

CHAPTER-III

METHODOLOGY

STATEMENT OF THE PROBLEM

The study of magnitude, behaviour, factors responsible and socio-economic implications of regional disparities entered into the domain of economists' concern only in the recent past. Infact, the problem of regional disparities as an economic phenomenon is multi-dimensional, complex and almost universal, though, its nature, extent and magnitude may differ in different economies. In the modern age of specialization regional disparities in some form or the other are bound to exist. But all kinds of regional disparities does not have serious economic implications. However, certain regional disparities hamper economic development of an economy. The realisation of significance of socio-economic implications of continuance of such disparities prompted government to take actions in terms of specific economic policies to tackle the problems arising out of regional disparities.

It is now generally accepted view that regional disparities not only at global level but also at the level of a national economy or a part thereof must be, if not totally eliminated, narrowed down to a significant extent. A study of Indian economic scenario during pre and post-independence era shows that it did suffer and continues to suffer from inter-regional disparities at macro as well as at sub-macro level.

Haryana, one of the most progressive states of Indian Union¹ is no exception to it. As we have already seen above that there are numerous studies analysing different dimensions of regional disparities (inter-state disparities in particular) at national level. But there is a relative dearth of systematic studies of regional disparities at sub-macro level, i.e., inter state / inter-regional / inter-districts disparities at state level. In this context it becomes rather imperative to study various dimensions of regional disparities in a state. That is why the present study has been designed to study the nature, magnitude, behaviour, factors responsible for and socio-economic implications of regional disparities in the state of Haryana.

Haryana has experienced remarkable progress during the planned development era particularly coinciding with the post Green Revolution period. Most of the progress has been brought about and reflected in the impressive performance shown by the agricultural sector. The development on the industrial and infrastructural fronts, though, as generally felt, is not as impressive as that on agricultural front, yet achievements are not mean by any standard. Various regions of the State develop differently during the period of our study and attained different

1. At 1980-81 Prices, the per capita income in Haryana is Rs.3124 in 1989-90 which is highest than the national average, i.e. Rs.2142 in 1989-90.

level of development. The regional disparities still exist in the state. From time to time, the government has been introducing certain area specific programmes² with a view to reduce regional disparities, particularly through the development of relatively backward areas, inspite of repeated emphasis on the need for removal of regional disparities through planned development, it has not been possible to remove them altogether. In some cases, no doubt, the gaps among various regions have been perceptibly narrowed down. The objective of the present study, therefore, is to study the emerging patterns and trends in regional disparities in terms of performance in agricultural and industrial sector and development of infrastructural net-work during the period under study, i.e., from 1966-67 to 1989-90.

To facilitate the study of inter-regional disparities in the state we have grouped various districts of the state of Haryana on the basis of broad agro-climatic similarities into four regions³ as under:

The North Eastern Region, Region-I, consists of north-eastern districts of Ambala, Yamunanagar, Kurukshetra, Kaithal, Karnal and Panipat of the state. This region is endowed with more assured irrigation

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2. Drought Prone Areas Programme (DPAP) and Desert Development Programme (DDP) etc.
 3. Details of Agro-climatic conditions of these regions have been given in the next chapter.

and fertile soil. The temperature of region-I varies from 20°C to 46°C in summer and from 3°C to 29°C in winter. The annual average rainfall in the region is about 200 cms which is the highest in the state.

The Central Region, Region-II, consists of Rohtak, Sonipat and Jind districts of the state. This region is more or less like region I as far as range of temperature during summer as well as during winter is concerned, but there is a slight difference in soil texture and annual average rainfall. The soil is sandy loam and annual average rainfall is about 71 cms. However, due to its typical topography this region is prone to flood or flood like situation during the monsoon.

The South-Western region, Region-III, consists of Hisar, Sirsa and Bhiwani districts of the state. Region-III is arid and dry. The temperature of this region varies from 23°C to 47°C in summer and from 3°C to 27°C in winter. The annual average rainfall is only 57 cms which makes it most rain deficient part of Hayana.

The Southern Region, Region-IV, consists of Gurgaon, Faridabad, Mahendragarh and Rewari districts of the state. Although the general agro-climatic outlook except rainfall in region -IV are more or less similar to that of region-III. The annual average rainfall of this region is

86 cms, much higher than 57 cms in region-III. Broadly, sand is the average soil texture in Mahendragarh and Rewari districts and loamy sand is found in Faridabad and Gurgaon.

OBJECTIVES

The present study has been designed to bring to light the nature of regional disparities in the state of Haryana during the period from 1966-67 to 1989-90. It is one of the most progressive and prosperous state of India. Its per-capita income (Rs.3124 in 1989-90 at 1980-81 prices)⁴ is considerably higher than other states, its advancement in the agricultural sphere has been exemplary and its achievements in providing infrastructural facilities for all round progress are creditable. This, however, does not mean that all the regions of the state are equally developed. It would be a matter of utility for the academic and practical purposes to investigate precisely the relative levels of development attained by various regions of the state. What is accomplished in present study will a direct relevance for further socio-economic planning of the state especially in respect of the need to narrow down, wherever required and to the possible extent, inter-regional disparities in the state. The efforts in the present study will be to show state's agricultural and

4. Statistical Abstract of Haryana, 1990-91.

industrial development as well as its infrastructural facilities during the period of study, i.e., from 1966-67 to 1989-90. The main objectives of the present study are:

- a) To study the growth pattern of agricultural, industrial and infrastructural sectors in the state as a whole as well in its various regions.
- b) To identify and measure the magnitude of regional disparities in terms of selected economic indicators of growth.
- c) To identify the factors responsible for regional disparities in the state.
- d) To suggest suitable measures to reduce regional disparities for harmonious, balanced regional development of the state.
- e) To identify backward regions in terms of various indicators of development.

Indicators of Development :

In the light of the above objectives, the following indicators from various sectors are taken into accounts.

Agriculture Sector :

- i) Production, productivity and area under selected crops viz., rice, Bajra, Jowar, Wheat, Cotton, Sugarcane and oilseeds in different regions of the state.
- ii) Total cropped area in different regions
- iii) Net area sown in different regions
- iv) Gross irrigated area in different regions
- v) Net irrigated area in different regions
- vi) Fertilizers Consumption per hectare in different regions
- vii) Number of tractors per thousand hectares in different regions.
- viii) Proportion of area under HYVs seeds to total cropped area in different regions.
- ix) Number of pumping sets and tubewells per thousand hectares in different regions.

Industrial Sector:

- i) Number of registered working factories in different regions of the state of Haryana.
- ii) Number of workers working in registered working factories in different regions.
- iii) Production of various industries in different regions

- iv) Relative shares of different regions in the production of various industries.

Infrastructural Sector :

- i) Number of co-operative societies and Banks in different regions of the state of Haryana.
- ii) Number of colleges in different regions.
- iii) Number of students in colleges in different regions.
- iv) Number of schools in different regions.
- v) Number of students enrolled in all kinds of schools in different regions.
- vi) Number of teachers in schools per thousand of students.
- vii) Number of hospitals and dispensaries per lakh of population in different regions.
- viii) Medical staff per lakh of population in different regions.
- ix) Number of beds available per lakh of population in different regions.
- x) Total roads length (surfaced roads) per 100 sq.kms. in different regions.
- xi) Number of different kinds of motor-vehicles taken together in different regions.

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DATA BASE :

Data pertaining to aforesaid indicators have been collected from various issues of the "Statistical Abstract of Haryana" published by the government of Haryana, for the period 1966-67 to 1989-90.

Productivity of all selected crops viz. rice, wheat, jowar, bajra, cotton, sugarcane and oilseeds has been worked out for the whole state by taking the ratio of production and area under respective crops. In case of individual regions, the data regarding area, production and productivity of selected crops have been obtained by adding the relevant district-wise figures. The method of working out the productivity of major crops in various regions is the same as adopted in case of the state as a whole. Similarly, data regarding various aspects of industrial and infrastructural activities in different regions have been obtained through aggregating the relevant district-wise statistical figures.

METHODS OF ANALYSIS :

Annual average compound rate of growth of different indicators in different sectors - agricultural, industrial and infrastructural - has been computed with the help of following formula:

$$r = \left[\frac{\sum \log \left(\frac{y_t}{y_{t-1}} \right)}{N-1} \right] \times 100$$

where 'y' is the variable for which compound growth rate is calculated, i.e., area, production and productivity in agricultural sector, working registered factories and employment therein in industrial sector and various indicators of infrastructural facilities. 't' is the time variable and 'N' is the total number of variables.

In order to measure the trend, linear growth rate has been calculated some cases as under:-

$$Y_c = a + bt$$

Y_c is the computed value of the variable for which the linear growth rate is calculated and 't' is the time variable. The constant 'a' gives the arithmetic means of y and the constant 'b' indicates the rate of change.

The values of constant 'a' and 'b' have calculated as:

$$a = \frac{\sum y}{N}$$

$$b = \frac{\sum xy}{\sum x^2}$$

and to measure the magnitude of variability in area, production and productivity in agriculture; number of registered working factories and employment therein in industrial sectors; and in selected indicators in infrastructural sector for the period 1966-67 to 1989-90, the coefficients of variation (C.V.) has been computed in the following way:

$$\text{Coefficient of variation (C.V.)} = \frac{\sigma}{\bar{x}} \times 100$$

Whereas, σ is standard deviation and \bar{x} is the mean value.

Further, irrigation and cropping intensities have been computed as:

$$\text{Irrigation intensity} = \frac{\text{Gross irrigated area}}{\text{Net irrigated area}} \times 100$$

$$\text{and Cropping intensity} = \frac{\text{Gross cropped area}}{\text{Net area sown}} \times 100$$

Simple tabular analysis has been done to interpret the results with the help of growth rates and coefficient of variation (C.V.). Further, in order to find out the behaviour of regional disparities, entire period of our study has been divided into different plan periods - Annual plans, 4th, 5th, 6th and 7th Five Year Plans.

CHAPTERIZATION :

For expositional convenience, the present study has been divided into eight chapters.

In Chapter-I, Introduction, an attempt has been made to introduce the main issues related with the phenomenon of regional

disparities and to identify relevant hypothesis/es as regards to relationship between regional disparities and economic transformation. In the concluding part of the chapter the need for monitoring and wherever required to reduce regional disparities has been emphasized.

Chapter-II, Review of Literature, reviews some important studies dealing with various dimensions of regional disparities at macro as well as sub-macro (inter-districts or inter-regional) levels.

Chapter-III, Methodology, has been devoted to spell-out the research design for our study.

Chapter-IV, Socio-Economic Profile of Haryana, has been designed to have a broad view of geographical location and physical conditions of soil, climatic features, agro-climatic divisions, demographic characteristics and state of economy of the state of Haryana.

Chapter-V, Regional Disparities in Agricultural Development, has been devoted to analyse the nature and extent of regional disparities in agricultural activities mainly with reference to area, production and productivity of selected crops and per hectare and per capita income from crop husbandry. In this chapter an attempt has also been made to identify the factors responsible for regional disparities.

Chapter-VI, Regional Disparities in Industrial Development, has been designed to examine the nature and extent of regional disparities with respect to registered working factories, industrial work force and per capita value added in manufacturing.

Chapter-VII, Regional Disparities in Infrastructural Development, has been designed to examine the nature and extent of regional disparities in infrastructural network with reference to educational, health, financial institutions, road and transportation facilities.

Chapter-VIII, Concluding Observations, Policy Implications and Suggestions is an exercise in recapitulating the important findings, to draw some general inferences to support our hypothesis/es, and to work out suggestions for policy framers and researchers for further exploration in our problem area - regional disparities at macro level.