

CHAPTER 1

INTRODUCTION

1.1 Statement of the Problem

Problems related to economic development and undesirable regional disparities have attracted the attention of economists, planners, and regional scientists for several decades (Baer, 1964, pp.268-285; Rao and Sundarn, 1973, pp.793-800; Williamson, 1965, pp. 3-84). In developing countries the problem of economically retarded regions are somewhat different from that of developed countries. Regional disparities have turned into a political problem for many countries like Nigeria, Pakistan, Sudan, Malaysia, Yugoslavia and India (Dastidar and Dastidar, 1991, p.1). In recent years regional economic disparities in a national framework have attracted increasing attention, especially in developing countries. In spite of recent attention, little progress has been made in formulating and testing a general explanation for the occurrence of inequality in the spatial distribution of national income (Bernard, 1968, pp.297-311, Baster, 1970).

In affluent as well as in poor and backward countries there exist both developed and backward regions. But the more underdeveloped a country is, frequently the greater becomes the difference between its developed and backward areas (Bose, 1969, pp.177-188). There is often a tendency for the developed regions to develop even faster than the lagging regions (Singer, 1964; Higgins, 1968).

Reasons for underdevelopment of some areas may be due to improper utilization of resources, low savings, low output, high propensity to consume, high dependency ratio, large proportion of the population depending on primary economic activities and so on. In contrast, a developed region has a greater potential for better use of capital, labour, and available natural resources to support its present population at a higher level of living and higher per-capita income (Meir and Baldwin, 1966).

However, in programming economic development of developing countries, like India for example, regionalization seems to be a very much important task in view of the fact that whereas metropolitan growth has attracted

a huge inflow of the rural population in developing countries the pace of development in rural areas has failed to create any trickle down effect.

One of the reasons for regional disparity is the result of urban-rural disequilibrium. This disequilibrium occurs in economic activities, employment, educational opportunities, medical facilities, and other services. There is deep-seated polarization between metropolitan centers and surrounding villages. As a result almost all development tends to be concentrated in a few major cities while rural areas remain basically underdeveloped. In India, new economic centers are often developed with public investments, mainly in heavy industries, and in course of time these centers attract other activities (Chattopadhyay and Raza, 1975, pp.11-34).

If the patterns of urban development result in neglect of the city's hinterland, the organic development of a region will be fractional, fragile and unbalanced depending more on external demand rather than on the more regular vitality of a growing home market. This relationship needs to be changed into complementarities so that the interests of the metropolis as well as that of the countryside are satisfied simultaneously.

Regional disparities can be analyzed from different levels of industrialization, urbanization, and socio-economic distances between them. Differences in degree of development are attributable to the reflections of disparities in the degree of urbanization and industrialization among regions (Sovani, 1964, pp.113-122). There is an immense disparity in the level of income and standard of living among the people in developed and underdeveloped regions. The underdeveloped areas are used almost exclusively for the production of agricultural raw materials without sufficient concern for facilities to transform or diversify their economies. The inter-regional disparities occur not only due to differences in the natural resource endowments or availability of labour alone, but also due to differences in labour skills, irrigated land and industrial capital. The fact that the world's developed countries are highly urbanized and industrialized can safely justify the validity of the above deduction (Dastidar and Dastidar, 1991, p.4).

As far as the state economy of West Bengal is concerned, it can be seen that studies on regional disparity are very few in number. However, whatever studies are available (Bagchi and Sarkar, 2003; Bhattacharya, 1998, p. 3027;

Pal, 1995, pp. 276-296; GoWB, 1998; BCCI, 1971, pp. 44-51; Banerjee and Roy, 1998; pp. 3019-3026; Saha and Swaminathan, 1994, pp. A-2 – A-11 among others) these show implicitly and explicitly that there are inter-district and inter-regional disparities in various aspects of socio-economic development of West Bengal. These disparities not only do exist but are also perpetuating over a long period of time and probably gradually widening in some spheres.

In this context the findings of the Bengal Chamber of Commerce and Industry (BCCI, 1971), Calcutta is worth mentioning: "Regional disparities among the States of the Indian Union as well as among the districts or regions within the same State are quite marked and by itself would furnish no cause for comment. This indeed is a problem to all developing countries of the world, as also to many developed countries. But the extremely high degree of spatial imbalance that is manifested in West Bengal is something extra-ordinary."

It is probably the growing disparities in different socio-economic spheres and more probably with growing consciousness among the peoples of the backward regions and the consequent demand for more attention to the problems of underdevelopment of backward areas like northern and western parts of West Bengal has led to the constitution of Regional Development Councils for these areas very recently.

1.2 Objectives of the Study

The main objectives of this study are the following:

1. To identify inter-district disparities in socio-economic development with certain indicators
2. To determine the causes of regional disparities
3. To examine the extent of disparities among the districts of West Bengal.
4. To study and analyze the concept, classification and criteria of indicators and select suitable ones for assessing and analyzing the district-wise level and pattern of socio-economic development.
5. To rank the districts according to their levels of development on the basis of composite index of development both at sectoral and aggregate levels.
6. To identify various dimensions of development within each sector and those for all the sectors taken together.

7. To identify backward sectors / districts, this could be helpful in formulating regional policies for achieving the objective of balanced regional development.

We have made an attempt to build up the techniques of quantitative analysis of inter-relationships among demographic, social, and economic factors of development. It is expected that this study would enable us to determine the type and degree of regional disparities in West Bengal on the basis of quantitative analysis. Finally, recommendations will be made for formulating strategies of socio-economic development in order to minimize regional disparities.

The study as such will be limited to the state of West Bengal in India. Regional variations will be studied at the district level with a focus on the period 1980-81 to 2000-2001 in the background of disparities prevalent in the pre-eighties.

Prior to study regional inequality what is essential is to have an understanding about the concept of region. The dictionary meaning of the term "*region*" is a tract of country or an area characterized in some way (Chamber's Twentieth Century Dictionary) thereby implying that region is a spatial entity. To a geographer a region consists of contiguous or noncontiguous spatial units which are similar to each other in terms of one or more chosen criteria.

Political boundaries and administrative regions are mostly independent of the regional boundaries conceived on the basis of the various criteria chosen for planning purposes. One of the main reasons is that they are older than the conceptualization of the planning region boundaries and have evolved under various types of historical conditions. Moreover in the present day concept of "Nation States", frequent reorganization of administrative boundaries can lead to complications and difficulties. Though, at the lowest level of the hierarchy, rural-urban boundaries often change necessitating only local level adjustments in administration, higher level administrative boundaries like district, state or country boundaries need to be more stable to provide a reference framework for documentation and administration (Chaudhuri, 2001, p. 12, 26). In the present study, we have undertaken district as a region.

1.3 Research Hypotheses

We would like to test the following research hypotheses in the present study:

1. There exist inter-district disparities in economic development in West Bengal as far as the overall development as well as sector-wise i.e., agriculture, industry, economic infrastructure and social sector development is concerned.
2. Regional disparities are the result of higher levels of industrial, economic infrastructure and social sector activities whose relative importance increase constantly in the developed regions and as such the importance of agriculture activities constantly dwindles.
3. Less developed regions have predominantly primary economies of subsistence type with low per-capita income along with low levels of income in all other sectors.

1.4 Significance of the Study

The main purpose of this study is to find out whether and to what extent inter-district disparities are there in the agriculture, industrial, economic infrastructure and social sectors of the economy in West Bengal State and whether these disparities are increasing or decreasing over the period of time. It should also be found out as to what types of planning strategy is necessary to reduce regional disparity and to assess the effectiveness and performance of the existing disparity-reducing Government machinery in West Bengal.

1.5 Methodology

The study is based on existing literature and secondary data. For collecting secondary data and literature the Library of the University of North Bengal, Raja Rammohunpur; the National Library, Kolkata; Library of the Center for Studies in Social Sciences, Kolkata; Library of the State Assembly of West Bengal, Kolkata have been used. Some statistical methods like Mean, Standard Deviation, Coefficient of Variation, Principal Component Analysis / Factor Analysis for making Composite Index of Development for evaluating the performance of regional development have been applied. We have also used tables and diagrams where necessary to show inter-district disparities in socio-economic development.

The following major steps have been followed as parts of research methodology of this study.

1.5.1 Area of the study:

The area of the study is the state of West Bengal for an inter-district analysis.

1.5.2 Universe of the study:

The universe of the study is the state of West Bengal in India.

1.5.3 Tools and Techniques of Data Collection:

The present study is on the basis of secondary data. Data have been collected mainly from Census of India, Statistical Abstracts and Economic Reviews published by the Bureau of Applied Economics and Statistics, Government of West Bengal and Economic Survey published every year by Government of India. Moreover, various books, journals, bulletins, unpublished Ph.D. theses and research works have been consulted to collect relevant secondary data and information.

The most crucial task in the present study is to analyze the pattern of socio-economic development at the district level, where multi-area unit analysis is used. For this purpose construction of composite index of development was considered imperative for the analysis. The method of Principal Component Analysis/ Factor Analysis was used for construction of Composite Index of Development at district level. This method provides a better system of composite classificatory indices. Further, PCA or FA has been preferred as a statistical technique for determining weights of the selected indicators and identifying basic factors, which are crucial for development. In order to evaluate the dimensions of social and economic development at district level, method of Kaiser's Varimax Rotation (Kaiser, 1958, pp. 187-200) has been applied.

Further, in order to examine the inter-district disparities in the level of socio-economic development, statistical tools such as standard deviation and coefficient of variation etc. were also used.

In the subsequent paragraphs, conceptual framework of Principal Component Analysis and Factor Analysis has been discussed to justify the suitability of these methods in multivariate analysis like the present one.

1.5.4 Construction of Composite Indices in the Present Study

The present study is designed to be a district-wise study of West Bengal. It seeks to determine district-wise levels of agricultural development, industrial development, economic infrastructure development and social development. For

this purpose four sets of indicators have been identified. The first set includes 10 indicators reflecting the level of agriculture development in each district. Second set comprising 7 indicators has been taken for accessing the industrial development. Third set which includes 10 indicators, has been taken to evaluate economic infrastructural development. And finally, fourth set comprising 12 indicators has been taken to examine social sector development.

The methods which have been usually adopted for construction of composite index of development by pooling several indicators are those of indexing, ranking and Principal Component Analysis including Factor Analysis. In the first two methods i.e. indexing and ranking for construction of composite index of various physical variables, either subjective weights are assigned or they are left unweighted. Because the variables differ in terms of their relative importance, assignment of equal weights fails to impart accuracy to estimates; therefore some objective method of assigning appropriate weights has to be employed for constructing the composite index of development. This problem is taken care of by the method of 'Principal Component Analysis' or 'Factor Analysis' because this method provides a better system of composite classificatory indices. Further, PCA or FA has been preferred as a statistical technique for assigning weights to the selected indicators and identifying basic factors, which are crucial for development.

The *principal component analysis* is a branch of well-known multivariate technique of factor analysis. It is a relatively straightforward method of transferring a given set of variables or indicators into a new set of composite variables or principal components that are orthogonal to each other. Principal Component method of Factor Analysis, developed by Harold Hotelling (1933, pp. 417-441), seeks to maximize the sum of squared loadings of each factor extracted in turn. Accordingly, Principal Component factor explains more variance than would be loadings obtained from any other method of factoring. It is designed primarily to synthesize a large number of variables into a smaller number of general components, which retain the maximum amount of descriptive ability.

The method does not require any assumption about the underlying structure of the variables. One has simply to find out the best linear combinations of variables. In other words, one tries to identify the particular combination of

variables, which could account for maximum of the variance in the data matrix than any other linear combination of variables. The first principal component may, therefore, be viewed as the single best summary of linear relationship demonstrated in the data. The second component is defined as the second best linear combination of variables, under the condition that the second component is orthogonal to the first. To be orthogonal to the first component, the second one must account for the proportion of the variance not accounted for by the first one. Similarly, the second component may be defined as the linear combination of variables that accounts for the most residual variance after the effect of the first component has been removed from the data. The subsequent components are defined in the same manner until all the variance in the data is completely exhausted. Unless at least one variable is perfectly determined by the rest of the variables in the data, the principal component solution requires as many components as there are variables (Tewari, 1984, p.36). The sum of the variance of all the principal components is equal to the sum of the variances of the original variables.

The full-fledged principal component model can be expressed as follows:

$$Z_j = a_{j1}P_1 + a_{j2}P_2 + \dots + a_{ji}P_i + \dots + a_{jn}P_n$$

Where,

$Z_j = 1$ to n is the standardized values of the observed variables;

$P_i, i = 1$ to n , are the new uncorrelated components; and

$a_{ji}, i = 1$ to n , and $j = 1$ to n , the coefficients are the '*factor loadings*' or *weights*.

Each of the n observed variables is described linearly in terms of n new uncorrelated components P_1, P_2, \dots, P_n , each of which is, in turn, defined as a linear combination of the n original variables. Since each component is defined as the best linear summary of variance left in the data after the previous components are taken care of, the first n components usually much smaller than the number of variables in the set may explain most of the variance in the data.

In the model, the factor loadings, or co-efficients of principal components are the correlations of the variables with the principal components. Thus, a_{ji} is

correlated to variables Z_j with the principal component P_1 . Principal components are linear combinations of standardized variables with weights in terms of factors loadings. Thus, principal component P_1 is determined as:

$$P_1 = a_{11}.Z_1 + a_{21}.Z_2 + \dots + a_{n1}.Z_n.$$

Or,

$$P_1 = \sum_{i=1}^n a_{ji} \times Z_i,$$

Where P_1 = the first principal component;

a_{ji} = Factor loading of the first principal component vector relating to j^{th} indicator of the i^{th} districts;

Z_i = Standardized value of the observed variable.

Thus, the first principal component, which gives maximum correlation with variables and explains maximum of the total variance, is considered as composite index of development for a vector.

In the present study, the data of three benchmark years, i.e. the correlation matrices for the years 1980-81, 1990-91 and 2000-01 were analyzed separately for the derivation of factor matrix.

The sum of the squares of the factor loadings of the first principal component is the largest Eigen value, which measures the proportion of variance explained by the first principal component. On the other hand, the sum of squares of the factor loadings of all principal components retained corresponding to the variables is communality (h^2), which expresses the percentage of variance explained by the factor model (Kothari, 1991, pp.388-389).

In order to identify different dimensions of development unrotated as well as rotated, factor matrices were derived from correlation matrix using Principal Component Analysis, i.e. with unites in the diagonal of the correlation matrix. Since present study makes use of factor analysis technique for identifying various dimensions of socio-economic development, it is necessary to explain in brief the Factor Analysis.

Factor Analysis was originally propounded nearly 100 years ago by Charles Spearman (1904), a psychologist. Factor Analysis has been heavily employed over many years to relate the dimensions (factors) underlying human

abilities. It has been used in many other contexts. While principal component and factor analysis are related techniques, there are some important differences between the two. Principal Component analysis is oriented towards explaining the total variation in the original measures, while factor analysis is concerned only with explaining the co-variance among the original measures. Principal component analysis is merely a transformation of the original variables into principal components. It does not have an underlying model, as in factor analysis, where, for example, common and unique variance are distinguished. In line with this, note that the principal component model is formulated as maximizing the variance of a linear composite of the original variables, while factor analysis expresses the original variables as a linear combination of underlying factors plus residual term (Dunteman, 1984, pp. 181-183).

The common factor-analysis model may be expressed algebraically as:

$$y_i = l_{i1}f_1 + l_{i2}f_2 + \dots + l_{im}f_m + U_i p_i$$

Or

$$y_i = \sum_{j=1}^m l_{ij} f_j + u_i p_i$$

Where y_i is the j^{th} variable, l_{ij} is the weight for variable i on the j^{th} factor, f_j is the score on the j^{th} common factor, U_i is the weight for the factor unique to variable i and p_i is the score on the factor unique to variable i .

It can be seen from the above model that common factor analysis assumes that each variable is a function of the same set of underlying common factors plus a factor unique to the variable. However, each variable has a different set of weight associated with the factors. The weights associated with the common factors are called "loadings". The common factor analysis, which is primarily concerned with identification of basic factors playing important role in development, has been considered in the present study to evaluate various dimensions of development.

For the extraction and rotation of the number of factors, the most popular method of varimax rotation, which was developed by Kaiser in 1958, has been applied in the present study. The varimax method in a sense attempts to specify simple structure in terms of the variances squared factor loadings. An Orthogonal

method such as principal component factor analysis can be combined with any type of orthogonal or oblique rotation (Dunteman, 1984, p. 199). The most common combination seems to be a principal components factor analysis with squared multiple correlations in the principal diagonal followed by a varimax rotation.

In the present study, on the basis of rotated factor matrix, various dimensions of agricultural, industrial, economic infrastructure and social development have been identified by taking into account the factor loadings greater than 0.576 (or nearer to this value) as significant for the purpose of construction of composite indices of various dimensions of development (Koutsoyiannis, 1977,p.432). Dimensional development within different sectors has been analyzed with the help of the method of *Cluster Analysis*. The basic object of cluster analysis is to determine how many mutually and exhaustive groups or clusters, based on the similarities of profiles among entities, really exist. Cluster analysis has been considered a useful technique in the context of market research studies and studies related to socio-economic development (Kothari, 1991, p.396).

Since the indicators selected for working out composite indices were measured in different units and as such they cannot be directly added, it was felt necessary to convert the variables into standard units so that the initial scale selected for measuring the variables did not bias the results.

The following method is applied in the present study in order to eliminate the bias of scale:

$$Z_{ij} = \frac{X_{ij} - \bar{X}_j}{\sigma_{xj}}$$

Where X_{ij} = value of X_i variable on i^{th} observation;

\bar{X}_j = Mean value of X_j variable; and

σ_{xj} = Standard deviation on the X_j variable;

1.5.5 Determining Inter-District Disparities

In order to measure disparities in the levels of development the method of Coefficient of Variation has been used. This method was first suggested by Karl Pearson, as the most commonly used measure of relative variation. Coefficient of

Variation is the percentage of variation in the mean, the standard deviation being treated as the total variance in the mean (Elhance, 1971, p. 218). It is used in such problems where it is intended to compare the variability of two or more than two series. That series for which the coefficient of variance is greater is said to be more variable or conversely less consistent and vice-versa.

Coefficient of variation has been calculated by using the following formulae:

$$C.V. = \frac{\sigma_{xy}}{\bar{X}} \times 100$$

Where C.V. is coefficient of variation, σ_{xy} is standard deviation and \bar{X} is mean. In the present study, districts have been ranked on the basis of value of composite indices of development. For ascertaining correlation between the levels development among different sectors or examining the relationship between patterns of development in the benchmark years, Spearman's Rank Difference Method has been applied, which is as below:

$$\rho = 1 - \frac{6 \sum D^2}{N^3 - N}$$

Where ρ (rho) stands for the Rank Correlation Coefficient, $\sum D^2$ for the total of the squares of the difference of corresponding ranks, and N for the number of pairs of observations.

For the sake of meaningful analysis, a maximum minus value has been added to the composite index of each district so as to get a data set with all positive values.

1.5.6 Classification of Districts

On the basis of values of the indices of development the districts have been classified into two categories, viz. developed and developing (or less developed or backward). The developed districts are those, which have the composite index value above the state average, Districts having value of composite index below the state average are categorized as developing (or backward) districts.

1.6 Research Questions

In order to study the stated problems we have made an attempt to find out the answers to these questions by analyzing secondary data.

1. What is the pattern and degree of development of the primary, secondary, tertiary and social sectors of the economy of West Bengal? Are there any regional disparities?
2. If so, what are the causes of such regional disparities?
3. Have inter-district disparities in socio-economic development in West Bengal increased over the period 1980-81 to 2000-2001?
4. If so, what role socio-economic factors have played in sharpening inter-district disparity?
5. What are the causes of perpetuation of a backward region?
6. What type of policies should be taken for balanced regional development?

1.7 Importance of the Study

The present research investigation is an endeavour to evaluate various dimensions of socio-economic development at the district level. The study of this kind would largely help in identifying the districts suffering from overall backwardness and also those backward in respect of key sectors of the economy like agriculture, industry, and economic infrastructure and social sectors. This, in turn, would further help in making choice of operational areas for different kinds of programmes to be launched in order to overcome the problems of backwardness. In view of these considerations, it was felt imperative to study and analyze the district-wise pattern of socio-economic development at three points of time (i.e. 1980-81, 1990-91 and 2000-2001) both for the overall economy, as also for the key sectors of agriculture, industry, economic infrastructure and social sector at the district levels.

1.8 Limitations of the Study

Every investigation and study has certain limitations. Similarly, the present study faces a number of problems. This study could be made more meaningful and more representative if there is availability of desired data for some important indicators at district level. In particular, the level of social and economic development could not be adequately assessed due to non-availability of data pertaining to the following indicators at the district level for the reference years 1980-81 and 1990-91:

1. Infant Mortality Rate (IMR);
2. Percentage of net irrigated area to net sown area;
3. Percentage of area under high yielding varieties to gross cropped area;

4. Value added by manufacturing per workers;
5. Percentage of net irrigated area;
6. Number of multipurpose cooperative societies per lakh of population;

Nevertheless, this study has tried to overcome these limitations by rationally selecting the available data in a manner that the real picture of social and economic development could be delineated.

1.9 A Brief Review of Literature

The purpose of the review of literature on socio-economic development and regional disparities is to give a background on different approaches to the problem of variations in socio-economic development among regions. Such review would help us to clarify the present study relative to other theories and empirical findings. There exists a vast amount of literature on regional disparities in its different ramifications at international, national and sub-national levels. We have made a selective review below from these literatures on the basis of their availability and relevance to our study.

Baer (1964) examines the regional disparities in Brazil, especially between the industrialized region (Central-South) and the stagnant northeast region of the country. Baer observes that the relative poverty of the northeast region is due to a combination and low economic activity. To this, he adds lower education level, poor technical training, and relatively poor health conditions of the population in the northeast region. Baer suggests some policies, which include intensification of the humid coastal area, and progressive changes in the structure of the northeastern economy. He emphasizes social overhead capital (e.g., schools, colleges, medical institutions, etc.) as planning strategies.

Williamson (1965) identifies clearly the causes of regional inequalities and their effects in various countries of the world. He inquires into developing nations. An international cross-section analysis of twenty-four countries was used to portray inequalities. The author estimates the regional inequalities by using simple equations. He concludes that regional inequality is much more extensive in agricultural sectors than in industrial sectors. He concludes also that the labor force participation rates contribute to regional income per capita differentials. A description of the aggregate patterns is dealt with but disaggregating and identification of causation are left untouched.

Bose (1969) in his article deals with the extent of poverty in India and extent of differentials in the stages of economic development of West Bengal. He suggests maximization of savings by minimizing direct consumption. Bose recommends development of four or five big centers of growth in West Bengal every ten years to reduce regional disparities. The main target of his analysis was to initiate a discussion on policy tools for regional development. The author defines the development targets and suggests the means for achieving these targets.

Mukherjee (1969) deals with inter-sectoral disparity in India during the period of 1963-64 and establishes criteria for measuring disparities. His study deals with disparities, not only between different sectors, but also between rural and urban areas within the State. Inter-sectoral disparities are computed from distribution of industrial labor force and national income at both current and constant prices. Mukherjee observes that size distribution of income becomes progressively more unequal in the initial phases of development. However, another factor for income inequality among rural areas, he finds, is the localized nature of the agricultural development in the country. In the policy context the author suggests that reduction of intra-state urban-rural variation may be a more promising line of action rather than reducing inter-state variations.

Somasekhara (1970) in his article has tried to critically review the prevalent criteria for identification for less developed regions. Then he has suggested alternative criteria of identification. The Bureau of Economics and Statistics of the Government of Mysore had ranked the backward areas of that state according to the mean weighted rank, per capita income, and the aggregate score methods. The Bureau considered 13 indicators of the level of development or backwardness for the mean weighted rank. Somasekhara points out that the problem of the mean weighted rank is that the weights could be arbitrary; there is no scientific way of fixing the appropriate weights. There are commonly recognized difficulties in the use of the measurement of per capita income, which tends to make this a misleading indicator. The aggregate score method has the same limitation as the composite index.

The Bureau added two more indicators to the aggregate score method. The districts were ranked according to each individual indicator and rearranged in increasing order of the aggregate score. The Bureau also suggested that

standard of living can be an alternative indicator of the level of economic development. Per capita consumption expenditure is an important index of standard of living, but data on district per capita consumption expenditure is not easily available. The author selected a few items like radios, telephones and motor vehicles for consumption expenditure. Another set of alternative indicators is number of towns and villages electrified and the number of permanent movie houses. According to Somasekhara the number of first ranks, second ranks and so on, of different indicators of each district can be analyzed separately by ranking the districts according to the weighted mean rank.

Bose (1971) in his paper discusses the nature of the colonial relationship of India under the British regime and the effects of British colonial exploitation. He put emphasis on development of industries for economic development. Bose recommends three types of reforms, namely, reforms in the technological sphere, reforms in the sphere of spatial allocation of activities, and reforms in socio-economic institutional spheres. His policy recommendations can be accepted as policy guidelines for developing backward areas (Dastidar, pp. 14).

Goulet (1971) highlighted three basic components of development, viz., life sustenance, self-esteem and freedom. Life sustenance is concerned with the provision of basic needs of human beings. All people of the country should be provided with such basic needs as housing, clothing, food and minimal education. A major objective of development is to uplift people out of poverty and provide basic needs simultaneously.

Self-esteem is concerned with the feeling of self-respect and independence. No country can be regarded as fully developed if others exploit it and does not have the power and influence to conduct relations on equal terms. Developing countries seek development for self-esteem, to eradicate the feeling of dominance and dependence, which is associated with inferior economic status.

Freedom refers to freedom from 'want, ignorance and squalor' so that people are able to determine their own destiny. The advantage of material development is that it expands the range of human choice open to individuals and societies at large. Thus according to Goulet's concept, development takes place when there has been an improvement in basic needs, when economic progress has contributed to a greater sense of self-esteem for the countries and individuals within it and when material advancement has expanded the range of

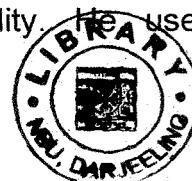
choice for individuals. The condition of being developed is as much a state of mind as a physical condition measurable by economic indices.

Sarkar (1973) in his article tries to indicate certain problems in the way of achieving speedy rural development in Purulia and Bankura in this way, demographic situation 1961-1971, distribution of population, sex ratio, growth rate, density and rural population and growth rate of rural population-1971 and land use. According to the author as the development of agriculture is the precondition for development of other economic activities in rural areas; maximum attention should be placed on the planned development of infrastructural facilities that ensures agricultural prosperity in districts like Bankura and Purulia. For this purpose rural electrification development on an emergency basis, discriminatory power rates for installing tube wells for irrigation and establishment of cold storage and processing facilities, a percentage of capital cost as outright grant and liberal loan for purchasing tubewells and electric/diesel pumps, the scheme of advancing entire amount for purchasing tube wells and pumps as loan and subsequent conversion into subsidy or grant a part of the loan, special incentives for starting industries in rural areas that will produce agricultural implements, building up storage and cold-storage facilities by government, development of road communication and such other schemes should receive priorities in any planning for rural developments. Sarkar believes that identification of 'growth points' in the districts is important. These growth points if identified and developed, can make rural living little more attractive through certain modern services and facilities apart from generating income and employment opportunities. There is therefore urgent need for conducting detailed studies in regard to the selected growth points in the districts.

Sofranko and Bealer (1973) focused on political, economic, educational, and overall societal modernization for determining regional inequalities. They estimated the magnitudes of imbalance between actual and predicted levels of modernization. The main purpose of this study was an empirical examination of some relationships between patterns of institutional modernization and societal domestic instability. According to the authors, if the magnitude of imbalance is high, instability increases.

Jackman (1974) examines the validity of the propositions that the growth of political democracy has reduced social inequality. He uses statistical

225565



techniques to derive conclusions about the effects of economic development, democratic performance, and social insurance programme experience intervening variables.

Chattopadhyay and Raza (1975) in their article distinguished between regional disparity and diversity and their horizontal and vertical dimension. They identified different economic, social and demographic indicators and regional accounts for measuring regional disparities. Their study is mainly a critique of techniques for analyzing regional inequalities. The authors raise the question of whether a composite index or multiple regressions should be applied for measuring regional disparities. There is a considerable degree of multi-co-linearity among physiographic and socio-economic factors. Any attempt at setting up composite indices of development must explicitly take into account of such multi-co-linearity among sets of variables.

Prakash (1977) attempted to analyze the regional inequalities in terms of infrastructure facilities in India during 1951-71 with the objective to determine the extent of the existing inequalities and identify the lagging regions. He selected important indicators like population size and density, literacy rates, urbanization, power, irrigation, banking, communication, transport, industrial and agriculture implements in his study. By the use of cumulative frequency technique developed by Gini and later on modified by Hirschman, he concluded that there is no region/state in India, which was equally developed or underdeveloped in all the fields of infrastructure. Relatively developed states like Panjab, Maharashtra, Tamil Nadu, Kerala and West Bengal were underdeveloped in one or more fields and opposite were the case of relatively backward states. Secondly, some regions came under the category of the developed regions on the basis of one indicator of given field, but fell in the category of underdeveloped regions, if some another indicator of the same field was used as key indicator for classification, e.g., Assam, Jammu and Kashmir, Himachal Pradesh and Tripura were among the least developed states in the field of per-capita credit and deposit, but they were highly developed regions on the basis of per-capita bank offices.

Rao (1977) in her article has made an attempt to identify backward regions and show the trends in regional disparities in India. In view of the continuing need to help economically backward States, it becomes essential to evolve some indicators for the purpose of measuring economic backwardness. Any plan or

policy towards regional disparities would call for an identification of backward regions. Such an attempt becomes imperative in a federal country not only for the purpose of transferring resources from the federal to the federating states but also to assess their competing claims for additional assistance and / or investments. Quite often, one finds, state persuasion and pressure for additional central assistance on the plea of lessening regional disparities. To support their claims, individual state, it is frequent to find, may try to project its own standard for identifying less developed regions. Sometimes these divergent standards may assume serious proportions. Naturally, it becomes imperative on the part of Central Government to set an objective standard, free from any kind of pressures, to identify states/ regions, which are lagging behind in socio-economic development. In this paper the author has tried to develop some measure of development in order to identify backward regions and subsequently to examine the trends in inter-regional and intersectoral disparities in India.

Das and Dalvi (1981) used the share and shift technique for projecting regional and sectoral growth rates. The study analyzed the data of State Domestic Product (SDP) at constant prices (1960-61) which were collected for 13 broad sectors and 14 major sector states of India for the period 1960-61 to 1974-75. The estimated growth rates for different sectors and for selected states for the period 1960-75 reveals that 14 states together attained on average growth rate of 3.56 percent per annum. Haryana had the highest growth rate (5.34%) and was followed by Punjab (4.85%), Karnataka (4.79%) and Jammu Kashmir (4.46%) whereas the Uttar Pradesh had the lowest growth rates of 1.92 percent.

Iyenger and Sudharshan (1982) examined the inter- state disparities adopting the method proposed by Morris and Liser (1970 and used by Mukherjee (1980) to measure the level of development. they analyzed inter-district variations in development in the district of Andhra Pradesh for the period 1978-79 and Karnataka for the period 1980-81 on the basis of 21 important indicators of development by constructing index of level of development. By using continuous Beta Distribution they classified districts of both states into five cluster according to their level of developments-Highly Developed, Developed, Developing, Backward and very backward regions.

Nair (1983) attempted to test the "concentration cycle hypothesis" which states that inner regional disparities increase initially but narrow down in later

stages of development. Thus inter-regional inequalities trace out an inverted U-shaped curve over the period. The analysis of inter-state income differentials was carried out for 17 major states of Indian Union during the period 1970-80 with the help of weighted and unweighted coefficients of variation, State Relatives and rank correlation. The states were ranked in terms of per-capita net domestic product. Punjab occupied the first rank during the whole decade while Behar remained at the bottom. State such as Punjab, Haryana, Maharashtra and Gujarat were at the top four positions, while Behar, Uttar Pradesh, Madhya Pradesh and Orissa occupied bottom places. There were hardly any noticeable change in the ranking order over the period 1971-81. The rank correlation coefficient were all positive and significant with none of them having value less than 0.90. The results of State Relatives also confirmed this argument. The unweighted and weighted coefficients of variation of per-capita net domestic product varied in the range of 25.87 to 37.04 percent and 23.73 to 33.34 percent respectively indicating that inter-state income differentials had been on the increase, though it was not a continuous year-to-year affair. On the whole, the study indicated that inter-state differentials in per capita income had widened during the period 1970-71 to 1979-80 and hence, the country was in divergent phase of the inverted U-shaped path.

Suar (1984) examined the regional disparities in economic development in Orissa for the year 1977, selecting twenty indicators of development. Principal Component Analysis, commonly called Factor Analysis (rotated and unrotated) was used to identify factors responsible for inter-district variations in economic development in Orissa. The results of the study showed that, "three factors" derived from twenty variables taken together explained 78.81 percent of total variations. First factor, termed as education and intra-structure, explained 44.64 percent while second factor (urbanization) and third factor (agriculture and rural development) explained 22.38 percent and 11.78 percent of variations respectively. The study revealed that development concentrated in certain pockets of the state. The regions (districts) having favorable agro-climate condition, fertile land and infrastructure were relatively developed.

Joshi (1987) made an attempt to examine the relationship between economic development and the level of infrastructure at the district level in Uttar Pradesh with the help of regression analysis for the period 1980-81. Ten core

infra-structural indicators pertaining to agriculture, industry and overall development were taken as independent variables for the analysis along with three dependent variables - net domestic output per capita, gross value of output per hectare of net sown area and value added per industrial worker. The study revealed positive correlation between the development indicators (dependent variables) and infra-structural indicators (independent Variables). However, in many cases, the association proved non significant as the value of regression coefficients were statistically non significant in most of the cases, though the sign of the coefficients were generally in the expected direction. One of the reasons for weak statistical association between the dependent and independent variables was that development of infra-structure did not cross the minimum threshold in most of the districts, most of the facilities were created in the recent past and their impact of the regional development could be felt only after some time. The study found that irrigation in case of agriculture and banking in case of industry turned out to be the most important factors affection the level of development.

Kannan (1987) has attempted to estimate the inter-regional disparities in banking development amongst the major 17 states in India for the period 1969-84. Index of banking development was constructed with the help of Factor analysis technique for selected 17 states. The study revealed that there was no significant variation in the ranking pattern of states. However, during 1975-84 substantial reduction in the regional disparities in banking development was noticed. The coefficient of variation of banking development index reduced from 56% in 1975 to 35% in 1984. The view was further supported in "Distance Analysis". The states were grouped into five clusters. The economic distance between least developed states and most developed states reduced from 7.97 to 6.48 over the period 1975-84. The distribution of credit among the different states indicated a greater degree of concentration than that noticed in deposits. Rural inter-state disparities considerably decreased during 1975-84. The credit deposit ratio of rural branches improved by 11% during the period. This could be responsible for the decline in the variations of inter-state banking development index during this period.

Reddy (1988) attempted to examine the regional disparities in the development of small-scale industries (SSI) sector in Andhra Pradesh. The study

examined the inter and intra-regional disparities for the period 1971-85 in the development of industrial sector by computing Composite Index of Industrial Development on the basis of performance indicators viz., number of units, employment potential and investment levels. The state was divided into three regions- Andhra, Rayalseema and Telangana. The compounded growth for selected indicators for the period 1971-80 and 1980-85, indicating that growth of SSI in Andhra and Rayalseema regions was almost same, while Telengana region had higher growth rates of 551 during both the periods. The industrial development of 23 districts of Andhra Pradesh was also examined which were ranked on the basis of the Composite Index. The study reveled that the development of small-scale industries depended on resource potential, entrepreneurial abilities, financial capabilities and other and other infra-structural facilities. Infrastructure proved key factor industrial development. The study found that the districts having good infrastructural facilities recorded better performance.

Shastri (1988) analyzed regional disparities in economic development of Rajasthan over a period of 23 year (1961-84) by applying techniques of Composite Index of Development (CID), coefficient of variation, range and ranking analysis. He selected 40 indicators for seven sectors of economy- Agriculture, Industry, Education, Banking, Transport, communication and Power, animal Husbandry and Medical services. On the basis of the Composite Index he proved that though some changes took place in the ranking of the districts, but their relative position in general did not change significantly. The coefficient of variation declined from 31.14%(1961) to 23.20%(1994), which implies that the districts in general have come nearer to the state average, but the range value increased marginally from 14.117 to 15.199, implying that the gap among the districts has marginally widened.

Dabibhavi (1989) conducted a study on inter-state disparities in India based on the cross-section data for 16 major states for the years 1960-61 and 1980-81, by applying simple regional quantitative measures like coefficient of variation, correlation coefficients and shift and share analysis. The study confirmed that Uttar Pradesh, Madhya Pradesh, Orissa, Bihar and Kerala were not only suffering from low per-capita income but also from unfavourable industrial structure and productivity conditions whereas these factors were

favourable in Punjab, Maharashtra, Gujarat and west Bengal- the high income states. The factors explained most of the variations in inter-state per- capita income in India. The study reported that inequalities among states have been growing over the period. The study also showed that two factors viz., per worker productivity in agriculture and degree of industrialization have positive and significant association with economic development.

Sharma (1991) in her article 'Inter-State Disparities in the Levels of Development in India: With Particular Reference to the North- Eastern Region' makes an attempt to find out the extent of inter- state disparities in the India on the basis of the latest available statistics. The state per-capita income has not been included in her methodology because it has been pointed out by some scholars that this is not an appropriate criterion for measuring the levels of development of the North-Eastern Region, as quantity of resource transfer from center to these states are generally high, and this inflates the per-capita income figures.

Kantawala and Rao (1992) analysed the inter-state disparities in sectoral development in India during 1970-71 to 1985-86, selecting 8 agricultural indicators, 12 industrial indicators and 6 indicators of services sector. They used Composite Index tool to estimate the sectoral development and rank correlation analysis to show the change in positions or the states in their ranks. Examining the relative position of states with respect to all sectors, they concluded that in the case of industrial and services sectors the disparities among states declined marginally, while the inter- state disparities in the case of agricultural sector increased over time. The development was lagging in all sectors of the economy of the states like, Assam, Bihar, Madhya Pradesh, Orissa and Rajasthan. Moreover, the developed states have been growing at faster rate as compared to the backward regions. The study also proved that the relative position of states have not changed significantly considering the overall development.

Kantewala and Rao (1992) the importance of balanced regional development in a federal political structure needs no emphasis. It is, of course, true that perfect regional balancing is neither feasible nor economically desirable. Balance Regional Development does not mean equalization of all regions in every aspect of development. It means the maximum utilization of all the potentialities of an area and thereby giving its inhabitants the full benefit of

possible progress in relation to overall economic growth. Therefore, the solution of the problem of regional disparities and imbalances lies not in perfect balanced regional development but in regional development.

Mazumdar (1993) made an attempt to analyze inter-state disparities in per-capita state domestic product (PCSDP) for the period 1960-86 to check whether regional disparities were divergent or convergent during this period. The study also introduced price differentials in the per-capita state domestic products (PCSDP) series of fourteen major states of India. With the help of coefficients of variation of per-capita state domestic product of 14 selected states, the studies revealed that interstate income variation were on the increase with fluctuating trend during the period. Furthermore, the study revealed that the divergent was more with the introduction of inter-state price differential in PCSDP series of the selected states as the trend rates of the coefficients of variation were higher the trend rates of the coefficients of variation at all-India current as well as constant prices (1970-71=100).

Anuradha and Rao (1995) economic welfare does not merely depend upon the level of development but also on its distributive aspect. Unfortunately, the fruit of economic development is not equally distributed among different people and parts of the country, causing disparities and imbalances in economic development. Different areas of a country may not be evenly endowed with various resources-natural, human and others. Given the uniform circumstances to grow, these areas, therefore, advance at rates, which are quite different and have different pattern of economic development. The areas, which are rich in resources or are favourably placed, grow at comparatively faster rate than others. Thus, with every stage of development, gap between resourceful and less resourceful areas goes on widening.

Anuradha and Rao (1995), on the basis of ASI (Annual Survey of Industries) and CSO (Central Statistical Organization) data have studied the nature of inter-state disparities in the levels of industrial development during 1970-71 and 1985-86 and have concluded that though in absolute terms, the process of industrialization is characterized by an inequality in its spatial distribution, relatively speaking, the tendency is to decline. During the period 1971-85 industrial productions has increased by more than 6 times of value added, employment has increased by only 42 percent, and number of factories

by 56 percent. Industrially developed states continue to grow except West Bengal. Maharashtra and Gujarat continued to stay highly industrialized followed by Tamil Nadu. There has been relative decline in all aspects - value and output, value added, productive capital, factory employment and number of factories in West Bengal, (second highest industrial state) since 1970-71. The decline of West Bengal's industrial economy has reduced the regional inequality to a great extent in India. West Bengal's second rank in 1970-71 has slid down to 5th to 6th rank in 1985-86.

Subramanian (1995) examined the inter-state differences in the level of family health in all the states (except Tripura). The study was based on the data collected from National Family Health Survey 1992-93. A taxonomic approach was applied and Composite Index of family health for each state was constructed on the basis of ten important indicators pertaining to family health. The state was ranked on the basis of Composite Index of family health. Kerala State was placed at top and Bihar at bottom in the ranking. On the basis of Composite Index of family health, 23 states were classified into three categories - 'higher ranked' states (Kerala, West Bengal and Tamil Nadu); 'low-ranked' states (Nagaland, Rajasthan, Madhya Pradesh and Bihar) and other states were included in the category of medium rank.

Joshi (1997) has observed that despite the adoption of a number of policy resolutions since 1956 for industrial development and its decentralization, regional disparities still persist. During 1969-70 to 1992-93 the pace of industrial development in the backward states was slow compared to that of the developed states. Industrial structure in the backward states is diversified than that of the developed states. The Government policy of industrial dispersal has not affected the industrially developed states of Maharashtra, Gujarat, Tamil Nadu, Andhra Pradesh, Punjab and Uttar Pradesh. Industrially backward states of H.P., Jammu & Kashmir, Assam, Orissa, Rajasthan, Haryana, Kerala and M.P. and other northeastern states, even though eligible for subsidy in investment, incentive and concessional schemes, could not come up industrially. The industrial structure of the industrialized states like Maharashtra, Gujarat, Tamil Nadu, Karnataka and West Bengal is more diversified than that of the backward states. In other words, industrial diversification is closely associated with the higher level of industrial

development. In the backward states industrial structure is dominated by a few capital-intensive heavy industries.

Rana (1997) analyzed the inter-state disparities on the basis of large number of social, economic and infrastructural factors during the period 1971-95. Coefficient of Variation figures worked out for selected indicators revealed that inter-state disparities widened in terms of economic indicators and the disparities reduced in social and infrastructural sector over time. The study found that the pattern of development of Indian economy was not unison with respect to all the indicators rather it was of mixed nature. Some of the Indian states were found economically advanced and some were socially more developed. However, the states of Orissa, Bihar, Madhya Pradesh and Jammu & Kashmir were backward with respect to all indicators. The study proved that economic development does not necessarily lead to social development and vice-versa. The state of Panjab had real per-capita income much higher than that of Kerala but the standard of living in Kerala was far better than that of Punjab as revealed from the values of Physical Quality of Life Index (PQLI).

Banerjee and Roy (1998) in their paper have opined that though the Bureau of Applied Economics and Statistics, Government of West Bengal, furnishes data on district domestic products (DDP) in West Bengal, but the availability of statistics is not regular and up-to-date. Moreover, the basis of the calculation is never made explicit. So, one may be interested in qualifying the impact of major policy instruments on the state domestic product (SDP) and this estimated causal relation at the state-level may serve as a basis for projecting DDP figures. In this paper, they have tried to construct a district development index. They also showed that the construction of this index would involve two major steps. The primary step would be to settle the relative weights to be attached to each aspect. This paper intends to suggest a methodology towards that end.

Bhattacharya (1998) in her paper has made a study of inter-district variation in urbanization and human development in West Bengal and made a comparison with inter-state variation. This paper attempts to estimate disparities in human development levels in different district of West Bengal. It also attempts to examine whether the economy reflects any uni-nodal character and the nature of such centralization, if any. In an economy with a mono-nuclear set up, there is

usually a tendency of conglomeration of various facilities towards the urbanized regions thereby raising their human development levels. On the whole, this paper probes into the relationship between urbanization and human development in the economy of West Bengal.

Mahanty (1999a) in his study has considered seven variables to work out Agricultural Development Index. According to him, the main issue on agricultural front is how to increase agricultural production and productivity, which in turn depend on the inputs used. While the former is represented by agricultural output, the latter is proxied by a set of agricultural inputs like the extent of irrigated area, fertilizer use, available bank credit, mechanization and use of electricity. Seven indicators measure the industrial development index. Industrial production can be viewed in two ways e.g., the gross value of industrial product and value added in this sector. While the former considers the use of raw materials in the production process, the later excludes this and considers only the sectoral contribution to gross production. Our measurement of industrial index uses both. Apart from production the levels of industrial development required to be assessed by considering the employment provided by this sector. This aspect is proxied by the number of factory workers. Since the volume of production largely depends on the available infrastructure, indicators like electricity consumption and bank credit are chosen to represent this aspect. The social development index used 12 indicators. The indicators spread across education, health, electricity consumption, drinking water and other sanitary conditions that are generally identified as essential requirements for promoting human capabilities. As far as the nature of the indicator goes they are of percentage-type and have a strong distributional impact. The economic infrastructure sector that is precondition of development uses six indicators for working out its sectoral index. It covers some of the available important models of communication like road length, post offices, bank and telephone connections. Most of these indicators are of per-capita type and tend to be of economic in nature.

Mahanty (1999b) shows that to achieve national integration, elimination of roots of uneven growth and providing minimum entitlement to all sectors of production, removal of regional imbalance is not only made as a mandate in our constitution but also proclaimed goals of successive five-year plans. On the top of that to foster this process, periodically the National and Sub-National

Governments have set-up several commissions and committees to identify backward areas and formulate appropriate policies for reducing regional imbalances. After over-four and a half-decade of planning at center, state and local levels, the problems still persists. It will be not inappropriate to raise the same issue just a couple of years before the beginning of the next millennium. The issues of regional disparities in the process of development may be thought (Prabhu, 1991). The self-balance school, which has a neo-classical orientation, treats disparities, as a temporary phenomenon and the free play of market forces tend to reduce a regional imbalance. The imbalance school approach which is based on the classic work of Myrdal (1958) and Hirschman (1958) states that the strong backwash effect and favourable natural and geographical advantages pulls in more dynamic elements from the backward regions, intensifying the problem of regional imbalance.

Shaban and Bhole (2000) using seventeen indicators of development and principal component analysis cluster analysis, and other statistical methods have made an attempt to measures inter-state differentials in rural development in India. The study (using coefficient of variation) finds that inter-state disparities in rural development are very high and rural development in India is regionally imbalanced one.

Mallikarjun (2002) measures the intra-regional disparities in economic development. This paper makes an attempt to measure regional disparities at sub-regional levels in Andhra Pradesh. He had seen that, their alternative methods for the construction of composite index of development were used considering 50 development indicators divided into nine sectors. Discriminant analysis was used for measuring significant differences across the districts in each sub- region as well as across the sub-regions in the state.

Pathak (2002) has observed that there is no sign of declining regional disparity in industrial development in India except that the second ranking state of West Bengal in 1969 has gone down to 11th position out of 17 states. There has been continuous decline in number of factories in West Bengal since 1969 to 1992-93 (from 10.7 percent to 5.09 percent), so is the case in respect of productive capital, number of industrial workers, etc.

WEST BENGAL

