance- The phenomenon of urbanization at its very root entails a radical shift in the economic activities of a major part of a community from agricultural to non-agricultural activities, from primary activities of subsistence of life to secondary and tertiary ones necessary for the function of proper civic life. The primary importance of this fact is borne by the pre-requisite of about 3/4 male work force to be engaged in non-agricultural pursuits among the criteria of townhood by many censuses of world. From this starting point more a town moves along the path of urbanism and grows in size, its larger and larger portion takes to non-agricultural or non-primary sector of economy, so that towards the upper end of the scale, the work force in primary sectors comprises but a small fraction of the city population. From this derives the unmistakable inverse relationship between the relative size of primary sector and the size of towns.

This process becomes enhanced by the fact that the growth of towns over and above the rural population is largely contributed by immigrants who by and large adopt only to non-agricultural functions. Coupled with this is fact that larger towns have higher rates of immigration. And hence the strong, fundamental inverse relationship between the size of towns and
proportion of primary sector. In an essentially similar context, Yuan, D.Y. (1964, p. 252) found a decided trend towards decreasing dependency on agriculture.

The shrinking primary sector down to the course of urbanism says only a part of the truth, and it naturally invokes the other part of the inquisition. Reciprocally, what other field of economy absorbs or supports this ever growing labour force. Other economic activities are divided, in a broad way, into secondary and tertiary sector, encompassing manufacturing and Household Industries and Services and Trade and Commerce respectively as major fields. Predominence of one sector or the other signifies basic differences in the forces which bring about towns and sustains their growth.

Preponderence of tertiary sector particularly among smaller towns only spells out the immense role of politico-administration factors mostly historical in nature in the hospitable geographical background and agricultural prosperity in the early stages of town evolution. On the other hand a large secondary sector underlines the local or regional industrial resources base of towns as the prime factors of their growth. This tends to make distributional pattern of towns more fortuitous contrary to the more regular patterns of tertiary dominated towns. The sectoral analysis of work-force of towns thus becomes highly important, casting light on the nature and type of force behind the growth of urbanization and its spatial pattern.

**Work Participation** - Mean of proportion of total workers in the total, male and female populations of towns works out at 27.4%, 45.4% and 7.6% respectively and their standard deviations and about 8%, 6% and 44% of their corresponding mean values. Thus except for females, work participation rates are little variable. The female participation rate is only about 1/6 of that obtaining among the males.
However, total work participation rate is a little higher, about 30%, in towns of Sagar and Dewas districts, those of Rajgarh district has low values, those of Indore, Jhabua Shajapur, Raisen, Vidisha and Guna have mostly average values - only a large town giving a lower rate while the towns over remaining parts have a slightly higher values - between 27% and 30%. There is thus no systematic and consistent spatial variation in total work participation of towns.

Male work participation is still less variable. These results are well in tune with those of Desai, F.B. (1959, p. 179), who found coefficient of variation for total, male and female work participation rate for class I towns of India to be 13%, 9% and 56%, respectively.

The work participation shows no correlation with any plausible variable such as the size, growth rate, age structure, sex ratio, migration etc. It, however, shows some relationship with certain functions. It is higher in towns specialising in household industry (particularly in Bidi making) and primary production, while towns markedly specialised in transport and communication are markedly low in this respect. Predominance of manufacturing also has somewhat lowering effect, the two most voluminous functions, services and trade and commerce are indifferent.

This rate is well high variable. However, what is more significant is the strong coincidence of high female participation rate with high total work participation rate. Thus it is high in towns of predominance of household industry, and primary production and low in that of transport and communication. It shows no correlation with other variables.

**Economic composition of labour force and size of towns**

On the basis of notable gaps in the size array (Plate 14-G) the towns of this region are grouped into five groups as follows in this analysis.
(1) Cities - with population over 1 lakh - 5 towns.
(2) Large towns with population 30 thousand to 1 lakh - 11 towns.
(3) Medium towns with population 16 thousand to 30 thousand 28 towns.
(4) Small towns with population 9 thousand to 16 thousand - 28 towns.
(5) Very small towns with population below 9 thousand - 32 towns.

The tripartite sectoral composition of labour force of towns can best be portrayed, for comparative purpose, by a scatter plot on a triangular graph, plotting towns of different size order by different symbols (Plate 21-D). A close study of this diagram and of the Table in Appendix II readily attest to the above postulate of inverse relation of size of primary sector with the size of towns. All the five cities have below 8% of labour force in primary sectors, and two largest of them below 3%. They have instead, medium proportion of secondary sector (27 to 40%), and large share of tertiary sector (60 to 73%).

Large towns have generally 10 to 20% of workers in primary sector. Of them only the purely manufacturing town of Nagda (which is extremely high in secondary at the cost of tertiary), all are only moderate in the secondary sector and quite high in the tertiary (generally above 60%). The secondary sector is markedly variable. Among the 8 medium towns the primary sector increases only slightly which is still within 30%. Their relative positions in the secondary and the tertiary sectors are much the same as among the cities.

Farther down, the composition in 26 small towns is distinctly more variable, due mostly to the overwhelming size
of household industry in them which upsets the share of other primary or tertiary sectors. However, there is still notable increase in primary sector coupled with some decrease in the tertiary sector. The secondary sector varies usually from 10 to 50 per cent in towns not much specialised in the household industry.

Among 32 very small towns the proportion of primary sector is largest - from about 20 to 50%, very largely at the cost of secondary close to 20%, while the tertiary sector is also quite large. Only a few town extremely high in primary are quite low in both the remaining sectors such as Narayangarh. They may better be regarded simply as large villages.

The secondary sector is persistently low, except in a few small and medium towns highly specialised in household industry. Only Nagda is specialised in manufacturing. It, however, increases very slightly with size. Tertiary sector is the largest in most of the towns, most from 35 to 70%. It increases slightly down the size spectrum except for the very small towns which are predominated by primary sector. However, the primary is much more variable, and its share increases steadily down the size spectrum, more suddenly among the very small towns.

It may be hypothesised, in general, that as a place attains townhood and grows in size and urbanism, its dependence on primary activities decreases steadily, and is supported, instead first by tertiary activities like Service and Trade and Commerce; later only some of them are further supported substantially by secondary activities like household Industry and less frequently by Manufacturing. As it grows further to cityhood many service and administrative functions again accrue to it and tertiary sector again gains the upper hand and that city usually becomes more diversified in the economic structure.
Density of population in towns is an immensely significant characteristic of towns, as it constitutes an important element of the residential pattern of towns. As such it is usually included among the test criteria of urban or rural nature of a place in census enumeration. Density, coupled with the size of communities, significantly bears upon the degree of division of labour (Durkeim, E., 1949, in Yuan, 1964, p. 257).

A number of studies in diverse areas of the world have confirmed the direct relationship between the size of place and the density of population in them (for example Duncan, O.D., 1957, p. 495 for U.S.A. and Yuan, D.Y., 1964, p. 251 for Taiwan).

**Problems of Data**—For Malwa, the analysis of density of population in towns reveals an utterly irregular, nay, rather erratic trend of variation in the density and size of towns, with many violent fluctuations, more particularly among small towns. A few typical examples are shown in the Table 6.3

**Table: 6.3 Fluctuations in the trend of density of Towns.**

<table>
<thead>
<tr>
<th>Town</th>
<th>Population (in thousand)</th>
<th>Area in sq.km.</th>
<th>Density person/sq.km.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhopal</td>
<td>384.9</td>
<td>122.8</td>
<td>3,135</td>
</tr>
<tr>
<td>Ujjain</td>
<td>208.6</td>
<td>74.8</td>
<td>2,787</td>
</tr>
<tr>
<td>Ashta</td>
<td>14</td>
<td>15.4</td>
<td>913</td>
</tr>
<tr>
<td>Begumganj</td>
<td>23.4</td>
<td>1.4</td>
<td>9,616</td>
</tr>
<tr>
<td>Sardarpur- Rajgarh</td>
<td>9.8</td>
<td>3.37</td>
<td>2,625</td>
</tr>
<tr>
<td>Raisen</td>
<td>9.1</td>
<td>11.7</td>
<td>780</td>
</tr>
<tr>
<td>Badnawar</td>
<td>9.1</td>
<td>13.0</td>
<td>705</td>
</tr>
<tr>
<td>Barailey</td>
<td>8.3</td>
<td>0.4</td>
<td>2,187</td>
</tr>
<tr>
<td>Nalkhera</td>
<td>6.9</td>
<td>0.21</td>
<td>33,014</td>
</tr>
<tr>
<td>Thandla</td>
<td>6.8</td>
<td>0.4</td>
<td>17,362</td>
</tr>
<tr>
<td>Ichhawar</td>
<td>6.4</td>
<td>0.3</td>
<td>20,629</td>
</tr>
</tbody>
</table>
This erratic situation derives largely from the fact the area figure of towns are arbitrary as they embrace widely varying proportion of vacant open land, within the municipal limits. Because arbitrary factors like peculiar local conditions, irrational boundaries, erratic compilation of areas etc. affect of small towns much more drastically, it is amongst these towns, that extreme cases of both low as well as high densities are met with. The most peculiar example, in this connection in M.P. is a small town of Chandameta, a mining camp in Chhindwara district with 4336 population occupying only 0.02 sq.km. and thus giving an absurd density figure of 216800 persons/km². Larger towns however, have more rational boundaries, and confirm to the general notion of increasing density towards larger town sizes.

Residential density: An alternative measure

Under these circumstances it was deemed more rational to analyse, instead of gross density, the number of persons per occupied residential houses in towns, here termed the 'Residential density'. It simply shows the density per residential house.

Variation in Residential density and the size of towns— Towns of Malwa give a mean values of residential density of 7.55 persons per occupied residential house with standard deviation of 1.1 or only 17% of the mean value. It varies from 11.6 persons in Dewas to 4.3 in Gandhi Sagar, most of the values being congregated within 5 to 8 range (Appendix II). This value is smaller for cities, and the very small towns, while for the middle range of towns it is somewhat higher. Even with this middle range there is also a very gradual decrease in residential congestion down the size spectrum, and rather suddenly declines among the cities, and also increases somewhat among the very small towns, as revealed by the table 6.4.
Table 8.4 Residential density and the size order of towns, 1971.

<table>
<thead>
<tr>
<th>Size order</th>
<th>No. of towns</th>
<th>Population range (in 000)</th>
<th>Persons per occupied house</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Cities</td>
<td>5</td>
<td>100 &amp; over</td>
<td>7.10</td>
</tr>
<tr>
<td>II Large towns</td>
<td>11</td>
<td>30 to 100</td>
<td>8.12</td>
</tr>
<tr>
<td>a. Upper segment</td>
<td>6</td>
<td>40 to 100</td>
<td>8.44</td>
</tr>
<tr>
<td>b. Lower segment</td>
<td>5</td>
<td>30 to 40</td>
<td>7.10</td>
</tr>
<tr>
<td>III Medium towns</td>
<td>8</td>
<td>16 to 30</td>
<td>6.51</td>
</tr>
<tr>
<td>IV Small towns</td>
<td>28</td>
<td>9 to 16</td>
<td>6.02</td>
</tr>
<tr>
<td>V Very small</td>
<td>32</td>
<td>below 9</td>
<td>7.03</td>
</tr>
<tr>
<td>All</td>
<td>84</td>
<td></td>
<td>7.55</td>
</tr>
</tbody>
</table>

The above table clearly reveals that residential congestion increases gradually from towns of about 9 thousand population up to towns of about 40 thousand population, and more rapidly farther upward up to the one lakh towns. Thereafter it declines notably.

Very small towns may be regarded to be at an insipient stage of urbanism, and do not have much congestion in the initial stages. It may be hypothesised, then, that leaving only very small places at the threshold of urbanism, the residential congestion increases steadily, up to the beginning of cityhood, whereafter, the planned efforts to check such a congestion start showing themselves. New planned colonies civil-lines, cantonments, all areas of low congestion, start appearing while the old main city retains much the same old level of congestion only slowly relieved by centrifugal move to the peripheral zones. Also at this level many such services, commercial and technical functions accrue to the towns as bring
sophisticated, educated, high income groups of people, who by virtue of their well to-do conditions and smaller family sizes, have much lower residential congestion.

REFERENCES


