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**The dynamics and changing patterns of interstate migration in  
India**

**Barua, Susmita, M.A.**

**The University of Arizona, 1987**

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THE DYNAMICS AND CHANGING PATTERNS OF  
INTERSTATE MIGRATION IN INDIA

by

Susmita Barua

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A Thesis Submitted to the Faculty of the  
DEPARTMENT OF GEOGRAPHY AND REGIONAL DEVELOPMENT

In Partial Fulfillment of the Requirements  
For the Degree of

MASTER OF ARTS  
WITH A MAJOR IN GEOGRAPHY

In the Graduate College  
THE UNIVERSITY OF ARIZONA

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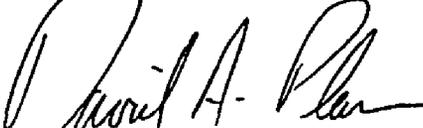
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## TABLE OF CONTENTS

	Page
LIST OF TABLES . . . . .	vi
LIST OF ILLUSTRATIONS . . . . .	viii
ABSTRACT . . . . .	x
1. INTRODUCTION . . . . .	1
Objectives of Study . . . . .	2
Issues Explored . . . . .	3
Comments . . . . .	5
2. BRIEF GENERAL BACKGROUND AND LITERATURE REVIEW . . . . .	6
Context of Migration in India:	
Theory vs. Reality . . . . .	6
Extent and Types of Migration . . . . .	14
Interstate Migration . . . . .	15
Relative Importance of Urban -Oriented Migration . . . . .	17
Rural-to-Rural Migration . . . . .	20
Rural-to-Urban Migration . . . . .	21
Urban-to-Urban Migration . . . . .	22
Urban-to-Rural Migration . . . . .	23
Comments . . . . .	24
3. THE DEMOGRAPHIC EFFECTIVENESS OF INTERSTATE MIGRATION IN INDIA . . . . .	25
Purpose . . . . .	25
Properties of The Demographic Effectiveness Index of Net Migration . . . . .	27
Aggregate Demographic Effectiveness of Interstate Movements for The States of India (1961 to 1981) . . . . .	29
States with High Positive Demographic Effectiveness of Over Forty Percent . . . . .	31
States with High Negative Demographic Effectiveness of Over Forty Percent . . . . .	39
States with Significant Changes in Demographic Effectiveness: 1961-81 . . . . .	40

TABLE OF CONTENTS--Continued

	Page
States with Relatively Consistent Demographic Effectiveness: 1961-81 . . . . .	42
Demographic Effectiveness of Interstate Streams of Inflows and Outflows . . . . .	44
Systemwide Changes in Demographic Effectiveness . . . . .	50
Comments . . . . .	51
 4. REGIONALIZATION OF THE INTERSTATE MIGRATION SYSTEM IN INDIA . . . . .	 54
Purpose . . . . .	55
Methodology . . . . .	58
Male Migration Subsystems . . . . .	60
Female Migration Subsystems . . . . .	69
Comments . . . . .	82
 5. SPATIAL SHIFT-SHARE ANALYSIS OF THE INTERSTATE MIGRATION SYSTEM . . . . .	 83
Brief Overview of the Spatial Shift-Share Method . . . . .	84
Shift-Share Perspective on Interstate Migration in India: 1961-71 . . . . .	86
Aggregate Systemwide Components of Change . . . . .	86
Systemwide Components and Subcomponents of Total Shift . . . . .	89
Explanation of State-Specific Components and Subcomponents of Total Shift . . . . .	92
Relationship of Net Migration Change and Competitive Component with Economic- Demographic Variables . . . . .	97
Comments . . . . .	101
 6. CONCLUSIONS . . . . .	 102
APPENDIX A: DATA SOURCES AND LIMITATIONS . . . . .	114
SELECTED BIBLIOGRAPHY . . . . .	118

## LIST OF TABLES

Table	Page
1. Brief Overview of Urban, Economic and Social Background of India . . . . .	9
2. Distribution of Internal Migrants by Their Origins and Destinations: India, 1971 and 1981 . . . . .	18
3. Difference between Actual (A) and Standardized (S) Distribution of Migration Types (in Percent): India, 1961 and 1981 . . . . .	18
4. Number and Percentage of Out-Migrants by State of Birth . . . . .	37
5. States Showing Significant Change in Demographic Effectiveness, 1961-1981 . . . . .	41
6. States Showing Little Change in Demographic Effectiveness, 1961-1981 . . . . .	43
7. Demographic Effectiveness of Each Pair of In- and Out-Migration Streams, 1961 and 1971 . . . . .	46
8. Female-Male Sex Ratio for Different Types of Migration: 1961 and 1971 . . . . .	70
9. Reasons for Migration to Urban and Rural Areas: 1981 . . . . .	71
10. Major Origins and Destinations of Male and Female Migrants: 1961 and 1971 . . . . .	80
11. Total Absolute Systemwide Components of Change (in Thousands): India, Interstate Migration, 1961-71 . . . . .	87
12. State-wise Absolute Components and Subcomponents of Change in Net Migration, 1961-71 . . . . .	88

LIST OF TABLES--Continued

Table	Page
13. Aggregated Components and Subcomponents of State Total Shifts (in Thousands), India, Interstate Migration 1961-71 . . . . .	90
14. Correlation Coefficients (R) for Components and Subcomponents of Change in Net Migration: India, 1961-71 . . . . .	92
15. Difference between Percentage Competitive Component and Percentage Change in Net Migration of the States in India, 1961-71 . . . . .	96
16. Competitive Component, and Agricultural, Industrial and Urban Variables Included in Multiple Regression Analysis . . . . .	98
17. Results of Step-wise Multiple Regression: Net Migration Change, Competitive Component and Economic-Demographic Variables of the States of India, 1961-71 . . . . .	99
18. Percentage Distribution of Different Migration Streams by Place of Birth (B) and Place of Last Residence (R) . . . . .	115

## LIST OF ILLUSTRATIONS

Figure		Page
1.	State Boundaries of India, 1961 and 1971 . . .	32
2.	Demographic Effectiveness of Net Migration of the States in India, 1961 . . .	33
3.	Demographic Effectiveness of Net Migration of the States in India, 1971 . . .	34
4.	Demographic Effectiveness of Net Migration of the States in India, 1981 . . .	35
5.	Migration Streams with Over 80% Demographic Effectiveness in 1961 . . . . .	48
6.	Migration Streams with Over 80% Demographic Effectiveness in 1971 . . . . .	49
7.	Macro Economic Regions of India . . . . .	57
8.	Interstate Migration Subsystems of India: Male In-migration Patterns 1961 . . . . .	61
9.	Interstate Migration Subsystems of India: Male In-migration Patterns 1971 . . . . .	62
10.	Interstate Migration Subsystems of India: Male Out-migration Patterns 1961 . . . . .	63
11.	Interstate Migration Subsystems of India: Male Out-migration Patterns 1971 . . . . .	64
12.	Interstate Migration Subsystems of India: Female In-migration Patterns 1961 . . . . .	72
13.	Interstate Migration Subsystems of India: Female In-migration Patterns 1971 . . . . .	73
14.	Interstate Migration Subsystems of India: Female Out-migration Patterns 1961 . . . . .	74
15.	Interstate Migration Subsystems of India: Female Out-migration Patterns 1971 . . . . .	75

LIST OF ILLUSTRATIONS--Continued

Figure		Page
16.	Component Invariance of Male In-migration and Male Out-migration . . . . .	76
17.	Component Invariance of Female In-migration and Female Out-migration . . . . .	77
18.	Components and Subcomponents of Change in Net Migration of the States in India, 1961-71 . . . . .	93

## ABSTRACT

Explores the dynamics and changing pattern of the interstate migration system in India during the post-Independence period. Three major perspectives, namely i) the demographic effectiveness of net migration in changing the regional and ethnic balance of population distribution, ii) the principal components or regional subsystems of in- and out-migration based on similarities in the origin and destination areas of migrants, and iii) the shift-share components of the change in net migration are adopted to provide insight into the structure of interstate population movements in India. The major findings are compared with those of other similar studies done in the context of developed countries. The tremendous growth of agriculture in the northwest, and the development of new industrial towns in the backward regions have had significant impact in diffusing the highly polarized pre-Independence pattern of interstate migration in India.

CHAPTER 1  
INTRODUCTION

The dynamics of migration processes are intimately connected to the process of the demographic transition and the pattern of rural-urban development, as influenced by the structural changes in the economic, technological and social development of the country. The explicit purpose of this study is to explore the dynamics and changing pattern of interstate population movements in India from three major perspectives, namely the disequilibrium between in- and out-migration streams, the regional pattern of inflows and outflows and the shift-share components of change in net migration.

Migration in India has not been explored as extensively as other demographic phenomena (Saxena 1977). The range of possibilities of manipulating data for analytical purposes through the use of computers has not been fully explored (Dasgupta 1982). There is a dearth of meaningful analyses of the dynamics and patterns of migration, especially for the last two census decades, and of a proper synthesis of available information on different types of migration. This study seeks to provide such analyses and synthesis.

### Objectives of Study

Improved models and methods of understanding the pattern of migration and its role in spatial population dynamics are becoming important areas of research in recent years (Rogers et al. 1984). This study has two objectives. The primary objective has been to explore the changing pattern of interstate population movements in India by utilizing some of the recently developed methods of migration analysis, that provide new ways of looking into the dynamics and structure of the migration system. Relatively recent analytical techniques such as demographic effectiveness, principal components and shift-share methods, that have been used in the context of migration studies of developed countries, are applied here, for the first time, to the study of interstate migration in India. The real intent behind the use of those techniques, however, lies in providing a meaningful analysis of the dynamics, pattern, and regional subsystems of interstate migration in India for the period between 1950 and 1980, in relation to the pattern of regional development in the post-independence period.

The secondary objective is to synthesize the existing information on the nature and impacts of migration in India, and to see the extent to which the findings of this study agree or conflict with some of them. The first objective outlines the concrete contribution of this thesis.

A meaningful analysis of the process and structure of population redistribution that is taking place at the regional level would contribute towards a better understanding of the emerging pattern of population distribution -- its relationship with and consequences for the social and economic progress of India.

#### Issues Explored

The major issues of research on migration are who migrates, when and why, under what circumstances, and with what consequences for national development and for the migrants themselves (Goldstein 1972). An effort is made to tie-up all these issues, as far as feasible, within the limits of this macro-level study of interstate migration in India.

Chapter 2 provides a brief synopsis of the general socioeconomic context and a review of literature on migration in India. It highlights the major characteristics of Indian migration and contains a supplementary note on interstate migration, which remains the primary focus of study in the subsequent chapters.

Chapters 3 to 5 use three different methods to illuminate three different perspectives of interstate migration in India. Chapter 3 gives an analysis of the demographic effectiveness of interstate population exchange that helps an understanding of the "compensating" and

"noncompensating" nature of total migration to and from each state, analogous to the form of analysis of the U.S. migration system given in Plane (1984). The objectives are to find out whether the pattern of net gaining or net losing states has remained the same over the years or if there have been any turnarounds, to establish the nature of overall regional shifts in population, and to examine how such changes are related to regional economic changes in the post independence period. The migration system of India is found to be characterized by predominantly unidirectional flows. Such flows, however, are being replaced by counter-streams of movements. It is suggested that the demographic effectiveness measure can be used as an objective index of measuring the extent of equilibrium or disequilibrium in any migration system, and its transition from one stage to another.

Chapter 4 provides a scheme for regionalizing the complex pattern of interstate migration based on the similarities in the sources and destinations of migrants, both for male and female interstate migrants. Fairly large variations are found between the major origins and destinations of male and female migrants. It is also shown that unlike developed countries, in- and out-migration subsystems are dissimilar in the case of a developing country characterized by an unbalanced migration system.

In Chapter 5 an attempt is made to isolate the

various components of temporal change in net migration by using a form of spatial shift-share analysis developed by Plane (1987). This analysis was designed to answer whether net migration changes of a state arises primarily due to the region's competitive position compared to other states, or because of changes taking place in the region's traditional source areas for in-migration or its destinations for out-migrants. As is the case for the U. S. (Plane 1987), the competitive component is found to be more significant than the regional mix component in explaining net migration change in India. The properties of the various subcomponents, however, vary between the two countries. Chapter 6 contains conclusions.

#### Comments

The task of identifying relationships between migration and development is very complex, particularly in a developing country like India faced with high population growth, low living standards and high intersectoral and interspatial imbalances in development. Any broad generalization on migration is likely to be challenged by the range of regional diversity in the pattern of development. Still, an attempt has been made to relate the changing pattern of migration in the post-independence period to some of the apparent reasons at the regional and national level.

## CHAPTER 2

### BRIEF GENERAL BACKGROUND AND LITERATURE REVIEW

Because this study of interstate migration is primarily concerned with the use of innovative aggregative methods for exploring spatial regularities in the complex streams of in- and out-migration, it is imperative that the general background and features of migration in India are understood. Otherwise the use of such aggregative approaches might imply a denial of all the diversities and complexities involved in the types, patterns, and causes of migration in India.

#### Context of Migration in India: Theory vs. Reality

Any social process, demographic or otherwise, needs to be viewed in its proper perspective -- the structural and socioeconomic context under which it (in this case migration) is taking place. Migration reflects the individual's response to changing economic, demographic and environmental conditions. In India, the constraints on the individual's decision to migrate are many. They derive not only from the poor economic position of the vast majority of Indians, but also from social factors such as high dependency ratios, strong family and kinship attachments,

and the great cultural-linguistic and ethnic heterogeneity of the Indian population.

India's economic performance in the last three decades has been impressive in many respects. However, the overall impact of planned development on reduction of large-scale poverty, unemployment and regional disparities has been less than satisfactory. On the basis of net domestic product, per capita income, and level of industrial and urban development, the states of Punjab, Haryana, Maharashtra, Gujarat, West Bengal, and Tamil Nadu fall in the category of developed states, while the states of Bihar, Orissa, Madhya Pradesh, Uttar Pradesh, and Assam represent the least developed states of India (see Balasubramanyam 1984). Table 1 summarizes the character and temporal changes in some important urban,<sup>1</sup> economic, and social attributes of India.

Migration in less developed countries, like India, is not so much a symptom of shifts in the sectoral distribution of employment from agricultural to non-agricultural occupations, as it is a consequence of the sectoral imbalance of the economy and a high spatial

---

<sup>1</sup>. Since the 1961 census the definition of an urban area includes (a) all places with a municipality, corporation, town committee or cantonment board, and (b) every other place which satisfies all the following criteria: (i) density of not less than 1000 per sq. mile (400 per sq. km); (ii) a minimum population of 5000; (iii) at least 75% of the male working population engaged in non-agricultural occupations.

concentration of the development process. Here rural-urban migration, especially in very large cities, is taking place over and above the rate of growth of industrial and other formal (registered) employment, unlike in the West, where the process of economic transition involved systematic transfer of laborers from rural-based sectors to those industrial ones located in urban areas. Whereas, in the West historically a direct relationship prevailed between sectoral transition and urbanization; this has not been the case in India.

In developing countries in general, urbanization in terms of employment, has mainly involved transfer of rural-based secondary and tertiary activities to urban areas and very little transfer of employment from agricultural to non-agricultural pursuits (Mohan 1985). In India, for example, a substantial increase in the productivity of the manufacturing and tertiary sectors in the post-independence period has not been accompanied by a similar shift in the employment from agricultural to non-agricultural activities (see Table 1)

Most of theories on migration have been designed to explain migration processes in the West. A few models that incorporate concepts that are fairly relevant to the situation prevailing in the low-income countries (e.g., Lewis 1954, and Todaro 1969) explains rural-to-urban migration, when there are, in fact, several kinds of

Table 1

## Brief Overview of Urban, Economic and Social Background of India

Urban Scene				
	1951	1961	1971	1981
Total Population (million)	361.1	439.2	548.2	685.2
Urban Population (million)	61.6	77.6	109.0	163.0
Percent Urban	17.6	18.0	19.9	23.3
Percent Growth Urban	-	2.34	3.26	3.86
Percent Growth Rural	.82	1.88	1.97	1.75
Percent of Urban Population in Different Size Towns				
1 million & above		22.5	25.1	26.3
500,000 - 1 million		3.1	6.2	13.4
100,000 - 500,000		18.1	17.6	20.7
Economic Scene <sup>a</sup>				
	Employment Structure (%)		Sectoral Share in NDP (%)	
	1951	1981	1951	1981
Primary	72.1	70.6	59.0	37.0
Secondary	10.7	12.9	14.4	23.0
Tertiary	17.2	16.5	26.6	40.0
Social Scene				
	1971		1981	
	Male	Female	Male	Female
Literacy (%)	39.5	18.7	46.9	24.8
% Rate of Work Participation	52.6	12.1	51.0	14.0
Sex Ratio <sup>b</sup> % of Children (0-14)	930.0 42.0		933.0 39.5	

Source: Census 1981 and Statistical Pocket Book 1981, Central Statistical Organization, India.

a. There has been a very significant change in the productivity of different sectors without a comparable shift in the distribution of sectoral employment.

b. For the first time the 1981 census records a reversal in a very long-term trend of decline in sex-ratio (number of females per 1000 males).

migration observed in developing countries. The major shortcomings of these theories derive from their positivistic assumption of "economic man" (who not only has perfect knowledge of the costs and benefits of moving to alternative destinations, but also the ability of arriving at a decision based on the net-return to migration) and their assumption that potential migrants are homogeneous in skills and attitudes.

The literature on migration in developing countries has been extensively reviewed in recent years (Nelson 1976, Todaro 1976, Findley 1977, and Goldstein and Goldstein 1981). One of the earliest theoretical explanations of rural-to-urban migration based on empirical observations was given by Ravenstein (1885). Some of his major postulations, for example, the importance of the economic motive in the decision to migrate, the negative influence of distance, and the existence of step migration, have not been invalidated (Oberai and Singh 1983, and Dorigo and Tobler 1983). Recent evidence on Indian urbanization (see Mohan and Pant 1982) and migration, however, seems to suggest that the movement to small and regional centers from the rural sector is becoming relatively more significant than movement up the urban hierarchy, which was more characteristic of the 1960s (Skeldon 1986).

Neither Ravenstein nor others included in their theories the effect of socio-political-ethnic factors on

migration. Apart from the dominant role of marriage-related migration among females in many Afro-Asian countries, social relations have been found to play a considerable role in influencing not only the decision to move, but also the choice of destination of migrants (Connell, et al. 1976). A consequence of such migration is the concentration of persons from the same village or kinship network in a particular occupation or establishment (Banerjee 1983).

The mobility transition model of Zelinsky (1971) integrates the concepts of the demographic transition and the economic transition of a society with the changing pattern of population movements within it. The initial phase of industrialization, according to Zelinsky, is characterized by the dominance of rural-to-urban migration, which is replaced by increasing interurban movements in the post-industrial period. In India (which is still overwhelmingly rural), however, both rural-to-urban and interurban movements are taking place simultaneously in almost similar magnitudes at the interdistrict and the interstate level.

By analyzing the proportional distribution of the migrants according to their duration of residence, Skeldon (1986) recently found that there has been a significant decline in the proportion of circulatory migrants (those with less than a year of sojourn) over the last two decades — 1961 to 1981. Skeldon concluded that this decline in the

relative role of circulation in the migration system fits within the general context of a mobility transition (Zelinsky 1971). But Zelinsky actually hypothesized an increase in (different kinds of) circulatory movements and not a decrease in it, as interpreted by Skeldon. He used the term "circulation" to define all sorts of temporary movements related to recreation, business, shopping, weekend visits, etc. that are characteristic of the highly mobile developed nations. Circulation in the context of developing countries, including India, implies seasonal and regular periodic movements (in rural and urban areas) that take place largely under considerable economic duress.

The famous Lewis model (1954), based on the concept of a dual economy consisting of a subsistence agricultural sector, with unemployment and underemployment, and a productive modern industrial sector with full employment, depicts migration (from rural-to-urban areas) as an equilibrium mechanism. The most serious weakness of this model, as far as the situation in developing countries is concerned, arises from its assumption of a high rate of industrial growth. The rate of urbanization exceeds the rate of industrial expansion, thereby creating serious disequilibrium, not only between rural and urban areas, but within the urban areas (Oberai and Singh 1983).

Todaro's basic model (1969) and its later extensions explain the phenomenon of rural to urban migration in the

face of increasing unemployment in urban areas in terms of the "expected" rather than actual probability of getting employment. Banerjee (1984), however, in his study of 1,400 migrants in Delhi found that nearly 55 percent of them moved only after pre-arranging a job, a form of migration referred to by Silvers (1977) as "contractual" rather than "speculative".

Theoretical explanations of migration are often based on specific mechanisms or factors (such as unemployment, income or wage differential, etc.) rather than the broad structural and socioeconomic factors including the general development policies that give rise to rural-urban differentials. Not only the pressure of population in rural areas, but also the low rate of investment in agriculture, the uneven distribution of land, the allocative mechanisms which discriminate in favor of the rich, and the heavy bias towards capital-intensive and labor-saving investment are responsible for increasing rural poverty and out-migration (Griffin 1976 and Standing and Sukdeo 1977). In India, for example, all the five-year plans except the very successful first one (1951-56) show a heavy bias towards the industrial sector.

Although some of the generalizations of the well-known theories of migration (e.g., those of Ravenstein and Zelinsky) very broadly apply to migration in developing countries, it has to be remembered that those theories

explain a system of flows set in motion by the economic forces of the Industrial Revolution, which is yet to be witnessed in similar forms in countries where development has started fairly recently.

### Extent and Types of Migration

The majority of internal migrants (over 60 percent) in India move over short distances, i. e., within the districts. Migrants represented over 31 percent of the total population (207 million) in the country in 1981, as opposed to 30 percent in 1971. Because of the very size of Indian population (over 685 million), even a small increase in the rate of migration produces a substantial increase in the absolute size of the migrant subpopulation. The same applies to the case of urbanization and urban population.

Migration in India is remarkable for its range and diversity. Using the Indian Census definitions,<sup>2</sup> the diverse migratory movements can be categorized by:

1. level of spatial aggregation: (a) intradistrict, (b) interdistrict, and (c) interstate;
2. origin-destination (intersectoral) relationship of the migrants: (a) rural-to-rural (rural turnover), (b) rural-to-urban (rural push), (c) urban-to-rural (urban push), and (d) urban-to-urban (urban turnover);
3. duration of residence in the destination: (a) short term including seasonal, (b) medium term, (c) long term, (d) life time;

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<sup>2</sup>. For a discussion of limitations of the Indian Census data on migration, see Appendix A.

4. motivations: (a) employment, (b) education, (c) marriage, (d) family movement, (e) others;
5. selectivity of migrants from origin in terms of: (a) sex, (b) age, (c) marital status, (d) occupation, (e) income, (f) language, (g) religion, and (h) ethnicity.

The first category denotes the primary classification or the basic divisions of population movements in India. But cross-classification of different movements is not always possible with Census data. Considerable variability exists among the various types of migratory movements, which in turn hold different consequences for the origin-destination regions.

#### Interstate Migration

Our study specifically focuses on Interstate migration as opposed to intrastate migration in India. Interstate migrants (excluding Assam) represented over 12 percent of the total migrants in 1981. Despite its lower magnitude, interstate migration is more important than intrastate migration in terms of the following potential implications.

1. Nearly 70 percent of intrastate migration comprises short distance rural-to-rural movements and about 73 percent of such movements are made by female migrants (see Table 2). According to the 1981 census (which for the first time incorporates data on causes of migration), as much as 75 percent of the female migrants within the state moved due to

marriage. Thus, much of the intrastate migration represents marriage migration, which, despite its tremendous quantitative weight, is not significant as far as the economic perspective of the causes and consequences of migration is concerned. Unlike intrastate migration, over 62 percent of interstate migration is directed to the urban areas -- areas of greatest economic opportunities. The rural-rural component has come down significantly for both intra and interstate migration, while the urban-urban component has gone up from 1971 to 1981 (see Table 2).

2. Unlike intrastate migration, migration at the interstate level is more male-oriented<sup>3</sup> and much less biased by marriage-related migration. Male migrants move primarily for economic reasons (for an explanation, see Chapter 4). This feature of interstate migration makes interpretation of the pattern of migration in relation to the pattern of spatial development viable.

3. There are some significant social and political consequences associated with interstate population movements. Migration from one state to another within India involves movement across cultural, linguistic, and ethnic territories. Thus, over a period of time, migration changes the demographic, social, and economic balance of groups within a given space. Several states (notably Assam) have

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<sup>3</sup>. Male migrants at the interstate level constitute 11.5% of total male migrants, as against 8% in the case of females.

witnessed intense, often violent conflicts between the immigrants and the natives of the state over the last two decades (see Weiner 1978).

While political forces in some areas discourage interstate migration, there are evidently strong economic forces that point to its continued increase (Weiner 1978). Between 1961 and 1971, migration from one state to another increased by 32.9 percent (14.6 million to 19.4 million) as against a population increase of 24.7 percent.

The proportion of total interstate migrants to total population remained almost unchanged (around 3.5 percent) between 1931 and 1981. The decennial population growth, however, has been more than doubled between 1931 (11 percent) and 1971 (24.8 percent). Hence, though the proportion has remained low, the absolute number of interstate migrants has increased greatly.

#### Relative Importance of Urban-Oriented Migration

This discussion is relevant to our objective of finding correlation between the changing pattern of interstate migration and the pattern of regional (mainly urban-industrial) development. Table 2 clearly shows the overwhelming dominance of rural-to-rural migration (nearly 70 percent) in the total (intrastate and interstate) migration. At the interstate level, however, rural-oriented

Table 2

Distribution of Internal Migrants by their Origins and Destinations: India, 1971 and 1981.

Migration Type	Total		Intra-State		Inter-State	
	1971	1981	1971	1981	1971	1981
Rural-Rural	69.0	64.5	73.6	69.8	32.1	29.2
Rural-Urban	15.0	17.0	12.7	14.7	27.7	31.2
Urban-Rural	6.0	6.5	5.6	5.8	7.8	7.7
Urban-Urban	10.0	12.0	7.7	9.4	29.9	30.9
Total in %	100.0	100.0	100.0	100.0	100.0	100.0
Total Million	157.8	196.3	139.3	172.3	18.5	24.0

Source: Census of India 1981. Figures are based on last residence criterion.

Table 3

Difference between Actual (A) and Standardized (S) Distribution of Migration Types (in Percent): India, 1961 and 1981.

Migration Type	Interstate				Total			
	1961		1981		1961		1981	
	(A)	(S)	(A)	(S)	(A)	(S)	(A)	(S)
Urban-Urban	25.0	37.5	29.2	39.6	8.1	20.4	12.0	23.9
Rural-Urban	32.5	48.9	33.6	45.6	14.6	36.8	17.0	33.5
Rural-Rural	37.0	12.2	29.5	12.0	73.7	40.8	64.5	8.5
Urban-Rural	4.5	1.4	7.0	2.8	3.6	2.0	6.5	4.1

Source: Census of India 1961 and 1981. Figures are based on place of birth criterion. The first two types indicate urban-oriented migration.

migration is replaced by the more urban-oriented (rural-to-urban and urban-to-urban) moves.

A number of scholars writing on Indian migration have often expressed their concern for ignoring rural-to-rural migration in favor of rural-to-urban migration, despite the former's overwhelming dominance in the total migration (e.g., Mitra 1967 and Dasgupta 1982). A significant proportion of the huge size of rural-to-rural migration, however, can be explained by the fact that approximately 70 percent of the total Indian population is rural.

A fairly recent study of Mukhopadhyay (1981) revealed that (a) the relative weight of the different migration types shifts considerably when they are standardized with respect to the base population at source and the structure of migrant population at the destination point, and (b) once standardized, urban-to-urban migration (instead of rural-to-rural movements) appears as the most dominant component of total migration at all levels of spatial aggregation, except the very short-distance (intradistrict) movements. The standardization method used by Mukhopadhyay is a little complex, since it involves adjustment of data both at the source and the destination of migrants. In Table 3, a simple but rather crude

standardization method<sup>4</sup> has been used to show the difference between the actual and the normalized proportion of the different migrations between rural and urban destinations.

The characteristics of four types of migration between urban and rural areas, all of which are represented under the aggregate category of interstate migration, are summarized below.

#### Rural-to-Rural Migration

To a great extent, rural-to-rural migration consists of marriage-migration of females and temporary seasonal migration of poor peasants from the drought-prone areas to more prosperous agricultural tracts (Dasgupta 1982).

Not all rural-to-rural migration is temporary or seasonal in nature. Historically, recruitment for tea plantations in Assam was made on a contractual basis for a period of five years, and the majority of migrants who came eventually stayed on. Another wave of rural-to-rural migration on a mass scale took place following the partition of India in 1947. Most of these movements were towards the bordering states of West Bengal, Punjab, and Assam.

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<sup>4</sup>. Actual proportions of the four types of migration are divided by the proportion of population in India living at the (urban or rural) destination. The dividend values are then used to calculate the normalized proportions, which indicate the relative significance of the different migration as far as their consequences at the destinations are concerned.

The tremendous success in agriculture (termed the "green revolution") in Punjab-Haryana and western Uttar Pradesh over the last two decades has led to a wave of permanent migration towards these areas from the poor districts of Bihar and Uttar Pradesh (Dasgupta 1982).

#### Rural-to-Urban Migration

Over 30 percent of the interstate migration consists of rural-urban migration. Such migration is biased in favor of adult males, who often leave their families behind; such selectivity increases with distance. Organized migration to the factories through agents usually bring the poor people, often from distant places to factories like the jute mills in Calcutta and cotton textile mills in Bombay. Victims of natural disasters who come to towns, especially big cities, tend to be the poorest in the village, as the cities are better able to organize relief operations.

Rural-to-urban migration results in more permanent stays than rural-to-rural migration (Rao and Desai 1966). Considerable short term circulatory movement is, however, found among the very low-wage laborers (working in the informal sectors of the cities) who are found to move frequently to their native villages, as they cannot afford to bring their families even after ten or more years of urban residence (see Mukherjee 1981 and 1985).

The propensity of villagers to migrate is positively related to both "village-related factors," such as high land-man ratio, concentration of land ownership, landlessness, etc., and "urban-related factors," such as the extent of commercial-cropping, surplus production, literacy, communication, etc. The overall explanatory power of the urban-related factors, however, was found to be higher than the village-related factors (Dasgupta and Laishley 1975). The average literacy of rural migrants who come to urban areas is much higher than the villages they come from (Rao and Desai 1966, Gupta 1972, Bose 1973, and Dasgupta and Laishley 1975). The poorest people in rural areas do not necessarily show the highest propensity to migrate. In fact, several studies show migration propensity to be higher among the well-off upper castes than the less-fortunate lower castes (Sovani 1965, and Narain 1972). This is called "positively selective" migration.

Educational migration most often results in a permanent shift of the young population from rural to urban areas. Although such migration results in a loss of human capital for rural areas, part of the loss is compensated by counter flow of income transferred from the migrants resident in urban areas back to rural areas.

#### Urban-to-Urban Migration

Interurban movements account for 30 percent of the

total interstate migration. The sex ratio of the migrants of this group is more balanced (see Table 9 in Chapter 4) than the rural-to-urban migrants. Three types of interurban movements are often associated with different motives and migrant characteristics (Dasgupta 1982): (1) vertical movement from smaller town to bigger cities in the form of step migration, (2) reverse movement from big cities to small towns, and (3) horizontal movement between towns of comparable size.

The extent of urban-to-urban migration is underestimated in the census, because it does not include substantial number of permanent intraurban movements within the big cities. There are indications that point to an increasing trend of movements from the city-core to the periphery (see Skeldon 1986).

#### Urban-to-Rural Migration

People migrate from urban to rural areas after completing their working life (retired migrants), after achieving education and skills (target migrants), and when unable to find sustenance in urban areas (push-back migrants).

The actual extent of return migration is not reflected in the census data. The census does, however, collect information on the duration of residence of migrants at the destination (see Appendix A), which shows that a

large gap exists between the cumulative short-term (1-4 years) volume and the actual volume of migration for ten years. This indicates a very large turnover migration in India (Bose 1967). Bose suggested that push factors operate not only in rural areas, but also in cities. The proportion of return migrants is high among the new migrants and those over 35 years of age (Zacharia 1964). Turnover migration may thus be an important adjustment factor by which even higher rates of urban growth are avoided; it may also function as an instrument of social change (Goldstein 1972).

#### Comments

The general features of migration as well as the context under which migration is taking place in India has been outlined in order to help understanding of the contrasting patterns of migration in India as opposed to developed countries. The subsequent chapters utilize methods which have been recently applied in the context of developed countries to understand the dynamics of interstate migration in India.

## CHAPTER 3

### THE DEMOGRAPHIC EFFECTIVENESS OF INTERSTATE MIGRATION IN INDIA

This chapter outlines the first of the three perspectives adopted for understanding the dynamics and changing patterns of migration in India. A region's population may change by the relatively stable process of natural increase, as well as by the less stable process of migration. Compared to natural increase, migration is, in the short run, more sensitive to changes in the socio-economic, and political situations of a country. Migration invariably results in relocation of population from one place to another. It might not necessarily lead, however, to a change in the actual population of a region, because total in-migration to a region may be balanced by total out-migration from it. Hence, migration to and from a region can be viewed from the perspective of its demographic effectiveness, i.e., the extent to which interregional movements are able to effect actual change in the population of the regions involved (Shryock 1964).

#### Purpose

Demographic effectiveness simply measures the degree to which total in- and out-migration flows are

"noncancelling" or "noncompensating." This has significant implications in the case of a multi-ethnic, low income, and densely populated country like India, where economic competition between the out-of-state migrants and the natives of the states has often resulted in political turmoil in the past. This chapter explores the character and temporal changes in the demographic effectiveness of in- and out-migration streams, both at the state level and national level for the period of the 1950s through the 1970s (based on the census data of 1961, 1971, and 1981).

The state boundaries of India were reorganized in 1956 on the basis of the spatial distribution and concentration of the major linguistic/ethnic groups. All states represent largely homogeneous territorial and cultural units, yet every state is somewhat culturally distinct from the others. But continuous migration across state boundaries is altering the largely homogeneous character of some states (Weiner 1978). Historically, migration of skilled people, as well as unskilled laborers has played a significant role in the modernization of India. Political tensions, however, often in violent forms, began to surface in the late 1960s and 1970s between the natives of certain states and the successful in-migrant communities. This has been so in Assam, southern Bihar, Maharashtra, and Andhra Pradesh. The root of such tension clearly lies in acute economic competition.

It is suggested that demographic effectiveness (besides being suggestive of the proportion of total gross migration that is effective in actually redistributing population from one region to another) can be used as an objective index of mobility transition. In developing countries, the pattern of migration is posited to pass through a predominantly unidirectional system (with very high national demographic effectiveness and high regional variation in net migration), to a more and more balanced system, characterized by increasing counter streams of movement that result in a gradual reduction in both the overall magnitude of demographic effectiveness as well as regional variation in it.

### Properties of the Demographic Effectiveness

#### Index of Net Migration

The demographic effectiveness of net migration in an area  $k$  can be defined as the ratio of net to total migration, expressed as a percent:

$$D_k = 100 (N_k / T_k) = 100 (I_k - O_k) / (I_k + O_k).$$

$D_k$  may be positive or negative depending on the sign of net migration ( $N_k$ ). Demographic effectiveness of 0 percent indicates that in-migration ( $I_k$ ) is equally balanced by out-migration ( $O_k$ ) and thus net migration ( $N_k$ ) is equal

to zero. An effectiveness 100 percent implies complete absence of counter flow; it results when total migration ( $T_k$ ) equals the total absolute value of net migration.

Though as simple as it seems, demographic effectiveness as an index has important explanatory facets. For example, regions of high positive demographic effectiveness usually exert strong attraction in the form of economic, educational, recreational, or other opportunities, while those with high negative effectiveness often have strong push forces present in them. It is also an aggregate measure of the net effect of all cross-regional movements of population on the population change of a region. Demographic effectiveness is preferable to net migration rate, since the latter is computed using area  $K$ 's total population (instead of total gross migrants) as the denominator. As such, areas otherwise unattractive but with small population may show very high net migration rates.

A significant change in the demographic effectiveness of a region's migration system over a period of time is likely to involve important shifts in the socio-economic variables (in origin and/or destination areas) that influence the process of migration. Thus, both the absolute magnitude and the regional variations in the demographic effectiveness of different states in a country, as discussed later, are influenced by the regional imbalances in growth,

the general level of development of a country, and its economic transition from one stage to another.

Note that like almost every other index measuring some properties of the structure of migration, demographic effectiveness gives a partial reflection of the total picture. Like net migration, the absolute value of demographic effectiveness does not reflect the actual volume of in- and out-migration involved. For example, a region A may receive 500 (or 50,000) in-migrants from region B and send out 100 (or 10,000) out-migrants to B; its demographic effectiveness in both cases would be 67.7 percent. Hence, its high absolute value cannot be interpreted as a measure of overall economic efficiency. Also, the characteristics of in- and out-migrants may be very different and net changes in "human capital" can occur even when effectiveness is zero.

Aggregate Demographic Effectiveness of Interstate Movements  
for the States in India (1961 to 1981)

The initial distribution of industries or areas of destination for migrants was shaped by the historic process of development of a trade and transport network according to the interests of the colonial power. At the time of Independence, India inherited a highly lopsided pattern of urban and industrial development, with concentration of industries in a few areas. In the post-Independence period attempts have been made to promote balanced regional

development through land reforms, price support for agricultural products and other development programs for rural areas, and provision of public services and projects in backward regions. Even after thirty-five years of planning, however, no remarkable dispersal of industries could be achieved (see Mitra 1965, Nath 1970, and Rao 1977).

The evolving structure of interstate migration in India is explored for the period 1961 to 1981. Data used for this represent figures of internal in- and out-migration for the census years 1961, 1971, and 1981, based on place of birth information (see Appendix A for a discussion of the nature of migration data used).

The data used in this and subsequent chapters cover only interstate (internal) migrants from the 1961, 1971 and, to some extent, 1981 censuses. Persons born outside India, i.e., external in-migrants (who represent a sizeable proportion of the total in-migrants in the border-states of West Bengal, Assam and Punjab), as well as persons migrating out of India (external out-migrants), have been excluded from the analysis. This is done because the large influx of refugees following the partition (1947) was basically induced by extraordinary political circumstances and not by economic factors. The inclusion of the refugees in total in-migrants would inflate the demographic effectiveness index of a few bordering states and bias the whole analysis.

Adjustment of 1971 data for the states of Assam (referred to as Assam Group after the adjustment of data) and those of the Punjab (or Punjab Group) has to be made because of boundary changes taking place between 1961 and 1971 (See Appendix A). Figure 1 shows the states that are included in the various analyses. The Preliminary Report of the 1981 Census (based on 5 percent sample) provides in- and out-migration figures for only 14 states. Migration figures for some states (Jammu & Kashmir, Assam and Himachal Pradesh), as well as data on interstate movements, are not available. Figures 2 to 4 summarize the changing pattern of population redistribution in the states of India.

#### States with High Positive Demographic Effectiveness of Over Forty Percent

Three states, two in the northeast (West Bengal and Assam) and one in the west (Maharashtra), fell in this category in 1961 and continued to remain so in 1971. These states attracted large number of in-migrants from other states. The factors responsible for such heavy unidirectional streams of movements date back to the colonial period. The opening of oil fields, as well as introduction of tea plantation in the Assam valley in the late nineteenth century, and the simultaneous industrial development in and around the two port cities of Calcutta in West Bengal and Bombay in Maharashtra in the late nineteenth and early twentieth century, created a strong surge of labor

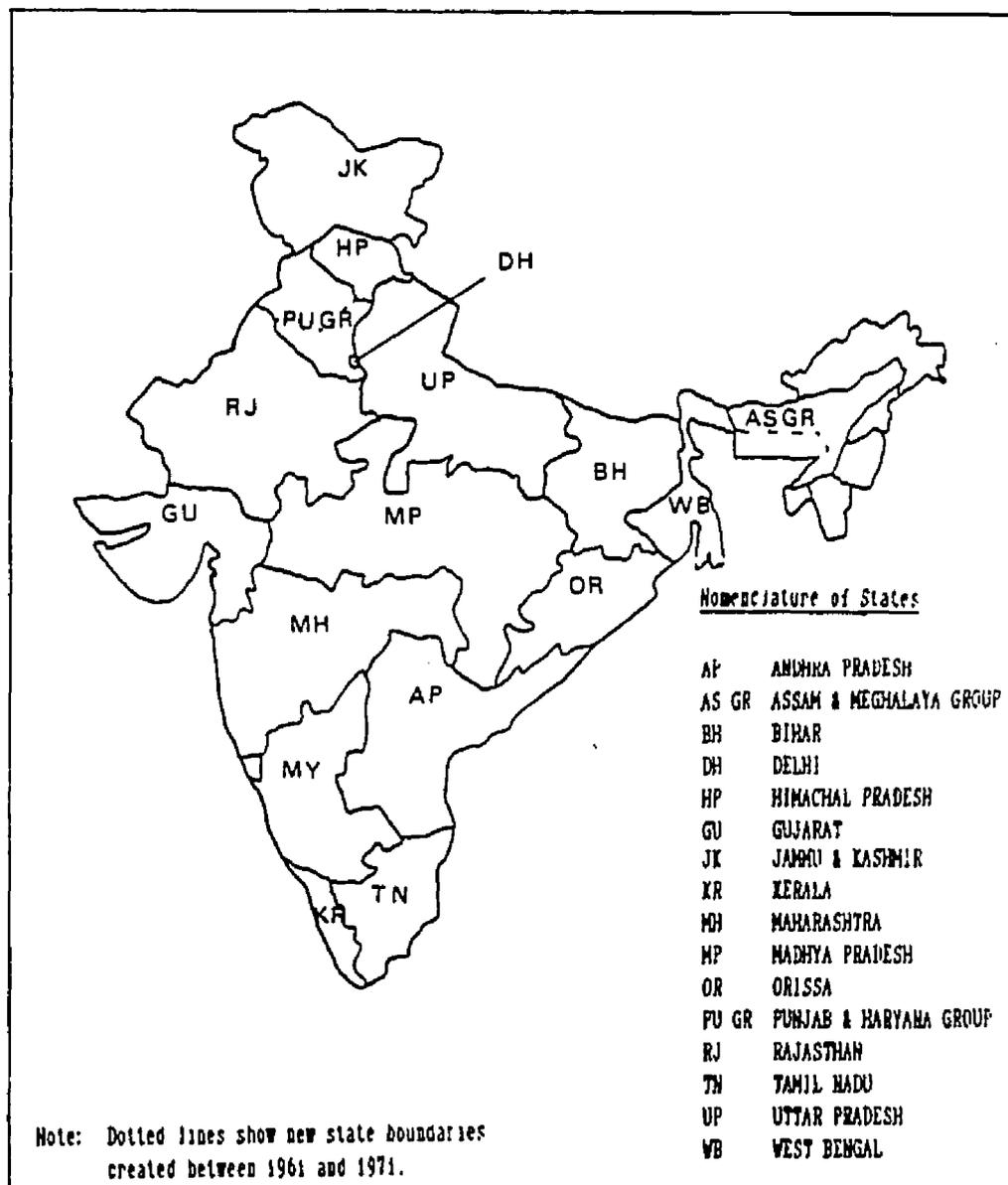


Fig. 1. State Boundaries of India, 1961 and 1971.

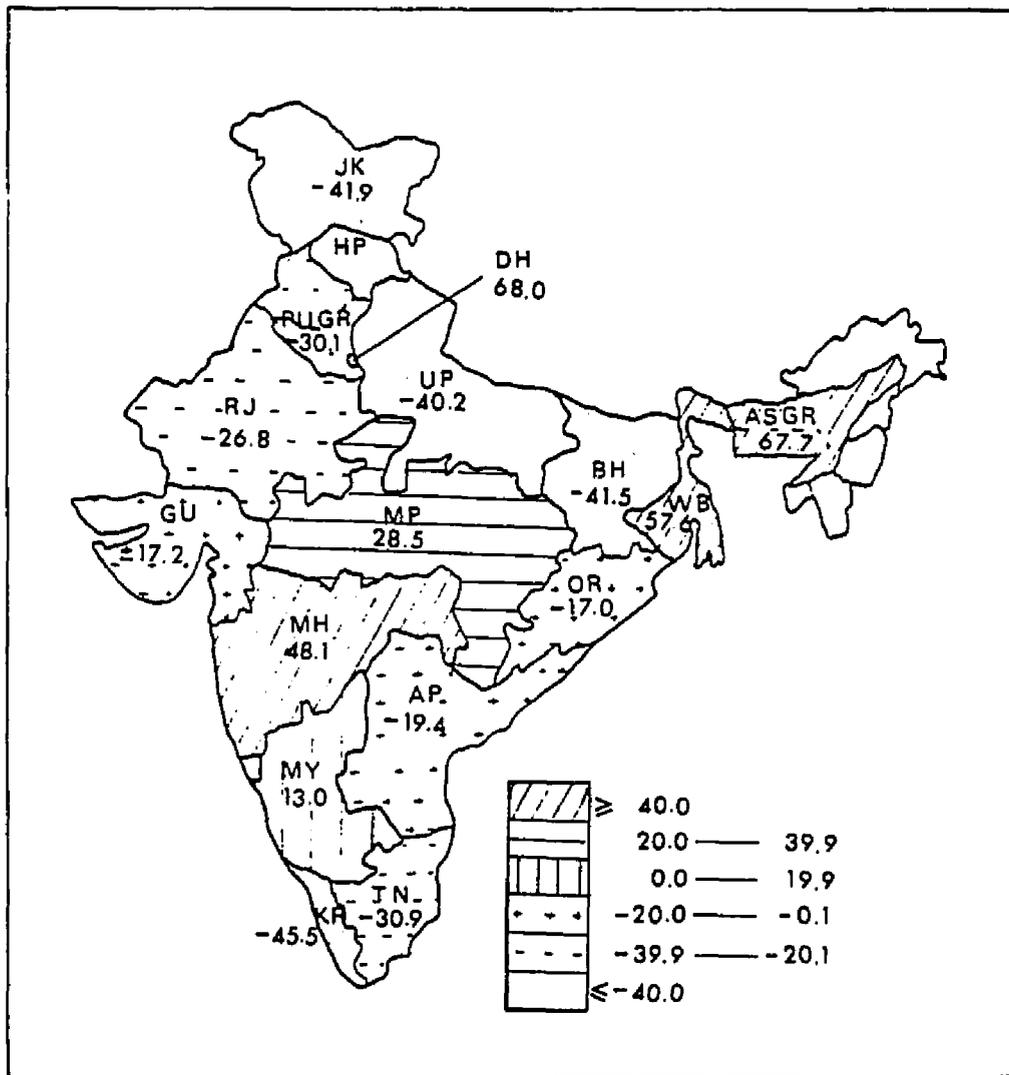


Fig. 2. Demographic Effectiveness of Net Migration of the States in India, 1961.

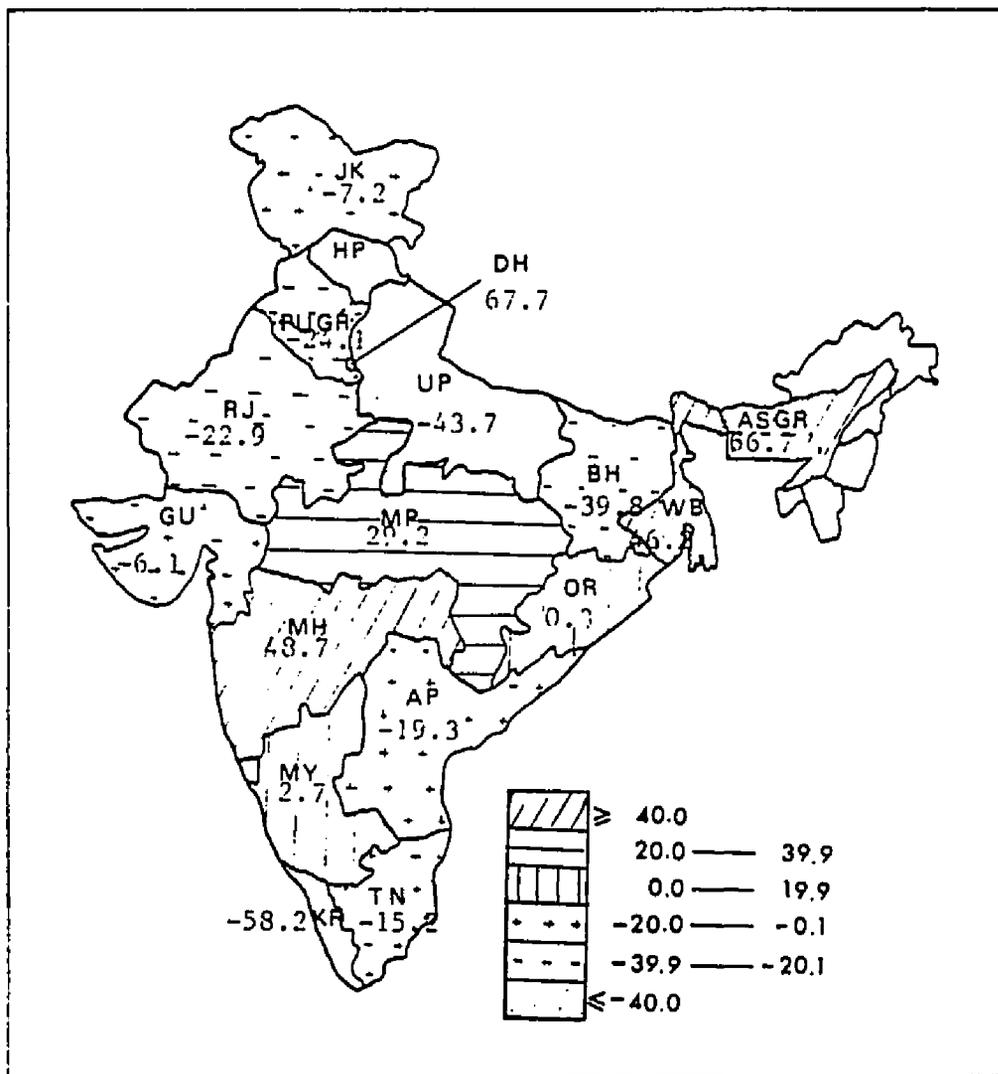


Fig. 3. Demographic Effectiveness of Net Migration of the States in India, 1971.

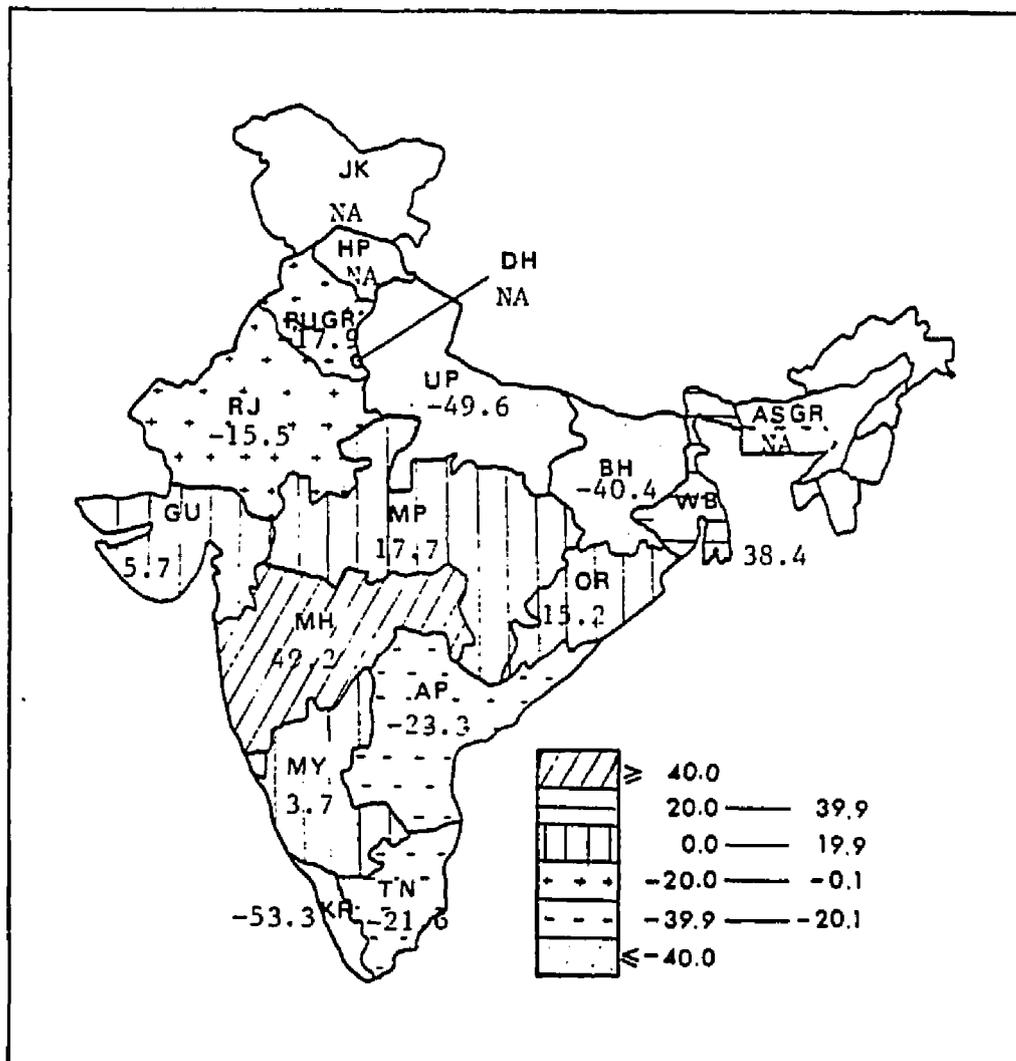


Fig. 4. Demographic Effectiveness of Net Migration of the States in India, 1981.

migration from the adjoining as well as far off states of India. These streams of movement continued even after Independence (1947).

In Assam the agents of British planters recruited labor from the distant (often famine-ridden) areas of Bihar, Orissa, Uttar Pradesh, Madhya Pradesh, and Madras (Tamil Nadu). A second wave of migrants (mainly farming families) in Assam came from adjoining, densely populated East Bengal (now Bangladesh). This represented voluntary migration of skilled agriculturists (more than a million) who moved with their families to seize upon the opportunity of settling in the vast vacant lands of the Assam Valley, where the wastelands were turned into productive agricultural fields by the in-migrants (Chaudhury 1982). An estimate for 1971 of the total number of in-migrants settled permanently in Assam is 8.5 million, representing 57 percent of the total population.

The high demographic effectiveness of Assam can also be explained in part, by the fact that there has been very little out-migration by the native Assamese, who represent one of the least mobile ethnic groups of India (Table 4). Even intrastate movement within Assam is very low, with the effect that the native Assamese constitute less than one third of the total urban population in Assam (Mehrotra 1974).

Table 4

Number and Percentage<sup>a</sup> of Out-Migrants by State of Birth

State of Birth	1961		1971	
	(X 1000)	(% of Pop.)	(X 1000)	(% of Pop.)
Assam	116	1.0	183	1.2
West Bengal	505	1.5	783	1.7
Jammu & Kashmir	78	2.0	79	1.7
Maharashtra	867	2.2	1,141	2.3
Madhya Pradesh	824	2.5	1,017	2.4
Orissa	471	2.7	434	2.0
Andhra Pradesh	870	2.7	1,065	2.4
Gujarat	734	3.0	858	3.2
Tamil Nadu	1,095	3.5	1,092	2.7
Uttar Pradesh	2,583	3.5	3,463	3.9
Kerala	624	3.4	928	4.4
Mysore	794	3.4	1,094	3.7
Bihar	2,041	4.5	2,114	3.7
Rajasthan	1,132	5.6	1,399	5.2
Punjab	1,318	6.5	1,192	8.8
Haryana			843	8.4
Delhi	183	7.0	275	6.8
Unclassified			908	
Other states & territories	406		555	
India	14,641	3.3	19,423	3.5

a. Percentage represents proportion of the total population born in each state residing outside the state.

Source: 1971 data based on estimates from one percent sample data, "All India Census Tables of 1971", Series I, India, Part II. Note that in the cases of Assam and Punjab, the percentile increases partly reflect the redrawings of state boundaries; the 1961 and 1971 figures, therefore, are not comparable.

Despite its high demographic effectiveness, Assam remains one of the agriculturally and industrially backward states of India. The high demographic effectiveness of Assam can be explained as a result of the failure of native Assamese to perceive opportunities in its vacant lands and a few rapidly growing sectors such as plantation agriculture and the oil industry -- opportunities which were exploited by in-migrants from other states.

The most notable decline in demographic effectiveness has occurred in the case of West Bengal, which is one of the most industrially developed and highly urbanized states of India. It had a significant decrease in its demographic effectiveness from 1961 to 1971 -- a trend which continued through the 1970s.<sup>1</sup> This trend involved a slow-down in in-migration and a rapid increase in out-migration from West Bengal, which seems to be the direct outcome of (a) the economic stagnation of the Calcutta metropolitan region, (b) a rise in unemployment, especially among the educated, (c) political instability in the early 1970s, and (d) an overall deterioration in the quality of the environment from 1960 onwards. For example, the share of West Bengal in national gross industrial output declined

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1. Note that our analysis of demographic effectiveness (D.E.) is based on interstate migrants only. If the external immigrants in West Bengal (over 3 million) are included in total in-migrants, the D.E. be over 70% in 1981. Similarly, Punjab would have a positive (instead of a negative) D.E.

from 21.4 percent in 1965 to 11.0 percent in 1975 (Chand and Puri 1983). Between 1961 and 1981 in-migration to West Bengal remained almost constant, while during the same period out-migration from it increased by over 61 percent.

Maharashtra has been an area of consistently high demographic effectiveness from 1961 to 1981. It has retained, even consolidated, its industrial supremacy over other states of India. It is also the most urbanized state of India with its highest urban concentration in the Bombay-Nagpur-Pune region. The urban areas of Maharashtra attracted 25 percent of total interstate in-migrants to all urban areas of India in both 1961 and 1971 (Mehrotra 1974).

#### States with High Negative Demographic Effectiveness of Over Forty Percent

The northern states of Uttar Pradesh and Bihar (the two most populous states) and the southern state of Kerala (the most densely populated state) have been and remain regions of very high net out-migration during the periods concerned. Pressure of population on the land (particularly in the largely unproductive agricultural areas) has been one of the most persistent factors behind the large-scale out-migration from these states. Bihar and Uttar Pradesh together contributed nearly 35 percent of the total rural out-migration at the interstate level. These states also lag considerably behind other developed states like

Maharashtra, Gujarat, Tamil Nadu, Punjab, and West Bengal in terms of urban and industrial development.

Despite three decades of planning, both Uttar Pradesh and Bihar continue to remain stagnant and depressed in terms of social and economic development. High out-migration from Kerala is at least partly a result of the high level of literacy in its male and female population. In India as well as in many other developing countries the social attitude towards manual and white-collar jobs (partly due to economic reasons) varies considerably. As such, even if labor-intensive types of jobs are available locally, people with higher education tend to move over greater distances, searching for more specific types of jobs, than do those persons having little or no education.

In spite of its economic backwardness and high total net out-migration, Bihar is conspicuous in having net inflows from many distant states of India (see Table 7). The Chotonagpur plateau of south Bihar has the richest mineral reserves of India, which stimulated substantial industrial growth in the region in the post-Independence period, with the consequence that the indigenous tribal population has been greatly outnumbered by migrants in almost all the major towns.

States with Significant Changes in Demographic Effectiveness: 1961 to 1981

Change in demographic effectiveness is often brought

about by a relative change in the socio-economic structure of the origin and destination regions of migrants. Between 1961 and 1981, the migration system of 6 out of the 15 states (including Delhi) underwent significant (more than 10 point difference in any one decade) changes in their ability to effect population relocation (Table 5).

Table 5

States Showing Significant Changes in Demographic Effectiveness: 1961-1981

States	1961	1971	1981
West Bengal	57.6	46.2	38.4
Mysore	13.0	2.9	3.7
Madhya Pradesh	28.5	29.2	17.7
Tamil Nadu	-30.9	-15.2	-21.6
Gujarat	-17.2	-6.1	5.7
Orissa*	-17.0	0.3	15.2
Jammu & Kashmir	-41.9	-7.2	NA

\* Orissa is the only state to have a turnaround in its net migration.

Of the 15 regions analyzed, only one state (Orissa) had a turnaround in the sign of net migration. Almost all the states except Orissa and Gujarat in Table 5 registered a decline in their net migration because of the impact of central and state policies designed to promote development in backward regions, i.e., areas of high out-migration. Orissa, for example, had a reversal in its demographic effectiveness from net out- to net in-migration between 1961 and 1971 following large-scale public investment in the steel industry at Rourkela and multipurpose irrigation project on the Mahanadi river in the 1960s. The extent to

which the impact of such developmental policies was beneficial to the native inhabitants of the state as opposed to the migrants, however, is a matter of considerable debate and lies beyond the scope of this study.

The two states of Gujarat in the West (which emerged from a net out- to net in-migrating region between 1971 and 1981) and Tamil Nadu (which showed a fluctuation in its net out-migration) were somewhat conspicuous because these two relatively developed states of India showed an excess of out-migration over in-migration from other states. The same applies to the developed states of Punjab Group (see Figures 2, 3, and 4). The propensity of people to out-migrate is likely to increase with the development of a region. However, the developed states of Maharashtra and West Bengal (until recently) did not show a high out-migration rate. This may be accounted for not as much by economic as by social or cultural differences between the relatively developed states. Both the Punjabis and Tamils are known for their high mobility (see Weiner 1978), the former being more enterprising and more widely dispersed than the latter (See Table 4).

#### States with Relatively Consistent Demographic Effectiveness: 1961 to 1981

It is surprising to note that while fifty percent of the states have undergone significant changes in their demographic effectiveness, the rest showed very little

change (Table 6) in their character (positive or negative) of net migration during the relatively long period of three decades (1950s through 1970s).

Table 6

States with Little Change in the Character of Demographic Effectiveness: 1961-1981

States	1961	1971	1981
Kerala	-45.5	-58.2	-53.2
Uttar Pradesh	-40.2	-43.7	-49.6
Bihar	-41.5	-39.8	-40.4
Andhra Pradesh	-19.4	-19.2	-19.5
Maharashtra	48.1	48.7	53.1
Delhi	68.0	67.7	NA
Assam	67.7	66.7	NA

This perhaps emphasizes the common conclusion of Indian economists and planners about the performance of Indian "five year plans" -- that under the successive plans the backward regions have made very little progress while the developed areas have become more prosperous. This also highlights the peculiarity of the Indian economic scene, which is characterized by pockets of growth amid large areas of stagnation. According to Myrdal (1964), the backwash effects of growth tend to be much stronger than the spread effects in developing countries, resulting in net movement of people and resources in favor of the progressive regions.

There might be a general notion that the demographic effectiveness index is related to economic development. As far as this analysis is concerned, no one-to-one correspondence exists between the general level of economic

development or economic growth of a state, with that of its demographic effectiveness. This may be explained in various ways. There may be isolated pockets of growth in an otherwise backward region/state; similarly a developed state may contain backward areas. Also, developed regions are likely to have higher mobility than the less developed ones. Madhya Pradesh (M.P.), for example, consistently shows net in-migration (though it has declined in 1981), but it also represents one of the most backward states of India. The setting up of the largest public-sector steel plant at Bhilai, as well as the growth of heavy electrical and chemical industries in Bhopal, led to strong urbanward migration in Madhya Pradesh. The state is also favored by a low density of population and hence less pressure on land. Availability of land appears to be a critical factor in promoting in-migration towards this state. This is evidenced by the fact that Madhya Pradesh accounted for the largest share (about 12 percent) of the total interstate in-migration to rural areas followed by the Punjab group in 1961 and 1971 (Mehrotra 1974). The latter had experienced an unprecedented growth in its agricultural sector (known as the "green revolution") during the late 1960s and 1970s.

Demographic Effectiveness of Interstate  
Streams of Inflows and Outflows

An analysis of demographic effectiveness of area-to-area specific migration streams for the year 1961 and 1971

reveals the following:

1. A very large proportion of total individual in- and out-migration streams were of the "noncompensating" type ( $D_K \geq 40.0\%$ ). This proportion was as high as 69.0% of total flow in 1961, but it declined to 59% in 1971.

2. Such decline implies that there had been some increase in the counter streams of outflow from the regions of high net in-migration (like West Bengal and Mysore) and inflow to the regions of net out-migration (e.g., Orissa, Jammu & Kashmir, Tamil Nadu and Gujarat).

3. The two notable exceptions to this trend were Kerala and Maharashtra, which retained, even intensified, their predominantly unidirectional migration pattern between 1961 and 1981. All the streams out of Kerala were much stronger than the counter streams of in-migration to Kerala in both 1961 and 1971 (Table 7). Between 1961 and 1971 a very large proportion of total out-migrants from rural, as well as urban areas of Kerala went to urban areas of other states, and only a quarter of total out-migrants from Kerala went to rural areas of other states (Kamble 1983).

4. Out of a total of 240 individual streams of in- and out-migration considered, fewer than 1 percent registered a turnaround in the sign of demographic effectiveness (see Table 7).

5. A comparison of Figure 5 and Figure 6, showing the streams of most efficient exchange, reveals (a) very

Table 7

## Demographic Effectiveness of Each Pair of In- and Out-Migration Streams, 1961 and 1971

ANDHRA PRADESH (AP)			ASSAM (AS)			BIHAR (BH)			GUJRAT (GU)		
1961	1971		1961	1971		1961	1971		1961	1971	
KR	85	82	BH	93	92	KR	89	82	UP	77	83
JK	78	8	TN	93	68	TN	84	62	JK	69	56
RJ	69	65	KR	90	88	RJ	72	51	PU	67	70
PU	43	50	RJ	89	86	PU	64	42	RJ	67	55
UP	31	25	OR*	80	-2	AP	63	38	KR	43	71
TN	16	9	JK	78	43	GU	58	21	TN	22	28
AP	0	0	UP	69	82	JK*	46	-27	AP	15	19
OR	-11	-36	AP	64	64	MY	45	1	GU	0	0
GU	-15	-19	PU	62	85	UP	14	4	MY*	-5	17
MY	-23	-20	GU	55	4	BH	0	0	MP	-17	-8
DH	-40	-50	MY	46	11	MP	-13	-39	DH	-34	-17
MH	-49	-40	WB	7	13	OR	-22	-30	MH	-51	-41
WB	-57	-41	MP	3	22	MH	-26	-59	OR	-53	-48
MP	-59	-72	AS	0	0	WB	-63	-56	WB	-55	-33
BH	-63	-38	DH	-19	-38	DH	-63	-70	AS	-55	-4
AS	-64	-64	MH	-26	-28	AS	-93	-92	BH	-58	-21

JAMMU & KASHMIR (JK)			KERALA (KR)			MAHARASHTRA (MH)			MADHYA PRADESH (MP)		
1961	1971		1961	1971		1961	1971		1961	1971	
KR	45	65	KR	0	0	UP	89	90	KR	93	94
TN	13	21	TN	-18	-34	KR	89	91	JK	81	29
MY	0	-27	GU	-43	-71	TN	82	77	PU	79	70
JK	0	0	JK	-45	-65	JK	81	63	TN	77	78
PU*	-29	5	PU	-66	-29	RJ	81	79	AP	59	72
UP*	-39	5	UP	-69	-72	PU	70	70	MY	52	50
BH*	-46	27	MY	-73	-75	GU	51	41	RJ	37	19
RJ	-55	-4	RJ	-80	-81	AP	49	40	UP	36	44
GU	-69	-56	AP	-85	-82	MY	47	50	OR	34	32
WB	-71	-25	WB	-87	-81	BH	26	59	GU	17	8
DH	-77	-69	MH	-89	-91	AS	26	28	BH	13	39
AS	-78	-43	DH	-89	-89	WB	20	47	MH	11	5
AP	-78	-8	BH	-89	-82	OR	9	48	MP	0	0
MP	-81	-29	AS	-90	-88	DH*	1	-5	AS	-3	-22
MH	-81	-63	OR	-93	-86	MH	0	0	DH	-21	-27
OR	-81	53	MP	-93	-94	MP	-11	-5	WB*	-31	25

NB: \* Denotes Turnaround in Net Migration.

Table 7 (Continued)

## Demographic Effectiveness of Each Pair of In- and Out-Migration Streams, 1961 and 1971

MYSORE (MY)			ORISSA (OR)			PUNJAB GROUP (PU)			RAJASTHAN (RJ)		
1961	1971		1961	1971		1961	1971		1961	1971	
RJ	84	78	KR	93	86	KR	66	29	KR	80	81
KR	73	75	RJ	85	81	TN	42	15	JK	55	4
TN	63	47	TN	83	69	JK*	29	-5	PU	18	10
PU	44	47	JK*	81	-53	PU	0	0	UP	8	20
AP	23	20	PU	75	5	UP	-6	-17	RJ	0	0
UP	22	20	UP	60	59	RJ	-18	-10	MP	-37	-19
GU*	5	-17	MY	54	30	AP	-43	-50	TN	-44	-58
MY	0	0	GU	53	48	MY	-44	-47	GU	-67	-55
JK	0	27	BH	22	30	AS	-62	-85	AP	-69	-65
WB*	-27	9	DH*	20	-32	BH	-64	-42	BH	-72	-51
BH	-45	-1	AP	11	36	DH	-66	-61	DH	-80	-75
AS	-46	-11	OR	0	0	WB	-67	-46	MH	-81	-79
MH	-47	-50	MH	-9	-48	GU	-67	-70	WB	-81	-71
MP	-52	-50	MP	-34	-32	MH	-70	-70	MY	-84	-78
DH	-54	-46	WB	-44	-21	OR	-75	-5	OR	-85	-81
OR	-54	-30	AS*	-80	2	MP	-79	-70	AS	-89	-86

TAMIL NADU (TN)			UTTAR PRADESH (UP)			WEST BENGAL (WB)			DELHI (DH)		
1961	1971		1961	1971		1961	1971		1961	1971	
RJ	44	58	KR	69	72	KR	87	81	KR	89	89
KR	18	34	TN	45	34	RJ	81	71	RJ	80	75
TN	0	0	JK*	39	-5	TN	81	51	TN	79	75
JK	-13	-21	PU	6	17	JK	71	25	JK	77	69
AP	-16	-9	UP	0	0	UP	70	70	UP	76	78
GU	-22	-28	RJ	-8	-20	PU	67	46	PU	66	61
PU	-42	-15	BH	-14	-4	BH	63	56	BH	63	70
UP	-45	-34	MY	-22	-20	AP	57	41	MY	54	46
MY	-63	-47	AP	-31	-25	GU	55	33	AP	40	50
MP	-77	-78	MP	-36	-44	OR	44	21	GU	34	17
DH	-79	-75	OR	-60	-59	MP*	31	-25	WB	29	58
WB	-81	-51	AS	-69	-82	MY*	27	-9	MP	21	27
MH	-82	-77	WB	-70	-70	WB	0	0	AS	19	38
OR	-83	-69	DH	-76	-78	AS	-7	-13	DH	0	0
BH	-84	-62	GU	-77	-83	MH	-20	-47	MH*	-1	5
AS	-93	-68	MH	-89	-90	DH	-29	-58	OR*	-20	32

NB: \* Denotes Turnaround in Net Migration.

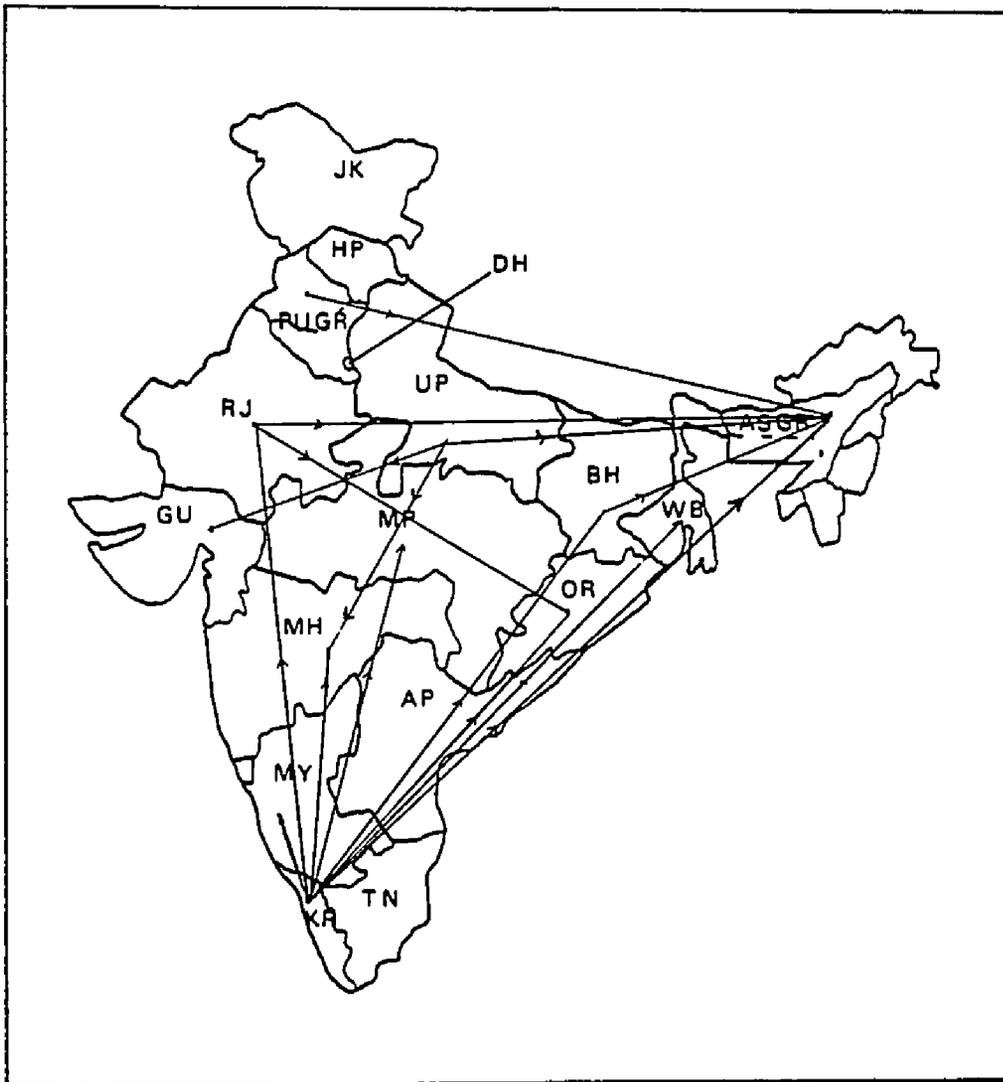


Fig. 5. Migration Streams with Over 80% Demographic Effectiveness in 1961.

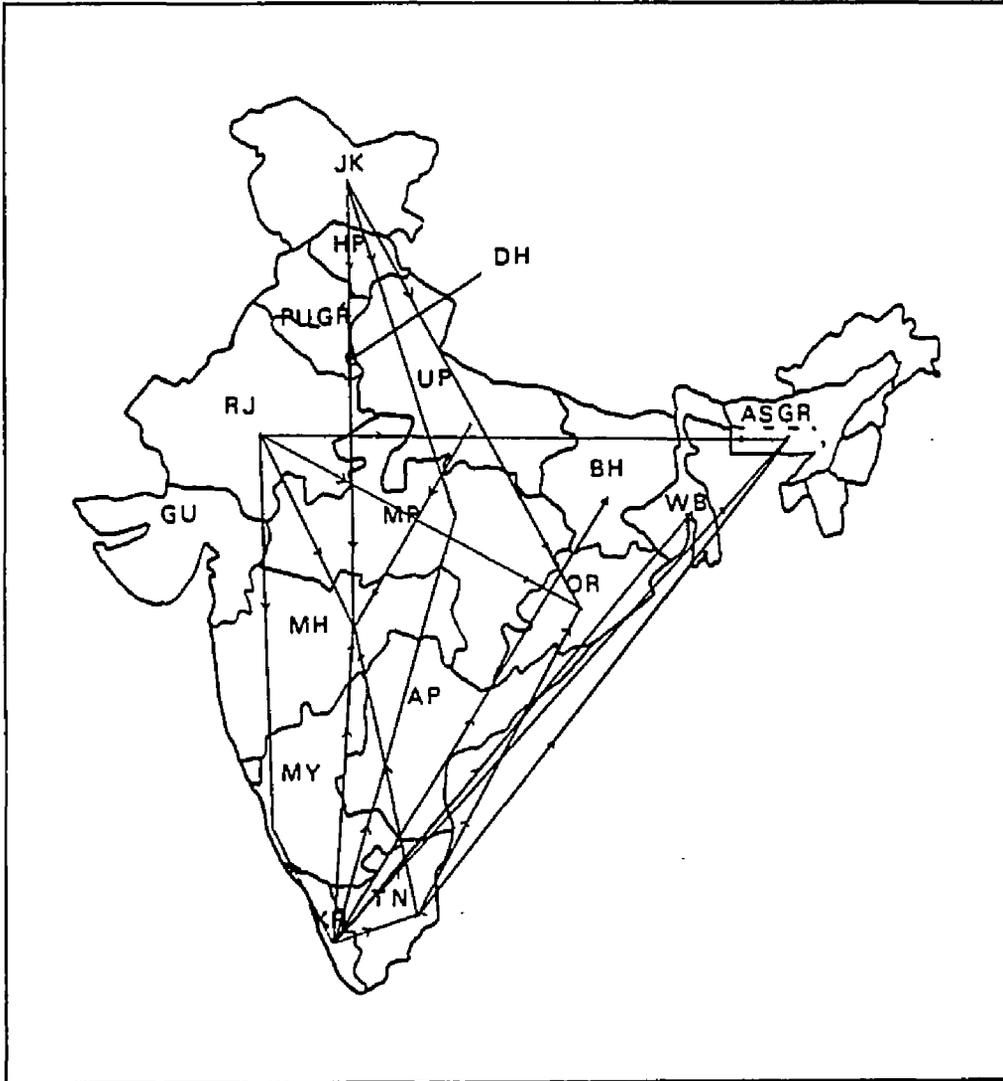


Fig. 6. Migration Streams with Over 80% Demographic Effectiveness in 1971.

little change in the structure of the overall migration system of India between 1961 and 1971, and (b) that the most efficient streams of out-migration from Kerala got spread out all over India and were mainly long-distance ones. The level of industrialization and urbanization in Kerala are not high. As a result, a large proportion of the total skilled manpower from Kerala (which, incidentally, has the highest literacy rate of all states) might have out-migrated.

#### Systemwide Changes in Demographic Effectiveness

In developing countries, where serious regional imbalances exist in the distribution of economic opportunities, and where pressure of population is extremely high compared to the available resources, the streams of migration from relatively backward areas toward the more prosperous areas tend to be overwhelmingly unidirectional, with very few counter streams of movement from the latter to the former. This results in very high regional variations in the absolute value of the demographic effectiveness. For example, while the mean demographic effectiveness of all the states in 1961 was only -1.7 percent, the standard deviation was high: 42 percent. The mean value for 1971 was 1.6 percent, and the standard deviation was 39.2 percent. The standard deviation in 1981 (though data was available for only 13 states instead of 16) was 30.8 percent.

Unlike developed countries characterized by high mobility and largely "steady state" (see Plane 1984) type flows (inflows are balanced by more or less equal magnitude of outflows), developing countries at a much lower stage of development are characterized by overall low mobility and largely "non-steady state" type unidirectional flows. Following Shryock (1964) the overall demographic effectiveness of interstate movements for the country can be summarized as:

$$D = 100 \sum_k |N_k| / \sum_k T_k.$$

For India this measure was as high as 74.3 percent in 1961, but it declined to 67.5 percent in 1971, and it can be expected to decrease further in 1981. By contrast for the U. S. this index, as cited by Plane (1984), for the period 1965-70 was as low as 11.6 percent. The declining trend of the overall demographic effectiveness of interstate moves in India signals shifts attendant to post-Independence development activities.

#### Comments

In the light of above findings, certain generalizations about the properties of demographic effectiveness as related to the changing pattern of population movement, which is concomitant to the process of

socioeconomic and organizational transformation of a society can be outlined as follows:

1. Migration systems of developing countries are likely to be characterized by very high overall demographic effectiveness, as well as great regional variations in it. This is indicative of the structural immaturity and imbalance of these countries, which are still in the early stages of industrial development.

2. During the initial phase of development (which coincides for some countries like India with the colonial period), this regional imbalance may be perpetuated for quite a long time, resulting in an increase in overall demographic effectiveness as well as greater regional variations in it.

3. Greater industrialization and economic development will lead to regional convergence of growth (though this convergence has not occurred in any significant way in most developing countries, including India) and increased mobility, and hence a gradual reduction in demographic effectiveness (both the absolute magnitude and regional variability) is likely to follow. Some external factors, political or otherwise, may cause an interruption in this process in the short run, but in the long run predominantly unidirectional flows will be replaced by more and more cross-movements.

4. This decline in the overall demographic effectiveness should continue until it is stabilized at a quite low level of perhaps about ten percent or less (since a perfectly balanced distribution of people and resources is unthinkable). At this point, some significant shift in the economic organization of the country, what is called "post-industrialism" will cause instability in the migration system and overall demographic effectiveness may rise again until forces of equilibrium cause it to subside (see Plane 1984). The absolute magnitude of the overall  $D_K$  in the post-industrial country, characterized by very high mobility and fluid economic system, however, never reaches the point where it was during the pre-industrial period.

Unlike the developed countries, which began to industrialize much earlier and under completely different demographic, economic, and global circumstances, the experience of development for the countries just beginning to develop is bound to be somewhat different than the former. Similarly it follows that, the nature of changes in the migration system and its overall demographic effectiveness may well be different between the former and latter national groups under similar stages of development.

## CHAPTER 4

### REGIONALIZATION OF THE INTERSTATE MIGRATION SYSTEM OF INDIA

Decentralization of economic development and reduction of regional disparities in levels of development have been the biggest challenges for Indian planning during the post-Independence period. It would be worthwhile to find out whether there has been a relative decline in the absolute dominance<sup>1</sup> of certain destinations and a concomitant shift in the major sources of migrants. The post-independence planning policies directed towards the development of backward states are bound to have some impact on the pattern of migration.

There were well established migration flows from one region to another during the late nineteenth and the first half of the present century. For several decades there was a movement of people from the districts of Chotanagpur in southern Bihar and Orissa toward the tea plantations in the hilly areas of Assam, a migration of agricultural laborers

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<sup>1</sup>. In 1971 the population of Calcutta was more than 10 times the size of Patna, the capital of Bihar and the second largest city of northeast India. Bombay was 3.3 times larger than the second largest city of Ahmedabad (Gujarat) and Delhi about 6 times that of Jaipur (Rajasthan). The so-called rank-size rule of city-size distribution does not apply, particularly at the top of urban hierarchy.

from the plains of northern Bihar and eastern Uttar Pradesh to the industrial region of Calcutta (West Bengal) and a flow of population from Gujarat, U.P., Mysore, and Tamil Nadu to the industrial region of Bombay (Maharashtra). The ethnicity of migrants often played an important role in consolidating and perpetuating the first generation flows.

In this chapter, the structure of interstate movements has been explored by regionalizing the migration system into different regional subsystems on the basis of similarities in the origins of migrants (in-migration subsystems) and their destinations (out-migration subsystems) for the census years 1961 and 1971. The area-to-area flow data for 1981 are not yet available.

In developed countries the in- and out-migration subsystems are likely to be very much alike (see Plane and Isserman 1983) because of the overall high mobility and cross movements between the origin and destination areas of the migrants. The same may not be true for a developing country like India, characterized by low mobility and unbalanced migration system.

#### Purpose

The underlying intent of this chapter is: (i) to discover the temporal changes or stability of the interstate in- and out-migration subsystems and (ii) to study the sex-related similarities or differences between the in- and out-

migration subsystems of male and female migration at the interstate level. Attainment of the second objective is more difficult than the first one, in view of the lack of explanatory studies on the behavior of female migration in India (Premi 1980).

The following outcomes are expected to emerge from our analysis.

1. Because the strongest channels of in-migration to a destination-state are likely to originate from the bordering states, in-migration subsystems (derived on the basis of proportionally significant similarities in origins of migrants) are likely to be compact regions broadly corresponding to the geo-economic regions of India (Figure 7), particularly in the case of male in-migration, since the majority of them, as discussed later, move for economic reasons. Following our finding in Chapter 3, that the streams of in-migration (to a few regional centers) do not generate counter streams of out-migration of similar magnitude, it is expected that out-migration subsystems would be somewhat different and, perhaps, more diverse (because of the emergence of new destinations) than the subsystems of in-migration.
2. The post-Independence development activities would cause some shift in the hierarchy of the

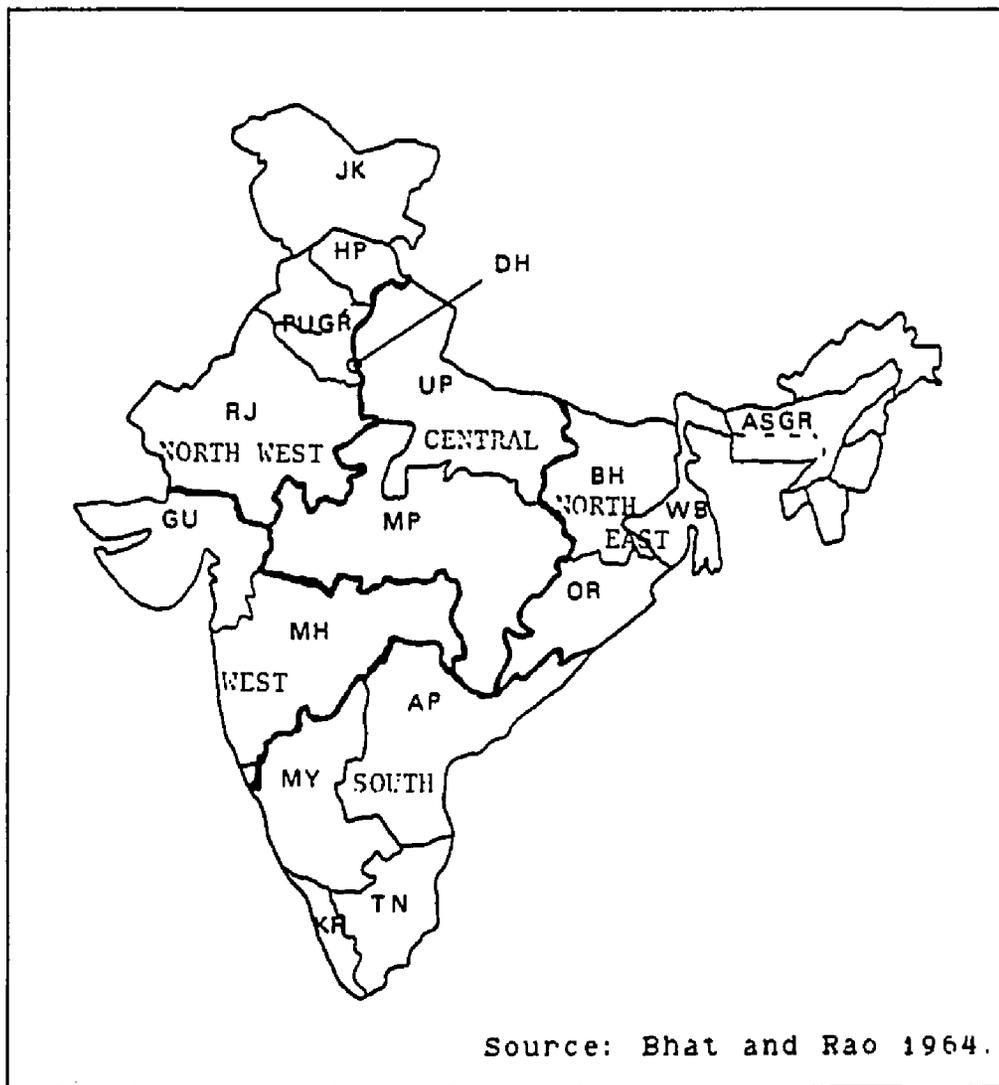


Fig. 7. Macro Economic Regions of India.

subsystems (no major shift is expected because of the limited period of time considered here).

3. Because the majority of females move along with, or to join their families or husbands (discussed later under female migration subsystems), a general parity is expected between the major origins and destinations of male and female migrants.

#### Methodology

Principal component analysis (PCA) has been used for simplifying the complex structure of the interstate movements. The use of PCA is fairly common in studies of urban social areas, but its use in migration studies has been more limited. It was used for analyzing the regional patterns of inflow and outflow of population in France by Winchester (1977) and in the U.S. by Plane and Isserman (1983).

The utility of PCA as a statistical technique lies in its ability to summarize and transform a large set of variables into a smaller set of composite variables or components (also called factors), which are particular linear combinations of variables that account for most of the variance in the data. Usually the rows of an interstate flow matrix denote the origins of migrants and the columns their destinations. If the columns of the initial matrix are transposed into rows (or rows into columns) the

interpretation would be vice-versa. Two sets of components were extracted, one based on correlations in the pattern of origins of in-migrants (from the original flow matrix) and the other based on correlation of the destinations of out-migrants (from the transposed matrix).

The flow matrix for 1961 includes all the major states (and Delhi), except the small union territories and states bordering Assam in the northeast. The matrix for 1971 includes the two new states of Haryana (created out of Punjab) and Meghalaya (created out of Assam). Assuming that the boundary changes would not affect the pattern of origins and destinations of migrants, no adjustment of 1971 data was made. Himachal Pradesh, which was a union territory in 1961 but became a state in 1971 was also included in the analysis. Altogether eight matrices showing interstate inflows and outflows of males and females for the years 1961 and 1971 were used for extracting the respective in- and out-migration subsystems.

For each flow matrix the entire output consists of (1) a correlation matrix showing the correlations between its columns, (2) the initial or unrotated component matrix with eigenvalues showing the amount of total variance accounted by each of the unrotated component, (3) the rotated<sup>2</sup> and simplified component matrix showing

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<sup>2</sup>. The varimax criterion was used for the rotation, and only those initial components which had eigenvalues of greater than 1.0 were retained for it. These are standard

correlations of the initial individual components (origins or destinations) with the secondary composite components (subsystems), and (4) component scores for each region on each composite component. The higher the component score, the greater is the significance of an origin (or destination) region for the group of states (subsystem) which have similar in-migration (or out-migration) patterns.

#### Male Migration Subsystems

The major points about the nature and properties of male in- and out-migration subsystems for 1961 and 1971 (Figures 8 through 11) can be summarized as follows:

1. In 1961 there were four distinct subsystems (components) of male in-migration (Figure 8). These four subsystems, covering (a) north, (b) north-east, (c) west-central, and (d) south India, broadly correspond (particularly the northeast and south subsystems) to the geo-economic and cultural regions of India.

2. In agreement with our hypothesis 1, the subsystems of male in-migration do not correspond strictly to the subsystems of out-migration (excepting the northeast), but, surprisingly, the regional composition of each of the in- and out-migration subsystems has remained identical (and thus invariant) from 1961 to 1971 (Figure 10). A component is said to remain invariant if more than 

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conventions adopted in previous studies of this type.

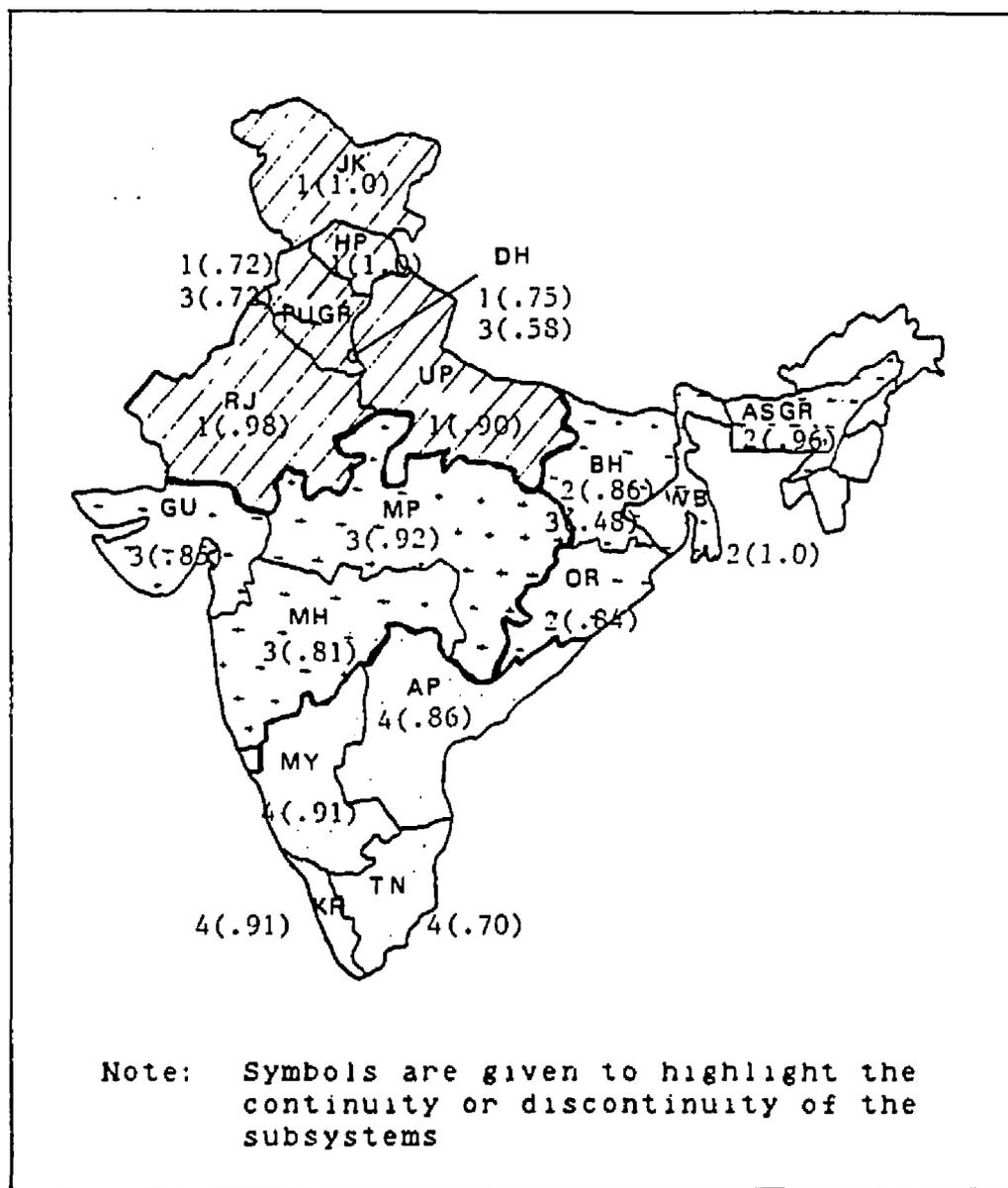


Fig. 8. Interstate Migration Subsystems of India: Male In-migration Patterns 1961.

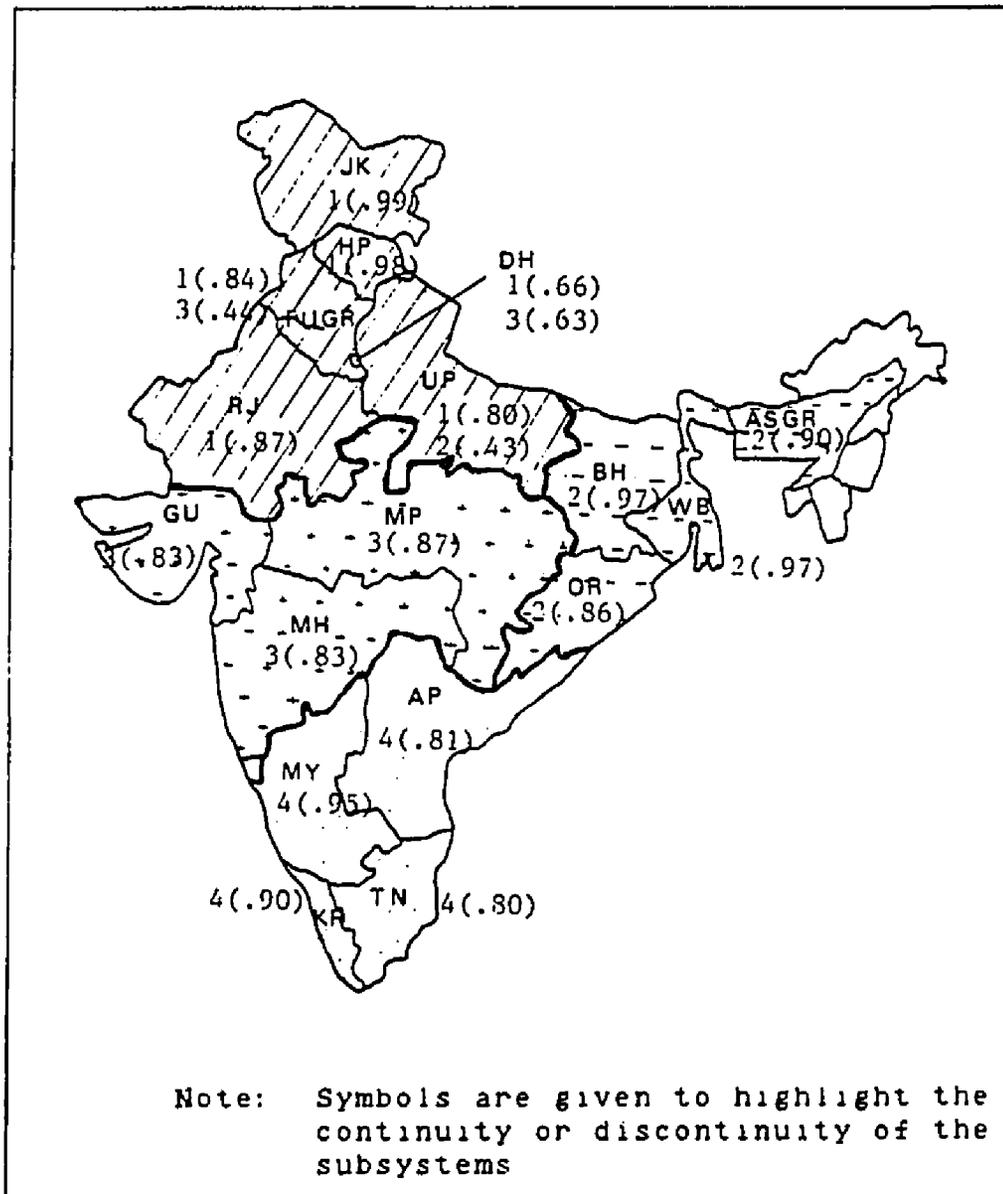


Fig. 9. Interstate Migration Subsystems of India: Male In-migration Patterns 1971.

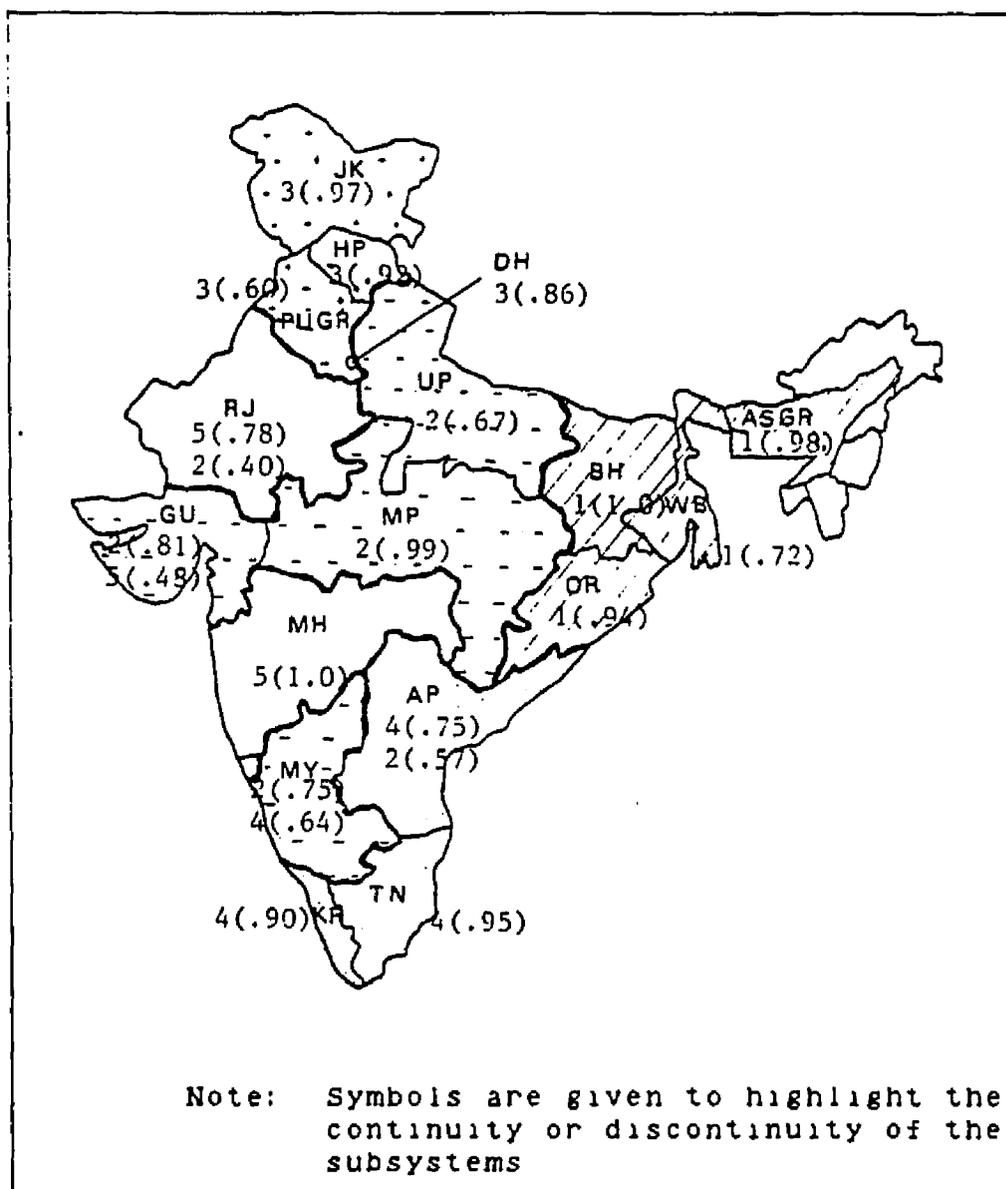


Fig. 10. Interstate Migration Subsystems of India: Male Out-migration Patterns 1961.

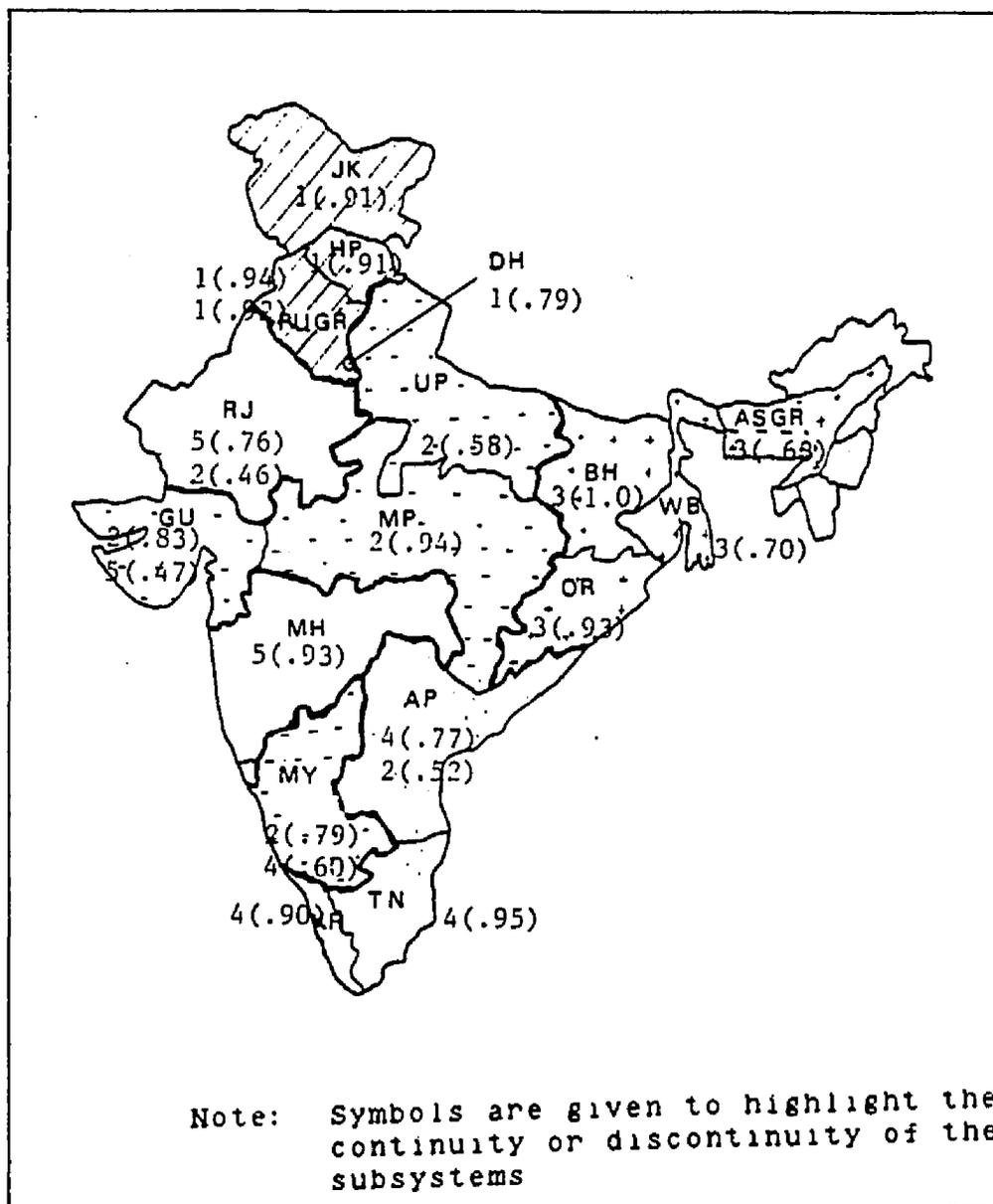


Fig. 11. Interstate Migration Subsystems of India: Male Out-migration Patterns 1971.

half of the states which loaded significantly ( $\geq 0.4$ ) on that component reappear from one time period to the next (Winchester 1977).

3. In general, male in-migration subsystems based on similarities of origins of male migrants were found to be less complex, fewer in number and more compact with better-defined regional limits than their counterpart subsystems based on the destinations of male out-migrants. This discrepancy between the in- and out-migration subsystems for both male and female (discussed later) migrants in India is contrary to the findings of Plane and Isserman (1983), who found a remarkable correspondence between the two types of subsystems (of total migrants) in the case of the U.S. The lack of regularity in the regional pattern of outflows (destinations) of migrants is probably a reflection of macro socio-economic factors, such as, the existence of major structural and spatial imbalances in distribution of resources, and presence of great social disparities in attitudes, customs, skills, and education of the various groups of migrants.

4. The most important common source of in-migrants for the entire north of India was Punjab both in 1961 and 1971 (despite the fact that Punjab became smaller in area in 1971 due to the creation of Haryana in 1966). In 1971, Uttar Pradesh became the second most important source of in-migrants after Punjab for the north subsystem.

The north subsystem of male in-migration (component 1) gets divided between two separate subsystems of out-migration (component 2 and 3). This may be caused by the peculiar pattern of migration in Punjab. Punjab, which has experienced substantial growth in relatively recent times (in its agriculture and subsequently in small-scale industries), is somewhat distinct from the traditionally developed states of India like Maharashtra and West Bengal, in having high rates of both in- and out-migration at the interstate level. Out-migration from Punjab was so strong in 1961 that it loaded highly and equally (0.72) on component 1 (north) and component 3 (west central). In 1971 too, Punjab loaded on the same two components (though its loading declined on component 3), implying that its out-migration streams were quite diverse.

5. The male migration subsystem of the northeast comprising the states of Assam, West Bengal, Bihar, and Orissa was the most consistent of all, in terms of its extremely similar in- and out-migration structure obtained for 1961 and 1971. The primary source of in-migration in this subsystem was Bihar followed by West Bengal, while the most important destination for out-migrants was West Bengal (Calcutta Industrial region) followed by Bihar (mostly the industrial towns of southern Bihar). Bihar was also an important source of in-migrants for the west-central region.

6. In the case of male out-migration, the dominant

position of West Bengal in component 1, as the most attractive destination for the northeast in 1961, was replaced in 1971 by the national capital of Delhi and the rapidly growing state of Punjab in the north. The importance of West Bengal as a destination also declined in relation to Maharashtra, which remained the most important destination for the west central-U.P.- Mysore subsystem (component 2) from 1961 to 1971. This downward shift in the importance of West Bengal as a destination was a result of both the internal economic stagnation of the Calcutta industrial region and also the external impact of dispersal of development activities elsewhere, as expected in our hypothesis 2.

The extraordinary growth in the states of northwest India, particularly the Hariyana-Punjab region (following the green revolution in 1960s), was mainly a post-Independence phenomenon. There has been a distinct upsurge here of non-agricultural activity during the last decade -- in small-scale engineering, manufacture of agricultural equipment, and, increasingly consumer goods -- with a concomitant increase in the labor force employed in manufacturing (Pandit 1978). In contrast, the continued growth of industries (mainly capital-intensive types) in the western states of Maharashtra and Gujarat, perhaps had a lesser impact on the growth of industrial labor force of these states (Crook and Dyson 1982). Finally, West Bengal,

crippled with power shortage and labor unrest, has certainly failed to attract new investment over the last two decades.

7. The west central in-migration subsystem comprised of the states of Gujarat, Madhya Pradesh, and Maharashtra (component 3) actually gets split between two separate subsystems (component 2 and 5) in the case of male out-migration. The non-contiguous west central Uttar Pradesh-Mysore subsystem of male out-migration (component 2) was unique in the sense that, unlike other subsystems, the most important single destination for this subsystem lies outside it. The same was true in the case of the major source of in-migrants (Uttar Pradesh) for the west central subsystem (component 3 of male in-migration).

8. The southern subsystem of in- and out-migration covering the states of Andhra Pradesh, Tamil Nadu, Kerala, and Mysore (note that Mysore is more aligned to Maharashtra than other southern states in terms of out-migration) forms a distinct cultural and economic region. Kerala, which has the highest number of out-migrants of all the states of south India, did not appear as the most important origin of migrants, because most of the out-migration streams from Kerala reach diverse destinations beyond the limit of the southern subsystem.

9. Maharashtra and Rajasthan had the least out-migration of males in both the time periods.

### Female Migration Subsystems

Explanation of the female migration subsystems is by no means an easy task. Before proceeding, it is better to discuss some of the peculiarities associated with the female migration in India. In absolute terms women migrants outnumbered men in both intrastate and interstate migration in 1971. The number of total female migrants was 93 million in 1961 and 110 million in 1971. The corresponding figures for male migrants were 41 and 49 million respectively. However, the female/male ratio declines sharply from the highly female-dominated intradistrict rural-rural moves to the male-dominated interstate urban-directed ones (Table 8).

Over 55 percent of the total interstate movements in 1971 were urban oriented moves, which include rural to urban and urban to urban movements. Cityward migration, particularly that originating in rural areas, is highly biased in favor of adult males. The reverse is true for rural oriented migration. The findings of national sample surveys (1958-59, 1959-60, and 1973-74), as well as researchers (Narain 1972 and Premi 1980) confirmed that the overwhelming majority of female migrants moved due to marriage and very few due to economic reasons.

The 1981 census, which for the first time incorporated data on motives of migration, reveals that even in the case of long-distance interstate migration, 42 percent of the total female migrants moved because of

Table 8

Female-Male Sex Ratio<sup>a</sup> for Different Types of Migration:  
1961 and 1971

1961	Intradistrict	Interdistrict	Interstate
Rural-rural	3,660	2,474	1,425
Urban-rural	1,783	1,457	1,057
Urban-urban	1,248	1,056	790
Rural-urban	1,198	803	504
1971			
Rural-rural	3,691	2,830	1,687
Urban-rural	1,821	1,434	930
Urban-urban	1,264	1,049	841
Rural-urban	1,196	879	582

Source: Census of India 1971.

a. Sex ratio is defined as number of female migrants per thousand male migrants.

Table 9

Reasons for Migration to Urban and Rural Areas: 1981

	-----Interstate-----				-----Total-----			
	Urban		Rural		Urban		Rural	
	M	F	M	F	M	F	M	F
Employment	55.5	5.1	36.4	3.8	43.1	4.2	19.9	1.3
Marriage	0.6	41.5	2.4	68.0	1.1	46.6	4.8	79.4
Family								
Movement	22.5	37.8	31.3	17.5	27.3	32.5	33.4	9.8
Education	4.2	2.3	2.3	0.6	6.6	2.4	3.4	0.5
Others	17.2	13.2	27.6	10.1	21.9	14.3	38.0	9.0

Source: Census of India 1981.

marriage (as against 0.6 percent of male migrants) and another 39 percent moved (mainly as dependents) due to movement of family. Only 7.5 percent of the female interstate migrants moved for employment and educational reasons, compared to 60 percent in the case of male migrants (Table 9).

In India, certain traditions pursued by the people — the custom of arranged marriage by the family and a wide circle of relatives, social relations, and friends (often distributed over a large territory), and marriage within the same caste, similar culture, and socioeconomic status — promote high mobility of females, who otherwise live in a conservative environment. An implication of such traditions is that male out-migrants often marry someone from their native places, regardless of their present place of residence. The territorial extension of conventional marriage goes beyond district, state, and even national boundaries.

Despite the problems involved in explaining the pattern of female migration, the following observations can be made from an examination of the female migration subsystems (Figures 12 through 15).

1. A comparison of female in- and out-migration subsystems (Figure 17) to the corresponding subsystems of male migration (Figure 16) reveal more apparent differences than similarities. Unlike male migration, in which the

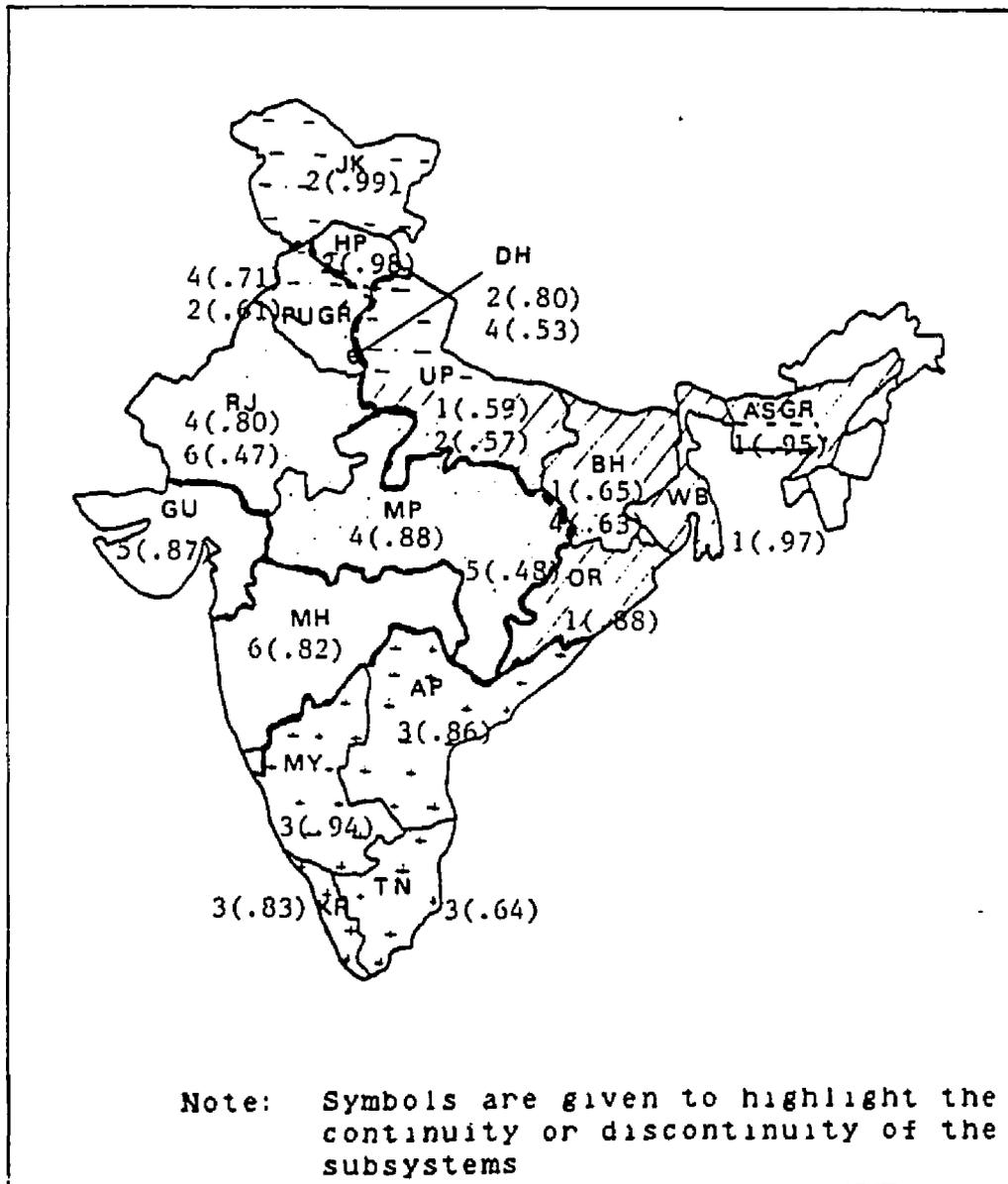


Fig. 12. Interstate Migration Subsystems of India: Female In-migration Patterns 1961.

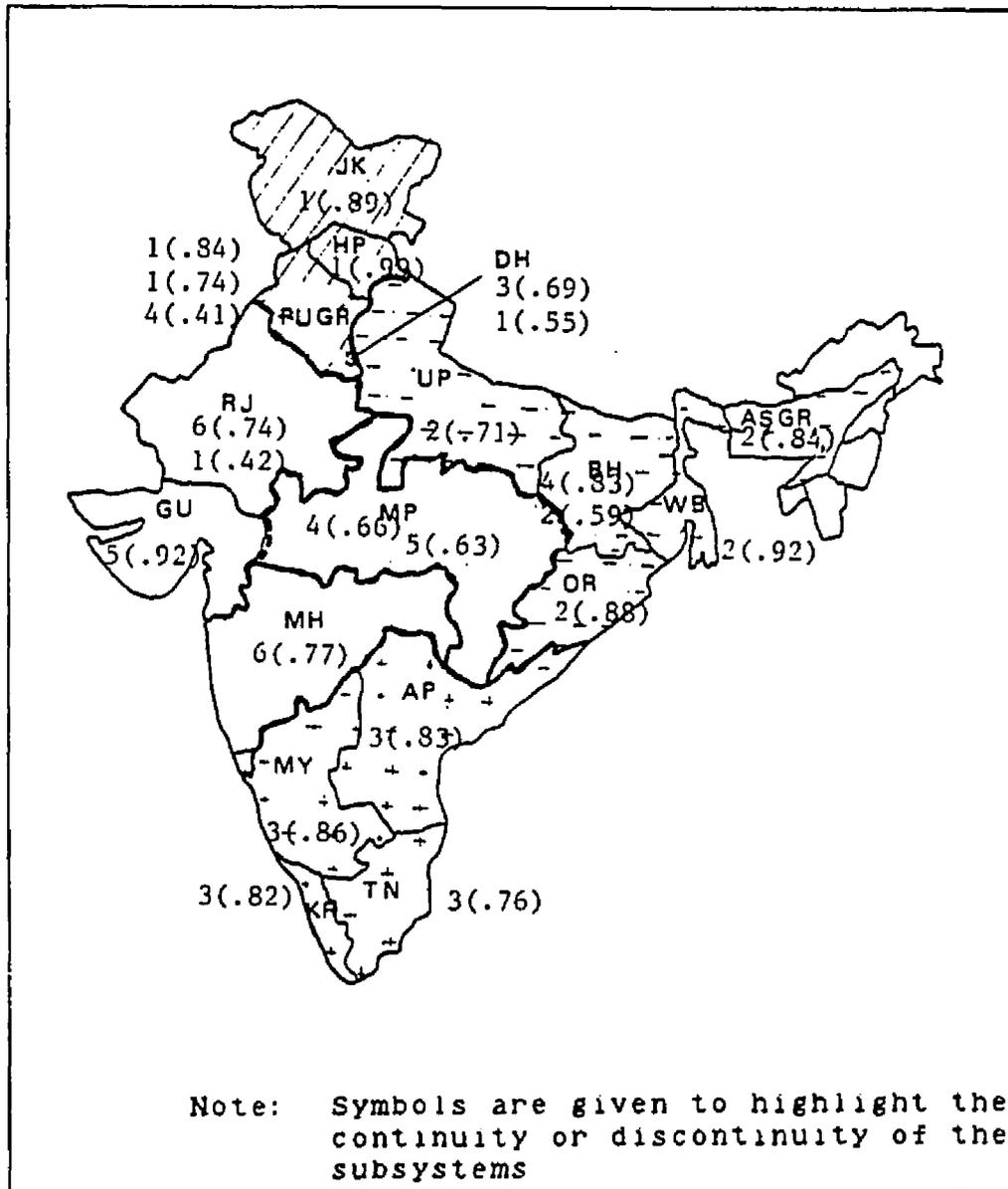


Fig. 13. Interstate Migration Subsystems of India: Female In-migration Patterns 1971.

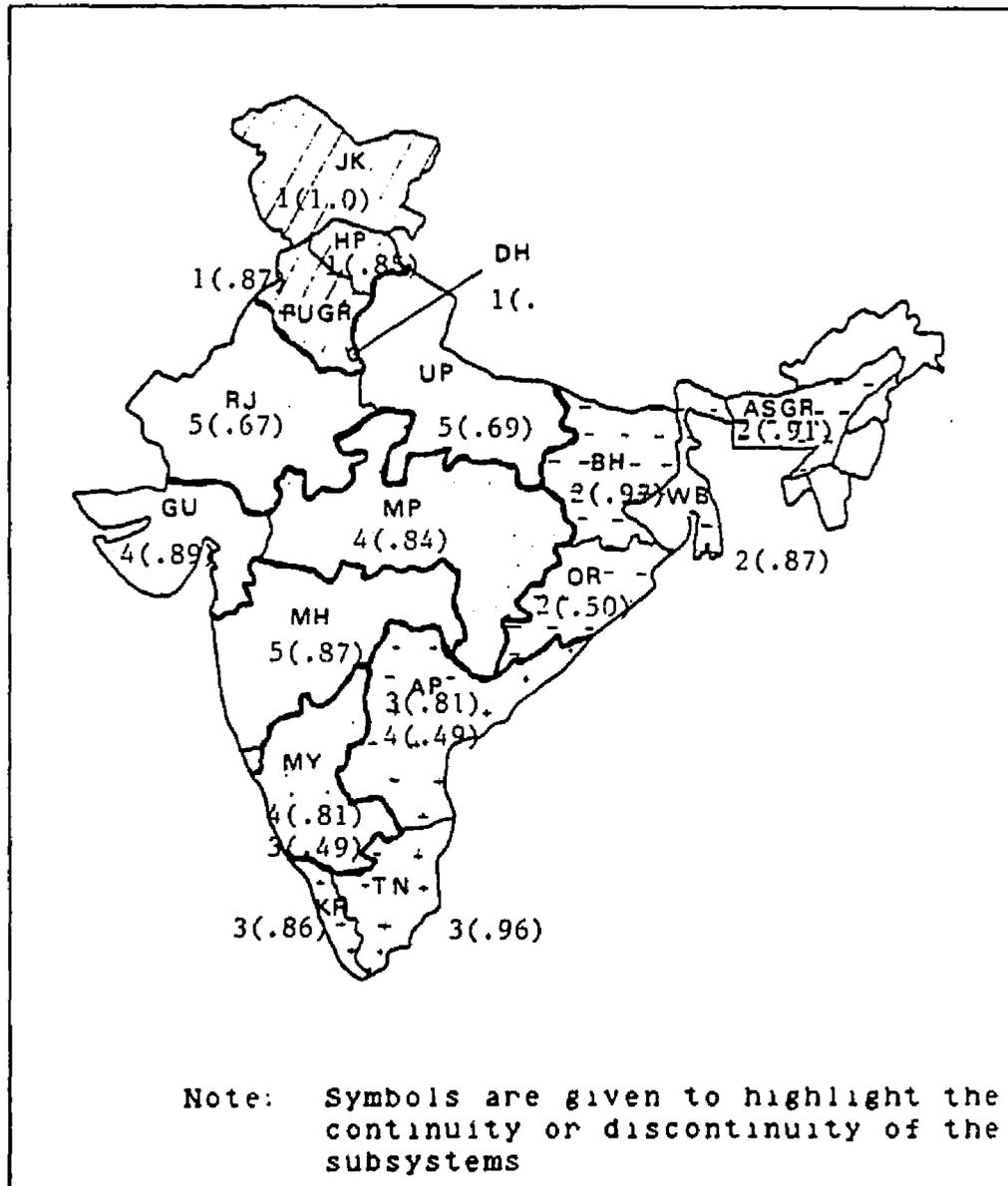


Fig. 14. Interstate Migration Subsystems of India: Female Out-migration Patterns 1961.

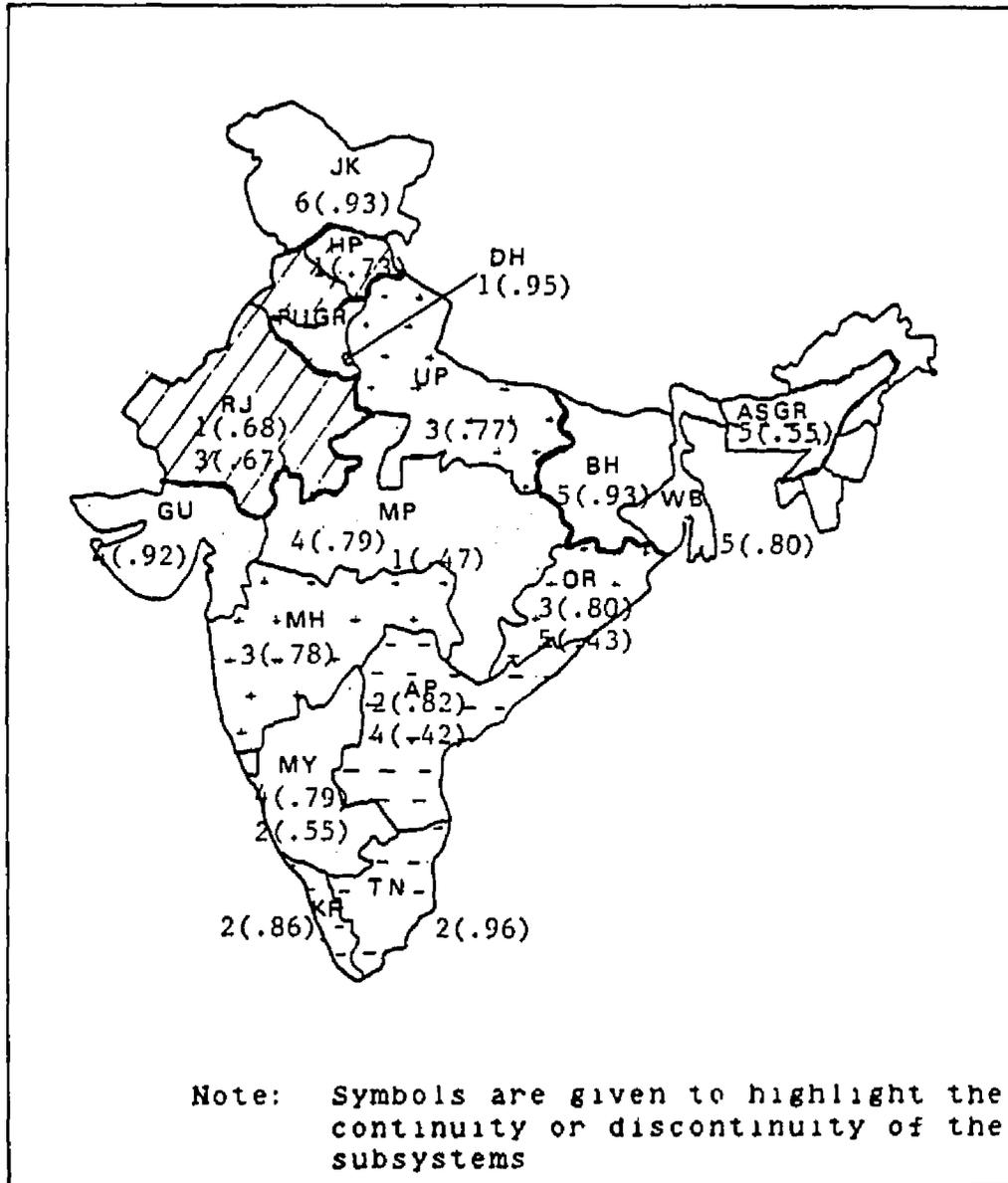


Fig. 15. Interstate Migration Subsystems of India: Female Out-migration Patterns 1971.

MALE IN-MIGRATION			MALE OUT-MIGRATION		
Component No.	1961	1971	Component No.	1961	1971
1	North (35.1)	North (33.0)	1	Northeast (26.6)	PU, HM, JK, DH (27.9)
2	Northeast (21.9)	Northeast (22.9)	2	W. Central, UP & MY (24.4)	W. Central, UP & MY (20.5)
3	W. Central (17.3)	W. Central (14.9)	3	PU, HM, JK, DH (20.8)	Northeast (19.4)
4	South (14.4)	South (9.6)	4	South excl. MY (10.5)	South excl. MY (11.2)
			5	MH & RJ (7.6)	MH & RJ (6.9)
Cumulative Percent of Variation Explained: 88.7			Cumulative Percent of Variation Explained: 89.9		
80.4			85.9		
<p>— Components invariant from one period to the next.</p> <p>* New component</p> <p>Note: Figures within brackets denote percentage variation explained by each component</p>					

Fig. 16. Component Invariance of Male In-migration and Out-migration.

FEMALE IN-MIGRATION			FEMALE OUT-MIGRATION		
Component No.	1961	1971	Component No.	1961	1971
1	Northeast & UP (29.1)	*PU, HR, HM (23.6)	1	PU, HM, JK (28.5)	*PU, HM, RJ & DH (23.6)
2	HM, JK & DH (21.4)	N.East & UP excl. BH	2	Northeast (21.4)	South excl. MY (20.5)
3	South (14.7)	South (14.3)	3	South excl. MY (17.1)	*OR, UP, MH (14.3)
4	PU, RJ, MP (12.5)	*MP, BH, DH (11.6)	4	GU, MP, MY (11.5)	GU, MP, MY (11.2)
5	GU (7.2)	GU (8.3)	5	UP, RJ, MH (9.8)	Northeast excl. OR (7.7)
6	MH (6.1)	*MH & RJ (5.7)	6		*HR & JK (6.2)
Cumulative Percent of Variation Explained: 90.0			Cumulative Percent of Variation Explained: 80.3		
86.7			83.5		
<p>— Components invariant from one period to the next.</p> <p>* New component</p> <p>Note: Figures within brackets denote percentage variation explained by each component</p>					

Fig. 17. Component Invariance of Female In-migration and Out-migration.

component structure showed remarkable temporal stability, the components of female in- and out-migration show fairly large variation in a relatively short period of ten years. This change in female migration subsystems is probably reflective of the greater percentage change in the number of female migrants at the interstate level (44.4 percent) as opposed to males (22.7 percent) between 1961 and 1971. Also it appears that at the interstate level, female migrants are more sensitive to the post-independence changes in social, demographic, and economic variables than male migrants.

2. The sources of in-migration for both males and females have become more diverse from 1961 to 1971 (note the decline in the cumulative percent of variation explained by the components of male and female in-migration in Figures 4.10 and 4.11 respectively). The destinations for both male and female migrants also have become more diverse from 1961 to 1971, more so in the case of females (note the new out-migration component 6 in the 1971).

3. A relatively easier way — other than comparing subsystems of female migration to that of males — of finding support for our earlier observation that women move mostly as dependents of their husbands or families would be to establish parity between the major destinations (or origins) of male and female migrants. This can be done by comparing the regions having highest factor

scores on each components of in- and out-migration for the males and females (Table 10).

An inspection of the major origins and destinations of male and female migrants reveals that a close parity exists between them. However, the relative importance of the various origins and destinations for male and female migrants varies. This indicate that high in- and out-migration of males do not generate proportionally high in- and out-migration of females.

Marriage-related migration tends to fall with the distance covered by female migrants (Premi 1980). For example 53 percent of the migrants in Delhi had their families outside Delhi (Rao and Desai 1966). Note that Delhi (DH) and Punjab (PU) were major destinations for male migrants in 1971, but they were absent in the list of important destinations of female migrants (Table 10).

Historically migration to Bombay (MH) and Calcutta (WB) was highly male selective. Certain castes and communities migrate without their women-folk more than others. This is particularly noticeable with regard to Hindi-speaking males from U.P. and Bihar moving to Bombay and Calcutta, respectively, and Urdu-speaking Muslims from Bihar and Oriya-speaking Hindus from Orissa moving towards Calcutta (Roy Burman 1971); whereas, the south Indian males from Tamilnadu (TN) and Mysore (MY) tend to move along with their families to the cities of central and north India

Table 10

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Major Origins and Destinations of Male and Female Migrants:  
1961 and 1971

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Component No	<u>Origins of In-migrants</u>				<u>Destinations of Out-migrants</u>			
	1961		1971		1961		1971	
	Male	Female	Male	Female	Male	Female	Male	Female
1	PU	BH	PU	PU	WB	PU	DH, PU	UP, HR
2	BH	PU	BH	BH	MH	WB	MH	MY
3	UP	TN	UP	TN	PU	MY	WB	MP
4	TN	UP	TN	UP	MY	MH	MY	MH
5		MH		MH	MP	MP	MP, GU	WB, BH

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(e.g., Chakraborty 1972). Thus, not only distance, but also social attitudes of different ethnic groups cause variation in female migration.

Hence, an understanding of the female migration pattern at the regional level calls for more detailed knowledge of delicate social issues than can be derived from the census. Major studies exclusively concerned with female migration are virtually nonexistent. It is not enough to know that females migrate mostly for marriage: rather socio-economic issues entering into the decision making process leading up to marriage-migration are essential to the understanding of female movement in India. The census also does not reveal what proportion of women migrants move to join their sedentary spouses as opposed to migrant spouses.

It is very difficult to speculate on the possible impact of variation in non-quantifiable and less perceptible socio-demographic variables on female migration, such as the effect of the transition from extended family to nucleated family, from early marriage to late marriage, and from arranged marriage to free choice. The recent increase in the sex ratio and growing literacy and work-participation among the females are going to affect the nature and pace of female migration in the future.

### Comments

One important finding that emerges from the principal component analysis of interstate movements is a substantial decline in the dominance of the Calcutta industrial region in the northeast zone as the major destination for male and female migrants within the short period from 1961 to 1971. The northern zone, focused on the national capital of Delhi and the agriculturally and industrially prosperous area of Punjab, became the most important zone of net in-migration.

Broadly speaking, the pattern and the hierarchy of the out-migration subsystems, based on similarities in destination of migrants, showed more diversity and variation over the period than the corresponding subsystems of in-migration which remained invariant (particularly in case of the males) from 1961 to 1971. This implies that the major origins of migrants (both males and females) have remained almost unchanged compared to their destinations. Also, it was found that, although the majority of females migrate due to marriage or family movement, high out-migration of males from an area does not generate proportionally high out-migration of females. Principal component analysis can be useful in analyzing the subsystems of different types of movements between urban and rural areas; for example, the contrast between the subsystems of rural-urban and urban-urban migration.

## CHAPTER 5

### SPATIAL SHIFT-SHARE ANALYSIS OF THE INTERSTATE MIGRATION SYSTEM

A deeper understanding of the complexities involved in the structure and dynamics of the interregional inflows and outflows of people requires a simultaneous emphasis on both static and dynamic analyses. This chapter specifically focuses on the analysis of the dynamic changes of the interregional streams of population flows as opposed to the relatively static explanation of changes in interstate migration of the previous chapters.

Recently a spatial adaptation of the shift-share method, commonly applied in regional economics to interpret sectoral changes in regional employment, has been used by Plane (1987) for analyzing the systemic changes in interstate migration within the U.S. during the 1980s. The same method is utilized here to explain the changes in the interregional shifts in population arising out of differential in and out-migration in relation to the nation or overall system. The basic objective, however, is to see the extent to which the conclusions on the properties of U.S. migration system as reached by Plane are replicated in an entirely different system, i.e., the migration system of India.

Brief Overview of the Spatial  
Shift-Share Method

The change in total net migration ( $\Delta N_D$ ) into a region D from time period (t) to (t+1), can be viewed as being comprised of three geographic components.

$$\Delta N_D = G_D + M_D + S_D. \quad (1)$$

The three components are the population growth component ( $G_D$ ), population mobility component ( $M_D$ ), and the total shift component ( $S_D$ ). Each of the first two components contains a separate constant proportion in it; the constants represent the population-growth and population-mobility factors of the overall system (nation), respectively. The overall system-growth ( $g$ ) and mobility ( $m$ ) factors (constants) are defined as:

$$g = \Delta T/T_t \quad (2)$$

$$m = \Delta M/M_t - g. \quad (3)$$

The system growth component reflects the average population growth, whereas, the system mobility component reflects the changing average propensity of individuals to become actual migrants. Assuming that the change in net migration of a region D at the end of the period (t+1) is a function of population growth and population mobility of the overall system, as well as factors specific to the region itself

(known as the total shift component of the net migration change), we can express  $\Delta N_D$  as:

$$\Delta N_D = gN_{Dt} + mN_{Dt} + S_D \quad (4)$$

$$S_D = \Delta N_D - (g+m)N_{Dt}. \quad (5)$$

Thus, after regulating for the systemwide population growth and mobility changes, the residual change in net migration of region D may be termed the total shift. The total regional shift,  $S_D$ , is a measure of the region's overall change in net migration ( $\Delta N_D$ ) in comparison to (or minus) the growth it would have made, if its population and mobility factors grew at the same rate as the national rate. A given region's net migration may change at a rate higher (lower) than the overall system average, i.e., its total shift may be positive or negative if (1) the region has a mix of origin areas strongly weighted toward high (low) growth type, and/or (2) the region's internal attractiveness or competitiveness as a destination has increased (decreased) in relation to those offered by other regions.

Thus far total shift consists of two major elements: (1) a proportional shift ( $X_D$ ) or the regional mix (also termed "geographic mix" by Plane) component, and (2) differential shift or the regional competitive component ( $C_D$ ). Each of the two components can be further broken down

into their respective inflow and outflow subcomponents<sup>1</sup> ( $I_X$ ,  $O_X$ ,  $I_C$  and  $O_C$ ). See the note under Table 12 for an explanation of the inflow and outflow subcomponents.

Shift-Share Perspective on Interstate  
Migration in India: 1961 to 1971

This application is intended to complement the understanding of the geographic structure of the temporal changes in the system of interregional movements. The data used for the shift-share analysis consist of two matrices representing interregional flows to and from each state (and the union territory of Delhi). Like previous analyses, the life-time migration data used here are based on the place of birth information, and in-migrants born outside India were excluded. All union territories (excluding Delhi, the national capital, and Chandigarh, which was included in the Punjab group of states) have been excluded from the analysis. Lack of relatively recent flow data (1981 census flow data are not available yet) presents difficulty for an analysis of the recent effects of changes in interregional flows on the overall migration system.

**Aggregate Systemwide Components of Change**

The spatial shift-share factors, components, and

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<sup>1</sup>. For a detailed description and mathematical derivation of shift-share components and subcomponents refer to Plane 1987.

subcomponents of change in migration system were computed from the two interstate flow matrices of 1961 and 1971. Overall population growth or system growth ( $g$ ) from 1961 to 1971 was 0.24. The overall system mobility ( $m$ ) for the same period was -negative (0.03), because population growth was slightly higher than the growth of migrants (note the derivation of system mobility  $m$ ). The two individual systemwide factors can be combined into a single systemwide total migration factor ( $e = g + m$ ) which was 0.21.

The absolute values of the shift-share factors and components are derived by aggregating the absolute magnitudes of the same for all states (see Table 11).

Table 11

Total Absolute Systemwide Components of Change  
(in Thousands): India, Interstate Migration 1961-71.

<u>Component</u>	<u>Name</u>	<u>Absolute Value</u>
$\sum_D  N_D $	Net-migration Change	3142
$\sum_D  G_D $	System Growth	2570
$\sum_D  M_D $	System Mobility	296
$\sum_D  S_D $	Total Shift	2949

Note that the absolute magnitude of  $\Delta N_D$  does not equal the sum of  $G_D$ ,  $M_D$ , and  $S_D$ , as shown in equation 1, because only the absolute and not the actual values (positive or negative) of the latter (see Table 12) are used to derive the former. Because temporal change is being measured over

Table 12

Statewise Components and Subcomponents of Change in Net Migration ( $\Delta N_D$ ): India, 1961-71.

STATE	$\Delta N_D$	$G_D$	$M_D$	$S_D$	$Y_D$	$I_x$	$O_x$	$C_D$	$I_c$	$O_c$
AP Andhra Pradesh	-57	-69	8	3	-28	-9	-19	31	8	23
AS Assam Group	-6	93	-11	-88	-30	-42	12	-57	-48	-9
BH Bihar	-40	-291	33	217	434	37	397	-217	-122	-95
GU Gujarat	117	-52	6	163	-33	13	-46	196	113	84
JK Jammu & Kashmir	36	-11	1	46	-7	2	-8	52	28	24
KR Kerala	-291	-94	11	-208	-77	-45	-32	-131	7	-139
MP Madhya Pradesh	148	160	-18	6	-6	37	-43	12	-57	69
MH Maharashtra	493	389	-45	148	52	79	-28	97	124	-28
MY Mysore	-173	58	-7	-224	-101	-53	-49	-123	-52	-71
OR Orissa	139	-33	4	168	57	-13	69	112	100	12
PU Punjab	-82	-129	15	32	-114	33	-146	146	52	93
RJ Rajasthan	24	-130	15	139	-52	28	-80	191	41	150
TN Tamil Nadu	223	-118	14	327	154	91	63	173	-22	195
UP Uttar Pradesh	-622	-359	41	-305	-107	-16	-91	-198	30	-228
WB West Bengal	-300	395	-45	-649	-187	-198	11	-462	-429	-34
DL Delhi	393	190	-22	224	46	56	-11	179	226	-47

Brief explanation of inflow and outflow subcomponents:

- +  $I_x$  : External ability of the origin states to attract in-migrants
- +  $O_x$  : External ability of the destination states to retain out-migrants
- +  $I_c$  : Internal ability of the state itself to attract in-migrants
- +  $O_c$  : Internal ability of the state itself to retain out-migrants

a relatively long time span (1961-71), the system growth factor is quite large compared to the system mobility factor, which seems quite small. This may be due to the nature of migration data used. The data on migration is based on "place of birth" information, which involves significant loss of information on intermediate and return movements made during the lifetime of the migrants (see chapter 1 for a discussion of this problem). The absolute values of the system-growth ( $G_D$ ) and the system-mobility ( $M_D$ ) factors are high for Maharashtra, West Bengal, Uttar Pradesh, and Bihar, the four most populous states of India, while the lowest values are found in the sparsely populated state of Jammu and Kashmir (Table 12).

The following section provides an interpretation of total shift component and its various subcomponents, which are more important than the overall systemwide growth and mobility factors in explaining the dynamics of changes in net migration.

#### Systemwide Components and Subcomponents of Total Shift

The absolute magnitudes of the components ( $X$  and  $C$ ) and the subcomponents ( $I_X$ ,  $O_X$ ,  $I_C$ , and  $O_C$ ) of the total shift aggregated over all the states have been shown in Table 13. The competitive component overall accounts for a greater proportion of total shift than does the regional-mix component. This indicates that changes in the internal

capacity of a state itself to attract in-migrants (or conversely retain out-migrants) are more important than changes in the external situation of origin (or destination) areas in effecting a change in net migration. Thus, any model designed to explain the dynamics of migration system needs to incorporate variables, which measure changes over a period of time (instead of descriptive ones based on a fixed point of time) in the origin-destination areas.

Table 13

Aggregated Component and Subcomponent of State Total Shifts (in Thousands): India, Interstate Migration 1961-71.

<u>Component Subcomponent</u>	<u>Description</u>	<u>Absolute Volume</u>
$\sum  X_D $	Geographic or Regional Mix (proportional shift)	1483
$\sum  I_X $	Inflow	752
$\sum  O_X $	Outflow	1104
$\sum  C_D $	Competitive Component (differential shift)	2378
$\sum  I_C $	Inflow	1460
$\sum  O_C $	Outflow	1300

The subcomponents of the competitive component ( $I_C$  and  $O_C$ ) in Table 13 show less variation in their absolute magnitudes than the subcomponents of the regional-mix component ( $I_X$  and  $O_X$ ). The higher value of the inflow competitive component ( $I_C$ ) than its counterpart ( $O_C$ ) suggests that, in absolute term, changes in the ability of states to attract in-migrants have a relatively greater

effect on net migration changes than do changes in the ability of states to retain out-migrants. This also implies that the ability of the states which were attracting larger proportion of total in-migrants in 1961 (for example West Bengal, Maharashtra, and Madhya Pradesh) has declined in 1971, relative to the states which showed high out-migration in 1961 (for example, Uttar Pradesh, Bihar, and Kerala). The greater magnitude of the outflow regional mix subcomponent ( $O_X$ ) than the inflow subcomponent ( $I_X$ ) is also consistent with the above observation that absolute changes in destination attractiveness are more significant than absolute changes in origin attractiveness ( $I_C$ ) in effecting state net migration change.

The relative significance (which incidentally is more important than the absolute significance) of various components and subcomponents of change in net migration is shown in Table 14. The largest and statistically significant correlations with change in net migration ( $N_D$ ), are found for the competitive component ( $C_D$ ) as a whole and the inflow subcomponent ( $I_X$ ) of the regional mix component. The latter actually has a lower absolute value than the outflow mix component ( $O_X$ ). Both the inflow and outflow subcomponents of the competitive component ( $I_C$  and  $O_C$ ) appear to be equally important, though the latter ( $O_C$ ) is a little more significant despite its having lower absolute aggregate value (Table 13) than the former ( $I_C$ ). Note that

the relative significance of the subcomponents differs from their absolute significance.

Table 14

Correlation Coefficients (R) for Geographic Components and Subcomponents of Change in Net Migration: India 1961-71.

	$\Delta N_D$	$X_D$	$I_X$	$O_X$	$C_D$	$I_C$	$O_C$
	----	----	----	----	----	----	----
$G_D + M_D$	.46	-.29	-.27	-.20	-.10	-.20	.10
X	.41		.55	.88 (.00)	.13	.12	.05
$I_X$	.64 (.01)			.09	.77 (.00)	.73 (.00)	.37
$O_X$	.12				-.29	-.27	-.15
C	.68 (.00)					.62 (.00)	.65 (.01)
$I_C$	.48						.09
$O_C$	.54						

Note: Figures in bracket indicate F-test for  $R^2$  with significance beyond .01 level.

Explanation of State-Specific Components and  
Subcomponents of Total Shift

The results of shift-share analysis of interstate migration in India have been summarized in Figure 18 for aiding comprehension of the dynamics of complex systems of interregional flows. Explanation of shift-share components of net migration change becomes meaningful only for those states which had significant change in net migration between 1961 to 1971. States having significant (i.e., greater than 5 percent) change in net migration are shown heavily outlined in Figure 18, where the small letters indicate

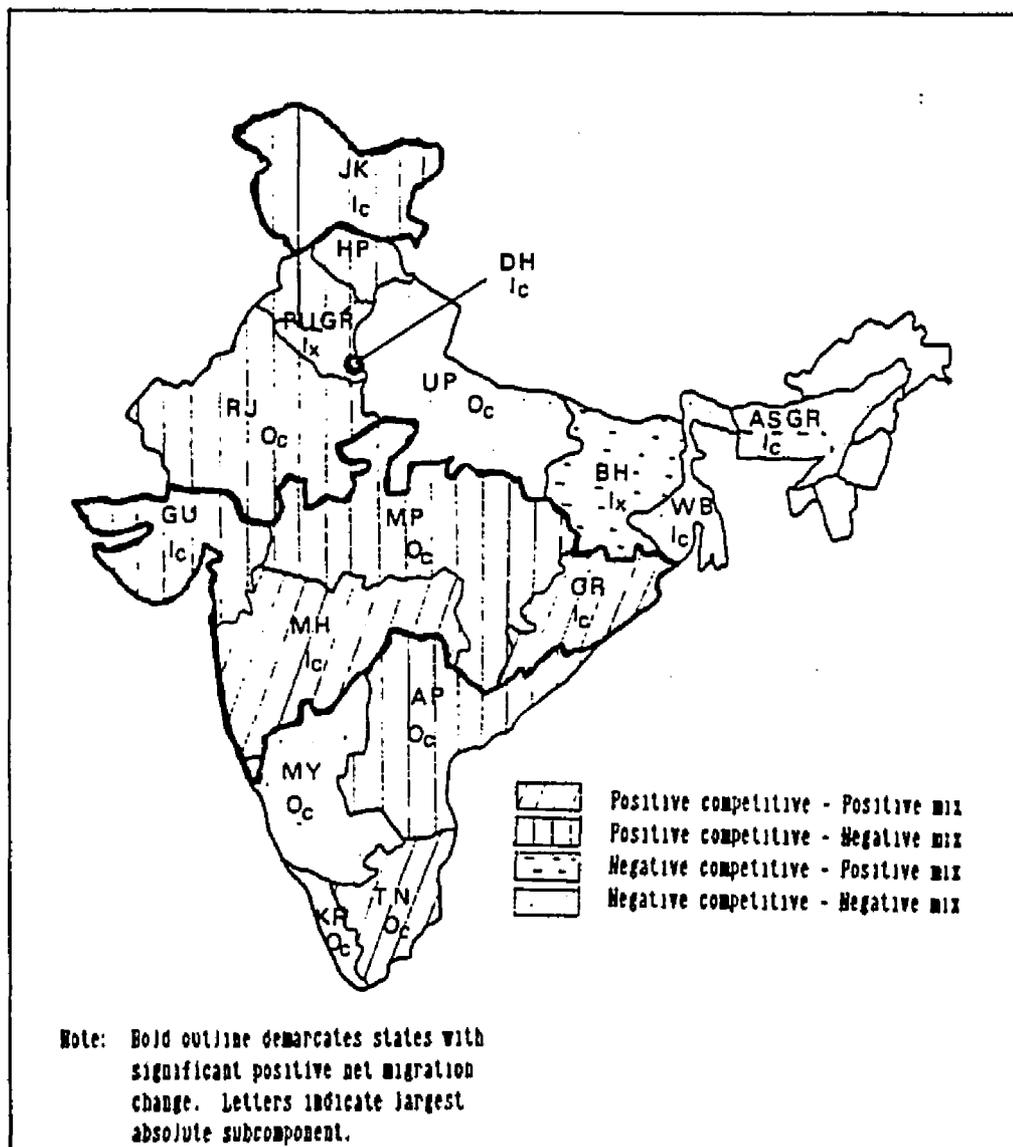


Fig. 18. Components and Subcomponents of Change in Net Migration of the States in India 1961-71.

which of the four subcomponents of the total shift ( $I_X$ ,  $O_X$ ,  $I_C$ , and  $O_C$ ) is the largest in absolute value.

Only six states had significant gain in net migration; four of them — Gujarat, Madhya Pradesh, Maharashtra, and Orissa — occupy the central part of India, one (Jammu & Kashmir) lies in the extreme north, and the other (Tamil Nadu) in the extreme south. Four out of the six states and also the national capital Delhi had significant positive change in net migration because of increasing in-migration, as suggested by their largest in-migration competitive component,  $I_C$ . However, two states (Tamil Nadu and Madhya Pradesh) had significant net migration gains largely due to a decrease in out-migration, as reflected by their largest  $O_C$  subcomponents. These states are by no means similar in terms of the degree of urbanization, industrialization, and general level of development. Unlike Maharashtra and Gujarat, which traditionally have been areas of high industrialization and urbanization, Madhya Pradesh, Orissa and Jammu & Kashmir have been among the relatively backward states of India and the increase in in-migration to these states is a result of developmental activities being carried out under the five-year plans. The decrease in out-migration from Tamil Nadu and Madhya Pradesh can also be accounted for by similar reason.

Four states experienced significant negative changes in net migration. They were Kerala, Mysore, Uttar Pradesh, and West Bengal. The net migration of these states declined primarily due to increased out-migration from these states. For West Bengal, which has traditionally been a region of high in-migration with little out-migration, the decrease in  $N_D$  from 1961 to 1971 was mainly due to a drastic increase in its out-migration to other states, as well as to a slowdown of in-migration from neighboring states (vide Chapter 3 for a discussion of demographic effectiveness of net migration in West Bengal). The stagnation of the Calcutta industrial region, which is the major regional center of northeastern India, in the late 1960s and the deterioration in its civic environment led to a substantial decline in its attractiveness as a destination. This is evidenced by the largest negative percentage competitive component for West Bengal (Table 15). Kerala, having the highest density of population in India, as well as high rate of out-migration had the second largest negative competitive component followed by Assam, Bihar, Mysore and Uttar Pradesh.

The states which had below five percent change in net migration were the Punjab group (-4.1), Andhra Pradesh (-4.0), Bihar (-1.4), Assam group (-1.0) and Rajasthan (1.3). Punjab and Bihar had a decline in their net migration because of increasing out-migration to traditional

destination areas (which are attracting increasing in-migrants) as reflected by their largest outflow mix component ( $O_x$ ). In the case of Assam, where the development of tea plantations and oil resources by the British created a strong centripetal force for several decades in the late nineteenth and the present century, in-migration attractiveness had declined from 1961 to 1971 (note its quite high negative competitive component in Table 15). Many factors including the internal political situation of Assam might have contributed to this.

Table 15

Difference Between Percentage Competitive Component<sup>a</sup> and Change in Net Migration of the states in India (1961-1971)

States with Positive $\Delta N_D$				States with Negative $\Delta N_D$			
Rank	State	% ( $C_D$ )	% ( $N_D$ )	Rank	State	% ( $C_D$ )	% ( $N_D$ )
1	JK	47.3	32.3	1	WB	-16.3	-16.3
2	GU	15.8	9.4	2	KR	-15.6	-34.6
3	OR	14.0	17.3	3	AS GR	-10.2	-1.0
4	DH	12.2	34.4	4	BH	-7.6	-1.4
5	TN	11.1	14.3	5	MY	-6.8	-9.5
6	RJ	10.5	1.3	6	UP	-5.4	-17.0
7	PU GR <sup>b</sup>	7.3	-4.1				
8	MH	2.9	14.9				
9	AP <sup>b</sup>	2.1	-4.0				
10	MP	0.5	6.4				

a. percentage ( $C_D$ ) =  $100 \times C_D / (I_{Dt} + O_{Dt})$ ; t is year 1961.

b. These states actually had negative  $\Delta N_D$ ; for an explanation of their positive ( $C_D$ ) see text.

It is interesting to note in Table 15 that a high positive change in net migration does not necessarily imply that the increase in net in-migration has occurred because of the equally higher competitiveness of the region as a

destination for migrants. Change in net migration may be more due to the effect of external negative situation in the major origin areas (sending increasing number of out migrants) than due to the positive internal effect of competitiveness.

Relationship of Net Migration Change and Competitive Component with Economic-Demographic Variables

As mentioned earlier, the states with greater percentage change in net migration differ in terms of their level of development. It would be worthwhile to see the extent to which the change in net migration and the competitive component of a state actually reflect change in its economic and demographic variables. The variables selected for this purpose are shown in Table 16. Two multiple regressions were run using the same (six) dependent variables, first using the change in net migration, and second by using the percentage competitive component of net migration change as the independent variable.

The results of the two regressions, summarized in Table 17, show some important differences in the relationship between the independent and dependent variables. Note that most of the dependent variables involve the same time periods as the independent variables, implying a lack of concern for time lag associated between the two groups of variables. Our migration data, however, are of life-time migration, i.e., the time of moves are

Table 16

Statewise Competitive Component, and Agricultural, Industrial and Urban Variables Included in Multiple Regression

STATE	Y1	Y2	X1	X2	X3	X4	X5	X6
Andhra Pradesh	-57.0	2.1	33.9	0.5	5.5	-7.0	41.1	0.5
Assam Group	-6.0	-10.2	46.2	0.3	1.9	-40.0	-2.8	3.0
Bihar	-40.0	-7.6	44.0	0.2	5.3	-30.0	-6.4	4.9
Gujarat	117.0	15.8	41.0	0.7	8.6	21.6	15.8	6.7
Jammu & Kashmir	36.0	47.3	44.7	0.3	0.2	NA	NA	NA
Kerala	-291.0	-15.6	35.7	0.1	3.9	-9.8	6.3	-10.4
Madhya Pradesh	148.0	0.5	46.6	0.8	3.9	-2.6	19.2	-1.5
Maharashtra	493.0	2.9	109.0	0.5	19.6	20.8	54.0	-24.4
Mysore	-173.0	-6.8	35.2	0.6	4.1	12.1	43.4	-3.7
Orissa	139.0	14.0	66.3	0.5	1.7	-13.3	56.3	1.3
Punjab Group	-82.0	7.3	30.0	0.4	3.5	0.8	19.6	8.0
Rajasthan	24.0	10.5	38.5	1.3	1.7	20.0	89.3	0.6
Tamil Nadu	223.0	11.1	38.6	0.3	8.7	4.9	46.2	-15.9
Uttar Pradesh	-662.0	-5.4	30.7	0.3	7.5	-7.1	62.6	-13.2
West Bengal	-300.0	-16.3	28.4	0.2	21.9	-8.5	-3.4	20.0

Source of Data: Ahmed and Kumar 1980, and Nair 1983.

Variable Definition:

- Y1: Change in net migrants (1961-71) in ten thousand.
- Y2: Competitive component in percentage.
- X1: % increase in urban population during 1961-71
- X2: Per capita available cultivable area (1961-62)
- X3: % share of state to total national industrial employment (1965)
- X4: % change in the share of industrial workers to total state (1961-71)
- X5: % change in the share of secondary sector to state NDP (1961-71)
- X6: % change in the share of primary sector to state NDP (1961-71)

Table 17

Results of Stepwise Multiple Regression: Net migration-Change, Competitive Component, and Economic-Demographic Variables of the States of India, 1961-71.

Variable Entered	Multiple R	R Square	Simple R	Signif. F
Independent Variable Y1				
X1	0.71	0.50	0.71	0.004
X2	0.76	0.58	0.34	0.008
X5	0.80	0.64	0.12	0.013
X4	0.81	0.66	0.31	0.032
X3	0.82	0.67	0.11	0.064
X6	0.82	0.68	-0.25	0.134
Independent Variable Y2				
X2	0.55	0.30	0.55	0.041
X5	0.61	0.37	0.54	0.074
X4	0.64	0.41	0.53	0.139
X3	0.67	0.46	-0.22	0.192
X1	0.71	0.50	0.24	0.254
X6	0.79	0.63	-0.12	0.198

Variable Definition:

- Y1: Change in net migrants (1961-71) in ten thousand.  
 Y2: Competitive component in percentage.  
 X1: % increase in urban population during 1961-71  
 X2: Per capita available cultivable area (1961-62)  
 X3: % share of state to total national industrial employment (1965)  
 X4: % change in the share of industrial workers to total state (1961-71)  
 X5: % change in the share of secondary sector to state NDP (1961-71)  
 X6: % change in the share of primary sector to state NDP (1961-71)

unknown. Thus the nature of data might have some influence on the results of regressions.

In the first regression, 50 percent of the variability (as indicated by multiple R square) in net migration change of the states (Y1) between 1961-71 is explained by their percentage increase in urban population (X1) during the same period. For the second regression, 55 percent of the variability in the competitive component (Y2) is accounted by the per capita cultivable area (X2) of the states. This implies that the pressure of population on land (as indicated by X2) does influence the destination attractiveness of the states, in a highly populous country like India. The density of population in India is more than eight times that of the U.S. Lower pressure of population on land also means lesser competition and higher availability of jobs.

Percentage change in industrial employment (X4) and productivity (X5) are the two secondary factors that show positive relation with both net migration change (Y1) and its competitive component (Y2). However, both Y1 and Y2 show negative correlation (see simple R in Table 17) with percentage change in productivity of the primary sector (X6). There are some indications (e.g., in Punjab) that higher agricultural productivity leads to an increase in the income of rural people, which ultimately results in higher out-migration and lower net migration (Oberai and Singh

1983). The percentage competitive component shows negative relationship with the size of industrial employment (X3) of the states. This probably indicates that states with a high level of industrialization are becoming less attractive as destinations for migrants compared to the less industrialized states. This shift is attendant upon considerable dispersal of industries in the backward states.

#### Comments

The shift-share method, used here for understanding the extremely complex spatial/temporal patterns of change in net migration of each states within the overall migration system, is liable to produce inaccurate results because of its built-in assumption of constant shifts in population and mobility. Despite its limitations, the spatial shift-share perspective provides valuable insight to the internal and external factors associated with the recent change in net migration in relation to the earlier time period. After all, the real test of any analytical technique lies in its actual performance.

Since the shift-share method explains total shift by assuming equal proportionate changes in the volume of movement in all pre-existing state-to-state flows, it appears that it provides a better explanation of net-migration changes over a relatively long period (particularly in less mobile societies) than year-to-year

changes in the migration system. The latter reflect economically induced cyclical fluctuation, especially in highly mobile societies. In developing countries, too, year to year fluctuations in migration can be high because of natural, political, and economic disturbances.

The competitive component was found to be more significant in absolute terms than the mix component ( $C_D > X_D$ ), and outflow mix subcomponent<sup>2</sup>, at least numerically was more important than the inflow subcomponent ( $O_X > I_X$ ). These findings were analogous to the findings of Plane (1987). However, in contrast to Plane's findings, little variation was found between the inflow ( $I_C$ ) and outflow ( $O_C$ ) competitive components, the former being slightly higher than the latter. Thus the findings of this paper are in total agreement with those of Plane as far as the relative significance of the two main components of the total shift are concerned; however, the properties of the various subcomponents vary. These findings still await confirmation by future research as soon as the latest census (1981) data on interstate migration flows become available.

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<sup>2</sup>. Note that this subcomponent did not show significant correlation with change in  $N_D$ .

## CHAPTER 6

### CONCLUSIONS

The main objective of this study has been to analyze the aggregate pattern, regional subsystems, and the dynamics of interstate population movements, with particular reference to the pattern of regional development during the post-independence period in india. Making generalization on the relationship of the aggregate pattern of population movements with the pattern of spatial development is always hazardous, because any generalization implies an abstraction of reality to some extent. Any broad statement on the pattern and attributes of migration is likely to be contradicted by the diversity of situations (as shown in Chapter 2) at the regional level. Keeping this in mind, the major findings of this study have been summarized below.

As far as the pattern of interstate population exchange is concerned, two significant and interrelated changes have taken place in the 1960s and 1970s: (1) a shift in the pattern (focus) of net migration from the traditional areas of net in-migration, and (2) a concentration of higher rate of net gains in the relatively backward states. This shift in the pattern of net migration is concomitant with a similar shift noted in the pattern of urbanization (from

highly urbanized to less urbanized states) by others (see Crook and Dyson 1982, Mohan 1985, Mills and Becker 1986). Significant changes in net in-migration have taken place in some otherwise backward states (like Orissa, Jammu and Kashmir, Madhya Pradesh, and Rajasthan) in the 1960s and 1970s in response to the post-Independence development activities in those states.

From a broad regional perspective, until about 1961, the two major regions of net population gain consisted of the northeast zone of India (West Bengal, Assam, Bihar, and Orissa) with the industrial region of Calcutta as the major destination, followed by the tea plantations in Assam and the western zone (Maharashtra and Gujarat), with urban-industrial concentration in the Bombay-Ahmedabad region. The other three geo-economic zones in the north, south, and central parts of India all had a significant out-migration from their rural areas against small gains in urban places, with thus a net out-migration of people from them (see Zachariah and Ambannavar 1967).

The counter attraction of the tremendous agricultural growth in Punjab and the new industrial towns between the Calcutta-Bombay corridor (in southern Bihar, Orissa and Madhya Pradesh) began to effect change in the pattern of the interstate population exchange in the late 1960s. It is the central part of India — Orissa, Madhya Pradesh, Maharashtra and Gujarat — which became the major

region of net in-migration between 1961-71 (see Figure 18). The sparsely populated state of Jammu and Kashmir in the north had the highest change in net migration during the same period. Since 1961 West Bengal showed a persistent decline in its net migration. The same is not true for Maharashtra. Although Maharashtra continues to have high net in-migration, its rate of change in net migration has declined compared to some non-traditional states (e.g., Jammu and Kashmir and Orissa) of net in-migration; in fact, its percentage competitive component of net migration change was one of the lowest (Table 15) despite its high absolute gains.

Diffusion of information is more likely to be delayed for long-distance interstate migration than for migration over short distances at the intrastate level. Hence a time lag between the change in net migration and the change in spatial development is normal. Some states, however, have undergone relatively insignificant and differential changes in their in- and out-migration in relation to the changes in their respective economic or urban situation. Maharashtra, for example, actually registered an increase in net migration despite having a decline in its rate of urbanization during 1971-81. During the same period, Uttar Pradesh had only about 3 percent decline in its net out-migration, compared to a 78 percent increase in its rate of urbanization. Between 1961 and

1981, following the industrial stagnation of the Calcutta industrial region, out-migration from West Bengal increased by 61 percent, whereas in-migration to West Bengal remained almost constant. Both Uttar Pradesh and Bihar do not show any perceptible decline in their out-migration despite industrial and urban development in the last two decades. This indicates that the migration system (like the economic system) in India is quite stable (if not stagnant); once the momentum of migration (in- or out-migration) is created, it persists for a fairly long period. Turnarounds in net exchange are rare. Between 1961 and 1971 only one state (Orissa) changed from net out- to net in-migration.

While there is no doubt that spatial differences in the distribution of economic opportunities play the major role in stimulating in- and out-migration from one place to another, interstate differences in ethnicity appear to partly influence the rate of out-migration from some states like Punjab, Tamilnadu and Rajasthan. The two developed states of Punjab Group and Maharashtra differ significantly in terms of the rate of out-migration from them (see Table 4). The rate is almost three times higher (both in urban and rural areas) in the former than the latter. Net migration in the Punjab Group<sup>1</sup> is actually negative. The

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<sup>1</sup>. The high rate of out-migration from Punjab has led some scholars to speculate on the possible impact of a significant growth in agriculture on the propensity to migrate compared to the growth in industry (see Skeldon 1986).

high net in-migration in the otherwise generally backward State of Assam can partly be explained by the very low mobility (and out-migration) of the native Assamese. Other backward states like Bihar and Uttar Pradesh have much higher rate of out-migration than Assam. As such it can be generalized that under similar economic situation different ethnic groups tend to have different propensity to migrate.

The demographic effectiveness analysis in Chapter 3 reveals that a very large proportion (around 60 percent) of the total individual pairs of in- and out-migration streams in India were of the "non-compensating" type with a demographic effectiveness of over 40 percent. The demographic effectiveness of net migration also varies greatly from state to state. There has been a gradual decline in the overall level of unidirectional moves and a simultaneous increase in counter-streams of movements from areas of high in- and out-migration. It has been suggested that demographic effectiveness can be used as an objective index of transition in mobility. The regional pattern of growth as well as the stage of economic development in a country influence the extent of regional variation and overall magnitude of the demographic effectiveness of its net migration.

The analysis of in- and out-migration subsystems in Chapter 4 revealed that the pull of the Calcutta industrial

region in the northeast declined considerably from 1961 to 1971, for both male and female out-migrants, with a concomitant increase in in-migration to the northern zone, which became the most important zone of net in-migration. The hierarchy of the various regional subsystems of in-migration (based on similarities in the origins of migrants) for both the sexes, particularly for the males, remained invariant between 1961 and 1971, whereas the relative importance of the out-migration subsystems (based on similarities in the destinations) of male and female out-migrants showed considerable variations. The number of out-migration subsystems was in general higher than their corresponding subsystems of in-migration. This implies that the major origins of the migrants (male and female) have remained almost unchanged compared to their destinations. The parallel implication of this finding in terms of the actual impact of planned development in India is that the benefits of planning have failed to percolate to the most distressed subpopulation in the backward regions.

A comparison of male and female subsystems of migration indicated that, though an overwhelming majority of females migrate due to marriage, high out-migration of males from any area does not generate proportionally high out-migration of females. Unlike males, female migration is partly influenced by socio-cultural and ethnic differences among the states. Higher rates of increase in female

literacy and work-participation (particularly in urban areas) compared to males in the last decade point toward greater increase in female migration. In fact, migration in India is becoming increasingly characterized by urban-oriented moves and greater participation of females than before; while the former explains an increase in interdistrict and interstate movements as opposed to intrastate ones, the latter seems responsible for a trend away from temporary circulatory movements toward long-term movements (see Skeldon 1986).

The most common finding that emerged from the various analyses of interstate migration is that there is no one-to-one correspondence between the general level of economic development of the states and the various indices of migration (e.g., net migration, demographic effectiveness of migration, percentage change in net migration, and the shift-share competitive component). This is supported by the findings of Mills and Becker (1986). They studied the effect of the differential productivity of states in industrial (representing urban) and agricultural (representing rural) sectors, on the total in-migration rate per 10,000 population in their urban and rural areas respectively. One logical fallacy of the Mills and Becker study is that they compared the total in-migration rate (which is based on both intrastate and interstate migration) with interstate productivity differences. The intrastate

migration rate in rural or urban areas is dependent on spatial disparities in development or productivity within the state and not without. Furthermore, a substantial proportion of intrastate migration is due to non-economic reasons like marriage. Their general conclusion, however, is likely to prevail (as evidenced by the findings of Chapters 3 and 5) even if interstate (instead of total) in-migration rates were considered. They found that, in general, states with a higher than average productivity in agriculture (or industry) also had above average in-migration rates in the rural (or urban) areas, although there were some glaring exceptions (e.g., Orissa and Madhya Pradesh).

The shift-share analysis of interstate migration in Chapter 4 indicated that significant positive gains in net migration of the states over a period do not necessarily imply that the increase in net migration has occurred because of proportionally high attractiveness of the region compared to other destinations. That is, the greater percentage change (positive) in net migration may or may not involve a proportionally high percentage competitive component. For example, Maharashtra had 14.9 percent positive change in net migration between 1961 and 1971, but its percentage competitive component was only 2.3 percent (see Table 15). An increase in net migration of a region may be more due to the impact of the external situation in

its major contributing areas (sending increasing number of out-migrants) than due to the internal effect of attractiveness.

Some of the largest percentage competitive component were registered by such backward states as Jammu and Kashmir and Orissa. However, the multiple regression analysis of the competitive component and various indicators of economic and urban growth shows that the competitiveness in terms of attracting in-migrants actually involves relative differences in the rate of urban-industrial growth and the pressure of population on land. While the change in net migration showed quite high positive correlation with the growth in the urban population of the states, the percent competitive component showed high positive correlation with the per capita available cultivable area in them. Relative changes in urban-industrial development within the state over a period appear to provide a better explanation of relative changes in the pattern of interstate migration rather than the absolute (overall) level of development. Pressure of population on land does affect net migration in a densely populated country like India.

The paradox of poor correlation, as mentioned earlier, between percentage change in net migration or rate of migration and the level of development of a state can be explained in two ways: (1) the overall productivity or development of the states is a poor indicator of the indices

of migration that measure relative (percentage) changes in migration or differences between in- and out-migration (e.g., percentage net migration, demographic effectiveness of net migration, percentage change in net migration, percentage competitive component, and so on); (2) it is the differential change in the rate of growth and not the differences in actual level of development that influences interregional variations in the relative indices of migration. Also, it appears that the use of fixed period migration data (based on the duration of residence of the migrants at destinations as opposed to life-time data) is likely to yield better correlation between the indices of migration and the urban-economic variables.

The industrial and rural development policies in the post-independence period — despite the criticism that such policies have largely failed to achieve any significant dispersal of growth or redistribution of income in favor of the vast majority of poor people (e.g., see Dandekar and Rath 1971, and Chand and Puri 1983) — have had some significant impacts on diversifying the earlier highly polarized, pre-independence patterns of interstate migration. This depolarization in interstate migration brought about a shift in the pattern of urbanization from the more urbanized to the less urbanized states and from very big to the intermediate cities in recent times (see Crook and Dyson 1982). The changing pattern of urbanization

together with increasing female participation in work and in relatively long-distance migration, are going to affect both the direction and pace of interstate migration in the future. The rapidly industrializing northwest states of India are well represented by the cities in the intermediate size range; hence, the enhanced in-migration in the north zone of India is likely to continue in the 1980s.

APPENDIX A  
DATA SOURCES AND LIMITATIONS

The primary data source on migration is the Indian Census. This is supplemented by various National Sample Surveys done by the Central Statistical Organization, as well as surveys done by individual researchers. Migration data used for purposes of the present study cover mainly Census data (1961, 1971, and the yet incomplete results for 1981) based on place-of-birth information.

Until 1971, the census migration data on life-time migration was based on the basis of place-of-birth. Place-of-birth data entail considerable loss of information regarding intermediate moves, time of move (e.g., whether the move was made in recent past or long ago), and the extent of return migration to the place of origin. Data of this kind makes it difficult to connect migration to critical points in the life cycle of the individuals, as well as to the characteristics of the environment of the places of origin and destination at the time of move (Goldstein 1972). These problems are overcome by using fixed time interval migration data based on the place of last residence question. The Indian Census converts cumulative or life-time migration data into fixed period

data by the duration of residence of migrants (e.g., less than 1 year, 1-4, 5-9, 10-19 and 20+ years) at the destination. Both 1971 and 1981 census used last resident criterion together with place-of-birth to enumerate migration. This lends comparability of data from 1961 to 1981. The various analyses of this study are based on life-time migration figures based on the place-of-birth criterion.

Table 18

Percentage Distribution of Different Migration Streams  
By Place-of-Birth (B) and Place-of-Last Residence (R)

Migration Type	Data based on	Interstate		Intrastate	
		1971	1981	1971	1981
Rural-Rural	(B)	33.3	29.5	74.8	70.3
	(R)	32.1	29.2	73.6	69.9
Rural-Urban	(B)	30.7	33.6	13.1	15.2
	(R)	27.7	31.2	12.7	14.7
Urban-Rural	(B)	6.7	7.0	5.3	5.8
	(R)	7.8	7.6	5.6	5.8
Urban-Urban	(B)	26.9	29.2	6.5	8.6
	(R)	29.9	30.9	7.7	9.4
Unclassified	(B)	2.4	0.7	0.3	0.1
	(R)	2.5	1.1	0.4	0.2
Total in Percent		100.0	100.0	100.0	100.0
, in Million	(B)	18.5	24.0	139.3	172.3
	(R)	19.4	23.4	141.7	178.3

Source: 1971 and 1981 Census. Note that unlike 1971, 1981 figures exclude Assam.

In general, the last residence criterion yields slightly higher absolute number of migrants than the place-

of-birth criterion for most types of migratory movements. The two estimates, however, are quite close, particularly in terms of the proportional distribution of the different kind of migrations (see Table 3). This implies that the general conclusions derived about the overall pattern of migration would not be affected, in any significant way, by the nature of migration data used. One important reason for similarity of the two types of migration data is the lack of high mobility, as is seen in developed societies. Note that the two estimates differ mostly for urban-to-urban migration because of high interurban movements.

Comparison of interstate migration from one decennial Census to another are made difficult by the frequent reorganization of state boundaries since Independence (1947). For example, persons classified as interdistrict migrants in 1961 may be referred to as interstate migrants, if the districts concerned become part of a newly created state. Thus, creation of a smaller new state out of a bigger existing state would result in an overcount of interstate migrants, while an undercount results when two states are joined to form one state. Comparison since 1961 is somewhat easier, because there has been fewer redrawing of state boundaries, compared to the period 1951-1961.

This study covers all the states (14 in total) that appear in the 1961 Census plus the national capital of Delhi

and Himachal Pradesh<sup>1</sup>. To simplify analysis of interstate migration, all the union territories<sup>2</sup> and states in the extreme northeast containing about 1 percent of the total population of India, were excluded from the study. Adjustment of interstate flow data has to be made particularly for Punjab and Assam, each of which were divided into two separate states in the 1960s, primarily to satisfy the claims of ethnic groups for separate states. Figure 1 shows the changes made in the state boundaries between 1961 and 1971. The 1971 data was adjusted for retaining the 1961 boundaries for 1971 analyses. For 1971, the Punjab group includes the state of Punjab, Haryana, and Chandigarh, and the Assam group includes the states of Assam and Meghalaya.

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1. Himachal Pradesh was a Union Territory in 1961, but was given the status of separate state in 1971.

2. Unlike states, Union Territories are administered by the central government.

## SELECTED BIBLIOGRAPHY

- Ahmed, Enayet. and Kumar, S. D. 1980. Regional Planning with Particular Reference to India. New Delhi: Oriental Publishers.
- Balasubramanyam, V. N. 1984. The Economy of India. London: Weidenfield and Nicolson.
- Banerjee, Biswajeet. 1983. Social Networks in the Migration Process: Empirical Evidence on Chain Migration in India. Journal of Developing Areas 17:185-96.
- \_\_\_\_\_. 1984. Information Flow, Expectations and Job Search: Rural to Urban Migration Process in India. Journal of Development Economics 15:239-57.
- Bhat, L. S. and Prakasha Rao, V. L. 1964. A Regional Framework For Resource Development. Bombay Geographical Magazine 10(1):1-16
- Bose, Ashish. 1973. Studies in Indian Urbanization: 1901-71. New Delhi: Tata-McGraw Hill.
- Census of India, 1961. 1965. Series I-India. Part II-D(i). Migration Tables. New Delhi.
- Census of India, 1971. 1979. Series I-India. Part II-D(i). Migration Tables. New Delhi.
- Census of India, 1981. 1984. Series I-India. Part II-Special Reports and Tables Based on 5 Percent Sample Data. New Delhi.
- Chakraborty, S. 1972. Study of Life-time Migration to Calcutta City (1961). Paper to the Indian Census Centenary Seminar. October, Delhi.
- Chand, Mahesh and Puri, Vinay Kumar. 1983. Regional Planning in India. Delhi: Allied Publishers.
- Chaudhury, Tushar K. 1982. Demographic Trends in Assam: 1921-71. Delhi: B. R. Publishing Corporation.
- Connell, J., Dasgupta, B., Laishley R., and Lipton, M. 1976. Migration from Rural Areas: The Evidence from

- Village Studies. Village Studies Program of The Institute of Development Studies, University of Sussex. Delhi: Oxford University Press.
- Crook, Nigel and Dyson, Tim. 1982. Urbanization in India: Results of the 1981 Census. Population and Development Review 8(1):145-55.
- Dandekar, V. M. and Rath, N. 1971. Poverty in India-I. Economic and Political Weekly. 6(1):25-47.
- Dasgupta, Biplab. 1982. Migration and Development: Major Features of Migratory Movements in India III. UNESCO Reports and Papers in the Social Sciences. Report 52, Paris: UNESCO.
- Dasgupta, Biplab and Laishley, R. 1975. Migration from Villages. Economic and Political Weekly 10(42):1652-62.
- Dorigo, Guido and Tobler, Waldo. 1983. Push-Pull Migration Laws. Annals of the Association of American Geographers 73(3):1-17.
- Findley, S. 1977. Planning for Internal Migration: A Review of Issues and Policies in Developing Countries. Washington D.C.: U.S. Department of Commerce, Bureau of the Census.
- Goldstein, Sydney. 1972. Summary of Papers on Internal Migration. Proceedings of the Indian Census Centenary Seminar 1:61-92. New Delhi: Office of the Registrar General, India. Ministry of Home Affairs.
- Goldstein, Sydney and Goldstein, A. 1981. Surveys of Migration in Developing Countries: A Methodological Review. Honolulu: East-West Population Institute.
- Griffin, K. 1976. Land Concentration and Rural Poverty. London: Macmillan.
- Gupta, O. P. 1972. Volume, Factors and Characteristics of Migration to Urban Delhi. Paper to Indian Census Centenary Seminar. October, Delhi.
- Kamble, N. D. 1983. Labor Migrations in Indian States. New Delhi: Ashish Publishing House.
- Lewis, W. A. 1954. Economic Development with Unlimited Supplies of Labor. Research Papers of the

Manchester School of Economic and Social Studies.  
22:139-91.

- Mehrotra, G. K. 1974. Birthplace Migration in India. Census of India 1971, Special Monograph No. 1. Series I-India. New Delhi.
- Mills, Edwin S. and Becker, Charles. 1986. Studies in Indian Urban Development. New York: Oxford University Press.
- Mitra, Ashoke. 1965. Levels of Regional Development in India. Delhi: Government of India.
- \_\_\_\_\_. 1967. Internal Migration and Urbanization in India--1961. Bangkok: ESCAP Expert Group on Problems of Internal Migration and Urbanization.
- Mohan, Rakesh. 1985. Urbanization in India's Future. Population and Development Review 11(4):619-45.
- Mohan, Rakesh and Pant, Chandrashekhar. 1982. Morphology of Urbanization in India. Economic and Political Weekly 17, Nos. 38 and 39.
- Mukherjee, Sekhar. 1981. Mechanism of Underdevelopment, Labor Migration and Planning Strategies of India. Calcutta: Prajna.
- \_\_\_\_\_. 1985. The Syndrome of Poverty and Wage Labor Circulation: The Indian Scene. In Circulation in Third World Countries. R. M. Prothero and M. Chapman (Eds.). London: Routledge and Kegan. 278-98.
- Mukhopadhyay, Swapna. 1981. Birth Place Migration in India: 1961-1971. Indian Economic Review 15(3):185-99.
- Myrdal, Gunnar. 1964. Economic Theory and Underdeveloped Regions. London: Methuen.
- Nair, K. R. G. 1983. Regional Experience in a Developing Economy. John Wiley: New Delhi.
- Narain, Vatsala. 1972. Rural Out-migration in Southern Maharashtra. Paper to Indian Census Centenary Seminar. Delhi.
- Nath, V. 1970. Regional Development in Indian Planning. Economic and Political Weekly. Annual Number, January: 242-60.

- Nelson, J. M. 1976. Sojourners versus New Urbanites: Causes and Consequences of Temporary versus Permanent Cityward Migration in Developing Countries. Economic Development and Cultural Change 24(4): 721-57.
- Oberai, A. S. and Singh, H. K. M. 1983. Causes and Consequences of Internal Migration: A Study in the Indian Punjab. New Delhi: Oxford University Press.
- Pandit, M. L. 1978. Some Less-Known Factors Behind Recent Industrial Change in Punjab and Haryana. Economic and Political Weekly. 25 November, 13(47):1935-39.
- Plane, David A. 1984. A Systemic Demographic Efficiency Analysis of U.S. Interstate Population Exchange 1935-80. Economic Geography 60: 294-312.
- \_\_\_\_\_. 1987. Geographical Components of Change in Migration System. Geographical Analysis 19(4): in Press.
- Plane, David A. and Isserman, Andrew M. 1983. U.S. Interstate Labor Force Migration: An Analysis Of Trends, Net Exchanges, and Migration Subsystems. Socio-Economic Planning Sciences 17: 251-66.
- Premi, M. K. 1980. Aspects of Female Migration in India. Economic and Political Weekly. India. April 12.
- Rao, Hemlata. 1977. Identification of Backward Regions and the Trend in Regional Disparities in India. Artha Vijnana 19(20): 93-112.
- Rao, V. K. and Desai, P. B. 1966. Greater Delhi -- a Study in Urbanization, 1940-57. Delhi.
- Ravenstein, E. G. 1885. The Laws of Migration. Journal of the Royal Statistical Society 48: 167-227.
- Rogers, Andrei. 1984. Migration, Urbanization, and Spatial Population Dynamics. London: West View Press.
- Roy Burman, B. K. (Ed.). 1971. Census of India 1961: An Approach to Urban Studies in India. New Delhi: Office of the Registrar General, India, Ministry of Home Affairs.
- Saxena, D. P. 1977. Rural Urban Migration in India: Causes and Consequences. Bombay: Popular Prakashan Pvt. Ltd.

- Shryock, H. S., Jr. 1964. Population Mobility within the United States. Chicago: University of Chicago Community and Family Study Center.
- Silvers, Arthur L. 1977. Probabilistic Income-Maximizing Behavior in Regional Migration. International Regional Science Review 2(1):29-40.
- Skeldon, Ronald. 1986. Migration Patterns in India During the 1970s. Population and Development Review 12(4):759-79.
- Sovani, N. V. 1965. Urbanization and Urban India. London: Oxford University Press.
- Standing, Guy and Sukdeo, Fred. 1977. Labor Migration and Development in Guyana. International Labor Review. November-December, 116(3):303-13.
- Todaro, Michael P. 1969. A Model of Labor Migration and Urban Employment in Less Developed Countries. American Economic Review 59(1):138-48.
- \_\_\_\_\_. 1976. Internal Migration in Developing Countries: A Review of Theory, Evidence, Methodology and Research Priorities. Geneva: International Labour Organization.
- Weiner, Myron. 1978. Sons of The Soil: Migration and Ethnic Conflict in India. Princeton, N.J: Princeton University Press.
- Winchester, H. P. M. 1977. Changing Pattern of French Internal Migration 1891-1968. School of Geography, University of Oxford, Resource Paper 17.
- Zachariah, K. C. 1968. Migrants in Greater Bombay. Bombay: Asia Publishing House.
- Zachariah, K. C. and Ambannavar, J. P. 1967. Population Redistribution in India: Interstate and Rural-Urban. In Ashish Bose (Ed.), Patterns of Population Change in India. New Delhi: Hind Publishers. 95-100.
- Zelinsky, Wilbur. 1971. The Hypothesis of The Mobility Transition. Geographical Review 61(2):219-49.