LINKAGE BETWEEN INTERNAL MIGRATION AND REGIONAL DEVELOMENT: A CASE OF INDIA

Dissertation submitted in partial fulfilment of the requirements for the

Degree of Master of Philosophy in Applied Economics of the

Jawaharlal Nehru University

Prabhat Kumar

M.Phil Programme in Applied Economics

2005-07

Centre for Development Studies
Thiruvananthapuram

March, 2007

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I hereby affirm that the work for this dissertation, 'Linkage between Internal Migration and Regional Development: A Case of India', being submitted as apart of the requirements of the M.Phil Programme in Applied Economics of the Jawaharlal Nehru University, was carried out entirely by myself. I also affirm that it was not part of any other programme of the study and has not been submitted to any other University for the award of any Degree.

March12, 2007

Prabhat Kumar

Certified that this study is the bona fide work of Prabhat Kumar, carried out under our supervision at the Centre for Development Studies.
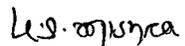
Udaya Shankar Mishra

Associate Fellow

S. Irudaya Rajan

Fellow

K. Narayanan Nair

Director

Centre for Development Studies

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Dedicated to my Didi and Jijaji

ACKNOWLEDGEMENT

First of all I would like to thank my guides Dr. Udaya Shankar Mishra and Dr. S. Irudaya Rajan without whose guidance and constant support the dissertation would not be in the present shape. They have helped me at every stage in dealing with the problems confronted by me during the period of dissertation study.

I would like to thank all the faculties at CDS; Prof. K. Narayanan Nair, Prof. Chandan Mukherjee, Prof. K. Navneetham, Dr. Vijay Mohannan Pillai, Prof. P. Mohannan Pillai, Dr. V. Santhakumar, Prof. K.K. Subramanium, Prof. Sunil Mani, Prof. K.J. Joseph, Dr. J. Devika, Dr. M. Parmeswaran, Dr. U.S. Mishra, Prof. K. Pushpangadan, Dr. S. Sivanandan, Dr. K.T.Rammohan, Dr. E.T. Mathew and Dr. P.L.Beena, who taught us during the course-work and made our concepts in the subject clear. The classes have directly and indirectly attended affected the work carried out by me in the present dissertation. Dr P.R.Gopinathan Nair deserves special mention for going through my draft his suggestions and editing has helped in presenting the work more coherently.

I would like to express my heartfelt gratitude to my teachers at the Goa University Mr. Pranab Mukhopadhyay and Dr. P.K. Sudarsan, for goading me to join this institute, which has been very fruitful to me. My special thanks to Dr. P.C. Sarkar, who is an expert in the area of regional development and also happens to be my father in law for his deep insight into the subject which helped me immensely in completing this dissertation.

My classmates have been very supportive throughout the course work. While the whole class was good to me Neethi and Anant and Rajeev stand out as friends, who have stood by me during the entire duration of my stay. My stay at CDS would have been very dull in the absence of William Joe and Priyajit Samaiyar.

The non-teaching staffs have also been very helpful at the centre to make my stay a conducive for study. The help extended by the administrative, library and computer centre staffs been valuable. I am especially thankful to Mr. Phil Roy, who has been very helpful during the entire period of stay.

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ABSTRACT OF THE DISSERTATION

LINKAGE BETWEEN INTERNAL MIGRATION AND REGIONAL DEVELOPMENT: A CASE OF INDIA

Prabhat Kumar
M.Phil. Programme in Applied Economics, Jawaharlal Nehru University, (2005-07
Centre for Development Studies.

The dissertation has the broad objective of enquiring into the nature of inter-State migration in India. The disparities in development are related with inter-State migration in India. A detailed review of relevant literature on regional disparities and internal migration in developing countries is undertaken to arrive at a research question. This has thrown up the question in the form whether internal migration and inter-State disparities are related phenomenon. Disparity in terms of per capita income is calculated first and then in terms of development index. A composite development index was calculated based on fourteen socio-economic indicators. Ranking of states according to the volume of migration is followed by ranking based on volume of economic migration (male migration) and attempt has been made to establish a relationship between ranks based on migration and ranking of the States based on income and development index of the States is undertaken. While the conventional indicators of disparities like income is supplemented with ranking based on development index similarly the migration rates of States are supported with male migration rate and then the relationship is explored with an expectation of obtaining a more favourable result than what has been established in the with income and migration. The dissertation is an attempt to explore the relationship between internal migration and regional disparities in India. The foremost being that both regional disparities and inter-State migration have increased over the period of the study. The pattern of migration in the form of sex ratio and rural-urban ratio are different for the developed States and the backward States. While the Net Migration Rate and Inter-State disparities are found to be a related phenomenon the Net Male Migration Rate is more closely associated with the inter-State disparities. At the end it is necessary to make it clear that while these are found to be related phenomenon the cause-effect between them remains to be explored.

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Chapter 1

Introduction

1.1 Problems of Inter-State Migration

Migration is not a recent phenomenon; it is regarded as a natural response to the existence of brighter opportunities in places other than the place of birth or the place of usual residence of persons. Actually, the process of migration is a very complex one and has been discussed and theorized upon by the researchers for a long time. Migration may be across nations or within nations. When migration takes place across the various regions of a country, it is normally known as internal migration. It is a fact that international or cross-border migration has political dimensions affecting international relations, whereas internal migration might create social tensions within the boundaries of a given country. In India almost 30 per cent of its citizens are migrants (Census of India, 2001). Therefore, the implications of such a large volume of migration are immense which have economic, social and political dimensions. The differences in the economic opportunities available across the States of India ensure the perpetuation of this process. Differences in the level of development provide the necessary "push" and "pull" factors for the prevalence of internal migration in India. While the poor are pushed out of less developed areas in their search for better livelihood, the rich, the skilled and the educated leave their original areas of little economic opportunities in pursuit of places, which offer of better returns on capital, skills and education. Hence, the differing levels of development that provides the rationale for and the necessary impetus to the internal migration in India.

Actually, any study of migration is an onerous and tedious task. While several aspects of migration like the socio-economic impact on migrants and their families, vulnerability of migrant workers in terms of wages, working conditions and labour laws; impact of remittances on the migrant households, problems faced by local population due to the presence of migrants, problems of health and environment, creation of slums and squatters, etc. have been studied by many researchers, but there exists only few studies on the causes of migration that could be linked with the process of unbalanced economic development. It is a

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fact that people move across regions in response to inequitable distribution of resources, services and opportunities. Concentration of institutional, financial, business and other activities in certain parts of India makes these places more attractive for the people residing in less developed parts of the country.

1.2　Internal Migration in India

Migration from one area to another in search of improved livelihoods is a key feature of human history. While some regions and sectors fall behind in their capacity to support populations, others move ahead and people migrate to access these emerging opportunities. Industrialisation widens the gap between rural and urban areas, inducing a shift of the workforce towards industrialising areas. There is extensive debate on the factors that cause populations to shift, from those that emphasise individual rationality and household behaviour to those that cite the structural logic of capitalist development (cf. de Haan and Rogaly, 2002). Moreover, numerous studies show that the process of migration is influenced by social, cultural and economic factors and outcomes can be vastly different for men and women, for different groups and different locations (*ibid.*). In the past few decades new patterns have emerged, challenging old paradigms. First, there have been shifts of the workforce towards the tertiary sector in both developed and developing countries. Secondly, in developed countries, urban congestion and the growth of communication infrastructure have slowed down urbanisation. Thirdly, in developing countries, the workforce shift towards the secondary/tertiary sector has been slow and has been dominated by an expansion of the 'informal' sector, which has grown over time. In countries like India, permanent shifts of population and workforce co-exist with the 'circulatory' movement of populations between lagging and developed regions and between rural and urban areas, mostly being absorbed in the unorganised sector of the economy. Such movements show little sign of abating with development. The sources of early migration flows were primarily agro-ecological, related to population expansion to new settlements or to conquests (e.g. Eaton, 1984). There is considerable information on patterns of migration during the British period. Indian emigration abroad was one consequence of the abolition of slavery and the demand for replacement labour. This was normally through indenture, a form of contract labour whereby a person would bind himself for a specified period of service, usually four to

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seven years in return for payment of their passage. They left for British, Dutch and French colonies to work in sugar plantations and subsequently for the tea and rubber plantations of Southeast Asia (Tinker, 1974). Similar demands for labour rose internally with the growth of tea, coffee and rubber plantations, coalmines and, later, modern industry. Much of this labour was procured through some form of organised mediation and some portion of it remained circulatory and retained strong links with the areas of origin. But as it settled down, it provided a bridgehead to other migrants, whose numbers grew to satisfy colonial demand. Urban pockets like Kolkatta and Mumbai attracted rural labourers mainly from labour catchment areas like Bihar, Uttar Pradesh and Orissa in the east and Andhra Pradesh, Tamil Nadu and parts of Kerala and Karnataka in the south (NCRL, 1991; Joshi and Joshi, 1976; Dasgupta, 1987). The historical pattern of the flow of labourers persisted even after independence. In 2001, India's population exceeded 1 billion. At that time, 67.2% lived in rural areas and 32.8% in towns and cities. Between 1951 and 2001, the proportion of the population living in urban areas rose from 17.3% to 32.8%. Of the total workforce, 73.3% remained in rural areas, declining marginally from 77.7% in 1991 and 79.3% in 1981; 58% remained dependent upon agriculture. In a country of India's size, the existence of significant regional disparities should not come as a surprise. The scale and growth of these disparities is, however, of concern. The ratio between the highest to lowest state per capita incomes, represented by Punjab and Bihar in the first period, and Maharashtra and Bihar in the second period, has increased from 2.6 in 1980–83 to 3.5 in 1997–00 (Srivastava, 2003). The Planning Commission estimates that 26.1% of India's population lives below the poverty line (based on the controversial National Sample Survey of 1999–2000). The rural poor has gradually concentrated in eastern India and rainfed parts of central and western India, which continue to have low-productivity agriculture. In 1999–2000, the states with the highest poverty levels were: Orissa (47.2%), Bihar (41.2%), Madhya Pradesh (37.4%), Assam (36.1%) and Uttar Pradesh (31.2%). The poor rely on different types of work to construct a livelihood; wage labour and cultivation are the most important. Earlier studies have shown that poor households participate extensively in migration (Connell *et al*, 1976). More recent studies have reconfirmed that migration is a significant livelihood strategy for poor households in several regions of India (PRAXIS, 2002; Mosse *et al*, 2002, Hirvay et al, 2002; Haberfeld *et al*, 1999; Rogaly *et al*, 2001). But contrary to the popular belief a recent study using the NSS data on migration has proven that among the urban population the poor are

less likely to migrate compared with the rich (Kundu, 2007). This view also finds support from other works, which calls the belief that its poor who have a greater propensity to migrate a myth and not a reality (Skeldon, 1997).

1.3 Disparities in Development

Regional disparities in levels of development exist almost in all countries of the world. This problem has taken serious dimensions in many countries, though the degree of disparities is prohibitively high and explosive in developing countries. The problem may not be of recent origin, but the disparities in terms of income, employment, and growth in industries and infrastructural facilities have been the focus of empirical analyses since around the middle of the past century (i.e. the twentieth century). Even during the first quarter of the nineteenth century, many countries like the United States, Canada, United Kingdom, France, Netherlands, and Sweden had experienced severe inequalities to a considerable extent (Williamson, 1965). There may be differences in the nature and pattern of such disparities across countries, but its existence is an established fact and a matter of serious concern for policy makers. Today, irrespective of differences in the levels of development and the sizes of countries, "the seriousness of socio-political implication of such disparities prompts any national government to take action in terms of specific economic policies to tackle this problem sooner or later in the course of the development of the national economy"(Dholakia, 1985).

A region is understood to be a sub-national areal or spatial unit. Regions can be defined in terms of an acceptable theoretical criterion on the basis of feasibility for empirical analysis. Watson (1971) commenting on the concept stated, "...A region lives in the mind that is aware of it. Richardson (1973) described the three categories of regionalisation as homogeneity, nodality and programming. According to homogeneity criteria, areas adhere together to form a region if they are considered homogeneous in respect of key elements. In the nodal concept of regions, emphasis is given to intra-regional spatial differentiation even while recognizing that population and economic activities will be concentrated in or around specific foci of activity i.e. city and towns. Lastly, the region may be delimited in terms of the administrative and political areas.

Regional disparities have grown in India over the years reckoned in terms of per capita State Domestic Product (SDP). Among the major States of India, it is observed that Punjab had always the highest per capita SDP and Bihar the lowest per capita SDP, especially since 1980. Disparity that can be measured as the ratio between the highest and the lowest per capita incomes shows that the ratio has increased from 2.84 in 1980 to 4.38 in 2004. In a country with the size of India, existence of some amount of regional disparities is expected. The country is known as a land of diversities in terms of natural endowments, climatic conditions, history, and institutions. The types of inequality existing in India ranges from differences in growth rates in SDP, relative performance of various sectors of the economy (primary, secondary and tertiary), levels of health, education, infrastructure, and levels of urbanization and industrialization, etc. Inequality exists within a state as well. Logically, inequality leads to migration within a state as well to regions outside the state because people seek improvement in their standards of living. Migration provides this opportunity, which is the central hypothesis of the present exercise.

1.4   Linkage between Development and Migration:Theoretical Aspects

It is hypothesised that differences in development among States have caused inter-State migration in India. People move from backward States to more prosperous ones. It has been observed that agricultural labourers from Bihar and Orissa have migrated in large numbers to Punjab with the advent of the Green Revolution. Again a large chunk of the population from Uttar Pradesh, Madhya Pradesh, Andhra Pradesh and Karnataka have migrated to Mumbai, the capital of Maharashtra for various activities to find employment in building and road construction activities, small businesses, security guards and in the hotels and restaurants. Influx of migrants has occasionally created social tensions in Mumbai.

The work of founding father of modern migration research and analysis, E.G. Ravenstein (1885, 1889), it was implicit that migration was in effect caused by economic development. Two of his famous laws of migration make the relationship very clear: that 'migration increase in volume as industries and commerce develop and transport improves' and that ' the major causes of migration are economic'. Migration thus from Raventstein's point of view thus appeared to be a consequence of development.

In subsequent studies economic basis for migration remained even when social variables were introduced. These could all be categorised as 'development' variables of one type or another and they were explicit in the attempts by Everett Lee (1966), over eighty years after Ravenstein, to elaborate a general 'theory' of migration which would provide a schema of the factors that could explain the volume of migration between any two places. The attempt was essentially a descriptive model of migration incorporating a series of 'pushes' from areas of origin and 'pulls' to areas of destination. This pushes and pulls tended to be couched in a dualistic way: the pushes from origin were the polar extremes of the pulls to destinations. Lack of job opportunities in villages, as opposed to the existence of jobs in towns, was seen to cause rural-to-urban migration, for example. Other means of earning income such as access to land, and more social factors such as education, health and housing, were similarly incorporated into this descriptive model of migration. Rural areas were also seen to have their pulls (community life, relaxed lifestyle, for example) and urban areas had their pushes (congestion, crime and so on), but these models were almost entirely descriptive and rarely attempted to relate, in any rigorous way, how the development variables influenced migration.

The pushes and pulls were leading to migration were generally seen to be created by two main forces: population growth in the rural sector that brought a Malthusian pressure on agricultural resources and pushed people out, and economic conditions generated mainly by external forces that drew people into cities. As Williamson (1988) has argued that demographers and early development economists favoured the former interpretation, while most economists by the 1980s had turned towards the latter interpretation.

In the lat 1960s, Michael Todaro outlined the basis of a very influential model that attempted to explain the apparent anomaly between rising urban unemployment but continued high rates of rural-to-urban migration (Todaro 1969, 1976). This model was based on expected rather than real income differences between the rural and the urban sectors. Potential migrants as individual decision makers would 'consider the various market opportunities available to them as between say, the rural and urban sectors, and choose the one which maximised their "expected" gains from migration' (Todaro, 1976). A potential migrant could thus discount periods of unemployment against expected higher income, once

access had been gained to an urban job. Over the longer term this strategy would yield more gains than continuous but low-paid rural occupations.

The strength of this approach, quite apart from its analytical simplicity, was that it focussed attention on the rural sector and on rural development. The model showed that increases in the number of urban jobs or urban incomes would lead to still further increases in the rural-to-urban migration rather than alleviating the urban unemployment problem. Rural dwellers responded to these increases by moving to towns in ever-larger numbers in the expectation of finding one of these new jobs sooner or later. Hence, attempts to alleviate urban unemployment simply by creating more urban jobs were likely to be self-defeating as they merely raised expectations and accelerated migration. Measures to solve urban unemployment had therefore to be taken as much in the rural sector, to improve conditions there, as in the urban sector. The principal value of this approach was that it drew attention to the linkages between rural and urban sectors and to the centrality of migration in any programme of integrated development. The model spawned a whole series of studies of internal migration in developing countries, which emphasised the critical role of population movement in development.

1.5 Objectives of the Study

If one look at the literatures on Regional Development (RD) and Internal Migration (IM), one might expect to have a relationship between these two but an effort to link these two strands of literature is found wanting. In this dissertation, an attempt has been made to link the internal migration with regional development suggesting them as a probable answer for the existence of migration in the country. The support is derived from the studies on migration done by Ravenstein's, Lewis and Todaro's model of migration, etc. The migrations rates of the States can be attributed to the differences exist in the levels of development of States. The state specific shortcomings are associated with the quality of human capital of the out-migration. Taking into account the shortcomings in the earlier studies, the main objectives of this study are set as follows:

1. To study the rates and patterns of growth in the economy of States in India.
2. To study the disparities in the level of development amongst major States of India.

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3. To understand the characteristics of internal migration in India at inter-State level.

4. To explore if any suitable relationship that exist between Regional development and Internal Migration.

On the basis of the objectives set as above, the following hypotheses have been formulated which are likely to be tested in this study. The proposed hypotheses are:

1. The growth of economy has corresponded with increase in the inter-State inequality.

2. Inter-State disparity has increased over the study period.

3. Inter-State migration has increased over the period of study.

4. The Inter-State migration and Inter-State disparity are associated with each other.

1.6 Analytical Approach

Keeping with the objectives stated above and having framed the hypotheses, the main thrust of the study is put to verify these hypotheses empirically. The empirical analysis will be carried out on the basis of data published by the different agencies/organization. Though I would have been better to conduct survey on the migrants in different urban and rural sectors of various States, but it was not possible because of the time and financial constraints. But, as the aim is to examine the linkage between the levels of development of States with the magnitude of migration, which could be easily, collected from secondary sources, which are authentic and reliable.

Thus, the study is based on the secondary data published in the different volumes of the Census of India, Estimates of State Domestic Products by Central Statistical Organisation, and various publications of NSSO and CMIE. Firstly the State Domestic Products (SDP) measured the levels of development of States and then the disparities in development were calculated using Indexing method. The disparities/inequalities in the level of development have been measured by simple techniques like Standard Deviation (SD) and Co-efficient of Variation (CV). The relationship between Regional Development (RD) and magnitude of Internal Migration (IM) was established by using the method of rank-correlation. Other test-statistics have been used also used as per requirement of the analyses.

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This study is divided into five chapters. The first introductory chapter has dealt with the issues like internal migration, regional development, linkage between development and migration, the objectives of the study, techniques used and the layout of the dissertation. The second chapter provides a narrative from theoretical and literature review from theoretical and empirical point of view in the context of migration and regional disparities. It has also pointed out the research gaps in the literature. The third chapter deals with the methodology adopted for carrying out the analysis. The chapter four deals with the analysis part of the dissertation by taking into account relevant data on regional development and internal migration. An effort has been made to find the association between the regional development and internal migration as well. The chapter five, which is the last chapter, concludes about the empirical findings in the study and suggests some suitable policy measures.

Chapter 2

Review of Literature

2.1 Introduction

A large number of studies on migration have been carried out in India over the years. They have discussed various aspects of the subject and analysed the impact of population movement across the regions. Though migration is a very complex phenomenon, the economic cause of migration is well established by theories of migration. In this section, the major works on migration have been presented first and latter the discussion of the major hypothesis that explains the phenomenon of migration has been made. The aim of this section of the chapter is to provide a background for the study on internal migration in India. It also presents the review of literature on regional development and the disparities in development. Thus this chapter's review of literature provides the background for the linkage between regional development and internal migration.

In one view, population mobility in India is low (Davis, 1951; Kundu and Gupta, 1996). Migration statistics to the early 1990s also suggest a decline in mobility. In the 1991 census, using the change in residence concept, 27.4% of the population is considered to have migrated (that is, 232 million of the total 838 million persons), which shows a considerable decline from 30.6% in 1971 and 31.2% in 1981. This is true for male and female migrants. In the case of males, it declined from 18.1% in 1971 to 14.7% in 1991. In the case of females, it declined from 43.1% in 1971 to 41.6% in 1991.However, recent evidence based on NSS figures for 1992–1993 and 1999–2000, and indirectly supported by the census, suggests an increase in migration rates – from 24.7% to 26.6% over that period. This evidence suggests the proportion of migrants of both sexes, in both rural and urban areas, increased during the last decade of the 20th century. Migration in India is predominantly short distance, with around 60% of migrants changing their residence within the district of enumeration and over 20% within the state of enumeration while the rest move across the state boundaries. A significant proportion of women migrate over short distances, mainly following marriage. The proportion of male lifetime migrants is low in most poor states except Madhya Pradesh

and high in most developed states. For inter-state migration, a similar trend is observed: developed states show high inter-state immigration while poor states, except Madhya Pradesh, show low rates of total and male immigration. Rates of interstate lifetime emigration are complementary to the above trends (Srivastava, 1998).

Based on place of last residence and on place of birth, migrants are generally classified into four migration streams. Rural areas are still the main destination for migrants, but urban destinations are more important for male migrants (49% of male migrants moved to urban destinations in 1991, compared to 29.5% female migrants). Between 1992–1993 and 1999–2000, NSS data indicate an increase in urban migration, but this is mainly due to urban-urban flows (Srivastava and Bhattacharya, 2002).

2.2 Review of Literature on Migration

It has been already discussed that Ravenstein was probably the first who proposed his laws of migration, which goes back to at least the 1880s. According to Ravenstein, migrants move from areas of low opportunity to areas of high opportunity. One of the factors affecting the choice of destination is distance, with migrants from rural areas often showing a tendency to move first towards nearby town, and then towards large cities. Ravenstein also observes that each stream of rural-urban migration produces a counter stream of urban-rural migration, although the former tends to dominate the latter. Ravenstein's laws have since been discussed, systematized, and expanded by a number of researchers. The importance of the economic motive in the decision to migrate, the negative influence of distance, and the role of step-migration suggested by him are some of the important features in the literature of migration.

Stark (1976) has observed that migration occurs partly in response to the lack of investment opportunities and due to the shortage of financial capital. He has also pointed out that the remittances from migrants are potentially an important means by which growth of agricultural production and technological change could be stimulated in the backward region. But the net effect of remittances on technological change is difficult to determine a priori. In addition, the full effects of remittances on capital formation in rural areas will depend on their size and frequency. Some empirical studies suggest that they are sizeable,

while others find that migrants hardly send any remittances at all. The evidence on the use of migrants' remittances is much more limited.

In Simon (1966)'s study on Uttar Pradesh in India it is observed that flow of migrants have facilitated a shift in the cropping pattern to risk-enhancing and investment-demanding cash crops. Srivastava (1968) has also argued along on similar lines, and suggested that migrants continually sent money to their relatives left behind who had spent more money than before on agricultural implements and fertilizers. Stark (1976), for instance, has observed that if the bulk of remittances of migrants go to the relatively rich farmers, the role of this cash flow in easing the rural credit constraint to the expansion of small-scale farming would be limited. In such a case remittances may merely strengthen the position of the rich farmers who could increase their control of the rural economy. This could reduce competitive pressures on the rich farmers to innovate.

In 1962, Sjaastad has presented a human investment theory of migration, which treats the decision to migrate as an investment decision involving costs and returns distributed over time. The returns are divided into money and non-money components. Non-money returns include changes in "psychic benefits" as a result of locational preferences. Similarly, costs include both money and non-money costs such as costs of transport, disposal of movable and immovable property necessitated by a shift of residence, wages gone while on transit, retraining for a new job, if necessary. There are psychic costs too. Such costs includes the cost of leaving familiar surroundings, in many cases of giving up one's language and culture, and of adopting new dietary habits and social customs and of growing out of one's ethos altogether.

One of the first comprehensive models on the process of rural-urban labour transfer was the one given by Lewis (1954), and later improved by Ranis and Fei (1961), which is also known as L-F-R model. This model considers migration mechanism that equilibrates the two sectors, labour-surplus sector transferring labour to the labour-deficit sector, brings about equality between the two sectors. The model is based on a concept of dual economy, which comprises of subsistence agricultural sector characterized by unemployment and underemployment, and a modern industrial sector characterized by full employment. "Capitalists" reinvest the full amount of their profit. In the subsistence sector, the marginal

productivity of labour is zero or very low, and workers are paid wages which are equal to their cost of subsistence. Therefore in this sector wages exceed marginal productivity. In the modern sector, wages are maintained at levels much higher than the average agricultural wage.

Despite the simplicity of Lewis' model, several observers have found it unsatisfactory from the viewpoint of analyzing the causes and consequences of migration in the developing countries (Dasgupta, 1979). In the first place, the migration is not induced solely by unemployment and underemployment in the rural areas; although there is no doubt that this is an important factor in the decision to migrate. Further, the assumption of near zero marginal productivity in agriculture has not been confirmed empirically. On the contrary, available evidence from the several developing countries shows that under given conditions of production, the allocation of labour usually tends to be optimal and any withdrawal of labour will lead to a fall in output unless the yield increasing innovations are simultaneously introduced. The most serious shortcoming of this model is, however, its assumption of a very high rate of expansion of the capitalist sector which, given not too high rate of population growth, is expected to draw away the disguised unemployed from the subsistence sector. The rate of growth of modern industrial sector has been lately too low in many developing countries to permit such a development. As a consequence, in many cases the net effect of migration has been to shift unemployment and underemployment from rural sector to the urban sector.

Although Shasta (1975) has taken into account money as well as non-money costs and benefits, yet in calculating net returns to migration he has included only money costs and non-psychic benefits. He assumes that in deciding to move, migrants tend to maximize their net real life-span incomes and they have at least a rough idea of what their life-span income streams would be in the present place of residence as well as in the destination area and of the costs involved in migration.

However, researchers in developing countries have noted that high urban unemployment rates mean that a migrant has to include in the decision to migrate an assessment of his chances of getting an urban job. A model that takes this explicitly into account is the one provided by Todaro. Todaro suggests that the decision to migrate

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includes perception by the potential migrant of an "expected" stream of income that is a function of both the prevailing urban wage structure and a subjective probability of obtaining employment in the urban modern sector (Todaro, 1976). Todaro's basic model and its later extensions consider the urban labour force as distributed between the relatively small modern sector and the traditional sector (Harris and Todaro, 1970). The wage rates in the traditional sector are not subject to the same set of forces, which maintain them at high levels in the modern sector, but are determined competitively. As a result of lower wage rates and the temporary nature of employment in the traditional sector, earnings in this sector are substantially lower than those in the modern sector.

In this context, Todaro portrays rural-urban migration as a two-stage process. In the first stage, the migrant arrives in the urban area and in many cases remains either unemployed or employed in the traditional sector while hunting for a modern sector job. In the second stage, he often succeeds in obtaining a modern sector job, which usually carries higher earnings. From the viewpoint of life-span income, the modern sector earnings during the second stage are sufficiently high to offset the zero or low traditional sector earnings during the first stage. Thus, even if the migrant initially experienced a loss of income as a result of migration, he could be still be acting rationally as long as the present value the life-span urban income exceeds the present value of the rural income plus the cost of relocation. Todaro formulation assumes that all potential migrants have equal information about the urban labour market as well as equal access to urban jobs.

Kravis (1973) has observed that most developing countries in Asia as well as in the other parts of the world are charcterised by highly unequal distribution of land ownership. Although some land reform legislation has been attempted in many Asian countries, progress towards redistribution has not been such as could have contributed to a sizeable reduction in inequality. Unequal distribution of land has built in tendency to operate large-sized operational farms with adverse consequences for manpower absorption. Farm management studies in India and elsewhere show that small farms offer more scope for absorption of labour than medium and large farms. Further, unequal distribution of land is likely to have adverse effect on distribution of rural income. This is largely because non-wage income tends to be distributed less equally than the wage income. Therefore the more unequal the distribution of land, the sharper would be income and wealth inequalities. These

would further reduce the carrying capacity of land, which is inversely related to inequality in the distribution of land.

According to Findley (1977), the highly unequal ownership of land in many countries has, therefore, resulted in increased landlessness and near-landlessness. As the pool of landless and near landless becomes enlarged, new form of social relations in production emerge leading, in many cases, to exploitation of labour. The increasing commercialization also affects the landless through changes in the modes of wage rather than share payments. This change hastens the breakdown of traditional village social and economic relationships, and many of the landless decide to move to the more prosperous rural areas, while others abandon the countryside and move to the city in search of non-agricultural jobs, which are viewed as offering higher incomes, more benefits and greater opportunities for occupational mobility. They have little incentive to work in agriculture where employment conditions are far from satisfactory.

While the above listed forces have lead to rural-rural or rural-urban migration among the very poor, spread of education in rural areas has stimulated out-migration by the more selective rural youth. Some of them migrate to improve their education and skill, while others leave dissatisfied with the prospect of a rural life. A few studies also seem to support the oft-heard hypothesis that migrants are attracted to cities in search of better entertainment or "bright city lights" (Findley, 1977). Educational opportunities, medical services, cultural and entertainment activities are not just there in the villages, or are available on a very modest scale. In addition, a number of other factors such as the presence of friends and relatives in the urban areas who often provide initial help and financial security, and the desire of the migrants to break away from the traditional constraints of inhibiting rural social structures, have been cited as likely determinants of migration.

2.3 Review of Literature on Regional Disparity in India

Regional disparity in India was not a problem that has been highly attractive to the social science researchers during the early years of independence. The Government of India aimed at attaining high rate of growth of the economy through concentration of investments in the comparatively developed regions and that too in selected sectors. However, such a

situation could not last long without generating serious *stress* in the Indian polity; the objective of balanced regional development cam therefore to occupy an important status in the formulation of development policies. During the fifties, regional schemes proposed were the ones based almost on physiographic factors. The hallmark in Indian geo-polity was the reorganization of States. The State Reorganization Commission advocated in September 1955, the formation of States on the basis of linguistic and ethnic characteristics. It appeared from the report that the socio-economic aspects of regionalisation were given little attention during this formative phase of regional studies. Accordingly, the major States were reorganized in 1956 and subsequently, in 1960, the bilingual State of Bombay was divided into two monolingual States of Maharashtra and Gujarat; in 1962 the State of Nagaland was formed and in 1963 the State of Haryana was carved out of the Punjab. The recent formation of Chhatishgarh, Uttarakhand and Jharkhand did have development consideration in mind as these areas were considered to be the neglected areas requiring special attention to bring them on to the same level of development as those of other parts of the country.

Attempts were made to evaluate the impact of development on different regions in the early 'sixties. In one such attempt, Raj (1961) estimated the net product originating in different sectors of various States and examined their relative performance over the decade 1948-49 to 1958-59. In November 1963, V.K.R.V.Rao proposed in the meeting of the National Development Council that a study of the impact of plan programmes on the socio-economic condition vis-à-vis its ability to attain the objective of balanced regional growth should be taken up. Subsequently, the Plan Evaluation Organisation (PEO) of the Planning Commission took up the study. The main objectives of the study were to present data on diverse fields of the economy, such as agriculture, education, health, and consumption and to throw light on regional variations in these areas through a set of appropriate indicators. The PEO published the results of the study in two volumes. Vol.1 published in 1967 dealt with the analysis of the administration statistics on agriculture, education, health, roads, consumption, employment and land holdings, whereas Vol.2 dealt with data based on four survey results on adoption of improved agricultural practices, irrigation facilities, soil conservation, education, drinking water and other facilities.

Mitra (1964) in the Census Monograph of 1961, tried to dissolve the political and administrative outlines and to let the natural regions, sub-regions and divisions emerge in

their complex associations of natural features and social, cultural and general ecological characteristics. A fresh classification of natural regions, sub-regions and divisions of India was made. Using the ranking method based on a set of ad hoc indicators, he delineated the country into seven major regions, twenty-four small regions and sixty-four micro regions. In 1967, the Ministry of Agriculture drew up schemes for identifying the drought-prone areas with a view to rendering them special assistance. The Gadgil formula recommended by the Planning Commission in 1968 for distribution of Central assistance was also based on the implicit scheme of balanced regional growth. Sengupta and Sdasyuk (1968) discussed in detail the elements of agricultural regionalization in the Census volume of India, 1961. They developed a scheme of natural regionalization of the country by distinguishing 7 macro-regions and 42 meso-regions.

Williamson (1965), as part of his international exercise, also briefly investigated the pattern of regional inequalities in India during the 1950s and came to conclusion that this decade marked a phase of increasing inequality. Dhar and Sastry (1969) used power consumption data as a proxy for the level of industrial development in fifteen States and Delhi for the decade 1951-61 and found that there was a tendency of narrowing down of disparities. Using shift analysis they showed that the pre-eminent position till then enjoyed by West-Bengal and Maharashtra was gradually declining. On the other hand, industrially backward States like Punjab, Orissa, Madhya Pradesh and Andhra Pradesh, undoubtedly improved their positions.

Studies conducted during the late sixties or the early seventies supported Williamson's observation and questioned Dhar and Sastry's and several others' conclusions that disparities were narrowing. Important among them was Venkataramaih's (1969) study. His first criticism was that though Dhar and Sastry had recognized the need to develop a composite index, but they had not attempted to construct one it because of the familiar awkward problems such as assigning of appropriate weights. His second criticism was about the indicator chosen by Dhar and Sastry, which had a high correlation with gross output. The studies of Venkatramaiah using a shift criterion for industrial income did not find any narrowing tendency between the early fifties and the early sixties. Rao (1973)'s study taking fourteen States and six socio-economic variables showed that the groups continued to

contain broadly the same States, suggesting that regional disparities were not been reducing during the course of fifteen years of planning.

The role of the public sector in reducing regional disparities in Indian plans was studied by Gupta (1973). His substantive conclusion was that public sector investments over the period 1959-66 had contributed to reducing the spatial income disparity in India. He used measures like concentration coefficients of regional income at the base period of the first four plans, i.e., 1950-51 to 1969-70; the concentration coefficients of regional public investment activities for the First, Second, Third and Fourth Plans were examined separately; and the concentration coefficients of regional income against the same base period population was discussed in order to isolate the impact of investment decisions on regional per capita income. Though the Fourth Plan emphasized the need to reduce regional disparities, Gupta averred, its objectives were not fulfilled.

The studies on regionalization carried out by Singh (1972), Dhar (1972) and Alagh (1973) also dealt with the planning process. Singh gave various arguments for considering the State as a regional planning unit. He based his argument from the point of the political reality, administration and implementation. Dhar (1972) studied the nature of inter-relationships between different sectors of various regions of the Indian economy with the help of a static and open type of inter-regional input-output model. On the other hand, Alagh (1973) discussed the various aspects of spatial planning of the Indian industrial economy. He clustered the structure of the Indian economy into various groups of industries, which had in the past grown together in different spatial units (namely "States" of the Indian economy). He also discussed a nineteen sector input-output table of the regional economy to derive the Leontief technology matrix, particularly for Gujarat. Considering States as regions and districts as sub-regions, he argued for planning at the sub-regional level within the broad framework of national and State level plan objectives.

Pathak studied the spatial relationship between urban and industrial growth in India in 1975. His basic investigation was whether spatial growth of industrial employment could explain urban growth. His step-wise regression analysis showed that employment in manufacturing could explain about 60 per cent of urban growth. Employment in household industries and in mining, quarrying, etc. was insignificant in explaining the growth of

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urbanization. The studies of Chattopadhyay and Raza (1975) and Patnaik and Chattopadhyay (1975) were more technical in nature. Chattopadhyay and Raza were mainly concerned with the problem of choosing the best indicators for regional analysis and evaluating the statistical techniques such as the ranking method, the principal component analysis and related methods of multivariate analysis. Patnaik and Chattopadhyay used multivariate techniques on twenty-nine indicators for the districts of Orissa at two-time points viz. 1961 and 1971. Through the principal component analysis, they developed composite indices for primary, secondary and tertiary sectors and also for socio-cultural activities. Later on, they classified the districts as belonging to "high", "medium", "low", and "very low" levels of development. A district-wise study by Bhalla and Alagh (1979) showed that the districts of Punjab and Haryana recorded a remarkable growth of output and yield per hectare, whereas in districts of States like Orissa, Maharashtra and Andhra Pradesh growth rates were decelerating.

Kundu (1980) discussed the methodological issues involved in the measurement and the construction of composite indices and of regionalisation with special reference to analysis of urban processes and socio-economic development. The pattern of 'urban development' and its impact on various socio-economic processes in two meso-regions, i.e., Rajasthan and Punjab-Haryana, were discussed for the years 1961 and 1971. Some new methods, mainly in the form of modification of standard statistical techniques to meet the peculiarities of an underdeveloped economy, were proposed. Again, the study of Kundu and Raza (1982) pertained to the National Sample Survey as the basic units of regional analysis; the data mainly pertained to the census years 1961 and 1971, except in few cases where it covered the early sixties (1962-65) and the early seventies (1971-74). The pattern of agricultural development was analyzed with the help of a large number of indicators relating to productivity, technological inputs and agrarian relations. Similarly, the pace and the pattern of industrialization were analysed in order to study the changes in rural-urban inter-dependence. Composite indices were calculated based on principal components and fifty-eight regions were re-grouped into four categories based on the break points in the composite indices thus obtained. Suitable composite indices were constructed for the purpose of measurement. The main finding of the study was that city-based industrial development was found to be located in six regions: (i) Calcutta-canurbation. (ii)Madras-

canurbation. (iii) Bombay-Gujarat canurbation. (iv) Delhi metropolitan region, (v) Jamshedpur-Dhanbad-Bokaro complex, and (vi) Ludhiana-Jullunder complex.

In (1982), Bharadwaj showed that the benefits of development appeared to have accrued to the districts within the States, in which either there was good rainfall or adequate irrigation facilities created either by the government or private investment already existed. The new technology thus appeared to have been adopted in regions, in which the general level of well being of producers was already high. Her observations on agricultural and industrial growth in such regional perspective stressed "the importance agricultural surpluses in adequate quanta to sustain industrial expansion. The regions sharing some industrial viability appear to be the ones where agricultural growth has also been promising" (p.614). She also commented that public investment might have played an important role historically, in supporting an environment for productive channelling of surplus.

Singh (1982) argued thus, "since agriculture is the main source of income of the rural population, imbalance in its growth in different regions has led to the imbalances in the incomes and levels of living" (p.54). He mainly studied the growth rate in agricultural production in relation to growth rates in population in fifteen major States of India.

The pattern of spatial economic disparities in India during the first quarter century of her planned economic development (1950-51 to 1975-76) was investigated by Mathur (1983). He analysed the sectoral income disparities by using coefficients of variation. The agriculture-based primary sector displayed a marked narrowing down tendency till the 'sixties. Thereafter, regional disparities in this sector started increasing at a fast pace, although this process appeared to have been arrested during the first half of the 'seventies. On the other hand, the industry-based secondary sector was marked by a period of rising regional disparities, though later this sector showed a consistently declining trend in disparities. He found that Regional Disparities in the primary and the tertiary sectors displayed a U-shaped behaviour while the secondary displayed an inverted U-shaped behaviour.

Hemlata Rao carried out another study in 1984, which was confined to disparities within the State of Karnataka. She developed sectoral indices and finally a composite index

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of development considering 'taluka' as 'region'. The aim of her study was to identify the backward regions and to measure the extent of disparities in levels of sectoral and overall development. Using factor analysis developed sectoral indices, which were then treated as indicators for the final construction of the composite index of development.

Subsequent studies by Nair (1985), Tewari (1985), Rao (1985) and Singh (1985) for the period of 1970-71 to 1979-80 brought out the fact of increasing regional disparities. The temporal analysis of Nair showed that inter-State income differentials (measured in terms of weighted coefficients of variation) had increased from 24 per cent in 1970-71 to 33 per cent in 1979-80. The unweighted coefficients of variation referred to this increase from 26 percent to 36 per cent during the same period. The studies by Tewari and Rao based on three time points and five time-points data analysis respectively also presented the same picture. Tewari was primarily concerned with the analysis of inter-State disparities in levels of development measured in terms of composite index of development constructed on the basis of nineteen indicators of development.

A comprehensive study covering eight sectors of the economy (such as agriculture, industry, infrastructure, and health) in major States of India was conducted by Hemlata Rao in 1985. A composite index of development based on 51 variables belonging to these sectors was constructed. She used factor analysis for constructing general and sectoral development indices. Dholakia (1985) analysed regional disparities in economic growth in India taking fifteen major States covering the period from 1960-61 to 1979-80. He examined the trend in the State income inequalities considering the sectoral classification and tried to identify the major factors responsible for such inequalities. The regional aspects of economic growth and productivity changes in India were examined taking crucial aggregates like real output, employment and the real stock of capital in the States. His analysis showed that Regional Disparity in India had been going up till 1979-80.

The studies of Kundu, Kumar and Bhatt; Wadhva and Kashyap; and Dholakia, in the edited volume of G.P.Mishra (1985), were mainly concerned with inter-regional disparities in India. Kundu, Kumar and Bhatt studied the share of urban centres in total organized manufacturing units. The fall in the share of urban areas in the number of organized industrial units in general, was significant in the case of States like West Bengal,

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Tamil Nadu, Karnataka and Punjab but not in Maharashtra and Gujarat. In the poorer States of Assam, Bihar, Rajasthan, etc., industrial concentration in urban areas had gone up. Wadhva and Kashyap studied the role of urbanization and urban structure in inter-regional industrial development. Their study showed that urbanization and primacy (the share of certain number of cities in total population) to be important variables in the determination of industrial activity in a state. Dholakia (1985) tried to explain inter-state variations in the growth of different factors and also studied their inter-relationships. Besides, the contributions of various factors in the State growth inequalities in India came in for close examination.

Sarker (1989) in an attempt to analyse regional disparities taking fifteen socio-economic variables for fifteen major States in India, used three graphical approaches such as Dendrogram, Biplot and two-dimensional plotting of the first two principal components. These approaches broadly brought out the major aspects of imbalances in a state. It was observed from Dendrogram analysis that clusters of States were formed indicating different patterns of development. The clusters that were formed in two- dimensional plotting were, more or less, on the lines of the Dendrogram. Punjab and Haryana were identified as "agriculture+small scale industries-based" developed States, whereas Gujarat, Karnataka, Maharashtra and West Bengal were "industry+urban-based" developed States. Biplot analysis revealed the influence of particular indicators on the development pattern of a state.

Besides, there have also been studies to examine intra-state disparities in India. Prabhu and Sarker (1992) arrived at an unambiguous classification of sectoral as well as aggregate levels of development of 29 districts of Maharashtra (except Bombay) for 1985-86, using three different techniques viz. ranking, indexing and principal component analysis. They have made a final classification of districts into three categories, viz., 'high', 'medium' and 'low' using multivariate techniques.

Roy Choudhary (1993) studied inter-state disparities in terms of overall development measures, such as SDP and household consumption expenditure. Consumption expenditure showed a lower level of inter-state disparity than per capita income; per capita SDP at current prices indicated less disparity than at constant prices. Some of the States, viz., Rajasthan, Jammu & Kashmir and Uttar Pradesh recorded much higher rank in terms of per

capita household consumption. On the other hand, Tamil Nadu and Karnataka presented just the opposite situation with high ranking in terms of income than in consumption. The analysis also revealed that there was much higher urban-rural disparity in the industrial States like West Bengal and Maharashtra, while there was practically no perceptible disparity between urban and rural levels of living in agriculturally advanced States like Punjab and Haryana. Finally, she found that the growth in manufacturing and infrastructure was higher than in agriculture and that this phenomenon was widespread covering more of lower income States than of higher income ones.

Das (1993) examined some strategies adopted under planned development of the Indian economy with a special thrust on removing regional imbalances. According to him, though there was a greater thrust on industrial dispersal through various measures like financial support schemes and industrial licensing, in practice, the already advanced States managed to obtain a lion's share of the benefits. The pattern of agricultural development had also remained lopsided resulting in depressed regions being starved of essential infrastructural investment especially irrigation. His analysis of Centre-State financial flows also pointed out the biases in favour of advanced States.

Sarker (1994) studied regional imbalances in the Indian economy over the plan periods. His aim was to assess as to what extent maldistribution of resources among the States had been corrected and whether there had been a noticeable reduction in regional imbalances. The composite index of development was calculated based on fourteen indicators using the principal component analysis and changes in the relative positions of States were examined. It was observed that over the plan period, the relationship between the development index and the per capita cumulative plan outlay grew stronger indicating that planning played a critical role in the development of the States. The study confirmed that among the fifteen States considered, Bihar was the least developed state and it had the maximum distance in terms of development with Punjab, which was the most developed state. Bihar and Uttar Pradesh maintained the least distance between them confirming the similarity in the pattern of their development. It was also revealed that the disparity in overall development as measured by the composite index of development had gone up between 1960-61 and 1980-81 and then declined in 1984-85.

Dholakia (1994) concluded, in terms of a study of 20 States over the period 1960-61 to 1989-90, that there were marked tendencies of convergence of long-term economic growth rates, for the Indian States. He identified 1980-81 to be the year of break in the trend of real incomes of Indian States. Several of the lagging States had started growing after that date while the leaders began to stagnate. Cashin and Sahay (1996) too claim absolute convergence on the basis of data on State GDPs and growth rates relating to 20 Indian States over the period 1961-91. The dispersion of real per capita income, however, increased during the period.

Raman (1996), Marjit and Mitra (1996) and Ghosh *et al* (1998) have all observed increasing inter-State disparities on account of the divergence in the growth rates across the States of India. There were, however, some problems relating to data used in Marjit and Mitra (1996) and Ghosh *et al*, particularly in the conversion of the nominal into the real. In Marjit and Mitra (1996), the nominal SDPs were converted to real terms by deflating with the 1970-71 wholesale price index bases. In Ghosh *et al* (1998) the analysis is based on the real per capita SDP arrived at by deflating nominal variables by the consumer price index number for agricultural labourers. Marjit and Mitra raised an interesting theoretical question also. In the presence of factor mobility (as should be the case between Indian States), they wondered the extent to which the predictions of the convergence hypothesis were valid. With perfect factor mobility, technologically similar regions must instantaneously achieve equality of per capita incomes, thus removing any possibility of differential growth rates. Thus, the absence of perfect factor mobility is a necessary condition for the convergence theory to hold good. Alternatively, in the presence of factor mobility, differential growth rates across regions do not imply convergence (on account of diminishing returns). In other words, even if a negative relationship exists between initial per capita income and overall growth rates occur, they may not indicate convergence.

Nagraj *et al* (1997) considered the growth performance of the Indian States during 1960-94 period and found evidence of conditional convergence i.e., convergence relative to State-specific steady rates. They also assessed the contribution of various indicators of physical, economic and social infrastructure to growth trends. The proposition of State-specific steady growth rates really needs to be examined. Rao *et al* (1999) made an interesting study on the issue of inter-State variation in growth. The study focused attention not only on

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the question of convergence but also tried to examine the reasons for the observed pattern. They found that the States follow divergent growth paths, a phenomenon which they try to explain in terms of other variables besides the initial level of income.

Dasgupta *et al* (2000) have studied the inter-State disparities using the data on (net) state domestic product (SDP) covering the period from 1960-61 to 1995-96. Using regression analysis and a theoretical frame of convergence, they came to the conclusion that there existed a tendency amongst the Indian States to diverge in terms of per capita SDP; but at the same time there existed a trend of convergence in the shares of different sectors in the SDP.

2.4 Conclusions

Several studies on internal migration have established the existence of the problem and this has remained a matter of great concern to researchers as well as policy-makers. The economic and social problem arising from migration have attracted the attentions of economists like Ravenstein, Stark, Simon, Lewis and many others. In many developing countries, particularly in Asia, low agricultural incomes and agricultural unemployment and underemployment are the major factors pushing migrants towards areas with greater job opportunities. A study of several countries in Asia noted increasing levels of unemployment and declining levels of income of the rural poor (ILO, 1976). The pressure of population resulting in high man-land ratios has been widely hypothesized as one of the important causes of poverty and rural out-migration. With a given mode of production, only a part of labour force can be absorbed by agriculture. Unless the non-crop husbandry sectors (dairying, poultry, forestry, fisheries) and cottage and small-scale industries in the rural areas take in the surplus, these people must move to the urban centres to become gainfully employed.

The pressure of population is certainly not the only cause for increasing unemployment and poverty of some sections of the rural population. Equally important causes seem to be the low rate of investment in agriculture, fragmentation of land ownership, inequalities in the distribution of land and other productive assets, allocative mechanisms which discriminate in the favour of the owners of the wealth and a pattern of

investment, and technological change which is biased against labour. One of the main reasons for this bias is the fact that much of the farm technology is imported from labour scarce countries, which favours the use of capital against the use of labour.

Studies on Regional development in India have thrown up some interesting issues. While there is no doubt about the existence of inter-regional disparities, the prevailing pattern of disparity needs to be ascertained. Researchers have come to different conclusions based on the techniques and indicators they have used for study. The existence of disparities in development has a direct impact on migration the extent of which is examined in this study.

Chapter 3

Methodology Used in the Study

3.1 Introduction

Most of the studies on internal migration in India mentioned in the chapter-2 are not found to be sound in technical analysis though their contributions in terms of theory formulation and in the development of the subject are invaluable. As we have pointed out in Chapter-1 the present analysis is based on secondary data; therefore essentially limited. It is based on data on internal migration as published by the Registrar General of India, New Delhi in the various volumes of the Census of India. For our analysis, only 15 major Indian States (viz. Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal) have been considered. Data pertaining to the newly formed States, such as, Chhattisgarh, Jharkhand and Uttarakhand are not separately available on a temporal basis. These States constitute parts of the pre-partition States of Madhya Pradesh, Bihar and Uttar Pradesh respectively.

3.2 Analytical Approach

State-wise data on migration (in numbers and the percentage) are tabulated first and then the States are ranked according to percentages in descending order of magnitude, that is, the State with the largest share as net migrants gets the first rank. The ranking of States is done for three time points viz. 1981, 1991 and 2001 as the Census data only pertains to decennial years. The stability of the pattern of migration across the States was examined with the help of rank correlation coefficient (r).

Similarly, the levels of development were measured by the magnitude of per capita State Domestic Product (SDP) as well as by computing development indices drawn from a set of socio-economic indicators. Several techniques have been used in regional studies to measure the magnitude of regional disparities in economic development. The Coefficients of Variation (CV) is the measure often used to indicate the extent of disparities in development.

To compute development index from a set of indicators, three techniques are commonly. Indexing method has is used in this study, which is discussed below.

3.3 Indexing Method

In this method, the indicators of different scales are made scale free by dividing the values of the indicators either by their averages or by the national average or by some pre-determined values. Then, the scale free values for each unit or region are added to arrive at an ultimate index. Sometimes, the indicators are to be converted into percentages or reduced to a common base of 100, so that they can be combined.

In the present study, values of each of the indicators are expressed as a percentage of the average value of all the States considered. The percentages of indicators are aggregated separately and the corresponding average for each State is calculated to consider it as the index of development for each State. The State having a higher index value reveals a higher level of development.

The ranking and indexing techniques though simple, are subject to certain limitations. The drawback of these two techniques is that they give equal weight to all indicators unless the researcher allocates some weights to all indicators according to subjective preferences. Instead of using judgment or subjective weights, weighting pattern may be derived from the data themselves. It is normally observed that most of the variables applied in socio-economic development analysis are inter-related. The application of multiple regressions is not feasible due to the problem of multicollinearity. Kendall (1939) developed a composite index formula for simultaneously inter-dependent variables. Principal component analysis (PCA) procedure allocates weights according to the strength of correlation between the combined index and its constituent variables. This index value obtained under the principal component analysis is optimal in the sense that the aggregate correlation that is accounted for by such a linearly combined index with its constituent variables is the maximum. Kendall constructed a composite agricultural productivity index for countries in England as early as 1939. It should be noted that the composite index developed by Kendall's procedure is formally equivalent to what Hotelling (1933) calculated and called a 'first principal component'. Hotelling's principal component; analysis is not

restricted in the determination of only the first principal component, nor does it start with a choice of constituent variables that should be sufficiently inter-correlated. In the field of regional economics, researchers who have used the multivariate techniques include among others are Kundu and Raza (1980), Mitra *et al.* (1981), Rao (1984), Sarker (1989; 1994), Prabhu and Sarker (1992), Sarker and Nayak (1993) and Sarker and Gaur (1994).

3.4 Development Index

Development index has been calculated in the present study using the indexing method. The composite index is based on 14 indicators of development. These indictors are representative of agricultural, industrial and socio-economic infrastructure of a given State.

An indicator may be viewed as a combination of matters of fact (data) and matters of relation (theory), and is constructed through a "correct sequence between factual and logical order" Bell (1974). Thus, an indicator should not be only a pure numerical figure but it should convey the implications of the underlying functional form in the situation and be relevant for the theoretical framework adopted.

According to Mcgranahan (1972): " Economic and Social indicators are not simply statistics, and statistics are not ipso-facto indicators - unless some theory or assumption makes them so by relating the indicator variable to a phenomenon that is not what it directly and fully measures". Kundu (1980) pointed out in this regard that indicators "should emerge from the analytical frame in which the term denoting the phenomenon has meaning and relevance". Thus, selection of indicators is a crucial step in empirical analysis.

A development indicator represents some aspects of development, such as industrialisation, electrification, health and education. It may be a direct measure of an economic or social variable or, more often, an indirect measure of some non-measurable phenomenon. Opinions differ with regard to the boundaries of indicators. Drewnowski (1972), for example, argued that indicators should be limited to observable and measurable phenomena. Rao (1975) advocated "if a selection is to be made, one has to select key indicators, most effectively reflecting the goals of development and progress towards the goals. In general, output and input indicators are more useful for purposes of management,

but if the improvement in the efficiency of the service itself is one of the goals of development, an indicator relating input and output may be useful".

It is, normally, observed in the literature on selection of indicators, especially in case of socio-economic development, that they represent both inputs as well as final output of the sector simultaneously, which needs to be avoided. Actually, the characteristics of high growth rates and high development levels in developed regions, are essentially on account of the existence of a high level of development in the productive forces and favourable social conditions to use them in the process of production; Mishra (1985). Gothoskar (1988) also expressed a similar view and he termed 'real' development as the potential created for future growth. He said, "with this definition of 'real' development, we will evolve indicators of real development from the indicators of 'potential' created in the economy for future growth and development. However, these indicators would differ from country to country, depending on particular circumstances and objectives of economic plans". Taking a similar view in this respect, only those indicators, which reflect physical as well as financial inputs into the development of various sectors of the economy, are considered in the present study.

These indicators are scaled by dividing the variables suitably with population, geographical area or gross cropped area (GCA) of the State for uniform representation of data in the index. Three indicators from agriculture: GIGCA (Gross Area Irrigated as a Percentage of Gross Cropped Area) as availability of irrigation is a sign of agricultural development, FCGCA (Fertilizer Consumption per Hectare of Gross Cropped Area), and PCAGR (Per Capita Power Consumption in Agriculture) as indicators of advancement of the agriculture; these three represent the certainty of cultivation, most important input and utilisation of the input variables respectively. They are also only the input variables. Five indictors from industry: RWFLP (Number of Registered Working Factories per Lakh Population), ADELP (Average Daily Employment per Lakh Population), PCIND (Per Capita Power Consumption in Industry), FCPW (Fixed Capital per Worker), and SSIPL (Small Scale Industries per Lakh Population); these five variables together represent the labour absorptive capacity of the industries, which is important for a populous economy like ours in which labour-intensive production is desirable, at the same time power consumption and fixed capital per worker represent the efficiency of these industries. Six socio-economic indicators selected are the following: PVELE (Percentage of Village Electrified), RLPLP

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(Road Length per Lakh Population), PCEED (Per Capita Expenditure on Education), PCEHL (Per Capita Expenditure on Health), BOTLP (Number of Bank Offices per Ten Lakh Population), and POUPS (Percentage of Urban Population). The socio-economic variables have the capacity to reflect the 'real' development or the potential for future growth. These 14 variables together are considered for the calculation of the composite index and they satisfy the criteria of their selection as has been laid down in the literature. The indictors used here are the standard in literature but they are not used in one place and for the different time points and for similar purposes elsewhere. In the selection of indicators, the number of indicators has been chosen from the three broad categories based on the contribution to the economy of the three different sectors: agriculture, industry and services. The values of indicators are divided by their respective means and hence they are in terms of percentages of the national average. The scores for individual indicators are summed up to arrive at the value of the composite index. Since, we consider 14 indicators the national average of the index value is 1400. Therefore, States having the value of composite index exceeding 1400 are considered above average State. Similarly, a value less than the average qualifies a State as below average State in terms of Development.

3.5 Conclusions

The analysis of data on inter-state migration, differences in income (pcSDP) and level of development is carried out using several techniques. Ranking is employed to examine the changes in the levels of inter-state migration and per capita income. Indexing Method is used to arrive at a measure of change in the levels of development. Rank Correlation is used to understand the relationship among the development indicators/indices and internal migration. Another objective of using Rank Correlation is to check the stability in relative positions (ranks) of major States at different points of time with regard to a given indicator. Averages, Standard Deviations, and Coefficient of Variations, which are simple but very effective tools of statistics, are used in this study to make comparisons and arrive at conclusions with regard to the set of data being considered. This study has used simple tools to deal with a rather challenging issue.

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Chapter 4

Linking Migration and Development in India

4.1 Introduction

As already stated, this dissertation aims at establishing the link between inter-State migration and inter-State disparities in levels of development. In chapter 3, we described the methods used for calculating the levels of development, regional disparities in development and inter-State migration. In this chapter, we first calculate regional disparities in terms of per capita SDP (pcSDP) and development index in terms of a number of variables pertaining to agriculture, industry and socio-economic infrastructure. Then, we calculate migration in terms of Net Migration Rate (NMR) and Net Male Migration Rate (NMMR). Finally, the chapter explores the relationship between measures of regional disparities and levels of inter-State migration in terms of both inward migration (in-migration) and outward migration (out-migration).

4.2 Income (SDP) as Measures of Economic Development and Disparities in Income

Economic development of a country may be measured in terms of several indicators. While adopting a single indicator for development, per capita income is normally used to measure the levels of development. Admittedly, comparisons of per capita income are, at best, only rough indicators of relative levels of development, as income statistics do not include all the flow of goods and services produced in a society. " They exclude barter transactions and much of the economic activities represented by home-produced and home-consumed output, and they do not take into account the domestic services of house-wives, the service of the consumer durables, or the services of social overhead capital" {Adelman (1962), p.2}. Yet, per capita income is considered for single variable (indicator) analysis despite its known deficiencies when the goal is to arrive at a preliminary understanding of the level of disparities across States. According to Herrick and Kindleberger (1983) "Per capita incomes are used as development indicators despite their sensitivity to the presence of very high incomes" (p.144). Per capita State Domestic

Product (pcSDP) at constant price is considered as 'income' of the State in this exercise as a proximate measure of the level of development.

The main hypothesis that has to be examined here is that inter-State disparities have increased over the study period. We have considered the period from 1980-81 onwards only, that is, one decade prior to liberalisation and almost an equal period after liberalisation. The following sub-hypotheses have been formulated for more detailed examination of the main hypothesis:

1. The gap in incomes between the Highest Income States and the Lowest Income States has widened.

2. Inter-State disparities in income (i.e. per capita SDP) have increased over the period of study.

A major problem in analyzing SDP is that comparable data on SDP for a fairly long period pertaining to all the States are not readily available. This first task is therefore to generate comparable data on SDP series. We have considered SDP at constant price or real per capita SDP. The data have been collected for 15 major States from 'Estimates of State Domestic Product' as published by the Central Statistical Organisation (CSO), New Delhi. A three-yearly average of per capita SDP is used for the ranking the States as it is considered to be an appropriate technique to remove year-to-year fluctuations. This method provides more authenticity to the ranking of States than an annual per capita SDP figures. After calculating three-yearly averages, the States are ranked in the descending order; that is, the highest income State is allotted the highest rank and the data on ranking are presented in Table-1.

It is observed that Punjab had, at most of the time-points (except that in 1998-01 and 2001-04 it was Maharashtra), the highest per capita income among the fifteen selected States. However, we consider only five time-points for presenting data in Table-1. Table-1 makes it clear that the ranks based on three-yearly averages of the pcSDP have remained stable over the study period. Throughout the study period, the top four positions have remained with Punjab, Haryana, Maharashtra and Gujarat and bottom five positions have mostly remained with Bihar, Uttar Pradesh, Orissa, Madhya Pradesh and Rajasthan (Assam being an exception for the last two time points, with the twelfth position).

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Table 1: Ranking of States According to Per Capita SDP

States	1980-83	1986-89	1992-95	1998-01	2001-04
Andhra Pradesh	10	9	9	8	8
Assam	6	5	5	12	12
Bihar	15	15	15	15	15
Gujarat	4	4	4	3	2
Haryana	2	2	2	4	4
Karnataka	8	8	7	6	6
Kerala	9	10	10	7	7
Madhya Pradesh	11	12	12	11	11
Maharashtra	3	3	3	1	1
Orissa	14	14	14	12	13
Punjab	1	1	1	2	3
Rajasthan	13	11	11	10	10
Tamil Nadu	7	7	6	5	5
Uttar Pradesh	12	13	13	13	14
West Bengal	5	6	8	9	9

Source: Compiled from 'Estimates of State Domestic Product', CSO

It may be concluded from Table-1 that the top and the bottom positions have shown little tendency to change, implying absence of any catching up phenomenon at work among the less developed States. For examining the stability in the ranking pattern, we calculate the rank correlation coefficient. The results are presented in Table-2. A high value of rank correlation makes our hypothesis stronger that the ranks as such as a measure of relative position, have remained stable through out the study period. The highest correlation coefficient exists between the ranks observed in 1989-92 and in 1995-98.

Table 2: Stability of Rank based on Per Capita SDP

Period	1980-83 & 1989-92	1989-92 & 1995-98	1980-83 & 2001-04
Rank Correlation	0.982	0.996	0.825

Source: Compiled from 'Estimates of State Domestic Product', CSO.

The disparity in the levels of development among the States is measured by taking the ratio between the highest per capita SDP and the lowest per capita SDP. It is observed from Table 1 that Punjab was the highest except 2003-04 and Bihar was the lowest income States for all time points. The calculated ratios between them are presented in Table-3.

Table-3 makes it clear that the distance between the lowest income State and the highest income State has increased over the study period 1980-2004.

Table 3: Ratios between highest and lowest pcSDP

Years	1980-81	1990-91	2000-01	2003-04
Ratio between highest and lowest pcSDP	2.84	3.28	3.87	4.81

Source: Compiled from 'Estimates of State Domestic Product', CSO.

Further, we calculate also the ratios for a group of States rather than the single highest income and the single lowest income State in order to increase its comparability and stability. Thus, we have considered three highest and three lowest income States (Table-4).

Table 4: Ratio between 3 Highest and 3 Lowest Income State

Period	1980-81	1990-91	2000-01	2003-04
Ratio Between 3 highest and 3 lowest income States	2.17	2.48	2.84	3.13

Source: Compiled from 'Estimates of State Domestic Product', CSO.

Table-4 strengthens the conclusion that increasing differences in per capita income are true not only at the extremes but also for the groups of the 3 lowest and the 3 highest developed States. In general, it is thus proved that the inter-State disparities in income have increased over the study period.

Table 5: Calculation of SD and CV for incomes of major States of India

Years	1980-81	1985-86	1990-91	1995-96	2000-01	2003-04
Average Per Capita SDP	1836.4	2110.53	2551.47	3038.73	11281.53	12584.33
Standard Deviation	556.47	705.00	849.53	1133.29	4429.19	4856.88
Co-efficient of Variation	30.30	33.40	33.30	37.29	39.26	38.59
1980-81series				1993-94 series		

Source: Compiled from 'Estimates of State Domestic Product', CSO.

In the above calculation, we have considered 2 States and 6 States for calculating ratios in Table 2 and Table 3, respectively. If one wants to involve the magnitudes of per capita SDP for all States for measuring disparities in income, the standard deviation (SD) and co-efficient of variations (CV) are the ideal measures. Thus, we also calculate these measures

and present them in Table 5. A decreasing coefficient of variation (CV) is an indication of the absolute convergence while increasing CV is indication of divergence.

The above result shows that the disparity in income among the major States has increased over the study period. The Standard Deviation for per capita income has increased from 556.47(1980-81 series) in 1980-81 to 4856.88(1993-94 series) in 2003-04. It also shows that the Coefficient of Variation has increased from 30.30 in 1980-81 to 38.59 in 2003-04 implying that the disparity in income has gone up with the increase of income.

Table 6: Ranking Based on the Growth Rates of pcSDP of Major States

States	Ranks (1980-90)	Ranks (1990-2000)
Andhra Pradesh	4	11
Assam	1	4
Bihar	11	15
Gujarat	6	1
Haryana	5	13
Karnataka	9	6
Kerala	13	7
Madhya Pradesh	10	12
Maharashtra	7	3
Orissa	15	8
Punjab	8	10
Rajasthan	2	9
Tamil Nadu	3	5
Uttar Pradesh	12	14
West Bengal	14	2

Source: Compiled from SDP data.

Further, we have tried to examine whether the backwards States are growing in the same pattern in both the decades of the 'eighties and the 'nineties. Some of the backward States like Assam and Rajasthan, which had higher growth rates in SDP in the eighties, had raised the hope of catching up with the advanced States. It is a fact that the poorer States' pcSDP growth rates are growing off with much smaller bases compared to those of richer States and that the growth rates are base dependent. Ranking based on pcSDP growth rates of 15 major States of the Indian Union in the 1980s and the 1990s have raised the hope of the convergence of income in terms of pcSDP (Table-6) but this hope has been belied because the poor States could not maintain the tempo of development in the latter period. With the

start of liberalisation, the advanced States (as per capita SDP) like Gujarat, Maharashtra, West Bengal and Tamil Nadu started to grow at rapid rates. The low value of rank correlation coefficient of growth rates between two decades shows that there exists little relationship in growth rates between these two decades; that is, the growth patterns of the two decades have been different. The rank correlation co-efficient of 0.14 makes the point clear.

4.3 Development Index based on Socio-Economic Indicators and Disparities in Development

Development measured in terms of per capita income is subject to several criticisms. It fails to reflect the up gradation in the quality of life that may have taken place due to economic development. This shortcoming poses to regional economists the question of selecting appropriate indicators for measuring the level of development or backwardness. the analysis of disparities would become more meaningful if a set of indicators of various dimensions is considered rather than the single variable of SDP alone.

The choice of indicators invariably depends upon the purpose of analysis and the availability of data. Having chosen a large number of indicators, the problem arises as how to combine the multiple indicators having different types of scales (or units of measurement) so as to give a common index of development, which would reflect the true state of development in the economy. Researchers in regional economics have used several methods and techniques. Most of the techniques were originally developed in other fields such as mathematics, statistics, psychology and anthropology. The most commonly used techniques for aggregating development indicators are ranking, indexing, principal component analysis, factor analysis, and multi-dimensional scaling. In this exercise, the composite Index of Development is calculated based on 14 variables (Appendix II) pertaining to agricultural and industrial development, and economic and social infrastructure. As discussed in Chapter 3, the Indexing method is used for compiling composite indices for various States. Ultimately 'development index' is calculated for three points of time and the results are presented in Table-7.

The Table-7 shows that Bihar was the least developed State followed by Assam and Uttar Pradesh in that order in 2000-01. The relative position of West Bengal deteriorated from the

level of 1980-81, during 1990-91 but it regained its position in 2000-01. Punjab was the most developed State at all three points; Haryana also maintained its second rank throughout. After computing the indices, the States are ranked according to the magnitude of their indices; see Table-8. The ranks based on development indices show that there has been a tendency for the ranks to remain stable over the study period, except in a few cases such as West Bengal. So, in this case also we calculate the rank correlation co-efficient; see Table-9 for testing the stability in the ranks of the States. The high value of the correlation suggests the stability of ranks in terms of development indicators across time points during the period of study. It also implies that relative positions of the States in terms of socio-economic development indicators have also remained stable.

Table 7: Development Index based on 14 indicators

Year\State	1980-81	1990-91	2000-01
Andhra Pradesh	1501.33	1434.05	1451.14
Assam	641.06	769.58	798.04
Bihar	920.21	964.46	769.42
Gujarat	1663.08	1666.83	1931.91
Haryana	1966.54	1885.87	1945.99
Karnataka	133.57	1417.00	1576.70
Kerala	1544.32	1412.19	1218.09
Madhya Pradesh	1020.53	1113.39	1121.96
Maharashtra	1575.96	1531.62	1547.11
Orissa	903.77	1191.71	1077.49
Punjab	2720.74	2643.35	2398.46
Rajasthan	1202.78	1211.79	1177.19
Tamil Nadu	1706.03	1596.38	1846.56
Uttar Pradesh	1017.12	1084.54	958.38
West Bengal	1282.95	1087.24	1181.56

Source: Author's calculation

Note: Original data collected from various volumes of Statistical Abstract of India, CSO and Publications of CMIE.

Table 8: Ranks based on Development Indicators

Year \ States	1980-81	1990-91	2000-01
Andhra Pradesh	7	6	7
Assam	15	15	14
Bihar	13	14	15
Gujarat	4	3	3
Haryana	2	2	2
Karnataka	8	7	5
Kerala	6	8	8
Madhya Pradesh	11	11	11
Maharashtra	5	5	6
Orissa	14	10	12
Punjab	1	1	1
Rajasthan	10	9	10
Tamil Nadu	3	4	4
Uttar Pradesh	12	13	13
West Bengal	9	12	9

Source: **Table 7**

Table 9: Stability of Rank based on Development Index

Period	1980-81 & 1990-91	1990-91&2000-01	1980-81 & 2000-01
Rank Correlation Co-efficient	0.94	0.96	0.95

Source: Table 8

For comparison of the ranking patterns based on per capita SDP and Development Index, we present them in Table-10 for the year 1981, 1991 & 2001. They show how a higher per capita SDP is related with other development indicators. There is some drastic variation for some State like Assam, which has ranked 5th in terms of per capita SDP but remained at the bottom as per development index. A likely explanation emerges in terms of its disadvantages in terms of the indicators chosen; because of its mountainous terrain its physical infrastructure and agriculture indicators score very lowly. Punjab maintains its top position on both counts. Haryana was the 3rd on per capita SDP basis and 2nd on development index, more or less, maintained its higher level of development. Normally, the States with higher incomes also have higher development index. To examine the relationship between pcSDP and Development Index, the rank correlation between ranks

based on the development index and pcSDP is calculated. The value of rank correlation coefficient is 0.74, 0.67 and 0.93 for the year 1981, 1991 and 2001 respectively, which indicates a fairly good relationship (association) between the two (especially the last time point). Therefore, it may be concluded that pcSDP can be relied upon for representing the level of development, for purposes of further analysis.

Table 10: Comparison of Ranks based on Development Index and SDP for the year 1981, 1991 & 2001

Period	1981	1991	2001
Rank co-relation	0.74	0.67	0.93

4.4 Inter-State Migration in India

The data on Inter-State Migration have been taken from different volumes of the Census of India. We have considered data for past three censuses viz., 1981, 1991, and 2001. The data are presented in Table-11 and Table-12.

Table 11: Inter-State Migrants in India (in millions)

Years	1981	1991	2001
Migrants	23.2	27.3	43.2

Source: Census of India 1981, 1991, 2001

Table-11 shows that inter-State migration has almost doubled during the past two decades. The earlier section has shown that disparities in income and development have increased as well, over the past two decades.

Table-12 gives us a preliminary idea of the magnitude of inter-State migration in India. In general, females form a larger proportion of inter-State migrants (57.1%). Urban males and females are found to be more mobile than their rural counterparts. Urban males are three times more mobile than rural males. Urban females are found to form a greater proportion of the total female migrants.

Table 12: Inter-State Migration in Major States of India in 2001

Migration	Percentage	Population
Total Inter-State Migrants	3.1	30434845
Total Population (of Major States)	100	982317836
Male Migrants to Total Migrants	42.9	13748024
Female Migrants to Total Migrants	57.1	18290019
Rural Male Migrants to Male Migrants	24.2	3320293
Urban Male Migrants to Male Migrants	75.8	10427731
Rural Female Migrants to Female Migrants	43.2	7894039
Urban Female Migrants to Female Migrants	56.8	10553326

Source: Compiled from D-Series, Census of India, 2001

Further we calculate the net migration rates for 15 States. This exercise is undertaken to make the Net Migration Rate of 2001 Census comparable with Net Migration Rate of 1991 Census. This is necessitated because the readily available figure on NMR-2001 has been also calculated for the bifurcated States viz. Jharkhand, Uttarakhand, and Chhatishgarh. Therefore, we need adjustment for NMR-2001 data for all States (Table-13). This is done by taking inflows into the newly formed States as inflow of population into the undivided parent States and the population movement between the parts of the parent States have been ignored, as they are not the part of inter-State movement for the parent States. Such adjustments are incorporated for other States also. The comparative NMR figures for 1991 and 2001 are given in Table 14.

The net gainer States are seen to have been the developed States i.e. the States ranked higher on per capita income as well as development index terms. At the same time, the net loser States are the backward and the lowly ranked States. It is however observed that the ranking pattern of NMR of States has not changed between the 1980s and the 1990s.in order to verify the validity of general observations we calculate the rank correlation co-efficient, which is found to be 0.88. Andhra Pradesh, Bihar, Kerala, Rajasthan, Tamil Nadu, Orissa and Uttar Pradesh have been net loser States in 2001. Except for Orissa, all other States were net loser States in 1991 as well. Orissa was net gainer (with NMR=1) in 1991 has become a net loser State in a big way (NMR=-15) in 2001.

Assam, Gujarat, Haryana, Karnataka, Maharashtra, Madhya Pradesh, Punjab and West Bengal have been net gainer States at both the time points. Madhya Pradesh and

Assam are the two possible exceptions; even though they are backward States, they have positive NMRs (Table-15).

Table 13: Calculation of Net Migration Rates for various States in India: 2001

States	In-migrants	Out-migrants	Net migration	Total Population	NMR
Andhra Pradesh	989503	1555410	-565907	76210007	-7
Assam	463328	379392	83936	26655528	3
Bihar (UD)	2100894	4518188	-2417294	109944338	-22
Gujarat	2473809	1269904	1203905	50671017	24
Haryana	2334321	1078236	1256085	21144564	59
Karnataka	2034676	1818652	216024	52850562	4
Kerala	395441	1092130	-696689	31841374	-22
Madhya Pradesh (UD)	2780477	2436592	343885	81181826	4
Maharashtra	7587822	1999558	5588264	96878627	58
Orissa	653378	1193576	-540198	36804660	-15
Punjab	1426036	1060873	365163	24358999	15
Rajasthan	1674775	2435472	-760697	56507188	-13
Tamil Nadu	691186	1425216	-734030	62405679	-12
Uttar Pradesh (UD)	2389589	6662287	-4272698	174687270	-24
West Bengal	2439610	1509359	930251	80176197	12

Source: Compiled from Census, 2001 (D-series)

The Rank Correlation Co-efficient is 0.88 between the ranks at the two time points. A high rank correlation between NMR-based ranking in descending order for the two time points 1991 and 2001 suggests a stability in the pattern of inter-State migration over the last two decades. That means the relative positions of these States have remained almost unchanged over the decades. Losing States have continued to lose population while the gaining States have gained in population over the study period. There is no doubt that migration is an important livelihood strategy in India and the above result emphasises the point that in the absence of opportunities in the backward States of India population is forced to look elsewhere for the survival. While developed States are attractive destinations for these migrants the effect on the source and destination areas are dependent both on the volume as well the composition of such migration streams.

In this context the analysis of the characteristics of the migrants can give us some clue about the consequence of such migration on the development of the States involved in this exchange of population.

Table 14: State-wise Comparison of Net Migration Rates between the decades

States	Net Migration Rate-1991	Ranks on NMR-1991	Net Migration Rate-2001	Ranks on NMR-2001
Andhra Pradesh	-4	10	-7	9
Assam	24	4	3	8
Bihar (UD)	-22	13	-22	14
Gujarat	17	6	24	3
Haryana	28	3	59	1
Karnataka	4	8	4	7
Kerala	-24	14	-22	13
Madhya Pradesh (UD)	19	5	4	6
Maharashtra	34	2	58	2
Orissa	1	9	-15	12
Punjab	15	7	15	4
Rajasthan	-8	12	-13	11
Tamil Nadu	-6	11	-12	10
Uttar Pradesh (UD)	-27	15	-24	15
West Bengal	59	1	12	5

Source: Census of India, 1991 & 2001

4.5 Characteristics of Migrants

Migrants consist of both rural and urban migrants as well as male and female migrants. The composition of migrants differs from State to State. It is expected that males move across regions for economic reasons while females follow men. So, male migration is expected to be on the higher side. This pattern may not be true for all States though (Table-15).

A higher sex-ratio (female to male) of in-migrants is the characteristic of under-developed States. The States lowly ranked in terms of income and development index have gained more female in-migrants than male in-migrants through inter-State migration. Women's migration is undertaken mainly for non-economic reasons such as marriage and accompanying husbands. It may result in a higher dependency ratio for the already backward States. The lower proportion of the working population than dependent population means a lowering of per capita income as well.

Table 15: State-wise Sex Ratio of In-Migrants and Out-Migrants (Female to Male)

States	Sex Ratio of In-Migrants	Sex Ratio of Out-Migrants
Andhra Pradesh	1.62	1.35
Assam	0.77	2.08
Bihar (UD)	4.44	0.80
Gujarat	0.74	1.31
Haryana	1.41	2.97
Karnataka	1.21	1.39
Kerala	0.96	0.93
Madhya Pradesh (UD)	1.73	2.07
Maharashtra	0.75	1.60
Orissa	1.53	1.45
Punjab	1.02	1.49
Rajasthan	2.23	1.44
Tamil Nadu	1.17	0.98
Uttar Pradesh (UD)	2.34	0.91
West Bengal	0.84	1.40

Source: Calculated from D-Series, Census of India, 2001

On examination of the sex ratio shown in Table-15 it is observed that a lower female to male ratio among out-migrants is found to be the characteristics of a less developed States. Loss of more males than females is the bane of less developed States. Bihar, Uttar Pradesh and Rajasthan have the highest sex-ratio among in-migrants (larger proportion of female in-migrants) and they are also the least developed States in the country. Developed States have lower sex-ratios (smaller proportion of female in-migrants) except Madhya Pradesh. The contrast is clear at the two ends of the spectrum, the lowest developed States and the highest developed States.

Characteristics of out-migrants are considered important from the point of view of economic development. Human capital is an important prerequisite for development. If a State is able to retain good quality human capital and attract it from other States it stands to gain from inter-State migration. Similarly, a loss of human capital would act as a roadblock to development.

The general perception is that people move from rural to urban areas for better jobs and for improved living conditions. It is expected to be a one-way traffic. But data for in-migrants in backward States present a different picture. A higher proportion of rural in-

migrants are observed in a backward State a developed State having more urban migrants resulting in a lower rural-urban ratio (Table-16). Human capital is being added to the traditional rural sector in the less developed States while it is in the modern sector located in urban areas in the developed States. So, the gains from migration are obviously higher for the developed States.

Bihar, Uttar Pradesh, Kerala, and Rajasthan have high rural-urban ratios of in-migrants and they are all less developed States. For every urban migrant while Bihar has two and half rural migrants, while Kerala and Uttar Pradesh have one and half rural migrants. Maharashtra, Gujarat, Punjab, Tamil Nadu and West Bengal, have low rural-urban ratios and except for West Bengal all other States are developed States. While Gujarat has four urban migrants for every rural migrant the corresponding figure is five for Maharashtra.

In general, inter-State migration is more amongst the urban migrants. A preliminary look at the rural-urban ratio seems to be confounding but it tells the same story as the rural-urban ratio of in-migrants. Though a lower proportion of urban migrants are cross the State boundaries from the less developed States these proportions are much higher than the proportion of urban population in total population. It also suggests a loss of better quality human capital for the less developed States, since a smaller rural-urban ratio is indicative of loss of urban population to other States and as has already been discussed. The increase in the proportion of inferior quality of human capital (high rural-urban ratio amongst the in-migrants), is based on the argument that since the infrastructure facilities are concentrated in the urban areas of the less developed States their consumption of public goods is higher hence they should produce better quality human capital.

Table 16: Rural-Urban Ratio of the In-Migrants and Out-Migrants

States	Rural-Urban Ratio of In-Migrants	Rural-Urban Ratio of Out-Migrants
Andhra Pradesh	1.00	0.53
Assam	0.97	1.28
Bihar (UD)	2.43	0.55
Gujarat	0.28	0.26
Haryana	0.98	1.40
Karnataka	0.58	0.61
Kerala	1.58	0.20
Madhya Pradesh (UD)	0.60	1.45
Maharashtra	0.19	0.63
Orissa	0.92	0.99
Punjab	0.62	0.91
Rajasthan	1.28	0.63
Tamil Nadu	0.27	0.44
Uttar Pradesh (UD)	1.52	0.36
West Bengal	0.37	0.72

Source: Calculated from D-Series, Census of India, 2001

4.6 Relation between Inter-State migration and Level of Development

In this section the association between the level of development of State and inter-State migration is examined. Having examined both the level of development and inter-State migration pattern in the previous sections, we may turn to examination of their relationship. This relationship is analysed examining in terms of the value of the rank correlation co-efficient between the ranks, based on development indicators and inter-State migration rate. States have been arranged in the descending order of incomes (pcSDP) and migration rates (NMR). Higher income States and States with higher migration rates have been ranked higher (Table-17). This analysis is conducted with the expectation that high income States are attractive destinations particularly for the migrants from low income States.

The calculated value of Rank Correlation co-efficient is 0.67 for the year 1991. A high value of rank correlation coefficient between rank based on pcSDP for 1990-91 and rank based on Net migration Rate-1991 indicates that there exists a significant relationship between income and Net Migration Rate (NMR) of a State. The same exercise has been carried out for 2000-01 (Table-17). The value of the rank coefficient correlation is 0.74 (an improvement over the last period of analysis). A high value of rank correlation coefficient

between ranks based on pcSDP for 2000-01 and rank based on Net migration Rate-2001 indicates a fairly robust relationship between income and net migration rate of the States.

A good rank correlation value for both the time-points also points towards the conclusion that migration and level of development are associated phenomena. The element of chance is dismissed as the hypothesis of the existence of relationship between level of development and migration holds true for both the time points, a finding which cannot be attributed to mere co-incidence.

Table 17: Relation Between Migration and per capita Income: 2000-01

States	2000-01 (PcSDP)	Ranks NMR-2001	1990-91 (PcSDP)	Ranks NMR-1991
Andhra Pradesh	8	9	10	9
Assam	12	8	4	5
Bihar	15	14	13	15
Gujarat	3	3	6	4
Haryana	4	1	3	2
Karnataka	6	7	8	8
Kerala	7	13	14	10
Madhya Pradesh	11	6	5	12
Maharashtra	1	2	2	3
Orissa	14	12	9	14
Punjab	2	4	7	1
Rajasthan	10	11	12	11
Tamil Nadu	5	10	11	7
Uttar Pradesh	13	15	15	13
West Bengal	9	5	1	6

Source: Census of India, 2001

4.7 Relation between Net Male Migration Rate and Per Capita Income

We now examine whether the removal of the female component from the inter-State migration leads to any change in the relationship between inter-State migration and development. This exercise is carried out to filter out the presumably 'non-economic' component of inter-State migration and to see whether that association works out to be stronger than the general inter-State migration rate. After removing the female migrants from the inter-State migration streams, we have carry out the exercise afresh.

Table 18: Relation between Net Male Migration Rate and Per Capita Income: 2000-01

States	NMMR	SDP Rank
Andhra Pradesh	9	9
Assam	6	5
Bihar	15	15
Gujarat	3	4
Haryana	2	3
Karnataka	7	7
Kerala	13	10
Madhya Pradesh	8	14
Maharashtra	1	2
Orissa	10	12
Punjab	4	1
Rajasthan	12	11
Tamil Nadu	11	6
Uttar Pradesh	14	13
West Bengal	5	8

Source: Author's Calculation

Since, female migration is regarded mainly as 'non-economic' in nature in the Indian context of inter-State migration, Net Male Migration Rate (NMMR) is calculated and the rank correlation between NMMR and pcSDP is worked out. The rank correlation value based on NMMR and pcSDP rankings is found to be 0.825. The resultant rank correlation value is higher than rank correlation value between pcSDP and NMR, implying a stronger association with the movement of males and the level of development. Net Male Migration Rate is a much better measure of the economic component of inter-State migration. Hence, NMMR has proven to be a more acceptable measure of inter-State migration, which is closely associated with economic development.

4.8 Conclusions

The analysis in this chapter has made it clear that inter-State migration and inter-State disparities vis-à-vis the level of development are closely related. It has shown the tendency of the two to increase together. The association between income, development index and various measures of inter-State migration (NMR and NMMR) has established the existence of a strong link among them. Inter-State disparities have increased over the study period. Income-based rankings are found to be equally reliable as is proven by the high correlation with the composite development index. NMR and income-based rankings are

found to be closely associated. NMR includes female migrants, whose movement is largely non-economic in character. Its removal from NMR gives NMMR, which produces a stronger correlation with the levels of income (development).

This analysis, which is based on, the secondary data has looked at proverbially the 'tip of the iceberg'. The phenomenon of inter-State migration is a complex process of migration to take a stand point based on this analysis would be foolhardy with regards to causes and consequences of it. All that it has succeeded in telling is that that the two phenomena of internal migration and regional development are linked phenomenon. Since they have shown the tendency to rise together and the flow is more prominent from less developed States to more developed States their association and direction has been established beyond doubt. As would be expected of such secondary data based studies the process remains to be examined and cause effect relationship needs further probing.

Chapter 5

Summary and Conclusions

5.1 Overview

A review of literature on Regional Development (RD) and Internal Migration (IM) suggest the existence of a relationship between these two (RD & IM), but efforts to link these two strands of literature are however found to be missing. In this dissertation, an attempt has been made to link internal migration with regional development to find out an explanation for the diverse levels of internal migration within the country. Several studies on internal migration have established the existence of the problem and which is of great concern to researchers as well as to policy-makers. The economic and social problems arising from migration have attracted the attentions of economists like Ravenstein, Stark, Simon, Lewis and many others. The migrations rates among the States in India could be attributed to differences in the levels of their development.

In many developing countries, particularly in Asia, low agricultural incomes and agricultural unemployment and underemployment are the major factors pushing migrants towards areas with greater job opportunities. A study of several countries in Asia indicates trends of increasing unemployment and declining income levels of the rural poor. The pressure of population resulting in high man-land ratio has been widely hypothesized as one of the important causes of poverty and rural out-migration. Within a given mode of production, only a part of the labour force can be absorbed by agriculture. Unless the non-crop husbandry sectors (dairying, poultry, forestry, fisheries) and cottage and small-scale industries are capable of absorbing the surplus labour, they must perforce move to urban centres to seek gainful employment.

The pressure of population is certainly not the only cause for increasing unemployment and poverty of some sections of the rural population. Equally important causes seem to be the low rate of investment in agriculture, fragmentation of land ownership, inequalities in the distribution of land and other productive assets, allocative mechanisms, which discriminate in favour of owners of wealth and a pattern of investment and technological change, which is biased against labour. One of the main reasons for this

anti labour bias is the fact that much of the farm technology is imported from labour scarce countries, which favour the use of capital as against the use of labour.

Studies on Regional development in India have thrown some interesting issues. While there is no doubt about the existence of inter-regional disparities, the pattern of these disparities needs to be ascertained. Researchers have come to different conclusions based on the techniques and indicators they have used for their studies. Disparities in development and inter-State migration in existence are related phenomena.

5.2 Major Findings

The level of development of Indian States has been measured in terms of per capita SDP as well as of several socio-economic indicators. It has been observed that the inter-State disparities measured in terms of per capita SDP have increased over the past two decades. Disparities have increased not only between the highest and the lowest income States but also among the major States of India as borne out by the fact that the coefficient of variation (CV) has increased by nearly ten percentage points. There has also been an increase in the ratio between the average of the three highest and of the three lowest income States.

Increasing disparity has not only been in terms of income but also in terms of overall development indicators as calculated such as the composite index of development as is shown in the present exercise. Both the level of development and the inter-State migration flows have been examined separately. Then the relationship between these two is analysed by examining the value of the rank correlation co-efficient between the ranks based on level of development and those based on inter-State migration rates. States have been arranged in the descending order of per capita income (pcSDP) and net migration rate (NMR). A high value of rank correlation coefficient between the ranks based on pcSDP and rank based on NMR indicates that there exists a significant relationship between income and Net Migration Rate in the States.

Another exercise was carried out after filtering out presumably the non-economic component of the inter-State migrations to find out if association worked out to be stronger than the generally used measure of inter-State migration rate. After removing the female

migrants from the inter-State migration stream, we calculated the Net Male Migration Rate (NMMR) and repeated the exercise. The resultant rank correlation coefficient value between pcSDP and NMMR was higher than that between pcSDP and NMR, implying a stronger association with the movement of male migrant and the level of development. Thus, Net Male Migration Rate is found to be a much better measure of the economic component of inter-State migration.

The ranks of States in terms of income and development indices have remained stable implying that the increasing disparity has been accompanied with increasing distance among the same group of States. In other words lagging States have further lost ground to the developed States. The patterns inter-State migration observed are different for the developed States from that of the backward States. The two counts on which they have been found to be different are sex ratio and rural-urban ratio. The less developed States have lost a greater proportion of their urban population to the developed States and they lost more males than females to the developed States. It implies that inter-State migration has been economically more beneficial to the developed States. Loss of better quality human capital by the less developed States has meant that reduction of disparity among the States in the level of development is not in sight so long the present trend in inter-State migration continues. Increasing regional disparities and inter-State migration reinforce each other.

5.3 Policy Implications

Most of the migration studies in developing countries have found that migrants are predominantly young adults and relatively better educated than those who remain at the places of origin. The young have a higher propensity to migrate because the returns on investment in human capital decline with increase in age. On the other hand, the older people tend to develop stronger attachments to their property and family. Moreover, migration for reasons other than employment accentuates age selectivity; for example, migration for marriage and for education is both more frequent in the lower age groups. Educated persons have a higher propensity to migrate, largely because they can earn relatively high incomes in the urban areas. Besides, for them the rural-urban differences in incomes are much greater than those for the less educated. In the case of migration for education, the choice is not simply between better education in the city and poor education

in the rural areas, but additional education exists in the cities and little or no further education facilities exist in rural areas. Further, the acceptability of farming and manual work declines with education, while the attraction of white-collar jobs increases.

The policies of the state exercise a powerful influence on the redistribution of population between the rural and the urban areas. The most significant among these are policies, which foster a concentrated growth of industrial infrastructure in cities, import substitution programmes, which are directed towards meeting the consumption needs of the well-to-do urban classes, and social service investments, which are preponderantly urban biased. Governments have favoured public and social service investments in urban areas, particularly in major urban centres. Similar investments are neglected in rural areas. At the same time, the governments have also engaged in deficit spending in order to provide jobs for the urban unemployed. This has had an inflationary impact on prices and wages in urban areas. The minimum urban wage for unskilled labour has tended to rise rapidly because the urban wage earners have often succeeded in pressuring companies or the government into raising their wages. As a result, the income differential between urban and rural unskilled workers has been increasing and this difference has encouraged further migration from rural to urban areas.

Of the utmost importance, however, is the weight assigned to the agricultural sector in the overall development strategy. Evidence from many Asian countries suggests that the prime objective of supporting agriculture is often to extract the maximum agricultural output with the minimum amount of investment. Such policies invariably reinforce the privileged position of the dominant farming groups, which make further gains through successful lobbying for input subsidies and higher procurement prices for marketable surpluses. Fiscal policies with respect to agricultural income also tend to be regressive, in that it is not easy to tax agricultural surpluses. The cumulative effect of all these have been to make the distribution of agricultural income and wealth increasing egalitarian and to create an environment for investment in capital-intensive technology. Increasing inequality in the rural areas has contributed towards distress migration from rural areas to urban areas. Large landowners have become richer, while small farmers who have found the new technology more expensive and are often more of a risk prone than traditional methods. Ultimately the poor farmers are left behind. Besides, increased productivity and output growth bring down

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prices of agricultural products and it is the small farmers who are mostly hurt due to the use of traditional forms of production at lower price levels, their incomes have dropped. In the absence of price support, many poor or small farmers have been forced to sell out their land to large landowners.

Therefore, if by some mechanism the government is able to stop the flow of urban and educated migrants from backward States to the developed States then there are possibilities of reducing the disparity among the States. Retention of better quality manpower in the less developed States and putting an emphasis on investment in infrastructure and industries in poor States are possibly the ways in which inter-State disparity in development can be brought down and then the flow of inter-State migrants can be arrested and brought down to a desirable level.

The two main secondary sources of data on population mobility (i.e. migration) in India are the Population Census and the National Sample Survey (NSS). These censuses/surveys may furnish only underestimate of the migration flows, such as temporary, seasonal and circulatory migrations, both due to empirical and conceptual constraints. Since such migration and commuting is predominantly employment oriented, the data underestimate the extent of labour mobility. Furthermore, migration data relate to population mobility and not worker mobility, although economic theories of migration are primarily about worker migration. It is not easy to disentangle these, firstly because definitions of migrants used in both surveys (change from birthplace and change in last usual place of residence) are not employment related. Secondly, migration surveys give only the main reasons for migration and that too only at the time of migration. Secondary economic reasons could be asked, as in the case of married women, who are likely to state other reasons for their movement. Another problem is that the migration data relate to stocks of migrants and not to flows, although different policy concerns relate to both stocks (of different ages) and flows. Obviously therefore the present study has a few such limitations. Many of these concerns can be handled only by micro surveys.

Finally, it may be concluded that balanced development of the country both in terms of 'backward and developed States' and 'rural and urban India' should be the important goal of state policies. While movement of population and resources for economic reasons is

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desirable for realising the potential growth of the country, the existing nature and volume of inter-State migration is seen to be unhealthy as it creates a high level of inequality among the States and leads to social and political tensions. The State policies that encourage investment in the rural areas – mainly for agriculture and agro-based industries and non-agricultural cottage industries in villages that have contained to some extent the undesirable fall out of indiscriminate inter-State migration in India. Similarly, investment in the backward States by their respective Governments in the form of public sector investment for creation of infrastructures and industries at par with those of the developed States is essential. In the period of liberalisation, private investors would find it unprofitable to locate their industries in backward States. Thus, if such an eventuality does take place, then the inter-State migration is likely to expand to enormous proportion posing a threat to the unity, integrity and peace of the country.

References

Adelman and Robinson, (1977), Income distribution policies in Developing Countries, Stanford University Press.

Alagh, Y.K. (1973): "Regional planning for Industrial Aspects of Indian Economy", *Indian Journal of Regional Science*, Vol. V, No.2, pp 147-166.

Bhalla G.S. and Alagh Y. (1979): Performance of Indian Agriculture (A District-wise Study), Sterling Publishers, New Delhi.

Bharadwaj, K. (1982): "Regional Differentiation in India: A Note", *Economic and Political Weekly*, Annual Number, April pp. 605-614.

Cashin and Sahay (1996): "Internal Migration, Centre-State Grants, and Economic Growth", IMF Staff papers, Vol.43 No.1

Chattopadhyay, B. and Raza, M. (1975): Regional Development: Analytical Framework and Indicators", *Indian Journal of Regional Science*, Vol. VII, No.1, pp 11-34.

Connell, J., Dasgupta, B., Laishley, R., and Lipton, M. (1976): Migration from Rural Areas: the evidence from village studies (New Delhi, Oxford University Press).

Das, K. (1993): " Planning and Regional Differentiation in India: Strategies and Practices", *Journal of Indian School of Political Economy*, Vol. V, No.4, Oct.-Dec., pp. 603

Dasgupta, B. (1979): Migration and Rural employment", in Land Reform: Land Settlement and Co-operatives, No.1 (Rome, FAO), pp. 23-24.

Dasgupta, D., Maiti, P., Mukherjee, R., Sarkar, S., and S. Chakrabarti (2000): Growth and inter-State Disparities in India, *Economic and Political Weekly*, Vol. 35, No. 27, 2413-2422.

Deshingkar, P. and Daniel Start (2003) 'Seasonal Migration for Livelihoods in India: Coping, Accumulation and Exclusion' Overseas Development Institute, London.

Dhar, P.N. and Sastry, D.U. (1969): Inter-State Variations in Industry, 1951-61", *Economic and Political Weekly*, March 4, pp. 535-38.

Dholakia (1985): Regional Disparity in Economic Growth in India, Himalaya Publishing House, Bombay.

Dholakia (1994): Spatial Dimension of Acceleration of Economic Growth in India", *Economic and Political Weekly*, August 27, pp. 2303-2309.

Findley, S. (1977): Planning for internal migration: A review of issues and policies in developing countries (*Washington, DC, US Department of Commerce, Bureau of the Census*).

Harris, J.and Todaro, M.P. (1970): "Migration, Unemployment and Development: A two-sector Analysis", *American Economic Review*, Vol. 60, No. 1, pp. 126-42.

Hathaway, D. E. (1964): "Migration from agriculture: historical records and its meaning", in C. Eicher and L. Witt (eds.): Agriculture in Economic Development, *New York, McGraw Hill*.

Johnson, G.E. and Whitelaw W.E (1974): "Urban- Rural income transfers in Kenya: An estimated remittances function", *Economic Development and Cultural Change*, Vol. 22, No.

Kravis, I.B. (1973): "A world of unequal incomes", *Annals of the American Academy of Political and Social Science*, Vol. 409, pp. 61-80.

Kundu, A. (1980): Measurement of Urban Processes: A Study in Regionalisation, Popular Prakashan Pvt. Ltd., Bombay.

Kundu, A. and Gupta, S. (1996): "Migration, Urbanisation and Regional inequality" *Economic and Political Weekly*, Vol.29, No.11, March 12, pp. 621-633.

Kundu, A. and Raza, M. (1982): Indian Economy: The Regional Dimension, Spektrum Publishers and Distributors, New Delhi.

Kundu, Amitabh and Niranjan Sarangi (2007): 'Migration, Employment Status and Poverty: An Analysis across Urban Centres' *Economic and Political Weekly January 7, 2007*.

Lee, E.S. (1966): "A theory of migration, *Demography*, Vol. 3, No. 1, pp. 47-57.

Lewis, W.A. (1954): "Economic Development with Unlimited supplies of labour", *The Manchester School of Economic and Social Studies*, Vol. 22, pp. 139-191.

Marjit and Mitra (1996): "Convergence in Regional Growth Rates: Indian Research Agenda", *Economic and Political Weekly*, Vol. 31, No.-33.

Mathur, A. (1983): Regional Development and Income Disparities in India: A Sectoral Analysis", *Economic Development and Cultural Change*, Vol.31, No. 3, April, pp. 475-505.

Mitra, A. (1964): Levels of Regional Development in India, Census of India, Vol.1, Part I- A (i), New Delhi.

Nagraj R, Varoudakis, A. and A. Veganozones (1997) Long- run Growth trends and convergence across Indian States, mimeograph, IGIDR, Mumbai.

Nair, K.R.G. (1985): Inter-State Income Difference in India, 1970-71 to 1979-80" in G.P.Mishra *(1985)*, op. cit., pp 1-17, Part II, July.

Raj, K.N. (1961): "Some features of Economic Growth in the Last Decade in India", *Economic and Political Weekly*, Twelfth Annual Number, February, pp. 253-71.

Ranis, G. and Fei, J.C.H. (1961): "A theory of Economic Development", *American Economic Review*, Vol. 51, No. 4, pp. 533-565.

Rao, Hemlata (1985): Inter-State Disparities in Development", in G.P.Mishra *(1985)*, op. cit., pp 68-102.

Rao, S.K. (1973): "A note on Measuring Economic Distance between Regions in India", *Economic and Political Weekly*, April 8, 1973, pp. 793-800.

Ravenstein, E.G. (1885): "The laws of migration", *Journal of the Royal Statistical Society* Vol. 48, No. 2, pp. 167-227.

Ravenstein, E.G. (1889): "The laws of migration", *Journal of the Royal Statistical Society* Vol. 52, No. 2, pp. 241-301.

Rodgers, G.B. (1981): Migration and income distribution (World Employment Programme, Geneva, ILO Publications.

Rogaly, B. Jhuma Biswas, Daniel Coppard, Abdur Rafique, Kumar Rana, Amrita Sengupta (2001): 'Seasonal Migration, Social Change and Migrants' Rights Lessons from West Bengal', *Economic and Political Weekly*, December 8, 2001.

Roy Choudhary, Uma (1993): "Inter-State and Intra-State Variations in Economic Development and Standard of Living", New Delhi: National Institute of Public Finance and Policy.

Sarker, P.C. (1989): "Measurement of Imbalances in Regional Development in India: Graphical Approach", RBI Occasional Papers, Vol. 10, No.1, pp1-37.

Sarker, P.C. (1994): "Regional Imbalances in Indian Economy over Plan Periods", *Economic and Political Weekly*, Vol.29, No.11, March 12, pp. 621-633.

Sarker, P.C. and Prabhu, K.S. (1995): "Regional Dimension in Indian Development: A Correspondence Analysis Approach", *Indian Journal of Applied Economics*, Vol.4, No.4, July-September, pp. 55-80.

Sengupta, P. and Sdasyuk, G. (1968): " Economic Regionalisation in India- Problems and Approaches", Census of India 1961, Monograph No.8, Registrar General & Ex-Officio Census Commissioner for India, Govt. of India, New Delhi.

Simon, S.R. (1966): Changes in income, consumption and investment in an Eastern Uttar Pradesh Village between 1954-1964, New York, Cornell University.

Sjaastad, L.A. (1962): "The costs and returns of human migration", *Journal of Political Economy*, Oct., Part 2, pp. 80-93.

Skeldon, Ronald (1997): 'Migration and Development: A Global Perspective': Longman, Malaysia.

Srivastava, S.L. (1968): "Impact of emigration on structure and relations in a village in eastern Uttar Pradesh", *Journal of Social Research*, Vol. 11, No.2, pp73-86.

Stark, O. (1976): "Rural to urban migration and some economic issues: A review utilizing findings of surveys and empirical studies covering the 1965-1975 period, Geneva, ILO publications

Todaro, M.P. (1976): "Internal Migration in Developing Countries", Geneva, *ILO*.

Venkataramaih's, P. (1969): "Inter-State Variations in Industry, 1951-61: A Comment", *Economic and Political Weekly*, August 4, p.1281.

Williamson, J.G. (1965): "Regional inequality and the process of National Development", *Economic Development and Cultural Change*, Vol.13, No. 4.

Statistical Abstract, India 2004, CSO

www.indiastat.com

www.mospi.nic.in

Annexure I

Derivation of Spearman's formula for rank correlation co-efficient, when there are no ties.

Let $(x_1,y_1), (x_2,y_2),\ldots (x_n,y_n)$, represent the ranks on n individuals in the two characters. Spearman's rank correlation co-efficient is the product moment correlation co-efficient between these ranks, treating them as the values of the variables.

It should be noted that $x_1, x_2,\ldots x_n$ denote ranks and not the actual values. 1,2,3, n, denotes the ranks arranged in some order. Similarly, $y1, y2\ldots y_n$ are also the same numbers, but possibly in a different order.

Now $\sum_1 = 1+2+3+\ldots +n = n(n+1)/2$

Therefore, $\bar{x} = \sum x_i /n = n(n+1)/2n = (n+1)/2$

Similarly, $\bar{y} = \sum y_i /n = n(n+1)/2n = (n+1)/2$

Thus, $\bar{x} = \bar{y} = (n+1)/2$

Again $\sum x_i^2 = 1^2 + 2^2 + \ldots + n^2 = n(n+1)(2n+1)/6$

Now, $\text{var}(x) = (1/n)(\sum x_i\bar{x})^2 = \sum x_i^2/n - (\sum x_i/n)^2$

Therefore, $S_x^2 = \{n(n+1)(2n+1)\}/6n - \{(n+1)/2\} = (n^2-1)/12$

Similarly, $S_y^2 = \{n(n+1)(2n+1)\}/6n - \{(n+1)/2\} = (n^2-1)/12$

Now to find covariance (x, y) let us assume $d_i = x_i - y_i$

Since, $\bar{x} = \bar{y} = (n+1)/2$, we can write

$d_i = [(x_i - \bar{x}) - (y_i - \bar{y})]$

Or, $d_i^2 = [(x_i - \bar{x})^2 - 2(x_i - \bar{x})(y_i - \bar{y}) + (y_i - \bar{y})^2]$

Or, $\sum d_i^2/n = [\sum (x_i - \bar{x})^2]/n - 2[\sum (x_i - \bar{x})(y_i - \bar{y})]/n + [\sum(y_i - \bar{y})]^2/n$

$$= S_x^2 - 2\,\text{cov}(x, y) + S_y^2$$

$= (n^2-1)/12 - 2\,\text{cov}(x,y) + (n^2-1)/12$

$= (n^2-1)/6 - 2\,\text{cov}(x,y)$

Or, $\sum d_i^2/n = (n^2-1)/6 - 2\,\text{cov}(x, y)$

Or, $2\,\text{cov}(x, y) = (n^2-1)/6 - \sum d_i^2/n$

Or, $\text{cov}(x, y) = (n^2-1)/12 - \sum d_i^2/2n$

Or, $\text{cov}(x, y) = (n^3 - n - 6\sum d_i^2)/12n$

Now, $r_R = cov (x, y) / S_x.S_y = [(n^3 - n - 6\sum d_i^2) /12n] / (n^2-1)/12$

$r_R = [1 - 6\sum d_i^2] / n^3 - n$, Thus, the formula for the rank correlation is derived.

To test the significance of change in the relation between ranks based on migration rates and per capita income and level of development, we have calculated the rank correlation coefficient (r) between ranks based on migration rates and per capita income and level of development and calculated t-statistic for testing significance of the rank correlation coefficient. The procedure for testing the significance of correlation coefficient is as follows:

H_0: $\varrho=0$ (i.e. the migration and development correlation coefficient is zero)

$t= (r (n-2)^{1/2})/ (1-r^2)^{1/2}$, with (n-2) degrees of freedom (d.f.),

Where, n is the number of pairs involved in the test. This test is also known as paired t-test. The values of the rank correlation coefficient (r) and t-statistic are given, wherever required. The tabulated value of t-statistic with 14 d.f. is 2.14 at 5% level of significance (see, Fisher and Yates Table). This value has been made use of to say anything about the significance of the relationship.

Annexure II

Indicators used for the calculation of development index. Abbreviations used in the table are expanded here.

1. GIGCA- Gross Area Irrigated as a Percentage of Gross Cropped Area
2. FCGCA-Fertilizer Consumption per Hectare of Gross Cropped Area
3. PCAGR- Per Capita Power Consumption in Agriculture
4. RWFLP- Number of Registered Working Factory per Lakh Population
5. ADELP-Average Daily Employment per Lakh Population
6. PCIND- Per Capita Power Consumption in Industry
7. FCPW- Fixed Capital per Worker
8. SSIPL- Small Scale Industries per Lakh Population.
9. PVELE- Percentage of Village Electrified
10. RLPLP-Road Length per Lakh Population
11. PCEED- Per Capita Expenditure on Education
12. PCEHL- Per Capita Expenditure on Health
13. BOTLP- Number of Bank Offices per Ten Lakh Population
14. POUPS- Percentage of Urban Population

Table A II.1 Values of Development Indicators-1981

States	GIGCA	FCGCA	PCAGR	RWFL	ADELP	PCIND	PVELE	RLPLP	PCEHL	BOTLP	POUPS	FCPW	PCEED	SSIPL
AP	35.54	45.90	18.40	32	978	56.40	100	235	23	52.0	23.30	322.8	43	247
AS	16.52	2.80	0.20	8	437	25.30	97	156	20	28.7	10.30	283.46	54	21
BR	32.56	17.80	17.80	48	533	49.90	69	120	14	35.2	12.50	11.97	34	36
GU	21.78	34.40	39.70	34	1900	154.60	100	170	26	68.8	31.10	469.07	53	93
HA	60.62	42.50	74.90	26	1388	102.10	100	178	31	64.2	21.90	729.41	57	182
KA	15.76	31.10	10.70	20	1478	105.50	100	296	19	76.0	28.90	428.85	47	54
KL	13.29	33.40	3.20	36	1197	78.80	100	409	32	92.6	18.80	344.28	85	76
MP	11.45	9.20	6.70	11	783	70.00	87	201	23	42.4	20.30	911.01	33	76
MH	12.43	21.20	27.70	27	2002	149.40	100	287	27	57.8	35.00	483.47	61	59
OR	19.54	9.60	2.30	5	376	85.40	67	252	22	37.0	11.80	725.87	41	36
PB	85.50	117.90	112.00	44	1269	112.00	100	273	32	94.5	27.70	772.01	83	243
RA	21.61	8.00	30.00	19	481	45.70	77	187	33	47.9	20.90	897.82	43	89
TN	50.85	63.20	49.00	20	1294	98.00	100	256	23	63.0	33.00	319.5	50	74
UP	46.28	49.40	25.20	5	482	38.00	72	136	14	37.3	18.00	504.55	32	35
WB	20.21	35.90	1.30	12	1646	79.20	73	257	26	41.5	26.50	279.72	45	196

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Table A II.2 Values of Development Indicators-1991

States	GIGCA	FCGCA	PCAGR	RWFL	ADELP	PCIND	PVELE	RLPLP	PCEHL	BOTLP	POUPS	FCPW	PCEED	SSIPL
AP	41.37	131.1	74.6	32	965	83.80	100	225	65	69	26.8	995	168	129
AS	15.65	6.1	0.6	7	395	33.90	97	275	70	54	11.1	1200	165	56
BR	10.34	54.1	16.6	50	579	50.00	69	104	36	56	13.2	2029	135	83
GU	22.93	62.3	111.2	34	1706	196.40	100	191	84	82	34.4	1569	201	191
HA	67.76	94.4	136.6	30	2161	90.30	100	167	79	77	24.8	1669	198	425
KA	22.05	66.0	65.6	22	1249	135.00	100	295	68	95	30.9	1228	167	166
KL	13.70	74.5	6.3	38	903	80.00	100	435	98	98	26.4	1087	240	199
MP	16.67	30.3	21.1	14	810	103.70	87	208	63	66	23.2	1915	123	254
MH	12.14	59.5	72.2	31	1667	187.00	100	287	83	71	38.7	1670	219	72
OR	25.63	19.8	3.7	6	438	98.30	67	654	65	66	13.4	3953	165	56
PB	92.43	158.6	217.5	54	1748	243.00	100	266	114	106	29.7	1431	291	570
RA	23.17	17.7	50.9	25	598	78.40	77	257	104	69	22.9	2253	163	137
TN	44.54	119.7	65.1	23	1454	120.30	100	308	82	77	34.2	1186	171	193
UP	55.89	83.0	46.2	5	437	42.70	72	143	53	61	19.9	1631	150	133
WB	23.26	81.7	4.0	13	1376	66.30	73	92	69	61	27.4	1063	155	202

Table A II. 3 Values of Development Indicators-2001

States	GIGCA	FCGCA	PCAGR	RWFL	ADELP	PCIND	PVELE	RLPLP	PCEHL	BOTLP	POUPS	FCPW	PCEED	SSIPL
AP	40.97	123.5	176.5	38	965	118.94	99.9	251	182	69	27.08	3707	259	180
AS	5.31	43.0	1.9	6	395	23.90	77.1	340	176	48	12.42	6404	364	116
BR	45.17	86.5	9.4	3	579	7.13	71.2	71	92	46	13.35	11429	195	47
GU	31.80	73.8	283.4	36	1706	301.82	99.5	271	147	74	37.35	15592	378	354
HA	86.85	150.4	260.8	37	2161	153.22	100	133	163	72	29.00	14776	292	342
KA	25.15	98.9	170.1	13	1249	114.82	98.9	288	206	92	33.98	8933	357	556
KL	14.30	67.7	5.9	15	903	96.10	100	465	240	105	25.97	2989	507	39
MP	26.41	39.4	68.8	10	810	53.84	96.5	242	132	57	24.82	13464	219	373
MH	17.97	75.3	109.1	29	1667	206.06	99.8	267	196	67	42.40	9281	335	252
OR	32.32	36.9	4.9	5	438	83.65	79.5	641	134	61	14.97	11451	256	191
PB	91.96	172.0	256.3	55	1748	352.78	100	252	258	106	33.95	4047	382	824
RA	35.07	28.6	75.6	16	598	83.51	98.3	250	182	60	23.38	7095	331	410
TN	53.83	117.2	150.3	39	1454	244.56	100	256	202	79	43.86	4725	360	567
UP	67.47	124.6	28.3	6	437	29.17	61.0	156	84	52	21.02	6986	202	223
WB	40.16	128.0	9.8	8	1376	94.84	83.6	111	181	57	28.03	5744	310	359