

Level of Urbanization in Haryana State – A Geographical Study

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INTRODUCTION

Urbanization means an increase of population in urban areas. It is a dynamic process of process of society transformation from rural to urban. It closely associated with the industrial revolution and economic development. Urbanization includes the growth of secondary and tertiary activities like manufacturing, trading, services etc. and on other hand threaten the growth of agricultural areas. The process of urbanization takes in two ways; one is the natural increase, which is determined by the factors of birth and death and another important factor is the migration which takes place from rural area to urban areas. This process of urbanization not only includes the increase in the population of any urban area, but also includes the process of socioeconomic transformation as people move from rural to urban areas, their way to live also change. Moreover, in this process of change their activities also change from primary to secondary & tertiary level. Urbanization is not a new phenomenon; it has been evolved long year back. The process of urbanization doesn't take place evenly everywhere rather than it is a more uneven process.

One of the known aspects of urbanization is the uneven pattern of urban system all over the world; in which there are few big cities and a large number of small towns. In India, the pattern of urbanization is found in the same way where there are few larger city accounts for a larger share of total urban population, whereas the large number of small urban settlements occupy only small portion of the total urban population. Even in the large cities, the percent share of urban population is high amongst few metropolitan cities like Delhi, Mumbai, Chennai, Kolkata and Bangalore etc. this uneven spatial distribution pattern of urban places and urban population affects the level of urbanization of any region. The level of urbanization of any region may be measured in many ways, such as a percent share of urban population to the total population of any region, rural population served by each town which can be regarded as an indication of its effectiveness, distance to the nearest town or spacing between the towns and density of towns per unit of area etc. One of the common methods used is the percentage of urban population to total population. But this only shows the effective urban population share rather than the structural pattern of urbanization in some areas. Whereas the other method like rural population served by each town and the spacing between towns highlight the spatial structural characteristics of urban system of any region. Along with the

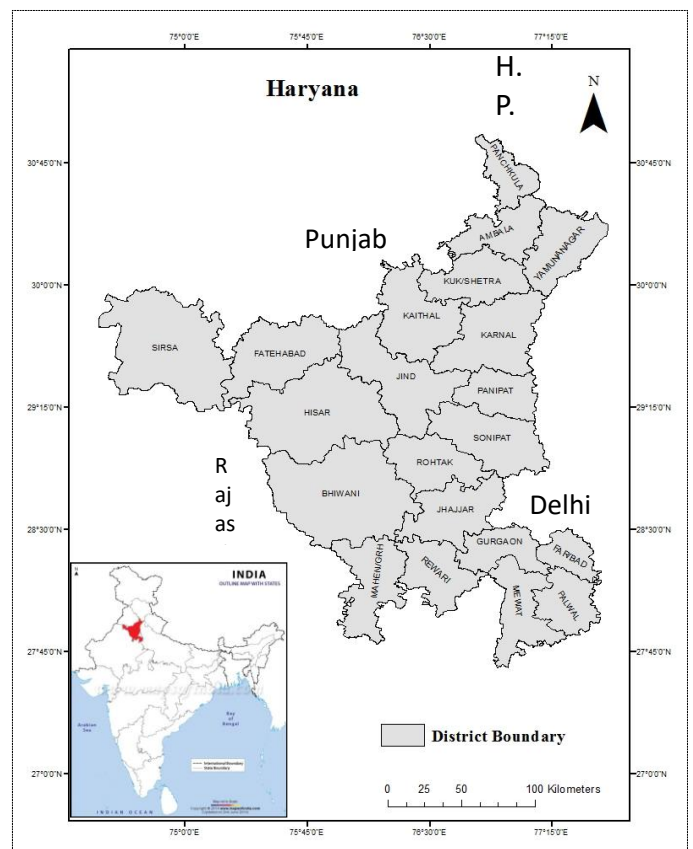
spatial pattern, it highlights the level of urbanization as larger the rural population served by each town in any region, lower will be the level of urbanization of that region. In a same way spacing between towns also indicates that larger the distance between towns has to serve large area and which leads to the lower level of urbanization.

Need of the Study

- Haryana has recorded high pace of urbanization in last few decades
- According to census 2011, the percent share of urban population in Haryana is about 34.88% greater than the national average of 31.16%
- The average rate of growth of urban population in Haryana during the last decades (2001-11) was 44.25%, which is greater than the national average of 31.08 percent.
- Due to their proximity to larger cities i.e. Delhi and Chandigarh, the state has become almost first choice for the foreign investment & SEZs development, also the real estate sector is flourishing with great pace in the near future
- But the pattern of Urbanization is not in uniform ways. So there is a need to study the spatial Pattern of urbanization in Haryana

Study Background and Location

Haryana, as one of the most developed states of India has been selected to find out the spatial structural pattern of urbanization. The state is emerging as the place of rapid urbanization as their proximity to large cities like Delhi and Chandigarh. It is situated in the northwestern part of India extending between 27° 29' to 30° 55' N latitude and 74° 27' to 77° 36' E longitude. The Haryana state has been carved out from Punjab as an independent state on 1st November 1966 with a total geographical area of 44,212 sq. kms. The percent share of urban population to total population in Haryana is about 34.88 percent, which is greater than the national average of



31.20 percent, but it occupies only 2.34 % of the total Indian Urban Population. The number of urban places of different size class is 154 including 74 as census town having population more than five thousand. The spatial and structural pattern of urban places and population in Haryana is unevenly distributed, so this study focus onto the measurement of the level of urbanization and the level of concentration or dispersion of urban population in Haryana.

OBJECTIVE

- To measure the level of urbanization in Haryana at district level
- To examine the spatial structural pattern of urbanization in Haryana

DATABASE AND METHODOLOGY

In the present study, the level of urbanization has been assessed with the help of different indicators given below. This study is based on the secondary sources of data extracted from the statistical abstract of Haryana 2013, census of India and other published sources such as book, journals. ArcGIS 10.1 software has been used to prepare maps of different analysis in the following study.

- A. Urban population decadal growth (2001-11)
- B. Percent share of urban population to total population
- C. Rural population served by the towns of (20,000+ population)
- D. Spacing between towns
- E. Density of town per 1000 sq. kms of area

Methods of calculating the Indicators Used:

1. Decadal urban growth (2001-11) = $(P_{2011} - P_{2001})/P_{2001} \times 100$
2. Percent share of urban population to total population =

Total Urban Population in a census yr./total Population of that census yr.×100

3. Rural population served by the towns of (20,000+ population) =

Total Rural Population in a census yr./total number of towns of (20,000+ Population)

4. Spacing between towns (In Kms)

$1.0746\sqrt{A/N}$ where A is the area in sq. km.; N is the numbers of towns of (20,000+ Population)

5. Density of town per 1000 sq. kms of area = **No. of towns/Total area × 1000**

On the basis of these indicators a ‘**composite index of urbanization (CIU)**’ was calculated so as to get a composite score of all indicators to examine the overall level of urbanization in any region. Here this composite index of urbanization has been calculated at district level. The calculation of this CIU is a very simple procedure. This method is based on the Kendall’s ranking method. In this method all indicators have given rank according to their minimum and maximum characteristics or importance at district level. Highest rank assigned to those districts which represent maximum characteristics or importance and vice-versa. Further, all ranked value was added together and divided by the number of variables so as to get the composite score of each district. The data used for this was based on the secondary sources of data obtained from census and statistical abstract.

$$CIU = \frac{\sum VR}{N}$$

Where

CIU= Composite Index of urbanization

VR= Composite Rank of the variable

N= is the total number of variables

The highest rank as per CIU would indicate the high level of urbanization and vice-versa.

Whereas to measure the concentration and dispersal of urban population in the study area following techniques has been used:

- A. Location Quotient
- B. Gini-Coefficient Method
- C. Lorenz Curve

Location Quotient:

This method is used when the proportion of any characteristics in an area is studied in relation to its proportion in the region; the ratio used is known as location quotient. In context of our study area this method is used to find out the concentration level of urban population at district level and its position in the whole region of the study area. So this method is useful in finding out the relative position of any area in the study region. The value of LQ varies between greater than one and vice versa. The value of LQ is greater than one would show high concentration or vice-versa. To get these values district wise percent share of the urban population have been divided by the same percentage in the region or state.

LQ=Percent share of urban population to total population at district level/percent share of urban population to total population of the state

Gini-Coefficient:

This method is used to measure the concentration level of urban population in different size class of urban settlements. It is a ratio varies between one and zero. When the ratio is near to one it would indicate the higher concentration and vice-versa. Thus the lower value of this ratio indicates a more uniform distribution of urban population. Gini concentration has been computed by using the following formula:

$$Gi = (\sum XiYi + 1) - (\sum Xi + 1Yi)$$

Where Gi refers to the Gini Concentration

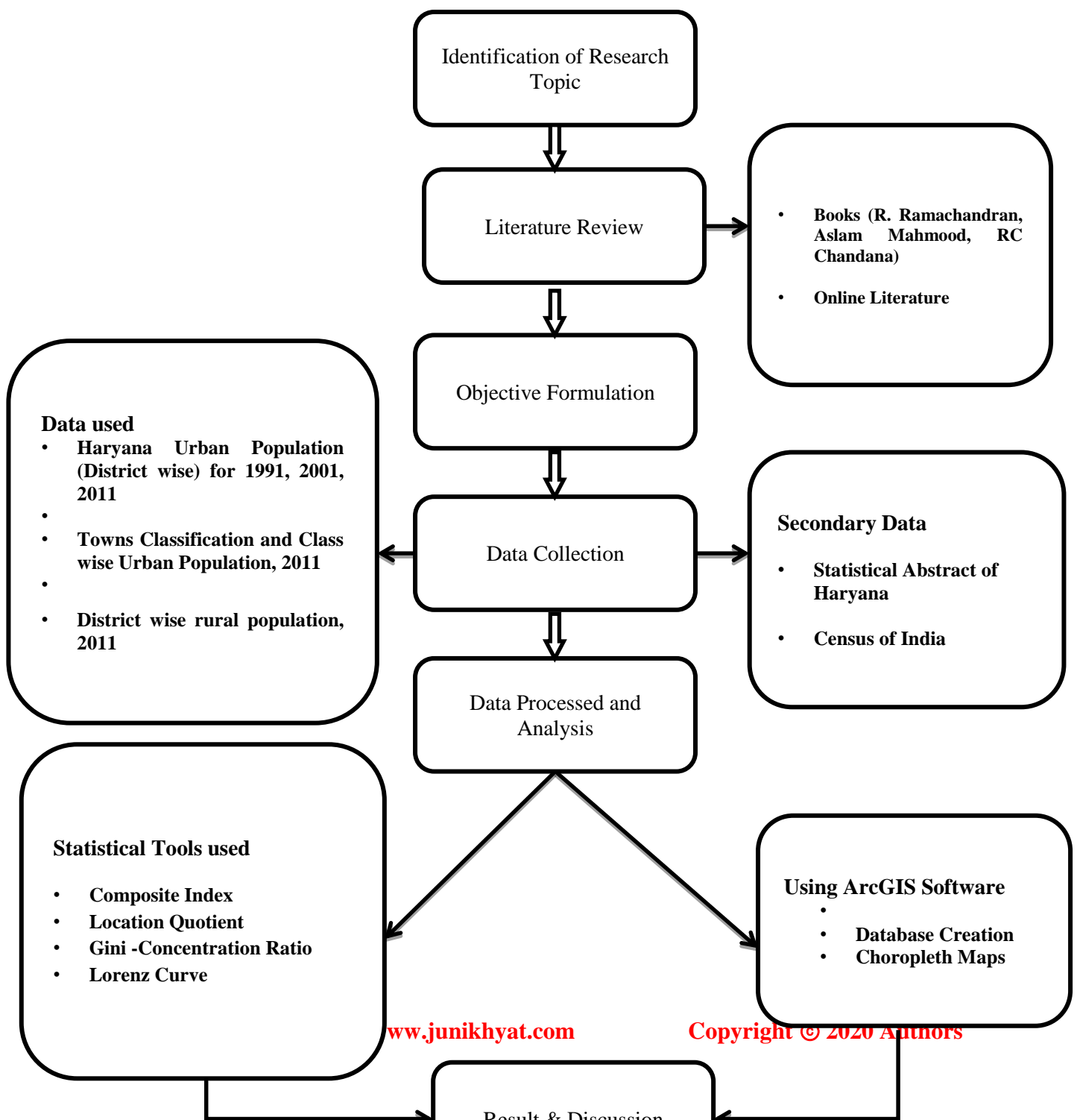
X_i refers to the cumulative proportion of total urban population

Y_i refers to the cumulative proportion of towns of different size class

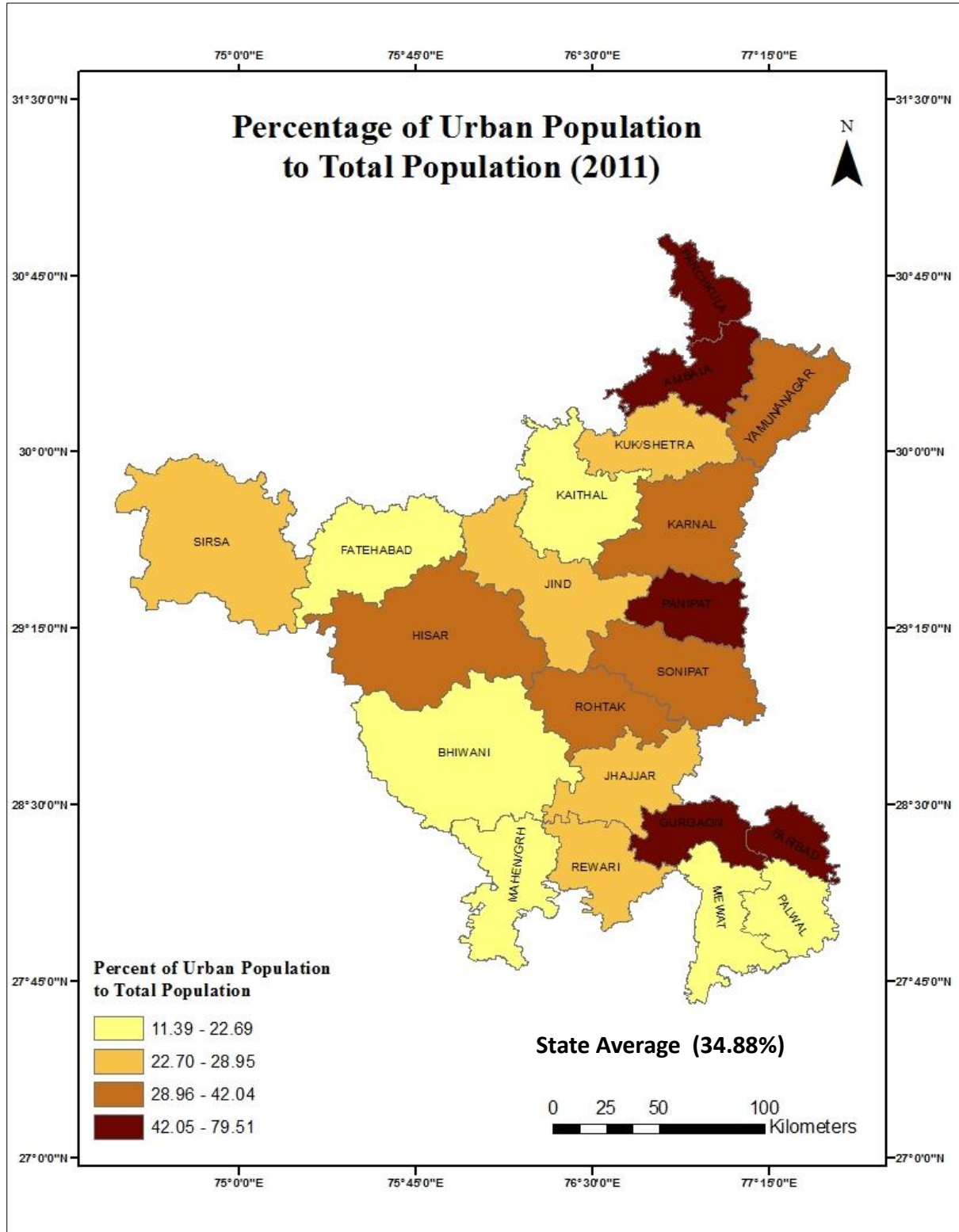
Lorenz Curve

This method is basically used to measure the inequality in the distribution of wealth or income, but for our study purposes, this method is used to find out the concentration or dispersal of urban population in the study area. For computing this method cumulative percentage of urban population at district level to total Haryana urban population and cumulative percentage of total population at district level to total Haryana population has been used. Then the cumulative percentage of one variable up to certain points plotted on a graph against the cumulative percentage of other variables up to the same points. Then these different points of variance were joined on the curve using an excel graph. In our study Lorenz curve for three decades 2011, 2001 and 1991 has been computed. Along with these one diagonal line of equality also drawn for the comparison.

Figure 1: Methodological Flow Chart



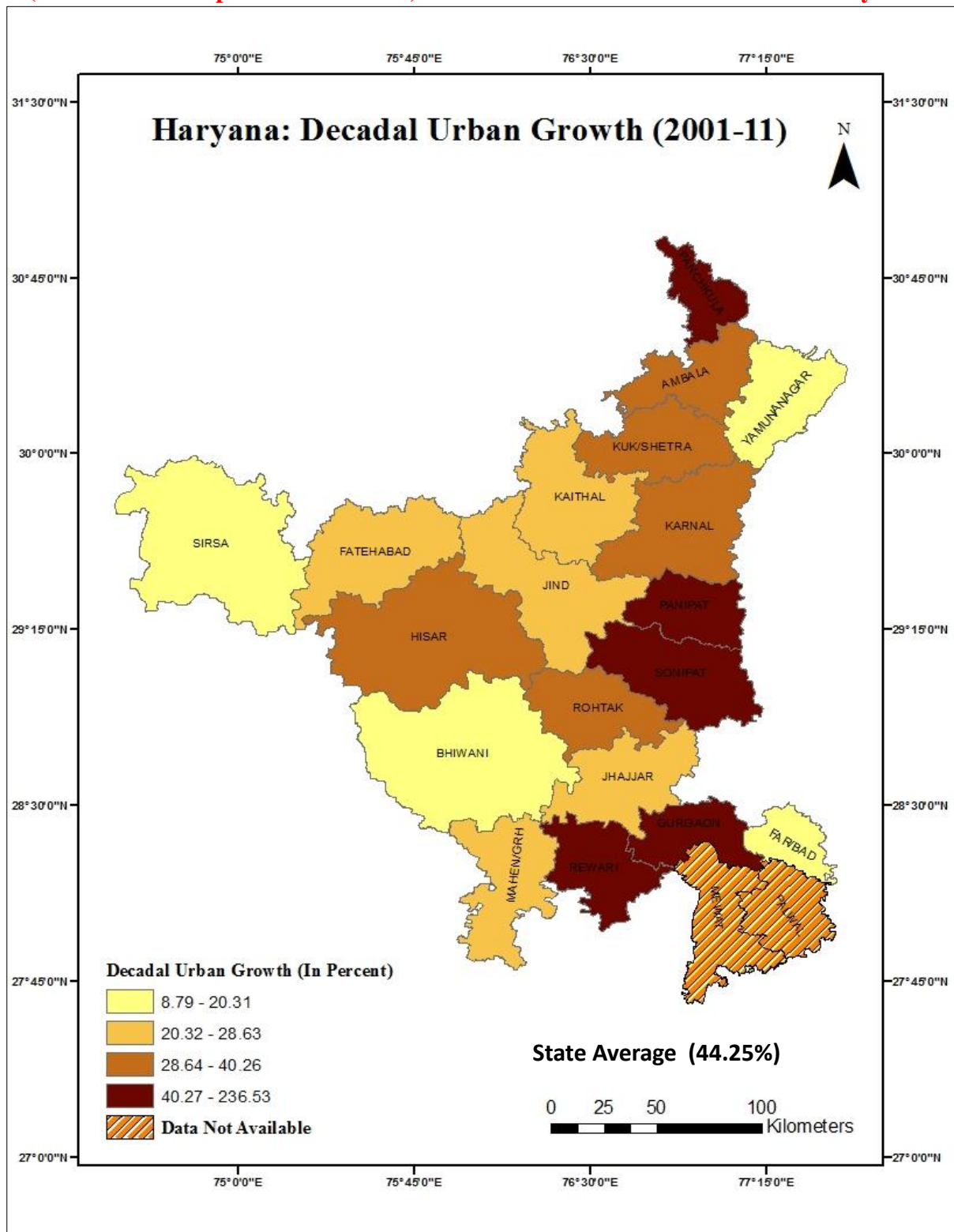
Results and Discussion



Map 2: Percentage of urban Population at District

The above maps indicates that the percent share of urban population to total population at district level is high in Gurgaon, Faridabad, Panipat, Ambala and Panchkula which share more

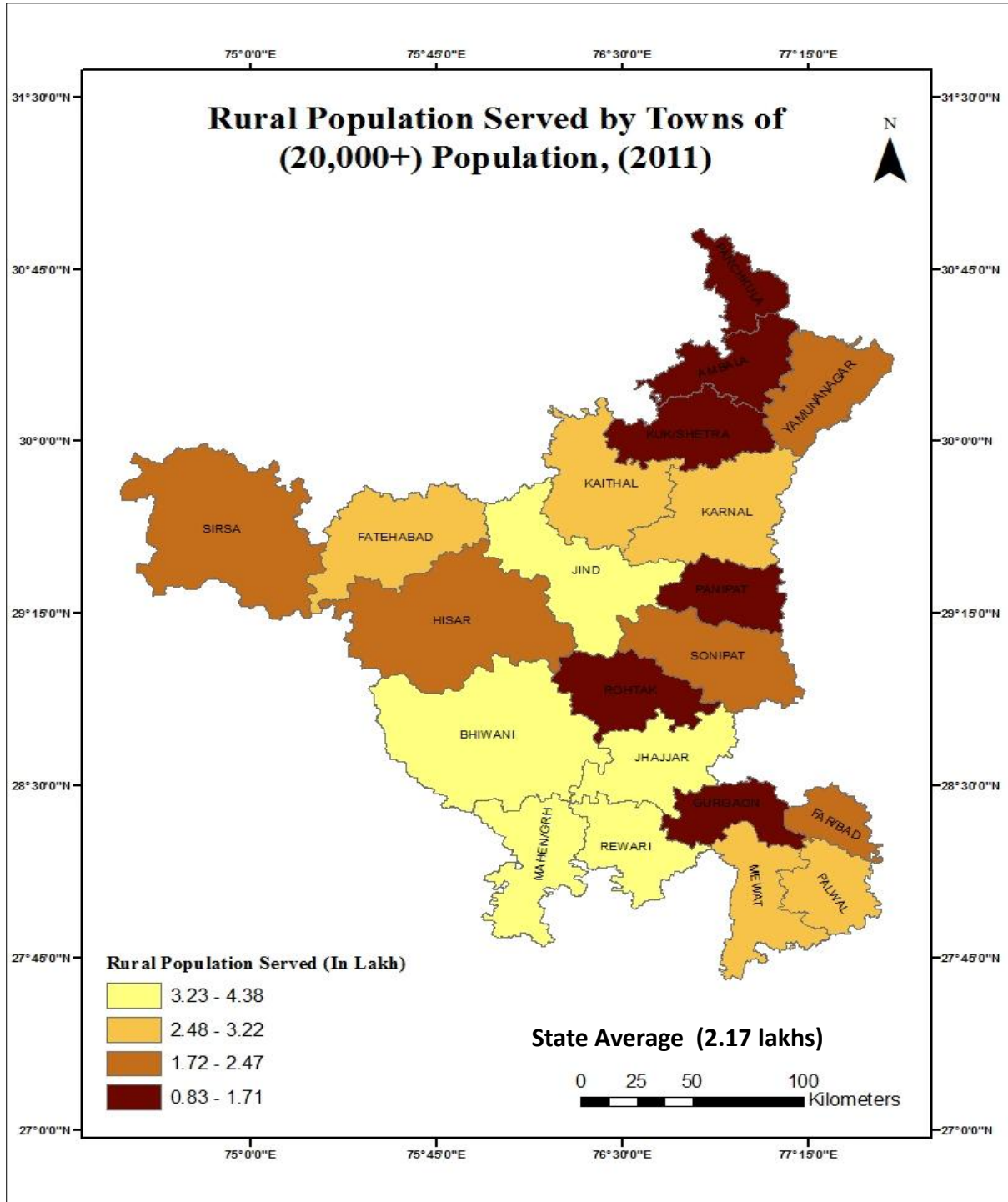
than 42 percent of urban population to their total population. The main reason behind that are their major economic activities & their multi-functional characteristics, which attract people from the countryside area in search of better life and versatile job opportunity. The district Bhiwani, Fatehabad, Kaithal, Mahendragarh, Mewat and Palwal shows least share of urban population varies between 11 to 23 percent of their total population. These districts don't have any major source of attraction to make people to move in those districts. Whereas, Rohtak, Sonipat, Hisar, Karnal and Yamunanagar shows moderate share of urban population to their total population.



Map 3: Decadal Urban Growth (2001-11)

The decadal urban growth (2001-11) have been observed highest in Gurgaon (236.53 %), Rewari (71.42%), Panchkula (50.31%), Panipat (41.57%) and Sonipat (41.07%) as they are major center of attraction for the different class of people. In Rewari ‘Dharuhera’ has developed as a industrial town where people tend to move in search of job. Gurgaon is a multi-national hub and Panipat, Sonipat area major industrial town of small and medium

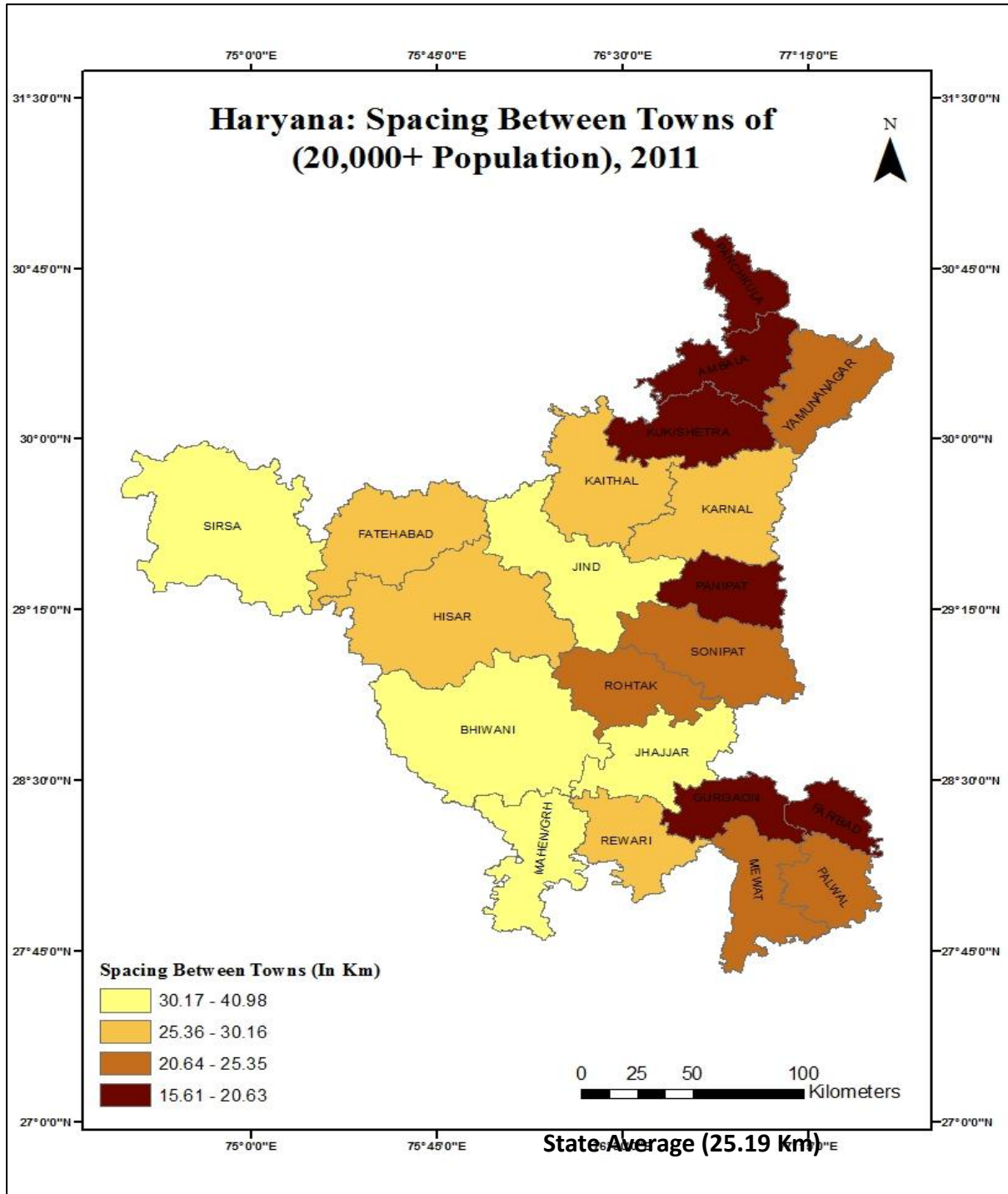
industries. Whereas, the least urban growth is found in Sirsa, Bhiwani, Yamunanagar and Faridabad. Faridabad is already developed more than 70 percent so urban growth is less, whereas Sirsa, Bhiwani and Yamunanagar don't have major industrial growth, even these district lack in other facilities which work as a push factor.



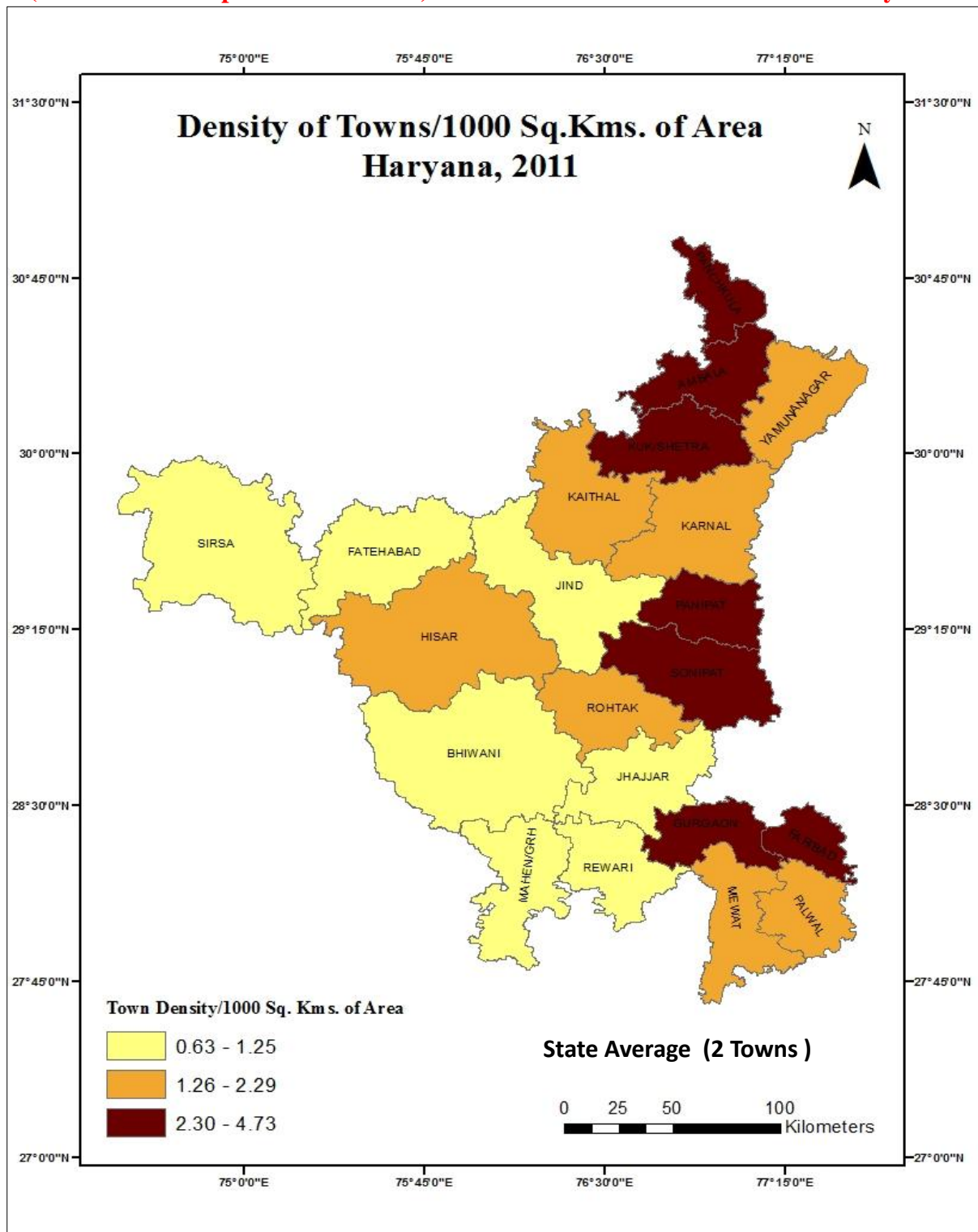
Map 4: Rural Population Served by Towns of (20,000+ population)

There is an inverse relationship between the level of urbanization and the rural population served by each town. The above map shows that in districts Bhiwani, Jind, Jhajjar, Rewari, Mahendragarh; rural population served by each town of (20,000+) population is high which

indicates the low level of urbanization. On the other side in Gurgaon, Rohtak, Panipat, Kurukshetra, Ambala and Panchkula; rural population served by each town is very small indicating the high level of urbanization. In Faridabad it comes under moderate because it is urbanized more the 70 percent and the number of towns are few.

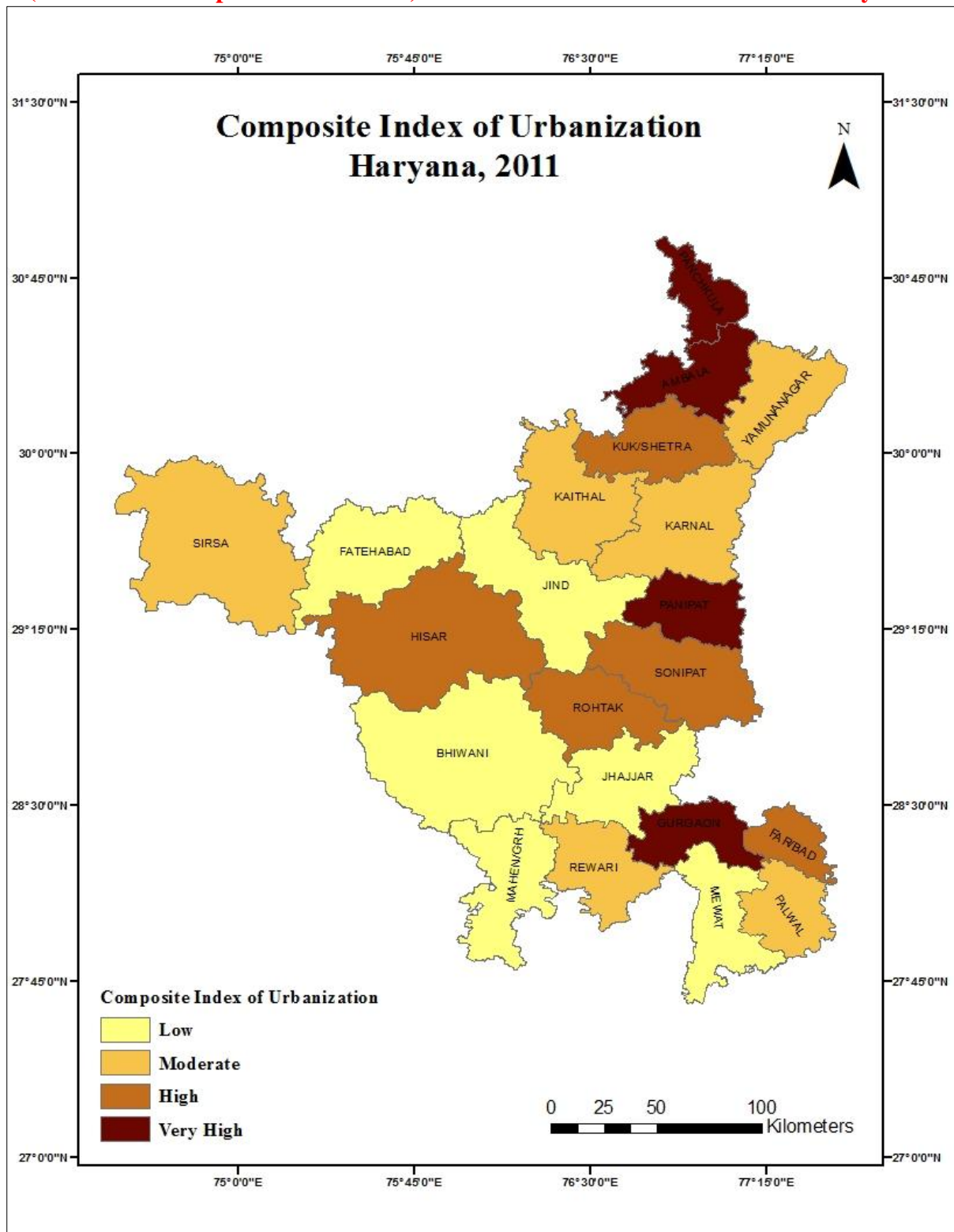


Map 5: Spacing of Towns



Map 6: Density of towns/1000 Sq. Km.

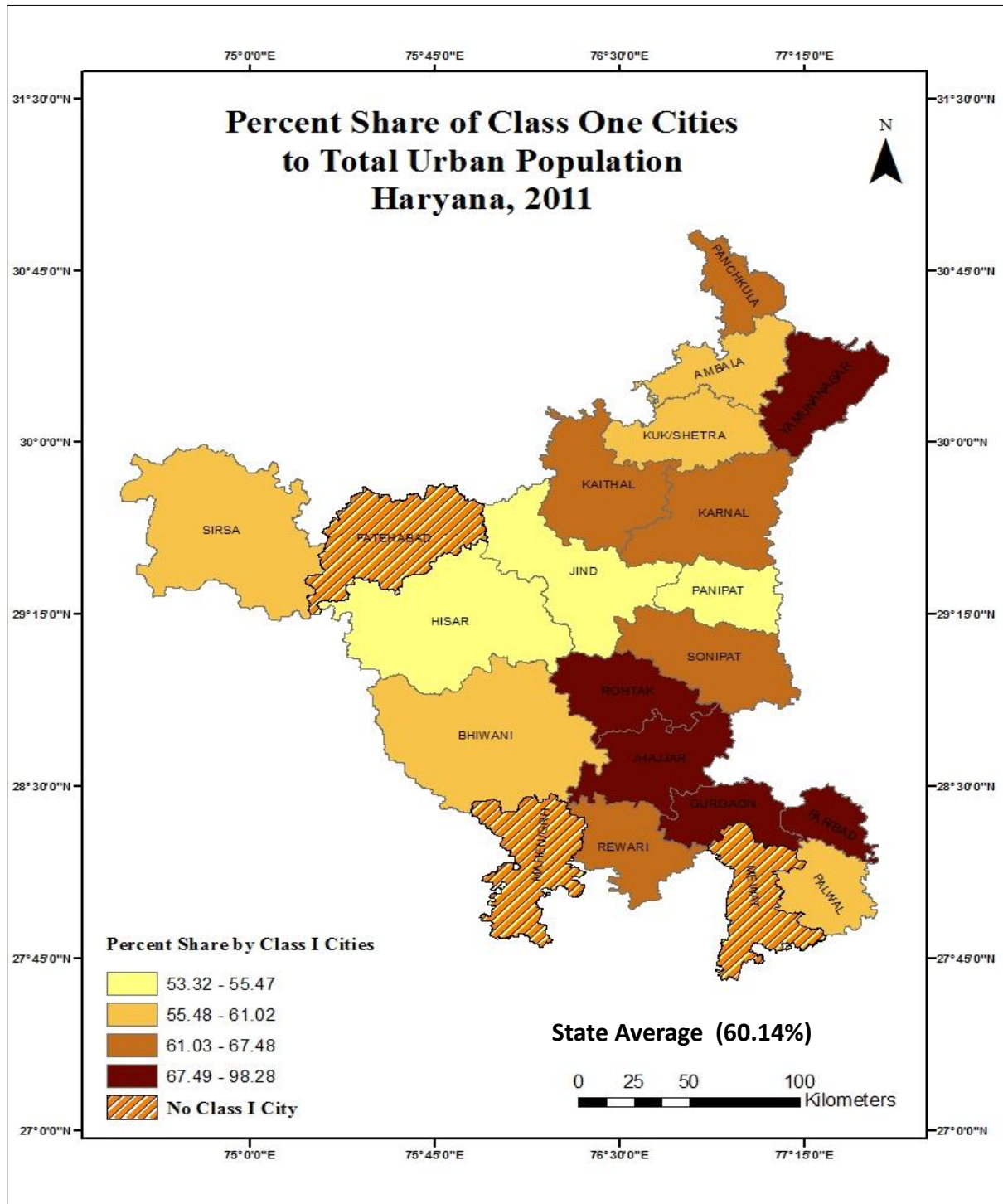
The density of town is very high in Gurgaon, Faridabad, Panipat, Sonipat, Kurukshetra, Ambala and Panchkulawhich indicates that these districts are smaller in size and number of towns is more. Whereas in case of larger district such as Bhiwani, Jind, Mahendragrh, Sirsa, Fatehabad showing low density of towns/1000 sq.km. area.



Map 7: Composite Index of Urbanization

A composite Index of urbanization has (CIU) been calculated to get the overall picture of urbanization by composite all the indicators using ranking method. This map of Composite Index of urbanization shows that very high level of urbanization is found in Gurgaon, Panipat, Ambala and Panchkula district, Moderate level of urbanization share by Rohtak,

Hisar, Sonipat and Kurukshetra, whereas the least level of urbanization is overserved in Bhiwani, Jind, Fatehabad, Mahendragarh, Jhajjar and Mewat.



Map 8: Percent Share of urban Population by Class I Cities

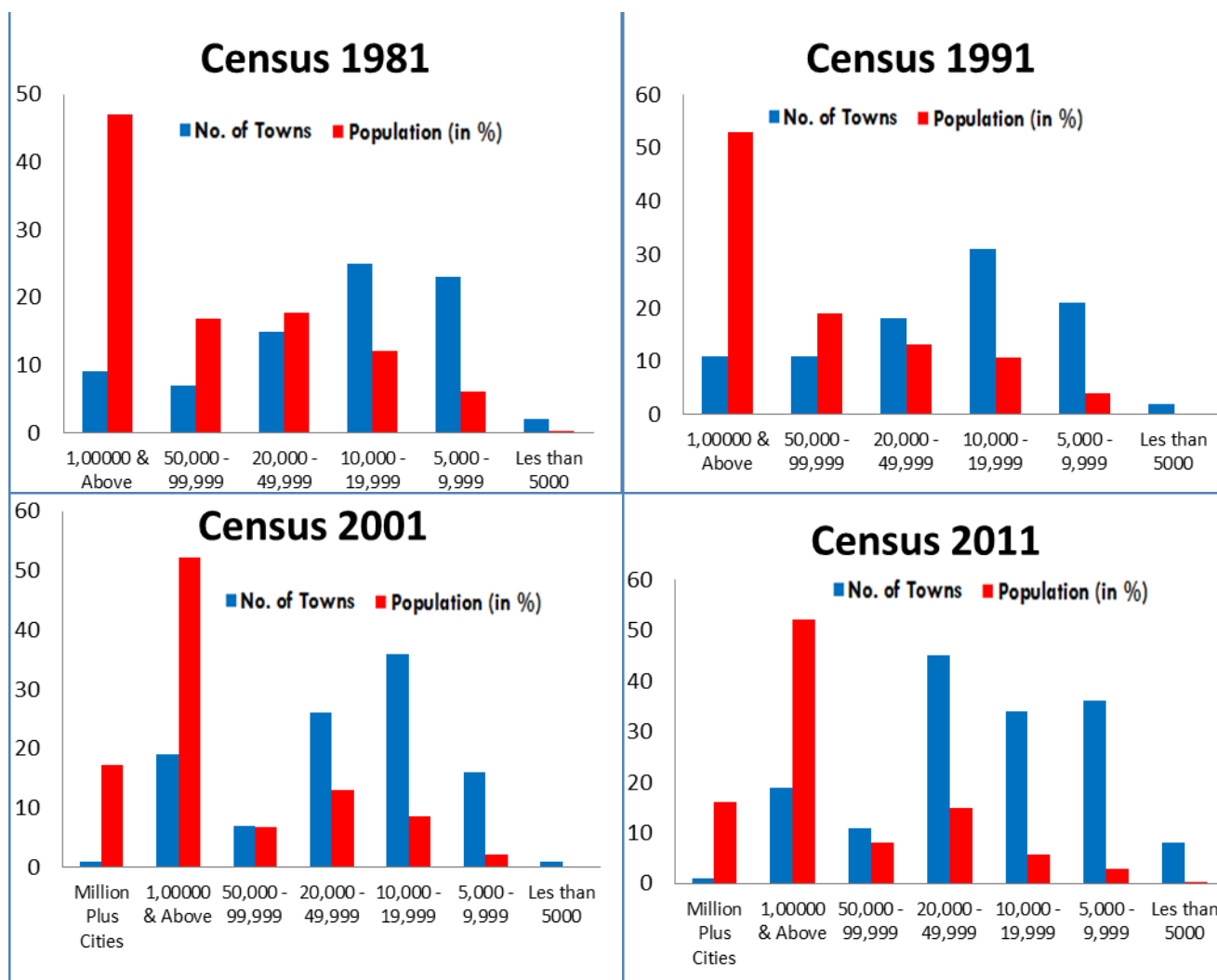
This maps shows that the high percent of urban population at district level is share by class one cities which indicates the level of metropolitization in the near future. It also indicates that in class one cities people tend to move to get better quality of life, services and versatile job opportunity.

Table 1: Urban Settlement Structure and Population

| Size of Urban settlements | No. of Urban Units | Population in Lakhs |
|---------------------------|--------------------|---------------------|
| 1,00000 & Above | 20 | 60.14739 |
| 50,000 - 99,999 | 11 | 7.06518 |
| 20,000 - 49,999 | 45 | 13.15126 |
| 10,000 - 19,999 | 34 | 5.13117 |
| 5,000 - 9,999 | 36 | 2.61431 |
| Les than 5000 | 8 | 0.31172 |
| Total | 154 | 88.42 |

Source: Census 2011

Figure 2: Concentration of urban Settlement and Population



These graphs show that over the period of time concentration of urban population has increased in few larger cities. But it also indicates that small and medium towns are increasing from 1981 to 2011.

Table 2: Structural Pattern of Urbanization – using Gini-coefficient Ratio

| Size of Urban Places | No. of Units | Population in000' | Proportion of | | cumulative Proportion of | | XiYi+1 | Xi+1Yi | Gi= (∑XiYi+1)-(∑Xi+1Yi) |
|----------------------|--------------|-------------------|---------------|-----------------|--------------------------|------------|--------|--------|-------------------------|
| | | | Units (Yi) | Population (Xi) | Units | Population | | | |
| 1,00000 & Above | 20 | 6014739 | 0.1299 | 0.6802 | 0.1299 | 0.6802 | 0.0987 | 0.1369 | 0.0382 |
| 50,000 - 99,999 | 11 | 706518 | 0.0714 | 0.0799 | 0.2013 | 0.7601 | 0.1829 | 0.3751 | 0.1922 |
| 20,000 - 49,999 | 45 | 1315126 | 0.2922 | 0.1487 | 0.4935 | 0.9088 | 0.4771 | 0.6492 | 0.1720 |
| 10,000 - 19,999 | 34 | 513117 | 0.2208 | 0.0580 | 0.7143 | 0.9668 | 0.7117 | 0.9166 | 0.2049 |
| 5,000 - 9,999 | 36 | 261431 | 0.2338 | 0.0296 | 0.9481 | 0.9964 | 0.9481 | 0.9964 | 0.0483 |
| Less than 5000 | 8 | 31172 | 0.0519 | 0.0035 | 1.000 | 1.000 | - | - | 0.0000 |
| Total | 154 | 8842103 | | | | | 2.4186 | 3.0742 | 0.6556 |

The average Gini Concentration shows that urban population in various sizes of urban centers in Haryana is **0.6556**.and this illustrates that the urban population of Haryana is highly concentrated only in a few urban centers, whereas the other small urban centers share only a few parts of total urban population of Haryana state.

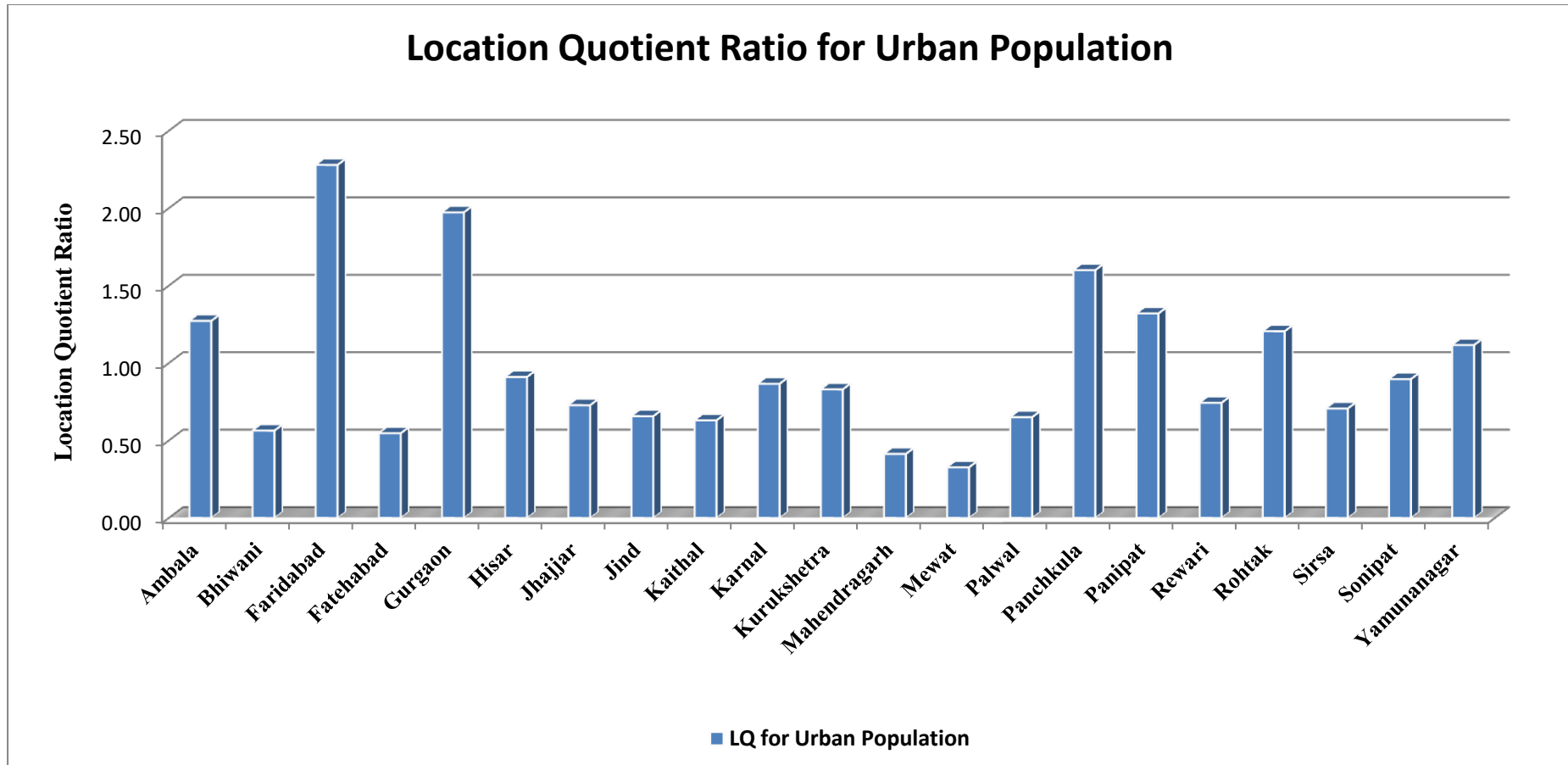


Figure 3: Location Quotient Ratio of Urban Population

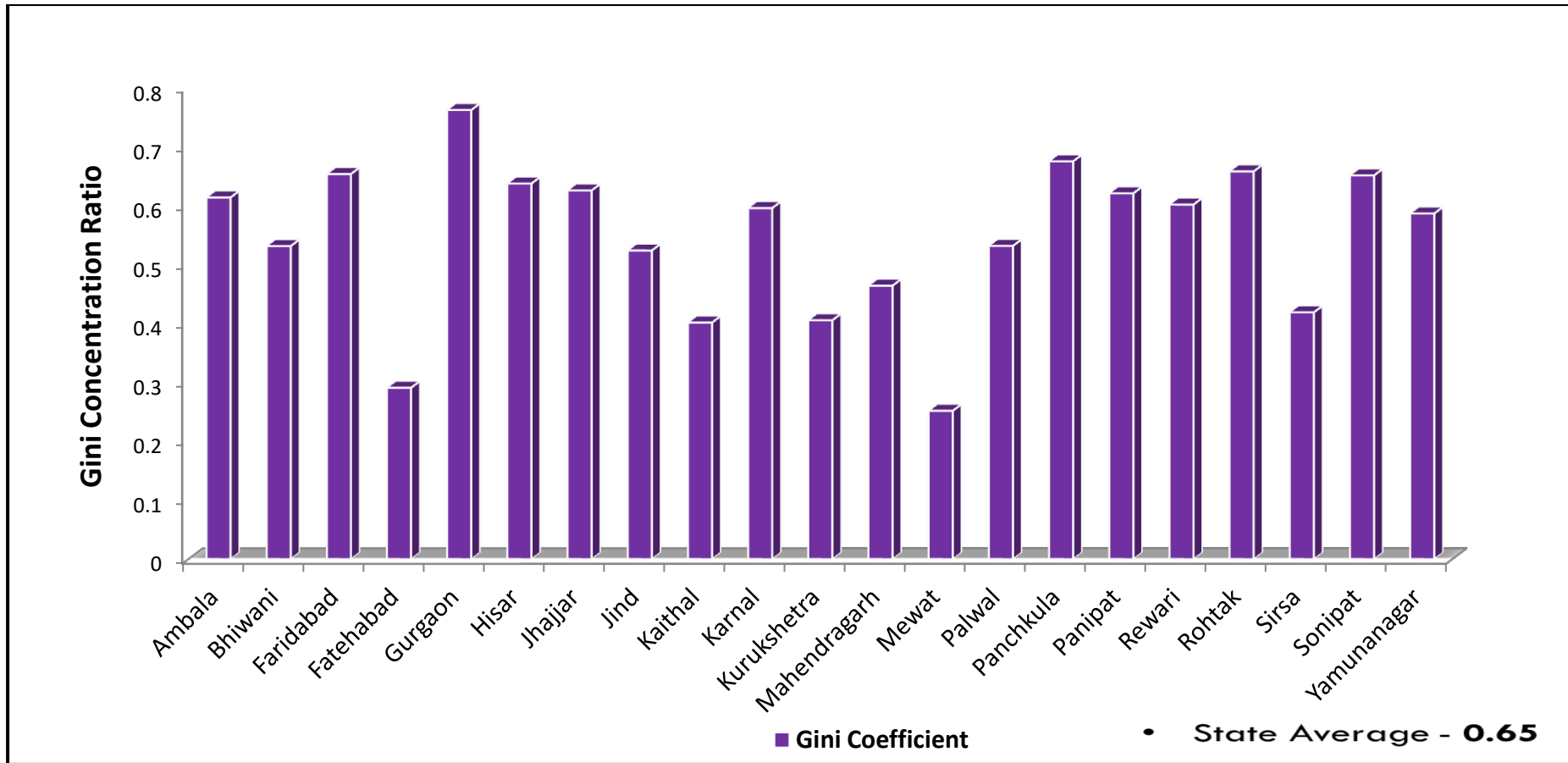
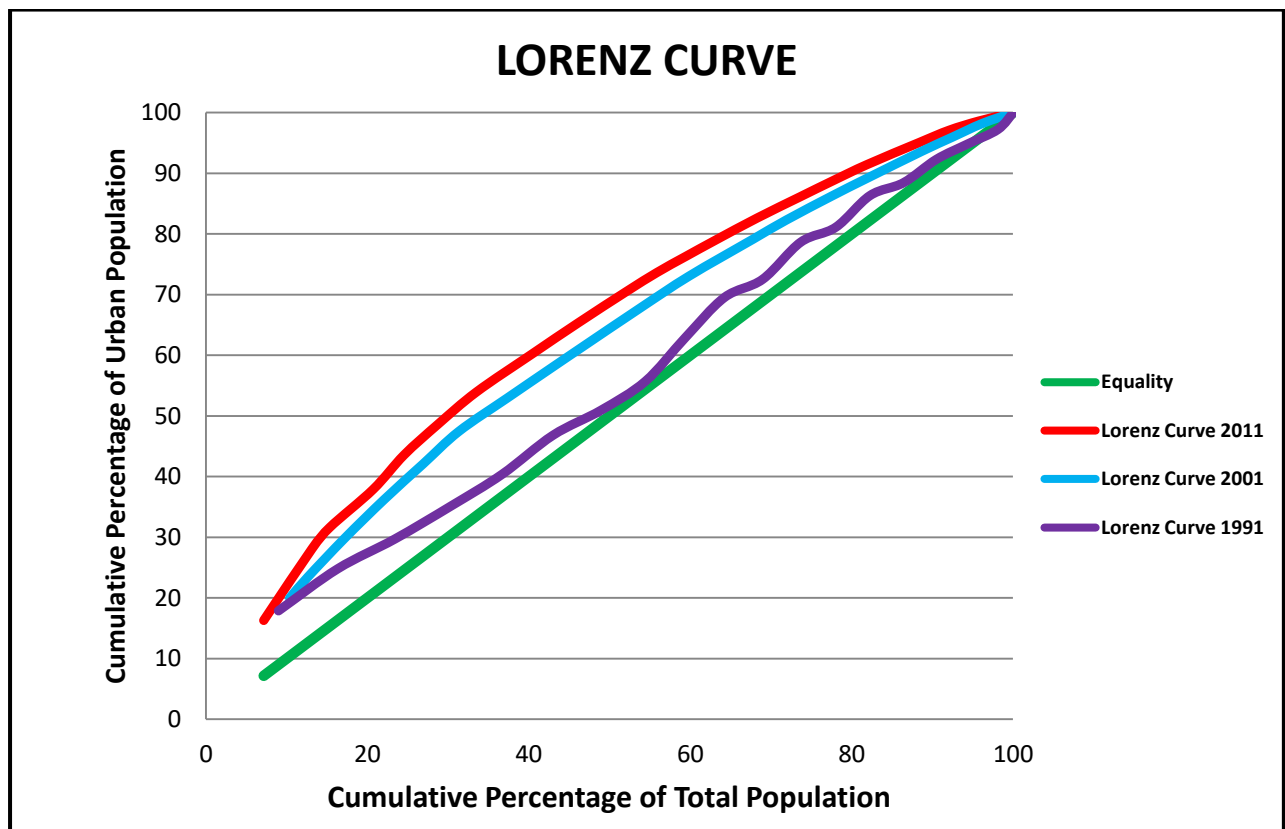


Figure 4: Structural Pattern of Urbanization – using Gini-coefficient Ratio

Figure 5: Concentration of Urban Population in relation to total population



Conclusion

- The overall analysis reveals that the level of urbanization in Haryana is not uniform rather than it is more concentrated where few larger cities accounts more than half of the total urban population whereas, large number of small urban settlement share few proportion
- The level of urbanization is **very high in Gurgaon, Panchkula, Panipat, Ambala and Faridabad** may be because of in migration whereas, the least urbanization has observed in the Northern western and southern part of the state i.e. **Bhiwani, Mahendragarh, Fatehabad, Mewat**etc. because of low level of industrial development, less diversified economic activities and higher concentration of agricultural labour.
- It is also reveals by using Lorenz Curve analysis that after post liberalization/globalization in Haryana the level of concentration of urban population has increased which shows that eventually leads our major cities towards the metropolitization.

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