ORIGINAL RESEARCH PAPER

Geography

SPATIO-TEMPORAL ANALYSIS OF INDUSTRIAL CONCENTRATION IN HARYANA

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ABSTRACT

Industrial concentration means the location of a few, well-defined industrial sectors in a region (Brakman, Garretsen, & Marrevijk, 2001). Industrial concentration plays an important role in the economic development of a region because it influences the economic opportunities available in the region. The present study intends to analyse the industrial concentration in Haryana over the period 2011-12 to 2020-21. The pattern of industrial concentration has been examined by Location Quotient (LQ) method. The study found that there are disparities in the industrial concentration while the industrial sector is continuously increased in the state. After the analysis it reveals that the industrial concentration is high to moderate in the eastern and northern part of the state on the other hand it is low to very low in the western and southern most part of the state except Gurugram and Faridabad districts. There are changes occurred in the industrial concentration during the period 2011-12 to 2020-21 in the state. Jhajjar and Sonipat both districts has shift from moderate to high category of industrial concentration during the period. The reasons responsible for that are location factor, infrastructure facilities, included in NCR region.

INTRODUCTION

Industrial concentration means the location of a few, well-defined industrial sectors in a region (Brakman, Garretsen, & Marrevijk, 2001). Industrial concentration serves as a substitute for understanding a region's economic base. There are some factors like availability of specific resources, proximity to consumer markets, infrastructure facilities and location which influenced the industrial concentration in an area or region. High concentration of the industries indicates high productivity and low industrial concentration indicates low productivity in a region. Due this some regions are became economically developed and some are not. These variations in the industrial concentration lead to the imbalanced growth of an economy or area. In Haryana also there are disparities in the industrial concentration while the industrial sector is continuously increased in the state. That is why there is a need to study the industrial concentration in the state which may help the policy makers in reducing the inequalities and improve the economies of areas that are currently performing poorly economically. Industrial concentration measured by different methods but in the present research work Location Quotient (LQ) method has been used.

Objectives of the Study

The present study is undertaken with the following objectives –
*   To analyse the spatio-temporal pattern of industrial concentration in Haryana.

Database and Methodology
Database

The present study is based on secondary data. The secondary data has been collected from statistical abstract of Haryana, various issues government of Haryana.

Methodology

In the present study Location Quotient (LQ) method has been used for calculating the industrial concentration in the state.:

Location Quotient (LQ) =

$$\frac{\text{Number of Industrial Workers of Specific District}}{\text{Number of Total Workers of Specific District}} \div \frac{\text{Number of State Total Industrial Workers}}{\text{Number of State Total Workers}}$$

The value of LQ indicates the following:
*   LQ less than 1.0 indicates that the industrial concentration in the district is less than the state.
*   LQ equal to 1.0 indicates that the industrial concentration in the district is equal to the state.
*   LQ greater than 1.0 indicates that the industrial concentration in the district is more than the state.

Spatio-temporal Analysis of Industrial Concentration in Haryana

Haryana is agriculturally developed stat. With the time being

the state has become one of the economically prosperous states of the country. The growth rate of industry sector of the state continuously increased. As a result the share of industry sector in Gross State Domestic Production (GSDP) increased from 17.6 percent in 1969-70 to 32.1 percent in 2006-07. But this growth is not even in all the districts. To understand the regional disparity in the districts Location Quotient method has been applied by using the data- number of workers employed in registered working factories. The time period at which the analysis has been done is 2011 and 2020. For simplification, Location Quotient values have been classified in to five categories –

(1) Areas having Very High level of Industrial Concentration (LQ 1.5 and above)
(2) Areas having High level of Industrial Concentration (LQ 1.0 to 1.5)
(3) Areas having Moderate level of Industrial Concentration (LQ 0.80 to 1.0)
(4) Areas having Low level of Industrial Concentration (LQ 0.40 to 0.80)
(5) Areas having Very Low level of Industrial Concentration (LQ Below 0.40)

Very High Level of Industrial Concentration (LQ 1.5 and above)

Very High level of industrial concentration has been found in Gurugram (5.27) and Faridabad (4.03) districts during the year 2011 in the state. The value of location Quotient is more than 1.0 in both districts (Fig. 1.1). It indicates that industrial concentration in both districts highly concentrated than the state. The reasons responsible for high concentration of industries are location factor near to national capital Delhi, also included in NCR, developed transportation network and technological development. Gurugram developed in IT sector and in Faridabad numbers of industries are distributed. It is observed from the figure 1.2 that during the year 2020 also both districts are fall under the category of high industrial concentration.

Table 1.1: Haryana: Industrial Concentration Based on Location Quotient

Level of Concen-tration	Range of LQ	2011		2020	
		No. of Districts	Name of Districts	No. of Districts	Name of Districts
Very High	1.5 and Above	2	Gurugram, Faridabad	2	Gurugram, Faridabad
High	1.0 to 1.5	2	Panipat, Yamuna-nagar	4	Panipat, Yamuna-nagar, Jhajjar, Sonipat,

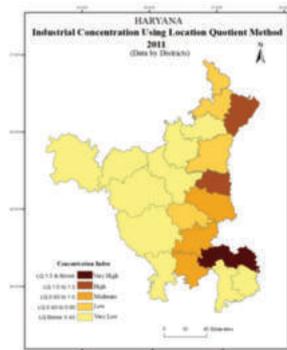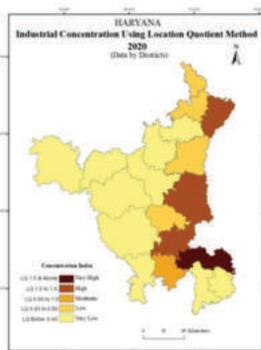| Mode-rate	0.80 to 1.0	3	Jhajjar, Sonipat, Rewari	1	Rewari
Low	0.40 to 0.80	4	Panchkula, Karnal, Rohtak, Ambala	4	Karnal, Panchkula, Ambala, Rohtak,
Very Low	Below 0.40	10	Jind, Bhiwani, Hisar, Palwal, Sirsa, Mahendra-garh, Kuruk-shetra, Fatehabad, Kaithal, Nuh	10	Mahendra-garh, Jind, Bhiwani, Palwal, Hisar, Fatehabad, Kuruk-shetra, Sirsa, Kaithal, Nuh

Fig. 1.1   **Fig. 1.2**

Areas Having High Level of Industrial Concentration (LQ 1.0 to 1.5)

It has been observed from the Figure 1.2 that High level of industrial concentration has been found in Panipat (1.39) and Yamunanagar (1.19) districts during the year 2011. The value of Location Quotient (LQ) is more than 1.0 in Panipat and Yamunanagar. It indicates that in both districts industrial concentration is more than the state. Because both districts have the locational advantage, Yamunanagar has the benefit of closeness to the state capital Chandigarh and Panipat located near to national capital Delhi and also fall in National Capital Region. Due to this number of factories are located in both districts. After the analysis of Figure 1.1, 1.2 & Table 1.1 it has also been observed that Jhajjar and Sonipat both districts has shift from moderate to high category of industrial concentration during the period 2011 to 2020 in the state. Now both districts are included in this category. The reasons responsible for that are location factor, infrastructure facilities, included in NCR region.

Areas Having Moderate Level of Industrial Concentration (LQ 0.80 to 1.0)

Moderate level of industrial concentration has been found in Jhajjar (0.90), Sonipat (0.89) and Rewari (0.88) districts during the year 2011 in the state. The value of Location Quotient (LQ) is less than 1.0 in these districts which indicate that in these districts the industrial concentration is less than the state. But the LQ value in these districts near to one which represent that the industrial concentration is quite better in these districts. All three districts are fall in National Capital Region due to this they acquire the advantage of different government policies regarding industrial development. Nearness of these districts to Delhi also affects their industrial concentration. Rewari district is located 82 km from the national capital Delhi, Jhajjar 29 km and Sonipat located just north to Delhi. It has observed from the Table 1.1 that during the year 2020 only Rewari district is lie in this category. Rests of the districts are shift from this category to high category of industrial concentration during the period 2011 to 2020.

Table 1.2: Haryana: Industrial Concentration, 2011 and 2020

Districts	Location Quotient	
	2011	2020
Ambala	0.46	0.57
Panchkula	0.66	0.64
Yamunanagar	1.19	1.07
Kurukshetra	0.13	0.14
Karnal	0.64	0.69
Panipat	1.39	1.33
Kaithal	0.09	0.11
Sonipat	0.89	1.01
Rohtak	0.58	0.52
Jhajjar	0.90	1.06
Jind	0.28	0.28
Faridabad	4.03	3.79
Palwal	0.20	0.20
Gurugram	5.27	5.22
Nuh	0.01	0.08
Rewari	0.88	0.97
Mahendragarh	0.14	0.36
Bhiwani	0.26	0.25
Hisar	0.22	0.17
Fatehabad	0.12	0.15
Sirsa	0.17	0.12

Source: Compiled by researcher

Areas Having Low Level of Industrial Concentration (LQ 0.40 to 0.80)

Low level of industrial concentration has been found in Panchkula (0.66), Karnal (0.64), Rohtak (0.58) and Ambala (0.46) districts during the year 2011 in the state. The value of LQ is less than 1.0 in these districts which indicate that in these districts the industrial concentration is less than the state. As comparison to other districts Panchkula is in better position, because it is a part of Chandigarh capital region. This locational advantage gives the boost to the industrial development of the district. As a result number of small scale industries is located in the district. Rests of the districts are agriculturally developed. Due to this some ago-based and small scale industries are situated in rest of the districts. It has been analysed from the Table 1.2 that during the period 2011 to 2020 there are not any changes ensued, in other words, same districts lie in this category in 2020 as in 2011.

Areas Having Very Low Level of Industrial Concentration (LQ Below 0.40)

It has been observed from the Figure 1.1 that ten districts are included in this category Jind (0.28), Bhiwani (0.26), Hisar (0.22), Palwal (0.20), Sirsa (0.17), Mahendragarh (0.14), Kurukshetra (0.13), Fatehabad (0.12), Kaithal (0.09) and Nuh (0.01). The value of LQ is less than 1.0 in these districts which indicate that in these districts the industrial concentration is less than the state. The reasons which are responsible for the very low industrial concentration are, in these districts the number of registered working factories and density of large and medium scale industries is low. But these districts are rich in agricultural production. Mainly Jind, Kaithal and Kurukshetra are the main districts which are agriculturally developed. That is why these districts are able to provide a good base for agro-based and allied industries. In the rest of the districts also small scale and agro-based industries are located. In Bhiwani district high number of small scale industries per lakh population located. It has analysed from the Figure 1.1 & 1.2 and Table 1.1 that during the period 2011 to 2020 there are not any changes arisen, in other words, same districts lie in this category in 2020 as in 2011.

Conclusion

Haryana has been facing disparities in the industrial concentration during the period 2011-12 and 2020-21. Very high level of industrial concentration has been found in

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Gurugram (5.27) and Faridabad (4.03). High level of industrial concentration found in Panipat (1.39) and Yamunanagar (1.19) districts during the year 2011. The value of Location Quotient (LQ) is more than 1.0 in these districts, which indicate that in these districts the industrial concentration is more than the state. On the other hand moderate level of industrial concentration has been found in Jhajjar (0.90), Sonipat (0.89), Rewari (0.88) districts and rest of the districts show low to very low level of industrial concentration. The value of Location Quotient (LQ) is less than 1.0 in these districts which indicate that in these districts the industrial concentration is less than the state. After the analysis it reveals that the industrial concentration is high to moderate in the eastern and northern part of the state. But the industrial concentration is low to very low in the western and southern most part of the state except Gurugram and Faridabad districts.

There are changes occurred in the industrial concentration during the period 2011 and 2020 in the state. Jhajjar and Sonipat both districts has shift from moderate to high category of industrial concentration during the period. The reasons responsible for that are location factor, infrastructure facilities, included in NCR region.

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