



URBANIZATION IN RAJASTHAN: A SPATIO-TEMPORAL ANALYSIS

DR. RAJENDER KUMAR ¹

¹ ASSOCIATE PROFESSOR, GEOGRAPHY, DR. BHIM RAO ABEDKAR GOVT. COLLEGE, SRI GANGANAGAR (RAJ.)

ABSTRACT

Urbanization is a process of transition from a rural to a more urban society. Statistically, urbanization reflects an increasing proportion of the population living in settlements defined as urban. It is a long term process. This paper is a brief appraisal of growth and development of urban places in Rajasthan with the set objective to ascertain the patterns and trends in the state urbanization using Rajasthan census data during 1901-2011.

Urban population of Rajasthan, which at the beginning of the twentieth century (1901) was nearly 1.55 million, alarmingly increased to 17.05 million in 2011. The highest decadal urban population growth rate 58.59 percent was registered during 1971-1981. In 2011, 24.89 percent of the total population was enumerated in urban areas. At district level, Kota (60.3 %) is the most urbanised and Dungarpur (6.4 %) the lowest urbanised district. Number of cities and towns has increased from 135 in 1901 to 301 in 2011. The pattern of urbanisation in Rajasthan is characterized by continuous concentration of urban population in class I cities. These cities together contain more than half of the state's urban population (61.47 %) whereas at the time of 1951 census it was only 26.58 percent. Number of one lakh plus population cities increased from 11 in 2001 to 30 in 2011.

KEYWORDS:

INTRODUCTION

Rajasthan is the largest state of India, accounting for 10.41 percent of geographical area. In the state the proportion of urban population (24.89 %) is below the national average (31.1%).

The state of Rajasthan as a political unit came into existence on the map of India after independence, though as a cultural entity it had been in existence for centuries. Prior to its reorganisation in 1956, Rajasthan was a conglomeration of eighteen princely states and two chiefships, varying in size, population, revenue, political importance and in level of socio-economic development. Thus, after reorganisation the process of urbanization in the state shifted from feudal setup to democratic, skipping the influence of kingship and colonisation.

OBJECTIVES

The present paper aims at exploring the process of urbanization in Rajasthan with emphasis on level, trend and tempo of urbanization. It also tries to trace the pattern of urbanization, urban problem and related policy issues. The objectives of this demographic appraisal are:-

1. To study the degree of urbanization in the state from 1901 to 2011.
2. To analyze the tempo of urbanization in 1901-2011 period.
3. To examine the temporal dimension of urban population change in six categories of towns during 1901-2011.

4. To analysis one lac plus population cities pattern.

DATA AND METHODOLOGY

Census is the main source of data on urban population for not only India but also most of the countries of the world. The population figures for urban areas for the period 1901-2011 have been taken from various census reports of Census of Rajasthan. In order to understand the demographic and geographical dimension of urbanization in Rajasthan, the following indicators of urbanization have been considered in the paper.

1. Percentage of urban population to total population. This shows the degree of urbanization in an area. Percent urban $[(U/P) * 100]$ and percent rural $[(R/P) * 100]$ are used to measure degree of urbanization. Where U-urban population, R-rural population and P-total population.
2. Tempo of urbanization refers to speed of urbanization and measured as change registered in the degree of urbanization over the years. Tempo of Percent Urban (PU) = $1/n [\log(PU_{t+n}/PU_t)] * 100$

Where PU_{t+n} and PU_t percent urban in $(t+n)^{th}$ census and $(t)^{th}$ census year respectively, $n =$ census interval = 10.

3. Gini Concentration Ratio $G_i = \frac{\sum_{i=1}^n X_i Y_{i+1}}{\sum_{i=1}^n X_{i+1} Y_i}$

Where X_i refers to cumulative proportion of population, Y_i to cumulative proportion of units, and n to the number of class-intervals.

INDIAN CENSUS DEFINITION OF URBAN AREA

Traditionally census data have been classified into rural and urban categories. The distribution of population by this social characteristic is very important as the process of urbanization is recognised as an inevitable result of social and economic development. In the census of India 2001, the definition of urban area adopted is as follows:

- a) All places with a municipality, Corporation, cantonment board or notified town area committee etc. These are known as statutory towns.
- b) A place satisfying the following three criteria simultaneously :
 - (i) A minimum population of 5,000 persons,
 - (ii) At least 75 percent of male working population engaged in non-agricultural pursuits; and
 - (iii) A density of population of at least 400 persons per square kilometer. This is known as census town. Towns with population of one lakh and above are called cities. Apart from these, the outgrowths of cities and towns have also been treated as urban under 'Urban Agglomerations'.

URBANIZATION IN RAJASTHAN

The urban population in the state which stood at 1550656 in 1901 census had gone upto 17048085 in 2011. The census statistics of the last 110 years further reveal that apart from the set back received during 1911-1921 when epidemics were rampant in many parts of the state, the urban population is gradually increasing in absolute term. There is no change in the total number of towns in 2001 as compared to 1991 which stood at 222. But it increased to 301 in 2011.

The urban population has grown more than eleven times over the last century (1901-2011) from 15.50 lakh in 1901 to 170.48 lakh in 2011. There has been a steady growth in the urban population as well as in the number of urban areas in the state since independence except 1961 census. In took six decades to become nearly double, 15.50 lakh in 1901 to 32.81 lakh in 1961. But after this, the pace of urbainsation in the sate took momentum in absolute terms. And, it took two decades to reach next double urban population 100.67 lakh in 1991 from 45.44 lakh in 1971.

The urban population of the state has increased to 17.04 million in 2011 from 10.07 million in 1991, showing an increase of 6.97 million in absolute terms. The percentage decadal growth of urban population during 1991-2001 was 31.26 percent, but it was 39.62 percent during 1981-91. Thus, it shows as a slowdown of decadal increase, thought not in absolute terms. The percentage of urban to total population of Rajasthan in 2011 stood at 24.89 percent, whereas in 2001 census it was 23.39 percent. (Table-1)

LEVEL OF URBANISATION AT DISTRICT

There is big variation in district wise level of urbanisation in Rajasthan. Within Rajasthan, seven districts are more urbanised than that of the state level urbanisation (23.39%). Within state Kota district is the most urbanised with 60.3 percent urban population, followed by Jaipur (52.4%), Ajmer (40.1%), Jodhpur (34.3%), Bikaner (33.9%), Churu (28.3%) and Sriganganagar (27.2%). Except Sriganganagar and Churu, all these districts have divisional headquarters, which are centres of administration, education, health, industry and tourism.

The proportion of urban population is the lowest in Dungarpur (6.4%), followed by Banswara (7.1%), Barmer (7.0%), Jalore (8.3%) and Pratapgarh (8.3%). These districts have high level of tribal and backward population. Therefore, the level of urbanisation is very low below 10 percent.

TABLE -1 RAJASTHAN: TREND AND LEVEL OF URBANIZATION: 1901-2011

Census year	Number of cities and towns	Total population	Urban population	Urban population as percentage to total population	Decennial growth rate of urban population percentage	Decennial growth of urban population absolute
1901	135	10294090	1550656	15.06	-	-
1911	138	10983509	1475829	13.44	-4.83	-74827
1921	147	10292684	1475335	14.33	-0.03	-494
1931	150	11747974	1729205	14.72	17.21	253870
1941	157	13863859	2117101	15.27	22.43	387896
1951	227	15970774	2955275	18.50	39.59	838174
1961	145	20155602	3281478	16.28	11.04	366203
1971	157	25765806	4543761	17.63	38.47	1262283

1981	201	34261862	7210508	21.05	58.69	2666747
1991	222	44005990	10067113	22.88	39.62	2856605
2001	222	56507188	13214375	23.39	31.26	3147262
2011	301	68621012	17048085	24.89	29.00	3833410

Source: Compiled by author

TREND AND LEVEL OF URBANIZATION IN RAJASTHAN

The decadal growth of urban population in Rajasthan has been shown in (Table-1). It is evident from table-1 that the urban population is increasing steadily, decade after decade. Still the proportion of urban population (24.89%) in 2011 cannot be considered as very high. By and large Rajasthan continues to be predominantly rural in character.

The number of cities and towns has been fluctuating from decade to decade. The highest number 301 registered in 2011 census. The definition of an urban centre in India was rationalized and made more strict at the time of 1961 census. Consequently, 82 towns were declassified in the

state. After the 1961 census, however, the number of towns has increased significantly.

When the entire urban population is concentrated at one point, the Gini concentration ratio becomes unity 1.000. Lower values of this ratio, thus, imply a more uniform distribution of urban population.

Table-2 Shows that in 2011, the Gini concentration ratio for urban population living in various size categories of urban centres in Rajasthan was 0.6376. It is a very high co-efficient of urban concentration implying that few big urban centres of Rajasthan have disproportionately large share in the state’s total urban population and the large number of small urban centres accounted the insignificant proportion of the state’s total urban population.(Table- 4)

TABLE - 2 RAJASTHAN: COMPUTATION OF GINI CONCENTRATION RATIO: 2011

Size of Urban Place	No. of Units	Population	Proportion of		Cumulative Proportion of		XiYi+1	Xi+1Yi
			Units	Population	Units (Yi)	Population (Xi)		
All Localities	301		1.0000	1.0000	-	-	-	-
100000 & More	31		0.1079	0.3616	0.1079	0.3616	0.1273	0.0793
50,000 – 99,999	26		0.0936	0.1032	0.2015	0.7348	0.4124	0.1849
20,000 – 49,999	105		0.3597	0.1827	0.5612	0.9175	0.7623	0.5505
10,000 – 19,999	80		0.2697	0.0634	0.8309	0.9809	0.9491	0.8290
5,000 – 9,999	47		0.1367	0.0169	0.9676	0.9978	0.9978	0.9676
Less than 5,000	12		0.0324	0.0022	1.0000	1.0000	-	-
	n						n	n
	∑						∑ XiYi+1	∑ Xi+1Yi
	i=1						i=1	i=1
							3.2489	2.6113

$$\text{Gini Concentration Ratio } G_i = \left[\sum_{i=1}^n X_i Y_{i+1} \right] - \left[\sum_{i=1}^n X_{i+1} Y_i \right] = 3.2489 - 2.6113 = 0.6376$$

TEMPO OF URBANIZATION IN RAJASTHAN

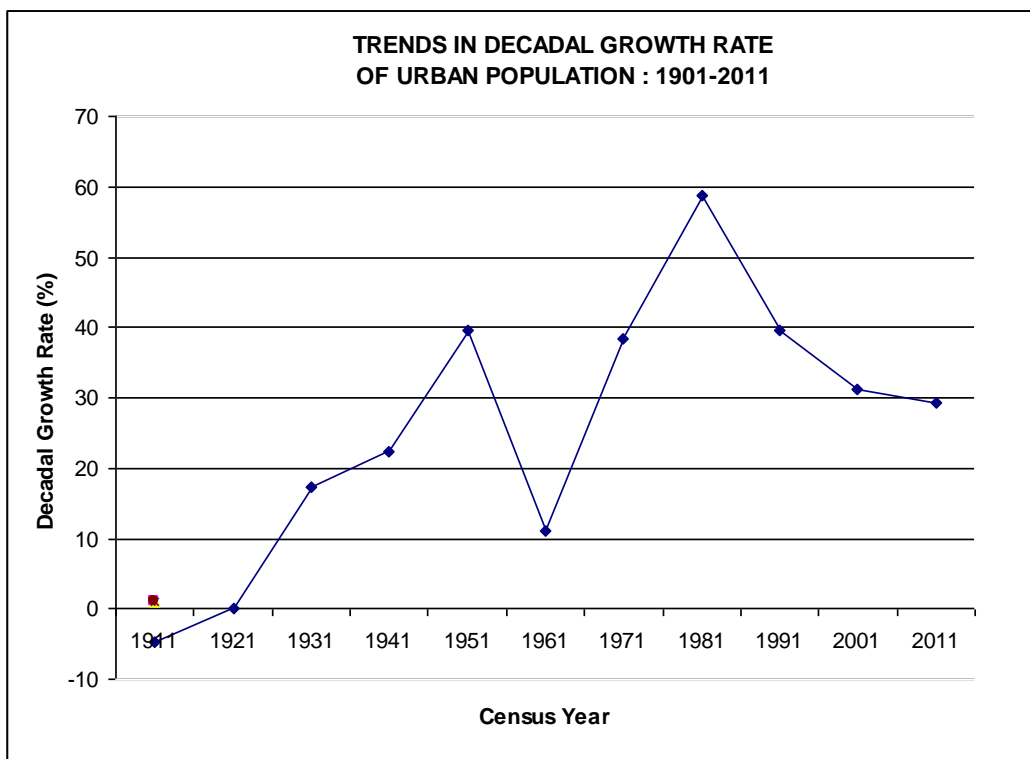
Tempo of urbanization refers to speed of urbanization and is measured as change registered in the degree of urbanization over the years. It may be noted from Table- 3 that the tempo of urbanization is not uniform in the twentieth century in the state. It shows a fluctuating trend

over the years 1901-1971 and a declining trend during the last three decades 1971-2001. Thus, despite a steady growth in the urban population, the tempo of urbanization in Rajasthan has slowed down during the last decade 1991-2001 to the previous decade 1981-1991.

TABLE- 3 RAJASTHAN: TEMPO OF URBANIZATION 1901-2011

Year	Tempo of (PU)
1901-1911	-0.5060
1911-1921	0.2530
1921-1931	0.1283
1931-1941	0.1703
1941-1951	0.8278
1951-1961	-0.5555
1961-1971	0.3342
1971-1981	0.7554
1981-1991	0.3342
1991-2001	0.0860
2001-2011	0.2698

FIGURE: 1



URBAN POPULATION BY SIZE CLASS OF TOWNS

Table - 4 reflects the growth in the number of cities and towns, their population and its proportion to total urban population under each size class during 1901-2011. From a modest beginning of 135 towns in 1901, the number of towns gradually increased in the succeeding decades except in the 1961 census where the number of towns registered a decline and was only 145 from 227 towns in 1951 census which also was the highest figure for towns in the state from 1901 to 2001. This decline in the number of towns was due to the application of a uniform and rigid definition of urban areas in 1961 census. Prior to 1961, the definition of urban areas was flexible and varied from state to state in 2011 there was 301 towns in the state.

The pattern of urbanisation in Rajasthan is characterized by continuous concentration of urban population in class I towns. The proportion of population in class I has increased from 10.33 percent in 1901 to 61.47 percent in 2011. For the first time in the census history of the state Jaipur has earned the distinction of being classified as a metropolitan city (1.45 million) in 1991 census. However, in 1991 the population of the city constituted 14.49 percent of the total urban population, whereas in 2001 the proportion was 17.58 percent. There were only two class I B cities with 500,000 to 999,999 population, namely Jodhpur (666279) and Kota (537371) in 1991 which combined form 11.95 percent to the total urban population of the state. In 2001 the number increased to three with the addition of Bikaner (529690) and thus

accounted 15.78 percent to the total urban population of the state. On class I C cities with 100,000 to 499,999 population, it was seen that there were 11 such cities in 1991 census which increased to 15 in 2001, accounting for 23.10 percent and 22.79 percent respectively to the total urban population of the state.

The proportion of urban population in class II towns of population size 50,000 to 99,999 decreased from 15.74 percent in 1901 to 9.69 percent in 1921. Thereafter, the proportion fluctuated till 1991 and the 2001 census saw an increase in proportion of 14.67 percent over the 1991 proportion of 13.64 percent. In 2011 it was 10.48% share of total urban population.

However, there was a reverse trend in the Class V and Class VI towns where the proportion of population to urban population fell rapidly from 27.77 percent in 1901 to 2.07 percent in 2011 and 8.07 percent to 0.26 percent in class VI towns.

It may be observed that the number of towns has fluctuated decade to decade because of variations in definitions and concepts of urban areas in different census. Considering the distribution of towns by size classes, one would notice a continuous increasing trend in the number of towns in class I group while in other categories there is a mixed trend. The number of class I towns increased from one in 1901 to 31 in 2011.

Therefore, it can safely be concluded that there has been a rapid increase in the population of class I cities particularly after 1951 census. The important contributing factor in this phenomenon is the tendency of smaller towns to move in to the higher class owing to the sharp rise in the growth of population and of rural people migration to the urban areas resulting from industrial development and more employment opportunities in towns, especially after the independence.

TABLE- 4 RAJASTHAN: GROWTH IN THE NUMBER OF CITIES & TOWNS AND PERCENTAGE OF POPULATION IN EACH CLASS TO TOTAL URBAN POPULATION: 1901-2011

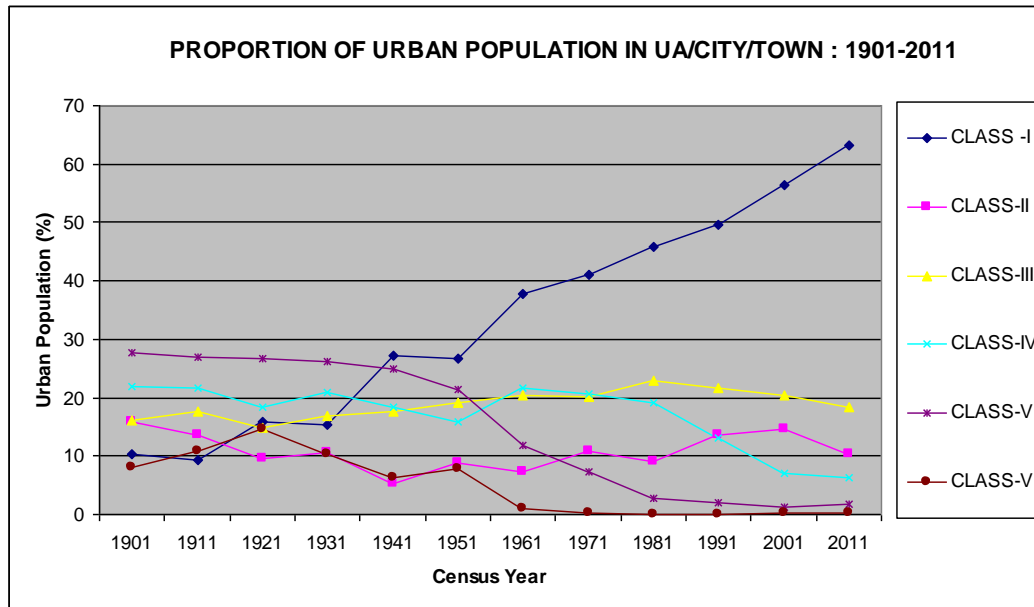
Census year	Number of cities and towns						Percentage to total urban population					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
1901	1	4	8	26	64	32	10.33	15.74	16.21	21.88	27.77	8.07
1911	1	3	9	24	60	41	9.29	13.64	17.68	21.60	26.97	10.82
1921	2	2	7	20	58	58	15.84	9.69	14.82	18.26	26.77	14.62
1931	2	2	9	26	64	47	15.25	10.45	16.99	20.83	26.20	10.28
1941	4	2	13	28	74	36	27.26	5.38	17.69	18.30	25.01	6.36
1951	4	4	20	36	96	67	26.58	8.92	19.11	15.93	21.47	7.72
1961	6	4	23	52	51	9	37.84	7.35	20.34	21.56	11.87	1.04
1971	7	7	31	67	41	4	40.94	10.75	20.03	20.62	7.30	0.36
1981	11	10	55	101	23	1	45.85	9.18	23.00	19.21	2.70	0.06
1991	14	20	74	87	55	2	49.54	13.64	21.72	13.00	2.03	0.07
2001	19	27	90	61	20	5	56.32	14.67	20.52	7.16	1.18	0.15
2011	31	26	105	80	47	12	61.47	10.48	18.93	6.78	2.07	0.26

Source: Census of India 2001, Series – 9, General population tables Rajasthan (Tables A-1 to A-4) Directorate of census operations Rajasthan.

Class I 1 lakh or more population
 Class II 50,000-99,999 population
 Class III 20,000-49,999 population

Class IV 10,000-19,999 population
 Class V 5,000-9,999 population
 Class VI Less than 5,000 population

FIGURE: 2



CONCLUSION

The share of class I cities in state's urban population has been increasing over the decades. It went up from 26.58 percent in 1951 to 61.47 percent in 2011. The high concentration of population in class I cities reflects that cities are more attractive, having a higher level of employment opportunities compared to the small urban centres. Consequently, more and more people have been migrating to urban centres, particularly class I cities. This in turn puts a severe strain on the civic facilities in urban centres. Thus the urban areas are facing a great challenge in providing basic facilities and amenities, such as water supply and sanitation, management of solid and hazardous wastes, supply of adequate and safe drinking water and affordable housing to burgeoning urban population.

Rajasthan has entered the 21st century where urban process in slowed down. But there is an absolute increase of 3.83 million population in urban areas. Therefore, to maintain even the 1991 standards in drinking water, electricity, roads and sanitation, one has to enhance the pace of reforms for net addition of 3.83 million to urban Rajasthan.

Policy steps that need urgent attention of urban policy makers may be mentioned as follows. First, using demographic data together with satellite images and other spatial data in a GIS can help orient urban expansion of a given locality in more favourable directions. Projections of demographic growth trends, used in conjunction with other data for example, on elevation, slope, soils, land cover, critical ecosystems and hazard risks can help policy makers identify areas in which future settlement should be promoted or avoided. Second, the presence of roads, public transport, power and water supplies helps determine the direction in which cities grow. Their development should be oriented in accordance with environmental and demographic criteria. Information on demographic trends

and commuting patterns can help predict increased pressure on housing, as well as on the road and street system. Thirdly, the same GIS tools mentioned above can identify areas for green space preservation. The urban trees have important environmental benefits such as filtering air pollutants, attenuating the urban heat island effect.

Urbanization – the increase in the urban share of total population is inevitable, but it can also be positive. The current concentration of poverty, slum growth and social tension in cities does point a threatening picture, yet no country in the industrial age has ever achieved significant economic growth without urbanization. Cities concentrate poverty, but they also represent the best hope of escaping it.

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