

# POPULATION GEOGRAPHY

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## CONTENTS

- ETHNIC COMPOSITION OF THE RUSSIAN  
FEDERATION'S POPULATION** 1-22  
M.S. Gill
- FEMALE LITERACY IN INDIA : THE EMERGING TRENDS** 23-36  
Nina Singh
- INTER-DISTRICT INEQUALITY IN CHILD SURVIVAL  
IN MADHYA PRADESH** 37-56  
Alok Ranjan
- HUMAN DEVELOPMENT IN THE INDIAN HILL STATE  
OF HIMACHAL PRADESH** 57-86  
Surya Kant
- INTRA-CITY RESIDENTIAL MOBILITY IN LUDHIANA  
( PATTERNS, DETERMINANTS AND IMPLICATIONS )** 87-106  
Simrit Kahlon
- THE DECENNIAL CENSUS OF POPULATION - 2001  
( A RESEARCH NOTE )** 107-110  
V. Nath
- MAP SERIES : 5  
REGIONAL AND INTRAREGIONAL DISPARITIES IN INDIA** 75-89 111-122  
Gopal Krishan and Nina Singh
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# ETHNIC COMPOSITION OF THE RUSSIAN FEDERATION'S POPULATION

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## Abstract

The paper attempts to discuss the ethnic processes and patterns which have shaped out the present-day ethnic structure of the Russian Federation. It mainly focuses on the following aspects : (i) Proportion of various ethnic communities to the total population; (ii) growth of population; (iii) role of political factors in structuring the ethnic mosaic; and (iv) spatial patterns of major ethnic groups, i.e. the ethnic Russian, the Tatars, the Ukrainians; and the Belorussians. The new trend in migration, especially of ethnic Russians to European part of the Federation, for the last about 3 decades portends to effect notable redistribution and further consolidation of different ethnic groups in the country.

## Introduction

The last about two decades have been marked by world-wide ethnic resurgence which portends further growth in the years to come. The rise in ethnicity has both its positive and negative aspects. It often leads to active ethnic conflicts of various hues resulting in loss of life, property and social energy. However, if properly managed and harnessed, heightened ethnic consciousness can also become a catalytic agent for cultural enrichment and creative and multi-dimensional socio-economic transformation. Thus, in order to comprehend the evolving contours of socio-economic development in a country, it is a prerequisite to understand the basal fabric of ethnic composition of its population.

Like many other countries of the world, the Russian Federation is characterised by a marked ethnic diversity which is quite in tune with the diversity in its environmental and historical contexts. Numbering 147, 021,869 in 1989, which accounted for about 51 per cent of the population of the former U.S.S.R., the population of the Russian Federation falls into five major families, i.e., Indo-European, Kartvelian, Uralic-Yukaghir, Altaic, and North Caucasian (Table 1). The Indo-European family covered 87.02 per cent of the total population of the country at the time of the census conducted in 1989.

Numbering 11,944,301 in all, the Altaic family of people accounted for 8.12 per cent of the total population of Russia in 1989.

\* The terms 'ethnic group' and 'nationality' have been used interchangeably in this study.

\* Nearly 76 per cent of the area and about 51 per cent of the population of the former U.S.S.R. had come to the share of the Russian Federation.

**Table-1**  
**Population Families of the Russian Federation, 1989**

Sr. No.	Family	Total Population	Per cent of Population of the Country
	Total Population of the country	147,021,869	100.00
1.	Indo-European Family	127,931,572	87.02
2.	Altaic Family	11,944,301	8.12
3.	Uralic-Yukaghir Family	3,219,512	2.19
4.	North Causasian Family	2,725,874	1.85
5.	Kartvelian Family	130,688	0.09
	<b>TOTAL</b>	<b>146,010,081</b>	<b>99.31</b>

Source : (i) Soviet Union State Committee of Statistics, *National Composition of Population of Soviet Union 1989, Moscow.*

(ii) The Classification of the peoples follows that given on the Map "*Peoples of Russia and Adjacent Countries* (Prepared under the guidance of Professor P.I. Puchkov), Institute of Ethnology and Anthropology, Russian Academy of Sciences, Moscow, 1995.

Uralic-Yukaghir people ranked third in numerical importance with 2.19 per cent share in the country's population. Though it covered quite a small territory, the corresponding figures for the North-Caucasian family of people was 1.85 per cent. With a small population of 130,688, the Kartvelian people had a very small proportion, i.e., 0.09 per cent, in the country's population (Table 1).

The Indo-European Family included 8 groups of people i.e. the Slavic, the Germanic, the Greek, the Iranian, the Indo-Aryan, the Armenian, the Romance and the Baltic groups. Comprising 98.15 per cent of the Indo-European Family the Slavic group was the most preponderant which accounted for 85.40 per cent of the total population of the country (Table 2). It included the Russians, the Ukrainians, the Belorussians, the Poles and the Bulgarians. The ethnic Russians represented the basal population of the country as they constituted 81.53 per cent of its total population. Their share in the Slavic group was as high as 93.70 per cent followed by the Ukrainians (3.41 per cent) and the Belorussians

(0.94 per cent); other numerically important constituents of the Indo-European family included the Germans, the Armenians, the Ossets, and the moldavians. With a population of 152,939 in 1989, the Gypsies were also a notable component in this regard (Table 2). The Greeks, the Lithuanians, the Latvians, the Tadjiks each had only a nominal share of population in the Indo-European Family.

There were 31 ethnic communities in the Altaic family of peoples in the country. Compromising about two dozen ethnic communities, the Turkic group accounted for 93.81 per cent of the population of this Family. With a proportion of 46.23 per cent in its population, the Tatars were the most prominent members of this Family. Other numerically strong groups in this category included the Chuvashs (14.85 per cent), the Bashkirs (11.26 per cent), the Kazakhs (5.32 per cent), the Yukuts (3.18 per cent), the Azerbaijanians (2.81 per cent) and the Kумыks (2.32 per cent).

The Mongolian group was the next important constituent, having 4.88 per cent population of the Altaic Family. It included

**Table-2**  
**Ethnic Communities of the Russian Federation, 1989**

	Population	Per cent of Total Population of the Family
<b>I. INDO-EUROPEAN FAMILY</b>	127,931,572	100.00
<b>a) Slavic Group</b>		
1. Russians	119,865,946	93.70
2. Ukrainians	4,362,872	3.41
3. Belorussians	1,206,222	0.94
4. Poles	94,594	0.07
5. Bulgarians	32,785	0.03
<b>b) Germanic Group</b>		
Germans	842,295	0.66
<b>c) Greek Group</b>		
Greeks	91,699	0.07
<b>d) Iranian Group</b>		
1. Ossets	402,275	0.31
2. Tadjiks	38,208	0.03
3. Tats	19,420	0.02
<b>e) Indo-Aryan Group</b>		
Gypsies	152,939	0.12
<b>f) Armenian Group</b>		
Armenians	532,390	0.42
<b>g) Romance Group</b>		
Moldavians	172,671	0.13
<b>h) Baltic Group</b>		
1. Lithuanians	70,427	0.05
2. Latvians	46,829	0.04
<b>II. ALTAIC FAMILY</b>	11,944,301	100.00
<b>Trukic Group</b>		
1. Tatars	5,522,096	46.23
2. Chuvashs	1,773,645	14.85
3. Bashkirs	1,345,273	11.26
4. Kazakhs	635,865	5.32
5. Yakuts	380,242	3.18
6. Azerbaijanians	335,889	2.81
7. Kumyks	277,163	2.32
8. Touvinians	206,160	1.73
9. Karachayevs	150,332	1.26
10. Uzbeks	126,899	1.06



11. Khakasses	78,500	0.66
12. Balkars	78,341	0.66
13. Nagains	73,703	0.62
14. Altaians	69,409	0.58
15. Kirghiz	41,734	0.35
16. Turkmens	39,739	0.33
17. Crimean Tatars	21,275	0.18
18. Shors	15,745	0.13
19. Gagausians	10,051	0.08
20. Turks	9,890	0.08
21. Dolgans	6,571	0.06
22. Karakalpakians	6,155	0.05
23. Tofalars	722	0.01
<b>b) Mongolian Group</b>		
1. Buryats	417,425	3.49
2. Kalmyks	165,821	1.39
<b>c) Tungus-Manchu Group</b>		
1. Evenks	29,901	0.25
2. Evens	17,055	0.143
3. Oroches	883	0.007
4. Negidals	587	0.005
5. Droks	179	0.001
<b>d) Korean Group</b>		
Koreans	107,051	0.90
<b>III. URALIC-YUKAGHIR FAMILY</b>	<b>3,219,512</b>	<b>100.00</b>
1. Mordvinians	1,072,939	33.33
2. Udmurts	714,833	22.20
3. Maris	643,698	19.99
4. Komis	336,309	10.45
5. Komi-Permya	147,269	4.57
6. Karelians	124,921	3.88
7. Finns	47,102	1.46
8. Estonians	46,390	1.44
9. Khants	22,283	0.69
10. Vepses	12,142	0.38
11. Mansis	8,279	0.26
12. Samis (Lapps)	1,835	0.06
<b>b) Samoyed Group</b>		
1. Nanets	34,190	1.06
2. Selkups	3,564	0.11
3. Nganasans	1,262	0.04
<b>c) Yukaghir Group</b>		
1. Chuvans	1,384	0.04
2. Yukaghirs	1,112	0.03

<b>IV. NORTH CAUCASIAN FAMILY</b>	<b>2,725,874</b>	<b>100.00</b>
<b>a) Abkhaz-Adygei Group</b>		
1. Kabardinians	386,055	14.16
2. Adygeis	122,908	4.51
3. Circassians	50,764	1.86
4. Abkhazians	7,239	0.27
<b>b) Nakh-Dagestan Group</b>		
1. Chechens	898,999	32.98
2. Avars	544,016	19.96
3. Lezgins	257,270	9.44
4. Ingushs	215,068	7.89
5. Lacktsis	106,245	3.90
6. Tabassarans	93,587	3.43
7. Rutulians	19,503	0.72
8. Aguls	17,728	0.65
9. Tsakhurs	6,492	0.24
<b>V. KARTVELIAN FAMILY</b>		
a) Georgians	130,688	100.00

Source : (i) Soviet Union State Committee of Statistics, *National Composition of Population of Soviet Union, 1989, Moscow.*

(ii) The Classification of the peoples follows that given on the Map "Peoples of Russia and Adjacent Countries (Prepared under the guidance of Professor P.I. Puchkov), Institute of Ethnology and Anthropology, Russian Academy of Sciences, Moscow, 1995.

the Buryats and the Kalmyks with respective shares of 3.49 per cent and 1.39 per cent in this Family's population. The Koreans constituted a group apart and accounted for 0.90 per cent of the Altaic population. Though comprised of several people, particularly the Evenks and the Evens, the Tungus-Manchu people had only a nominal share (0.41 per cent) of Altaic Family.

It the Uralic-Yukaghir Family, Fino-Ugric group claimed 98.71 per cent of the population. The Mordvinians accounted for about one-third of the population of Uralic-Yukaghir people (Table 2). Other important of constituents in this regard were the Udmurts (22.20 per cent), the Maris (19.99 per cent), the Komis (10.45 per cent) and the Komi-Permya (4.57 per cent). With respective shares of 1.21 per cent and 0.08 per cent, the people of the Samoyed group and the Yukaghir group contributed only a small share of population to this Family.

Constituting 1.85 per cent of the country's population, the North Caucasian Family was mainly comprised of 13 ethnic communities. The Nakh-Dagestan group, which included 9 of these communities, accounted for about four-fifths, and the Abkhaz-Adygei group for about one-fifth of population of this Family. The Chechens alone had about 33 per cent share in this Family. Other important components of the North Caucasian people included the Avars (19.96 per cent), the Kabardinians (14.16 per cent), the Lezgins (9.44 per cent), the Ingushs (7.89 per cent), and the Adygeis (4.51 per cent).

The Georgians were the only people included in the Kartvelian Family residing in the Russian Federation in 1989. Though it had a population of 2348 only, the Eskimo-Aleut Family also deserves a mention in its own right.

The Russian Federation was inhabited by more than one hundred ethnic groups in 1989. However, 35 groups with population over

100,000 each accounted for 98.84 per cent of the total population of the country. The ethnic Russians constituted more than four-fifths (81.53 per cent) of its total population (Table 3). The other important constituents of the ethnic mosaic of the country included the Tatars (3.76 per cent), the Ukrainians (2.97 per cent), the Chuvashs (1.21 per cent), the Bashkirs (0.92 per cent), the Belorussians (0.82 per cent) and Mordvinians (0.73 per cent). The population of these seven nationalities accounted for 91.94 per cent of the population of country. The population of the remaining 28 nationalities given in Table 3 constituted 6.90 per cent of population in this regard.

Most of the ethnic groups listed in Table 3 had their heavy concentration in the Russian part of the former U.S.S.R. For instance, 99.77 per cent of the Touvinians, 99.56 per cent of the Yakuts and 99.06 per cent of the Buryats were recorded in Russian in 1989. This figure was more than 95 per cent in case of 15 ethnic groups, while it was 82.58 per cent in case of the Russian nationality itself. On the other hand, the major nationalities with predominance in other republics of the former Soviet Union expectedly recorded a much lower share (below 12.50 per cent) of their respective populations in Russia. The proportion of such nationalities living in Russia was found to be highest in case of the Belorussians (12.02 per cent) followed by Armenians (11.52 per cent), the Ukrainians (9.87 per cent), the Kazakhs (7.82 per cent), the Moldavians (5.15 per cent), the Azerbaijanians (4.96 per cent), the Georgians (3.28 per cent) and the Uzbeks (0.76 per cent).

Table 4 shows per cent share of ethnic groups with population below 100,000 in 1989. About 60 per cent of these ethnic communities had their heavy proportion of population living within the present boundaries of the Russian Federation. Some groups like Chukchies, the Evens, the Evenks, the Khants, the Nanaites, the Nanets, the Abasins, the Altaians, and the Nogaians were almost entirely in the Russian

part of the former Soviet Union. On the other hand, there were about a dozen ethnic groups who had only one-tenth of their population each living in this part of the then U.S.S.R. Prominent among these groups were the Tadjiks, the Kirghizs, the Turkmens, the Lithuanians, the Latvians, the Estonians, and the Poles. Not only their share in the total population of Russia was negligible, each one of these people had only a small fraction of their total population in the former U.S.S.R. residing in the area now under the present Russian Federation.

### Growth of Population by Ethnic Groups

The Russian Federation entered the third stage of demographic transition around mid-1960s when the natural growth rate of its population had declined below one per cent per year. The natural growth rate of population kept its downward march during the subsequent period as it had moved down to 0.59 per cent, 0.49 per cent, and then to 0.22 per cent in 1970, 1980 and 1990 respectively. The country has witnessed absolute decline in its population since 1992.

However, the growth rates of population of various ethnic groups were far from uniform during 1959-89. Whereas some ethnic communities recorded actual decrease in population, there were others who registered phenomenal rise in their numbers.

The ethnic Russians, who constituted the basal population of the country, recorded an increase of 22.48 per cent only during the 30 years from 1959 to 1989 (Table 5). Similarly, other ethnic groups having notable share in the total population of the country, such as the Tatars, the Ukrainians, and the Chuvashs recorded only a modest increase of 35.54 per cent, 29.89 per cent and 23.54 per cent respectively.

On the other hand, four ethnic groups registered more than 200 per cent population growth rate each during 1959-1989 (Table 5).

Table-3

## Population of Main Ethnic Groups / Nationalities in the Russian Federation, 1989

Sr. No.	Ethnic Group	Population	Per cent of Total Population of the Russian Federation	Per cent of Total Population of the ethnic group in the former U.S.S.R.
A.	<b>Total Population of Russian Federation</b>	<b>147,021,869</b>	—	—
1.	Russians	119,865,946	81.53	82.58
2.	Tatars	5,522,096	3.76	83.05
3.	Ukrainians	4,362,872	2.97	9.87
4.	Chuvashs	1,773,645	1.21	96.27
5.	Bashkirs	1,345,273	0.92	92.83
6.	Belorussians	1,206,222	0.82	12.02
7.	Mordvinians	1,072,939	0.73	92.98
8.	Chechens	898,999	0.61	93.95
9.	Germans	842,295	0.57	41.32
10.	Udmurts	714,833	0.49	95.72
11.	Maris	643,698	0.44	95.95
12.	Kazakhs	635,865	0.43	7.82
13.	Avars	544,016	0.37	38.95
14.	Jews	536,848	0.37	38.95
15.	Armenians	532,390	0.36	11.52
16.	Buryats	417,425	0.28	99.06
17.	Ossets	402,275	0.27	67.27
18.	Kabardinians	386,055	0.26	98.78
19.	Yakuts	380,242	0.26	99.56
20.	Dargins	353,348	0.24	96.56
21.	Komis	336,309	0.23	97.62
22.	Azerbaijanians	335,889	0.23	4.96
23.	Kумыks	277,163	0.19	98.31
24.	Lezgins	257,270	0.17	55.21
25.	Ingushs	215,068	0.15	90.58
26.	Touvinians	206,160	0.14	99.77
27.	Moldavians	172,671	0.12	5.15
28.	Kalmyks	165,821	0.11	95.40
29.	Karachayevs	150,332	0.10	96.41
30.	Komi-Permya	147,269	0.10	96.85
31.	Georgians	130,688	0.09	3.28
32.	Uzbeks	126,899	0.09	0.76
33.	Karels	124,921	0.08	95.41
34.	Adygeis	122,908	0.08	98.46
35.	Lacktsis	106,245	0.07	89.98

Source : Soviet Union State Committee of Statistics, *National Composition of Population of Soviet Union, 1989*, Moscow.



The highest growth rate was recorded by the Azerbaijanians (373.24 per cent) followed by the Uzbeks (323.33 per cent), the Ingushs (283.93 per cent) and the Chechens (244.44 per cent). The explosive growth rate of the Azerbaijanians and the Uzbeks was partly attributable to very high birth rate and low mortality among them and partly to in migration of these people to the Russian Federation from other parts of the former Soviet Union. However, very high increase of population among the Ingushs and the Chechens was largely due to persistence of high birth rate coupled with rapid decline in mortality. In order to understand the high birth rate of these two ethnic communities, one needs to take a close look at their demographic experience since the Bolshevik Revolution in 1917.

Immediately after the 1917 change-over of political power, the communist rulers of the former U.S.S.R. started inflicting harsh repression on these people, particularly the Chechens. Various military operations were conducted against them during the 1920s and 1930s (Tishkov, 1997, pp. 191-192). The Chechen resistance against U.S.S.R. government increased after the War with Germany began in 1941. Consequently, the communist government resorted to still harsher measures and forcibly moved about 350,000 Chechens and more than 100,000 Ingushs to Kazakhstan and Kirghizia (Tishkov, 1997, p. 193). Many of these deportees, mostly old people, died in the process of resettlement. Besides, they "had to experience a tremendous physical and emotional trauma — a trauma of humiliation and loss of their collective dignity" (Tishkov, 1997, p. 39). As a result, these people came to acquire a feeling of deep alienation and demographic and political insecurity in relation to the ethnic Russians. Such a mindset of a community invariably results in considerably higher birth rate to compensate for demographic, and hence, socio-political insecurity. Besides, relatively low literacy and greater share of primary workers

among these people were also important contributory factors in this regard.

In case of 10 ethnic groups, the high growth rate of population was the result of their high birth rate attributable primarily to their socio-economic backwardness. Besides, the stress of being a minority could also be cited as an additional factor with differential effect on each community as per its specific socio-economic and political context in the country. Similarly, perceptible pace of immigration to the Russian Federation was chiefly responsible for notably higher growth rate of Moldavians (179.03 per cent) during this period.

On the other end of the scale, there were some ethnic groups which either recorded an absolute decrease in their population or registered just a nominal increase during the three decades under reference. The Jews deserve special mention in this regard whose population suffered 37.19 per cent decline during 1959-89 owing to out-migration to Israel, the U.S.A., and the western European countries. It is important to note that the Jews recorded decline in their population both during 1959-1979, and 1979-1989. Similarly, the German people increased by 2.68 per cent only indicating considerable out-migration, particularly to Germany and the U.S.A. Though, it deserves a separate investigation, actual decline or slow growth in the population of several ethnic groups was the outcome of the growing assimilation into the ethnic Russians. These groups mainly included the Karels (-23.78 per cent), the Mordvinians (11.40 per cent), the Komi-Permya (2.80 per cent), the Udmurts (16.07 per cent), the Koreans (17.58 per cent), the Komis (18.73 per cent), and the Chuvashs (23.54 per cent).

Among various ethnic communities living in the Russian Federation, about 40 communities have been given autonomous status in different parts of the country. The size of population of these ethnic people varies widely from 5,522,096 in case of the Tatars to



**Table-4**  
**Per cent Distribution of Smaller Ethnic Groups / Nationalities**  
**in the Russian Federation, 1989**

Sr. No.	Ethnic Group	Population	Per cent of Total Population of the Ethnic Group in the former U.S.S.R.
1.	Poles	94,594	8.40
2.	Tabassarans	93,587	95.96
3.	Greeks	91,699	25.61
4.	Khakasses	78,500	97.72
5.	Balkars	78,341	92.03
6.	Nogaians	73,703	98.03
7.	Lithuanians	70,427	2.30
8.	Altaians	69,409	98.07
9.	Circassians	50,764	96.95
10.	Finns	47,102	69.93
11.	Latvians	46,829	3.21
12.	Estonians	46,390	4.52
13.	Kirghizs	41,734	1.65
14.	Turkmens	39,739	1.46
15.	Tadjiks	38,208	0.91
16.	Nanets	34,190	98.63
17.	Abasins	32,983	98.13
18.	Bulgarians	32,785	8.34
19.	Evenks	29,901	99.13
20.	Khants	22,283	98.94
21.	Crimean Tatars	21,275	7.83
22.	Rutulians	19,503	95.66
23.	Tats	19,420	63.32
24.	Aguls	17,728	94.60
25.	Evens	17,055	99.16
26.	Shortsians	15,745	94.55
27.	Chuckhies	15,107	99.49
28.	Vepses	12,141	97.13
29.	Nanaites	11,883	98.84
30.	Mountain Jews	11,282	60.94
31.	Gagausians	10,051	5.08
32.	Türks	9,890	4.77
33.	Assyrians	9,622	36.78
34.	Koryaks	8,942	96.75
35.	Mansis	8,279	97.70
36.	Abkhasians	7,239	6.87
37.	Dolgans	6,584	94.79
38.	Tsakhurs	6,492	32.51
39.	Karakalpakians	6,155	1.45

Source : Soviet Union State Committee of Statistics, *National Composition of Population of Soviet Union, 1989*, Moscow.

merely 6492 in case of the Tsakhurs (Table 6). Thirty-two ethnic groups had more than 50 per cent of their population living in their respective autonomy areas. In case of 20 groups, this share was above 75 per cent, while in case of three it was above 90 per cent. On the other hand, four ethnic groups, namely the Tatars, the Mordvinians, the Nogaians and the Evenks had more than 50 per cent of their population each living outside their autonomy areas in the Russian Federation. In case of the Jews, only 0.6 per cent of the population was in the autonomy area earmarked for them while the rest of the population was found distributed either in different parts of the Russian Federation or in different constituents of the former Soviet Union. The Tsakhurs also had only a small share (26.0 per cent) of their population in their autonomy area and a still smaller one (6.5 per cent) in other parts of the Russian Federation. More than two-thirds of these people were recorded in other parts of the former U.S.S.R. (Table-6). The wide variations in the proportions of population of various ethnic groups living in the respective autonomy areas was mainly related to two factors: (a) the original distribution pattern of the ethnic group(s) in question before the carving out of the autonomy areas; and (b) migration patterns subsequent to the delineation of these areas.

An interesting aspect of ethnic integration of the Russian Federation is revealed by Table 7 which furnishes data from a survey conducted in 16 republics of the country regarding perceptions of motherland. The data relates to persons belonging to 24 ethnic groups, including the ethnic Russians. Interestingly, only in two of these republics, more than 50 per cent of the ethnic Russian respondents had given Russia (one of the republics of the Russian Federation) as their motherland. In case of 14 other republics, the ethnic Russian respondents stood quite divided as to their motherland, i.e., whether it was the former U.S.S.R., Russia or the republic of their present residence (Table 7). On the other hand, the respondents

belonging to the remaining ethnic communities had preponderantly replied that the republic of their residence, and not Russia or the U.S.S.R., was their motherland.

In other words, the ethnic Russians living in other republics showed much greater affinity with the republic of Russia as compared to the peoples belonging to other ethnic groups. Thus, there is a notable divergence between the ethnic Russians and the other groups of people in the country regarding their priorities in regional loyalties. Besides, as each major ethnic group perceived its own republic as its motherland is indicative of the fact that various types of ethno-regional tensions portend to remain a characteristic feature of the country in future also.

### **Construction and Deconstruction of Ethnic Identities**

Whether it was due to sheer ideological concerns or it was due to political compulsions, the founders of the Soviet Union did provide considerable space for the development of a large number of ethnic groups/nationalities in the country. Owing to ideological reasons, religion was totally ignored in the recognition and construction of ethnic identities. Language was advanced as a key factor in this regard. In the first 25-30 years of the existence of the Soviet Union, its ethnic policy not only helped carve out several distinct ethnic territories, having varying degrees of political autonomy, it also helped in the development of various other smaller ethnic groups.

However, Russification had been a key strain of the Soviet ethnic policy, particularly since 1960s till its demise in 1991. In some parts in the north of the country "school children were not even allowed to speak their mother tongue" (Batyanova et al. 1999, p.9). It was done with a purpose to dissolve those ethnic groups in the long run. Similarly, inter-ethnic group marriages, i.e., between the ethnic Russians and other communities, were encouraged to accelerate the pace of

Table-5

**Growth of Population of Ethnic Groups / Nationalities with Population  
100,000 or more in the Russian Federation, 1959-1989**

Sr. No.	Ethnic Group / Nationality	POPULATION GROWTH (IN PERCENTAGE)		
		1959-1979	1979-1989	1959-1989
	Total Population	16.91	7.00	25.09
1.	Russians	16.00	5.59	22.48
2.	Tatars	22.88	10.31	35.54
3.	Ukrainians	8.90	19.27	29.89
4.	Chuvashs	17.69	4.97	23.54
5.	Bashkirs	35.32	4.18	40.99
6.	Belorussians	24.64	14.64	42.89
7.	Mordvinians	-8.26	-3.42	-11.40
8.	Chechens	172.80	26.26	244.44
9.	Germans	-3.54	6.45	2.68
10.	Udmurts	11.36	4.23	16.07
11.	Maris	20.48	7.33	29.32
12.	Kazakhs	35.60	22.78	66.49
13.	Avars	75.20	24.20	117.60
14.	Jews	-19.06	-22.40	-37.19
15.	Armenians	42.58	45.75	107.81
16.	Buryats	38.89	19.14	65.48
17.	Ossets	41.94	14.20	62.10
18.	Kabardinians	58.71	21.00	92.04
19.	Yakuts	40.34	16.21	63.09
20.	Dargins	83.01	26.07	130.72
21.	Komis	13.07	5.00	18.73
22.	Azerbaijanians	114.08	121.05	373.24
23.	Kumyks	69.92	22.57	108.27
24.	Lezgins	78.07	26.60	125.44
25.	Ingushs	196.43	29.52	283.93
26.	Touvinians	65.00	24.85	106.00
27.	Moldavians	64.52	69.61	179.03
28.	Kalmyks	38.61	18.57	64.36
29.	Gypsies	68.06	26.45	112.50
30.	Karachayevs	77.46	19.05	111.27
31.	Komi-Permya	2.10	0.68	2.80
32.	Georgians	53.45	47.19	125.86
33.	Uzbeks	140.00	76.39	323.33
34.	Karels	-18.90	-6.01	-23.78
35.	Adygeis	35.44	14.95	55.70
36.	Koreans	7.69	9.18	17.58
37.	Lacktsis	56.90	16.48	82.76

Russification as the offsprings of such marriages often tended to identify themselves with the mainstream ethnic Russians. Another important point in this regard was notably higher mortality rate among smaller ethnic groups, especially those in the north and northeast which also worked to reduce their overall share in the country's population and, hence in its ethnic diversity. Ethnic identities were undermined in another manner also. For instance, hundreds of thousands of people of some nationalities were uprooted from their hearth areas and then were relocated, quite often in a scattered manner, hundreds of kilometres away from their home areas. Sizeable populations of the Koreans, the Crimean Tatars, the Ukrainians, the Kalmyks, the Karachayevs, the Chechens, the Ingushs, the Balkars, the Moldavians, the Germans, the Jews and the Latvians, etc., suffered uprooting and deportations in this fashion, particularly during 1930s and 1940s. Such deportees were often put in humiliating conditions and were "denied the possibility and practice of their cultural and religious customs and traditions, to teach their children in their native languages" (Tishkov, 1997 p. 38).

Besides, some subtle methods had also been at work to enhance or reduce ethnic visibility of different groups. For example, in a very detailed and useful map captioned "Peoples of Russia and Adjacent countries" prepared by the Department of Ethnology and Anthropology, Russian Academy of Sciences, Moscow, the Tatars have been shown as subdivided into 12 groups : Tatars, Kazan Tatars, Astrakhan Tatars, Siberian Tatars, Tyumen - Tura Tatars, Tobol Tatars, Yaskolbin (Marsh) Tatars, Kardak - Sargat Tatars, Tara Tatars, Barbara Tatars, Tomsk Tatars, and Crimean Tatars. One could say that these subdivisions are quite justified as per the area of residence of these people. However, this argument cannot be accepted as the ethnic Russian, who are found distributed much more extensively than the Tatars, have not been subdivided in a similar manner by areas/

regions. The only plausible explanation of this differential in the listing of the ethnic Russians and the Tatars is that the ruling class of the country wishes to project the former, the mainstream of the country, as essentially a homogenous group. On the other hand, in case of the Tatars, who are the second largest ethnic group in the country, a clear effort has been made to show them as split into various regionally rooted groups. In other words, it is a part of the politics of categorization of various ethnic groups in the country as is also the case in many other countries of the world.

### Language

Language has played a very important part in the construction of ethnic identity in Russia. Table 8 shows that a very large share of the different nationalities in the country had reported the language of their nationality as their mother tongue. This figure was above 95 per cent in respect of one-fifth of the nationalities. Interestingly, the ethnic Russians topped the list in this regard as almost all of them (99.95 per cent) had reported Russian language as their mother tongue. Other ethnic groups in this high bracket were the Chechens (98.79 per cent), the Ingushs (98.21 per cent), the Dargins (97.94 per cent), the Avars (97.74 per cent), the Karachayevs (97.74 per cent), the Kabardinians (97.72 per cent) and the Kумыks (97.72 per cent). It becomes clear from Table 8 that the 'status' nationalities showed much higher affinity to the language of their own nationality. The same could be said about other nationalities of the Asian part of Russia. However, in case of the nationalities concentrated in the European part of Russia, except the ethnic Russians, the proportion of those who had reported the language of their nationality as their mother tongue was less than 50 per cent. The respective figures for the Ukrainians, the Belorussians, the Estonians, the Latvians, and the Finns were 42.84, 36.22, 41.50, 42.80 and 36.21 per cent respectively. The lowest proportion in this regard was found in case of the Jews (8.89 per cent) and, with



**Table-6**  
**'Status' Nationalities in Russia and Territory of Residence, 1989**

Sr. No.		Russian Federation (Numbers)	Autonomy area (Numbers)	In their own autonomy area (Per Cent)	Outside Autonomy Area	
					Within Russia (Per Cent)	Outside Russia (Per Cent)
1.	Tatars	5,522,096	1,765,404	26.6	56.5	16.9
2.	Chuvashs	1,773,645	906,922	49.2	47.1	3.3
3.	Bashkirs	1,345,273	863,808	59.6	33.2	7.2
4.	Mordvinians	1,072,939	313,420	27.2	65.8	7.0
5.	Chechens	898,999	734,501	76.8	17.2	6.0
6.	Udmurts	714,833	496,522	66.5	29.2	4.3
7.	Maris	643,698	324,349	48.3	47.7	4.0
8.	Avars	544,016	496,077	82.5	8.0	9.5
9.	Jews	536,848	8,887	0.6	38.3	61.1
10.	Buryats	417,425	341,185	68.2	15.3	16.5
11.	Ossets	402,275	334,876	56.0	11.3	32.7
12.	Kabardinians	386,055	363,492	93.0	5.8	1.2
13.	Yakuts	380,242	365,236	95.6	4.0	0.4
14.	Dargins	353,348	280,431	76.8	19.9	3.3
15.	Komis	336,309	291,542	84.6	13.0	2.4
16.	Kumyks	277,163	231,805	82.2	16.1	1.7
17.	Lezgins	257,270	204,370	43.9	11.3	44.8
18.	Ingushs	215,068	163,762	69.0	21.6	9.4
19.	Touvinians	206,160	198,448	96.0	3.8	0.2
20.	Kalmyks	165,821	146,316	84.2	11.2	4.6
21.	Karachayevs	150,332	129,449	83.0	13.4	3.6
22.	Komi-Permya	147,269	95,415	62.7	34.1	3.2
23.	Karels	124,921	78,928	60.3	35.1	4.6
24.	Adygeis	122,908	95,439	76.5	12.0	15.5
25.	Lacktsis	106,245	91,682	77.6	12.4	10.0
26.	Tabassarans	93,587	78,196	80.2	15.8	4.0
27.	Khakasses	78,500	62,859	78.3	19.4	2.3
28.	Balkars	78,341	70,793	83.2	8.8	8.0
29.	Nogaians	73,703	28,294	37.6	60.4	2.0
30.	Altaians	69,409	59,130	83.5	14.6	1.9
31.	Circassians	50,764	40,241	76.9	20.0	3.1
32.	Nanets	34,190	29,786	85.9	12.7	1.4
33.	Evenks	29,901	3,480	11.5	87.6	0.9
34.	Khants	22,283	11,892	52.8	46.1	1.1
35.	Rutulians	19,503	14,955	73.4	22.3	4.3
36.	Aguls	17,728	13,791	73.6	21.0	5.4
37.	Chukchies	15,107	11,914	78.5	21.0	0.5
38.	Koryaks	8,942	6,572	71.1	25.7	3.2
39.	Mansis	8,279	6,562	77.6	20.1	2.3
40.	Dolgans	6,584	4,939	71.2	23.6	5.2
41.	Tsakhurs	6,492	5,194	26.0	6.5	67.5
	<b>TOTAL</b>	<b>17,714,471</b>	<b>9,770,864</b>	<b>47.3</b>	<b>38.7</b>	<b>14.0</b>

Source : Tishkov, Vallery (1997), *'Ethnicity, Nationalism and Conflict in and After the Soviet Union'* London, Sage Publications, p. 267.



the corresponding figure of 15.13 per cent, the poles were also quite low on this scale (Table 8).

### **Ethnicity and Migration**

Ethnic Russians, being at the heart of political power in the country, have been in the forefront to migrate to strategically as well as economically important areas and localities. No wonder that they are found in majority along the international border with China and Mongolia, and also in many fertile tracts along the main rivers of Siberia. Similarly, various other ethnic groups have also experienced notable migration during the last few decades. Consequently, the ethnic map of the country has expectedly grown more complex over the years.

On the other hand migration from amongst smaller ethnic communities leads to overall thinning out of their populations both in the hearth regions as well as in areas which they choose to migrate to. The same is likely to happen to many other smaller ethnic groups in the country which may eventually lead to a decrease in their demographic and, hence, socio-economic and political visibility over a period of time.

Owing to their control over the political apparatus in the country, the socio-economic and political strength of the ethnic Russians has experienced a notable enhancement over the past few decades. The Russian language is virtually the lingua franca of the country. Besides, Russian influence has also been becoming more and more pronounced in various other facets of life including the naming practices of places and persons in different parts of the country.

However, during the last about three decades a new trend of migration of the ethnic Russians have come to prevail. These people have been moving out of the Central Asian Republics of the former Soviet Union for the last over 25 years to the European part of the Russian Federation. It was mainly the result

of ethnic competition becoming more unfavourable to the ethnic Russians in those areas. Similarly, there has been a growing trend of out-migration of these people from Siberia to the more developed parts of the country, particularly to the urban centres in European Russia. Their outflow from Siberia was mainly attributable to : (i) increased economic difficulties faced by settlers in Siberia in the context of growing sluggishness in the country's economy; and (ii) withdrawal of government subsidies and incentives which were available to them earlier. On the other hand, a notable higher level of socio-economic development of the European part of the country has been a major pull factor for the prospective migrants, particularly in the post-Soviet period. Besides, the rise of ethnicity in Siberia and also elsewhere has also been making its own contribution in inducing specific migration flows of different ethnic groups.

The ethnic Russians have also been moving out from the north Caucasus area for quite sometime now. In view of the persistence of ethnic conflict in the area, particularly in Chechenya, it is unlikely that the ethnic Russians' out-migration from the area would experience any perceptible decrease in the near future.

### **Spatial Pattern**

Though the population of almost all the areas of the country is polyethnic (Ossipov, 1992, p. 239), the ethnic Russians are in majority in a very large part of the country (Map 1). In only 13 of the 87 major administrative units of the country, the ethnic Russians' population was less than 50 per cent in 1989. These included 10 republics (Bashkortostan, Dagestan, Kabardino-Balkar, Kalmykia, Mari El, North Ossetia, Tatarstan, Tuva, Checheno-Ingushetia, and Chuvashia), one region (Karachay-Circassia) and two areas (Okruks) named Aginskiy Buryat and Komi permyatzky. Even in three of these 13 administrative units i.e., Bashkortostan, Mari

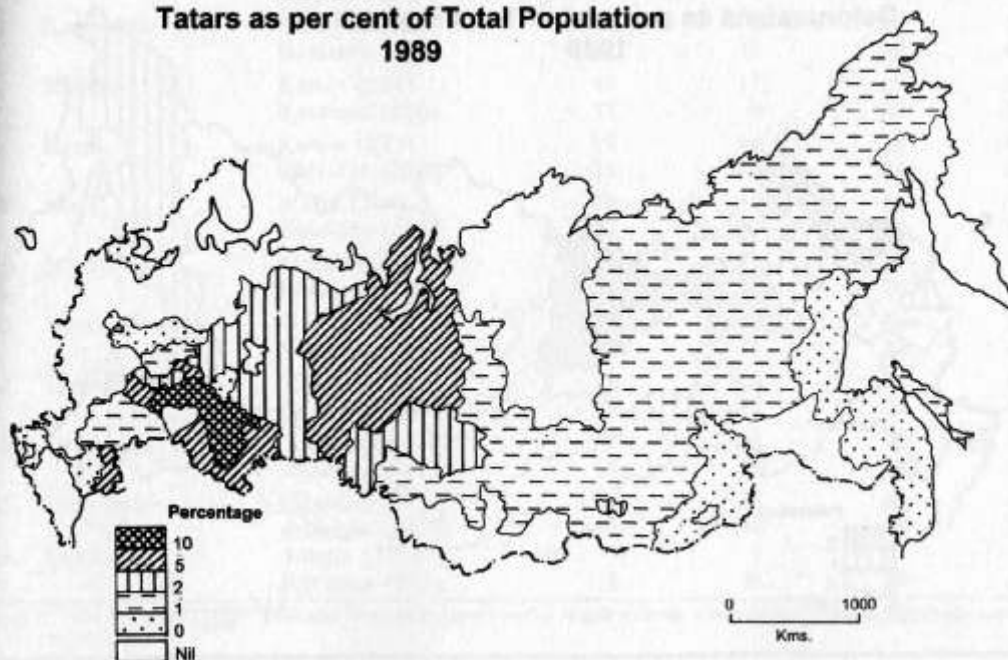
MAP 1

RUSSIAN FEDERATION  
Ethnic Russians as per cent of Total Population  
1989

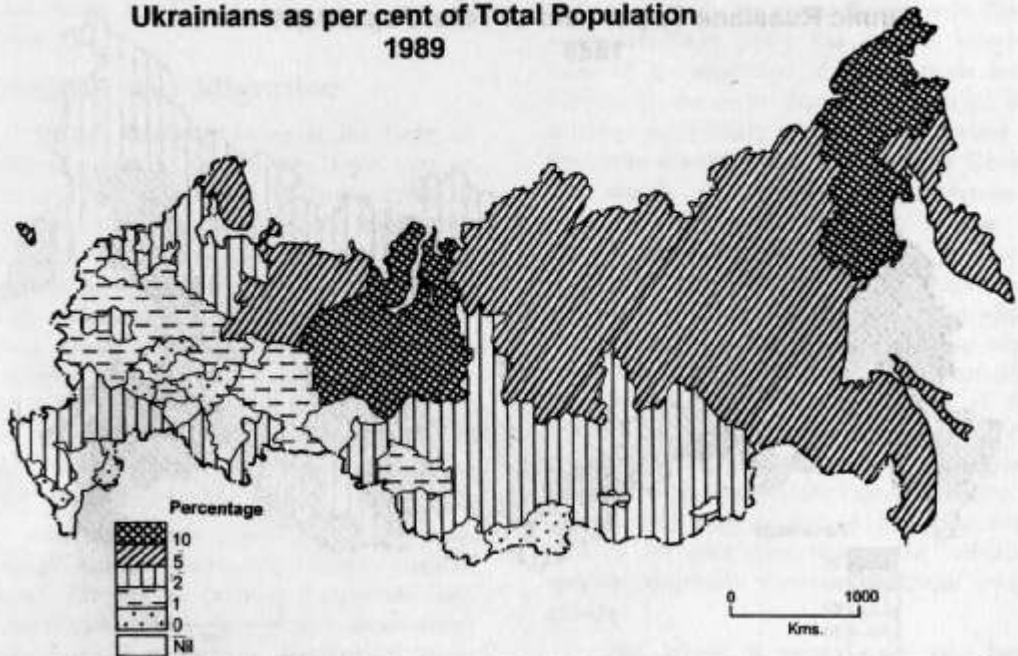


MAP 2

RUSSIAN FEDERATION  
Tatars as per cent of Total Population  
1989



**RUSSIAN FEDERATION  
Ukrainians as per cent of Total Population  
1989**



**RUSSIAN FEDERATION  
Belorussians as per cent of Total Population  
1989**



**Table-7**  
**Perception of Motherland in Republics of Russia**

Sr. No.	Republic	Ethnic Group (Number of respondents)	Considers himself/herself a citizen of the Republic of			
			Soviet Union	Russia	Residence	No Answer
1.	Bashkiria	Bashkirs (211)	11	12	5	2
		Russians (401)	26	43	28	3
		Tatars (259)	22	17	60	1
2.	Buryatia	Buryats (248)	13	17	67	3
		Russians (728)	20	50	25	5
3.	Checheno-Ingushetia	Chechens (588)	8	1	90	1
		Ingushs (104)	9	1	88	2
		Russians (211)	40	20	37	3
4.	Chuvashia	Chuvashs (688)	42	20	35	3
		Russians (230)	26	52	19	3
5.	Dagestan	Avars (291)	21	11	63	5
		Dargins (140)	16	4	64	16
		Kumyks (162)	14	5	72	10
		Lezgins (107)	41	2	50	7
		Lacktsis (83)	34	7	43	16
6.	Kabardino-Balkaria	Russians (103)	47	25	21	7
		Kabardinians (468)	9	4	85	2
		Balkars (112)	28	4	65	3
7.	Kalmykia	Russians (316)	33	36	27	4
		Kalmyks (502)	21	9	68	2
8.	Karelia	Russians (396)	34	32	30	4
		Karels (204)	11	17	69	3
9.	Komi	Russians (636)	17	4	36	3
		Komis (273)	17	14	65	4
10.	Mari	Russians (593)	24	46	24	6
		Maris (204)	16	17	64	3
11.	Mordovia	Russians (636)	27	41	29	3
		Mordvinians (291)	33	29	35	3
12.	North Ossetia	Russians (624)	32	40	26	2
		Ossets (524)	22	7	69	2
13.	Tatarstan	Russians (303)	27	32	37	4
		Tatars (478)	18	4	74	4
14.	Tuva	Russians (446)	29	31	36	4
		Touvinians (653)	2	2	95	1
15.	Udmurtia	Russians (307)	16	59	24	1
		Udmurts (315)	18	18	60	4
16.	Yakutia	Russians (612)	25	44	28	3
		Yakuts (377)	9	3	87	1
		Russians (463)	18	38	39	5

Source : Tishkov, Vallery (1997), 'Ethnicity, Nationalism and Conflict in and After the Soviet Union' London, Sage Publications, p. 270.



El, and Karachay-Circassia the ethnic Russians had the largest share in population with figures of 39.27 per cent, 47.51 per cent and 42.40 per cent respectively. In nine other administrative units each they ranked second in terms of their proportion to the total population. It was in only the north Caucasian republic, Dagestan, that the ethnic Russians ranked fifth in numerical strength having only 9.21 per cent share in the total population. Generally speaking, the proportion of the ethnic Russians showed strong positive correlation with the level of socio-economic development as well as the strategic importance of different areas.

Constituting the second important group in numerical terms in the Russian Federation, the Tatars did not have a majority status in any of its major administrative units in 1989 (Map 2). Their highest proportion was found in the republic of Tatarstan (48.48 per cent) followed by the republic of Bashkortostan (28.42 per cent). In Ulyanovsk region also, their share was also quite high (11.39 per cent) in the total population. Similarly, they had quite notable share in the population of Tyumen region, and the Khantia-Mansia and Yamalia areas. Large parts of the eastern half of the country had also recorded notable sprinkling of these people. On the other hand, their population was virtually negligible in the more developed western half of the European Russia. Thus, a very high share of the Tatar population was found in the middle part of the country (Map 2). About 52 per cent of the Tatars in Russia were concentrated in the two republics of Tatarstan (31.97 per cent) and Bashkortostan (20.29 per cent).

The diffusion of the Tatar people from their hearth region i.e., Tatarstan and surrounding areas was mainly the result of two factors : (i) The political considerations under which thousands of the Tatars were forcibly uprooted and settled in different areas in the Asiatic part of the country during the first about four decades of the Soviet Union (Gopal, 1992, p. 288); and (ii) attraction of frontier conditions in the tract along the trans-

Siberian railway also contributed to some migration of the Tatars to these areas.

Numbering 4,362,872 in all, the Ukrainians accounted for 2.97 per cent of the total population of the country in 1989. Significantly, they were the most widely distributed ethnic minority of the country as there were only a dozen administrative units, out of a total of 87, in which they had no population (Map 3). This ethnic group showed much flexibility regarding adoption of Russian language and culture and, thus, was not so resistant to the process of Russification. This attitude was mainly responsible for their large scale dispersion in the country. However, Map 3 also reveals another important facet of their distribution pattern. Their proportion was very low in the main region of the country around Moscow notwithstanding the fact that it was very close to homeland, Ukraine. Similarly, they recorded notable share of population in the northern and eastern parts of Siberia. In other words, political factors had played an important role in determining the pattern of migration and redistribution of the Ukrainians also.

Though the Belorussians had shown notable incidence of assimilation into the Russian mainstream population, their distribution was not as widespread as that of the Ukrainians (Map 4). They were mainly distributed in the northwestern part and the eastern part of the country. Unlike its other areas, the easternmost parts of Siberia reported perceptible proportion of the Belorussians. Interestingly, as in the case of the Ukrainians, the share of the Belorussians was just negligible or nil in different units of the Moscow region which adjoins their hearth area, i.e., Belarus.

According to the 1989 census, there were 842,295 Germans in the country. These people were distributed in very different ecological settings. Though the Soviet State was largely responsible for creating specific distributional patterns of different ethnic minorities in the country, it was particularly so in case of the Germans owing to the fact that the Soviet



**Table-8**  
**First and Second Language of the Ethnic Groups/Nationalities\***  
**in the Russian Federation, 1989**

Sr. No.	Ethnic Group / Nationality	Proportion of Persons having as Mother Tongue	
		Language of their own nationality	Russian language
1.	2.	3.	4.
1.	Russians	99.95	—
2.	Tatars	85.56	14.18
3.	Ukrainians	42.84	57.01
4.	Chuvashes	77.54	22.26
5.	Bashkirs	72.84	10.05
6.	Belorussians	36.22	63.45
7.	Mordvinians	68.97	30.83
8.	Chechens	98.79	1.06
9.	Germans	41.80	57.99
10.	Udmurts	70.81	28.94
11.	Maris	81.86	17.82
12.	Kazakhs	87.92	11.49
13.	Avars	97.74	1.58
14.	Jews	8.89	90.53
15.	Armenians	67.81	31.83
16.	Buryats	86.57	13.32
17.	Ossets	93.02	6.43
18.	Kabardinians	97.62	2.23
19.	Yakuts	94.02	5.93
20.	Dargins	97.94	1.50
21.	Komis	71.03	28.88
22.	Azerbaijanians	84.17	14.62
23.	Kumyks	97.72	1.78
24.	Lezgins	93.95	4.51
25.	Ingushs	98.21	1.59
26.	Touvinians	98.57	1.38
27.	Northern People**	52.47	36.28
28.	Moldavians	66.80	31.71
29.	Kalmyks	93.08	6.85
30.	Gypsies	85.79	12.56
31.	Karachayevs	97.74	2.10
32.	Komi-Permya	71.10	28.71
33.	Georgians	70.45	28.58
34.	Uzbeks	79.64	18.06
35.	Karels	48.59	51.16
36.	Adygeis	95.25	4.61
37.	Koreans	36.46	63.07
38.	Lacktsis	95.12	3.88
39.	Poles	15.13	74.71
40.	Tabassarns	96.64	2.41
41.	Greeks	44.51	52.30

42. Khakasses	76.65	23.13
43. Balkars	95.33	4.17
44. Nogaians	90.42	2.92
45. Lithuanians	59.59	39.60
46. Altaians	85.12	14.77
47. Circassians	91.55	5.22
48. Finns	36.21	63.14
49. Latvians	42.80	56.62
50. Estonians	41.50	58.07
51. Kirghizs	89.53	8.89
52. Turkmens	86.47	11.82
53. Tadjiks	80.09	17.38
54. Abasins	93.95	4.25
55. Bulgarians	44.89	53.46
56. Crimean Tatars	89.37	9.63
57. Rutulians	95.47	3.11
58. Tats	83.46	14.35
59. Aguls	95.50	3.37
60. Shortsians	57.48	40.78
61. Vepses	51.32	48.29
62. Mountain Jews	75.16	21.10
63. Gagausians	63.86	31.90
64. Turks	85.64	10.02
65. Assyrians	49.43	48.82
66. Abkhasians	65.64	29.59
67. Tsakhurs	94.96	3.20

\* The nationalities have been arranged as per their size of population.

\*\* *Northern People* is an umbrella term which covers 26 ethnic groups.

Source: Soviet Union State Committee of Statistics, *National Composition of Population of Soviet Union, 1989*, Moscow.

rulers suspected the emotional attachment of these people to Germany with which the country had fought two devastating wars. Accordingly, the Germans were relocated in such a way that they could not create any demographic and, hence, a political problem for the State.

The same could be said about the state managed redistribution of the Jews and also some other ethnic groups in the country.

Table 9 shows proportion of major ethnic communities living in their respective regions. The highest proportion in this regard was recorded by Touvinians (96.26 per cent) followed by the Yukuts (96.05 per cent), the Kabardinians (94.16 per cent), the Komis (86.69 per cent), the Ossets (83.25 per cent), and the Chechens (81.70 per cent). Only in

the case of two ethnic communities, i.e., the Mordvinians and the Tatars, this figure was below 50 per cent. Broadly speaking, ethnic groups found in remote areas as well as those in the peripheral tracts of the country were found largely limited to their respective home territories. On the other hand, those close to the developed regions of the country had undergone notable dispersion which occurred due mainly to two reasons: (i) the impact of the development process itself and the consequent differential nature of in-migration and out-migration streams; and (ii) forcible uprooting and relocation of a tangible share of these people by the State during the period of Soviet Union.

### Retrospect and Prospect

Ethnic diversity as obtaining at present

in the Russian Federation has been the outcome of several factors. Among these, the following factors are of key importance in this regard : (i) Vast size of the country which, till recently, had hindered frequent interaction between people living in different parts of the country; (ii) considerable diversity in historical experiences of different areas and people; (iii) the government policy after the Bolshevik Revolution in 1917 which favoured the construction and promotion of language - and culture-based ethnic identities; and (iv) characteristic pattern of migration, encouraged as well as forced by the State, during 1917-1960.

The distribution pattern of various ethnic groups in the country shows a close positive correspondence between political power wielded by a group and better socio-economic location in space. Most of the important/core areas, nodes, urban centres and key localities are essentially inhabited by the ethnic Russians

who form the mainstream of the country. Conversely, economically less powerful and marginalized ethnic groups are largely concentrated in environmentally and socio-economically poor areas.

Now the world-wide resurgence in ethnicity is getting reflected in the rise of ethnic consciousness in the Russian Federation also. Similarly, the collapse of the former Soviet Union has also made its own contribution in this regard. The economic decline during the past decade or so has emerged as another important factor adding to ethnic cleavages in the country.

The past about 10 years has witnessed a new pattern of migration, particularly of the ethnic Russians which would further add to ethnic consolidation and differentiation. Since the mid-1980s or even earlier, religion has also experienced notable revival all over the country. The north Caucassian region is

**Table-9**  
**Population of Major Ethnic Minorities in their Respective Regions, 1989**

Sr. No.	Ethnic Minority	Total Population	Per cent of Population in the Region	Name of the Region
1.	Tatars	5,522,096	31.97	Tatarstan
2.	Chuvashs	1,773,645	51.13	Chuvashia
3.	Bashkirs	1,345,273	64.21	Bashkortostan
4.	Mordvianians	1,072,939	29.21	Mordvinia
5.	Chechens	898,999	81.70	Checheno-Ingushetia
6.	Udmurts	714,833	69.46	Udmurtia
7.	Maris	643,698	50.39	Mari El
8.	Avars	544,016	91.19	Dagestan
9.	Buryats	417,425	59.78	Buryat
10.	Ossets	402,275	83.25	North Ossetia
11.	Kabardinians	386,055	94.16	Kabardino-Balkaria
12.	Yakuts	380,242	96.05	Yakutia
13.	Komis	336,309	86.69	Komi
14.	Inguishs	215,068	76.14	Checheno-Ingushetia
15.	Touvinians	206,160	96.26	Tuva

Source : Soviet Union State Committee of Statistics. *National Composition of Population of the Soviet Union, 1989*, Moscow.

particularly notable in this regard. As the things stand today, the influence of religion on various aspects of life is likely to become more prominent in coming years. In this context ethnic boundaries in the country are likely to get further modified both in the social and spatial contexts.

Various ethnic groups also differ notably from one another regarding birth rate. Accordingly, the varying growth rates of different people, and the resultant variations in the growth of population pressure, would make their own impact on migration flows of various ethnic communities.

It follows from the above that the next 15-20 years are expected to witness a significant redistribution of population in the Russian Federation. The present trend of migration is largely the opposite of that what happened during the period of the erstwhile U.S.S.R. Accordingly, ethnic consolidation

would proceed apace and ethnic boundaries portend to grow sharper notwithstanding the homogenizing process at work stimulated both by the State as well as the wider phenomena of globalization.

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## FEMALE LITERACY IN INDIA : THE EMERGING TRENDS

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### Abstract

Notwithstanding enormous social and economic costs of neglect of female education, the story of female literacy in India is that of preponderant illiteracy marked by gender gaps and regional inequalities, with the problem compounding over the years. What factors explain its persistence? Where is it most pervasive? Why do girls suffer educational deprivation? The paper makes a modest attempt to answer these questions with a brief review of the progress of female literacy in India since the beginning of 20th century. It is observed that meeting the basic educational need of the millions of illiterate females, is a daunting task. More than the financial capability it requires a strong political commitment to correct the situation.

The importance of education for development was fully recognized by classical economists such as Adam Smith, John Stuart Mills, Engles, Karl Marx and Alfred Marshall. More recent writers like Schultz (1988), Becker (1993), and Drèze and Sen (1995) have reconfirmed it. New theories of 'endogenous' growth which place knowledge and education at the centre of growth process have been put forward by Lucas (1990), Romer (1986 and 1990), and Solow (1994). Recent researches by Pudaiani (1982), Schultz (1988), Birdsall *et. al.* (1992), Lau *et. al.* (1993), Barro and Sala-i-Martin (1995) have also documented empirically the contribution that education can make in increasing the national income of a country. Loh (1995) observed for India that a one-year increase in the average number of

years of primary schooling of workforce would raise output by 23 percent.

Besides, the social benefits of education are enormous. Education, particularly of females, greatly improves the ability of a household to manage basic childcare, increase the nutritional content of diets, ensure more effective diagnosis of diseases and improves health care. There is particularly close correlation between parental education and infant mortality: almost all empirical studies suggest that child immunization rates increase (Cochrane *et. al.* 1980 and 1988, Colclough 1993) and infant mortality rates drop sharply as parents' education increases, particularly the education of mothers. In addition, historical evidence indicates that as primary



education becomes universal, the extent of child labour also declines dramatically (Weiner and Noman, 1997).

Government of India (1993) provides a telling evidence about the close link between female education and family planning thus proving that it is the most effective contraceptive in containing the rate of population growth. In India according to the 1980 Census, total fertility was 5.1 for women with no education, 4.5 for those with primary education, 4.0 for those with upper primary education, 3.1 for those with secondary education, 2.2 for those with higher education. Bose (1992, p.6) stipulates that the first precondition for the success of family planning is a high female literacy rate.

The decisive role of education in reducing absolute poverty is brought out by many research studies carried out in the 1980s (Psacharopoulos and Woodhall, 1985; Fields, 1980; Tilak, 1989). It has been estimated that if Bihar had matched the educational performance of Kerala over the last three decades, it would have achieved an annual decline in poverty of 1.2 percent instead of the small reduction of 0.2 percent that it actually achieved.

Education is also a passport to better health. In urban India, when mothers are educated, the child mortality rate is 34 per thousand, but it escalates to 82 per thousand when mothers have no schooling (Basu, 1992). The education of mothers has a much greater influence on health and nutrition outcome than the education of fathers. In a district-level study in India, it was estimated that an increase in the female literacy from 22 per cent (actual 1981 level) to 75 percent reduced the predicted value of the under-5 mortality rate for children from 156 per thousand (actual 1981 level) to 110 per thousand. In contrast, a similar increase in the male literacy rate would result in a reduction of the under-5 mortality rate to no more than 11 per thousand (Drèze and Sen, 1995).

From the theoretical and empirical studies which link education with development, it is very clear that no educated society remains underdeveloped for long, while no illiterate society can achieve sustainable development. The imperatives, of female education, in particular, get established beyond doubt.

## PROGRESS IN FEMALE LITERACY

### *Literacy through history*

India displays a checkered history as far as its literacy in general is concerned. Interestingly, the position obtaining on the eve of Independence was similar to as it was during the ancient period around the beginning of Christian era (Table1). Literacy in general and female literacy in particular witnessed a decline with the Muslim conquest of northern India. A contributing factor was the lowering of the marriageable age from 16-18 years in Vedic times to 12-14 years around 12th century and 7-9 years with the consolidation of Islam in India (Petrov, p. 229). Education of women had virtually ceased.

Literacy continued to decline with the invasion of the colonizers from the 18th century right upto the beginning of the 20th century. By the end of the 19th century only one out of every 200 women was literate; considering that most of the literate women belonged to the upper classes, it could be concluded that among the people at large a literate woman was an exception of the order of one or two in a thousand. Female education had reached its lowest ebb.

The 1901 census recorded 0.6 percent literate females. The conditions of acute illiteracy continued to remain the same with only 2.9 percent literate females in 1931. Raza and Aggarwal (1986) attributed it to the denial of educational opportunities to women during the colonial era. The relative deprivation of women in the field of education was particularly significant because it underlined all other attributes of deprivations. The picture

**Table-1**  
**India : Literacy in Different Historical Periods**

Time Frame	PERCENT LITERATES			Ratio between percentage of literate males and females
	Persons	Males	Females	
<b>Ancient India</b> (around the beginning of Christian era)	17	27	7	100 : 26
<b>Medieval India</b> (near the close of 12th century)	9	15	3	100 : 20
<b>Colonial India</b> (near the close of 19th century)	6	11	0.6	100 : 6
1931	9	16	3	100 : 19
<b>Modern India</b>				
1951	18	27	9	100 : 33
1961	28	40	15	100 : 38
1971	35	46	22	100 : 48
1981	44	57	30	100 : 53
1991	52	64	39	100 : 61

**Note :** Literacy rate for 1931 are for persons 10 years old and above; rates for 1951-71 are for persons 5 years old and above; and rates for 1981-91 are for persons 7 years old and above. All figures are rounded off to nearest whole number.

**Source :** i) **Government of India (1993) : Education for All : The Indian Scene.** Ministry of Human Resource Development, New Delhi

ii) **Petrov, Victor (1985) : India : Spotlight on Population :** Progress Publishers, Moscow, p. 231.

iii) **UNICEF (1997) : The State of the World's Children 1997 :** Oxford University Press, New York.

of rural and scheduled caste women was more dismal. The urban character of the former British administration was partly responsible for creating a wide gap between the urban and rural literacy rates (Krishan and Shyam, 1978). Village improvement was last on the priority list of the administration, and educational development followed the same general principle (Ojha, 1966,p.23). The gender disparities were sharp: the ratio between literate men and women being 17:1 at the beginning of the 20 the century which got reduced to 6:1

in 1931. Practically the whole of feminine India except the coastal areas, erstwhile Travancore-Cochin states and big cities, was illiterate. Spatial patterns of female literacy continued to be the same till Independence. Independence saw one in every 16 females literate. The regional contrasts were sharp. The ratio varied from 1:3 in Kerala, 1 in 8 in West Bengal and Gujarat, and 1 in 30 in Rajasthan, Uttar Pradesh and Bihar (Krishan and Shyam, 1973). In 1951 the female literacy stood at 9.0 percent and gender differential

3:1 in favour of men. The reasons for persistence of female illiteracy are well documented in the writings of Parlulekar (1939), Davis (1951) and Gosal (1964).

The increase in literacy in the 20th century is connected with the national movement, the development of the economy, the spread of a modern national culture, and opening of many new educational institutions with government and private effort.

### *Post-Independence period*

The 1991 census revealed that only 39.29 percent of the country's female population in the 7+ age group was literate. It is much lower than in China, lower than in many East and South-East Asian countries 30 years ago, lower than the average literacy rates for 'low-income countries', and also no higher than the estimated literacy rates in sub-Saharan Africa (Human Development Report, 2000). However it is an appreciable increase from a literacy rate of 0.6 percent at the turn of the century and 9.0 percent in 1951. But there is still a significant backlog that continues to grow. At present, the country has about 424 million illiterate persons, which is largest in the world and exceeds the total combined population of the North American continent and Japan (United Nations Population Fund, 1997), and 200 million of them are women. Thanks to its staggeringly high population growth rate. The goal of universal basic education as envisioned in the Directive Principle remains elusive. Despite this, it is seen that funding for basic education has got drastically reduced from 56.0 percent in the First Plan (1951-56) to about 33.0 percent in the Seventh Plan (1985-90) and the subsequent two annual plans.

On the whole, it is observed that public spending on education is still low in India though it has increased substantially over the last few decades from 2.0 percent of the total outlay during the sixth plan (1980-85), 3.5 percent in the seventh plan (1985-90) and 4.5 percent in the eighth plan (1992-97). Moreover,

the pattern of educational spending varies greatly from one state to another, depending on their own political commitment to education, financial resources, and the funding available from the central government. This makes the national averages in large federal structures, like ours, quite meaningless.

### *The many educational disparities*

India's literacy reveals distinct gender gaps although they have been closing as primary school female enrolment increased rapidly. At the middle school level the change was more phenomenal for girls (Table 2). Female literacy increased much faster than that of males particularly since 1970's; the annual rate of growth in literacy being 2.8 percent for females and 1.4 percent for males during 1970-95.

Consequently the disparity in sex-ratio among literates declined from 44.02 to 23.70 for states in the four decade since 1951. Sex differential in literacy rates have narrowed in all states and union territories except Arunachal Pradesh, Madhya Pradesh, Rajasthan, Uttar Pradesh, Chandigarh and Dadra and Nagar Haveli.

The gender gap in basic education is one of the highest in India and so the relative disadvantage of women in social opportunities, including economic participation have not been reduced. In fact, in this respect India lags behind every other substantial region of the developing world including Latin America and Africa, in addition to east Asia. In India, only a little more than half of all adolescent girls are able to read and write (World Bank, 1993).

The largest gender gaps are at the primary enrolment level (22 percentage points). Disaggregated by states, gender disparity is as high as 42 percentage points for enrolment rates in Bihar and 31 in Uttar Pradesh but is only 3 percentage points in Kerala and 5 in Punjab. In a study (World Bank, 1997) it was reported that the principal reasons given by

**Table-2**  
**India : Progress in Female Enrolment in Schools, 1951-95**

	ENROLMENT (IN MILLIONS) IN CLASSES					
	I-V		VI-VIII		TOTAL I-VIII	
	Total	Female	Total	Female	Total	Female
1951	18.70	4.9	3.13	0.53	22.27	5.91
1965	51.50	18.20	11.00	2.80	62.50	21.00
1985	83.93	34.17	26.73	9.27	110.66	43.44
1995	110.00	47.90	45.20	18.70	155.20	66.60

Source : i) **Government of India, Five Year Plans (Various Issues)**, Planning Commission, New Delhi.

ii) \_\_\_\_\_, *Selected Educational Statistics, 1996-97*, Department of Education, Ministry of Human Resource Development, New Delhi.

the households in the state of Haryana (one of the economically developed states) for girls were: responsibility for domestic work (75 percent); and parents' inability to pay for school expenses (57 percent). When the girls were directly interviewed, 87 percent cited domestic work as the main reason.

These gender gaps in education are, thus, not just a matter of supply-side shortages such as lack of conveniently located schools, inflexible hours, irrelevant curricula, non-availability of female teachers, and the absence of single-sex schools. In many parts of the country parents' demand for their daughters' education is low, reflecting both cultural biases and the high opportunity cost of girls' work at home. Educating girls does not get the highest priority among the family's survival concerns. Even when education is free, there are many costs to attending a school, including uniforms, textbooks and participation in social activities of the school (Haq and Haq, 1998).

The implications for government are clear; policies to expand access to schools and to improve school attendance for girls must focus not just on building more schools but on removing demand-side constraints through public awareness campaigns, child-care centres, direct incentives, and the hiring of more female

teachers.

The gender gap in literacy among rural population is far greater than that in urban population on account of extremely deplorable rural female literacy rates in majority of the areas. Bose (1992, p.4) considers the latter as the best index of demographic development which has a direct bearing on the age at marriage, infant and child mortality, fertility and family planning. The rural females and poor minorities suffer from 'double deprivation' since the education system discriminates against them on multiple grounds. For instance, the rural female literacy rate is only 19 percent among scheduled castes (which represent 16 percent of the Indian population); 16 percent among scheduled tribes (representing 8 percent of the Indian population); and below 15 percent, for all females aged 7 and above, in many educationally backward districts of Bihar, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh. When different sources of disadvantage are combined (e.g. the handicap of being female is added to that of belonging to a scheduled caste and living in a backward region, the literacy rates for the most disadvantaged groups came down to minuscule figures.



It is observed that the gender gap, rural-urban differential and the differential between scheduled caste population and non-scheduled caste population in female literacy are all very high in 108 districts in the country of which 104 districts are concentrated in four states of Rajasthan (82 percent of the total number of districts), Bihar (69 percent), Uttar Pradesh (57 percent) and Madhya Pradesh (38 percent).

The rural-urban differential was found to be more sensitive to regional variations in rural literacy than to those in urban literacy rates since urban India on an average displays majority female literacy and lowest regional inequality among all the components. In contrast, more than 2/3rd females are illiterate

in rural areas with rural female literacy ranging from 11.59 percent in Rajasthan to 85.12 percent in Kerala. The urban bias in development, which seems to have continued even after Independence was at the root of this differential (Lipton, 1968,p.84). Krishan and Shyam (1977) attribute that the differentials reflect the necessity, propensity and opportunity of various degrees for getting literate among different population groups.

Viewed regionally, the inequities in female literacy are most pronounced among the scheduled tribe population followed by scheduled caste population and in rural areas (Table 3 & 4). All these sharp regional contrasts are driven by differences in female literacy.

**Table-3**  
**India : Female Literacy Rate by Caste, 1991**

India/State/ District	Percentage of Literate Females to Total Female Population		
	General Population (excluding SC and ST population)	Scheduled Caste Population	Scheduled Tribe Population
<b>India</b>	44.82	23.76	18.19
<b>Highest</b>			
State	87.91 (Kerala)	74.31 (Kerala)	78.70 (Mizoram)
District in the State	94.99 (Pathanamithitta)	86.62 (Kottayam)	85.67 (Aijawl)
<b>Lowest</b>			
State	26.11 (Rajasthan)	7.07 (Bihar)	4.42 (Rajasthan)
District in the State	9.21 (Barmer)	2.05 (Sitamarhi)	0.55 (Jalaur)
<b>Spatial Disparity</b>	29.78	47.36	65.60

Note : i) State and Union Territories with more than five percent of population in each category have been considered.  
ii) Spatial Disparity is computed as coefficient of variability.

Source : **Census of India (1991)** : India Series-1, *Primary Census Abstract : Scheduled Castes, Part II-B (ii)*; *Primary Census Abstract Scheduled Tribe Population, Part II-B(iii)*, and *Final Population Totals : Brief Analysis of Primary Census Abstract, Paper-2 of 1992*, Registrar General and Census Commissioner, New Delhi.

**Table-4**  
**India : Female Literacy Rate by Residence, 1991**

India/State/ District	Percentage of Literate Females to Total Female Population		
	Total	Urban	Rural
<b>India</b>	39.29	64.05	30.62
<b>Highest</b>			
State	86.17 (Kerala)	89.06 (Kerala)	85.12 (Kerala)
District in the State	94.00 (Kottayam)	94.16 (Kottayam)	93.97 (Kottayam)
<b>Lowest</b>			
State	20.44 (Rajasthan)	50.24 (Rajasthan)	11.59 (Rajasthan)
District in the State	7.68 (Barmer)	32.54 (Nagaur)	4.20 (Barmer)
<b>Spatial Disparity</b>	33.95	13.81	39.09

Note : i) State and Union Territories with more than five percent of population in each category have been considered.  
ii) Spatial Disparity is computed as coefficient of variability.

Source : Census of India (1991) : India Series-1, Primary Census Abstract : Scheduled Castes, Part II-B (ii); Primary Census Abstract Scheduled Tribe Population, Part II-B(ii); Primary Census Abstract Scheduled Tribe Population, Part II-B(iii); and Final Population Totals : Brief Analysis of Primary Census Abstract, Paper-2 of 1992, Registrar General and Census Commissioner, New Delhi.

The persistence of endemic illiteracy (more than 50.0 percent) among girls particularly in rural areas in the 10-14 years age group ranging from 2 percent in Kerala to nearly 80 percent in Rajasthan and encompassing states of all socio-economic hues is the most distressing aspect of the educational situation in contemporary India. In addition, the proportion of rural females aged 12-14 years who have never been enrolled in any school averages one-half and as high as 82.0 percent in Rajasthan. Besides, the duration of schooling for females is also low (Table 5). International comparisons corroborate the diagnosis of low schooling levels in India. The average number of years of schooling for aged 25 and above is 1.2 for females which is

far too low as compared to China (3.8), Sri Lanka (6.3) and South Korea (7.1) (Human Development Report, 1994, pp.138-9).

The low enrolment and retention rates imply that the proportion of persons who complete the primary cycle of five classes is extremely low. The index of education too reveals wide regional variations.

### Regional Aspects of Female Literacy

The geographic distribution of female literacy has remained uneven although a sharp decline in spatial disparity is evident (Gosal, 1964, 1979; Ahmad, 1982; D'Souza, 1992 Sagar, 1991; Nagpal and Chandna, 1994). It ranges from 20.44 percent in Rajasthan to

**Table-5**  
**India and Major States : Some Selected Educational Statistics for Females**  
**— Achievements and Diversities, 1991**

India/State/ District	Index of Education	Rural Literacy Rate, age 10-14	Average years of Schooling of females to total females	Proportion of never-enrolled rural females in 12-14 age groups
INDIA	42.7	51.7	2.3	50.7
Andhra Pradesh	32.9	42.3	1.5	59.7
Assam	47.0	78.1	2.1	28.5
Bihar	21.2	34.1	1.5	67.3
Gujarat	49.8	60.9	2.8	38.7
Haryana	42.7	63.5	2.3	42.4
Himachal Pradesh	58.4	80.7	2.8	n/a
Karnataka	45.8	55.8	2.7	46.5
Kerala	90.0	98.2	5.2	1.8
Madhya Pradesh	32.5	40.0	1.6	66.4
Maharashtra	58.8	68.2	3.2	27.7
Orissa	35.3	51.4	1.9	54.7
Punjab	52.4	68.8	3.0	33.3
Rajasthan	23.7	22.2	1.3	81.7
Tamil Nadu	60.1	70.8	3.1	26.3
Uttar Pradesh	27.0	39.0	1.6	68.0
West Bengal	59.0	60.7	2.7	45.9

**Note :** Index of Education has been calculated on the weighted average of middle school enrolment ratio for girls and adult literate for females; the weights being 1:2.

**Source :** Population Foundation of India (1998) : *State of India's Population*, New Delhi.

86.17 percent in Kerala. Not only educational achievements but educational spending also varies considerably in various states. For instance, in the eighth five year plan (1992-97), despite being among the richest states in India, Haryana allocated only 2.5 percent, Punjab 2.6 percent and Maharashtra 2.9 percent of their state domestic products to education. On the other hand, the poorer states of Kerala and Arunachal Pradesh allocated 6.0 percent and 7.5 percent respectively of their state

domestic products to education.

In the analysis pertaining to 452 districts out of a total of 466 at the time of 1991 census (since in 14 districts of Jammu and Kashmir the 1991 census could not be held) the female literacy was found to vary between 94.0 percent in Kottayam district of Kerala to 7.68 percent in Barmer district of Rajasthan (Fig.1). Only 1/4th of the total number of districts are majority feminine literate districts,

that is, districts having more than 50.00 percent female literacy rate. These are confined to the entire western coastal belt along with adjoining areas of Tamil Nadu, the Christian tribal areas of Mizoram, Nagaland and Tripura, the agro-industrial Sikh dominated northern parts of Punjab plain and adjoining areas of Himachal Pradesh, Bombay-Nagpur axis/Vidarbha region, the major urban concentrations of Calcutta, Hyderabad, Delhi, Kanpur and Chennai, Cuttack in Orissa and coastal areas of West Bengal and the union territories of Pondicherry, Chandigarh, Daman and Diu, Andaman and Nicobar and Lakshadweep islands. Notably, 13 districts have literacy rates of more than 80.00 percent, a majority of which fall in coastal Kerala and the districts of Mizoram and Gandhinagar. Thus female literacy had strengthened in areas which were the early recipients of female education.

Adjoining the areas of high literacy rates and particularly all along the western coast encompassing most of Gujarat, Maharashtra, deltas of Krishana-Godavari, Karnataka, Tamil Nadu, Manipur, north-eastern districts of Assam, Kumaon-Garhwal hills of Uttar Pradesh (presently Uttaranchal) are the areas where the literacy rate is higher than the female average for the country.

On the contrary 1/6th of the districts largely located in BHIMARU states depict less than 20 percent female literacy rates. These states constitute 40.00 percent of the country's population and are commonly identified as lagging behind the rest of the country in terms of demographic transition, have a sizeable proportion of non-Christian tribal population and other backward sections of society, lack of diversification of rural economy, low economic development and incipient modernisation effect.

2/5th of the districts have female literacy rates varying from 20.0 percent to 39.29 percent-the national average comprising of the north-east Himachal Pradesh, Hindi-speaking belt of Haryana, Uttar Pradesh, Bihar,

Madhya Pradesh and Rajasthan the former princely state of Hyderabad, Chhote Nagpur plateau and large parts of north-eastern India.

Broadly speaking, south India, coastal areas, former British-administered territories, Christian tribal areas and the non-Hindi speaking states were more literate than their counterparts.

Female literacy is found to be positively related to real per capita expenditure on education ( $r = +0.81$ ), per capita income of states ( $r = +0.66$ ), employment of women in the organised sector ( $r = +0.61$ ), and negatively related to female infant mortality rate ( $r = -0.87$ ), total fertility rate ( $r = -0.78$ ) and poverty ( $r = -0.38$ ).

### An Outstanding Success Story

It is often stated that poverty of masses is the main cause of hindrance to the spread of literacy. Experiences of several countries and also states within India have demonstrated that poverty of income is no barrier to the spread of at least basic education. For instance, the state of Kerala in India stands in sharp contrast to the general pattern of Indian disadvantage. With a per capita income of \$ 1017 (in 1993 PPP dollars), it has an adult literacy rate of 90 percent, compared to 58 percent in Punjab which has more than double the per capita income of Kerala.

On the other hand Uttar Pradesh and Kerala have similar poverty levels. They are, however, poles apart in the scales of literacy. The proportion of illiterates among females aged 7 and above, for instance, is more than five times as high in Uttar Pradesh as in Kerala (75 percent and 14 percent, respectively). A similar pattern is also observed between Uttar Pradesh and South India.

Kerala has a near universal literacy rate among adolescent (age 15-19 years) males and females. Furthermore, in Kerala there is no gender bias in literacy rates in the younger age groups. Kerala's remarkable record in the field of literacy is the outcome of more than



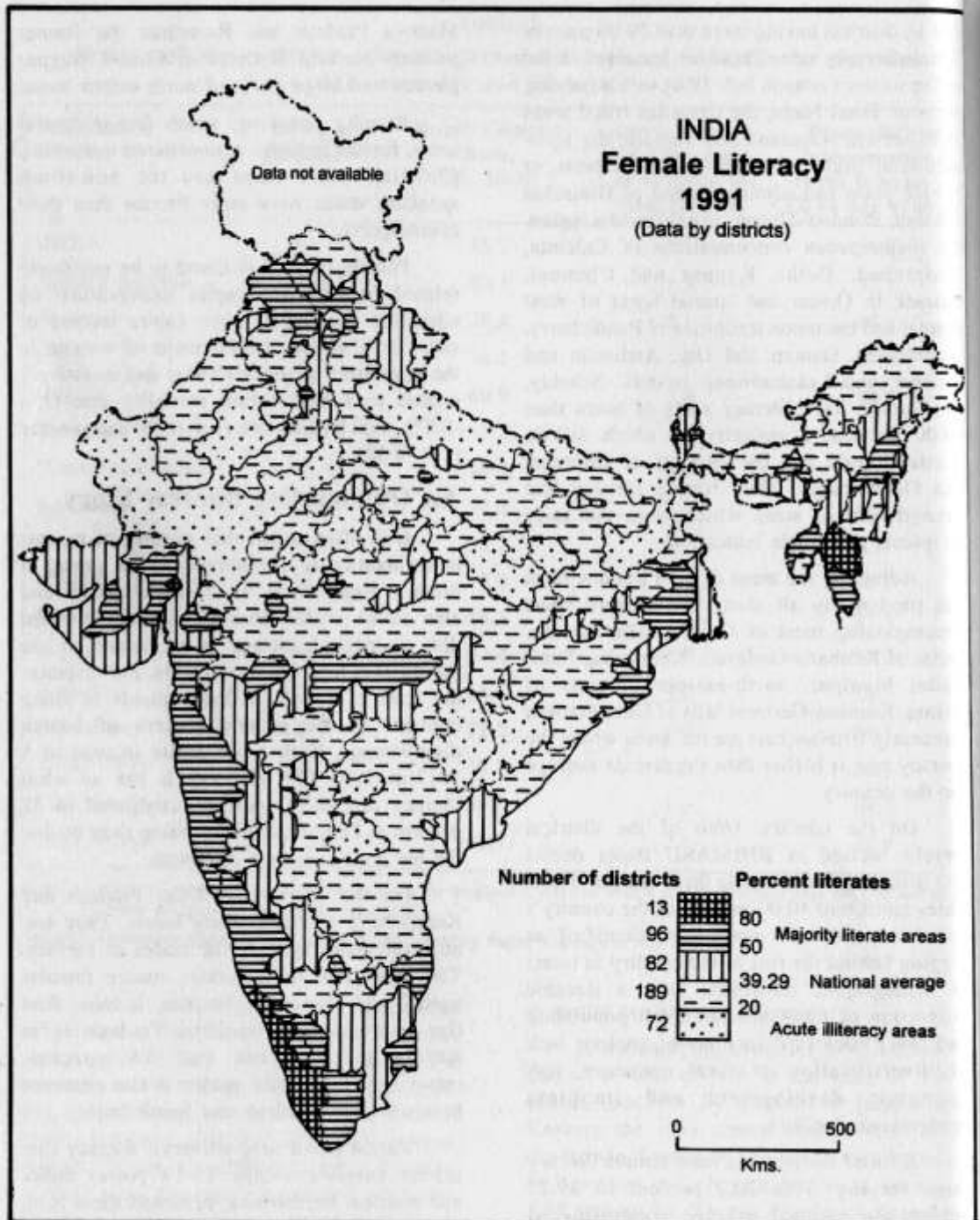


Fig. 1

a hundred years of public action, involving activities of the general public as well as the state, in the widespread provision of elementary education (Ramachandran, 1996). The historical analysis of Kerala's experience powerfully brings out the dialectical relationship between educational progress and social change: the spread of education helps to overcome the traditional inequalities of caste, class, and gender, just as the removal of these inequalities contributes to the spread of education.

On the other hand the low contribution of education to economic growth in Kerala is because the complementary economic and social policies that are necessary to ensure sustainable human development are missing. Education without adequate, remunerative, and productive jobs rarely leads to sustainable economic growth.

It emerges from the above discussion that what is crucial is the public involvement and political commitment in the field of basic education.

### **Concluding Remarks**

Female literacy in India remains very low by world standards although it reveals a fairly appreciable balance sheet when viewed in comparison to its abysmally low position at the beginning of the last century. In fact, the country attained Independence with less than one-tenth literate females. In a federal country like India the literacy averages like those of females are deceptive with the actual figures ranging from a minuscule to approaching hundred. The primary responsibility of funding and implementing the education programme rests with states, which varies considerably within the country. It is observed that more than the financial capability of states it is the political commitment that is missing in the spread of literacy. This necessitates examination of data at disaggregated level.

The discrimination in the education system against females on multiple grounds

marginalizes them with respect to social opportunity and economic participation. The gender gaps, though converging, are wide. Viewed regionally, the inequities in female literacy are most pronounced among the scheduled tribe population followed by scheduled castes and rural areas. There are areas in large backward states low on demographic transition such as BHIMARU, which stand out high on all differential counts--gender and differential in female literacy by residence and caste. Regional disparities remain pronounced although a decline can be seen. Whereas female literacy has strengthened in areas which had experienced an early start of education, it has somewhat diffused to areas adjoining these, in others illiteracy is virtually endemic.

The wide disparity and persistence of acute illiteracy in regions, a matter of both supply side shortages and demand side constraints, is an issue of serious concern. There seems to be a dialectical relationship between educational progress and social change. Illiterate women are invariably caught in a vicious circle of poverty, repeated child bearing, ill health and powerlessness, lacking the means to break out of their predicament; education. Illiteracy for them becomes a lifelong cul-de-sac contributing to their marginalization within the family, the work place and public life.

The educational challenge with 200 million illiterate females, and the problem compounding over years with fast population growth has become formidable because of earlier neglect. There is considerable evidence to suggest the enormous economic and social costs of such neglect. The current century is likely to see India with a development model based on low wages, high labour productivity and massive export of low-technology consumer goods. Thus it must engineer major investment in human development particularly in basic education to achieve sustainable development.

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# INTER-DISTRICT INEQUALITY IN CHILD SURVIVAL IN MADHYA PRADESH

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## Abstract

This paper makes an attempt to analyze the levels and trends in inter-district inequality in child survival probability in Madhya Pradesh. Using the estimates of child survival probability obtained through the 1981 and 1991 population census, the analysis concludes that there has been a decrease in the inter-district inequality in infant survival but the inter-district inequality in the probability of survival during 2-4 years of life has increased between 1981 and 1991. The analysis also suggests that reducing inter-district inequalities in patterns of marriage, use of family planning methods and proportion of births attended by trained birth attendants may lead to significant reduction in inter-district inequality in child survival in the state.

## Introduction

Madhya Pradesh has a history of one of the poorest child survival rates in India. Information available from the sample registration system indicates that in terms of infant mortality rate, the state has always ranked among the poorest four of the 15 major states of the country during the last twenty five years. It ranked lowest in terms of infant mortality rate in one year; lowest but one in twelve years; lowest but two in nine years; and lowest but three in two years. In case of the risk of death under five years of age, a similar situation persists. Information available from 1981 and 1991 population census suggests that the state ranked lowest among the fifteen major states of the country in terms

of the risk of death under five years of age (Government of India, 1997). Clearly, not only the levels but also the transition in the risk of death during childhood in the state has remained unsatisfactory over the last twenty five years. Although, this risk has declined over time, yet, the rate of decline in the state has definitely been slower than most of the other states of the country. As the result, the gap between Madhya Pradesh and other states of the country in terms of the level of child survival appears to have widened over time.

An important feature of abnormally poor child survival rates in Madhya Pradesh is a very strong intra state inequality in child survival probability. Estimates of infant as well as under five mortality obtained from

1981 and 1991 census data reveal wide variations across the districts of the state. Estimates prepared from the information collected during the Madhya Pradesh Target Couple Survey also lead to a similar observation (Chaurasia, 1997). Although, the sample registration system does not provide district level estimates of child survival, yet an analysis of the information collected through the system indicates that the risk of death in early childhood varies widely across different regions of the state (Government of India, 1997). However, there has been little systematic investigation of the observed regional and inter-district inequalities in child survival probability across the state. Variations in child survival probability have generated considerable discussion in recent years in the context of falling infant and under five mortality rates. Most of this discussion has been focused upon child survival inequalities between social classes. This debate has foundered on difficulties in defining and measuring acceptable categories and ensuring consistencies over time (Lee, 1991). It has been argued that differences between death rates of different social classes are primarily a reflection of classificatory scheme itself and bear little resemblance to actual changes in child survival inequality (Illsely, 1986).

The risk of death during infancy and early childhood is now universally regarded as the most important as well as most sensitive indicator of health transition, especially when mortality levels are high and most of the causes of death are avoidable. The early childhood period is one of the most vulnerable periods of human life. Moreover, the risk of death during infancy and early childhood has been shown to be associated with a host of important indicators related to general standards of living such as education, level of nutrition, etc. It is now well known that factors which increase the parental capacity to provide adequate care to infants and young children, when present, increase the chances of infant and child survival, while their absence is

expected to increase the risk of premature deaths. Viewed in this context, exceptionally high levels of infant and under five mortality in the state is indicative of poor health status of the people of the state as well as low levels of their standards of living. At the same time, strong, intra state inequality in the child survival status is indicative of strong inter-district inequality in both the health status of the people and living standards.

In this paper, an attempt is made to explore in some detail the inequality in child survival probability that persists across the districts of Madhya Pradesh. Moreover, the relationship between improvements in child survival probability and falling death rates, the inter-district inequality in child survival and the health status of the people has also been analyzed. Finally, the relationship of the inequality in child survival with the inequality in selected indicators of standards of living and social and economic development has also been explored.

### Data Source

The analysis is built upon the estimates of the probability of death during infancy and during first five years of life for the districts of the state obtained from the information collected during 1981 and 1991 population census (Government of India, 1987, Rajan, 1998). These estimates have been derived through the application of indirect techniques of demographic estimation and use information on children ever born and children surviving collected during the census. It may be pointed out here that estimates of probability of death during infancy and early childhood obtained from the information collected during population census are the only estimates of probability of death for the districts of the state. The vital registration system in the state is too poor to provide any reliable estimates of probability of death at the district level or even at the state level. On the other hand, the sample registration system, the most widely used source of demographic information in

India, provides estimates of death rates only up to the state level. In the past, there have been some feeble attempts to develop and establish a state level sample registration system which could provide district level estimates of key demographic indicators, but the experiment could not succeed.

### Current Levels And Trends in Child Survival

Summary measures of three indicators of the risk of death during infancy and early childhood—the probability of death in the first year of life ( ${}_1q_0$ ); the probability of death in second to fifth year of life ( ${}_5q_1$ ); and the probability of death in the first five years of life ( ${}_5q_0$ ) are given in Table 1 for the years 1981 and 1991 for the entire population as well as separately for males and females. In general, the child survival probability in the state has improved during the 10 year period under reference. However, the extent of the improvement is not the same in different population groups. The unweighted average of probability of death in the first year of life suggests that this probability of survival increased by 0.019 absolute points in the state between 1981 and 1991. In males, this improvement has been much faster—0.023 absolute points as compared to females in which the infant survival probability increased by only 0.014 absolute points during the period under reference. Because of the differential improvement in the male and female infant survival probability, the gap between the risk of an infant death in males and in females has decreased over the years. In 1981, the risk of death of a male infant was 0.010 absolute points higher than the risk of death of a female infant. In 1991, as the result of relatively faster improvement in male infant survival probability, the risk of death of a male infant was just 0.001 absolute points higher than the risk of death of a female infant. It appears that efforts to improve infant survival in the state have benefitted male infants more. In fact, the estimate prepared by

the Registrar General of India for the state as a whole suggest that in the year 1981, the risk of death to a male infant was higher than that of a female infant by 18 absolute points for every 1000 live births, but in the year 1991, the risk of death to a female infant turned out to be higher than the risk of death to a male infant by 5 absolute points for every 1000 live births. Between 1981 and 1991, the female infant survival probability in the state improved by only 4 absolute points for every 1000 live births whereas the male infant survival probability improved by 27 absolute points for every 1000 live births during the same period.

In case of the probability of death in age group 1-4 years, the situation has been found to be different. In this age group, the rate of improvement is much faster than the rate of improvement in the survival probability in the first year of life. Moreover, the gain in survival probability in this age group has been found to be more in female children as compared to male children. In female children, the probability of survival in this age group increased by 0.038 absolute points during the 10 year period under reference. By contrast, in male children of this age group, the improvement in survival probability was of the order of 0.026 absolute points only.

As the result of improvements in the survival probability in the first year of life as well as in the age group 1-4 years, the survival probability in the first five years of life in the state has improved by .046 absolute points in the 10 year period between 1981 and 1991, with improvement in female survival being slightly faster than the improvement in male survival. This is largely due to the fact that improvement in the survival probability of female children has been faster than the survival probability of male children in the age group 1-4 years. There has, however, been little change in the relative gap between the probability of survival of male and female children in the first five years of life over the years. The unweighted average of under five



probability of survival for the districts of the state suggests that female probability of survival in the first five years of life was higher than the male probability of survival by 0.012 absolute points in the year 1981. In 1991, this difference reduced to 0.010 absolute points, indicating that the rate of improvement in male survival has been relatively higher.

### **Spatial Variations In Child Survival**

The spatial variation of the risk of death during infancy and childhood across the districts of the state is presented in the form of statistical maps in Figures 1 through 3 separately, for the risk of death in the first year of life, the risk of death during the 2<sup>nd</sup> through 4<sup>th</sup> year of life and finally in the first five years of life for the year 1991. Moreover, summary measures of the spatial variation in the child survival probability are given in Table 1. It can be seen from the maps as well as from Table 1 that the risk of death during infancy and childhood varies widely across the districts of the state. The infant mortality rate, for example, varies from a low of 71 infant deaths for every 1000 live births to a high of 166 infant deaths for every 1000 live births in district Damoh. It may also be seen from Figure 1 that the infant mortality rate has been found to be above average in most of the central and northern districts of the state. By contrast, in majority of the eastern, western and north-western districts of the state, the risk of death during infancy has been estimated to be relatively low. There are only two districts in the state where the infant mortality rate, in 1991, was found to be less than 80 infant deaths per 1000 population. Both these districts are located in the western part of the state. On the other hand, district Damoh which had the highest infant mortality rate in 1991 is located in the northern part of the state. In the eastern part of the state, known as Chhattisgarh region, the infant mortality rate has been found to be below average in five of the seven districts.

A similar spatial pattern of the mortality

during 2 through 4 years of life may also be seen from Figure 2 which clearly shows that the risk of death during the 2-4 years of life in 1991 was above average in the districts of northern and central regions of the state. Highest probability of death in this age group has been estimated for district Vidisha, closely followed by district Shivpuri. District Vidisha is located in the central region while district Shivpuri is located in the northern region of the state. By contrast, the lowest risk of death in this age group has been estimated for district Bilaspur and district Rajpur. Both these districts are located in the eastern region of the state.

In the western region of the state, the risk of death in the 2 through 4 years of life has generally been found to be below the state average. However, in two districts of this region, district Jhabua and district Ujjain, the risk of death in age group 2-4 years has been estimated to be abnormally high. Incidentally, in both the districts, the risk of death in the first year of life has been estimated to be well below the state average.

The risk of death in the first five years of life is the combined risk of death in the first year of life and the risk of death in the age group 2-4 years. The above average risk of death in the first five years of life in most of the districts of the northern and central regions of the state is very much evident from Figure 3. The highest risk of death in the first five years of life, in 1991, has been estimated in district Panna where more than 200 new born fail to see their fifth birthday according to the information available through the 1991 population census. In fact, in three districts of the state-Panna, Satna and Shivpuri-the risk of death during the first five years of life has been estimated to be more than or equal to 200 deaths for every 1000 live births. All the three districts are located in the northern part of the state. On the other hand, the lowest risk of death in the first five years of life, in 1991 has been estimated for district Indore. District Indore, which is located in the western region

Figure 1

Madhya Pradesh  
Infant Mortality  
1991

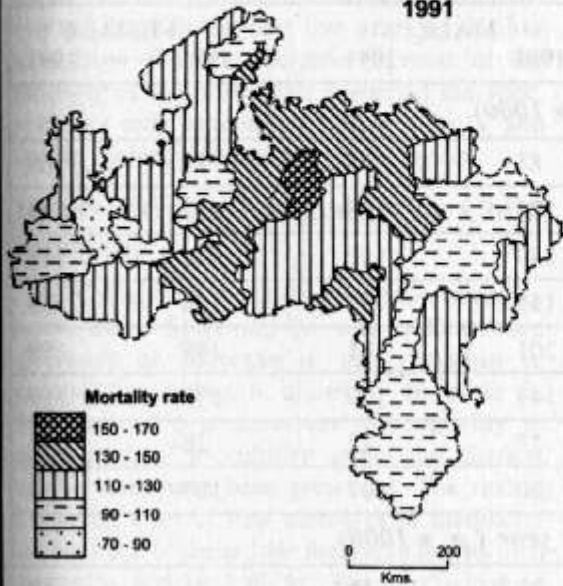


Figure 2

Madhya Pradesh  
Child (1-4) Mortality  
1991

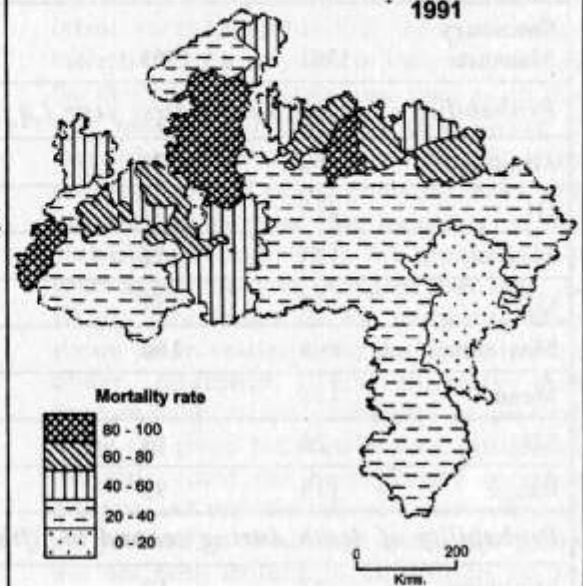
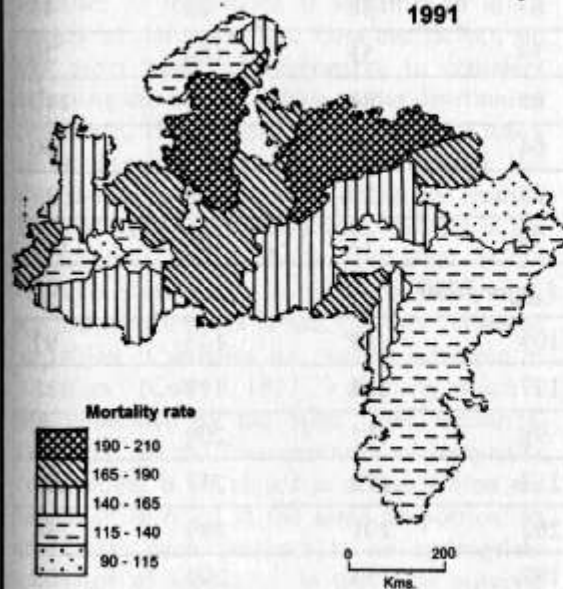
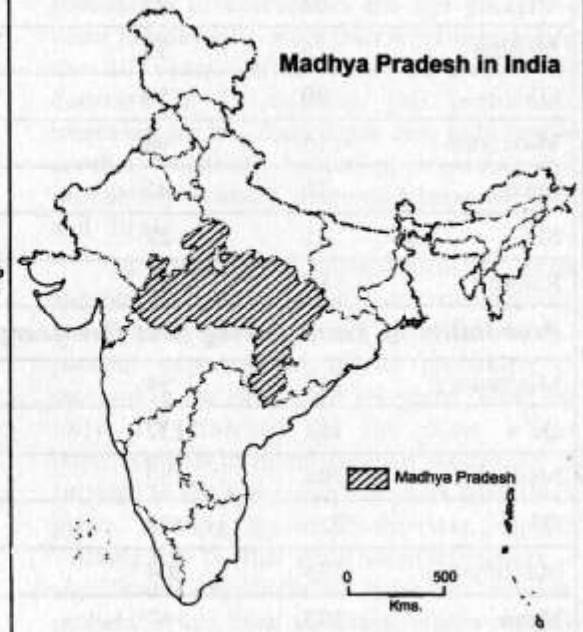


Figure 3

Madhya Pradesh  
Under 5 Mortality  
1991



Madhya Pradesh in India



**Table-1**  
**Summary measures of level of child survival across**  
**the districts of Madhya Pradesh**

Summary Measure	TOTAL		MALE		FEMALE	
	1981	1991	1981	1991	1981	1991
<i>Probability of death during first year (<math>{}_1q_0 \times 1000</math>)</i>						
Minimum	82	71	81	74	82	69
Q1	116	107	121	109	112	103
Median	137	121	140	120	131	118
Q3	158	132	161	135	154	139
Maximum	195	166	201	181	189	159
Mean	138	119	143	120	133	119
SD	26	19	27	22	26	21
Range	113	95	120	107	107	90
<i>Probability of death during second to fifth year (<math>{}_4q_1 \times 1000</math>)</i>						
Minimum	27	12	22	11	31	10
Q1	62	25	50	23	68	28
Median	76	35	63	32	83	43
Q3	90	59	79	53	104	70
Maximum	115	94	95	84	151	110
Mean	76	43	64	38	88	50
SD	21	22	20	20	28	27
Range	88	82	73	73	120	100
<i>Probability of death during first five years (<math>{}_5q_0 \times 1000</math>)</i>						
Minimum	112	94	109	89	115	97
Q1	181	137	177	135	177	138
Median	204	152	198	153	209	159
Q3	226	179	217	172	237	185
Maximum	275	204	262	201	289	234
Mean	203	157	197	153	209	163
SD	34	28	30	27	41	33
Range	163	110	153	112	174	137

of the state, is the only district in the state where the risk of death in the first five years of life was estimated to be less than 100 deaths for every 1000 live births in 1991. The risk of death in the first five years of life has also been found to be low in most of the districts of the north-west corner of the state, with the only exception of district Datia, and in the eastern and south-eastern region.

### **Inter-District Inequality in Child Survival**

Changes in the child survival probability over time, however, do not indicate the decrease or increase in the variation in probability between districts. In table 2, estimates of four measures of inequality in child survival probability across the districts of the state have been presented. The reason for using a set of four measures of inequality is that each of these four measures has its own strengths and limitations. The coefficient of variation, for example, is sensitive to change throughout a given distribution, while the variance of logarithms is sensitive to lower ranges of the scale. The Gini coefficient, on the other hand, is responsive to transfers affecting the middle values of the distribution (Atkinson, 1980). Finally Theil's entropy index is responsive to changes throughout the distribution and measures deviation from a state of equality in which each variable in the distribution has a share equivalent to its relative size. Since it measures inequality exclusively in terms of the 'distance' between variables, it satisfies the 'strong principle of transfers' (Cowell, 1977), a property which is not possessed by the other three measures. However, all the four measures of inequality are invariant if all values in a distribution are raised or lowered in the same proportion. In this way, each measure is an appropriate indicator of inequality in the child survival probability. As can be seen from Table 2, with minor exceptions, all the four measures of inequality show the same pattern of change over the period under reference.

Table 2 reveals interesting difference in the pattern of inequality in the infant survival probability in contrast of probability of survival in the age group 1-4 years. In case of infant survival probability, there are clear indications of a decrease in inequality across the districts of the state over time as all the four measures of inequality have shown a decreasing trend over time for both sexes combined as well as separately for males and females. By contrast, the inequality in the probability of survival in the age group 1-4 years appears to have increased over time, as all the four indicators for inequality have shown an increasing trend during the period under reference. This suggests that improvements in the probability of survival in the age group 1-4 years in some districts of the state could not be replicated in other districts and that the rate of improvement in the probability of survival in this age group has not been uniform in all districts of the state. In fact, in 23 districts of the state, the probability of survival in the age group 1-4 years increased by more than 4 per cent during the 10 years period under reference. By contrast, in 11 districts, this probability increased by less than 2 per cent only and in another 4 districts, instead of increasing, this probability actually decreased between 1981 and 1991.

In general, the improvement in infant survival probability in the districts of the state has not been found to be associated with a parallel improvement in the probability of survival in the age group 1-4 years. There are only 10 districts in the state where improvements in infant survival probability of survival in the age group 1-4 years have taken place. Among these 10 districts, district Tikamgarh is the only district where a significant improvement in infant survival probability has been associated with a parallel, equally significant improvement in the probability of survival in the age group 1-4 years. In Shajapur, Shahdol, Shivpuri and Guna districts, on the other hand, a moderate



**Table-2**  
**Measures of inequality in child survival probability**  
**in Madhya Pradesh**

Variable		Coefficient of variation	Variance of Logarithms	Gini coefficient	Theil's entropy index
<b><math>{}_1Q_0</math></b>					
Both sexes	1981	0.1876	0.0070	0.0390	0.0077
	1991	0.1625	0.0056	0.0324	0.0059
Male	1981	0.1887	0.0072	0.0388	0.0078
	1991	0.1793	0.0065	0.0353	0.0070
Female	1981	0.1973	0.0076	0.0400	0.0085
	1991	0.1792	0.0068	0.0367	0.0072
<b><math>{}_4Q_1</math></b>					
Both sexes	1981	0.2809	0.0190	0.0570	0.0180
	1991	0.5145	0.0498	0.1092	0.0548
Male	1981	0.3083	0.240	0.0667	0.0220
	1991	0.5204	0.0546	0.1098	0.0570
Female	1981	0.3186	0.0221	0.0658	0.0223
	1991	0.5361	0.0626	0.1145	0.0615
<b><math>{}_5Q_0</math></b>					
Both sexes	1981	0.1670	0.0059	0.0330	0.0062
	1991	0.11799	0.0067	0.0382	0.0072
Male	1981	0.1496	0.0048	0.0286	0.0050
	1991	0.1766	0.0065	0.0359	0.0069
Female	1981	0.1980	0.0080	0.0409	0.0086
	1991	0.2042	0.0083	0.0426	0.0091

improvement in infant survival probability has been associated with a parallel, moderate improvement in the probability of survival in the age group 1-4 years. By contrast, relatively slow improvements in infant survival probability in Bastar, Betul, Indore and West Nimar districts have been associated with an equally slow improvement in the probability of survival in the age group 1-4 years.

In contrast to the above 10 districts, there are 17 districts in the state where a very significant improvement in the probability of

survival in the age group 1-4 years has been associated with either a very slow improvement or even a decrease in infant survival probability. Interestingly, 10 of these districts constitute a geographically contiguous area and 8 of them are predominantly tribal in terms of population structure. On the other hand, in 8 districts of the state, a very significant improvement in the infant survival probability has been found to be associated either with virtually no improvement or even a decrease in the probability of survival in the age group 1-4

years. This shows that the trend in the improvement of child survival probability has been different in different districts of the state. In some districts of the state, improvements in child survival has largely been confined to the first year of life while in some districts, this improvement has largely been confined to the life after one year. Reasons for this differing pattern of improvement in the child survival probability are not known at present. In any case, it would be interesting to analyze the factors that are associated with improvements

in infant survival and improvements associated with the improvements in survival during 2-4 years of life.

### Determinants of Inter-District Inequality in Child Survival

Factors responsible for the observed inequality in child survival across the districts of the state are not known at present. It may however be pointed out that reducing the inter-district inequality in child survival in the state may be a feasible strategy for

**Table-3**  
Independent variables used in the regression analysis

SN	Independent Variable	Mean	Standard Deviation
1.	CPR Contraceptive prevalence rate	53.50	8.10
2.	DEL Proportion of deliveries attended by trained persons	41.31	14.68
3.	DEN Population density	171.78	84.14
4.	FED Proportion of female 19 years and above having at least higher secondary level education	4.28	84.14
5.	FPR Female work participation rate in secondary and tertiary sector	13.77	3.94
6.	FMA Female mean age at marriage	16.53	0.82
7.	MED Proportion of villages having some type of medical facility	9.30	3.99
8.	PCI Per capita income at current prices	3247.82	908.10
9.	SRD Surfaced roads per 100 sq. km.	23.52	7.26

**Table-4**  
**Results of Univariate regression analysis**

Independent Variable	DEPENDENT VARIABLE					
	$\beta_0$	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$	$R^2$
CPR	-0.220	0.049	-0.397**	0.157	-0.421**	0.177
DEL	-0.591***	0.350	-0.297*	0.088	-0.592***	0.351
DEN	-0.425**	0.181	-0.238	0.057	-0.448**	0.200
FED	-0.426**	0.182	-0.208	0.043	-0.428**	0.183
FPR	-0.072	0.005	-0.176	0.031	-0.172	0.030
FMA	-0.301*	0.091	-0.417**	0.174	-0.485***	0.236
MED	-0.061	0.004	-0.062	0.004	-0.083	0.007
PCI	-0.185	0.034	-0.181	0.033	-0.247	0.061
SRD	-0.067	0.004	-0.178	0.032	-0.169	0.029

\* Significant at  $p = 0.01$

\*\* Significant at  $P = 0.005$

\*\*\* Significant at  $P = 0.001$

improving the child survival probability for the state as a whole. For example, the infant survival probability in the state varies from a low of 0.834 in district Damoh to a high of 0.929 in district Indore in 1991. Similarly, the probability of survival up to the fifth birthday has been found to vary between a low of 0.796 in district Panna and a high of 0.906 in district Indore.

In order to identify the determinants of inequality in child survival across the districts of the state, regression analysis was carried out with indicators of child survival in 1991 as dependent variable and a host of independent variables related to living conditions, infrastructure in terms of communication facilities, availability of medical facilities and such behaviour indicators as female mean age at marriage. The independent variables in the regression analysis along with their mean values and standard deviation are given in Table 3. All information on independent variables pertain to the year 1991. The regression analysis was

carried out in two stages. In the first stage, univariate regression analysis was carried out between the indicators of child survival and each independent variable separately. Findings of the univariate regression analysis are given in Table 4. In the second stage, multiple regression analysis was carried out between the child survival indicators and those independent variables which were found to be significantly associated with the indicators of child survival in the first stage of analysis. The backward elimination method was used for the multiple regression analysis. This method begins with all independent variables, and at each step, removes the least useful predictor (lowest F-to-remove). The independent variables are removed until a established criterion for the F-ratio no longer holds. Findings of the multiple regression analysis are given in Table 5.

The univariate regression analysis results given in Table 4 suggest that the inter-district variation in the infant survival probability has been found to be statistically significantly

**Table-5**  
**Results of multiple regression analysis**

Particulars	DEPENDENT VARIABLE		
	1q0	4q1	5q0
Coefficients			
CPR		-0.313*	
		(-2.299)	
DEL	-0.591**		-0.478**
	(-4.810)		(-3.811)
DEN			
FED			
FMA		-0.340*	-0.307*
		(-2.492)	(-2.448)
R <sup>2</sup>	0.350	0.266	0.432
Adj R <sup>2</sup>	0.335	0.231	0.405
F	23.131	7.611	15.970

Figures in parentheses are t-statistic.

associated with the proportion of births attended by trained persons, the density of population, proportion of females of age 19 years and more, having education at least up to the higher secondary level, mean age at marriage. On the other hand, variation in the survival probability in the age group 1-4 years has been found to be statistically significantly associated with the contraceptive prevalence rate, proportion of deliveries attended by trained persons and female mean age at marriage. The association of the population density and proportion of females of age 19 years and more, having education at least up to the higher secondary level, with the probability of survival in 1-4 years of age has not been found to be statistically significant. Lastly, variations in the probability of survival up to the fifth year have been found to be associated statistically significantly with variations in all those variables which are

found to be significantly associated with variations in infant survival probability and probability of survival in the age group 1-4 years. Moreover, the sign of the univariate regression coefficients are in expected direction; a reduction in the inter-district variation in these variables is expected to lead to a reduction in the inter-district variation in all the three indicators of child survival. Interestingly, variations in such variables as availability of medical facilities, per capita income, surfaced roads per 100 sq. km. and female work participation rate in secondary and tertiary sectors have not been found to be statistically associated with variations in any of the child survival indicators. However, the sign of the regression coefficients of these variables remains in the expected direction. This means that a reduction in inter-district variation in these variables contribute to some extent towards the reduction



in inter-district variation in child survival in the state, although the amount of contribution is not statistically significant. In other words, reducing inter-district inequalities in living conditions, availability of basic community infrastructure, availability of medical facilities, etc., may contribute towards reducing the inter-district inequality in child survival probability in the state.

The application of multiple regression analysis with backward elimination method suggests that in case of infant survival probability, only the proportion of deliveries attended by trained persons is associated with the probability of infant survival. In fact, inter-district variation in the proportion of births attended by trained persons alone accounts for 35 per cent of the inter-district variation in the infant survival probability. In case of probability of survival in the age group 1-4 years, on the other hand, inter-district variation in the contraceptive prevalence rate and female mean age at marriage, jointly, accounts for nearly 27 per cent of the inter-district variation in the survival probability. It may however be observed that the association of the probability of survival in the age group 1-4 years with the contraceptive prevalence rate and female mean age at marriage is not as strong as the association of infant survival probability with the proportion of birth attended by trained persons. Interestingly, proportion of births attended by trained persons has not been found to be a good predictor of the probability of survival in the age group 1-4 years.

Finally, inter-district variation in the probability of survival from birth up to the fifth birth day has been found to be statistically significantly associated with the inter-district variation in the proportion of births attended by trained persons and the female mean age at marriage, the two variables accounting for more than 43 per cent of the variation in probability of survival in the first five years of life. Among the two variables, the association of the proportion of births attended by trained persons is relatively stronger as is

clear from a relatively higher value of the t-statistic.

The results of the regression analysis suggests a simple prescription for reducing inter-district inequality in child survival and hence in improving the child survival status for the state as a whole. This prescription calls for reducing inter-district inequalities in just three critical areas-proportion of births attended by trained persons, contraceptive prevalence rate and female mean age at marriage. The analysis suggests that by universalizing proper attention and care during pregnancy and at the time of delivery and by universal adoption of small family norm by increasing the female mean age at marriage and by promoting the use of family planning methods may lead to more than 43 per cent reduction in inter-district inequality in the probability of survival in the first five years of life thereby leading to some significant improvements in the probability of child survival in the state. The importance of the prescription that emerges from the analysis lies in the fact that all the three critical areas identified can be effectively addressed through suitably designed programme interventions. Incidentally, these areas are also critical to reducing the levels of fertility. This implies that by focusing on increasing the female age at marriage, promoting the use of family planning methods and by providing proper attention and care during pregnancy and at the time of delivery, an integrated approach of reducing inter-district inequalities in child survival and fertility can be evolved which, ultimately may lead to substantial reduction in premature loss of life as well as reduction in fertility level in the state.

Surprisingly, the analysis does not support the view that reduction in inter-district variations in income levels, especially communication facilities, and availability of medical facilities may contribute to reduction in inter-district variation in child survival probabilities. This does not mean that there is no association between these variables and

child survival but that child survival is more strongly associated with the inequalities in female mean age at marriage, practice of family planning methods and proportion of births attended by trained persons than with the inequalities in income levels, infrastructure development and availability of medical facilities. Obviously economic and infrastructure development in the form of increased per capital income, availability of better communication, medical facilities, etc. may be of little help in improving the child survival probabilities if these developments do not lead to behaviour change in people which may be reflected through increased female age at marriage, adoption of small family norm proper attention and care during pregnancy and at the time of delivery. For example, it is widely conjectured that female literacy is expected to lead to an increase in the female age at marriage. However, the district level data from Madhya Pradesh do not support this conjecture. In fact, the simple zero order correlation coefficient between female mean age at marriage and the female literacy rate has been found to be only 0.270 which is statistically insignificant. Similarly, the simple correlation coefficient between the female mean age at marriage and the proportion of females with age 19 years and above having at least higher secondary level education has been found to be only 0.184 which is again statistically insignificant. These correlations indicate that a reduction in the inter-district inequality in female education may not lead to a reduction in the inter-district inequality in female mean age at marriage possible because the female mean age at marriage is influenced more by other factors than female education. In any case, the very fact that inter-district inequality in female education clearly indicates that reducing inter-district inequality in female education may not lead to reducing inter-district inequality in female mean age at marriage and hence in the child survival probability. However, this does not mean that reducing inter-district

inequalities in female education will not contribute towards reducing inter-district inequalities in child survival. In contrast to female mean age at marriage, inter-district inequality in female education has been found to be statistically significantly associated with inter-district inequalities in contraceptive prevalence rate and inter-district inequalities in the proportion of deliveries conducted by trained persons. In any case, the effect of female education in reducing inter-district inequalities in child survival is at best indirect, working through such variables as female mean age at marriage, prevalence of contraception and attention and care during pregnancy and at the time of delivery.

The analysis also suggests that the influence of poor economic and infrastructure development on child survival may well be compensated through a well designed and efficiently implemented integrated programme of increasing female age at marriage, universalizing small family norm and ensuring proper care and attention during pregnancy and at the time of delivery to all. This means that it is possible to reduce the inequalities in child survival in the state even at the current state of economic and infrastructure development through properly targeted intervention efforts.

## Conclusions

The present analysis is focused towards the measurement of inequality in child survival across the districts of Madhya Pradesh. The analysis also focuses on the change in the inequality that has taken place over time and the determinants of the observed inequality in child survival. The underlying assumption in taking up the analysis was that reduction in the inter-district inequalities in child survival may lead to improvements in the child survival status of the state as a whole. In this context, the analysis suggests that while the inter-district inequality in infant survival probability has shown a declining trend in the state during the period 1981-91,

the inter-district inequality in the probability of survival in the age group 2-4 years has shown an increasing trend. Reasons for the observed differing trend in the inequality in infant survival and survival in the age group 2-4 years are not known at present. However, the analysis suggests that by reducing inequalities in female age at marriage, inequalities in the use of family planning methods, and by reducing inequalities in the

proportion of births attended by trained persons, significant reduction in the inequalities in child survival across the districts of the state could be achieved. This implies that inequalities in female mean age at marriage, prevalence of contraception and care and attention during pregnancy and at the time of delivery may be viewed as the proximate determinants of inequalities in child survival in the state.

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Appendix Table-1

**Probabilities of death in the first year of life in districts of  
Madhya Pradesh ( ${}_1q_0 \times 1000$ )**

Particulars	1981			1991		
	Total	Male	Female	Total	Male	Female
Morena	138	124	170	118	120	116
Bhind	129	124	135	105	98	113
Gwalior	118	109	148	96	100	103
Datia	156	140	176	131	129	141
Shivpuri	150	137	157	120	112	139
Guna	150	146	154	124	113	144
Tikamgarh	195	201	189	142	131	153
Chhatarpur	182	181	183	136	130	149
Panna	185	190	176	132	142	129
Sagar	164	173	155	138	141	132
Damoh	150	148	151	166	181	139
Satna	181	176	187	142	139	147
Rewa	173	178	132	149	162	127
Shahdol	164	187	127	137	144	111
Sidhi	161	165	157	111	115	106
Mandsaur	138	150	126	111	109	112
Ratlam	143	152	134	128	120	132
Ujjain	106	116	94	77	79	74
Shajapur	149	150	148	116	113	118
Dewas	114	113	120	97	87	102
Jhabua	116	120	112	92	91	96

Contd.



Particulars	1981			1991		
	Total	Male	Female	Total	Male	Female
Dhar	116	120	111	99	95	102
Indore	84	87	82	71	74	69
West Nimar	137	143	131	126	138	124
East Nimar	131	132	130	129	127	131
Rajgarh	170	188	153	125	109	144
Vidisha	144	156	131	107	109	102
Bhopal	82	81	83	94	89	98
Sehore	146	161	155	146	150	141
Raisen	135	136	128	141	135	159
Betul	158	161	155	146	150	141
Hoshangabad	163	170	156	138	138	139
Jabalpur	129	136	125	121	126	117
Narsimhapur	162	164	159	120	119	121
Mandla	115	147	106	114	125	104
Chhindwara	118	121	113	119	126	116
Seoni	115	117	112	126	135	118
Balaghat	118	125	111	141	132	147
Surguja	115	127	104	92	89	95
Bilaspur	115	121	110	109	116	91
Raigarh	113	119	107	112	116	107
Rajnandgaon	132	132	126	129	134	124
Durg	106	115	102	102	112	84
Raipur	141	151	132	121	120	122
Bastar	118	131	104	98	95	86

Appendix Table-II

**Probabilities of death in the age group 1-4 years in  
district of Madhya Pradesh ( ${}_4q_1 \times 1000$ )**

Particulars	1981			1991		
	Total	Male	Female	Total	Male	Female
Morena	77	56	73	23	33	53
Bhind	87	57	124	49	11	81
Gwalior	83	63	85	25	23	26
Datia	97	81	114	54	22	84
Shivpuri	111	94	139	91	68	110
Guna	84	71	98	81	61	63
Tikamgarh	99	76	123	52	47	61
Chhatarpur	104	82	129	73	72	92
Panna	104	88	126	83	69	90
Sagar	67	39	97	39	41	43
Damoh	109	94	126	83	69	90
Satna	73	67	79	71	69	70
Rewa	46	27	104	55	39	81
Shahdol	61	39	95	27	25	48
Sidhi	49	47	51	61	59	64
Mandsaur	58	48	68	44	43	46
Ratlam	62	50	74	24	61	22
Ujjain	69	57	83	76	67	89
Shajapur	98	95	99	59	45	75
Dewas	80	76	81	35	32	41
Jhabua	72	70	73	85	75	92

Contd.

Particulars	1981			1991		
	Total	Male	Female	Total	Male	Female
Dhar	62	61	64	26	24	28
Indore	31	24	36	25	16	30
West Nimar	48	40	55	37	26	37
East Nimar	90	73	107	25	23	25
Rajgarh	66	42	87	65	65	63
Vidisha	107	77	140	94	84	107
Bhopal	52	52	51	12	14	10
Sehore	115	83	151	61	53	88
Raisen	105	94	122	44	53	13
Betul	58	54	63	40	34	47
Hoshangabad	79	54	104	48	42	51
Jabalpur	90	81	96	30	29	32
Narsimhapur	50	41	62	32	28	43
Mandla	79	53	79	20	11	28
Chhindwara	88	90	89	26	22	24
Seoni	75	75	74	30	24	34
Balaghat	76	79	73	30	37	29
Surguja	62	54	68	23	29	19
Bilaspur	77	75	76	16	12	30
Raigarh	73	76	71	21	20	25
Rajnandgaon	88	84	97	24	23	24
Durg	63	58	63	22	18	34
Raipur	27	22	31	18	18	18
Bastar	51	45	57	34	39	40

Appendix Table-III

**Probabilities of death in the first five years of life in  
districts of Madhya Pradesh ( ${}_5q_0 \times 1000$ )**

Particulars	1981			1991		
	Total	Male	Female	Total	Male	Female
Morena	199	173	203	138	149	163
Bhind	205	174	242	149	108	185
Gwalior	191	165	220	119	121	126
Datia	238	210	270	178	148	213
Shivpuri	244	218	274	200	172	234
Guna	221	207	237	195	167	198
Tikamgarh	275	262	289	187	172	205
Chhatarpur	267	248	288	199	193	227
Panna	270	261	280	204	201	207
Sagar	220	205	237	172	176	169
Damoh	243	228	258	194	200	173
Satna	241	231	251	203	198	207
Rewa	211	200	222	196	195	198
Shahdol	215	219	210	160	165	154
Sidhi	202	204	200	165	167	163
Mandsaur	188	191	185	150	147	153
Ratlam	196	194	198	149	147	151
Ujjain	168	166	169	147	141	156
Shajapur	232	231	232	168	153	184
Dewas	185	180	191	129	116	139
Jhabua	180	182	177	169	159	179

Contd.



Particulars	1981			1991		
	Total	Male	Female	Total	Male	Female
Dhar	171	174	168	122	117	127
Indore	112	109	115	94	89	97
West Nimar	178	177	179	158	160	156
East Nimar	209	195	223	151	147	153
Rajgarh	225	222	227	182	167	198
Vidisha	236	221	253	191	184	198
Bhopal	130	129	130	105	102	107
Schore	244	231	259	178	183	195
Raisen	226	217	234	179	181	170
Betul	207	206	208	180	179	181
Hoshangabad	229	215	244	179	174	183
Jabalpur	207	206	209	147	151	145
Narsimhapur	204	198	211	148	144	159
Mandla	185	192	177	132	135	129
Chhindwara	196	200	192	142	145	137
Seoni	181	183	178	152	156	148
Balaghat	185	194	176	167	164	172
Surguja	170	174	165	113	115	112
Bilaspur	183	187	178	123	127	118
Raigarh	178	186	170	131	134	129
Rajnandgaon	208	205	211	150	154	145
Durg	162	166	159	122	128	115
Raipur	164	170	159	137	136	138
Bastar	163	170	155	129	130	123

# HUMAN DEVELOPMENT IN THE INDIAN HILL STATE OF HIMACHAL PRADESH

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## Abstract

The human development index, evolved by the UNDP to measure human development, is wanting on several counts including skipping of dimensions of time and space. This paper proposes a modification in the index to incorporate the dimension of space into it. The modified index has been used here to examine human development in Himachal Pradesh. Initially, human development in the state has been examined in all-India context, followed by an assessment of patterns of and trends in human development, since its consolidation in 1966.

Wide inter-state disparities in Human development in the country are largely explained by the per capita expenditure, which the states incur, on social services. Initiation of new economic policy in 1991 has adversely affected the allocation to social services sector by the states. This will have an adverse affect on human development in different states, especially in backward and hill states, depending heavily on the grants from the Central government.

Himachal Pradesh ranks 9th among the major states of India. It has performed well in the sphere of human development in its post-consolidation phase. Of late, deceleration in expenditure on social services in the state is disturbing.

Though, inter-district disparities in human development have declined during 1971-91, yet large enough to cause concern to planners and policy-makers in the state. Districts from 'new' Himachal Pradesh are not only ahead of the districts in the 'old' Himachal Pradesh in human development but also grew fast during 1971-91. Districts of Mandi, Shimla and Chamba, all from 'old' Himachal Pradesh, in fact, need special attention of the planners and policy-makers. Another cause of concern is the prevalence of wide urban-rural and social inequalities in different components of Human development, especially in female literacy. Rural females and lower castes especially the scheduled castes and tribes suffer greatly in this context.

*"The approach to human development encompasses  
jnana, karma and bhakti"*

— Amartya Sen

In the beginning of the nineties, human development emerged as an important development goal in itself. *The Human Development Report 1990*, introduced by the United Nations Development Programme

(UNDP), argues that development is not merely an expansion of income and wealth, but a process of building human capabilities and enlarging human opportunities.<sup>1</sup> This perspective of development is termed 'human

development'. The concept is defined as 'the process of widening people's choices and the level of well-being they achieve'. Such choices are neither finite nor static. The Report states that regardless of the level of development, the three choices for the people are-to lead a long and healthy life, to be knowledgeable, and to have access to the resources needed for a decent standard of living. These are represented by the indicators it uses: longevity of life, adult literacy plus combined enrolment ratio, and real GDP per capita (PPP\$). It further states that people value many additional choices. These include political, economic and cultural freedom, a sense of community, opportunities for being creative and productive, and self-respecting and human rights. These capabilities are to be achieved in a way that is equitable, participatory, productive and sustainable. Thus, the concept of human development provides an alternative to the view of development equated exclusively with economic growth.

The UNDP brings out the Human Development reports annually. These reports have been focusing on a variety of issues, ranging from a general profile of human development to poverty, market transition of centrally planned economies, human rights, gender issues, and equity. Besides, national human development reports focus on regional, residential, ethnic, and gender differentials in human development within individual countries.

The focus on human development is intensifying all over the world. More and more countries are now incorporating human development into their development priorities. Today 120 countries publish human development reports with UNDP support, in addition to nine regional reports (UNDP, 1999, p.20). The first regional report on South Asia was published in 1997. This report was brought out by the Human Development Centre, based in Pakistan. In South Asia, Bangladesh and Pakistan are among the pioneers, having published their national human development reports as early as 1992.

Sri Lanka, Nepal and India have also joined this group. Even sub-regional level reports are being produced. The state of Madhya Pradesh in India was the first to publish a sub-regional human development report in 1995. At the international level, La Paz, Cochabamba, and Santa Cruz in Bolivia and Sofia in Bulgaria are other states to publish sub-regional reports. All these reports offer an in-depth perspective on local circumstances and country-specific strategies for advancing human development (UNDP, 1998, p.17).

India published its first national level human development report in 1999 (NCAER, 1999). This report, however, restricts itself to the human development profile in the rural areas of 16 states. Based on the methodology employed by the UNDP (1990), a number of Indian scholars have also constructed HDI for Indian states.<sup>2</sup> Going a step ahead, Geetha Rani (1999) examined human development in India at the district level. She calculated human development index for rural areas of 391 districts taking five indicators: female literacy, male-female literacy ratio, infant mortality rate, per capita value of major crops (in rupees) and workforce engaged in manufacturing activities. Sub-regional reports/studies are now available for the states Madhya Pradesh (1985), Gujarat (1999), Rajasthan (SID-Rajasthan Chapter, 1999), Karnataka (Vyasulu and Vani, 1997), and West Bengal (Bhattacharya, 1998). So far, no study/report has yet appeared on any one of the nine hill states in India.<sup>3</sup> The present study is an effort toward filling this gap. It examines the spatial patterns of human development in the Indian Hill State of Himachal Pradesh. Specifically, it poses the following questions:

1. How does Himachal Pradesh compare with other Indian states in terms of human development?
2. What is the record of the state in human development since its consolidation in 1966?
3. What are the patterns of and trends in

sub-regional disparities in human development in the state?

### Human Development Index (HDI) and its Calculation

First of all, human development index and its method of calculation is examined. As a measure of human development, human development index (HDI) has been used by the Human Development Reports since 1990. Longevity, knowledge, and decent standard of living are taken as the three basic dimensions of human development in any part of the world. The index is measured by life expectancy, educational attainment and adjusted income. Life expectancy as an indicator of human development, captures several aspects of welfare on account of its close association with nutrition, health, and other important biological and social achievements. Literacy helps an individual in the attainment of knowledge.<sup>4</sup> The third element (income), needed for a decent living, covers those aspects of living that are not well represented by life expectancy or literacy.<sup>5</sup> But incomes are only means of good living and must not be confused with decent living. The Report takes the logarithm of per capita income to reflect the conversion of income into good living.<sup>6</sup> Obviously, data on life expectancy, literacy and income are used to construct a composite Human Development Index (HDI) for each country.<sup>7</sup>

Longevity is measured by life expectancy at birth; educational attainment by a combination of adult literacy (two-thirds weight) and combined gross primary, secondary and tertiary enrolment ratio (one-third weight); and standard of living by real GDP per capita on purchasing power parity in US dollars (PPP\$).

The HDI has been criticised by scholars on several grounds. In the following, some of such criticism has been examined briefly. Firstly, the HDI is not a very simple concept. The ranking of a state or district can change when nothing within it has changed. For

example, if the number of states/districts in any such exercise is increased or decreased, the relative ranking of all other states/districts will change. Obviously, a change in ranking will take place not because some value has changed but the newly added units may be placed ahead or behind them in an array (Vyasulu and Vani, 1997).

Secondly, the HDI has to be carefully and sensitively interpreted. Within a limited context, the value itself may have some meaning as a relative measure. A high rank does not mean that a state/district is well off in absolute terms. The numerical value, that is calculated, means little in itself. A great deal depends upon selection of range, appropriateness of indicators and universe of comparison. Literacy, for example, may be a good indicator in a country/state where literacy level is low but it does not help to provide a ranking where literacy level is 100 per cent.

To demonstrate the sensitiveness of the HDI to the choice of maximum value, Kelley (1991) calculated the effect of change in maximum limit of life expectancy from 78 years (attained only by Japan) to 73 years (the average of the developed countries in 1987). This resulted in raising 22 countries from 'low' to 'medium' human development and another ten countries from 'medium' to 'high' human development. Further, Kelley questioned the rationale of assigning equal weight to the different indicators of human development. While a priori it is difficult to justify any set of weights, testing the sensitivity of the HDI to alternative weights can prove useful. According to him, 'a weight roughly reflecting the acquisition-transformation would have been appropriate under the premise that in some countries individuals may well have elected to use their income to expand choices in ways that do not result in, say, improved education or health. Indeed, it might be argued that the capacity to choose among many dimensions of human development, accorded by expanded income



in particular, merits giving a relatively higher weight to this indicator'.

Thirdly, Castles (1998, pp. 831-845), while reviewing the Human Development Report 1998, pointed out a number of statistical misunderstandings and errors committed by the UNDP in calculation of indicators such as homelessness, poverty, and unemployment in industrial countries. He asserted that HDI is 'an unsatisfactory tool for monitoring progress and determining priorities for policy intervention'. Further he stated that in the debate over HDI hardly any attention is paid to the quality of data used in its calculation. He warned that the UNDP should take the utmost care in handling the index and promoting its usefulness.

Fourthly, the HDI skips the dimensions of time and space. For example, the people have to cover distances for getting access to health and educational facilities and earn incomes. Whether the people have used a metalled road or footpath or any other mode in such movements will make a significant difference to the accessibility to various facilities/services for human development at various locations in space. Similarly, it is also important to know how efficient is the pattern of mobility in an area so that minimum time, cost and efforts are involved to access goods and services. The UNDP has hardly paid any attention to incorporate such issues in the calculation of HDI.

Of course, there can be difficulties to find out a satisfactory indicator to measure the time required in spatial mobility. But to measure the dimension of space will not be that difficult. For example, in the Indian context how villages are connected to each other and also to nearby service centres can provide an idea of space dimension. In this regard, the proportion of villages connected by metalled road in a state or district can be used as a fairly good indicator to incorporate the dimension of space in the HDI.

The UNDP has made several modifications in the calculation of HDI, since its inception in

1990. The objective is to make its method of calculation simple in response to criticism. The present exercise uses the methodology adopted in the latest (2000) Human Development Report with some changes.

In the present exercise, the HDI has been calculated using the following four indicators. For construction of index, fixed minimum and maximum values have been established for each of the indicators:

- Life expectancy at birth: 25 years and 85 years
- General literacy rate: 0 % and 100 %
- Real GDP per capita (PPP\$): PPP\$ 100 and PPP\$ 40,000
- Villages connected with metalled road: 0 % and 100 %.

Here, one may ask why and how the above minimum and maximum values have been fixed? Firstly, a change in minimum and maximum values over time may lead to an anomaly in which actual life expectancy of an administrative unit can go up while its score goes down. This may happen because the minimum has gone up or range has widened over time, or both. Thus, "moving the goal posts" makes overtime comparison of the HDI more difficult. Since one of the objectives of the present exercise is to study the temporal change in the HDI of Himachal Pradesh, fixing of minimum and maximum values has been considered essential. Secondly, the same minimum and maximum values have been fixed by the UNDP for an international comparison of HDI. We had, therefore, two options: (a) to make inter-state and intra-state comparison of HDI in India by fixing minimum and maximum limits from within India, and (b) to accept the minimum and maximum values fixed by the UNDP for international comparison. We opted for the second alternative, as this will help in assessing Indian situation in the international context. In fact, there is no harm to look into the story of human development inside India vis-à-vis international community in this era of globalisation. For any component of the HDI

individual indices can be computed according to general formula :

$$\text{Index} = \frac{\text{Actual } x_i \text{ value} - \text{minimum } x_i \text{ value}}{\text{Maximum } x_i \text{ value} - \text{minimum } x_i \text{ value}}$$

For example, the life expectancy at birth in Himachal Pradesh is 64 years, the index of life expectancy for Himachal Pradesh would be :

$$\text{Life expectancy index} = \frac{64 - 25}{85 - 25} = \frac{39}{60} = 0.650$$

Construction of income index is, however, a little more complex. A particular formula was used by the Human Development Report till 1998. This has been reviewed and revised in 1999 on the basis of the work done by Anand and Sen (1999). The earlier formula discounted the income above threshold level very heavily, thus penalizing the countries in which income exceeded the threshold level. This reduces the difference of \$34,000 (PPP\$) between the world threshold (\$6,000) and maximum level of income (\$40,000) to a mere \$321 (PPP\$). As a result, in many cases income loses its relevance as a proxy for all dimensions of human development other than a long and healthy life and knowledge. The refinement in the treatment of income to calculate HDI in 1999 attempts to rectify this problem 'by putting the methodology on a more solid analytical foundation' (for details see technical note in UNDP, 1999, p.159-163). In the new formula, income is treated as follows :

$$W(y) = \frac{\log y - \log y_{\min}}{\log y_{\max} - \log y_{\min}}$$

Where  $y$  is the actual per capita income in PPP\$ of the country/state/district for which income index is calculated,  $y_{\min}$  is the threshold level poverty line defined at the global level, and  $y_{\max}$  is the threshold level of the world average income. The logarithm of all the income values is taken before calculating the income index.

This paper departs from the Human Development Report in selection of indicators. This has been done for two main reasons. Firstly, in India no reliable data on adult literacy and combined gross enrolment ratio, which are used by the UNDP to calculate education index, are available either at the state or district level. Also the number of years of schooling are not available. Hence, general literacy rate has been used as an indicator of educational attainment. Secondly connectivity, as measured by percentage of villages linked by metalled road, has been added to incorporate the dimension of space in HDI, as argued earlier.

We experimented with some other indicators also. For example, female literacy rate was considered along with general literacy rate. Later on, it had to be dropped since a strong positive association was found between the general and female literacy rates. The same considerations weighed in dropping infant mortality rate (IMR), considered along with life expectancy at birth.

In brief, there is still scope for further extending and strengthening the concept and analysis of human development. This will require further debate and co-operation of diverse groups to make the HDI more creditable and acceptable. On its part, the UNDP has been strengthening and widening this concept and evolving new methodology since its inception in 1990. Over the period, new dimensions (such as, gender inequality, human poverty, sustainability, human rights, and equity) and measurement indices (such as, GDI, GEM, and HPI) have been added. Besides, the method of calculation has also been revised (for details see UNDP, 1998, pp.14-15; 1999, pp.127-128).

In the following, data sources used in the present exercise have been discussed. Data on per capita net state domestic product (NSDP) are available from Net State Domestic Product, CSO, New Delhi and Directorates of Economics and Statistics of different States. However,

information/data on district net domestic product for districts in Himachal Pradesh are not available either from the Directorate of Economics and Statistics, Government of Himachal Pradesh, Shimla or from any other source. Under the circumstances, per capita net domestic income for all the 12 districts in Himachal has been calculated by an indirect method. The methodological details of calculation are available in Kant (1996, pp.54-82). District level per capita income figures, available from this source are at 1980-81 prices. Using a price deflator, the income figures are converted to 1990-91 prices. The adjusted real per capita income of India (1072 PPP\$), calculated by the UNDP and available in the HDR 1993, is also at 1990-91 prices. Adjusted real per capita income for Himachal Pradesh and its districts has been calculated in the following manner. Firstly, per capita incomes of Himachal Pradesh and districts in the state have been divided by the average per capita national income. Thereafter, this ratio was multiplied with real adjusted per capita income for India. For example, in 1990-91 per capita income of Himachal Pradesh, Bilaspur district (Himachal Pradesh) and the all-India average were Rs.3924, Rs.3857 and Rs.4983, respectively. Adjusted per capita income of India in the same year being 1072 (PPP\$), adjusted real per capita income for Himachal Pradesh and Bilaspur district in 1990-91 will be:

Adjusted real per capita income of Himachal Pradesh =  $3924/4983 * 1072 = 844$  (PPP\$)

Adjusted real per capita income of Bilaspur district =  $3857/4983 * 1072 = 830$  (PPP\$)

The same procedure has been followed to calculate adjusted real per capita income for other districts in Himachal Pradesh as well as other states in India. The log values, for the real per capita incomes thus arrived at, were calculated before using them in calculation of income index. HDIs calculated in this exercise are, thus, comparable at international level.

For illustration, income index for Himachal Pradesh and Bilaspur district in 1991 will be as follows :

$$\text{Himachal Pradesh} = \frac{\log(844) - \log(100)}{\log(40,000) - \log(100)} = 0.356$$

$$\text{Bilaspur district} = \frac{\log(830) - \log(100)}{\log(40,000) - \log(100)} = 0.353$$

The literacy rates are calculated from the Census of India, General Population Tables, for 1971 and 1991. The state-wise figures on life expectancy at birth have been taken from SRS Based Abridged Life Tables, 1989-93, published by the Registrar General of India, New Delhi. District level figures on life expectancy for 1971 are not available and 1991 figures are yet to be released. However, estimated figures for 1981 are available in Mishra and others (1994). While, 1981 figures were used for 1971, average increase in life expectancy for Himachal Pradesh state during 1981-91 (10.5%) was used to arrive at district level figures in 1991. For illustration of the HDI methodology see note 8.

## Human Development in Indian States

The Human Development Report (HDR) of 2000 places India at 128th rank among 174 countries. India finds 82nd position among 94 countries in the medium human development category (index value ranging from 0.798 to 0.507). Among the Asian countries, India's HDI (0.563) was higher than that of Pakistan (0.522), Bhutan (0.483), Nepal (0.474), and Bangladesh (0.461), but was lower than that of Malaysia (0.772), Thailand (0.745), Sri Lanka (0.733), and China (0.706).

Human development is not only low in India but also there are wide inter-regional and intra-regional disparities. (Here the use of term 'region' stands for state and 'sub-region' refers to district level). Among the 16 states for which HDI could be calculated, Kerala has

Table - 1  
Human Development Index: Himachal Pradesh among Major States of India, 1997

HDI Rank	State	Life Expectancy at birth (in years) 1989-93	Literacy rate (% age) 1991	Real Per Capita Income (1997 PPP\$)	Villages connected by Metalled Road (%) 1991	Life expectancy index	Literacy index	Income index	Connectivity Index	HDI
1	Kerala	72	90	1387	98.99	0.783	0.9	0.439	0.99	0.778
2	Punjab	66	59	2786	96.16	0.683	0.59	0.555	0.962	0.698
3	Haryana	63	56	2478	97.8	0.633	0.56	0.536	0.978	0.677
4	Tamil Nadu	63	63	1791	75.62	0.633	0.63	0.482	0.756	0.625
5	Gujarat	60	61	2131	60.69	0.583	0.61	0.511	0.607	0.578
6	Karnataka	62	56	1572	65.51	0.617	0.56	0.46	0.655	0.573
7	Maharashtra	64	65	2645	42.71	0.65	0.65	0.547	0.427	0.569
8	Andhra Pradesh	61	44	1509	51.03	0.6	0.44	0.453	0.51	0.501
9	Himachal Pradesh	64	64	1489	23.31	0.65	0.64	0.451	0.233	0.494
10	West Bengal	62	58	1444	24.77	0.617	0.58	0.446	0.248	0.472
11	Assam	60	53	1019	25.93	0.583	0.53	0.387	0.259	0.44
12	Uttar Pradesh	56	42	1030	39.75	0.517	0.42	0.389	0.398	0.431
13	Rajasthan	58	39	1297	30.39	0.55	0.39	0.428	0.304	0.418
14	Orissa	56	49	982	24.42	0.517	0.49	0.381	0.244	0.408
15	Madhya Pradesh	54	44	1139	22.45	0.483	0.44	0.406	0.224	0.388
16	Bihar	59	39	587	23.16	0.567	0.39	0.296	0.232	0.371
	All-India	59	52	1670	36.96	0.567	0.52	0.47	0.37	0.482

**Source :**

1. Data on life expectancy at birth have been taken from *SRS Based Abridged Life Tables, 1989-93*, SRS Analytical Studies, Report No. 1 of 1996, Registrar General of India, New Delhi, p.7
2. Literacy rates have been taken from Census of India (1991) *Final Population Totals: Brief Analysis of Primary Census Abstract, Paper-2 of 1992*, Registrar General & Census Commissioner, India, New Delhi, pp. 210-17.
3. Per capita SDP data are based on estimates of state domestic products prepared by the Directorate of Economics and Statistics of the respective state governments.

**Note :**

- (i) Real SDP per capita in 1997 PPP\$ has been calculated by multiplying the ratio of the state per capita SDP to the national per capita income by India's real GDP of 1670 (in PPP\$) reported in UNDP (1991).
- (ii) To calculate income index, real per capita income of the states, thus calculated, has not been used directly. Log values of real per capita incomes were taken, before calculating the income index.
- (iii) The Human Development Index calculated here is inter nationally comparable



the highest HDI (0.778) in 1997. Against this, Bihar has the lowest (0.371), which is less than a half of HDI value for Kerala (Table 1). At the sub-regional level, inter-district disparity in HDI value are the maximum in Rajasthan, against the minimum in Kerala (Geeta Rani, 1999, p.18).

Kerala's achievements are exceptional in view of the fact that such a high level of human development could be achieved in spite of moderate level of per capita income. The Christian mission and various social movements in the past century has nurtured the culture of the people, which Kerala is enjoying at present in terms of its human development indicators and the highest local participation (Geeta Rani, 1999, p. 15). On the global scale, Kerala's HDI was ahead of Malaysia, Thailand, Sri Lanka and China. Besides Kerala, other states having high HDI (0.600 and above) are Punjab, Haryana and Tamil Nadu (Fig.1). As compared to Kerala, Punjab, Haryana and Tamil Nadu have higher per capita incomes. In Kerala, life expectancy at birth was 72 years in 1989-93. It was not only the highest among all the states in India but also comparable with countries such as Argentina, Republic of Korea and Poland, which have a much higher level of per capita income and are categorised as high human development countries by the HDR of 1999.

Besides Kerala, Punjab, Maharashtra, Himachal Pradesh and Tamil Nadu also have high life expectancy at birth. In contrast, Orissa, Uttar Pradesh, Rajasthan, and Bihar have low life expectancy at birth. Punjab has attained reasonably low levels of crude death rate (7.9), resulting in higher life expectancy at birth (66.4 years). Besides, Punjab has the distinction of having the highest per capita income among the major states. Its per capita income of 2,645 (PPP\$) in 1997 was more than four times that of Bihar (587 PPP\$), the state having the lowest per capita income among the states included in the study. Metalled roads connected more than 96 per

cent of Punjab's villages. However, its achievements in lowering birth rates and propping up literacy rates are less satisfying (Table 2). Haryana has attained reasonably low levels of crude death rate (8.4), resulting in higher life expectancy at birth (63 years). About 98 per cent of its villages in 1991 were linked with metalled road and the state had a per capita income next only to Punjab and Maharashtra. The performance of Tamil Nadu in lowering birth and death rates has been comparable with Kerala. Here, growth rate of population is considerably low (1.5 per cent per annum during 1981-91) and life expectancy is quite high (63 years). In terms of villages linked with metalled road, Tamil Nadu stands fourth after Kerala, Haryana, and Punjab. However, in terms of per capita income Tamil Nadu falls in middle income category of states. Tamil Nadu has also achieved high literacy rate (63 per cent).

Gujarat, Karnataka, Maharashtra, Andhra Pradesh, Himachal Pradesh, and West Bengal fall in the moderate category of HDI (0.450-0.600). Gujarat has done relatively well in social and demographic development. But its achievements are considerably low as compared to its performance in economic development, reflected from its high per capita income. The presence of wide rural-urban and social inequalities in dimensions of human development can be stated as the reasons for being in the moderate category of human development. Relatively low connectivity of its rural areas with metalled roads was another factor behind this. Maharashtra's achievements are also significant in literacy and in lowering its birth rate. Its literacy rate of 65 per cent in 1991 was next only to Kerala among the sixteen major states. In life expectancy at birth (64 years in 1989-93), Maharashtra ranked third after Kerala and Punjab. Nevertheless, there is wide rural-urban disparity in demographic development in the state (Economic and Political Weekly, 1994, pp.1300-1301). Besides, only about two-fifths of its villages were connected by metalled

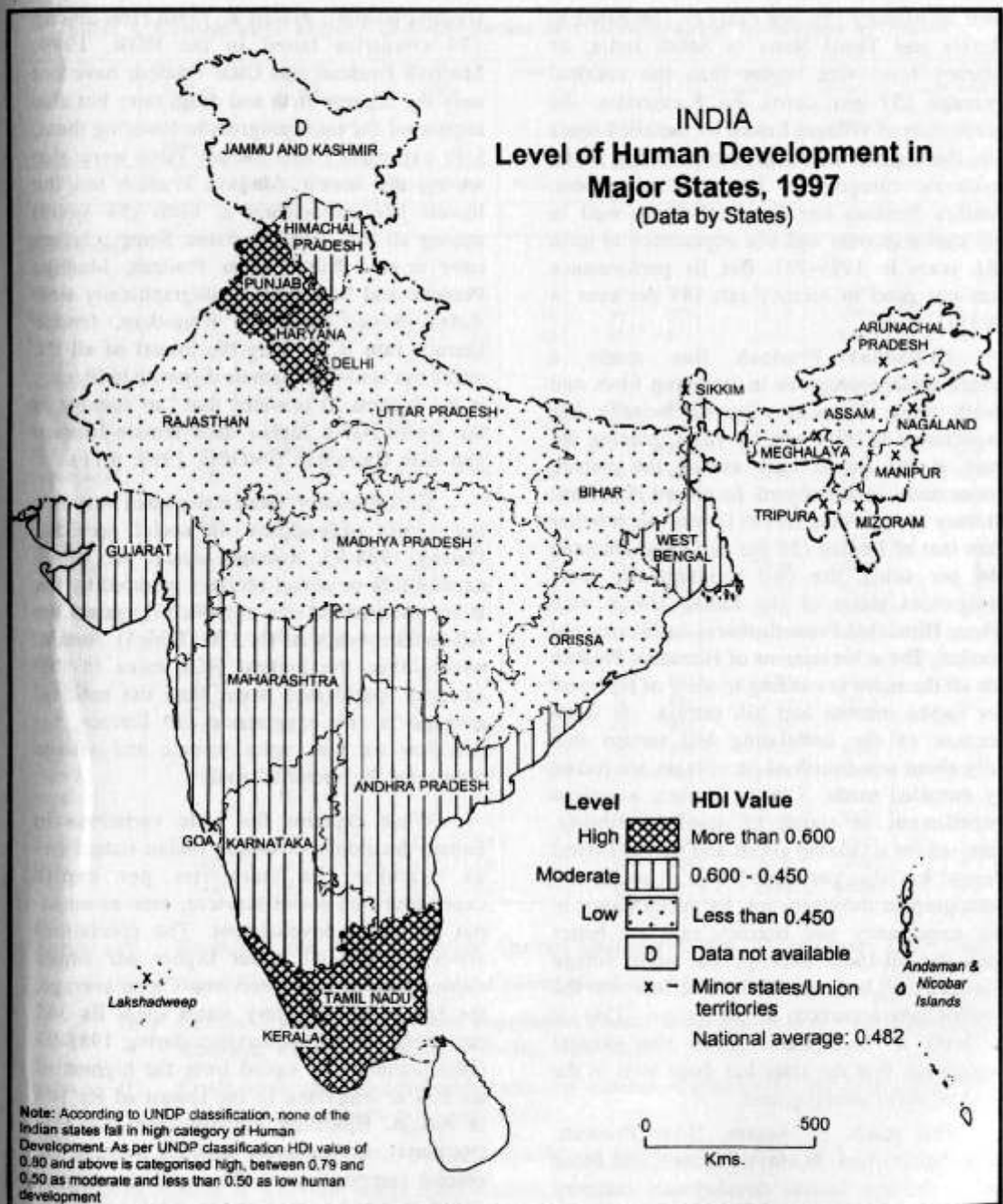


Fig. 1

road. Though Karnataka has not performed so well in literacy (56 per cent) as compared to Kerala and Tamil Nadu in South India, its literacy level was higher than the national average (52 per cent). In Karnataka, the proportion of villages linked by metalled roads was the highest among the states falling in the moderate category of human development. Andhra Pradesh has done relatively well in per capita income and life expectancy at birth (61 years in 1989-93). But its performance was not good in literacy rate (44 per cent in 1991).

Himachal Pradesh has made a commendable progress in lowering birth and death rates. Consequently, its average life expectancy at birth was 64 years, placing the state at the fourth rank among the sixteen major states in this regard. Its record in general literacy (64 per cent in 1991) was much better than that of Punjab (59 per cent) and Haryana (56 per cent), the two economically most prosperous states of the Indian Union with whom Himachal Pradesh shares its history and borders. The achievements of Himachal Pradesh are all the more rewarding in view of its lower per capita income and hill terrain. It is on account of the undulating hill terrain that only about one-fourth of its villages are linked by metalled roads. This is, in fact, a serious impediment in terms of spatial mobility, required for accessing goods and services. West Bengal has also performed well in social and demographic development. Its performance in life expectancy and literacy rate are better than the all-India average but poor village connectivity had an adverse effect on the overall performance of the state. This is difficult to understand given the general impression that the state has done well in the field of rural development.

The states of Assam, Uttar Pradesh, Rajasthan, Orissa, Madhya Pradesh, and Bihar fall in the low human development category (HDI value less than 0.450). Bihar has the lowest index value of 0.371, followed by Madhya Pradesh with an index value of 0.388.

HDI of these states were lower even than that of Uganda (0.404), placed at 158th rank among 174 countries listed in the HDR, 1999. Madhya Pradesh and Uttar Pradesh have not only the highest birth and death rates but also registered the least progress in lowering them. Life expectancy and literacy rates were also among the lowest. Madhya Pradesh has the lowest life expectancy at birth (54 years) among all the 16 major states. Some scholars have termed Bihar, Uttar Pradesh, Madhya Pradesh and Rajasthan 'demographically sick' states (Bose, 1988). In Rajasthan, female literacy rate is not only the lowest of all the states but also male-female disparity in literacy is the highest. It is stated that "no country in the world has a higher male-female literacy gap than Rajasthan (PROBE, 1999, p.11).

Unfortunately, these states incur very low per capita expenditure on social services. During 1988-93, average annual per capita expenditure on social services incurred by the Bihar government was only Rs 97, against the All-India average of Rs 150 (Table 3). Assam, which has the highest HDI value in this category, performed better than the national average in life expectancy and literacy but was low on per capita income and village connectivity by metalled road.

What explains the wide variations in human development among Indian states? Let us examine the state-wise per capita expenditure on social services, seen as an input in social development. The special/hill states, in general, incur higher per capita expenditure on social services. On an average, the special/hill category states spent Rs 362 per capita on social services during 1988-93 (quinquennial). It varied from the highest of Rs 596 in Nagaland to the lowest of Rs 144 in Assam. Himachal Pradesh spent Rs 338. Obviously, it was lower than the average for special category states. The special category states, in general, receive very high per capita grants from the Centre. This helps these states to spend more on social services. On an

Table-2

## India: A Comparative Picture of Some Social and Demographic Indicators by States

State	Per Capita SDP at 1980-81 prices (Rs) 1994-95	Birth rate 1998		Death rate 1998		Infant mortality rate 1998		Sex- ratio 1991	Population growth (%) 1981-91	Female literacy rate (%) 1991	Female Employment in organised sector (%) 1991
		Rural	Urban	Rural	Urban	Rural	Urban				
1	2	3	4	5	6	7	8	9	10	12	13
<b>Non-hill states</b>											
Andhra											
Assam	1973	22.8	21.1	9.7	6.1	75	38	972	24.20	32.72	12.4
Bihar	1602	28.7	20.2	10.5	6.0	80	36	923	24.24	43.03	30.5
Goa	1098	32.1	23.1	9.7	6.5	68	51	911	23.54	22.89	6.6
Gujarat	5552	14.6	14.0	8.5	7.9	25	22	967	16.08	67.09	20.1
Haryana	3293	27.0	22.2	8.6	6.4	71	46	934	21.19	48.64	11.8
Karnataka	3686	28.8	23.3	8.6	6.9	72	59	865	27.41	40.47	11.4
Kerala	2454	23.1	19.4	8.9	5.6	70	25	960	21.12	44.34	17.4
M. P.	2246	18.3	18.2	6.5	6.2	15	17	1036	14.32	86.17	35.8
Maharashtra	1753	32.1	23.1	11.9	7.8	104	56	931	26.84	28.85	10.3
Orissa	4274	23.6	20.8	8.9	5.8	58	32	934	25.73	52.32	13.2
Punjab	1580	26.4	20.9	11.6	7.6	101	66	971	20.06	34.68	8.7
Rajasthan	4112	23.7	18.5	8.2	6.3	58	40	882	20.81	50.41	11.6
Tamil Nadu	2053	33.1	24.7	9.3	6.9	87	60	910	28.44	20.44	11.8
U. P.	2767	19.7	18.1	9.3	6.8	39	40	974	15.39	51.33	22.3
West Bengal	1646	33.4	27.2	10.9	8.1	89	65	879	25.48	25.31	8.0
<b>Hill States</b>	2525	23.4	15.2	7.7	7.1	56	41	917	24.73	46.56	10.0
<b>Arunachal</b>											
Himachal	3265	23.3	13.6	6.5	1.8	46	10	859	36.83	29.69	-
J & K	2395	23.0	17.0	7.9	5.4	66	38	976	20.79	52.13	12.0
Manipur	1886	20.8	16.1	5.6	4.6	46	45	923	28.92	-	11.1
Meghalaya	-	19.9	16.7	5.1	6.1	22	26	958	29.29	47.60	15.6
Mizoram	1673	31.8	15.6	9.9	4.2	54	36	955	32.86	44.85	19.4
Nagaland	-	18.1	13.1	6.7	4.3	26	18	921	39.70	78.60	23.1
Sikkim	-	-	11.9	-	1.7	-	16	886	56.08	54.75	14.1
Tripura	-	21.2	13.5	6.2	3.9	52	44	878	28.47	46.69	-
<b>India</b>	1949	18.2	14.8	6.2	5.4	50	39	945	34.30	49.65	19.1
	<b>2449</b>	<b>28.0</b>	<b>21.1</b>	<b>9.7</b>	<b>6.6</b>	<b>77</b>	<b>45</b>	<b>927</b>	<b>23.85</b>	<b>39.29*</b>	<b>14.1</b>

Sources : (i) *Economic and Political Weekly: Special Statistics-8*, May 21, 1994, pp. 1302-1306.

(ii) *State Statistical Bureaus and Central Statistical Organisation.*

(iii) Census of India (1991), *Final Population Totals: Brief Analysis of Primary Census Abstract*, Registrar General of India, New Delhi

Notes : (i) Crude birth rate and death rate stands for number of live births and deaths per 1000 of mid year (respectively) population.

(ii) Infant mortality rate represents number of infant deaths per 1000 live births

\* Excluding Jammu & Kashmir where 1991 Census could not be held



average, the special category states receive Rs 513 per capita as grants from the Centre. Against this, all-states average was only Rs 66 and for the low-income states this average was only Rs 65 (Fig.2).

The low-income states incur only about one-third or 34.81% of the average per capita expenditure (Rs 362) incurred by the special category states on social services. It was as low as Rs 97 per capita in Bihar. The highest expenditure in this category of states was incurred in Rajasthan (Rs156).

For higher spending capacity, the high-income states incur higher per capita expenditure (Rs191) on social services, further supplemented by higher spending capacity of individuals in such states. Per capita expenditure on services by the high-income states varied from the highest of Rs 219 in Punjab to the lowest of Rs177 in Gujarat. In the middle income group of states, the per capita expenditure incurred on social services by Kerala and Tamil Nadu is almost the same as by the high income states. In this group, West Bengal incurs the lowest (Rs143) expenditure on social services.

Briefly, the high-income states, for their higher spending capacity, incur high per capita expenditure on social services. This is further supplemented by the higher spending capacity of individuals in high-income states. On the other side of the scale, special/hill category states also record high expenditure on social services on account of enhanced financial support from the centre. In this way low-income states are the hardest hit.

In India, the share of state government accounts for 84 to 85 per cent in expenditure on social services. Any cuts on this account in state budgets affects the vulnerable sections there. The existing inter-state disparities in the level of well-being enjoyed by the residents is greatly influenced by the different levels of social expenditure in states.

There has been a distinct decline in per capita expenditure across the states on human

resource development since the later half of the eighties. This is quite disturbing trend. A detailed analysis by Gupta and Sarkar (1994, pp.741-751) establishes a decline in expenditure on this count. The share of social services in total development expenditure of states in India declined to 50.5 per cent in 1990-91 from 53.1 percent in 1989-90. The revised estimates for 1991-92 show a further decline to 49.01 per cent. Since the state governments make the maximum expenditure on social welfare activities, the pattern of expenditure done by on this account is important to study human development.

Notably, the decline in expenditure on social services is not uniform across the states. In poor states, such as Uttar Pradesh, the growth rate of expenditure on social services fell to a negative level (-10.4 per cent) in 1992-93 from 21.4 per cent in 1988-89. Other states recording similar trends are Jammu & Kashmir, Maharashtra, Himachal Pradesh, Manipur and Goa. The reduction in expenditure on social services in the states is attributed to the strict financial controls imposed following the new economic policy, initiated by the Indian government in July 1991. The fiscal correction caused a sharp decline in public expenditure on social services as the government wanted to reduce the burden of subsidies on the public exchequer. Five states, Uttar Pradesh, Himachal Pradesh, Jammu & Kashmir, Orissa, and Haryana imposed a significant cut on the size of human resource development expenditure in 1992-93. This was done to counteract rising revenue deficits in their budgets. Himachal Pradesh registered a negative growth rate (-10.6 per cent) in expenditure on social services in 1992-93 as against 18.8 per cent increase during 1988-89. The states have attempted expenditure reduction exercises of varying degrees to combat the financial crunch caused due their failure to generate resources through own sources and the stagnation in resource coming from the Union government. The social

**Table - 3**  
**India: Per Capita Social Services Expenditure and the Grants from Centre to States, 1990-91\***

State	Per capita expenditure on social services	Per Capita grants from the Centre
<b>High Incomes States</b>	<b>191</b>	<b>44</b>
Gujarat	177	39
Haryana	185	44
Maharashtra	181	42
Punjab	219	51
<b>Middle Income States</b>	<b>165</b>	<b>45</b>
Andhra Pradesh	147	48
Karnataka	162	39
Kerala	186	49
Tamil Nadu	186	43
West Bangal	143	47
<b>Low Income States</b>	<b>126</b>	<b>65</b>
Bihar	97	41
Madhya Pradesh	141	58
Orissa	132	89
Rajasthan	156	80
Uttar Pradesh	103	55
<b>Special Category States</b>	<b>362</b>	<b>513</b>
Assam	144	143
Himachal Pradesh	338	346
Jammu & Kashmir	331	373
Meghalaya	371	563
Manipur	370	591
Nagaland	596	1076
Tripura	383	500
<b>All States</b>	<b>150</b>	<b>66</b>

**Source :** Adapted from S.P. Gupta and A.K. Sarkar (1994), "Fiscal Correction and human resource development, expenditure at Central and State levels", *Economic and Political Weekly*, March 26, pp.741-751.

- Notes :** 1. The Grants from the Central Government relates to plan and non-plan grants.  
 2. The classification of states in terms of high, middle and low per capita income has been made on the basis of latest available figures of net-state domestic product released by states.

\* Five-year average (1988-89 to 1992-93) Calculated at 1990-91.

**INDIA: Per Capita Social Services Expenditure and the Grants from Centre to States, 1990-91**

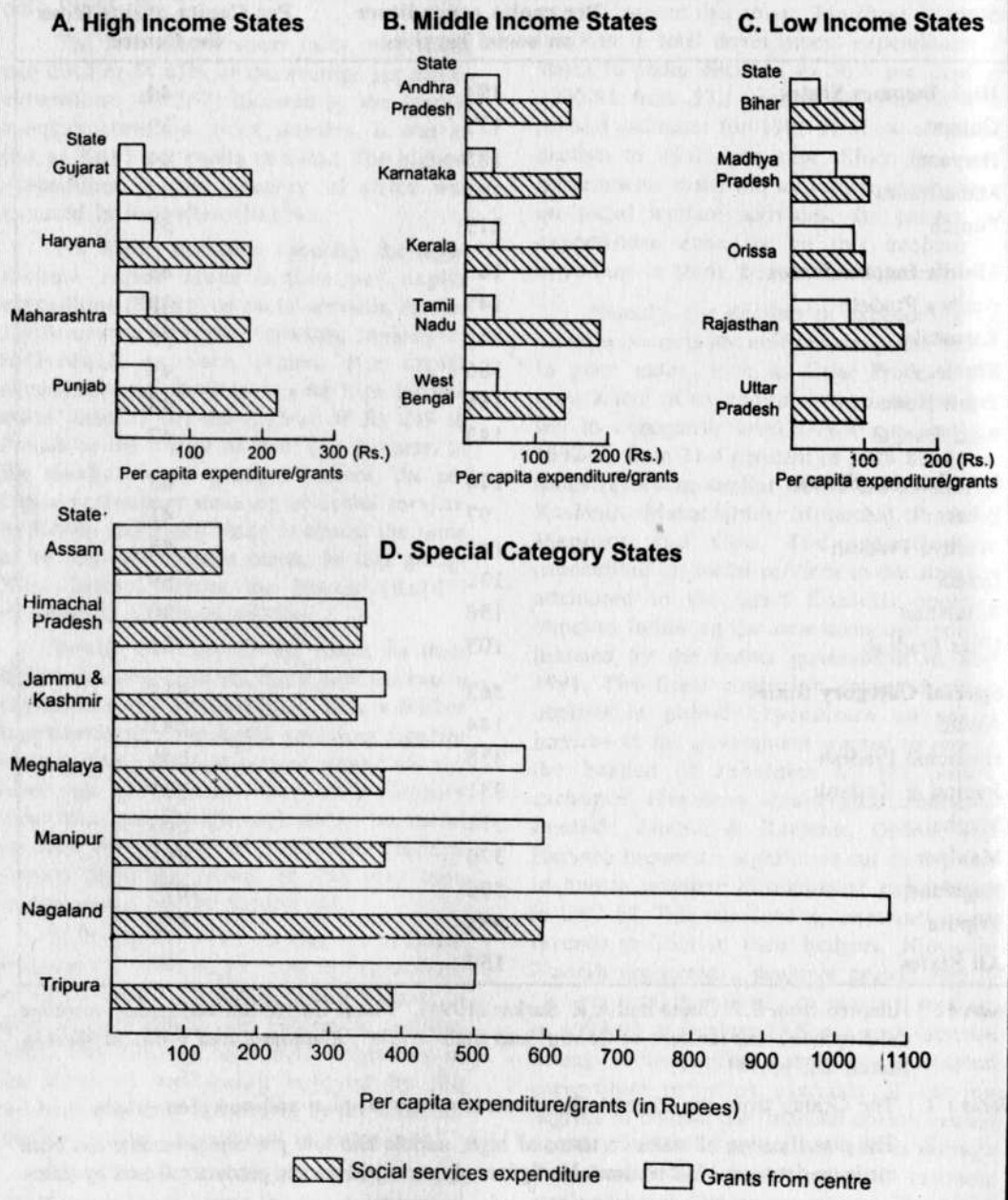


Fig. 2

**Table - 4**  
**Himachal Pradesh : Progress in Human Development during 1971-1991**

Year	Life expectancy index	Literacy index	Income index	Connectivity index	HDI
1971	0.533	0.320	0.380	0.141	0.343
1991	0.633	0.640	0.356	0.233	0.466

services expenditure, a functional category with the high growth rate at the state level during the eighties, has shown a visible deceleration in recent years (Gupta and Sarkar, 1994, p. 746). The deceleration effect was more severe in the backward states in comparison to the developed and special/hill category of states.

Interestingly, a comparison of ranks in HDI and per capita state domestic product (SDP) of Indian states indicates that there is no automatic link between income and human development. In a study Geeta Rani (1999, p.17) pointed out that 'the HDI and the components of HDI, especially per capita value of output of major crops in Punjab suggest that there is no strong link between economic development and social development.' Another study by Charkravarty and Pal (1995) also suggests that human development manifested in aspects of education and health was not in exact conformity with the level of material well-being in Indian states and union territories. However, Tilak (1991) found a high correlation between human development and economic growth.

Human development was ahead of income in states such as Kerala, Assam, Tamil Nadu and Uttar Pradesh (Fig. 3). These states, particularly Kerala and Tamil Nadu, have done well in translating their income into the lives of their people. In contrast, income ranks higher than human development in a large number of states including Maharashtra, Gujarat, West Bengal, Andhra Pradesh, Orissa, Rajasthan, Madhya Pradesh and Himachal Pradesh. This shows that these states could

not translate existing potential for improving the lives of their people. Kerala and Maharashtra are the typical representatives of two cases.

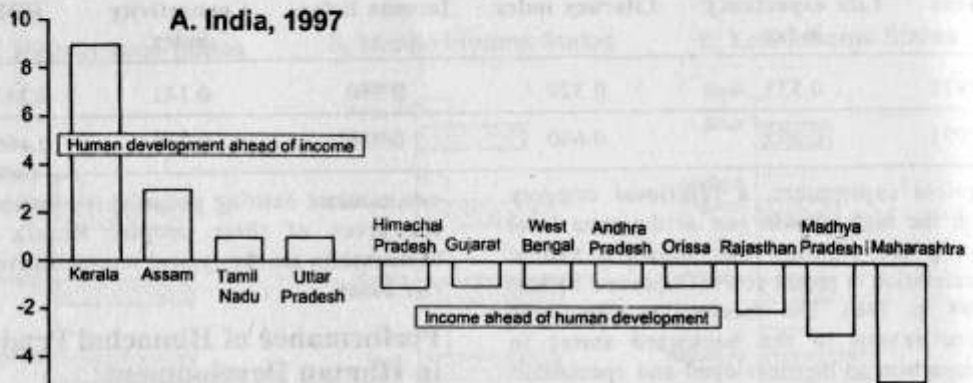
### **Performance of Himachal Pradesh in Human Development**

With HDI value of 0.494 in 1997, Himachal ranked ninth among the sixteen major states included in this exercise (Fig. 4). The state performed much above the all-India average both in life expectancy and literacy indices. Connectivity index value for the state was, however, one of the lowest. In income index too, the state was below the all-India average. Owing to an undulating hill terrain, only about 23 per cent villages were linked with metalled roads as against the all-India average of about 37 per cent. If connectivity index is excluded from the HDI, Himachal Pradesh moves to the fifth rank from the ninth rank. In literacy index, the state is ranked third after Kerala and Maharashtra. Even in life expectancy index, the state shared the third rank with Maharashtra, Kerala being at the top and Punjab in the second position.

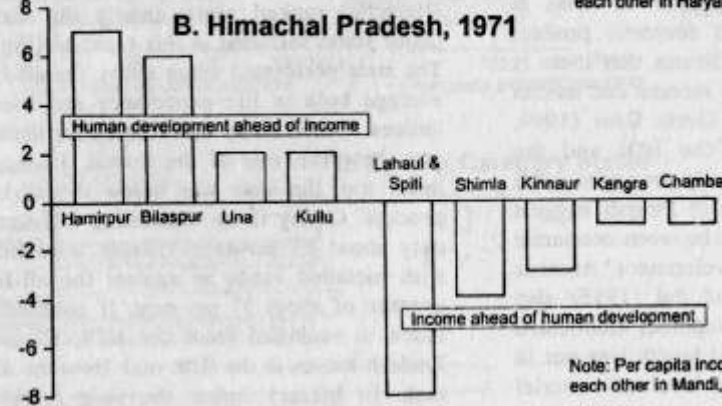
The state has performed well in Human development in the post consolidation phase. With the merger of the Hindi speaking areas from northern Punjab in 1966, the state got the much-needed physical consolidation, followed by full statehood in 1971. Its HDI value, that was 0.343 in 1971, rose to 0.466 in 1991. The major contribution in this performance has been made by literacy index, which doubled during this period: from 0.320 in 1971 to 0.640 in 1991. Life expectancy



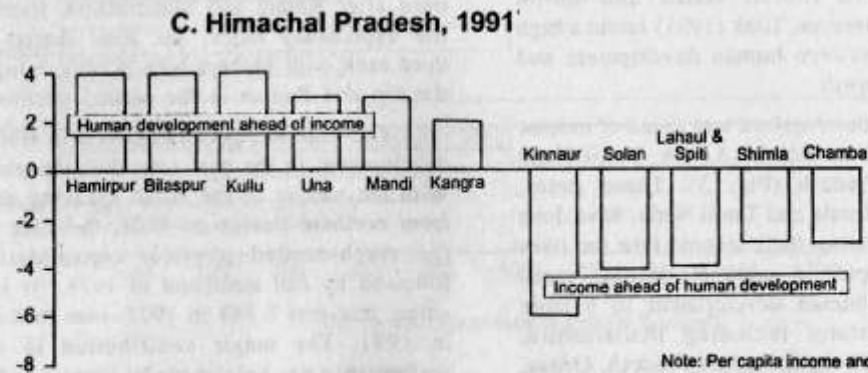
### Association between Income and Human Development



Note: Per capita income and HDI ranks conform with each other in Haryana, Karnataka and Bihar States



Note: Per capita income and HDI ranks conform with each other in Mandi, Solan and Shimla districts



Note: Per capita income and HDI ranks conform with each other in Sirmour district

Note: There is no automatic link between income and Human Development (SDP per capita rank minus HDI rank)

Fig. 3

index also increased substantially (Table 4). The connectivity index also recorded a considerable increase. It was, however, the lowest of all the indices of human development. Against this, the income index declined marginally from 0.380 in 1971 to 0.356 in 1991. It reveals that peoples' control over resources, required for living a good life, declined in the state during 1971-1991. It is to be noted here that in India the progress in life expectancy, education, and link roads for settlements mainly depend upon the investment made by the government in health, literacy, and other social infrastructure services. In this context, the State in Himachal Pradesh has performed well. However, its performance in the field of economic development was not that satisfactory. The economic development mainly comprises of agriculture and industry; and its growth depends largely on private investment.

The literacy rate in Himachal Pradesh has increased by more than thirteen times during the last forty years: 63.9 per cent in 1991 as against only 4.8 per cent in 1951. The increase in female literacy was even more remarkable. It increased to 52.1 per cent in 1991 from 2.0 per cent in 1951. In literacy, especially female literacy, Himachal Pradesh has performed far better than its two nearest neighbours, Haryana and Punjab. The Himachal territory was the least developed part of Punjab at the time of Independence in 1947. Physical consolidation acted as a catalytic force in the state's march towards social progress. The literacy rate (17.1 per cent) in Himachal Pradesh was much lower than that of Punjab (24.2 per cent) in the 1961 Census but was higher in the 1991 Census (Punjab 59% and Himachal Pradesh 64%). Even within the hill states, the performance of Himachal Pradesh was very good. It ranked next only to Mizoram (82.3 per cent) in literacy.

The achievements of Himachal Pradesh are all the more creditable in view of the fact

that one-third of its population is composed of scheduled castes and tribes, large parts of the state having inhospitable physical conditions, and the state remained under the feudal rule for a long time.

In the health sector, the achievements are no less significant. In 1990-92, crude death rate (8.7 per thousand persons) in Himachal Pradesh was much lower than the national average (9.8 per thousand persons). The same was true of infant mortality rate, which was 70 per thousand live births against 80 per thousand at the All-India level.

In 1948, there were only 288 kilometres of motorable roads in the state. It increased to 19,310 kilometres by March 1996. Rapid development in road construction took place after 1966. During the three Annual Plans (1966-69), 1702 kilometres of new roads were constructed against only 841 kilometres during the Third Plan (1961-66). In 1971, only about 15 per cent of the villages were linked with metalled roads. This proportion increased to 23 per cent by 1991 and 44.7 per cent by March 1996. Nevertheless, poor rural road network and inter-district disparities in it are still serious challenges causing hardships to people living in remote areas.

The economy of Himachal Pradesh was the second largest (after Jammu & Kashmir) among all Indian hill states. Its net state domestic product of Rs 49310 million (new series) in 1995-96 has tripled during the last 25 years. Himachal's per capita income of Rs 8747 (on current prices) was below the national average (Rs 10,103). In the late 1980's, the economy of the state did not perform well, mainly due to considerable decline in agriculture production.

### **Sub-regional disparities in Human Development**

Nevertheless, the above stated achievements of the state mask the wide inequalities in human development at the sub-regional level. In 1991, the HDI value varied

### Human Development Index: 1997 Himachal Pradesh in Comparison to other Indian States

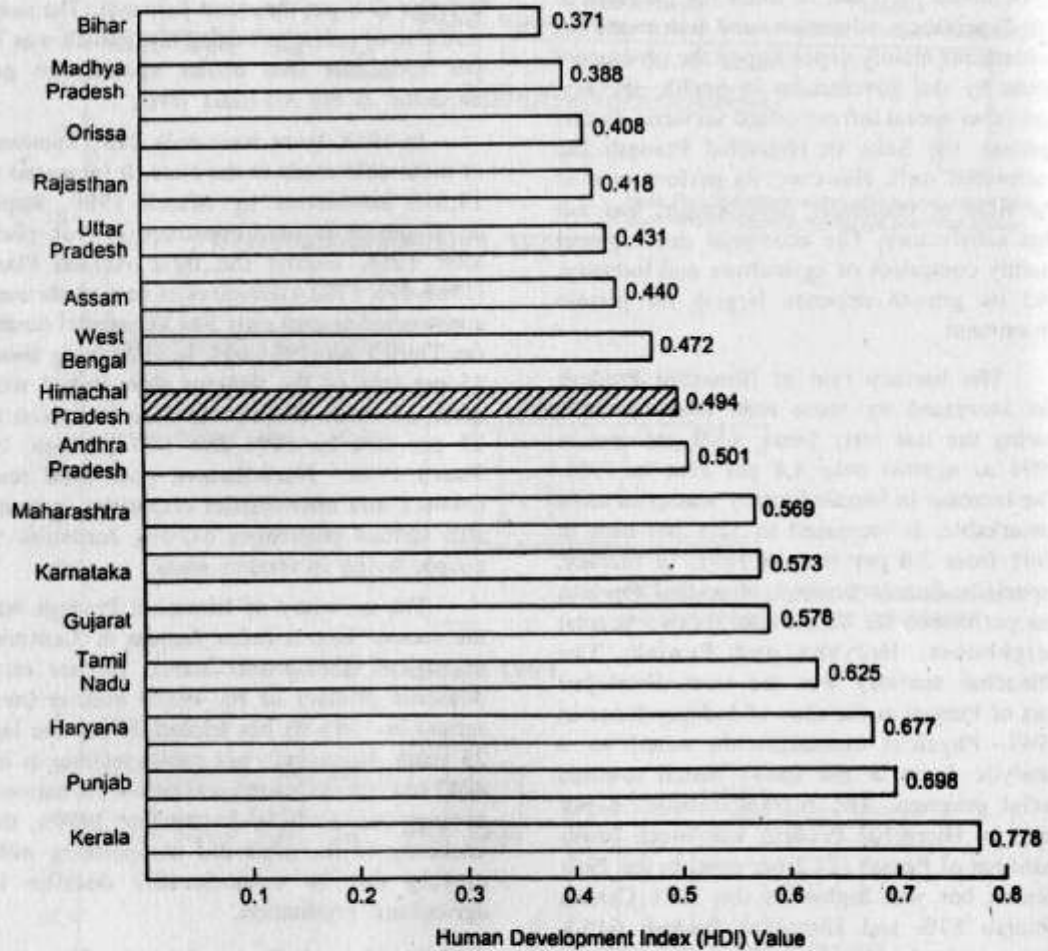


Fig. 4

from a highest of 0.575 in Una district to a lowest of 0.386 in Chamba district (Table 5). The lowest ranked district in the state, thus, has the HDI value that is only about two-thirds of the top ranked one. In the national context, the top ranking district in the state (Una) falls between Gujarat and Karnataka, ranked fifth and sixth. Against this the bottom level district (Chamba) ranked between Madhya Pradesh and Bihar, placed fifteenth and sixteenth respectively. Evidently, sub-regional disparities in Himachal Pradesh are a miniature of the national scale.

The state average being 0.466, five districts, namely Una, Hamirpur, Kangra, Bilaspur, and Solan have the HDI value higher than this (Fig. 5). The HDI value for remaining seven districts, namely Lahul & Spiti, Mandi, Kullu, Sirmaur, Kinnaur, Shimla, and Chamba fall below the state average. In general, the districts falling in areas merged with Himachal Pradesh in 1966 under the Punjab Reorganisation Act have a higher level of human development than those existing in 1948 when Himachal Pradesh emerged as a Part C state of Indian Union. In popular parlance, the parts merged with Himachal Pradesh in 1966 are known as 'new' Himachal and others as 'old' Himachal. The districts falling in the 'new' Himachal Pradesh have certain advantages over the districts in 'old' Himachal. In the past, these areas remained under the British rule, having a better administrative system than those of the pre-1966 areas, which had a feudal background. In addition, long and continued close contacts with developed parts of Punjab, relatively plain topography, mild climate, and long tradition of joining armed forces have also helped the 'new' Himachal in attaining a higher level of human development.

The progress in literacy, having an important role in human development, has been highly uneven among the districts. In 1971, the literacy rate in the lowest literacy district (Chamba, 18.9 per cent) was less than

a half of the highest literacy district (Hamirpur, 40.9 per cent). In female literacy, the gap was still wider. The proportion of female literates in Chamba (9.17 per cent) was lower by more than three times than the district with the highest female literates (Hamirpur, 30.12 per cent). By 1991, though the literacy gaps had somewhat narrowed down, they continued to be fairly large.

Female literacy was much lower in the 'old' Himachal than in the 'new' Himachal. In 1971, the combined female literacy rate in the former was 15.2 per cent as against 20.1 per cent in the latter. By 1991, this gap had further widened: 38.2 per cent in the 'old' Himachal Pradesh as against 49.0 per cent in the 'new' Himachal Pradesh.

Besides, there were wide urban-rural differentials in female literacy. Nearly, a half of the rural females were illiterate, against only less than one-fifth in urban areas. At a sociological scale, literacy differentials were more marked. In 1991, the literacy rate for the scheduled population (castes and tribes) was 52.3 per cent as against 68.6 per cent for the non-scheduled population. Within the scheduled population, the literacy rate of scheduled tribes (47.1 per cent) was much lower than that of scheduled castes (53.2 per cent). Female literacy among the scheduled tribes (31.2 per cent) was almost half that of the non-scheduled females (57.2 per cent).

Surprisingly, gender differentials in the literacy rate of non-scheduled population too were high. It was only 57.2 per cent for females as against 79.8 per cent for males. At the district level, these differentials were glaring. For instance, in Lahul & Spiti district, the female literacy rate (29.2 per cent) among the non-scheduled population was only two-fifths of the male literacy rate (70.6 per cent). It seems that in a hierarchically organised Indian society, caste and gender-based inequalities are more deeply rooted than spatial inequalities. Women and males of inferior castes continue to suffer from many



Table - 5

## A. Himachal Pradesh : Human Development Indicators, 1991

District	Life expectancy at birth (in years) 1991	Literacy rate (%age) 1991	Real per capita income (1991 PPP\$)	Villages connected by metalled road (%age) 1991
Bilaspur	66	67	830	32
Chamba	61	45	830	14
Hamirpur	69	75	894	27
Kangra	66	71	918	32
Kinnaur	52	58	941	22
Kullu	56	55	694	35
Lahul & Spiti	65	5	951	19
Mandi	65	63	757	15
Shimla	56	65	844	14
Sirmaur	58	52	753	21
Solan	66	63	986	22
Una	66	71	926	54
<b>Himachal Pradesh</b>	<b>63</b>	<b>64</b>	<b>844</b>	<b>23</b>

## B. Himachal Pradesh : Human Development Index, 1991

HDI Rank /District	Life expectancy index	Literacy index	Per capita income index	Connectivity index	Human Development index value
1	2	3	4	5	6
1. Una	0.683	0.710	0.372	0.536	0.575
2. Hamirpur	0.733	0.750	0.365	0.267	0.529
3. Kangra	0.683	0.710	0.370	0.316	0.520
4. Bilaspur	0.683	0.670	0.353	0.319	0.506
5. Solan	0.683	0.630	0.382	0.215	0.478
6. Lahul & Spiti	0.667	0.570	0.376	0.195	0.452
7. Mandi	0.667	0.630	0.338	0.152	0.447
8. Kullu	0.517	0.550	0.323	0.349	0.435
9. Kinnaur	0.520	0.580	0.374	0.215	0.422
10. Shimla	0.517	0.650	0.356	0.141	0.416
11. Sirmaur	0.550	0.520	0.337	0.214	0.405
12. Chamba	0.600	0.450	0.353	0.141	0.386
<b>Himachal Pradesh</b>	<b>0.633</b>	<b>0.640</b>	<b>0.356</b>	<b>0.233</b>	<b>0.466</b>

## Sources :

1. Data on literacy rates have been calculated from Census on India (1971), *General Population Tables, Himachal Pradesh*, Part II-A, Directorate of Census Operations, Himachal Pradesh, Shimla.
2. Data on life expectancy at birth have been taken from Mishra, Vinod K. and other (1994), *Indirect Estimates of Fertility and Mortality at the district level, 1981, Occasional Paper No.4 of 1994*, Registrar Census of India, New Delhi, p.72. District wise data on life expectancy for Himachal Pradesh are not available for 1971, hence data available for 1981 have been used. For 1991 projected figures have been used.
3. District-wise per capita income data have been picked up from Kant (1996), 'Structural Transformation of a hill economy' *Social Sciences Research Journal*, Vol.4, pp.54-82. These figures were first converted to 1990-91 prices by using a price delator. Then, they were divided by per capita income of India in 1971 at 1990-91 prices. The figure thus arrived at was multiplied with real adjusted per capita income of India (1072 PPP\$ in 1990-91), as calculated by Human Development Report 1993.

## Notes :

4. District-wise real per capita income figures have been used for calculation of income index after calculating log values.
5. HDI-calculated here for districts in Himachal Pradesh is both nationally and internationally comparable.

disadvantages, including illiteracy.

Per capita income, indicating an individual's command over resources, required for a decent living, varied widely among the 12 districts of the state. In 1991, it varied from a highest of Rs 2508 (at 1980-81 prices) or 986 U.S. dollars on purchasing power parity (PPP\$) in Solan district to a lowest of Rs 1766 or 694 (PPP\$) in Kullu district. In other words, on an average the purchasing power of an individual in Kullu district was lower by 30.0 per cent lower than his counterpart living in Solan district. During 1971-1991, the relative position of certain districts changed significantly. For example, Solan district which ranked sixth in 1971 moved up to first position in 1991, in contrast to Mandi district which moved down to the tenth position from the fifth during the same period. At the same time, inter-district income inequalities also increased marginally.

Life expectancy at birth, in the lowest level district (Kinnaur, 52 years) was only three-fourths of the highest level district (Hamirpur, 69 years) in 1991. At least five districts have life expectancy less than the state average (63 years). The over-all life expectancy in the state increased by 6 years during 1981-91, without any significant change in inter-district gaps in this regard.

Provision of link roads to rural settlements of various sizes and locations has always been a great challenge for the planners and policy makers in the hill-state of Himachal Pradesh. It is all the more significant in the light of the fact that more than nine-tenths of the total population in the state live in the countryside and major parts of the state have undulating hill topography. It is not only that the metalled roads connecting the rural settlements are inadequate, but there are also wide inter-district inequalities. In 1991, only about one-fourth (23 per cent) of all villages in the state were connected by metalled roads. The proportion varied from a highest of 54 per cent in Una district to a lowest of only 14

per cent in Chamba and Shimla districts. The districts falling in the Lower Himachal Pradesh have, in general, a relatively high proportion of villages connected by metalled roads. Four districts, Chamba, Shimla, Mandi, and Lahul & Spiti, falling in the middle and the higher Himachal Himalayan region and having highly uneven topography, suffer seriously in this context. The situation has, however, improved considerably in post 1971 period even though wide inter-district inequalities continued to exist.

In the following, trends and patterns of human development in Himachal Pradesh have been analysed. Based on four indicators of literacy rates, life expectancy at birth, adjusted real per capita income (PPP\$), and the villages connected with metalled roads, the HDI has been calculated for all the 12 districts in the state for 1971 and 1991. The selection of period is significant, as it will reveal the nature and direction of change in human development in the post consolidation phase of Himachal Pradesh (Table 5 & 6).

In 1991, the HDI value varied from a highest of 0.575 in Una district to a lowest of 0.386 in Chamba district. In this way, the HDI value of the lowest level district was one-third lower than that of highest level district. Una district, having the highest HDI value, performed at the top in rural metalled roads. In other dimensions also its performance was very good. Five districts namely Una, Hamirpur, Kangra, Bilaspur, and Solan have high Human development level (HDI value more than 0.475). Una and Hamirpur, placed first and second on HDI, are newly organised districts. Both the districts were carved out of the then Kangra district in 1972. Except Bilaspur, all the districts having a high HDI value were merged with Himachal Pradesh in 1966 under the Punjab Reorganisation Act. They remained under a well-organised British rule for nearly 100 years, have low altitude and plain topography, share border with the developed states of Punjab and Haryana, and have a long tradition of recruitment to the Indian armed

### Himachal Pradesh Indices of Human Development Level (1991) and Change (1971-91)

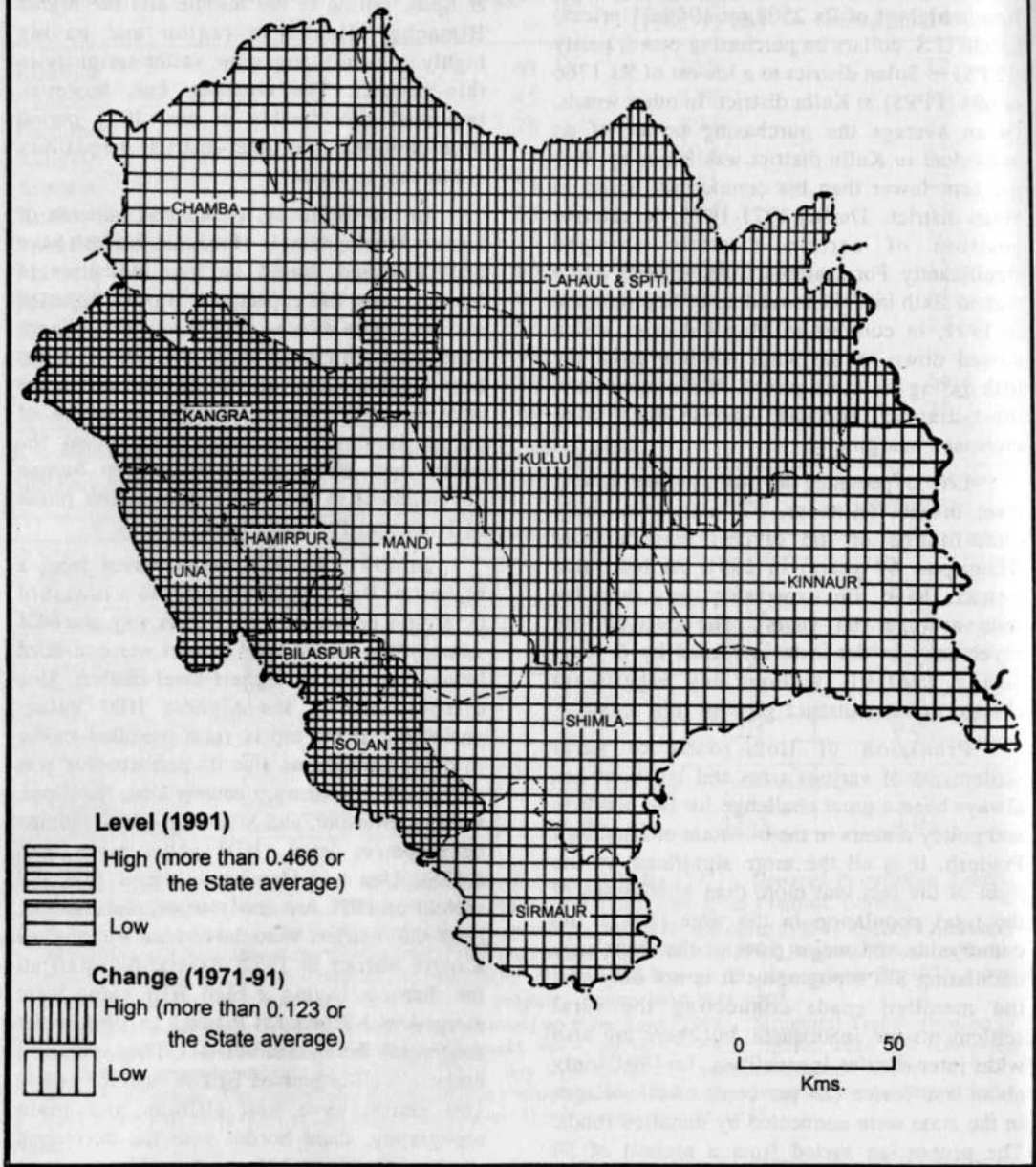


Fig. 5

forces. Moreover, refugees were largely settled in this part of the then Punjab following the partition in 1947. Such a population was, in general, in trade, commerce and services. Consequently, they had better literacy level.

The remaining three districts of Mandi, Lahul & Spiti and Kullu have a moderate level of human development (HDI value between 0.475 and 0.425). These districts suffer from physical constraints, peripheral location, high concentration of depressed social groups (scheduled castes/tribes population) and the long neglect on the part of administration. In addition, Mandi district remained under the feudal rule till the Independence in 1947. Recent focus on development activities under the backward area development programmes, especially in Lahul & Spiti, is yet to show its impact on human development indicators.

On the whole, five districts of Una, Hamirpur, Kangra, Bilaspur, and Solan have higher HDI value than the state average (Fig. 5). Against this, the remaining seven districts namely, Chamba, Mandi, Kinnaur, Shimla, Sirmaur, Kullu and Lahul & Spiti, have HDI value below the state average. The first five of these districts fall in the 'old' Himachal Pradesh. Evidently, districts falling under the 'new' Himachal Pradesh have higher human development levels than the 'old' Himachal Pradesh areas.

The HDI value for old Himachal was only 84% that of new Himachal in 1991. Earlier in 1971, it made 87% that of latter (Table 7). Evidently, the HDI was not only low but also growing slow in the old than in the new Himachal. Further, in all the dimensions of human development new Himachal was ahead of old Himachal. The gap between the two parts was the maximum in connectivity index and the minimum in income index. Unfortunately, the gap in all the dimensions, except life expectancy index, increased rather than declining during 1971-91.

It is gratifying to note that all the 12 districts in the state registered an increase in

their respective HDI value during 1971-91. It confirms that the physical consolidation in 1966 and full statehood in 1971 did have a positive effect on the process of human development in Himachal Pradesh. Nevertheless, the change in HDI value varies widely across the districts in the state. The change in HDI value varied from a highest of 0.189 in Una district to a lowest of only 0.082 in Kinnaur district. In comparative terms, the districts of Solan, Lahul & Spiti and Kullu have recorded a higher increase in their HDI values during 1971-91. The reverse was true of Mandi, Shimla and Kinnaur districts, which recorded only marginal increase. The performance of Solan district may be termed as the most outstanding since it moved to the fifth position in 1991 from the sixth in 1971. Recently Solan has a registered considerable transformation in its economy, mainly due to an increased tempo of industrialisation and agricultural development. The establishment of an agriculture university at Neoni and the coming up of a number of industrial estates/centres at such places as Parwanoo, Baddi-Barotiwala, and Nalagarh has contributed to socio-economic development in this district. Solan is also an established centre of mushroom cultivation in north-western India. In contrast to Solan district, Mandi, Shimla and Kinnaur registered a decline in their respective ranks during 1971-91. Mandi district dropped to the seventh rank from the fifth and Shimla from the eighth to the tenth during this period. In fact, five districts namely, Chamba, Mandi, Kinnaur, Shimla and Sirmaur, where both the level of and change in human development were low, need priority attention from the policy-makers and planners in state so as to boost the decelerating level of human development in these districts.

While there were only five districts, which have a HDI value higher than the state average (0.466) in 1991, number of districts experiencing higher than state average change during 1971-91 in HDI value (0.127) was seven. This included all the five districts



Table - 6

## A. Himachal Pradesh : Human Development Indicators, 1971

District	Life expectancy at birth (in years) 1971	Literacy rate (% age) 1971	Real per capita income (1971 PPP\$)	Villages connected by metalled road (% age) 1971
1. Una	60	38	1064	27
2. Hamirpur	63	41	943	16
3. Kangra	60	36	1080	21
4. Bilaspur	60	33	916	18
5. Mandi	59	31	1000	8
6. Solan	60	29	999	17
7. Kinnaur	47	28	1012	27
8. Shimla	51	33	953	13
9. Lahul & Spiti	59	27	1235	0.5
10. Kullu	51	24	862	17
11. Sirmaur	53	24	970	10
12. Chamba	55	19	864	9
<b>Himachal Pradesh</b>	<b>57</b>	<b>32</b>	<b>975</b>	<b>15</b>

## B. Himachal Pradesh : Human Development Index, 1971

HDI Rank / District	Life expectancy index	Literacy index	Per capita income index	Connectivity index	Human Development index value
1	2	3	4	5	6
1. Una	0.583	0.380	0.395	0.269	0.407
2. Hamirpur	0.633	0.410	0.374	0.158	0.394
3. Kangra	0.583	0.360	0.397	0.212	0.388
4. Bilaspur	0.583	0.330	0.370	0.177	0.365
5. Mandi	0.567	0.310	0.384	0.076	0.357
6. Solan	0.583	0.290	0.384	0.157	0.354
7. Kinnaur	0.367	0.280	0.386	0.273	0.327
8. Shimla	0.433	0.330	0.376	0.132	0.318
9. Lahul & Spiti	0.567	0.270	0.420	0.005	0.315
10. Kullu	0.433	0.240	0.360	0.166	0.300
11. Sirmaur	0.467	0.240	0.379	0.096	0.296
12. Chamba	0.500	0.190	0.360	0.085	0.284
<b>Himachal Pradesh</b>	<b>0.533</b>	<b>0.320</b>	<b>0.380</b>	<b>0.141</b>	<b>0.343</b>

*Sources and notes:*

1. Data on literacy rates have been calculated from Census on India (1971), General Population Tables, Himachal Pradesh, Part II-A, Directorate of Census Operations, Himachal Pradesh, Shimla.
2. Data on life expectancy at birth have been taken from Mishra, Vinod K. and other (1994), Indirect Estimates of Fertility and Mortality at the district level, 1981, Occasional Paper No.4 of 1994, Registrar Census of India, New Delhi, p.72. District wise data on life expectancy for Himachal Pradesh are not available for 1971, hence data available for 1981 have been used.
3. District-wise per capita income figures have been picked up from Kant, Surya (1996), 'Structural Transformation of a hill economy' Social Sciences Research Journal, Vol.4, pp.54-82. These figures were first converted to 1990-91 prices using a price delator. Thereafter, they were divided by per capita income of India in 1971 at 1990-91 prices. The figure thus arrived at was multiplied with real adjusted per capita income of India (1072 PPP\$ in 1990-91), as calculated by Human Development Report 1993.
4. District-wise real per capita income figures have been used for calculation of income index after taking their log values.
5. HDI calculated for districts in Himachal Pradesh is both nationally and internationally comparable.

Table - 7

## Human Development Index : A Comparison between 'Old' and 'New' Himachal Pradesh

Himachal Pradesh	Life expectancy index		Literacy index		Income index		Connectivity index		HDI	
	1971	1991	1971	1991	1971	1991	1971	1991	1971	1991
1	2	3	4	5	6	7	8	9	10	11
'Old'	0.505*	0.600	0.288	0.594	0.376	0.347	0.112	0.178	0.327	0.430
'New'	0.574	0.670	0.346	0.745	0.388	0.366	0.196	0.328	0.377	0.446

\* Population Weighted averages

having a HDI value higher than the state average and additional two districts of Lahul & Spiti and Kullu, having a moderate HDI value. Evidently, high level of human development in the state was characterised by high growth in it. Statistically also, the level and growth of human development in the districts was strongly correlated ( $r=0.85$ ). In other words, districts having low of human development were experiencing slow change in it. All such districts were mainly confined to 'old' Himachal Pradesh where income levels were relatively better. For example, the per capita income level of Shimla district was much higher than Bilaspur district having fourth rank in human development and also experiencing a high change in its human development index.

In line with state level picture, there was no automatic correspondence between the per capita income and human development level of districts in the state. In 1991, human development was ahead of income in six districts in the state. Against this, in five districts income was ahead of human development (Fig. 3). Both the ranks (human development and income) conformed to each other in one district. The number of such districts was at least three in 1971. Evidently, several districts such as Kinnaur, Lahul & Spiti, Shimla, and Chamba have failed to translate their income potentials into improving the lives of their people.

Among the different dimensions of human development, literacy has contributed most to the human development. Literacy rate has

shown the highest degree of correspondence with human development index ( $r=0.856$ ). This is followed by rural metalled roads ( $r=0.777$ ). Against this, per capita income contributed the least ( $r=0.432$ ) to the furtherance human development in the state.

It is gratifying to note that inter-district disparities in human development in the state have declined during 1971-91. Though the decline was not significant (the value of coefficient of variability index of HDI declined only marginally, from 11.89 per cent in 1971 to 11.55 per cent in 1991). This is mainly attributed to a significant decline in inter-district inequalities in literacy rate followed by villages connected with metalled roads. Against this, inter-district income inequalities slightly increased during this period. Notably, of all the dimensions of human development, inter-district inequalities were still the highest in the case of village connectivity (Fig.6).

### Main Highlights

- On a global scale, India's record of spending on human resource development is not satisfactory. Public expenditure on education in India was only 11.6 per cent of total government expenditure, against 14.8 per cent in the case of all developing countries. It is placed at a very low rank among the medium level HDI countries. Among 174 countries listed in Human Development Report, its HDI rank was a lowly 132nd. Its position among the Asian countries is also anomalous. It ranks far behind Malaysia, Thailand, Sri Lanka and China. However, it is ahead of

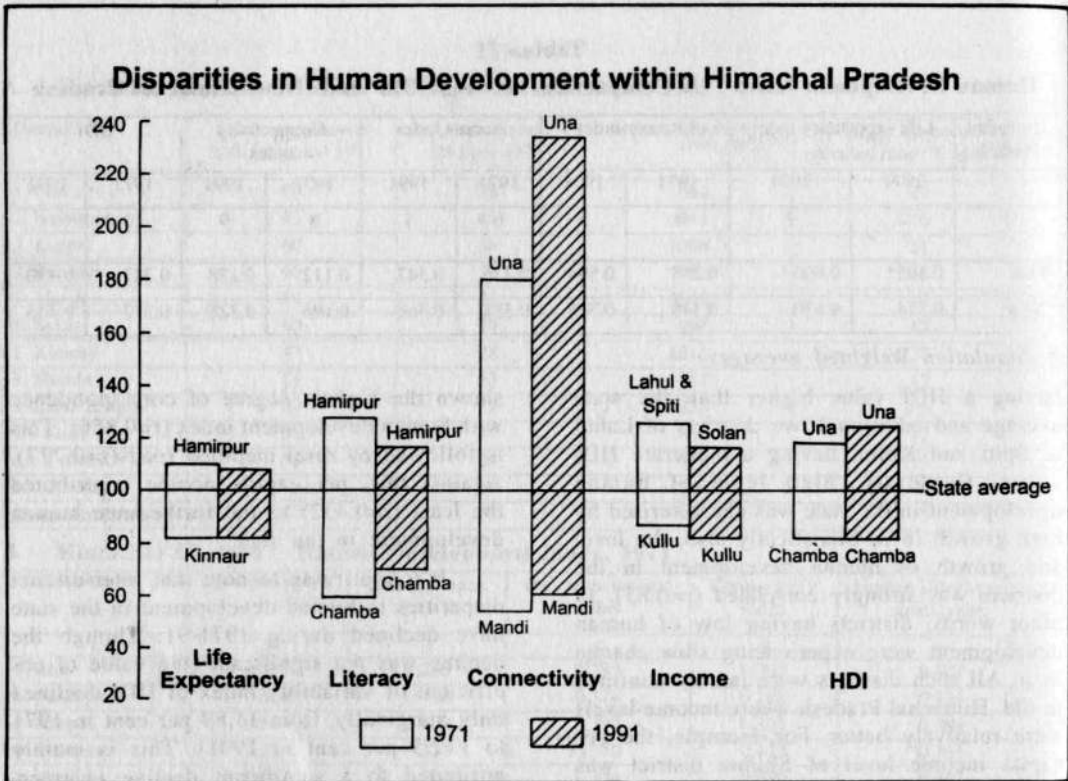


Fig. 6

Pakistan, Bangladesh, Nepal and Bhutan.

Within the country, there are wide inter-state disparities in human development. Among the sixteen states studied here, HDI value for the top ranked state (Kerala, 0.778) is more than twice that of the lowest ranked state (Bihar, 0.371).

- In general, there is an association between the per capita income of a state and its per capita expenditure on social services. In other words, the existing inter-state disparity in levels of well-being enjoyed by the residents in different Indian states has a direct relation with the levels of expenditure in the social sector. The special category states and high-income states continue to record high per capita expenditure on social services, though for different reasons. The former on account of enhanced financial support from the

centre and the latter owing to a higher capacity to spend. In sharp contrast, the low-income states suffer the most terms of per capita expenditure on social services. Within these states, the most backward pockets and the poorest sections of society therein are the hardest hit.

- In recent years, there has been a general deceleration in expenditure on social services in all the states. The resource crunch faced by the states due to inadequate resource mobilisation through their own sources and declining resource transfer from the centre are largely responsible for this. This is particularly true of the period that follows the initiation of the new economic policy since 1991. This is likely to affect adversely social well-being in all the states, more so in the states such as Bihar, Uttar Pradesh, Orissa, Rajasthan, and Madhya Pradesh where the level of social

well-being is already low. These states require higher per capita central grants for improving social infra-structural outlay, not only to reduce the existing inter-state disparities in social wellbeing but also to arrest further increase in them.

- With the HDI value of 0.494 in 1997, Himachal Pradesh is placed at the ninth rank among 16 major states of India. This can not be called a good performance. Nevertheless, state has done well in view of the fact that it suffers from several handicaps such as, peripheral location, difficult terrain, harsh climate and feudal background; besides having a recent origin as a state. However, the declining trend in per capita as well as overall budgetary allocation to social services sector in the state is really a cause of concern. If the same trend continues in years to come, it would not only be difficult for the state to retain its existing position in the all India context, but any further improvements in social well-being will be quite difficult.
- The physical consolidation in 1966 and the grant of full statehood in 1971, as two major events in the administrative history of the state, have their significant impact on the process of human development in the state. Not only have the values of HDI increased for all the districts in the state but also inter-district inequalities in human development have marginally declined during 1971-91.
- Regional inequalities in different dimensions of human development have reduced considerably during 1971-1991, yet reduction in inequalities in case of villages connected by metalled roads needs attention on a priority basis. However, the politically motivated thesis of alleged neglect of 'new' Himachal Pradesh in developmental matters by the political leadership in the state, dominated for long by the leaders hailing from the 'old' Himachal Pradesh, could not be substantiated from the available information on different dimensions of

human development. In fact, all the three top ranking districts in human development belong to the 'new' Himachal Pradesh. At the same time, the HDI value of districts from 'new' Himachal Pradesh grew faster during 1971-91. The performance of Solan district during 1971-91 is a case in point. Against this, the majority of districts in the 'low' human development category are from 'old' Himachal Pradesh. Hence, still there is a need to focus on 'old' Himachal Pradesh in case of human development. In this regard, Mandi, Shimla and Chamba districts need special attention of the policy-makers and planners in the state so as to boost human development in these districts.

- On the social plane, inequalities in human development are quite glaring. There are wide inequalities in literacy development between the scheduled (castes and tribes) and non-scheduled population in the state. Rural women in general and those among scheduled castes and tribes in particular are the worst suffers in the context of gender based inequalities in human development. It seems in Indian society, despite several changes, women and persons of inferior castes continue to suffer many socio-economic and political disadvantages. In the Indian society, inequalities caused due to caste and gender discrimination are perhaps more stronger and deep-rooted than those caused by spatial injustice.
- At the sub-regional level, proximity to the developed Punjab and Haryana plains, relatively plain topography, mild climate combined with historical factors have contributed positively to the human development in the districts of Una, Hamirpur, Kangra, Bilaspur, and Solan which fall in the lower Himalayan zone. In these districts, not only is human development high, but also it grew faster during 1971-91. The reverse is true of such districts such as Chamba, Mandi,



Shimla, Kinnaur, which fall in the middle and higher Himalayan zone. In view of the differential growth of HDI between the two types of areas, the regional inequalities in human development are bound to increase in future.

- It has been observed that there is no automatic correspondence between the per capita income and human development level of districts in the state. Some of the districts could do well in human development despite low levels of income. This is especially true of Una, Hamirpur, Bilaspur and Kullu districts. Against this, districts such as Kinnaur, Lahul & Spiti, Shimla and Chamba where income levels were high, failed to translate their potential for improving the lives of their residents.
- Among the different dimensions of human development, the contribution of literacy was statistically the most significant to human development. The dimension of villages connected by metalled roads followed it. It shows that in our situation, development of education and provision of linking of rural settlements with roads are most crucial to the process of human development.

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### Notes

1. UNDP (1990). On the concept of capabilities, see Sen (1985) and Dreze and Sen (1989)
2. Important are those conducted by Shiva Kumar (1991), Tilak (1991), Prabhu (1992), Prabhu and Chatterjee (1993), Economic and Political Weekly (1994), Malgavkar (1994), Chakravarty and Pal (1995).
3. Besides Himachal Pradesh, other hill states are Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Tripura, Jammu & Kashmir, and Sikkim.
4. Good education helps an individual to increase his/her capability so as to take advantage of opportunities. But a necessary pre-condition for education is literacy. Only when this has been fully achieved can the focus shift to education.
5. "The third key component of human development-command over resources needed for a decent living-is perhaps the most difficult to measure simply. It requires data on access to land, credit, income and other resources. But given the scarce data on many of these variables, we must for the time being make the best use of an income indicator" (UNDP, 1990, p.12).
6. "A further consideration is that the indicator should reflect the diminishing returns to transforming income into human capabilities. In other words, people do not need excessive financial resources to ensure a decent living. This aspect was taken into account by using the logarithm of real GNP per capita for the income indicator" (UNDP, 1990, p.2). Lately, the methodology of transforming income is further refined by the UNDP (1999, p.159) so that the country having income higher than the threshold level is not penalized. The formula used earlier for this purpose was to discount income above threshold level very heavily.
7. The HDI is not conceptually or statistically equivalent to the Physical Quality of Life Index (PQLI). The PQLI treats development as achieved well-being. The focus of the Report is on socioeconomic development, with development viewed not as an expansion of commodities and wealth, but as the widening of human choices. For a further discussion on the differences, see UNDP (1990, 1993), Technical Notes No.1.
8. **Illustration of the HDI methodology:** The construction of the HDI is illustrated with two example-Punjab and Himachal Pradesh, a high- income state and a hill state.

State	Life expectancy (years)	Literacy rate (per cent)	Village linked with metalled roads (per cent)	Real SDP per capita (PPP\$)
Himachal Pradesh	64	64	23.3	1489
Punjab	66	59	96.2	2786

**i) Life expectancy index**

$$\begin{aligned} \text{Himachal Pradesh} &= \frac{64-25}{85-25} = \frac{39}{60} = 0.650 \\ \text{Punjab} &= \frac{66-25}{85-25} = \frac{41}{60} = 0.683 \end{aligned}$$

**ii) Literacy index**

$$\begin{aligned} \text{Himachal Pradesh} &= \frac{64 - 0}{100 - 0} = \frac{64}{100} = 0.640 \\ \text{Punjab} &= \frac{59 - 0}{100 - 0} = \frac{59}{100} = 0.590 \end{aligned}$$

**iii) Connectivity index**

$$\begin{aligned} \text{Himachal Pradesh} &= \frac{23.3 - 0}{100 - 0} = \frac{23.3}{100} = 0.233 \\ \text{Punjab} &= \frac{96.2-0}{100-0} = \frac{96.2}{100} = 0.962 \end{aligned}$$

**iv) Income index**

$$\begin{aligned} \text{Himachal Pradesh} &= \frac{\log (1489) - \log (100)}{\text{Log } (40,000) - \log (100)} = 0.451 \\ \text{Punjab} &= \frac{\log (2786) - \log (100)}{\text{Log } (40,000) - \log (100)} = 0.555 \end{aligned}$$

**Human Development index**

The HDI is a simple average of the life expectancy index, literacy index, village connectivity index, and per capita income (PPP\$) index; and so is derived by dividing the sum of these four indices by 4.

State	Life expectancy index	Literacy index	Village connectivity index	Per capita (PPP\$) index	Sum of four indices	HDI
1	2	3	4	5	6	7
Himachal Pradesh	0.650	0.640	0.233	0.451	1.974	0.494
Punjab	0.683	0.590	0.962	0.555	2.790	0.698

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## **INTRA-CITY RESIDENTIAL MOBILITY IN LUDHIANA (PATTERNS, DETERMINANTS AND IMPLICATIONS)**

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### **Abstract**

The study focuses on the dynamics, spatial manifestation and causation of intra-city residential mobility in Ludhiana. The objective is to understand the strategies adopted by a household in search of an adequate house and to draw implications for the housing situation of the city. The exercise is based upon data collected through a sample survey of 500 households within the city.

The results compare well with those of similar studies in the West. As in the western world, incidence of mobility, within the city, is high; it is higher for tenant households; and it is of short run type. Beyond this, however, the Indian context shows its distinct impact. The prevalence of joint family structure and tendency to live in inherited houses, retard the incidence of mobility among the city's native households. It is mainly the migrant households that propel the process of intra-city residential mobility. They initially settle in localities peripheral to densely built part of the city and then move further outwards. These households shift initially in quest of security of tenure and subsequently in search of a conducive living environment, in terms of infrastructure as well as religious and regional affinities. Development of planned localities, by the public agencies, private developers and cooperative societies facilitate this process. A major planning implication is that any new planned locality should be raised only in contiguity with and not at a distance from existing localities of a similar nature.

The study of intra-city residential mobility provides a behavioural dimension to the analysis of the housing situation in a city. A frequently researched theme, amongst urban geographers in the west, it remains as yet a virgin area as far as the developing world is concerned. There could be two possible explanations for this. Firstly, research focus in the developing world is more on housing the

homeless or widening access to housing for all income groups. Secondly, a popular notion is that intra-city residential mobility in the developing world is negligible. The assumption is that the propensity and capacity of the Indians to move within their local context is limited. This could be because of the roots that Indians tend to put down in the social context or the cumbersome procedure



involved in the acquisition of a house.

There is, however a need to question the above assumption through empirical analysis. Beyond that, the manner in which the process operates could provide significant clues to the strategies adopted by households, especially migrant households, in the quest for an adequate house. These in turn indicate the stage of housing development in the city. The present research exercise is, in that spirit, a tentative effort at identifying patterns, determinants and implications of intra city residential mobility in Ludhiana City.

### Conceptual Framework

Intra city residential mobility connotes the shift or change of residence within city limits. It is the principal means through which changes in the demand for housing are satisfied, especially in the short term (Bourne, 1981). The volume of residential mobility speaks of the quantity of housing demand. The destinations where households relocate is an indicator of housing preferences. For the process of residential mobility to be initiated a conducive economic environment at the city level is essential. An adequate amount of demand and supply of alternative housing is required. Surplus capital for investment in housing should be available. Factors like a close knit social neighbourhood are likely to inhibit mobility while a tendency towards upward mobility may encourage residential mobility. Patterns of intra city residential mobility are likely to differ under conditions of uniform information flow and a spatially constrained information flow, regarding housing vacancies. Thus the prerequisites of intra-city residential mobility emerge as: a conducive economic environment; the propensity of the households to shift; and adequate logistic support.

At the household level, the process is accomplished in two main steps: initially the decision to shift and subsequently the process of movement which involves the choice of the

new location. The decision to shift will naturally be based upon some valid reasons. Accordingly two sets of questions appear as most germane to any such analysis. Firstly, why does a household move and secondly, how or where does a household relocate? Answers to the above queries may be sought through a perusal of research previously conducted on the theme.

### Residential Mobility in the Developed World

Three facets of the theme have invited research interest in the developed world. These include, the reasons for moving house; the process of decision making; and the search for a new house.

It has been most widely documented that the principal reasons for which people change houses are associated with their housing needs at different stages in the life cycle (Rossi 1955; Simmons 1968; Moore 1972). The need for space grows as the household matures and so does the income. This leads to households occupying progressively larger units until faced with the 'empty nest' syndrome and a concurrent fall in incomes, post-retirement. At this stage, they move to smaller units. This process leaves a spatial imprint as well. Younger households live closer to the city centre and the distance from the city centre increases as age of the household increases, with seniors retiring to a city flat or a country side cottage.

Thus an increase in size of the household (space constraint) alongwith a rise in income (adequate resources) lead to a redefining of one's housing needs and aspirations. The phenomena has been termed as 'change in place utility' (Brown & Moore, 1970). Constrained by limited information flow regarding the availability of alternate housing the household takes the decision on where to relocate.

Micro level studies on residential mobility in the developed world document the

following trends: residential mobility in the developed world is high (almost 70% of all households will have moved once in the preceding ten years); residential mobility is higher for rental housing than owner occupied housing; most moves are over short distances; long distance moves are much less frequent and are primarily related to job changes (Bourne, 1981).

### **Residential Mobility in India : Tentative Explanations**

It has been established in the western context, that a lack of space, a rise in income and the level of awareness regarding availability of alternate housing is likely to have a positive effect on residential mobility. It may be added that all these factors remain operative irrespective of the stage of development/nature of social milieu. One may therefore try and adapt the residential mobility model of the developed world, with some contextual changes, to the Indian city. Prior to that, certain facts pertaining to housing and urbanisation in India may be taken cognizance of. These include : the large scale migration of poor quality human resource to urban places; the short supply of housing; the pervasive nature of informal settlements; the consequent poor quality of housing environment; the practice of residing in inherited houses; the cyclic nature of the joint family system; the close-knit social fabric of traditional neighbourhoods; and housing provision by parastatal agencies.

A change of residence for the household means moving out from an established physical and social sphere of familiarity. It would also mean realignment of one's work-residence travel route. How far a household would like to retain existing milieu or prefer radical changes needs to be worked out. On the other front, knowledge of existing residential opportunities is normally of a limited nature, especially in the spatial context. One may therefore hypothesize that like any other commodity a house will also possess a specific

range from within which prospective inhabitants are likely to emerge.

The change in place utility may be brought about by either of or both positive and negative stimulants. So instead of or alongside a 'propensity' to shift there may also exist 'pressures' to shift. For instance, dissatisfaction with rented accommodation or lack of space within a joint family structure might force households to look for fresh accommodation. On the other hand, a trend toward upward mobility which manifests itself in moving from tenancy to ownership or from informal unplanned neighbourhoods to well planned and developed localities are some factors which foster the propensity to shift. Which set of factors plays the dominant role would determine the stage of housing development. If the propensity to shift predominates, it indicates the availability of good quality housing alternatives. If however households tend to shift under pressure, it is a sad commentary on the housing situation. Things may not always be so 'cut and dried'. More often it is an interplay of both kinds of factors which results in the decision to move.

### **Residential Mobility-Some Research Questions**

In consonance with the context and nature of housing in the developing world, the questions generated might be of a slightly different nature. The first set of questions on 'how or where' does a household move is spatial in spirit and explores the location of the household's residence in relation to the previous location or vice versa (How near or far from the previous location is the present location?) Secondly, the question of direction could be studied (Does one move from core to periphery or vice-versa?) A related question could be: is this movement personified over space by the ripple effect or frog-leaping? Thirdly, how does the nature of neighbourhood/locality change with change of residence. Does it remain similar or does it improve/deteriorate? Which are the localities most preferred as

residential locations? Answers to all the above questions constitute a delineation of the patterns of intra-city residential mobility.

The second set of questions deals with the reasons which culminate in the decision to make a residential shift. This would include an enquiry into the relative contribution of 'upward mobility in housing status'; the 'space constraint' emanating from the 'joint family structure'; and other factors which play a significant role. Which are the factors that determine the choice of the alternate location, is another significant question. These would give an idea about the determinants of intra-city residential mobility. Finally, what policy implications, in terms of housing, emerge through the analysis of residential mobility?

Answers to all the above questions will be sought in the course of the present research exercise, conducted for the city of Ludhiana. In view of the rarity of similar research in the developing world, one may also attempt to compare the research findings with the established models of the intra-city residential mobility in the developed world.

## Methodology

The nature of research exercise demanded a primary survey. This was conducted in the city of Ludhiana and dealt with 'Issues in Urban Housing'. The sample comprised 500 households and was selected through the process of purposive random sampling. The basis of sample selection was the process of locality formation. Locality could be organically evolved, privately built, developed by public agencies, built for State employees, institutionally provided or informally raised. The number of households from each of these localities in the sample was kept proportionate to their actual number in the city. An effort was also made to spatially spread out the sample as far as possible.

In the course of this survey questions dealing with the household's previous place of residence : its location, tenure status and

family structure were asked. From such questions data on the following aspects dealing with residential mobility was culled -

- 1) incidence of residential mobility
- 2) previous residential locality of household
- 3) change in nature of residential locality
- 4) change in tenure status associated with change of residence
- 5) change in family structure associated with change of residence.

The discussion has been organised into three main sections dealing with the patterns, determinants and implications of intra-city residential mobility in Ludhiana City. The sample in this case comprised 385 households only since 115 households staying in institutional / government accommodation were not included.

## Patterns

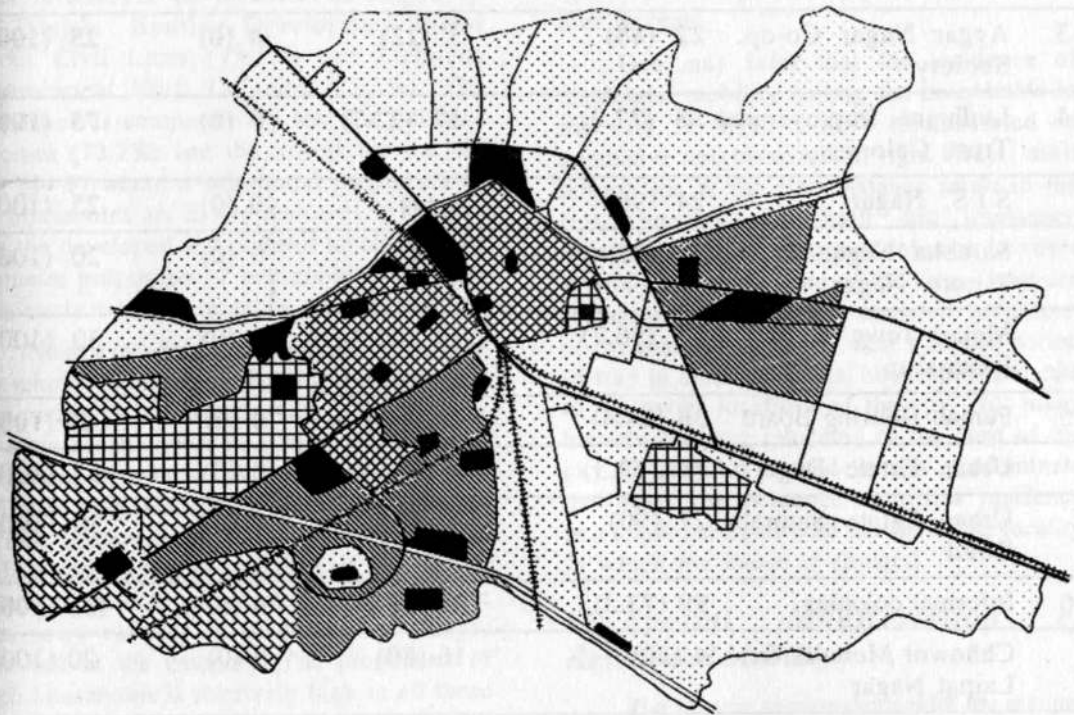
Patterns of intra-city residential mobility have been analysed with respect to three aspects : the incidence of residential mobility; the spatial manifestation of residential mobility (the distance and direction over which households moved), and the change in nature of locality.

### *i) Incidence of residential mobility*

The incidence of residential mobility, that is, the proportion of households among the considered sample who have previously been staying in some other house in the city was worked out. Data pertains to the last twenty years. There emerged three categories of households. First, those who had previously been staying at some other residence. Second, those households who were native to Ludhiana City and had always been staying at their present residence (termed as 'in situ'). Third, immigrants who had shown no mobility beyond their first residence since migrating to the city. These were migrants who had come straight to the residence they were presently residing in.

The incidence of residential mobility

LUDHIANA CITY  
**Organically Evolved and  
 Planned Residential Localities**



**Organically/informally evolved**

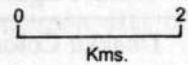
- ⊗ Old city/civil lines etc.
- ⋯ Informal development (slums, old village settlements etc.)

**Planned**

- ▨ Developed by public agencies (Improvement trust, Housing Board etc.)
- ▣ Institutional and Govt. localities
- ⊘ Co-operative development
- ⊞ Private development

□ Industrial area

■ Sample localities





**Table-1**  
**Ludhiana : Intra-City Residential Mobility (2000)**

S. No.	Name of Locality	Households Previously residing elsewhere	Immigrant households showing no mobility	Native households showing no mobility	Total
1.	Civil Lines	31 (77.5)	6 (15)	3 (7.5)	40 (100)
2.	Old City	22 (44)	15 (30)	13 (26)	50 (100)
3.	Aggar Nagar Co-op. Society	22 (88)	3 (12)	0 (0)	25 (100)
4.	Ludhiana Improvement Trust Colonies	58 (77.3)	17 (22.7)	0 (0)	75 (100)
	S.I.S. Nagar	24 (96)	1 (4)	0 (0)	25 (100)
	Sarabha Nagar & Tagore Nagar	17 (85)	3 (15)	0 (0)	20 (100)
	Model Town & M.T. Extension	17 (56.7)	13 (43.3)	0 (0)	30 (100)
5.	Punjab Housing Board	38 (84.4)	7 (15.6)	0 (0)	45 (100)
	Urban Estate Dugri	11 (73.3)	4 (26.7)	0 (0)	15 (100)
	Urban Estate Samrala Road	27 (90)	3 (10)	0 (0)	30 (100)
6.	Informal colonies	99 (73.3)	36 (16.7)	0 (0)	135 (100)
	Chhowani Mohalla & Lajpat Nagar	4 (20)	16 (80)	0 (0)	20 (100)
	Guru Nanak Pura & Salem Tabri	18 (72)	7 (28)	0 (0)	25 (100)
	New Shivpuri	19 (95)	1 (5)	0 (0)	20 (100)
	Haibowal	24 (96)	1 (4)	0 (0)	25 (100)
	P.M. Nagar & Vikas Nagar	23 (76.7)	7 (23.3)	0 (0)	30 (100)
	Dhakka Colony	11 (73.3)	4 (26.7)	0 (0)	15 (100)
7.	Squatters	10 (66.6)	5 (33.3)	0 (0)	15 (100)
	<b>TOTAL</b>	<b>280 (72.7)</b>	<b>89 (23.1)</b>	<b>16 (4.2)</b>	<b>385 (100)</b>

Figures in parenthesis indicate percentages.

Source : Fieldwork

within various localities in Ludhiana City is shown in Table-1. Close to three-fourths of the considered sample (72.7%) had previously been staying at a residence other than their present house. At the sub-city level this proportion ranged from a minimum of 44% for the old city to a maximum of 88% for Aggar Nagar Co-operative Housing Society. The latter is followed by localities developed by the Punjab Housing Development Board (85%) Civil Lines (77.5%) and Ludhiana Improvement Trust Colonies (77.3%). The proportion is comparatively less for informal colonies (72.7%) and the lowest for the old city (44%) where a substantial proportion of the households are in situ residents. It follows that the developed and planned localities have a greater proportion of households who were previously residing in some other house.

Nearly one-fourth (23.1%) of the sample households showed no mobility beyond their first residence in Ludhiana City. This category of respondents upon migration to Ludhiana City came straight to the residence which they are presently occupying. Such households include uprooted population from Pakistan as well as other states of India. Apart from these, recent migrants to the city and those who were previously residing in neighbouring villages also fall in the category. The proportion of such households is relatively high in all those localities where households have been rehabilitated (Model Town, Chhowni Mohalla, Lajpat Nagar, Urban Estate, Dugri and Model Town Extn.). Such households form a substantial proportion of the population in informally developed colonies as well. Here rental values are low. Recent migrants to the city are so, more likely to come and live here at the first instance.

Households belonging to the 'in situ' category comprise 4.2% of the considered sample. These households comprising the native population of the city who continue to reside in ancestral houses. Apart from being very few in number they are concentrated in the 'Old City' and Civil lines - the oldest two

localities of the city. More than one-fourth (26%) of the households in Old City and 7.5% of the households in Civil Lines are 'in situ' staying at their present residence. It stands to reason since these are the only two localities within the sample which are more than sixty years old and thus are most likely to contain houses older than the age of heads of household. The possibility of in situ residence thus increase.

One may infer that the incidence of residential mobility among the households in the city is high. Unless rehabilitated in conducive neighbourhoods, right away, most households at the first instance settle in the less expensive poorly built and unplanned informal colonies. Informal colonies however do not exist at the core of the city. These are found on the periphery or erstwhile periphery, of the city. Subsequently after a certain period of stay in these localities, households relocate to the better localities of the city. Not many households have relocated to the core of the city. Households formed 'in situ' predominate over here. The incidence of 'in situ' residence in a house increases with the age of the locality in which the house is situated.

#### *ii) Spatial Manifestation of Residential Mobility*

The present section deals with the manner in which people move. Relevant questions deal with the distance and direction of movement. The distance relative to the previous locality i.e. how far from or near the previous residence is the place of relocation. The question of direction judges the movement of the population from core to periphery or vice-versa. Movement could also take place along major transport axes of the city.

The manner in which people move has been estimated for the sample as a whole as well as people staying in the core areas of the city separately. Households living in the core primarily comprise the native population. The

**Table-2**  
**Ludhiana City : Previous Residential Locality of Sample Household 2000**

S. No.	Name of Locality	Same as present	Adjacent to present	Distant from present	Total
1.	Civil Lines	6 (19.3)	23 (74.2)	2 (6.5)	31 (100)
2.	Old City	22 (100)	0 (0)	0 (0)	22 (100)
3.	Aggar Nagar Co-op. Society	2 (9.1)	5 (22.7)	15 (68.2)	22 (100)
4.	Ludhiana Improvement Trust Colonies	4 (6.9)	21 (36.2)	33 (56.9)	58 (100)
	S.I.S. Nagar	0	10	14	24
	Sarabha Nagar & Tagore Nagar	1	4	12	17
	Model Town & M.T. Extension	3	7	7	17
5.	Punjab Housing Board	2 (5.3)	24 (63.2)	12 (31.5)	38 (100)
	Urban Estate Durgi	2	4	5	11
	Urban Estate Samrala Road	0	20	7	27
6.	Informal colonies	34 (31.2)	44 (40.4)	31 (28.4)	109 (100)
	Chhowani Mohalla & Lajpat Nagar	4	0	0	4
	Guru Nanak Pura & Salem Tabri	3	12	3	18
	New Shivpuri	2	15	2	19
	Haibowal	24	0	0	24
	P.M. Nagar & Vikas Nagar	1	9	13	23
	Dhakka Colony	0	8	3	11
7.	Squatters	0	0	10	10
	<b>TOTAL</b>	<b>70 (25)</b>	<b>117 (41.8)</b>	<b>93 (33.2)</b>	<b>280 (100)</b>

Figures in parenthesis indicate percentages.

Source : Fieldwork

analysis could provide a comparative view of the intra-city residential mobility behaviour of migrant and native population.

With this end in view data on the previous locality of the house was collected. Data tabulation was influenced by the ends to be achieved viz., obtaining a situational view of the previous and present localities vis-a-vis each other and secondly that of having a view of the situational change in the locality within the city. The frequency of response was also taken into account. Consequently data on previous locality of household was organised into three categories : same as present, adjacent to present, and distant from present. Since all data in the survey was collected by localities comparing the present with the previous became fairly simple.

Table-2 shows the previous locality of households that exhibit intra-city residential mobility. One-fourth of all households have shifted residence within the same locality. Slightly more than two-fifth (41.5) have previously been staying in a locality adjacent to the present locality. Thus more than two-thirds of the residentially mobile population have shifted only a short distance away from the previous place of residence. One-third of the residentially mobile households have on the other hand come to their present place of residence from distant localities. Half of those comprising the last category have emanated from the Old City.

Viewed at the sub-city level, shifts within the same locality are most common in the Old City and informal colonies. A natural inference is : not many people like to move into the Old City or informal localities from other localities. The source localities for households presently residing in localities developed by public agencies are most diverse. Whereas a number of these households were previously residing in localities adjacent to the present localities, a sizeable proportion of the households settled in publicly developed localities have also moved in from distant localities spread over

the city as well as from the Old City and Civil Lines. This indicates a desire for dwelling in planned and developed localities. It is also a fact that publicly developed localities were at least initially located at a considerable distance from the inhabited city.

It appears, in the case of Ludhiana city that although the tendency to move within the city is high, people move only over short distances. More than two-thirds have not shifted beyond the adjacent locality. This is especially true of residents who are presently staying in the Old City and informal colonies. Reasons for the trend could be a greater deal of familiarity and so knowledge of housing availability within surrounding areas only. A desire for proximity to work place could also be an operative factor in the case of Old City and informal colonies. Another reason could be a desire to remain in touch with familiar physical and social milieu. The tendency to leap-frog amongst the households is not evident.

The city thus is more likely to grow through the process of accretion. On the other hand, the opportunity to reside in well planned, developed housing environs lures households into moving over long distance as well.

Table-3 looks at the diffusion of households from the core areas of the city viz., the Old City and Civil Lines. Being the oldest parts of the city they have both to a certain extent acted as core areas for the rest of the city and are indicative of core-periphery movement. Close to 30% of the households that shifted residence, within Ludhiana City were previously staying in these two localities. As already stated a large proportion of the residents over here are natives of the city. Native households differ from migrant households in the sense that they have been staying in the city for a longer duration. A majority of them are residing in their own houses and so are under no great pressure to shift. They are also expected to have greater resources at their disposal. The number of



**Table-3**  
**Ludhiana City : Shift of Households from Core Areas to various localities-2000**

S. No.	Name of Locality	Shift From		Total
		present	present	
1.	Civil Lines	23 (35.9)	0	23 (29.2)
2.	Old City	0	0	0
3.	Aggar Nagar Co-op. Society	7 (10.9)	4 (26.7)	11 (13.9)
4.	Ludhiana Improvement Trust Colonies	15 (23.4)	5 (33.3)	20 (25.3)
	S.I.S. Nagar	5	3	8
	Sarabha Nagar & Tagore Nagar	7	2	9
	Model Town & M.T. Extension	3	0	3
5.	Punjab Housing Board	8 (12.5)	3 (20)	11 (13.9)
	Urban Estate Durgi	2	1	3
	Urban Estate Samrala Road	6	2	8
6.	Informal colonies	11 (17.3)	3 (20)	14 (17.1)
	Chhowni Mohalla & Lajpat Nagar	0	0	0
	Guru Nanak Pura & Salem Tabri	5	0	5
	New Shivpuri	4	0	4
	Haibowal	0	0	0
	P.M. Nagar & Vikas Nagar	2	3	5
	Dhakka Colony	0	0	0
7.	Squatters	0	0	0
	<b>TOTAL</b>	<b>64 (100)</b>	<b>15 (100)</b>	<b>79 (100)</b>

Figures in parenthesis indicate percentages.

Source : Fieldwork

constraints which hinder their choice of alternative residence are limited. In the developed countries such households have been known to shift to the periphery of the city. The situation in this case needs to be examined.

A large proportion of the households who have shifted out from the Old City have moved to Civil Lines (more than one-third). Civil Lines is the locality adjacent to the Old City. So movement is over a short distance only. A sizeable proportion (almost one-half) have moved to publicly developed localities and co-operative housing societies as well. In both cases localities were situated on the periphery of the city. While in the former case the periphery towards which they shifted was close to the Old City (Urban Estate, Samrala Road), in the case of the latter, the socio-economic milieu of the co-operative society was similar to the one found in the previous locality (Old City). A few households (about one-sixth) have also shifted to informal colonies. These informal colonies again are located adjacent to the old city. Thus outward movement from Old City is also over short distances. Although households would like to shift to more conducive living environments (as obvious from their shift to planned localities) they would at the same time like to remain in close physical proximity to the previous residence or at least opt for a similar social and religious milieu.

The second locality forming the core of the city is Civil Lines. An attractive destination for people moving out from the Old City, the number of households the locality itself has lost to other parts of the city is negligible. The possible reasons for this include better living conditions in this locality. The attraction of remaining close to the hub of the city without having to suffer the exceedingly high population and land use densities of the Old City also plays a part. Planned under the Colonial regime, a substantial part of this locality comprises residences of government

employees as well as their offices. As such there exist green open spaces for recreational purposes as well as large bungalow type residences. In spite of a sub-division of private houses, with ensuing generations inheriting smaller and smaller portions, the density of residential areas has still not reached that critical level at which a movement towards the periphery of the city may be initiated.

The propensity of the native population to shift is relatively low. When they do move, they go for improved living environs coupled with physical proximity to previous place of residence and/or similar social and religious milieu. Most migration from the old city has been to Hindu dominated localities. The tendency is to opt for change with continuity. The direction of movement is no doubt towards the periphery, although in some instances the destination may be the periphery of the core rather than that of the city as a whole.

### *iii) Shift in Nature of Locality*

The previous and present localities of respective households exhibiting residential mobility were compared on the basis of their evolutionary process/development agency. Accordingly, there emerged eight kinds of localities-organically evolved, informal and squatter settlements on the one hand and those developed by public agencies (Ludhiana Improvement Trust and Punjab Housing Board), Private Developers, Co-operative Societies, Institutions and Government Departments on the other hand.

The significance of such a comparison is dual. Firstly, it indicates the nature of locality preferred by sample households. Secondly, it becomes possible to identify any signs of upward mobility in housing status of sample households as personified in the shift in nature of locality.

Shift to and from the various types of localities has been calculated as show in Table-4. The largest amount of outflow has been from organically evolved localities followed

**Table-4**  
**Ludhiana : Mode of Evolution of Residential Localities and Intra-City Mobility-2000**

S. No.	Shift from Localities	SHIFT TO LOCALITIES					Squatting	Total
		Organically evolved	Developed by Public Agencies	Developed by Private Developers	Developed by Co-operative Societies	Informally developed		
1.	Organically Evolved	52	41	4	10	8	0	115
2.	by Developed Public Agencies	1	30	9	7	3	0	50
3.	by Developed Private Developers	0	0	4	0	0	0	4
4.	by Developed Co-operative Societies	0	0	0	2	0	0	2
5.	Informally developed	0	20	3	1	65	0	89
6.	by Developed Institutions	0	0	2	1	0	0	3
7.	by Developed Government Departments	0	5	1	1	0	0	7
8.	Squatting	0	0	0	0	0	10	10
	<b>Total</b>	<b>53</b>	<b>96</b>	<b>23</b>	<b>22</b>	<b>76</b>	<b>10</b>	<b>280</b>

The total excludes the 115 households staying in Government/Institutional localities and the 105 households who have not exhibit any residential mobility at the intra-city level.

Source : Fieldwork

by informal localities and thereafter publicly developed localities. At the first instance it would seem that people are moving out from the above kinds of localities. But a more detailed perusal of data reveals that a large number of such households are moving out from the above localities to other similar localities. Viewing the information from a slightly different perspective, it is seen that amongst all types of localities the publicly developed localities, privately developed localities and co-operative housing societies

have gained more households than they have lost. In the case of organically evolved and informal colonies, a larger number of households have moved out than those who have moved into these localities. The number of squatters remains constant. Thus, it appears that people have a preference for planned and developed localities in which to build houses, irrespective of the development agency (public, private or co-operative).

Viewing the picture at the sub-city level provides more clarity. Households residing in

privately developed or co-operative housing societies appear most satisfied with their housing status. On the one hand, only a limited number have shifted out from these localities; on the other those that have done so, have shifted to houses in similar localities only. The inflow to organic and informal colonies has largely emanated from similar localities only. The source localities for the publicly developed localities are however more varied. The same is also true of localities developed by private developers and co-operative societies. This speaks of the wide appeal for planned and developed residential areas. More than one-fifth (22.2%) of the households who have shifted from informal localities and almost one half of those from organically evolved localities have gone to localities developed by public agencies. This is indicative of upward mobility in housing status as reflected by nature of locality. Instances of the reverse process though visible are negligible in number. Households who were previously staying in localities developed by government departments and institutions have also shifted to planned localities. The latter are probably the closest in physical character to the living environs they have previously been residing in. It appears that when housed in a comfortable residence located in planned, developed and well maintained environs, people would not like to move and if they do, they would move to a similar locality. The previous locality thus has a bearing on the choice of the present one. With time, there is improvement in one's housing status which speaks of upward mobility.

### **Determinants**

Following the analysis of the patterns of residential mobility, it emerges that residential mobility within the city of Ludhiana is on the higher side. At the same time however people do not like to move very far from their previous

place of residence, with less than one third of the sample moving beyond the adjacent locality. Indeed it would seem the movement was made under duress. Moreover there is a tendency to gravitate towards similar socio-religious environs. Such conflicting patterns of intracity residential mobility call for an analysis of the factors, which influence the decision to move as well as that on where to relocate.

It would seem axiomatic to state that the availability of resources to invest in housing (demand) as well as the availability of alternative housing (supply) play a role in determining the incidence of residential mobility at city level. Assuming an adequacy of both demand and supply there is still a need to delve into the considerations that the household takes into account while making the decision. The ensuing section deals with the determinants of intracity residential mobility primarily from that perspective.

#### *i) Tenure Status*

Three types of tenure status predominate in the city. Households may own the house they reside in; they may have rented it; or they could be squatting on the land without any title to it. The limited supply of housing in developing countries means a lack of security of tenure for tenants. House ownership thus becomes a sought after goal. At the same time as tenants, households may not be allowed to retain the accommodation over a long period of time. In either case the incidence of residential mobility is likely to increase. Ludhiana being a city peopled largely by migrants the tenure status either way is likely to play a significant role in residential mobility.

Slightly less than one-half (48%) of the total residential shifts within the city indicate a simultaneous change in tenure status from tenancy to ownership. Less than one-fifth (18%) of the shifts indicate a retention of the tenant status. Put together two thirds of the



**Table-5**  
**Ludhiana : Changes in Tenure Status associated with Change of Residence-2000**

S No.	Name of Locality	Tenancy to Ownership	Tenancy to Tenancy	Ownership to Tenancy	Ownership to Ownership	Squatting to Squatting	No Change of Residence	Total
1.	Civil Lines	14	1	1	15	0	9	40
2.	Old City	9	1	0	12	0	28	50
3.	Aggar Nagar Co-op. Society	14	2	2	4	0	3	25
4.	L.I.T. Colonies	35	6	2	15	0	17	75
	S.I.S. Nagar	17	3	1	3	0	1	25
	Sarabha Nagar Tagore Nagar	9	1	0	7	0	3	20
	Model Town & M.T. Extension	9	2	1	5	0	13	30
5.	P.H.B. Colonies	15	6	2	15	0	7	45
	Urban Estate Durgi	8	0	0	3	0	4	15
	Urban Estate Samrala Road	7	6	2	12	0	3	30
6.	Informal colonies	41	36	2	20	0	36	135
	Chhowani Mohalla & Lajpat Nagar	1	0	0	3	0	16	20
	Guru Nanak Pura & Salem Tabri	7	5	2	4	0	7	25
	New Shivpuri	10	3	0	6	0	1	20
	Haibowal	0	24	0	0	0	1	25
	P.M. Nagar & Vikas Nagar	15	2	0	6	0	7	30
	Dhakka Colony	8	2	0	1	0	4	15
7.	Squatters	0	0	0	0	10	5	15
	<b>TOTAL</b>	<b>128</b>	<b>52</b>	<b>9</b>	<b>81</b>	<b>10</b>	<b>105</b>	<b>385</b>

Source : Fieldwork

shifts involved tenant population. Almost three fourths of these exhibit strains of upward mobility through their movement from rented to owned accommodation. One fourth of the tenants exemplify the unsettled housing conditions that emerge as fall outs of having to stay on rent. The shift from rented to owned houses is characteristic of most of the publicly developed localities (S.I.S Nagar, Sarabha Nagar, Model Town Extn, Urban Estate, Dugri) and some of the informal colonies ( New Shivpuri, P.M Nagar & Vikas Nagar, Dhakka Colony). While land values in informal colonies are low those in publicly developed localities are also controlled. The squatters who have changed their place of squatting account for about 3% of residential shifts. They have shown no improvement in their housing status.

### **ii) Housing Aspirations**

While quest for security of tenure seems a significant motive in moving house, about 30% of the residential shifts indicate a shift from owned to owned residence. This fact demands an explanation of a different nature. A perusal of the aggregate data in terms of the components is likely to provide insight into this trend. A residential shift from owned to owned houses is more characteristic of older localities like Civil Lines and Old City on the one hand and the planned Urban Estate, Samarala Road on the other hand. Interestingly both Civil Lines and Urban Estate, Samrala Road, received a substantial number of households that emanated from the old city. Urban Estate, Samarala road, received a number of households from adjacent informally developed localities as well. The shift from organically evolved Old City and informal localities to the planned Urban Estate, Samrala Road, epitomises the desire to move to a better locality. This no doubt can be attributed to a rise in housing aspirations consequent to an increase in the resource base (owning of

house).

### **iii) Family Structure**

The cyclic nature of the joint family system peculiar to India has its implications for the housing situation as well as intra-city residential mobility. An added fact is that while building a house the needs of the next generation are also kept in mind and a house normally lasts a period of two generations, giving rise to a joint family structure. It is normally assumed that subsequently the break up of a joint family would lead to the demand for and consequent shift to new houses. This was tested by analysing the change in family structure associated with the change of residence. Table No.6 shows the changes in family structure associated with change of residence.

50% of all households who have changed their residence continue to retain the joint family structure. One third of the households were previously nuclear families and shifted as nuclear households. Effectively only about one-sixth of the households which shifted their residence exhibited a simultaneous shift in family structure from joint to nuclear family. Apparently nuclearisation of families plays only a limited role in bringing about residential mobility. The pattern at the city level remains uniformly true and constant for the various sub-parts of the city.

It is a fact that the pooled resources of a joint family make house ownership easier. Secondly, it has been observed that joint families which predominate the nature of family structure in the city do not break up unless there is an absolute lack of space. This situation occurs when three generations of married couples co-exist in the same house. In such cases the younger two generations are more likely to shift out of the ancestral house together as a joint family unit.

One cannot, therefore, absolutely rule

**Table-6**  
**Ludhiana : Changes in Family Structure associated with Change of Residence-2000**

S. No.	Name of Locality	Joint to Nuclear	Nuclear to Joint	Joint to Joint	Nuclear to Nuclear	No change of Residence	Total
1.	Civil Lines	7	0	22	2	9	40
2.	Old City	4	0	13	5	28	50
3.	Aggar Nagar Co-op. Society	2	0	11	9	3	25
4.	Ludhiana Improvement Trust Colonies	4	0	34	20	17	75
	S.I.S. Nagar	2	0	10	12	1	25
	Sarabha Nagar Tagore Nagar	0	0	13	4	3	20
	Model Town & M.T. Extension	2	0	11	4	13	30
5.	P.H.B. Colonies	10	0	8	20	7	45
	Urban Estate Dugri	2	0	2	7	4	15
	Urban Estate Samrala Road	8	0	6	13	3	30
6.	Informal colonies	18	0	49	32	36	135
	Chhowni Mohalla & Lajpat Nagar	2	0	2	0	16	20
	Guru Nanak Pura & Salem Tabri	4	0	7	7	7	25
	New Shivpuri	3	0	10	6	1	20
	Haibowal	0	0	16	8	1	25
	P.M. Nagar & Vikas Nagar	6	0	10	7	7	30
	Dhakka Colony	3	0	4	4	4	15
7.	Squatters	2	0	3	5	5	15
	<b>TOTAL</b>	<b>47</b>	<b>0</b>	<b>140</b>	<b>93</b>	<b>105</b>	<b>385</b>

Source : Fieldwork

out the role of breakup of joint families as a factor in the decision to shift residence. This factor however is more likely to be operative under conditions of spatial constraint rather than as a general social trend in the case of this city.

#### *iv) Regional and Religious Affinities*

Residential localities in the city have a homogeneity of social, cultural and religious character. This is because of the manner in which the city's population has grown. After the exodus of Muslims in 1947, the old city became a Hindu dominated area. Its spill over to the Civil Lines areas gave the latter a similar complexion. The Sikh population which immigrated from Pakistan was resettled in Model Town and its vicinity, making the area a Sikh majority. Such patterns were strengthened during the eighties decade of communal turmoil in the state with both Hindu and Sikh migrants settling in close proximity to Hindu and Sikh dominated localities respectively. Informally developed localities also display this characteristic due to migrants emanating from the same place tending to reside together. The residential shifts within localities of similar nature (informal to informal, organically evolved to organically evolved) as well as residential shifts over short distances (within the same locality or to adjacent locality) are both ascribable to the factor of a close knit socio-religious fabric and a population well-entrenched into it.

#### *v) Public Sector Intervention*

Public sector intervention in housing is ideally required at junctures where the private sector fails to deliver. In most such cases the ventures are not remunerative enough. However, apart from supplying housing for the low income groups and economically weaker sections, public sector intervention in case of rehabilitation housing and housing for higher income groups, within the city, acted

as a stimulant for the housing process. The provision of infrastructure in the vicinity hastened the development of private colonies which were subsequently provided infrastructure as well. This served to increase the supply of housing.

Another notable fact about public sector housing development is that it was provided at controlled prices, making such residences more affordable. Moreover for a long time the provision of infrastructure (roads, water supply, sewerage) was the monopoly of the public sector agencies making them the sole providers of serviced housing. Finally, information about the availability of public sector housing is much more widespread, making it more accessible.

All these factors add to the lure for housing developed by public sector agencies which is reflected in the fact that close to half of the total households who have migrated to such housing have done so from distant localities. The corresponding proportion for the city as a whole is one third. Public sector housing proved especially attractive for tenant and migrant households although its appeal was quite widespread.

One may infer that while a quest for security of tenure, the liabilities of staying as tenants and the constraints of space, contribute to the decision to move, the ultimate choice of the alternative location is governed by factors like socio-religious affinities and the provision of a conducive housing ambience.

### **Implications**

An analysis of the patterns and nature of intra-city residential mobility in Ludhiana reveals far reaching implications for the housing situation of the city. Needless to say, the implications stem from inferences drawn through a study of the patterns and determinants of residential mobility.



Residential mobility within the city is stimulated by a quest for security of tenure. This manifests itself in a move from rented to owned housing. The process is propelled more by the migrant population than the native population of the city. There is a need therefore to increase the supply of housing, on the one hand, and to formulate policies that aid house ownership on the other. Since there is likely to be a time lag between the household's migration to the city and the owning of a house, the supply of rental housing may be encouraged in the meanwhile.

An urge to improve one's living environment also emerges as a significant reason for shifting house. In that light there is a demand for planned, serviced land as reflected in the shift from informal and organically evolved localities to developed localities. This demand exists irrespective of the agency of development whether public, private or co-operative. Whereas the public sector may concentrate on stimulating housing development through provision of infrastructure at optimum locations, the private sector may be relied upon to actually provide housing.

The habitation of a locality by households emerging largely from adjacent localities points towards each house having a specific range. This might well be used for estimating the demand for housing at various points within the city and identifying optimum locations for housing development. There is a need to develop fresh housing sites in close proximity to the already developed city.

The decision to stay in close physical proximity to the previous location may well have been made due to the urge for proximity to work place. Keeping in view the above fact and taking cognizance of the large influx of industrial labour migrants to the city, provisions for housing must form an integral part of any plan for developing an industrial

estate.

Finally, the analysis also reveals certain implications for the future morphology of housing within the city. These are both spatial and sociological in nature. There is a tendency for short distance residential mobility of the households combined with the trend of initially settling in peripheral informal localities and then continuing outward in the same direction. This has ensured that the city grows through the process of accretion. Further one can identify housing regions/sectors having homogeneity of housing conditions. The west and south-west directions have high class residential areas while the low class residential area is to be found along the north-west — south-east axis of the city. As the city grows outward in all directions these regions are likely to be strengthened in the future. To achieve optimum results, the location and nature of public investment in housing should conform with these established trends and patterns.

The tendency to seek a continuity of present religious and regional complexions while looking for alternate residence is also likely to have implications in the light of the large influx from the states of U.P. and Bihar. The tendency of the migrants to reside in areas already inhabited by people from their native place predicts the manifestation of residential segregation on religious as well as regional bases.

## Conclusions

Residential mobility within the city of Ludhiana is high with almost three-fourths of the households having shifted residence at least once in the last two decades. The proportion is no mean figure when compared to the corresponding figure of 90% for North American cities. The excessive figure, however, is primarily a result of the large influx of migrants to the city at various points of time. With the influx giving no sign of abating the

demand for additional housing is likely to rise in the future. Residential mobility however is over short distances with only one third of the population moving beyond the locality adjacent to the previous locality of residence. This is largely due to an urge to remain in close physical proximity to familiar socio-physical and economic milieu.

It emerges that intra-city residential mobility in the case of Ludhiana is essentially a process of moving up the ladder of housing status - the first rung of which is towards house ownership and the second, to better living environment. In this regard, there is a distinct trend towards upward mobility in housing status personified in the shift from rental to owner occupied housing as well as that from informal localities to planned localities.

In the process of choosing alternate accommodation, socio-religious affinities, housing aspirations and public-sector intervention in housing play a significant role. The prevalence of joint family structure, on the one hand, provides housing security to younger households and on the other, increases the resource base of the household, offering it a wider set of options, while choosing an alternate location. The break up of joint families due to a space constraint could add to the incidence of residential mobility.

There exists, therefore, a need to increase the supply of both rental and owner-occupied housing; encourage planned development of housing through the induction of private as well as co-operative housing sectors; and orient the development of various types of housing, in consonance with established spatial patterns and trends in location of high class and low class residential areas.

Finally, when placed in juxtaposition with already developed models of residential

mobility in the west, it is observed that the city converges with these in certain respects while there is a divergence in others. The divergence stems from the difference in the two contexts. The Indian context is epitomised by a limited volume and variety of alternate housing; the prevalence of the joint family system; close-knit social fabric of residential localities; and public sector intervention. The short supply of housing in the Indian context, adds the dimension of a quest for security of tenure, not pervasive in the west. The cyclic nature of joint families and the custom of heritance of property means residential mobility is likely to decrease with the increase in the duration of stay of the household as well as their parents in the city. In that sense concurrence of residential mobility with life cycle stages is missing. While the process of search for alternative location is more or less similar, the options available here are less and religious and regional affinities along with public sector intervention are strong decisive factors. The development of homogeneous belts of residential localities is axial in nature rather than concentric.

Thus, one may conclude that intra-city residential mobility in the case of Ludhiana City is largely a matter of security (of tenure) and partially that the facility (of housing environment); that the trend is likely to prolong; that it has implications for urban housing management and the housing morphology; and that studies of a similar nature for other cities in the developing world are likely to prove fruitful.

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# THE DECENNIAL CENSUS OF POPULATION - 2001

( *A Research Note* )

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The decennial census of population is the largest administrative undertaking in India and one of the largest in the world. Employed in it are hundreds of thousands of enumerators, usually school teachers or other educated persons, such as secretaries of *panchayats* and cooperative societies. In addition, thousands are engaged in offices of the Census Commissioner of India and Superintendents (Directors) of Census in the states and Union Territories. They analyse the data collected in the census and prepare reports on the demographic, social and economic characteristics of the population.

The enumerators who interview the people often do not understand the significance of many questions that they ask them. The people who respond to the questions may, because of political reasons or social inhibitions, be reluctant to

give correct answers to various questions. Despite these limitations, various surveys conducted after every census since 1951 have revealed that the margin of error in the data collected in the census is no more than 1-1½ per cent.

In most developed countries of the world the census is a technical undertaking; the Census Commissioner is an eminent demographer or other social scientist. In India however, it is an administrative undertaking; the Census Commissioner of India and the Superintendents / Directors of census in the States and Union Territories are senior officers of the Indian Administrative Service. There is a valid reason for this preference for administrative officers.

The enumerators get very little money for the time that they spend in filling the questionnaires. However, they cannot refuse to



do so because a refusal would make them liable for punishment which may extend to being sent to prison. The Census Commissioner is advised however by an Advisory Committee consisting of demographers, economists and other social scientists. They assist the Census Commissioner in drafting the questionnaire and preparing a plan for analysing the data so that the census yields results which are most important for formulating policies for economic development and social progress of the people.

Another important characteristic of the census of population is that it has been taken without break since 1872. The census of 2001 will be the 14th in a series that began in that year. During this period, the country was visited by two famines in the last two decades of the 19th century and again in 1943 in which millions died. Millions perished also in the epidemics of bubonic plague in the first decade of the 20th century and again in the influenza epidemic of 1918/19. The country was partitioned into India and Pakistan in 1947. The partition was followed by the largest and bloodiest migration in human history in which hundreds of thousands died or were wounded. Despite these man-made and natural calamities, the decennial censuses have been conducted in the first year of every decade with regularity since 1872. Maintaining such an unbroken record through all these natural and man-made calamities is a record of which the nation may well be proud.

The census of population is conducted over a period of 3 weeks during February of the census year. In mountainous areas it is conducted in early summer.

### Census of Housing

Six to nine months before the population census, a census of housing is conducted. In it, data is collected about the type of house in which a census household lives. The house may be *pucca* (built of brick and mortar with roof of concrete or baked tiles), *semi-pucca* (built of stone or other locally available strong material which would withstand the onslaught

of the monsoon rains) or *kutchha* (with roofs of thatch and/or corrugated iron sheets and walls of bricks of unbaked clay, thatch and mud floors). Such houses are likely to be damaged or even destroyed during heavy monsoon rains or cyclones that visit various areas along the coasts from time to time. The amenities available in the house such as adequate supplies of water and electricity and arrangements for disposal of solid and liquid waste and the number of persons per room are also indicated. Finally, the housing census collects data about homeless persons and inmates of institutions such as hostels.

### Census Monographs

The detailed reports prepared by the Census Commissioner of India and the Superintendents of Census of the States/Union Territories are published 1-3 years after the census. Before them however, short monographs are published which contain preliminary population totals; distribution of the population by age and sex, the literacy rate, crude birth, death and infant mortality rates and other details. In 1951 one such paper was published within a few weeks of conduct of the census. It contained preliminary estimates of total population, its growth during the previous decade; its distribution by sex; birth, death and infant mortality rates; literacy rate by sex; distribution of population by rural and urban areas and by urban places of different sizes. All this data was given by states and union territories.

In 1991, three such papers were published. The first, published within a few weeks of conduct of the census contained preliminary population totals, its distribution by sex; its growth during 1981-91; comparative data on growth rates during the three previous decades; birth, death and infant mortality rates; literacy rate by sex, life expectancy at birth by sex, distribution by rural and urban areas and population of urban places of different sizes. All these data were given by states and union territories and

contained, besides the detailed data, explanatory notes, a few shorter tables and some pictograms and maps.

Two other papers were published within 18 months of conduct of the 1991 census. The first contained detailed data by states and union territories on rural and urban distribution of the population and populations of urban places of different sizes. The second paper contained detailed data on workers and non-workers and the distribution of workers by 10 major occupational categories. Besides the detailed tables, both papers contained a number of shorter tables, maps and pictograms and detailed explanatory notes in order to make the data presented in them easily intelligible to members of Parliament and legislatures of states and other policy makers. Demographers, economists and other social scientists have been using them extensively for their analyses of the census data.

The Census Commissioner of 1951 cautioned the government against too rapid growth of population and recommended that it should initiate immediately a vigorous programme of family planning in order to slow it down. The recommendation was accepted by the government and a programme to propagate family planning was started. The programme, rather ineffective at first, has become increasingly effective. It now forms the basis of the national population policy. Its results are noticeable. In Kerala and Goa for instance, where total and female literacy rates are high, the rates of natural increase of population are only marginally higher than replacement rates.

The Census of 1991 has revealed increasing urbanisation of the population and its concentration in cities with a population of 1 million or more. From various projections made by demographers it appears that the Census of 2001 will show accentuation of these trends. The number of metropolitan cities is expected to nearly double from 23 in 1991 to about 40 in 2001. Since most of the factory

and small scale industries and modern services are concentrated in these cities or their peri-urban areas, there is need for very large investment for expansion of facilities for electricity, water supply, disposal of solid and liquid waste, intra-city management of traffic, adequacy of housing and ensuring effectiveness of measures for providing security of life and property to the citizens to ensure that the cities perform their role efficiently.

It is of interest to note that the official definition of many terms that geographers and other social scientists use are given by the census. Take village, town, city, house and household as examples. In many states, the village is a tightly nucleated settlement with a population of not more than 5,000. However, in Kerala where most rural households live in houses surrounded by fields of rice and tapioca and a grove of coconut or other trees, the village is a purely administrative unit, which may have a population of 10,000 or more. In Tamil Nadu, Karnataka, Andhra Pradesh, West Bengal, Bihar, Orissa, eastern and central Uttar Pradesh, the village includes a central settlement in which the majority of the population consists of high castes and one or more hamlets inhabited by people of the scheduled castes. In Himachal Pradesh and adjoining Uttaranchal and in the 7 states of the eastern Himalayan region, the population of a village may be 500 or less.

A town is an urban area with a population of between 5,000 and 100,000 which has a municipal committee, notified area committee or other such administrative body, with powers of taxation of households and responsibility for provision of essential services to the residents. A city is a settlement unit of 100,000 or more.

A house, defined by the Census is a residential structure. Any attachments to the house for tying livestock or for storing grain or fodder are considered to be part of the house. A census household consists of persons

of one or more nuclear families who have a common kitchen. A census house may contain in rural areas, two or more households each of which has a separate kitchen. In cities, however, a multistory flat which houses a number of households is not considered a house. It is considered a collection of houses depending upon the number of households that are living in it.

The reports of the Census Commissioners are masterly treatises, several of which have had great influence on social and economic policies. The report of the Census of Population of 1931 is the most authoritative treatise on castes of India and Pakistan.

The census of 1951 presented data of the census by both states and union territories and by resource development regions. This practice was continued in the Census of 1961; the Commissioner refined the scheme of resource development regions and made it more scientific. The regions, now called agro-climatic regions, are used by the Ministry of Agriculture to present forecasts of production of cereals and other food and cash crops every year. The Census Commissioner of 1951 warned the policy makers of the danger of rapid growth of population and the absolute need to undertake an effective programme of family limitation in order to reduce the rate.

The rate in 1941-51 was only 12.5 per cent as against 19.5 per cent during 1981-91.

The reports of the 1991 census have revealed large inter-state differences in rates of literacy, female literacy and growth rate of population. In Kerala and Goa, overall and female literacy were very high and rates of growth of population were 1.3 to 1.4 per cent per annum respectively, slightly above the replacement rate of 1.2 per cent per annum. On the other hand, in Rajasthan, U.P., Bihar and Madhya Pradesh the overall and female literacy rates were very low, and rates of population growth were 2.2 to 2.5 per cent per annum. The rates were even higher in Jammu and Kashmir and some states inhabited mainly by tribals in the north east.

The census of 2001 will reveal the results of campaigns for increasing literacy launched in the 1990's by Madhya Pradesh and other states.

The report of the 2001 census together with data collected by the National Sample Survey will indicate the progress, *if any*, made in reduction of poverty as a result of the economic liberalization programme undertaken since 1991. The result should form the basis for significant modification of the anti-poverty programmes in order to make them more effective.

**MAP SERIES : 5****REGIONAL AND INTRAREGIONAL  
DISPARITIES IN INDIA**

**GOPAL KRISHAN and NINA SINGH**  
Chandigarh, India                      Rohtak, India

This map series represents three aspects of regional disparities in India : (i) spatial pattern of areas at the relatively high, moderate and low level of development; (ii) development level of districts around the million cities; and (iii) degree of intra-state disparity in the level of development.

It goes without saying that in the Indian context, economic, social, modernization and rural transformation parameters of development are the most critical ones. With that conceptualisation, a composite, standardized and weighted development index was computed for each district on the basis of four representative indicators. These included :

1. per capita income for economic development.
2. percentage of literate females for social development.
3. percentage of urban population for modernization effect, and
4. percentage of rural non-agricultural workers for rural transformation.

While district-wise data on female literacy, urbanisation and rural non-agricultural workers were obtained from the Census of India, 1991 volumes; the per capita income, on which districtwise data were not available, was estimated by the following procedure :



- (i) calculate the percentage share of each sector-primary, secondary and tertiary-in the working force for each state;
- (ii) calculate the percentage share of each sector-primary, secondary and tertiary, in the state domestic product;
- (iii) divide the percentage share of each sector in the state domestic product by the percentage of workers in the respective sector, so as to obtain the income contribution index of each sector;
- (iv) estimate the per capita income of any district, by working out the formulation below :

$$\begin{array}{r}
 (\text{percentage of workers in primary} \\
 \text{sector in the district}) \times (\text{income contribution index of this sector} \\
 \text{at the state level}) \\
 + \\
 (\text{percentage of workers in secondary} \\
 \text{sector in the district}) \times (\text{income contribution index of this sector} \\
 \text{at the state level}) \\
 + \\
 (\text{percentage of workers in tertiary} \\
 \text{sector in the district}) \times (\text{income contribution index of this sector} \\
 \text{at the state level}) \\
 \times
 \end{array}$$

per capita income of the state (average for three years of 1989-92 in the present case.)

The district-wise data on the four indicators, listed above, was first standardised following the Z-score transformation method. These were applied the weight of each indicator, determined by summing up its correlation coefficients vis-à-vis all the indicators and dividing those sums by the aggregate of all the 'summed-up correlation scores'. All this was worked out by first preparing a correlation matrix.

For identifying the development level of each district, a recourse was taken to the method adopted by the *Human Development Report* (1990:109). The first step was to measure the degree of deprivation that a district suffered on each of the four indicators. The deprivation score of a district in respect of any indicator, for instance per capital income, was arrived at as follows :

$$\begin{array}{r}
 \text{Deprivation score of the} \\
 \text{district on per capita income} = \frac{\text{Maximum per capita} \\
 \text{income of any district} - \text{Per capita income of} \\
 \text{the specific district}}{\text{Maximum per capita} \\
 \text{income of any district} - \text{Minimum per capita} \\
 \text{income of any district}}
 \end{array}$$

Likewise, the deprivation scores of the district on the remaining three indicators were also computed. An average was taken of the four statistics, thus, obtained. The

intention was to figure out as to how much a district was lagging behind the most developed district. This statistic was taken as the deprivation score of the district.

Finally, the development score of the district was arrived at, as follows ;

Development score = 1 - Deprivation score

The 'development score' of India was also calculated. It was taken as equal to 100. The development scores of all the individual districts were normalised with reference to the national average of 100.

**Table-1**  
**Development Index of the 'Million City' Districts\* And their**  
**Adjoining District, 1991 (National average = 100)**

Million city district	Development Index of the	
	Million city district	Adjoining districts
1. Bombay	369	175
2. Calcutta	280	148
3. Delhi	324	129
4. Chennai	319	152
5. Hyderabad	279	116
6. Bangalore	245	74
7. Ahmadabad	205	127
8. Pune	184	136
9. Kanpur	184	50
10. Nagpur	198	93
11. Lucknow	143	38
12. Surat	161	95
13. Jaipur	103	50
14. Kochi	224	190
15. Coimbatore	173	143
16. Vadodara	135	76
17. Indore	166	60
18. Patna	97	41
19. Madurai	135	124
20. Bhopal	176	52
21. Visakhapatnam	105	64
22. Varanasi	100	52
23. Ludhiana	195	147

Broadly speaking, regional development disparities continue to prevail, as highlighted in previous studies, between a weaker heartland and a stronger periphery; between less developed mainland and more advanced coastal regions; and between the lagging tribal belts and better placed non-tribal areas (Map-1). Coastal Maharashtra, for example is almost twice as developed as the non-coastal; the development level of the former British administered parts of Punjab is roughly 1.25 times of that of the erstwhile princely state territories; and non-tribal areas of Madhya Pradesh are comparatively 1.5 times better off than the tribal areas. Beyond this, the western segment of the Himalayas as well as those of the Northern Plains and the Deccan Peninsula are relatively more developed than their otherwise resource richer eastern counterparts. This anomaly is explained largely by a comparatively stronger infrastructure base and a greater external exposure of the former. The Hindi speaking belt, where society is more structured on the economic lines of land distribution and

Table-2

**India : Intra-state Regional Disparity for 16 Major States\*, 1991**  
(Each with a population of at least 5 millions)

STATES	INDEX OF	
	Regional disparity (%)	Development level
1. Kerala	14	186
2. Punjab	17	152
3. Haryana	19	132
4. Himachal Pradesh	20	102
5. Assam	30	87
6. Gujarat	33	124
7. Rajasthan	33	61
8. Karnataka	41	92
9. Orissa	41	61
10. Tamil Nadu	42	115
11. Maharashtra	48	111
12. West Bengal	50	103
13. Madhya Pradesh	50	58
14. Andhra Pradesh	53	74
15. Uttar Pradesh	54	55
16. Bihar	76	35

\* The 1991 Census data for select indicators of development was not available for Jammu & Kashmir.

the social contours of caste hierarchy, is typically backward. Within, it is broadly divisible into two parts : the eastern, which is subject to an acute resource / population imbalance and high frequency of floods, and the western, a large part of which was previously under the rule of princes.

A peculiar feature of India's development map is the persistent backwardness of districts surrounding 12 out of 23 'million city' district (that is, each having a city with a population of at least one million within its territorial limits) in the country. Most notably the development level of Patna million city district is below the national average. The districts in the neighbourhood of this city as also of 'million cities' of Lucknow, Jaipur, Kanpur, Bhopal, Varanasi, Indore and Visakhapatnam, were marked by a development level which together was not even two-thirds of the national level (Table 1). It seems that the role of cities as agents of socio-economic change has been over-rated. In the case of districts close to Bangalore, Nagpur, Surat and Vadodara, also, the average development index was below the national mark. The physiography around these places seems to be a constraint in any intensification of urban-rural interaction. None the less, million cities positioned on the coast, such as Bombay, Calcutta, Chennai, and Kochi; those having a large population size, such as Delhi, Hyderabad, Ahmedabad and Pune, and still other located in agriculturally developed regions, such as Ludhiana, Coimbatore and Madurai, were noted for their strong effect. On the whole, the 'population size' and 'infrastructure base of the region of its locale', and absence of physical constraints in proximity were found as crucial to the efficiency of a million city in promoting development in the peripheral zone. Cities become effective under conditions of strong transport linkages with their surrounding areas.

Indian states are not homogeneous entities. These differ significantly within, in terms of development level, among other things (Table 2). An analysis of data for 16 major states reveal that intra-state disparity is more pronounced in large, less developed states such as Bihar, Uttar Pradesh, Madhya Pradesh and Andhra Pradesh; modest in large but relatively developed states, such as Gujarat, Maharashtra, Karnataka and Tamil Nadu; and low in small developed states such as Kerala, Punjab, Haryana and Himachal Pradesh. Kerala and Bihar are placed at the two ends of the spectrum, from the lowest to the highest in respect of intra-state disparity. This disparity finds a negative relationship (-0.741) with the development level and a positive one (+0.682) with the physical size of different states. Locational advantages, coupled with matters of politico-economic history, lie at the root of intra-state disparity.

A new development map of India is on the anvil. The paradigm highlighting the persistence of a regional development structure, as it evolved during the colonial regime, calls for a restatement. Now the state capitals are emerging as vital centres



of the development process around; a role which was confined to only the port cities before independence. The sharp development distinction between the former British provinces and the erstwhile princely states is also getting gradually blurred. A kind of corridor development, along the national highways as also along the trunk railway lines connecting Delhi, Mumbai, Chennai and Kolkata with each other, is also taking shape.

The nineties can be viewed as bringing some notable changes on the economic and political scene of India: economic decentralisation in favour of the market through a policy of liberalisation, privatisation and globalisation; political decentralisation through enactment of the Constitution (Seventy-Third Amendment), 1992 and Constitution (Seventy-Fourth Amendment), 1992, empowering the local rural and urban bodies respectively in an effective manner; and regionalisation of Indian electoral polity with regional parties emerging as a strong pressure group at the national level. These are likely to have a profound effect on the pattern of regional disparity. While the first listed change is likely to increase regional disparity by way of a greater concentration of development in already advantaged areas; the other two changes have a potential of reversing this tendency. The relative strength of these three forces, working in a matrix, will determine the future contours of the regional disparity map of India.

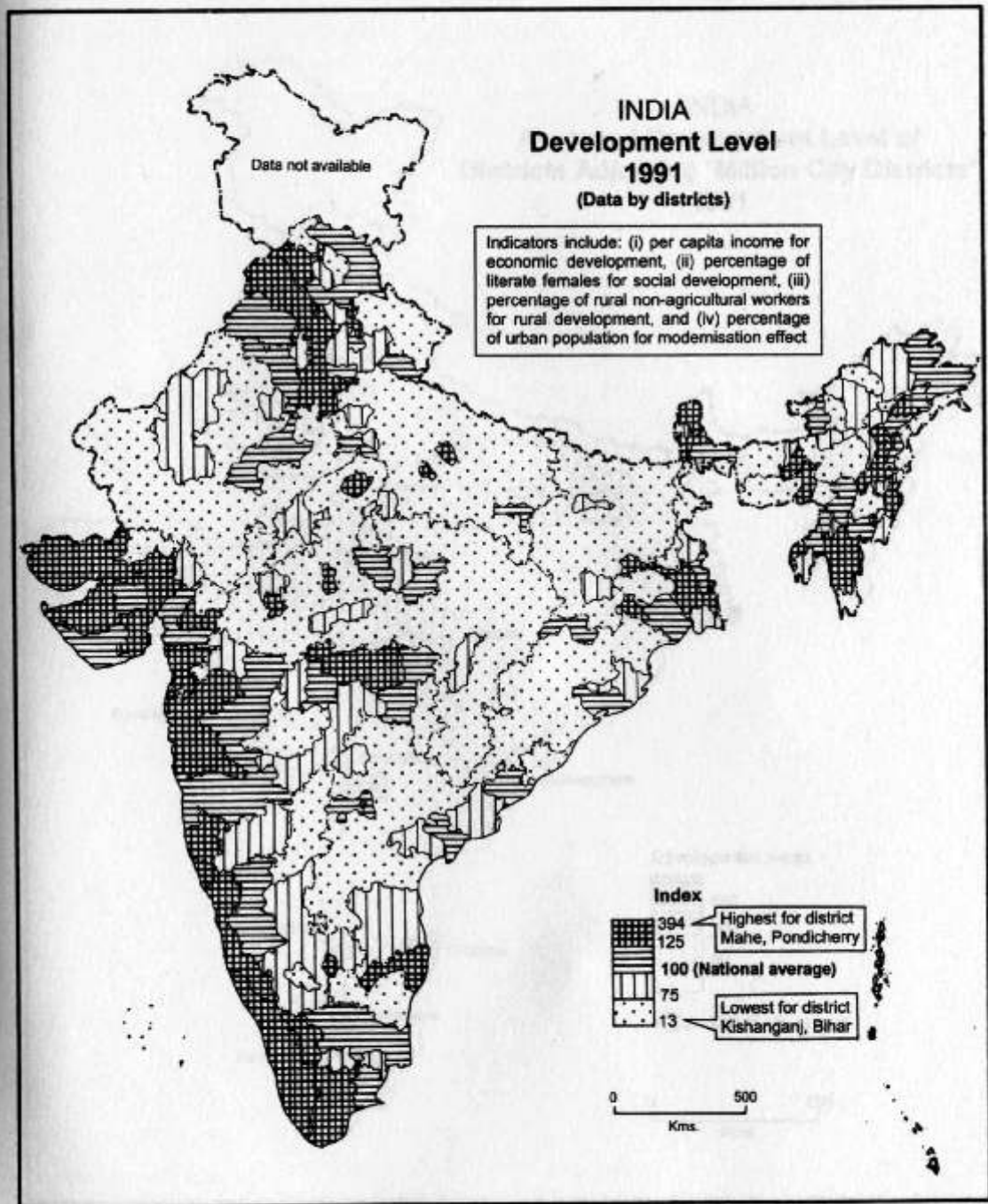


Fig. 1

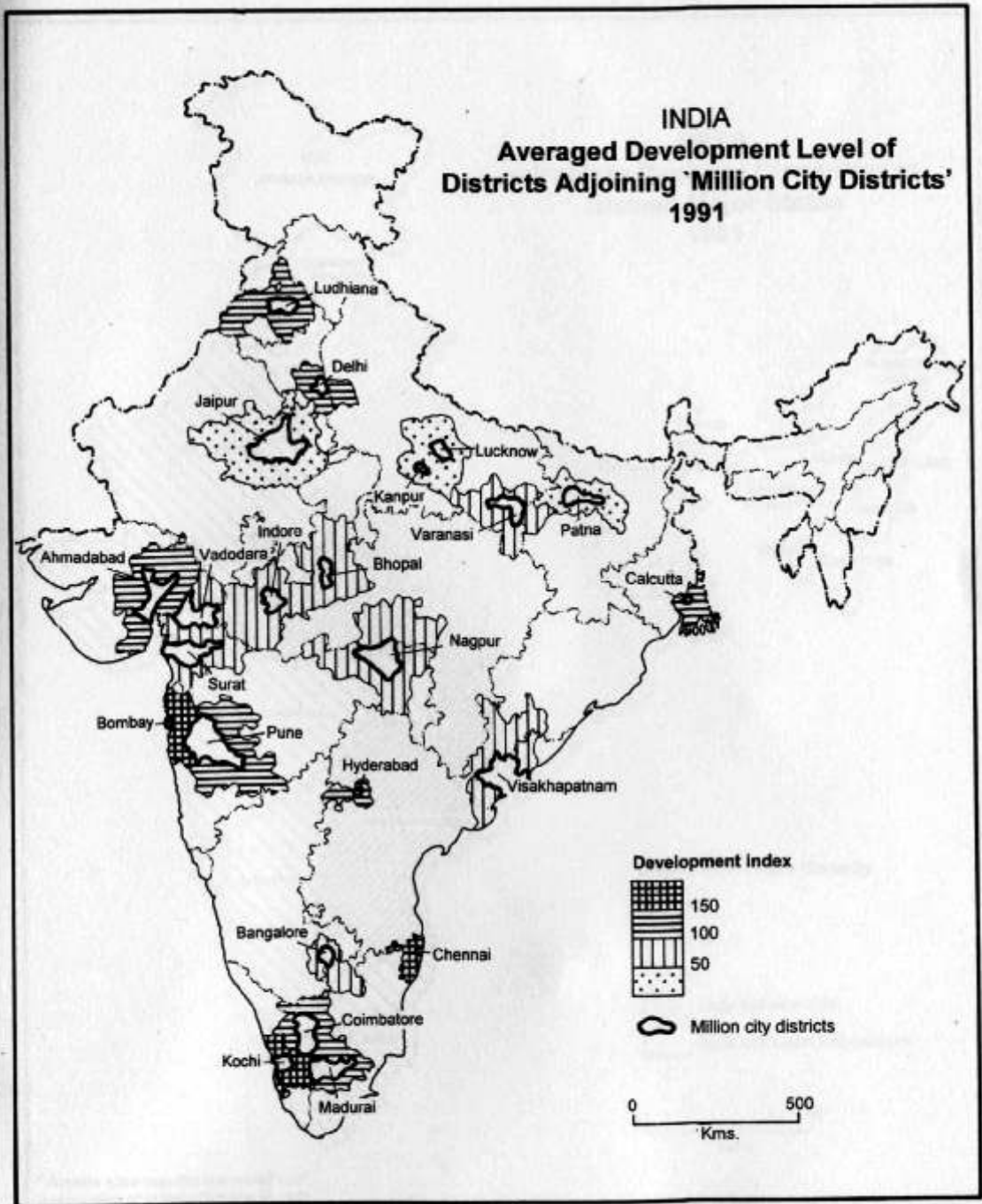


Fig. 2

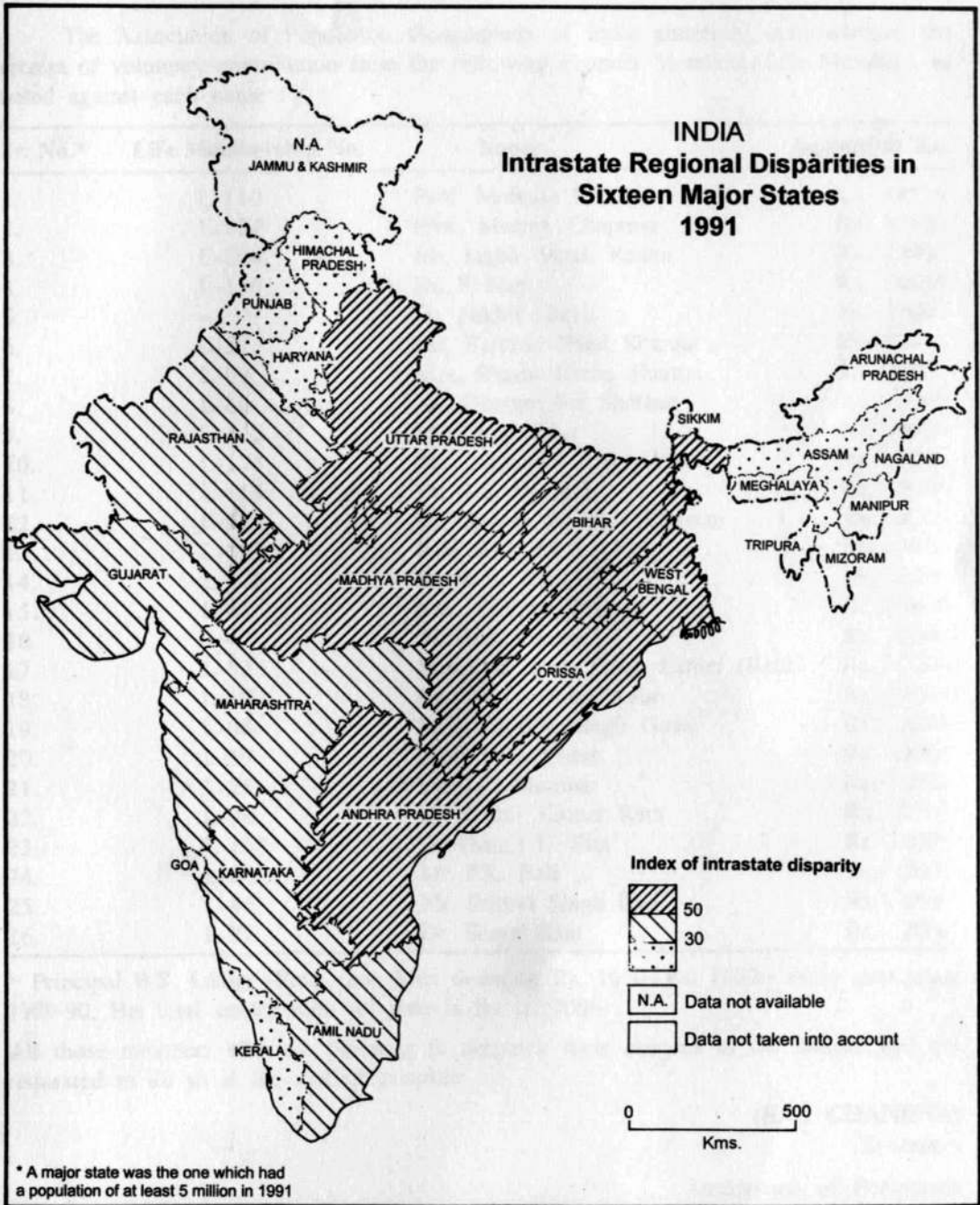


Fig. 3