POPULATION GEOGRAPHY

POPULATION GEOGRAPHY Volume 31 Numbers 1 & 2 June-December 2009

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POPULATION GEOGRAPHY Volume 31 Numbers 1 & 2 June-December 2009

EXAMINING DIMENSIONS OF INCOME – RURAL FERTILITY NEXUS IN ALIGARH DISTRICT, UTTAR PRADESH

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Abstract

This paper attempts to study the distribution of income and rural fertility rates in Aligarh district and to understand how various income groups are related with fertility. It is based on data obtained from field survey of sixty villages in twelve blocks of the district. The data obtained are analyzed with the help of Z- score, dispersion diagrams and choropleth maps.

KEY WORDS: *Income, Fertility, Village, Towns, Socio-economic factor, Agriculture.*

Introduction

There is a strong need to stabilize the growth of population by controlling fertility rate which is still quite high. The fertility rates are influenced by a set of interacting factors - economic, social, cultural, demographic and psychological. Among these household income is predominant among the socio-economic factors and assumes special significance. There is no systematic attempt to review the economic theories from Malthus to the Neo-Keynesian stagnation points of view. The major literature on human fertility is well documented in a number of studies such as Easterlin (1969), Hawthorn (1970), Robinson and Horlacher (1971), Namboodiri (1972) and Leibenstein (1957). The classical viewpoint on fertility by Malthus and Ricardo is that, "The theories advocate an analysis of fertility with the Hickson choice of theoretical framework and controversies centred on the relative significance of income, price and tested effects". Malthus was the first to discuss the linkage between development processes and components of population change such as fertility and mortality. He argued that population, if unchecked, has a tendency to grow faster in geometrical progression as against resources and food supply, which at best can grow in arithmetical progression (Quoted in Gulati, 1988). Leibenstein (1957) formulated the micro-economic theory hypothesizing the effects of income on fertility dimensions. Sinha (1957), Ananda (1966), Srinivasan (1967), Strulik and Sikandar (2002) found an inverse relation between fertility and income. But Driver (1960) and Singh (1989) did not find any regular gradation in various indices of fertility with respect to various income groups. Patnaik (1985) observed no reverse relation of income with fertility. Baker's theory of fertility (1960) holds that the differentials in knowledge and practice of contraception are responsible for not getting a positive association between income and fertility. Arokiasamy (1993) noted that contraceptive practice was high among the

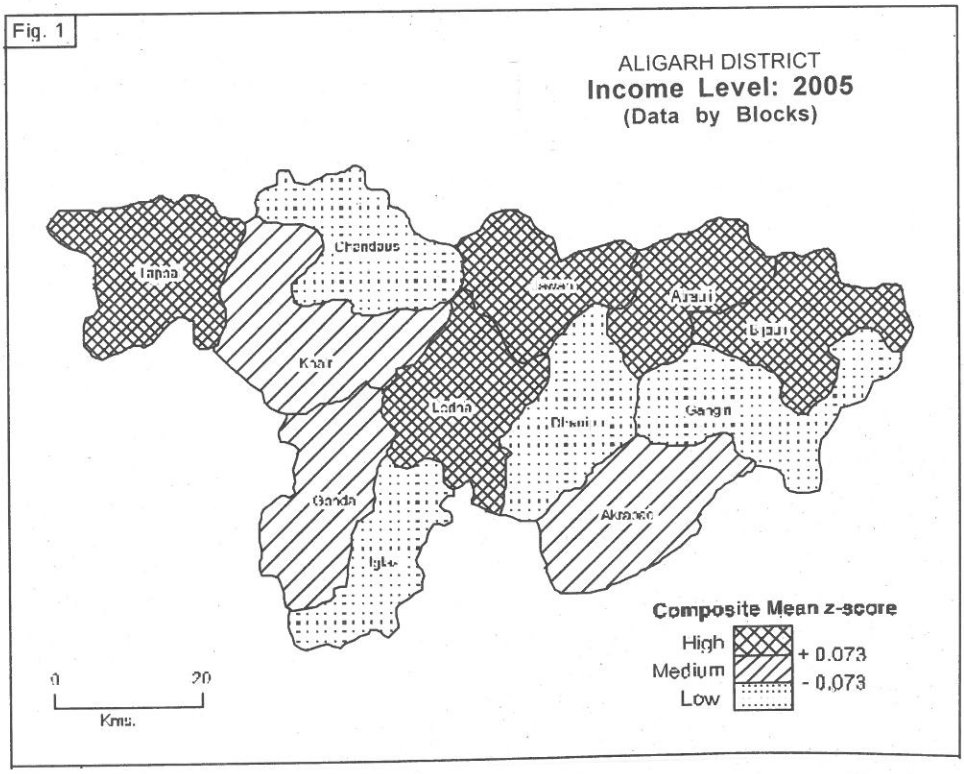
Table - 1

Aligarh District : Block wise Percentage of Sample Households According to their Monthly Income

Blocks	Monthly income in Rs.				Composite z- score
	<4000	4001-8000	8001-12000	>12001	
Tappal	28.4	31.4	25.0	15.2	0.139
Khair	26.0	29.9	24.4	19.7	-0.048
Jawan	23.2	30.5	28.1	18.2	0.095
Lodha	29.4	29.3	22.7	21.6	0.298
Gonda	27.6	30.7	23.6	18.1	0.023
Atrauli	25.0	30.5	26.5	18.1	0.078
Bijauli	27.4	31.6	24.1	16.8	0.113
Gangiri	25.7	29.3	25.1	19.8	-0.106
Chandaus	25.0	28.3	25.6	21.1	-0.184
Dhanipur	25.9	28.4	25.9	19.8	-0.159
Akrabad	25.0	30.0	25.0	20.0	-0.028
Iglas	27.3	29.2	22.9	20.1	-0.222
Total	26.0	29.9	25.2	18.9	-

Source : Calculations and interpolations are based on data obtained from Field Survey,2005.

Fig. 1



rural poor. Empirical studies highlight that the socio-economic, cultural and demographic factors affected fertility rate (Bollen, *et. al* , 2007; Yucesahin and Ozgur, 2008). Col Mex (1989) pointed out that the relationship between income and fertility is not universally either positive or negative. Economic analyses can contribute to clarification of the relative influence of income and other variables that determine fertility levels and trends. Sources of demographic data for most of the above mentioned studies were based on the Census and National Sample Survey. In comparison the present study is based on primary data collected through field surveys.

Objectives

The main objectives of this paper are to (i) study the distribution of income interpolated by blocks in Aligarh district; (ii) analyze fertility status by different measures and (iii) highlight various levels of income groups and as to how they are related with rural fertility.

Source of Data and Methodology

The paper is based on primary data collected through a field survey in twelve blocks of Aligarh district in 2005. Sixty villages were selected at 5 per cent sample through stratified random sampling technique. In each village 10 per cent households were selected and data were collected on income and fertility. The data have been categorized on the basis of composite Z-scores and represented through tables, dispersion diagram and maps which form the basis for discussion.

Study Area

Aligarh district is located in western part of Uttar Pradesh between 27°34'N to 28°11'N latitudes, and between 77°29'E to 78°38'E longitudes in the middle Ganga-Yamuna Doab. The district has a total area of about 3691.54 km2 with a population of 2.99 million in 2001. The district is divided into five *tehsils* namely, Atrauli, Gabhana, Khair, Koil and Iglas. They are further subdivided into twelve blocks *viz.*, Atrauli, Gangiri, Bijauli, Jawan, Chandaus, Khair, Tappal, Dhanipur, Lodha, Akrabad, Iglas and Gonda. The district has fertile land sloping gently from north to south and southeast. Topographically, the district has a shallow trough like appearance. Geologically, Aligarh district forms a part of the Indo-Ganga plain, which came into existence in the Pleistocene period. Economically, the district is well developed because of good agricultural practices and industrialization in the main cities. Aligarh city has been a major industrial centre since the medieval period and manufacturing of locks is the most important industry of the city.

Distribution of Income

Income is one of the important indicators of development, but its unequal distribution widens the gap between rich and poor. Table 1 shows the block wise percentage of sampled households according to their monthly income. It is observed that income in every group is more or less evenly distributed among the blocks. In the analysis of income one important thing that has emerged is that nearly one third of the families in the study area belong to the income group of Rs. 4,001-8,000. Only 18.9 per cent of households belong to the high income group (Above Rs.12, 001). One fourth (25.2 per cent) of households have an income between Rs. 8,001-12,000 per month, whereas 26.0 per cent of households have an income of less than Rs. 4,000. High concentration of house holds in the income group of below Rs.4000 is mainly

Table - 2
Aligarh District: Human Fertility by Blocks

Block	CWR	ASFR (Age Groups)			TFR	GFR	Composite Mean z-score
		15-24	25-34	35-44			
Tappal	806.6	163.2	226.59	184.14	5.73	150.36	0.503
Khair	765.39	107.6	317.47	115.24	5.4	138.6	-0.631
Jawan	795.49	138.9	377.81	140.22	6.56	148.15	0.892
Lodha	790.31	140.6	296.89	154.57	5.92	147.6	0.345
Gonda	770.24	141.3	281.41	153.61	5.76	143.19	-0.009
Atrauli	742.62	118.4	289.4	122.95	5.3	133.66	-0.909
Bijauli	745.88	125.4	282.49	143.67	5.5	137.72	-0.572
Gangiri	812.2	177.5	261.31	200.91	6.39	155.48	1.272
Chandaus	819.58	104.4	251.92	114	4.7	118.25	-1.212
Dhanipur	784	135.5	299.67	143.35	5.78	144.67	0.090
Akrabad	794.03	141.6	289.71	148.84	5.8	144.7	0.211
Iglas	780.58	136.7	289.4	148.19	5.74	143.27	0.021
Total	**785.87**	**137.5**	**281.53**	**141.79**	**5.6**	**142.38**	-

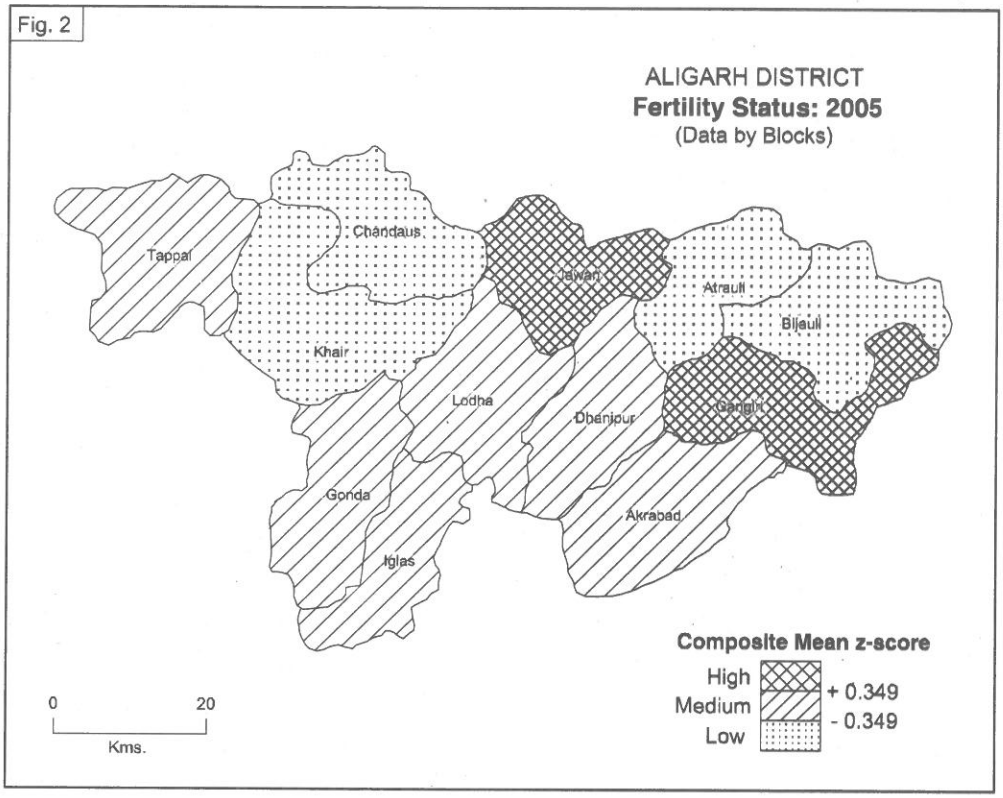
Source: Calculations and interpolations are based on data obtained from Field Survey, 2005.
CWR- child woman ratio, ASFR-age specific fertility rate, TFR-total fertility rate, GMFR- general fertility rate.

in Tappal (28.4 per cent), Lodha (29.4 per cent), Gonda (27.6 per cent), Bijauli (27.4 per cent) and Iglas (27.3 per cent) blocks. In the surveyed households of these blocks, it was observed that in these households people are mainly dependent upon agriculture for their livelihood and there is no other source of income. Further, in these households generally only one member of the family is economically active, while others comprise dependent population. Sample house holds in high income group of above Rs. 12,001 are mainly concentrated in Lodha (21.6 per cent), Chandaus (21.1 per cent), Akrabad (20.0 per cent) and Iglas (20.1 per cent). In households of the high income level more than one family members were found to be economically active. Some of them are in services like teaching, Shikshamitra in primary schools and in the other services; they are also partially employed in agricultural activities. That's why they have higher income than others who are engaged only in cultivation.

On the basis of composite mean Z-scores of income groups the blocks can be categorized as high income level (score +0.073) which has five blocks *viz.*, Tappal (0.139), Jawan (0.095), Lodha (0.298), Atrauli (0.078) and Bijauli (0.113). Medium income level category (score between –0.073 to +0.073) has three blocks, namely, Khair (-0.048), Gonda (0.023) and Akrabad (-0.028). Four blocks which comprise the category of low level of income (score less than -0.073) are Gangiri (-0.106), Chandaus (-0.184), Dhanipur (-0.159), and Iglas (-0.222) (Table 1 and Fig.1).

Distribution of Fertility Status

There are several measures of fertility but in this paper the measures applied for the



analysis of fertility status are child woman ratio (CWR), age specific fertility rate (ASFR), total fertility rate (TFR) and general fertility rate (GFR). The child woman ratio is considered to be a more useful fertility measure. The CWR value for the study area is 785.87. Its values have a narrow range of variation among different blocks from 742.62 to 819.59 children per thousand female population of child bearing age (Table 2). The child woman ratio is relatively high in Tappal (806.60), Jawan (795.49), Gangiri (812.90) and Chandaus (819.58) and low in Khair (765.39), Atrauli (742.62) and Bijauli (745.88) blocks of the district.

Age specific fertility rate (ASFR) refers to the relationship between the number of live births and age of the mother. The ASFR values for the study area in 15-24 years age group is 137.48, 25-34 years age group is 281.53 and 35-44 years age group is 141.79. The block wise age specific fertility rates are categorsied into three age-groups of 15-24, 25-34 and 35-44 years. In 15-24 age group fertility rate varies widely. The blocks having more than 140 fertility rate in the age group 15- 24 are Tappal (163.2), Lodha (140.6), Gonda (141.3), Gangiri (177.5) and Akrabad (141.6). On the other side of the scale are Khair (107.6), Atrauli (118.4), Bijauli (125.4) and Chandaus (104.4), blocks. The number of live births per 1,000 women is high in 25-34 age group. Khair (317.47), Jawan (377.81), Lodha (296.89) and Dhanipur (299.67) blocks have high fertility rate. Like the first group (15-24 age group), the 35-44 years age group also has low fertility rate. In this age group fertility rate ranges between 114.00 and 200.91. High fertility

Table - 3
Aligarh District : Monthly Income (in Rs.) and Rural Fertility

Block	Below 4000	4001-8000	8001-12000	Above 12001
	Child Woman Ratio			
Tappal	671.73	670.96	572.05	540.17
Khair	644.13	623.91	547.34	489.84
Jawan	688.42	671.64	591.88	544.27
Lodha	642.76	612.37	539.30	495.72
Gonda	695.65	686.22	623.55	564.33
Atrauli	670.96	644.13	544.27	512.41
Bijauli	709.32	660.25	570.80	551.80
Gangiri	713.99	680.10	623.55	544.27
Chandaus	698.99	695.74	625.28	589.40
Dhanipur	739.49	710.86	643.92	596.98
Akrabad	713.99	703.70	647.92	596.98
Iglas	685.10	680.10	613.9	556.2
Block	General Fertility Rate			
Tappal	134.34	133.33	113.53	107.14
Khair	128.91	123.91	108.54	97.06
Jawan	136.84	134.32	117.57	107.57
Lodha	128.55	121.64	106.98	98.28
Gonda	139.13	136.47	124.71	112.86
Atrauli	133.30	128.82	107.99	101.58
Bijauli	140.99	132.05	113.30	109.35
Gangiri	141.99	136.05	124.71	107.99
Chandaus	139.79	138.79	124.15	116.99
Dhanipur	147.05	140.37	127.93	118.53
Akrabad	141.97	140.37	128.54	119.40
Iglas	136.10	136.00	121.80	110.30
Block	Total Fertility Rate			
Tappal	4.23	3.67	3.27	3.10
Khair	3.93	3.46	3.08	2.00
Jawan	4.22	3.83	3.08	2.73
Lodha	3.94	3.43	3.13	2.82
Gonda	4.26	3.92	3.64	3.21
Atrauli	4.07	3.71	3.20	2.81
Bijauli	4.19	3.91	3.42	2.99
Gangiri	4.18	4.05	3.59	3.17
Chandaus	4.35	9.91	3.62	3.55
Dhanipur	4.50	4.14	3.72	3.34
Akrabad	4.23	4.01	3.67	3.11

Source: Computed from data obtained from Field Survey, 2005

Aligarh District: Block wise Monthly Income (in Rs.) and Rural Fertility

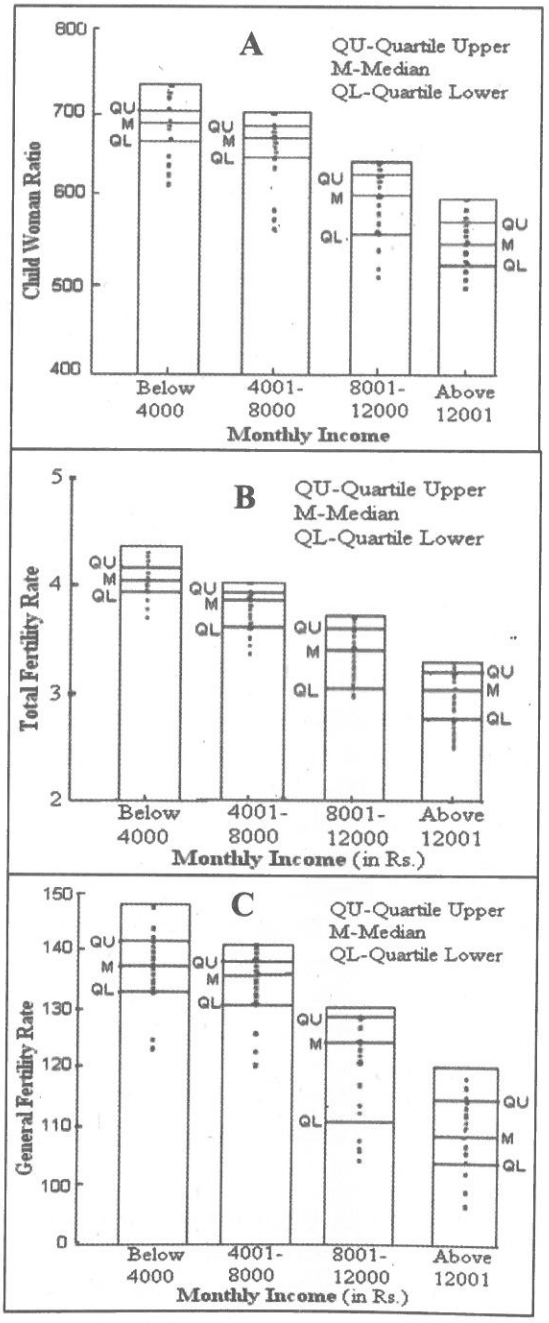


Fig. 3

rates are found in Tappal (184.14) and Gangiri (200.91) while low values are found in Khair (115.26), Atrauli (122.84) and Chandaus (114.00).

The TFR value for the study area is 5.60. The distribution of total fertility rate (TFR) varies from 4.70 to 6.56. High total fertility rate is found in Jawan (6.56), Gangiri (6.39) and Lodha (5.92) while most of the blocks have values which are closer to the district average. They are Tappal (5.73), Gonda (5.76), Bijauli (5.51), Dhanipur (5.78) and Iglas (5.74). Only one block, Chandaus, has a low, total fertility rate of 4.7.

The general fertility rate (GFR) excludes all females who are not in the childbearing age. The GFR value for the study area is 142.4. Blocks having high general fertility rates are Tappal (150.36), Jawan (148.150), Lodha (147.60) and Gangiri (155.48). Low GFR values are found in Khair (138.60), Atrauli (133.66) and Bijauli (137.72). The block wise composite mean Z- scores of fertility measures show that high scores of above +0.349 are mainly in Tappal (0.503), Jawan (0.892), Lodha (0.345), and Gangiri (1.272). Moderate scores ranging between – 0.349 and +0.349, are found in Gonda (-0.009), Akrabad (0.211), Dhanipur (0.090) and Iglas (0.021) blocks. Only four blocks, Khair (-0.631), Gonda (-0.909), Bijauli (-0.572) and Chandaus (-1.212) have low scores (below – 0.349) (Table 2, Fig. 2).

Income Level and Fertility

The present analysis corroborates that there is a great impact of income level on human fertility behaviour. It is observed that as income increases fertility level declines. Child woman ratio, which is not only the simplest but also the most common measure of human fertility, is related to the income level of households. It is observed that as income level by households increases the child woman ratio decreases. It may be noted that the households having a monthly income of below Rs.4000, recorded a high child woman ratio (600 to 700). It tends to decline with increase in monthly income of households. Ten out of twelve blocks, record a child woman ratio of more than 670. This number is eight in case of Rs.4001-8000 monthly income but all the blocks have values of less than 648 in case of income range of Rs.8001 - Rs.12000. The value further declines in case of households having an income of Rs.12, 001 and above. Almost half of the blocks recorded less than 550 child woman ratio in this group.

High general fertility rates, i.e., the number of live births in a year per thousand women of normal reproductive age, are associated with low income group of less than Rs. 4000 in Bijauli (140.99), Gangiri (141.99), Dhanipur (147.05) and Akrabad (141.97) blocks. Low general fertility rates in high income group of Rs. 12,001 and above are mainly observed in Khair (97.06), Lodha (98.28), Atrauli (101.58) and Bijauli (109.35). The pattern of distribution of total fertility vis-à-vis income level is almost similar as compared to the child woman ratio and general fertility rate (Table 3).

The relationship between fertility and income level can also be understood with the help of a dispersion diagram. The child woman ratio and income levels show that the middle two levels of income have relatively wide range of variations from median to lower quartiles and narrow variation from median to upper quartile (Fig.3A). So far as the comparison of inter-quartile range is concerned, the lower quartile of the income level up to Rs 4000 is closer to median of the next higher slab of income level (Rs. 4001-8000). The

upper limit of fertility rate in Rs 8001-12000 income group coincides with the lower quartile of Rs 4001-8000 income group. The two higher income groups show an abrupt change in child woman ratio since the median value of child woman ratio in Rs 8001-12000 group is almost equal to the upper limit of child woman ratio of the income slab of Rs 12001 and above. The distribution of blocks in the four grades of income depicts a declining pattern in child woman ratio from lower side of income level to the higher side and *vice versa*. The direction of decline in general fertility rate and total fertility rate with reference to income levels is almost similar to child woman ratio (Fig. 3B & C).

It has been observed that households in villages which are located near the main city or town record high income, have lower child woman ratio, total fertility rate and general fertility rate because most of the members of these households engaged in agricultural work are also engaged in some other non- agricultural activity such as selling vegetables, fruits etc., when they are free from agricultural work. Some of them also engage in seasonal work and therefore, are able to earn more as compared to those who are engaged only in agricultural activities. Thus, location near an urban centre provides an opportunity for increasing the income level.

Conclusion

It is clear from the above discussion that fertility rate is influenced by income level. It may be noted that low income is recorded in blocks where agriculture is the only source of livelihood and in majority of the households only one member is economically active. The high income group house holds have more than one family member employed and moreover, some members in addition to agriculture are also engaged in other part-time works. Approximately one-fifth of the households fall in this category. The fertility rate shows a decline as income level increases. It may be noted further that more children means more expenses, more expenses mean a decline in standard of living as the income gets divided among a larger number of members in a household. However, in households whose life is based on daily wages only, the general thinking is that more children mean more income. But the general observations are that fertility declines with increasing income.

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DEMOGRAPHIC TRANSITION AND CORRELATES OF POPULATION GROWTH IN HARYANA: A SPATIO-TEMPORAL ANALYSIS

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Abstract

It is generally stated that development is the best strategy for containing population growth. Haryana is among the economically developed states of India, yet the demographic parameters are not keeping pace with its economic development. The paper tries to capture the variations in progress of different demographic indicators in the state since its inception. It also tries to present the consequences of existing demographic situation and the socio-economic factors associated with its variation across districts in the state.

Introduction

Population stabilization is an essential prerequisite for sustainability of the developmental process. According to available estimates, India will overtake China in terms of size of population by 2030 (Irudaya Rajan, 2004). India's role in the global demographic growth remains therefore both formidable and decisive. This realization is also revealed in the objective of National Population Policy (2000) which envisages to bring down total fertility rate (TFR) to replacement level by 2010 and to achieve a stable population by 2045. Though the 2001 Census data indicates that India's population is witnessing a gradual deceleration, but the rate of deceleration varies significantly across states. The existence of two different demographic regimes in north and south India suggests that regional differences in demographic parameters need to be examined at length. According to one projection, the population of the northern region would rise from 450 million in 2000 to nearly 700 million in 2025, and its share in India's population would grow from 45 to 50 percent. On the other hand, in the southern region the population would increase only marginally from 220 million in 2000 to 265 million in 2025 (Bhat, 2001).

There is no dearth of literature on the theme of demographic transition, particularly on its components such as fertility and mortality in India. The first comprehensive work on regional differences in fertility level in India was conducted by the Committee on Population and Demography of the American National Research Council. Based on inter-census estimates of fertility, the study showed a clear north- south divide. Northern states namely Rajasthan, Haryana, Uttar Pradesh, Assam and Madhya Pradesh had birth rates above the all India average while southern states (Kerala, Tamil Nadu, Karnataka, Maharastra and Andhra Pradesh) had birth rate figures below the national average. A large share of this decline probably occurred in late 1970's and it is slightly faster in southern states (Preston and Bhat, 1984). Rele (1987) assessed the fertility levels and concluded that fertility remained almost stable at around 6 during the 1950's and into the first half of the 1960's. The fall in fertility accelerated around 1966 and was 5.78 in 1966-71, 5.31 in

1971-76 and 4.65 in 1976-81. Guilmoto (2000) assessed the regional heterogeneity in fertility transition. The author concluded that declining trend in fertility began in the periphery along the coasts and in the extreme south, and spread progressively to encircle the region around the Ganges Valley, the heart of traditional India where fertility has scarcely declined. Gulati and Sharma's study (2004) at an all India level identified demographically backward districts by taking 7 indicators. It showed that out of 504 districts in the country, 102 districts ranked as the high performing districts in RCH-status category. Interestingly, 54 of these 102 districts are located in the Southern states, namely Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. Almost all districts of Kerala (13/14) and Tamil Nadu (21/ 22) were grouped into high RCH-status category. In case of Haryana only one district was among high performing districts, while three districts of the state were classified into low performing RCH category. The literature review however reveals that there are a number of significant works on demographic transition at district level for South Indian states (Krishnan, 1976; Zachariah 1984; Bhat and Rajan 1990; Kishore, 1994; Sekhar *et al.* 2001, James and Subramanian, 2003). In case of north India such attempts are few and far between (Murthi *et al.*, 1995; Nanda, 2008; Sujaya 2008). Nevertheless, such work highlights the regional pattern of demographic transition within the states and provide a significant input for planning and developmental processes.

In this context, the district level variations in demographic characteristics in the state of Haryana present an interesting theme for study. The state has a population of 21.14 million, accounting for 2.1 percent of the total population of country (Census of India, 2001). The decadal growth rate of population in the state has been hovering around 28 percent since 1971 i.e. 28.7 percent in 1971-81; 27.4 percent in 1981-91, and 28.1 percent in 1991-2001. This is higher than the decadal percentage increase for the country as a whole for the same period (Table 1). Further, when the demographic debate in India now mostly centers on the causes of the rapid fertility transition in context of poor economic and social development, it would be interesting to study the situation in Haryana. Earlier studies have also documented that historically this region of India (Punjab Province), had registered high growth rate than the rest of country (Davis, 1951; Bhat, 1989). The recent studies based on census data of 2001 census reveal that the districts of Haryana are more vulnerable in terms of reproductive and child health as compared to its neighbouring states of Punjab and Himachal Pradesh (Gulati and Sharma, 2004). Various studies have brought out that the Hindi speaking core region is characterized by high fertility owing to an entrenched patriarchal value system, underdevelopment, predominance of Brahminical influence and exclusion of women from education (Malhotra, 1995; Guilmoto, 2000).

Table -1
Haryana: Decadal Population Growth Rate (1951 to 2001)

Census Decade	Haryana	India
1951 – 1961	33.79	21.50
1961– 1971	32.22	24.80
1971 – 1981	28.75	24.66
1981 – 1991	27.41	23.5
1991 – 2001	28.43	21.53

Source: Population Totals, Census of India-2001, GOI, New Delhi

Objectives and Methodology

This paper attempts to study the demographic characteristics in the state of Haryana in terms of their temporal and spatial

Table - 2
Haryana : Migration Profile (2001)

Category	Number	Percent to total population
In-migrants (from other states)	1,231,480	5.8
In-migrants (from abroad)	26,639	0.12
Total in-migrants	1,258,119	5.9
Out-migrants	588,001	2.78
Net migrants (+/-)	670,118	3.16
Total population of State	21144564	

Source: Census of India (2001): Haryana, D-Series Migration Tables, ORGI, New Delhi.

Table - 3
Haryana : Indicators of Demographic Transition (1966 to 2004)

Indicators	1971	1981	1991	2001	2004*
Life Expectancy	54.8	57.5	60	64	65.9
CDR	12.6	11.0	9.5	8.0	6.5
IMR	126	103	73	67	57
CBR	42.1	37.5	34.6	25.9	23.9
TFR	6.7	5.4	4.3	3.4	3.2
% population (0-14 years)	46.2	41.74	39.25	35.84	33.7
% population (15-59years)	48.0	51.85	53.0	56.29	59.3
% population (60 + years)	5.8	6.33	7.7	7.5	7.3
Male Population (0-14 years)	2474019	2860761	3454217	4117238	NA
Female Population (0-14 years)	2165585	2534106	3007897	3462742	NA
0 to 14 Sex ratio	875	885	870	841	NA
Sex Ratio (all ages)	867	870	865	861	NA
Total Literacy Rate	26.9	36.1	55.8	68.60	NA

*Source: * refers to Sample Registration System (2004): Baseline Survey Report 2004, ORG, India, New Delhi.*

dimensions. It makes an interesting study because since its inception in 1966, the state has made rapid strides in agricultural development and by 1980s, it ranked among the most developed states. Hence, it is pertinent to study how the demographic parameters have shaped up in the state. It also attempts to analyse the determinants of population growth.

The paper is based on secondary sources of data, mainly Census of India and Sample Registration System. For mortality estimates, the district level rapid household survey data (DLHS-II), conducted by IIPS, Mumbai, has been utilized. Correlates and determinants of population growth are studied through correlation and multiple regression techniques.

Components of Population Growth

The state of Haryana continues to experience a much higher growth rate than the national average. Table 1 reveals that during 1990s the population growth rate in the state (28.43 per cent) was almost 7 percentage points higher than that of the country (21.53 percent). The growth of population is the result of three basic demographic factors, i.e. fertility, mortality and migration. The current population growth rate is mainly the result of past demographic variables than its current performance. However, with mortality rate remaining low, the main cause of population growth is the changes in fertility. Interstate migration can also alter the population scenario. The pattern of these three parameters individually shall enable us to understand the performance of the state in the demographic arena during the last 40 years.

Mortality

In the growth of state's population, declining trend in mortality has played a major role. The mortality decline may be seen as a byproduct of overall economic growth and rising income due to Green Revolution in the state. This is reflected in the trend of crude death rate (CDR) which declined from 12.0 per thousand population in 1975 to 8.0 in 2000. The life expectancy for the period 1996-2001 is estimated to be 63.9 years for males and 67.4 years for females (NFHS III, 2004). It shows a substantial increase from the estimates of 1981-86 when it was 61.4 years for males and 59.6 for females. The increase in estimated life expectancy is considerably more for females than for males. The infant mortality has declined from 1·12 per thousand live births in 1975 to 68 in 1997 and further to 57 in 2006. However, it continues to be higher than the neighbouring states of Punjab and Himachal Pradesh and much higher than the demographically progressive southern states of the country.

Fertility

In the background of declining mortality, fertility becomes the most significant determining factor in demographic transition in the state. Crude birth rate (CBR) and total fertility rate (TFR) may be taken as two major indicators of fertility. The crude birth rate was 42.1 per thousand population in 1971, which came down to 37.5 in 1981 and further to 25.6 in 2001, recording a decline of 16 percentage points during the last three decades. The TFR in the state also declined substantially, from 6.7 children per woman in 1971 to 3.4 children per woman in 2001 – dropping by 3.3 children per woman in 30 years (Table 2). The gap between births and deaths has risen and currently Haryana is one of the five states (four others being MP, Bihar, Rajasthan and U.P.) where fertility levels are well above national average.

Migration

The rate of migration is important not only as a possible factor in determining population growth at the state level, but also to understand the development dynamics within the state. Migration is largely considered to be a function of comparative

HARYANA: BIRTH AND DEATH RATE (1970 TO 2001)

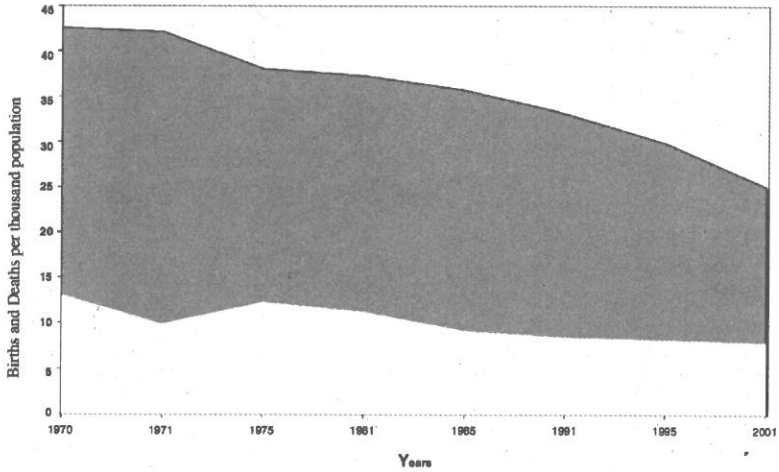

Fig. 1

	Population in million 2001* (prov)	TFR NFHS-2 1998-99	RGI-Projection 1996-01 assumed TFR	RGI-Projection 2011-16 assumed TFR	Year TFR=2.1
South					
Kerala	31.8	1.96	1.62	1.60	1988
Tamilnadu	62.1	2.19	1.87	1.65	1993
Andhrapradesh	75.7	2.25	2.27	1.78	2002
Karnataka	52.7	2.13	2.54	2.01	2009
Maharashtra	96.8	2.52	2.51	1.97	2008
North					
Gujrat	50.6	2.72	2.73	2.11	2014
Rajasthan	56.5	3.78	3.91	3.06	2048
U.P	174.5	3.99	4.75	4.05	>2100
M.P	81.2	3.31	3.99	3.27	>2060
Bihar	109.8	3.49	3.92	2.93	2039
Punjab	24.8	2.21	3.92	2.93	2039
Haryana	21.1	2.88	3.25	2.47	2025
East					
W.B	80.2	2.29	2.56	1.99	2009
Orissa	36.7	2.46	2.64	2.01	2010
Assam	26.6	2.31	2.82	2.17	2015
All India	**1027**	**2.85**	**3.64**	**2.52**	**2026**

Sources:-Registrar General, India (1997, 2001), NFHS-2 (1998-99).

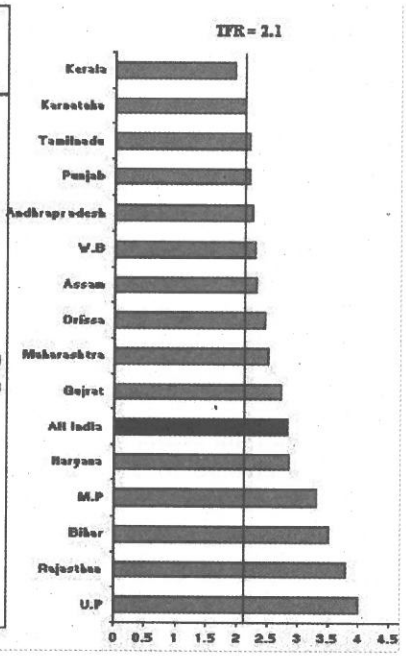

Fig. 2

underdevelopment of the place of origin. Understanding migration therefore provides useful insights into the development dynamics in a regional perspective. Table 3 shows that inter-state and international in-migrants constitute 5.92 percent of total population in Haryana. It also provides insight and information on whether the state attracts or releases people. The magnitude of net migrants, which is 3.1 percent of total population, indicates clearly that the population growth in the state is not determined largely by

migration but due to natural increase i.e. the gap between births and deaths.

Demographic Transition

Demographic transition is the transition from a stable population with high mortality and fertility to a stable population with low mortality and fertility. It occurs in four phases, and first three phases are characterized by population growth. In the advanced stage of third phase, death rate reaches plateau stage and replacement level of fertility is attained, but the population growth continues due to large size of population in the reproductive age group. The fourth phase is characterized by fall in birth rate to below replacement level, and population growth ceases and population stabilizes. Different states of India have entered the demographic transition at different periods of time. In Haryana, the demographic transition has been relatively slow. It is evident from Figure 1 that Haryana is in the beginning of third phase of demographic transition. It shows a fall in birth rate, but the gap between the births and deaths is still large and consequently there is population growth. A comparison of different states in terms of population size, its time to stabilize and assumed trends in total fertility, i.e. when different states would achieve a TFR of 2.1, are presented in Figure 2. It shows that it would take around another 2 decades for Haryana to reach a TFR of 2.1, i.e. by the year 2025, which is a matter of concern.

Another important aspect of demographic transition is the change in age structure of population. The change in population by broad age groups over the period 1971 to 2001 has been presented in Figure 3. It shows that population in 0 to 14 years has grown from 4.6 million to 7.46 million (1971 to 2004). Similarly, population in 15 to 59 age group has swollen from 4.8 million to 13.06 million. The old age population has also increased from 0.5 million to 1.6 million. The proportionate change in size of population by age groups is presented in Table 3. It shows that proportion of children population (0 to 14 year) has declined from 46.2 percent in 1971 to 35.84 percent in 2001. As mentioned earlier the total number however has almost doubled over a period of 40 years. In case of 15 to 59 year age group, there is a large increase in the number as well as in proportion of total population. In 1971 it constituted about 48.0 percent of total population while in 2004 it comprised about 60 percent of total population. The proportion of aged population increased marginally initially but it has been stagnant since 1991. The proportion of male and female population in various age groups and sex ratio has also been presented in Table 3. It shows that there is a wide gap between male and female population in 0 to 14 year age group and it has widened over last four decades. The sex ratio in this age group has declined drastically during the last 10 years, i.e. from 1991 to 2001. It should also be noted that during this period the CBR and TFR have also recorded significant decline. It should be noted that unless otherwise maneuvered almost equal number of females are born in most human populations and female life expectancy at birth is higher than males. The rapidly declining sex ratio in 0 to 14 age group indicates the widespread existence of the practice of female neglect and female feticide. The low sex ratio in this age group i.e. 841 also suggests that population control in the state is largely in terms of controlling girl child births.

Spatial Pattern of Population Growth and Demographic Transition

Despite being small in size the state of Haryana exhibits considerable regional variations in population growth rates, CBR, TFR and age structure of population. District-wise decadal population growth is presented in Figure 4. It shows that Panchkula, Faridabad, Gurgaon and Panipat districts have experienced high population growth rates during the decade 1991 to 2001. The district of Mahendragarh showed lowest growth of population during this period. These variations in population growth as an indicator of demographic transition need to be analysed

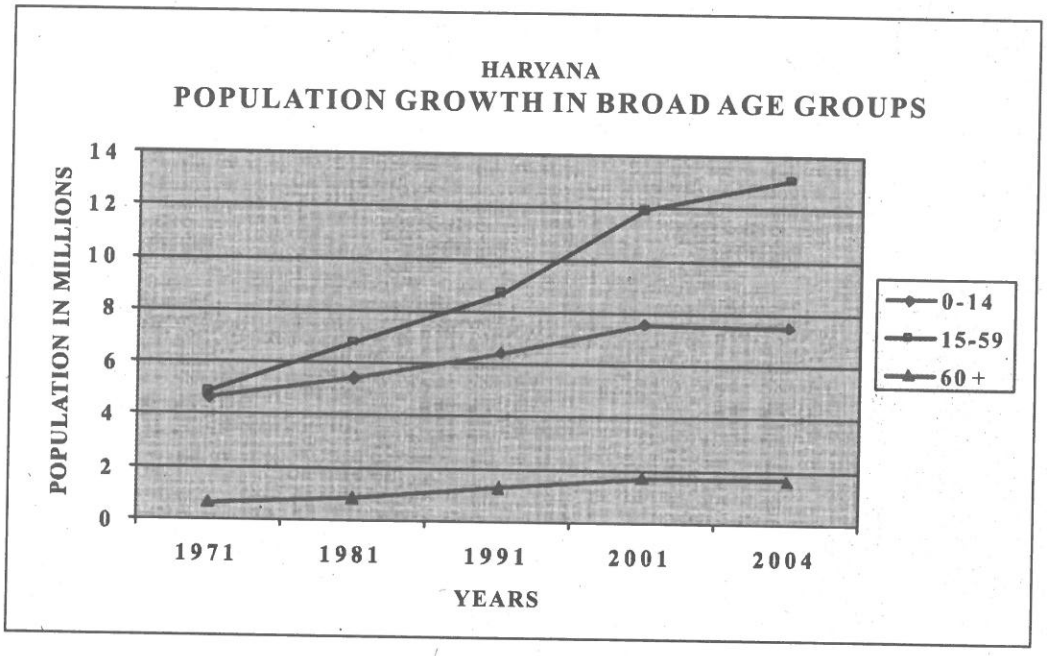
HARYANA
POPULATION GROWTH IN BROAD AGE GROUPS
POPULATION IN MILLIONS
14
12
10
8
6
4
2
0
1971
1981
1991
2001
2004
YEARS
0-14
15-59
60+

Fig. 3

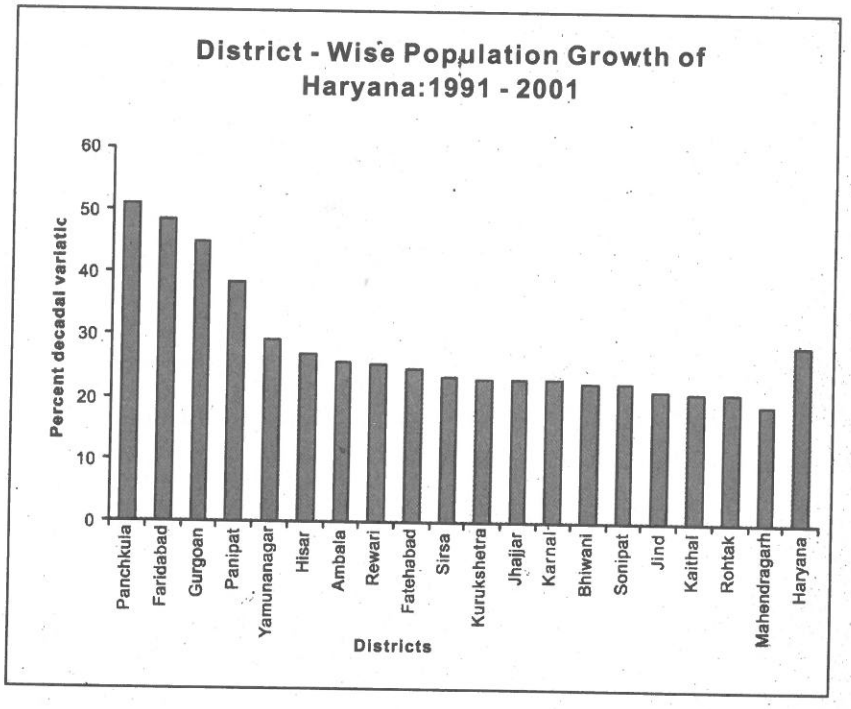
District - Wise Population Growth of Haryana:1991 - 2001
Percent decadal variatic
60
50
40
30
20
10
0
Panchkula
Faridabad
Gurgoan
Panipat
Yamunanagar
Hisar
Ambala
Rewari
Fatehabad
Sirsa
Kurukshetra
Jhajjar
Karnal
Bhiwani
Sonipat
Jind
Kaithal
Rohtak
Mahendragarh
Haryana
Districts

Fig. 4

Table - 4
Haryana : District-wise Indicators of Demographic Transition (2001)

Districts	Decadal variation (1991 to 2001)	% inmigrants to total population	TFR	CBR	IMR*	Life Expectancy at birth (2005)*	0-14	15-59	60+	Sex Ratio (all ages)	Sex Ratio (0- 6)
Panchkula	50.91	36.13	2.8	24.1	57	65	31.20	61.40	7.30	823	829
Ambala	25.78	16.50	2.4	20.9	77	60	31.40	60.00	8.60	868	782
Yamunanagar	29.19	13.70	2.8	22.7	55	65	33.40	58.40	8.10	862	806
Kurukshetra	23.32	9.50	2.7	23.0	62	64	33.40	58.60	7.90	866	771
Kaithal	21.02	6.00	3.1	25.1	69	62	35.70	56.00	8.30	853	791
Karnal	23.06	8.60	3.0	24.0	60	64	35.20	57.30	7.50	865	809
Panipat	38.58	14.80	3.5	27.5	61	64	36.80	56.50	6.70	829	809
Sonipat	22.39	9.80	3.1	24.4	26	71	35.40	56.20	8.30	839	788
Jind	21.36	3.10	3.3	26.0	57	64	36.40	55.40	8.20	852	818
Fatehabad	24.76	11.50	3.2	26.3	62	63	36.60	55.40	7.90	884	828
Sirsa	23.59	19.20	2.9	24.7	54	65	35.20	56.60	8.10	882	817
Hisar	27.11	7.00	3.1	25.3	76	61	35.70	56.70	7.50	851	832
Bhiwani	22.49	5.30	3.3	25.5	46	67	36.20	55.40	8.40	879	841
Rohtak	21.0	5.60	3.0	23.5	60	64	33.60	57.30	9.20	847	799
Jhajjar	23.06	11.50	3.3	26.0	59	64	34.20	56.90	8.80	847	801
Mahendragarh	19.16	11.50	3.3	25.5	64	63	36.20	54.50	9.20	918	818
Rewari	25.34	11.60	3.1	25.0	38	68	34.50	56.80	8.60	899	811
Gurgaon	44.87	14.70	4.5	35.2	65	63	41.70	51.50	6.80	873	858
Faridabad	48.56	25.90	3.7	29.9	77	60	38.30	55.30	6.40	839	850
Haryana	**28.43**	*	**3.2**	**25.9**	**52**	**64**	**35.84**	**56.29**	**7.50**	**861**	**819**

*Source: (i) www.censusindia.net (ii) * refers to DLHS-2 data, IIPS, Mumbai, 2005.*

Haryana : Districts-wise TFR in Rural and Urban Areas (2001)

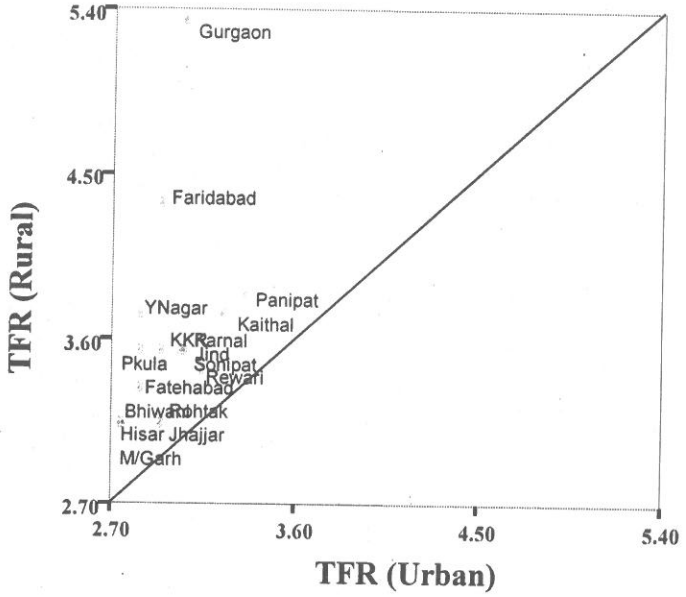

Fig. 5

carefully as migration also plays an important role. Hence, in order to capture the natural growth of population CBR, TFR, IMR and life expectancy have been taken into account. The district-wise variations in these indicators in 2001 are presented in Table 4. It shows that though population growth rate is high in Panchkula district, it has a comparatively low crude birth rate and fertility rate. This implies that migration contributes significantly in population growth in this district. It is also evident from the fact that immigrants constitute about 36 per cent population of this district. But in another three fastest growing districts namely Faridabad, Gurgaon and Panipat, both CBR and TFR are comparatively high. It may be argued that the district headquarters of these three districts, being major urban and industrial centers of the state, have high growth rate due to migration pressure. But there is huge rural urban gap in the levels of TFR in all these districts (Figure 5). Relatively high proportion of immigrants in these districts (Table 4) suggests that even if migration is playing a role in growth of population in urban centres, higher growth rate of population in rural areas is largely attributed to high birth rate as TFR in rural areas in these districts is almost double as compared to urban areas of these districts (Figure 5).

The pattern of demographic transition across districts has been studied in terms of four parameters, i.e. TFR, CBR, life expectancy at birth and IMR. Decadal population growth has not been taken as a parameter because it is influenced by migration. Instead CBR and TFR have been taken as surrogate indicators of natural growth rate of population. Crude death rate has also not been included as a parameter because in Haryana mostly the districts with high literacy and better child health care have a better recording of deaths and the under reporting of deaths in backward districts may influence the death statistics. Due to this limitation, other variables such as life expectancy and infant mortality have been considered.

The districts with similar demographic characteristics as reflected by four selected variables have been clustered as depicted in

Figure 6. Though there is no clear cut geographical pattern, the northeastern districts of Panchkula and Yamunanagar, Sirsa in extreme west, Sonipat in eastern part and Rewari district in the south are at an advanced stage of demographic transition. Most districts of southern Haryana (Gurgaon, Faridabad, and Mahendragarh) and Kaithal, Fatehabad and Panipat districts lag behind demographically with high CBR, TFR, IMR and low life expectancy. These are grouped into the third cluster which may be termed as demographically vulnerable districts. Between these two clusters are placed the districts of Rohtak, Bhiwani, Karnal, Kurukshetra, Jhajjar and Jind having moderate level of demographic performance.

An analysis of age wise sex composition of population shows that in all the districts females are less in number across all age groups. But the gap between males and females is more pronounced in lower age groups, i.e. up to 14 years. This pattern is also found in northeastern districts, which have a comparatively low TFR. It suggests that the fall in fertility has occurred at the cost of female population. The sex ratio of these districts is 801, while it is 826 in the demographically vulnerable districts. It suggests that the districts which are at higher stage of demographic transition have contained their population at the cost of girl child. This brings in the role of patriarchy, son preference and status of women which needs further cross sectional investigations.

Changes in Spatial Pattern of Demographic Characteristics (1971 to 2001)

The state of Haryana has experienced varying spatial pattern of demographic characteristics and its transition during last 40 years. The district-wise estimates of CBR, TFR and IMR are not available for the year 1971. However a review of studies which estimated fertility at state level shows that level of fertility during the 1960s was substantially high and remained virtually stagnant. It also suggests that the first fertility transition occurred during 1970s only (Adlakha and Kirk, 1974; Jin and Adlakha, 1982). The 1981 census collected information on children ever born and surviving for the first time at district level, which made it possible to estimate fertility and mortality at district level. Hence the district level data on these are available after 1981 census only (Table 5).

In 1981 there were little significant variations across districts in terms of CBR, CDR and infant mortality and hence there did not emerge a clear geographical pattern. Figure 7 reveals that Ambala, Rewari, Faridabad, Panipat and Mahendragarh were relatively better placed, while the districts of Hisar, Sirsa, Gurgaon, Rohtak and Karnal showed poor performance. The spatial pattern of demographic performance changed significantly during 1980s. In 1991, Ambala, Kurukshetra in the northeast, Rewari and Bhiwani in southwest emerged as demographically better performing districts. The poor performing districts included Gurgaon, Faridabad, Panipat and Hisar. All other districts of central Haryana showed moderate performance (Fig. 8).

By 2001 the spatial pattern changed dramatically. Since some new districts were carved out, one finds a pocket within existing better performing districts. The district of Yamunanagar is at a much advanced stage of demographic transition as compared to rest of the districts. The positive change was more visible in case of Rohtak, Sonipat, and Sirsa districts, which joined the category of better performing districts. Rewari district in south Haryana continued to be a better performing one since 1981, while all other districts adjoining. Rewari remain demographically vulnerable. The reasons need to be studied in detail. The districts of central Haryana namely Bhiwani, Kaithal, Jind, Jhajjar and Hisar come in moderate performing districts. The most vulnerable districts are Faridabad, Gurgaon, Panipat, Mahendragarh and in west Fatehabad and Kaithal.

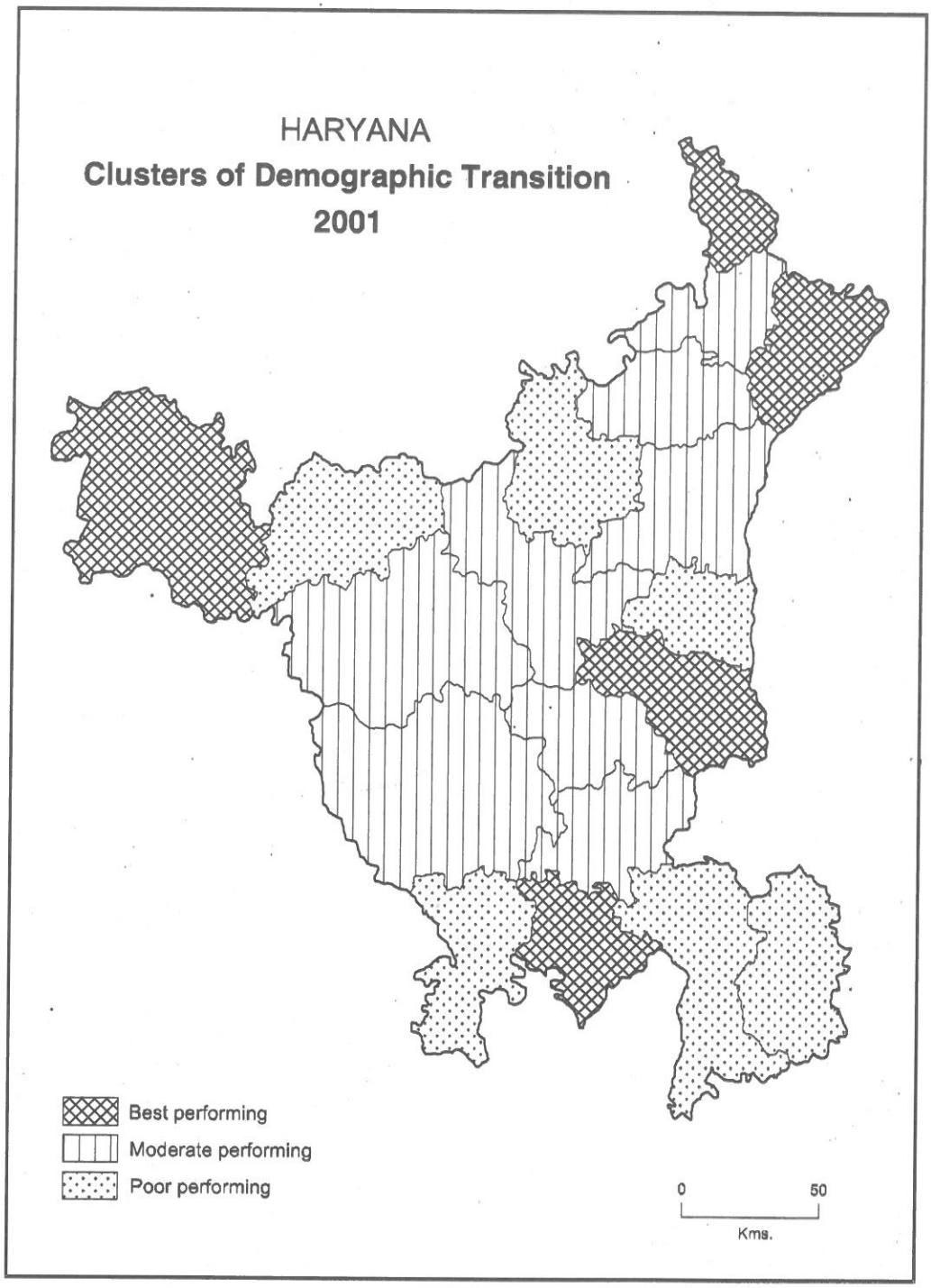
HARYANA
Clusters of Demographic Transition
2001
Best performing
Moderate performing
Poor performing
0
50
Kms.

Fig. 6

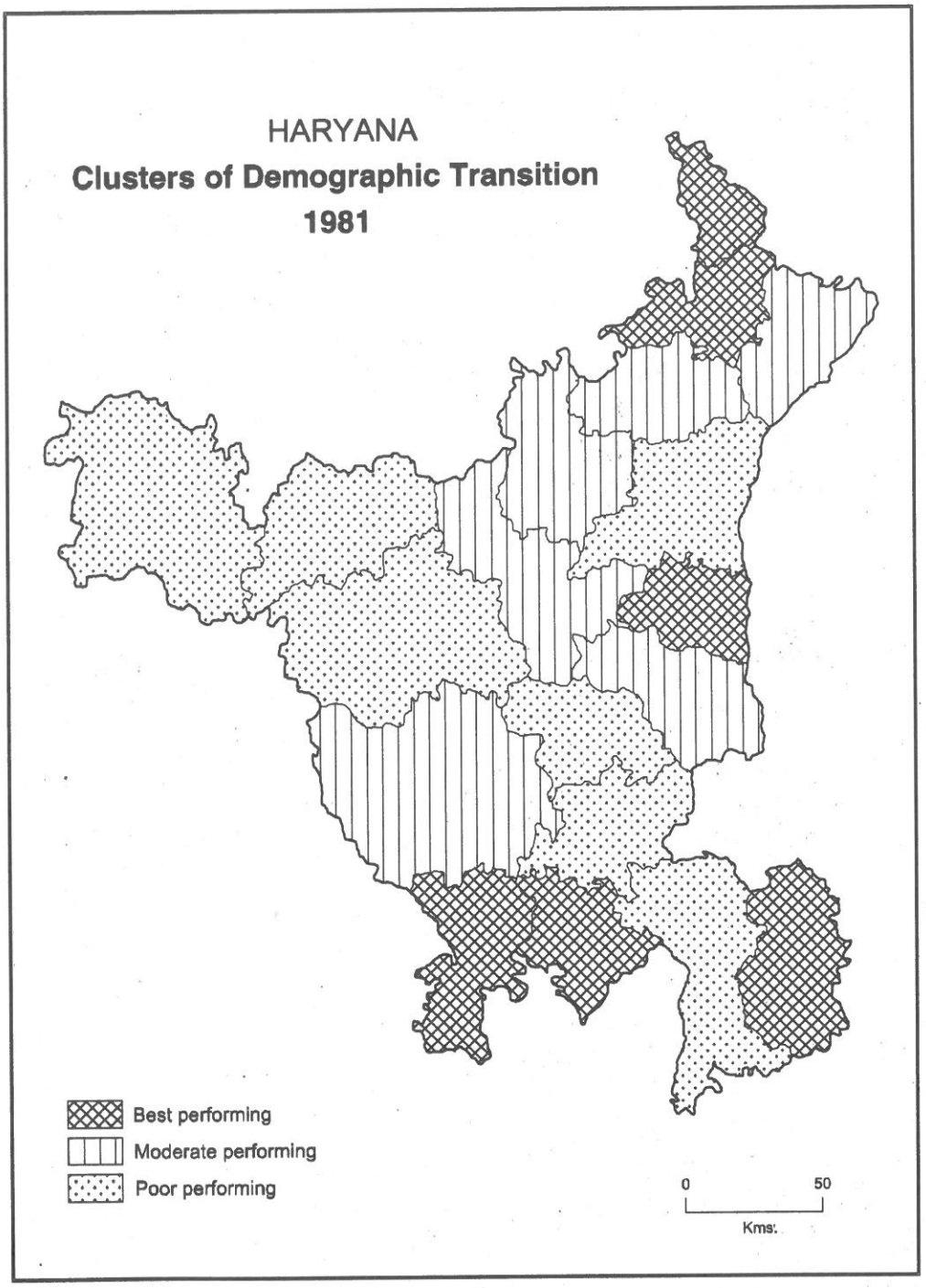
HARYANA
Clusters of Demographic Transition
1981
Best performing
Moderate performing
Poor performing
0
50
Kms.

Fig.7

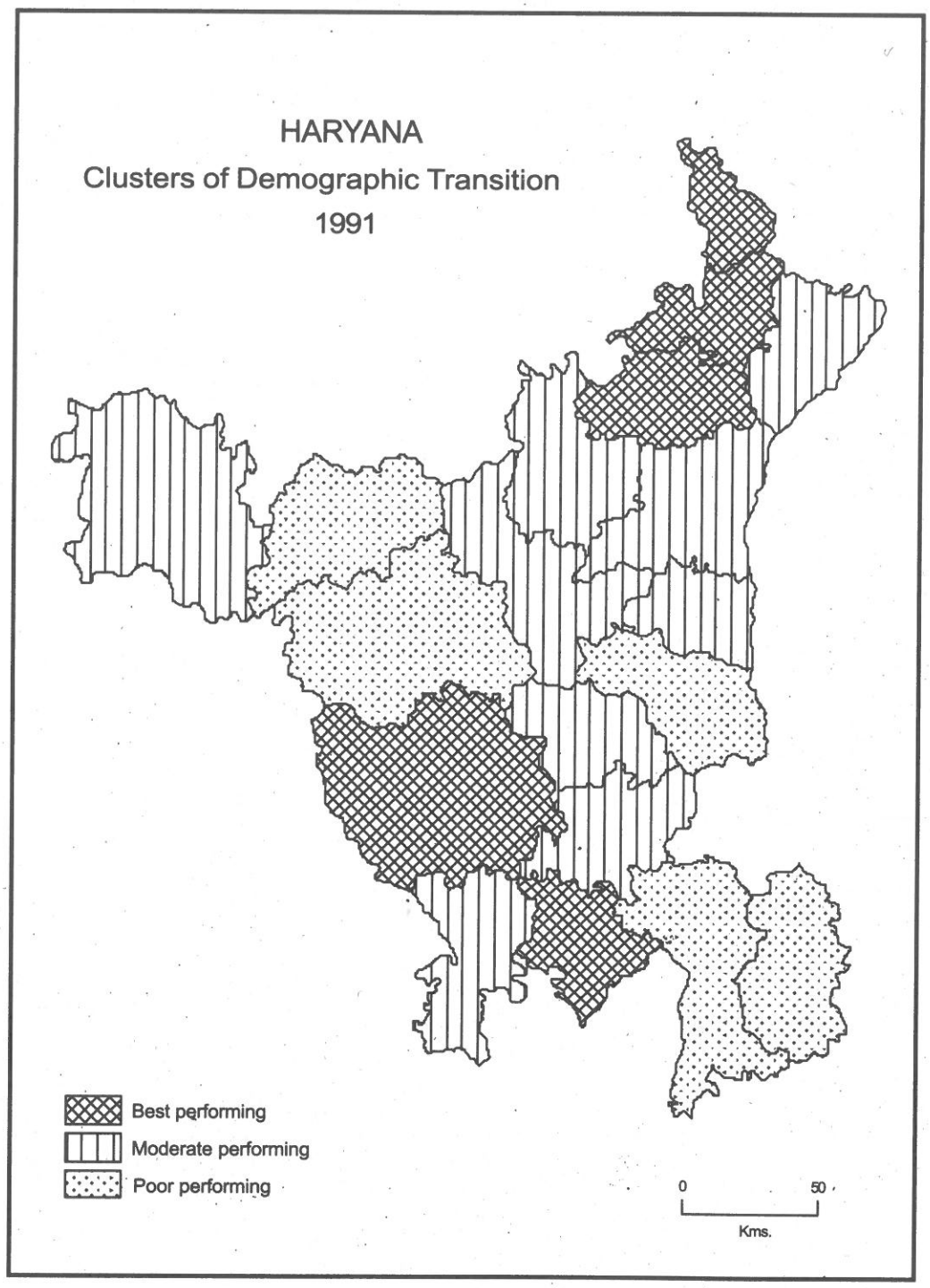
HARYANA
Clusters of Demographic Transition
1991
Best performing
Moderate performing
Poor performing
0
50
Kms.

Fig. 8

Table - 5

Haryana : Temporal Changes in Demographic Characteristics (1981 to 1991)

Districts	CBR (1981)	CBR (1991	TFR (1981)	TFR (1991)	IMR (1981)	IMR (1991)	0-14 Years (1981)	0-14 years (1991)
Ambala	36.1	28.2	5.0	3.5	122	55	38.53	35.4
Bhiwani	39.4	30.9	5.9	4.2	107	51	44.58	41.30
Faridabad	36.7	34.9	5.2	4.8	120	56	41.26	40.20
Hisar	37.8	33.8	5.4	4.4	122	54	42.46	39.5
Gurgaon	37.5	31.7	5.4	4.3	140	84	42.73	41.60
Rohtak	36.8	31.3	5.4	4.4	118	48	34.04	37.9
Jind	38.5	32.7	5.7	4.5	149	47	43.68	39.5
Kaithal	38.7	31.0	5.5	4.2	160	81	*	39.10
Karnal	37.9	32.9	5.6	4.4	123	44	41.16	39.7
Kurukshtr	38.7	30.0	5.5	3.8	160	35	41.65	38.10
M.Garh	35.9	32.9	5.1	4.4	114	47	42.91	40.1
Panipat	37.9	33.5	5.6	4.6	123	64	*	40.10
Rewari	35.9	30.8	5.1	4.1	114	61	*	39.5
Sirsa	38.4	31.2	5.4	3.9	97	65	41.81	39.10
Sonipat	36.5	30.8	5.3	4.2	120	72	40.84	39.0
Y.Nagar	36.1	32.5	5.0	4.3	122	61	*	37.2
Haryana	**37.5**	**31.7**	**5.4**	**4.3**	**126**	**52**	**46.2**	**41.74**

Note: (i) Data of 1981 has been taken from Fertility in India: An Analysis of 1981 Census Data, Occasional Papers No. 13 of 1988, New Delhi. (ii) Data of 1991 has been taken from Registrar General of India (1997):"District Level Estimates of Fertility and Child Mortality for 1991 and their Inter-relations with Other Variables, Occasional Paper No 1 of 1997, Controller of Publications, New Delhi.

Determinants of Population Growth

Multiple regression analysis has been carried out to identify the proximate determinants of natural growth of population in the state. Dependent and explanatory variables of the regression equation are given below.

Dependent Variable:

Y1: Number of children born per women in 15 to 49 age group (TFR).

Explanatory Variables:

X1: Female literacy rate.

X2: Level of urbanization.

X3: Percentage of couples adopting family planning measures.

X4: Age at marriage.

X5: Infant mortality rate.

The dependent variable of regression equation (Y) is the number of children born per woman in 15 to 49 age-group. It is taken as a surrogate indicator of natural population growth rate. Among explanatory variables age at marriage, infant mortality rate, female literacy rate, couple protection (percentage of eligible couples adopting family planning measures), and level of urbanization have been considered. Female literacy raises women's awareness towards limiting family size. It is also an indirect indicator of women's empowerment in a patriarchal setup. Similarly, age at marriage is a crucial factor in population growth though it is influenced by a number of social and cultural factors such as education, status of women and patriarchal values etc. Infant mortality has been taken as an explanatory variable on the assumption that

Table - 6
Haryana : Variables of Multiple Regression

Districts	TFR (Y1)	Female Literacy (X1)	% Urbanisation (X2)	% Adopted FPM (X3)	Age at Marriage (X4)	IMR (X5)
Panchkula	2.8	65.65	44.49	45.00	18.90	57.00
Ambala	2.4	76.39	35.20	45.00	18.90	77.00
Yamunanagar	2.8	63.39	37.73	35.40	18.70	55.00
Kurukshetra	2.7	60.61	26.10	42.60	18.50	62.00
Kaithal	3.1	47.31	19.39	39.50	18.10	69.00
Karnal	3.0	57.97	26.51	39.20	18.20	60.00
Panipat	3.5	57.97	40.53	42.50	18.10	61.00
Sonipat	3.1	60.68	25.12	39.50	18.00	26.00
Jind	3.3	48.51	20.30	43.40	16.50	57.00
Fatehabad	3.2	46.53	17.63	59.10	18.10	62.00
Sirsa	2.9	49.93	26.28	53.50	18.30	54.00
Hisar	3.1	51.08	25.90	59.10	16.70	76.00
Bhiwani	3.3	53.00	18.97	54.40	16.60	46.00
Rohtak	3.0	62.59	35.06	48.40	18.00	60.00
Jhajjar	3.3	59.65	22.17	48.40	16.80	59.00
Mahendragarh	3.3	54.08	13.49	57.00	16.30	64.00
Rewari	3.1	60.83	17.79	50.10	16.70	38.00
Gurgaon	4.5	47.78	22.23	37.20	16.90	65.00
Faridabad	3.7	56.31	55.65	45.60	18.20	77.00

Table - 7

Correlations

	TFR	Female Literacy	%Urbanization	Couple Protection	Marriage age	IMR
TFR	1					
Female Literacy	-.584(**)	1				
%Urbanization	-.084	.483(*)	1			
Couple Protection	-.087	-.271	-.328	1		
Marriage age	-.511(*)	.492(*)	.631(**)	-.418	1	
IMR	.069	-.048	.313	.109	.146	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.711	1.911		6.129	.000
	Female Literacy	-.034	.011	-.584	-3.122	.008
	%Urbanization	.021	.009	.515	2.346	.036
	Couple Protection	-.022	.010	-.375	-2.153	.051
	Marriage age	-.351	.106	-.709	-3.319	.006
	IMR	.001	.006	.024	.140	.891

a Dependent Variable: TFR

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.833(a)	.694	.577	.28534

a Predictors: (Constant), IMR, Female Literacy, Couple Protection, Marriage age, %Urbanisation

high mortality would lead to high births as there is a tendency to have more children in order to counter the uncertainty of child survival. The percentage of couples having adopted family planning measures is a behavioural variable being inversely related to birth rate. The level of urbanization has been taken as an explanatory variable as urban environment modulates the behavior resulting in containing population growth.

The results of multiple regression are represented in Tables 6 & 7 and are summarized in following equation:

Y1= 11.71-.584 (X1) +.515 (X2) - .375 (X3) - .708 (X4) +.024(X5).

R square = 0.694

N= 19

The regression equation shows that 69 percent of total variation in TFR is being explained by five independent variables. It is evident that female literacy significantly affects the births of children, which implies that female literacy is a significant determining factor in containing population growth. Age at marriage shows a significant negative correlation. Further, IMR shows a positive association with TFR, but it is insignificant. Overall the results indicate that women's status and autonomy, captured by the two indicators of female literacy and age at marriage, play a crucial determining role in containing population growth.

Conclusions

The paper shows that despite being economically developed, the state of Haryana has recorded a high population growth. It is not because of growing economy which probably generates a continuous migratory pressure. It is largely due to natural growth reflected by high crude birth rate and total fertility rate. These are higher than the surrounding sates also. Hence it is suggested that economic development in itself has not been able to contain population growth.

The temporal analysis reveals that over a period of 40 years, the CBR and TFR have declined. So have the crude death rate and infant mortality rates. But still the gap between the two is high and hence the state is in the beginning of third stage of demographic transition. It also shows wide inter-district variations. The district wise variations however do not show a distinct spatial pattern or contiguity. One finds the districts of Rewari, Sirsa, Sonipat and Yamuna Nagar and Panchkula at an advanced stage of demographic transition. The southern districts of Gurgaon, Faridabad, Mahendergarh, and three other districts namely Panipat, Kaithal and Fatehabad are demographically vulnerable. The decline in CBR and TFR over a period of time also reveals a very disturbing feature. In almost all the districts, the decline in CBR and TFR is at the cost of distortion in sex structure. The age and sex pyramid reveals that female population has shrunk as compared to their male counterparts and this shrinkage is more pronounced in case of 0 to 6 years sex ratio. Further, the districts which are at a higher stage of demographic transition have contained their population growth at the cost of girl child. The analysis reveals that in these districts the child sex ratio is highly distorted which is invariably due to female feticide. This brings in the role of patriarchal values and female autonomy.

An attempt has also been made to assess the determinants of population growth in Haryana at broader level. The analysis shows that population growth has a significant negative correlation with female literacy and age at marriage. The regression analysis further strengthens the argument that mere economic development is not in itself sufficient to control the population growth. The structural conditions in society, i.e. raising the marriage age and female literacy – an indicator of female autonomy and loosening of patriarchal values, which affect the demographic transition. The study however, suggests that these findings may be further corroborated with primary level data related to various aspects of patriarchy, son preference and women autonomy in Haryana.

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POPULATION GEOGRAPHY Volume 31 Numbers 1 & 2 June-December 2009

TRENDS OF URBAN-URBAN MALE MIGRATION IN PUNJAB: 1971-2001

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Abstract

In the present study an attempt has been made to analyse the trends of urban-urban male migration which emerged during 1971-2001 in the state of Punjab. The analysis is based on census data. The study reveals that the state has been recording an overall increase in the proportion of urban-urban male migrants as a result of increase in the number of towns, increase in the level of urbanisation, expansion of urban areas, improvement of transport facilities and industrial development. The proportion of intra-district urban-urban male migrants has been increasing while the proportion of inter-district and inter-state male migrants has been decreasing in the state during the study period.

Introduction

The urban to urban migration is a movement of people from one urban area to another urban area. This flow is qualitatively more important than the other three flows of migration. The urban-urban flow of migration reflects the quality of migrants as skilled and professional persons are more likely to move from one urban centre to another urban centre. It is directly related with the level of urbanisation, growth of urban population, number of towns/cities, size of towns/cities, accessibility to transport lines (railways and roads) and development of communication network etc.

Methodology

The present study focuses on the trends of urban-urban male migration from 1971 to 2001 in Punjab. The census data for this period has been analysed to understand the trends of this stream of migration in the state. However, the year 1981 has not been included in the present study since the district-wise data relating to different migration flows is not available for this year. In order to identify the economic factors, only the male migrants are included. The female migrants have been excluded as they have a high component of marriage mobility. The analysis is based on eleven districts of the state which existed in 1971. Six districts, viz. Mansa, Moga, Muktsar, Fatehgarh Sahib, Nawanshahr and Faridkot, which were created after 1971, have been included in their original districts to make the data comparable for 2001 Census.

Discussion

Migration is a dynamic phenomenon which changes over time and space in its volume, patterns and trends (Gosal, 1961 and Connell *et. al.*, 1976). There are definite, patterned regularities in the growth of personal mobility through space and time during the recent history and these regularities comprise an essential component of modernisation process (Zelinsky, 1971).

The state of Punjab has experienced economic and social changes during the study period (1971-2001) due to improvement in

Table - 1

Punjab: Proportion of Urban Population (1901-2001)

Year	Percentage of Urban Population
1901	12.39
1911	12.08
1921	12.16
1931	14.58
1941	17.26
1951	21.72
1961	23.06
1971	23.73
1981	27.72
1991	29.55
2001	33.95

conditions in agriculture in rural areas under the impact of Green Revolution and the introduction of Integrated Urban Development Programme during the Fourth Five-Year Plan (1969-74) in urban areas with the objective of upgrading the level of infrastructure in cities (Krishan, 2005). In fact, Punjab has followed the classical growth path – agricultural development first, then industrial development and consequently urbanisation (Bhasin, 2001). The proportion of urban population in the state in 2001 (33.95 per cent) was considerably high within the north-western region as compared to Haryana (29.00 per cent) and Himachal Pradesh (9.75 per cent). It was also higher than the national average (27.78 per cent). Punjab state therefore may be considered to be fairly urbanized in terms of proportion of urban to total population.

The urban-urban male migration is becoming more prominent in Punjab as the state has been getting increasingly urbanised at a rapid rate since independence. In the beginning of the twentieth century only 12.39 per cent of the total population of Punjab was living in urban areas, but at the dawn of the twenty-first century this figure increased to 33.95 per cent (Table 1). Thus one out of every three persons in Punjab is an urbanite by residence.

In 2001 the state's urban population rose to about 8.36 million, while its total population was 24.45 million. The total urban male population as well as urban male migrants have also increased during the study period. There were 1.73 million males in urban areas in 1971 and by 2001 their number went up to over 4.46 million, showing an increase of 2.73 million males. The number of urban-urban male migrants has also increased from 0.22 million to 0.55 million during the study period (Census of India, 1971 and 2001).

The urban-urban male migration stream occupies third rank in the state of Punjab among the four flows of migration in 2001. This stream has gained prominence with the increase in the level of urbanisation especially by the rapidly growing Class I cities in the state. There were four Class I cities in Punjab in 1971 and their number increased to 7 in 1981, 10 in 1991 and 14 in 2001. The share of urban population in Class I and II cities has increased from 1.3 million to 4.8 million and 0.5 million to 1.3 million respectively from 1971 to 2001. The percentage share of urban population has also been increasing in Class I and II cities (Table 2). It increased from 40.52 per cent and 15.84 per cent in 1971 to 58.38 per cent and 16.45 per cent respectively in 2001, while in Class III, IV, V and VI urban

Table - 2
Punjab: Number and Urban Population in Different Size-Categories of Towns (1971-2001)

Class/Towns and Cities	1971	1981	1991	2001
I	*4* (40.52) 1303,128	*7* (46.38) 2,155,714	*10* (54.16) 3,246,224	*14* (58.38) 4,814,405
II	*8* (15.84) 509,389	*10* (14.39) 668,780	*18* (19.91) 1,193,171	*19* (16.45) 1,356,386
III	*2* (22.20) 714,176	*27* (20.24) 940,482	*25* (12.92) 774,4453	*35* (12.50) 1,030,623
IV	*31* (13.32) 428,413	*36* (11.28) 524,505	*46* (10.82) 648,230	*54* (9.82) 809,366
V	*29* (6.84) 219,911	*40* (6.50) 301,905	*14* (1.72) 102,945	*28* (2.52) 207,891
VI	*12* (1.28) 41,162	*14* (1.21) 56,371	*7* (0.47) 28,202	*7* (0.33) 26.895
Total	***106*(100) 32,16,179**	***134* (100) 4,647,757**	***120* (100) 5,993,225**	***157* (100) 8,245,566**

Note: (i) Figures in italics denote number of towns; (ii) Figures in parentheses denote percentage in total urban population.
Source: Census of India, General Population Tables of 1971, 1981, 1991 and 2001.

Table - 3
Punjab: Expansion of Urban Area (1971-2001)

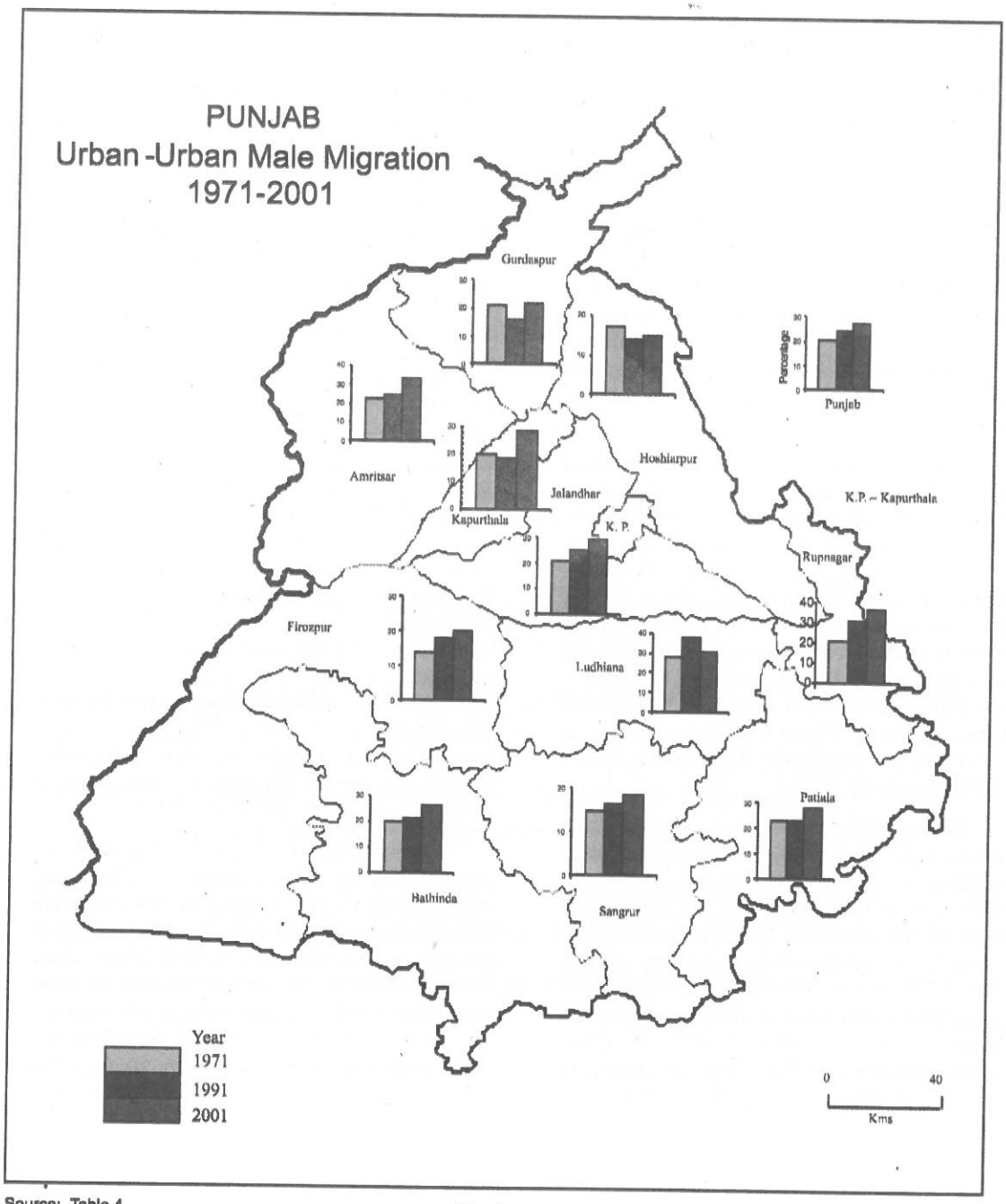
State/District	1971	1981	1991	2001
Punjab	691.66	1198.80	1440.80	2096.62
Gurdaspur	53.70	62.00	76.42	110.75
Amritsar	73.40	157.70	193.55	217.85
Hoshiarpur	37.10	75.90	81.79	132.73
Jalandhar	107.50	140.70	145.79	223.56
Firozpur	65.50	129.50	172.36	198.25
Kapurthala	41.50	35.50	77.00	105.06
Ludhiana	80.20	158.00	197.19	250.30
Rupnagar	32.70	77.30	82.10	136.37
Bathinda	71.20	179.87	231.12	251.67
Sangrur	55.90	73.70	84.63	228.63
Patiala	73.20	110.30	135.11	173.78

Note : Area in square kilometers.
Source: Census of India, General Population Tables of Punjab, 1971, 1981, 1991 and 2001.

Table - 4
Punjab : Proportion of Male Migrants in Different Streams of Migration (1971-2001)

State/District	Year	Rural-Rural	Rural-Urban	Urban-Urban	Urban-Rural
Punjab	**1971**	**48.62**	**23.88**	**20.25**	**7.25**
	1991	**41.77**	**27.68**	**24.02**	**6.53**
	2001	**32.94**	**35.42**	**27.29**	**4.35**
Gurdaspur	1971	50.76	17.13	21.03	11.08
	1991	54.98	20.00	15.84	9.18
	2001	44.65	28.47	22.08	4.80
Amritsar	1971	40.09	29.31	22.83	7.77
	1991	34.64	37.18	24.24	3.94
	2001	26.89	37.14	33.05	2.92
Hoshiarpur	1971	54.98	16.62	17.28	11.12
	1991	53.58	20.14	13.80	12.48
	2001	50.86	27.55	14.84	6.75
Jalandhar	1971	49.68	21.26	21.04	8.02
	1991	40.06	27.16	25.44	7.34
	2001	33.35	32.08	29.91	4.66
Firozpur	1971	61.98	15.91	13.83	8.28
	1991	53.98	21.24	17.89	6.89
	2001	50.37	24.95	20.14	4.54
Kapurthala	1971	47.90	28.75	19.58	3.77
	1991	46.04	25.32	18.58	10.06
	2001	32.82	35.13	28.30	3.75
Ludhiana	1971	33.75	33.14	27.58	5.53
	1991	24.16	34.96	37.60	3.28
	2001	17.29	48.92	30.64	3.15
Rupnagar	1971	51.54	21.44	20.64	6.38
	1991	36.34	23.16	31.08	9.42
	2001	27.89	31.20	36.73	4.18
Bathinda	1971	47.02	28.59	19.56	4.83
	1991	42.58	30.97	20.83	5.62
	2001	38.81	29.59	26.15	5.45
Sangrur	1971	53.96	24.88	14.58	6.58
	1991	45.98	32.05	16.47	5.50
	2001	44.36	30.48	18.64	6.52
Patiala	1971	49.41	21.37	22.50	6.72
	1991	45.24	24.50	23.02	7.24
	2001	35.03	33.00	27.76	4.21

Source: Census of India, Migration Tables of Punjab, 1971, 1991 and 2001.



Source: Table 4.

Fig. 1

centres the share of urban population has been declining since 1971 (Table 2). The table shows a trend of a higher concentration of urban population in large urban centres while in small urban centres the share of urban population has been declining. Increase in the share of urban population in large cities is the result of the migration from small urban centres to larger ones through step migration (Ravenstein, 1885) and availability of better employment opportunities in these cities. Poverty in small towns has always been higher than in the million plus cities and medium-sized towns which also pushes the migrants from small to large urban centres (UN Report, indiaenews.com).

Table 2 also reveals that the total number of towns has increased from 106 in 1971 to 157 in 2001 in the state. Interestingly, while the number of large and medium-sized towns has increased, the small-towns especially in Class VI have recorded a decline in their number. These towns also recorded a decline in their percentage share of population from 6.84 per cent to 2.52 per cent in Class V towns and from 1.28 per cent to 0.33 per cent in Class VI towns. There was also a decline in the absolute population of these towns during the study period.

Another factor which has resulted in an increase in the proportion of urban-urban male migration is the expansion of territorial jurisdiction of towns. Since 1971 all the districts of the state had recorded a change in the territorial limits of their urban centres (Table 3). There were three main considerations underlying the extension of the physical limits of towns: to provide urban services to newly emerged colonies on their outer periphery, to make available additional land for development on planned lines and to rope in enterprises which were evading payment of octroi by locating themselves outside the municipal limits (Krishan, 2005). The urban area in Punjab increased from 691.66 sq. kms. in 1971 to 2096.62 sq. kms. in 2001, showing a net increase of 1407 sq. kms. in the state which constitutes a 3.03 fold increase in thirty years.

All the above mentioned factors have increased the proportion of urban-urban male migrants during the study period in the state. This stream constituted 20.25 per cent of the total male migrants in 1971. This value increased to 24.02 per cent in 1991 and further to 27.29 per cent in 2001 (Table 4). For an in-depth analysis of this flow of migration it would be appropriate to study the trends of male migration on the basis of district-wise data of the state.

The urban-urban male migration stream has shown a contrasting trend in 1991 as compared to 1971 (Table 4). The proportion of urban-urban male migration increased in eight districts, viz. Amritsar, Jalandhar, Firozpur, Ludhiana, Rupnagar, Bathinda, Sangrur and Patiala out of eleven districts of the state. The remaining three districts, i. e., Gurdaspur, Hoshiarpur and Kapurthala experienced a decline of 5.19 per cent, 3.48 per cent and 1.00 per cent respectively in the proportion of these migrants (Fig. 1). The decline in the proportion of urban-urban male migrants was most probably due to economic backwardness, underdeveloped agriculture and out-migration of males. Gurdaspur district experienced a decline in these migrants as during this period Punjab was undergoing the militancy problem (Krishan, 2005).

Five towns in Kapurthala district were declassified in 1991 (Table 5). There were eight towns in this district in 1981 and their number decreased to three in 1991. A similar process can be identified in Hoshiarpur district also. As a result of declassification of towns, Kapurthala and Hoshiarpur districts registered an increase in the proportion of urban-rural male migrants in 1991 as compared to 1981 while the proportion of urban-urban male migrants decreased in both the districts (Figs. 2 and 3). Due to declassification the status of these towns changed to rural areas and as a result of it the urban male migrants were counted as urban-rural male migrants.

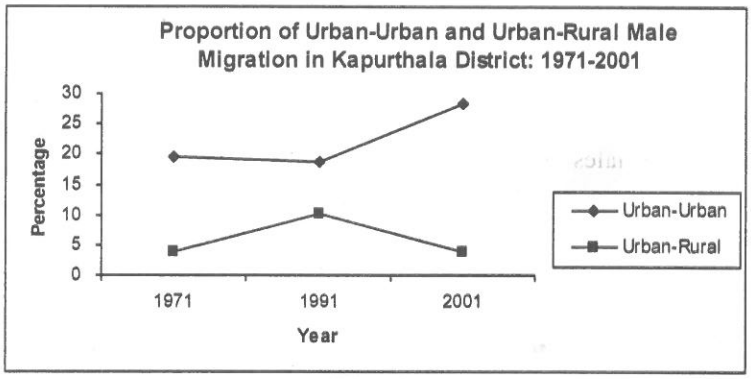
In 2001 an increase in the proportion of urban-urban male migrants was recorded in all the districts of the state except Ludhiana district. This district had recorded the highest

Table - 5

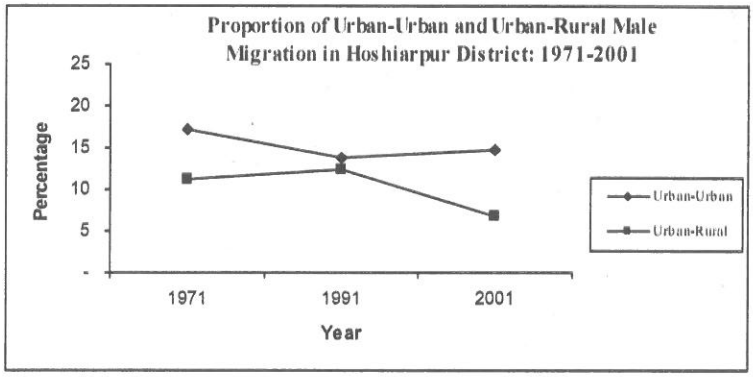
Punjab : District wise Number of Towns (1971-2001)

State/District	1971	1981	1991	2001
Punjab	106	134	125	157
Gurdaspur	10	11	12	14
Amritsar	9	11	10	13
Hoshiarpur	9	10	9	12
Jalandhar	12	16	14	18
Firozpur	9	9	16	17
Kapurthala	3	8	3	7
Ludhiana	6	10	10	13
Rupnagar	7	9	8	11
Bathinda	11	12	14	17
Sangrur	12	14	12	17
Patiala	11	13	12	16

Source: Census of India, Town Directories of Punjab, 1971, 1981, 1991 and General Population Tables of 2001.



Source: Based on Table 4. **Fig. 2**



Source: Based on Table 4. **Fig. 3**

share (37.60 per cent) of these migrants in the state in 1991 (Table 4, Fig. 1). This could be related to the large-scale industrial development in the district. Ludhiana city also became the first metropolitan city of Punjab in 1991. However in 2001, the proportion of urban-urban male migrants in Ludhiana district declined by 6.96 per cent (from 37.60 per cent in 1991 to 30.64 per cent 2001). This could be associated with various factors. Firstly, due to the increase in the proportion of rural-urban male migrants since industries are the potential source of employment opportunities for both semi-skilled and unskilled labourers as compared to professionals and skilled workers. This nature of industrial employment could have resulted in an increase in the proportion of rural-urban male migration as compared to urban-urban male migration. Secondly, the share of urban-urban male migrants could have declined due to the emergence of new towns in the district. Thirdly, in recent years, the urban-urban flow of migration has not been purely male selective and has shifted slightly in favour of increased participation of females because females are equally competent for different kinds of jobs as males (IOM, 2005).

The highest proportion of urban-urban male migration has been recorded by Rupnagar district (36.73 per cent) followed by Amritsar (33.05 per cent), Ludhiana (30.64 per cent), Jalandhar (29.91 per cent), Kapurthala (28.30 per cent) and Patiala districts (27.76 per cent).

The highest proportion of urban-urban male migrants in Rupnagar district could be attributed to the rapid development of Kharar *tehsil*. Further, the fast growing town of Mohali, which was a small village in 1971 with a population of 946 persons only, is located in this *tehsil* (Bhasin, 2001). In 1981, Mohali was upgraded as a Class III town with a population 32,351 persons. Located on the periphery of Chandigarh, Mohali has also acquired the characteristics of a suburb of Chandigarh city. A large number of labourers commute daily from it to Chandigarh for work (Census of India, 1981). Its growth rate during 1981-91 was 140.64 per cent (Bhasin, 2005). It became a Class II town in 1991. Its population registered a growth of 58.84 per cent during 1991-2001 and the city emerged as a Class I city in 2001. It has growing residential complexes and infrastructure is being raised to build it as a pioneer town for manufacturing and electronic components. As a result employment opportunities for skilled and semi-skilled manpower have increased attracting a large number of migrants from other urban places.

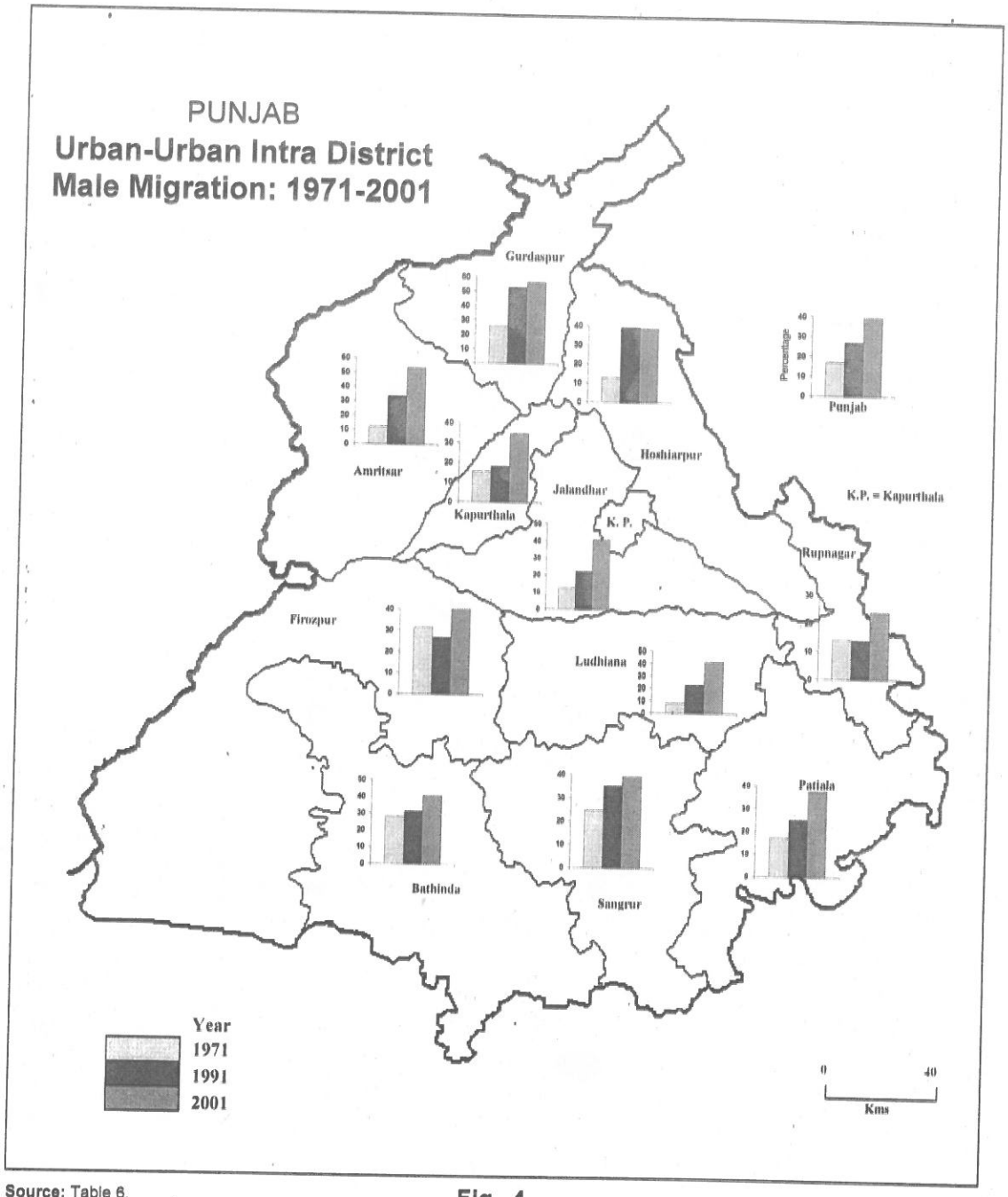
The other four districts, namely, Jalandhar, Amritsar, Ludhiana and Kapurthala received more than 28.00 per cent of the urban-urban male migrants out of the total male migrants in 2001. All these districts have good accessibility in terms of road and railway network (Table 4). These also have a high proportion of urban population.

The lowest proportion (14.84 per cent) of urban-urban male migrants has been recorded in Hoshiarpur district which is directly associated with its low proportion of urban population (19.66 per cent).

Another distinct trend which emerged out of the analysis of migration data for the last three decades (1971-2001) is that the share of intra-district urban-urban male migration has been increasing since 1971 (Table 6, Fig. 4). It was 17.02 per cent in 1971 and increased to 26.70 per cent in 1991 and 39.37 per cent in 2001. It is the outcome of an increase in the number of towns and the proportion of urban population in the state (Table 2, Fig. 4).

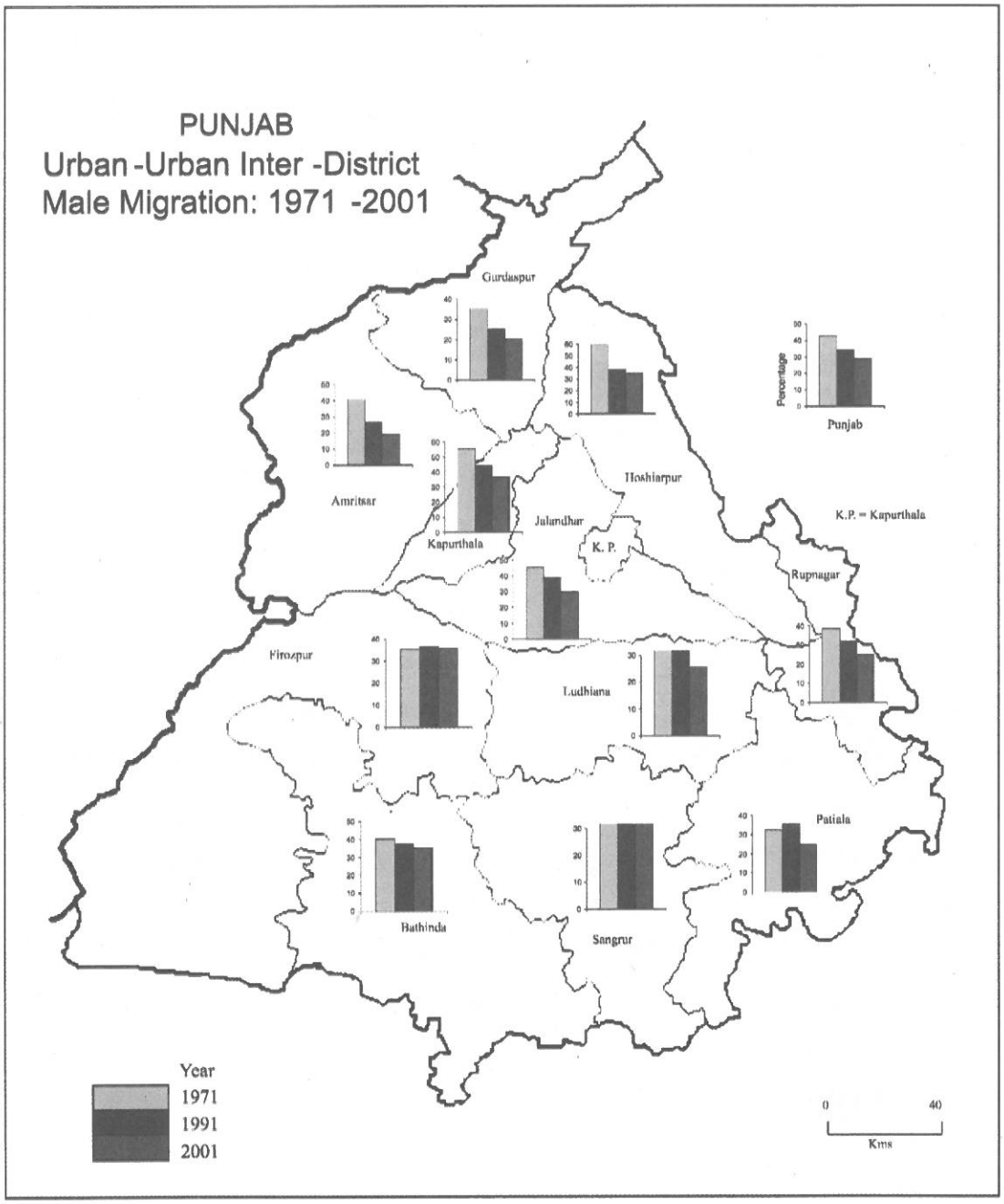
However, the share of inter-district and inter-state male migrants has been declining since 1971 (Table 6, Figs. 5 and 6). The proportion of inter-district and inter-state male migrants has declined from 42.70 per cent to 28.71 per cent and 40.28 per cent to 31.92 per cent respectively during the study period (Fig. 7).

In 1991, seven districts, viz. Gurdaspur, Amritsar, Hoshiarpur, Jalandhar, Sangrur, Bathinda and Patiala recorded a decline in the proportion of inter-state urban-urban male



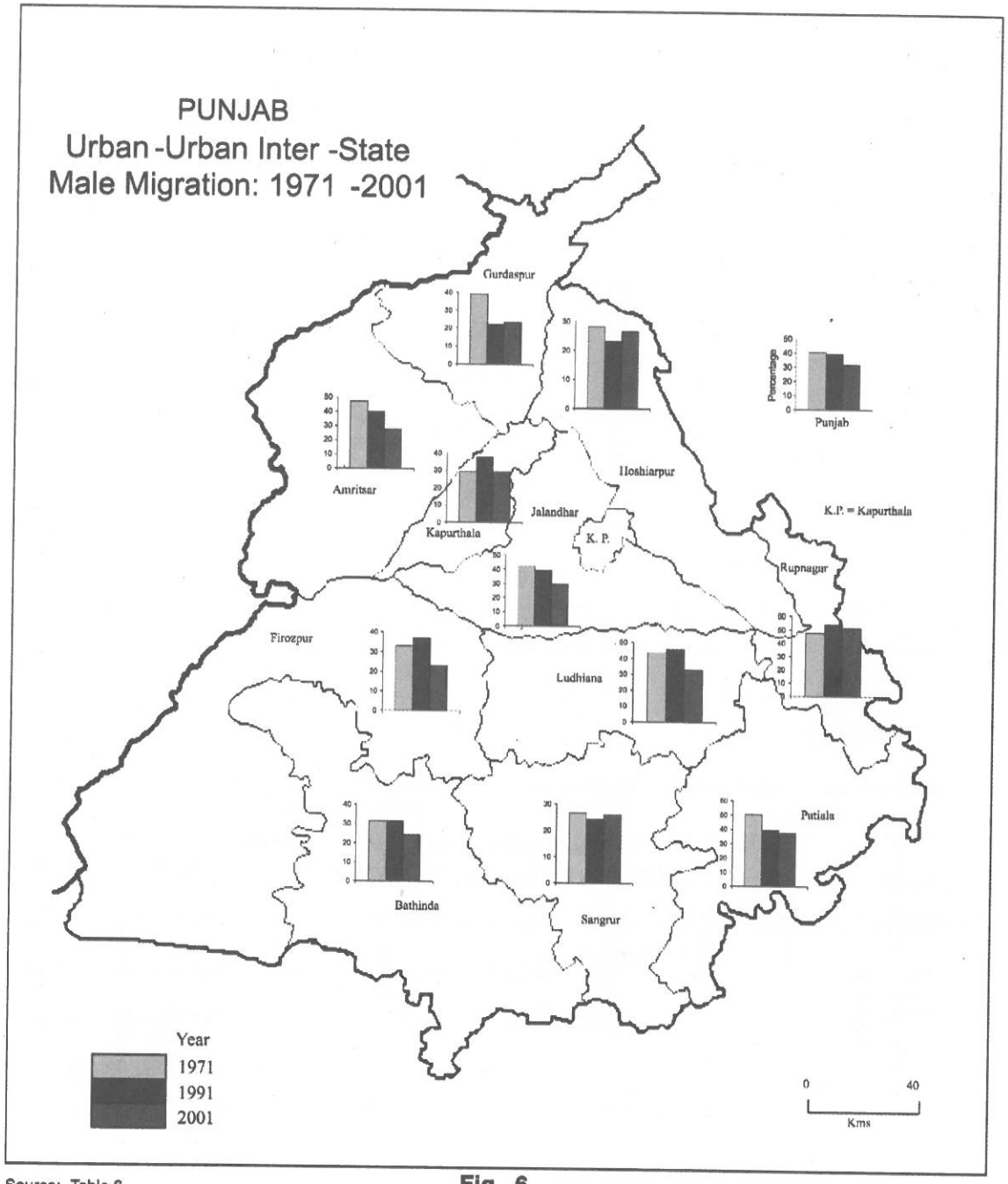
Source: Table 6.

Fig. 4



Source: Table 6.

Fig. 6



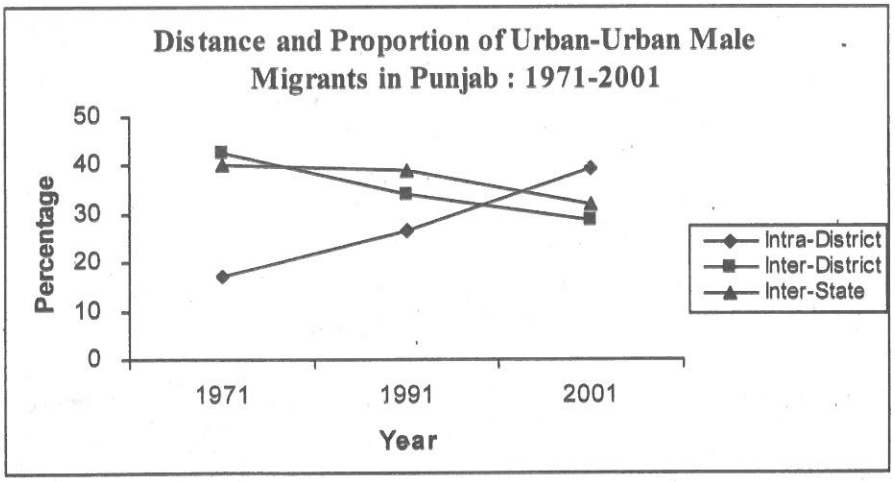
Source: Table 6.

Fig. 6

Table - 6
Punjab: Distance and Proportion of Urban- Urban Male Migration (1971-2001)

State/ District	Intra-District			Inter-District			Inter-State		
	1971	1991	2001	1971	1991	2001	1971	1991	2001
Punjab	**17.02**	**26.70**	**39.37**	**42.70**	**34.18**	**28.71**	**40.28**	**39.12**	**31.92**
Gurdaspur	25.70	52.74	56.55	35.20	25.10	20.16	39.10	22.16	23.29
Amritsar	12.20	33.18	53.20	40.50	26.72	18.82	47.30	40.10	27.98
Hoshiarpur	12.80	38.99	38.52	59.13	38.01	34.84	28.07	23.00	26.64
Jalandhar	12.49	22.12	40.79	45.39	38.72	29.62	42.12	39.16	29.59
Firozpur	31.40	26.55	41.16	35.50	36.33	35.69	33.10	37.12	23.15
Kapurthala	15.30	17.99	34.67	55.40	44.53	36.27	29.20	37.48	29.06
Ludhiana	8.05	22.32	41.46	48.20	31.85	25.74	43.75	45.83	32.80
Rupnagar	14.00	13.79	23.91	38.46	31.98	24.92	47.54	54.23	51.17
Bathinda	28.33	31.20	40.56	40.29	37.46	35.30	31.38	31.34	24.14
Sangrur	24.72	35.08	39.15	48.59	40.46	34.68	26.69	24.46	26.17
Patiala	17.17	25.01	37.60	32.60	35.48	25.03	50.23	39.51	37.37

Source: Census of India, Migration Tables of Punjab, 1971, 1991 and 2001.



Source: Based on Table 6.

Fig. 7

migration. The remaining four districts viz. Firozpur, Kapurthala, Rupnagar and Ludhiana recorded a higher increase in the proportion of these migrants in 1991 as compared to 1971. The proportion of inter-state urban-urban male migrants has declined in all the districts of the state in 2001 as compared to 1971 except Rupnagar district. However, three districts viz., Hoshiarpur (3.64 per cent), Gurdaspur (1.13 per cent) and Sangrur (1.71 per cent) have recorded a slight increase in the share of inter-state migrants during 1991-2001 (Table 6).

Conclusions

The analysis of data for this study shows that there has been a change in the trend of migration of population in Punjab from inter-state to intra-district. The decrease in the proportion of inter-state and increase in the proportion of intra-district migration are the result of a number of factors, such as availability of intervening opportunities (Stouffer, 1940), i.e., the emergence of new towns in the state as well as in other states, introduction of planned economic development programmes, improvement in transportation and communication facilities etc.

The above analysis further highlights the fact that the proportion of urban-urban male migrants has been increasing in the state since 1971. Emergence of new towns in all the districts of the state, increase in employment opportunities in urban areas, and improvement in communication and transportation are the major factors for the increase of proportion of urban-urban male migrants in Punjab state during the study period. The intra-district male migration has gradually increased while inter-state migration of males has decreased during the study period.

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POPULATION GEOGRAPHY Volume 31 Numbers 1 & 2 June-December 2009

OUT-MIGRATION FROM PUNJAB: A SPATIAL PERSPECTIVE

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Abstract

Migration is one of the three basic determinants of population change in any spatial unit, the other two being fertility and mortality. An attempt has been made to study the out-migration from Punjab to other States and Union Territories of India. The analysis is based on the 1991 & 2001 D-2 Migration Tables of States and Union Territories of India released by the Census of India. The study reveals that out-migrants from Punjab have been enumerated in all the States and Union Territories of India. Large numbers of rural migrants were enumerated in Haryana and urban migrants in Delhi not only in 1991 but also in 2001.

Introduction

Migration, like fertility and mortality, is a fundamental element determining population growth and its structure in an area. It holds a place of prominence in a geographical analysis of population change in any area (Trewartha, 1969). Migration should not be considered as a mere shift of people from one place of residence to another, as it is most fundamental to the understanding of continuously changing space-content and space-relationships of an area (Gosal, 1961).

Since the time man has come on the Earth, he has tended to move. Initially it was only in search of food. Subsequently other factors started operating and at present it is a complex phenomenon. The earliest ancestors of man were wanderers. Fossil remains of *Homo erectus*, a progenitor of modern man who lived 400,000 years ago, have been found in such widely separated places as Africa, Europe, China and Java (Uyanga, 1981, p. 42). Thus, the history of migration is as old as man himself. The process of migration has been responsible for settling of the whole world and the continuously changing pattern of distribution of population.

Punjab has a very long history of migration. In the recent times during the British rule a large number of people from Punjab were recruited in the British army and were sent to far off places within India as well as in other countries. At the same time the canal colonies, cantonments and model towns established in Punjab attracted a substantial number of people to migrate and settle in these. The canal colonies were built by the British rulers in the southern parts of the Bari, Rechna and Chaj Doabs (i.e., the lands between Beas, Ravi, Jhelum and Chenab Rivers). The purpose was to (i) introduce irrigation in regions where settled agriculture was not yet the established mode of livelihood; (ii) reward ex-soldiers and British loyalists with land, and (iii)to encourage Punjabis to continue to enlist in the British army.

On the eve of Independence, Punjab witnessed large scale migration of people from across the border of newly created Pakistan. After Independence many Punjabi farmers, businessmen, industrialists and many others moved to other parts of Punjab as well as to different parts of the country and the world in pursuit of greener pastures. This out-migration

was not because of depressive conditions but for better opportunities available at other places.

Since Punjab is the birthplace of Sikhism which is also the major religion in the state therefore by studying the spatial distribution of Gurudwaras in India one can trace the presence of Sikhs as well as Punjabis from Kargil in Jammu and Kashmir in the north to Tiruchirapalli in Tamil Nadu in the south and from Lakhpat in Gujarat in the west to Dhanpat in Assam in the east. Otherwise also the Sikhs and Punjabis can be found from Sopore in Jammu and Kashmir to Nancowry in Andaman and Nicobar Islands. The Punjabi people are spread throughout the length and breadth of India.

The economy of Punjab State has been experiencing structural, social and political transformation at a much faster pace since the advent of Green Revolution from mid 1960's onwards. The out-migration from Punjab is not only induced by conditions of stagnation in agriculture but also by those of prosperity.

Objective and Methodology

This paper focuses on the out-migration from Punjab. Census data on place of last residence for the census years 1991 and 2001 has been analyzed to underline the trends of out-migration from Punjab to other states and union territories of India. As such data on out-migration is not provided in any census publication. It has been compiled by taking relevant entries from the migration tables of other states and union territories where the in-migrants from Punjab have been enumerated.

Volume of out-migration

The people of Punjab by tradition have a fascination for land. Wherever land is available for cultivation Punjabi farmers avail of the opportunity, be it the marshy and barren land of *Terai* in Uttar Pradesh, arid land in Rajasthan, reclaimed land in Haryana and even if the land is available some 1100 kilometers away from the mainland e.g. in Andaman and Nicobar Islands. The Punjabi migrants, apart from agriculture, are engaged in a variety of activities like trade, transport, construction and different kinds of technical and skilled jobs in their new abodes. The Punjabi out-migrants who went to Delhi and Chandigarh were traders, businessmen and government employees. A large number of Punjabi people have settled in the urban areas of Himachal Pradesh, Maharashtra, Madhya Pradesh, West Bengal, Bihar and Gujarat. The Punjabi migrants have been enumerated in cities situated along the Delhi-Mumbai and Delhi-Kolkata railway lines. The migration of

Table - 1
Punjab: Distribution of Out-migrants (1991)

	Person	Male	Female
India	**1376312**	**602890**	**773422**
Haryana	26.72	20.44	31.62
Delhi	17.49	19.86	15.65
Rajasthan	12.68	11.64	13.47
Uttar Pradesh	11.75	13.02	10.76
Chandigarh	9.53	10.92	8.45
Himachal Pradesh	7.00	6.12	7.69
Remaining States/U.T.'s	14.83	18.00	12.36
Total	**100.00**	**100.00**	**100.00**
	Rural		
India	**532421**	**201362**	**331059**
Haryana	38.10	28.36	44.03
Rajasthan	21.53	21.84	21.34
Uttar Pradesh	17.44	23.93	13.49
Himachal Pradesh	12.78	12.02	13.24
Remaining States/U.T.'s	10.15	13.85	7.90
Total	**100.00**	**100.00**	**100.00**
	Urban		
India	**843891**	**401528**	**442363**
Delhi	27.74	28.93	26.66
Haryana	19.54	16.46	22.33
Chandigarh	14.28	15.18	13.47
Uttar Pradesh	8.17	7.55	8.72
Rajasthan	7.09	6.54	7.59
Maharashtra	5.80	6.60	5.07
Remaining States/U.T.'s	17.38	18.74	16.16
Total	**100.00**	**100.00**	**100.00**

Source: D2 Migration Tables of all states and U.T.'s of India, Census of India 1991, Data available on CD

Table-2
Punjab: Distribution of Out-migrants (2001)

Total					
	Persons		**Males**		**Females**
INDIA	**1632410**	**INDIA**	**677793**	**INDIA**	**954617**
Haryana	29.05	Haryana	22.90	Haryana	33.42
Delhi	15.69	Delhi	18.85	Delhi	13.45
Rajasthan	10.69	Uttar Pradesh	12.25	Rajasthan	11.42
Uttar Pradesh	10.51	Chandigarh	10.79	Himachal Pradesh	10.89
Chandigarh	9.17	Rajasthan	9.66	Uttar Pradesh	9.28
Himachal Pradesh	8.99	Himachal Pradesh	6.31	Chandigarh	8.02
Maharashtra	4.16	Maharashtra	5.44	Maharashtra	3.20
Remaining States/U.T.'s	11.74	Remaining States/U.T.'s	13.80	Remaining States/U.T.'s	10.32
Total	**100.00**	**Total**	**100.00**	**Total**	**100.00**
Rural					
INDIA	**653150**	**INDIA**	**220216**	**INDIA**	**432934**
Haryana	38.54	Haryana	29.93	Haryana	42.92
Rajasthan	17.73	Uttar Pradesh	23.24	Himachal Pradesh	19.28
Himachal Pradesh	16.80	Rajasthan	18.74	Rajasthan	17.22
Uttar Pradesh	15.30	Himachal Pradesh	12.19	Uttar Pradesh	11.26
Remaining States/U.T.'s	11.63	Remaining States/U.T.'s	15.90	Remaining States/U.T.'s	9.32
Total	**100.00**	**Total**	**100.00**	**Total**	**100.00**
Urban					
INDIA	**979260**	**INDIA**	**457577**	**INDIA**	**521683**
Delhi	25.46	Delhi	27.15	Haryana	25.54
Haryana	22.73	Haryana	19.52	Delhi	23.97
Chandigarh	14.09	Chandigarh	14.91	Chandigarh	13.37
Uttar Pradesh	7.32	Maharashtra	7.34	Uttar Pradesh	7.64
Maharashtra	6.45	Uttar Pradesh	6.96	Rajasthan	6.61
Rajasthan	6.00	Rajasthan	5.29	Maharashtra	5.67
Remaining States/U.T.'s	17.95	Remaining States/U.T.'s	18.83	Remaining States/U.T.'s	17.20
Total	**100.00**	**Total**	**100.00**	**Total**	**100.00**

Note: Uttar Pradesh includes figures of Uttar Pradesh + Uttaranchal
Bihar includes figures of Bihar + Jharkhand
Source: D2 Migration Tables of all states and U.T.'s of India, Census of India 2001, Data available on CD.

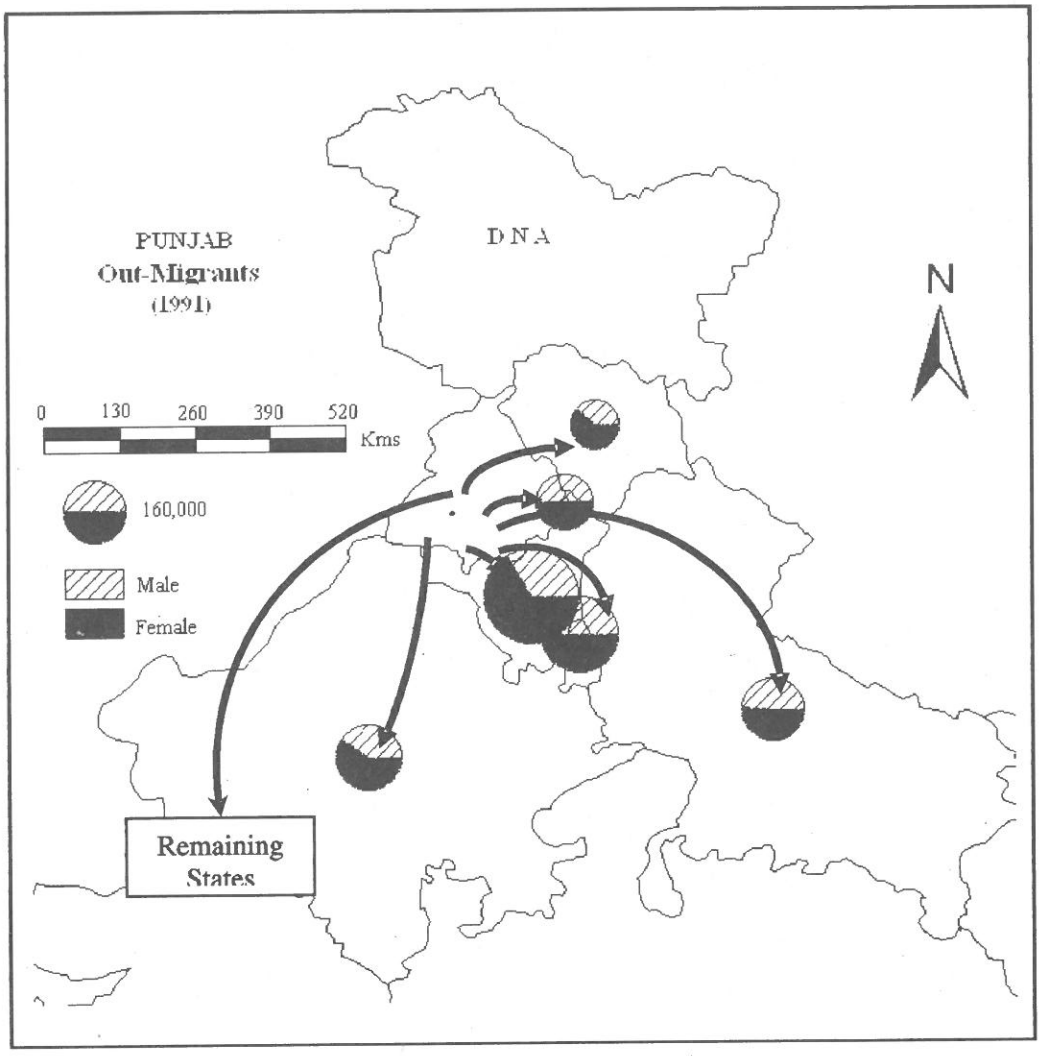


Fig. 1

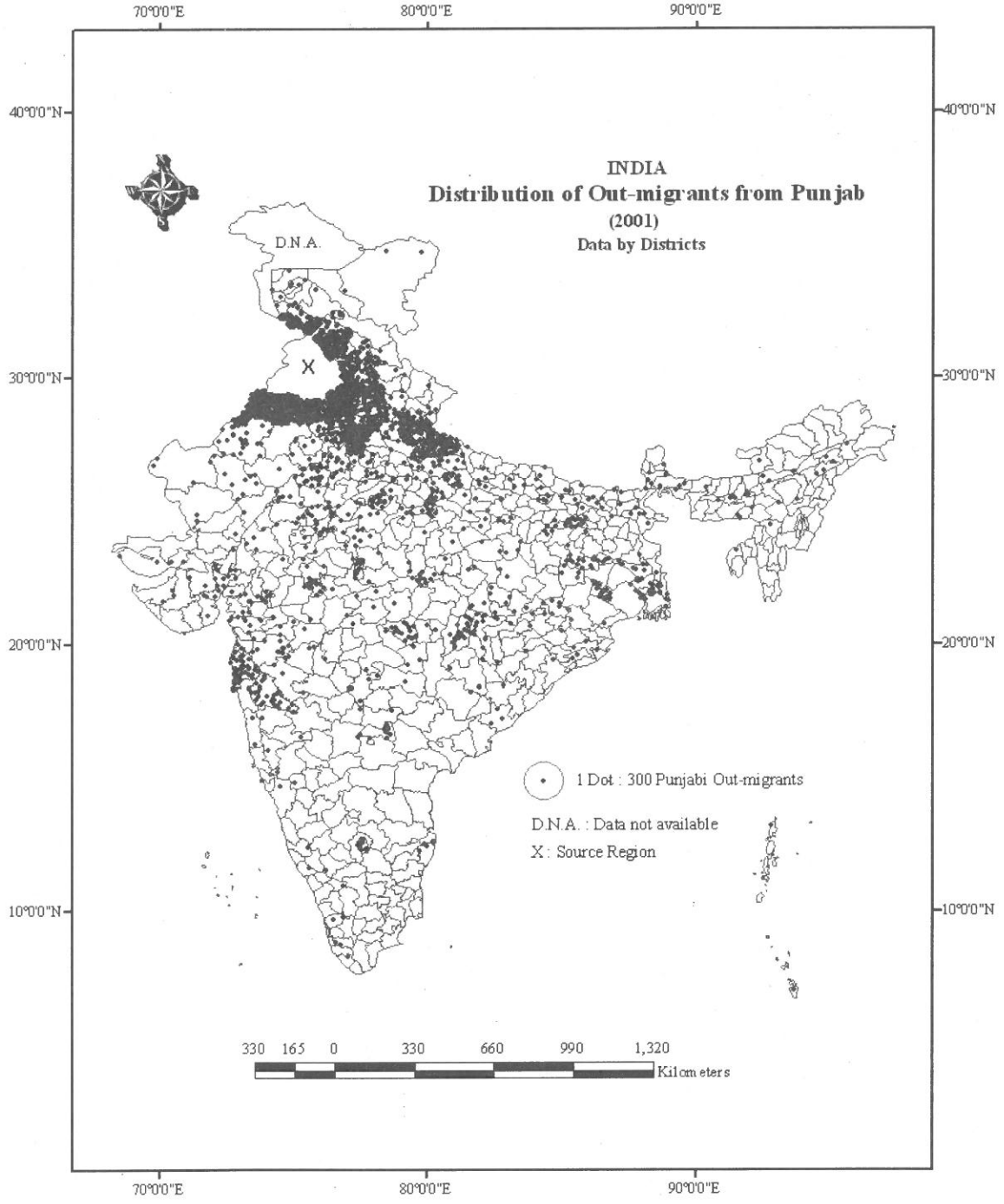
Punjabi people to the southern and north-eastern states of India has been small in magnitude and highly localized in distribution.

According to the census figures of 1991 on the last place of residence, nearly 1.37 million persons of Punjab were enumerated as migrants in other states and union territories of India. Out of the total approximately 61 per cent (0.84 million) were enumerated in the urban areas of India (Table 1). In 2001 the number of out-migrants from Punjab increased to 1.6 million and nearly 60 per cent of these migrants were enumerated in urban areas of India, suggesting thereby a substantial stream of out-migrants towards the urban areas of other states and union territories of India (Table 2). Thus, in addition to the dispersal of the Punjabi peasants, there has been a large scale movement of the Punjabi out-migrants to urban areas almost all over the country cutting across linguistic and cultural boundaries. These migrants in their new abodes are engaged in a variety of activities, but a specific association has been found with their

Table-3
Punjab: District wise Distribution of Out-migrants (2001)

Districts	Person	Male	Female	Rural	Urban
INDIA	**1632410**	**677793**	**954617**	**653150**	**979260**
Chandigarh	149718	73137	76581	11738	137980
Sirsa	106867	33135	73732	72295	34572
Ganganagar	87117	31838	55279	62948	24169
Delhi West	80696	40465	40231	1858	78838
Ambala	68874	19130	49744	36493	32381
Fatehabad	56545	17723	38822	43413	13132
Delhi North West	53966	27451	26515	947	53019
Hanumangarh	46630	15150	31480	35076	11554
Panchkula	41139	16340	24799	15207	25932
Delhi South	36843	18477	18366	1340	35503
Bilaspur	36108	4672	31436	32390	3718
Kurukshetra	34538	9620	24918	22325	12213
Kangra	31118	9892	21226	27438	3680
Kaithal	30597	6811	23786	23320	7277
Una	30231	7865	22366	24552	5679
Yamunanagar	29485	11319	18166	6372	23113
Delhi South West	27029	13518	13511	1439	25590
Delhi East	26957	13241	13716	380	26577
Faridabad	24333	12440	11893	844	23489
Mumbai (Suburban)	24310	13158	11152	0	24310
Jammu	23777	9513	14264	5856	17921
Karnal	21883	6921	14962	9914	11969
Udham Singh Nagar	17384	9046	8338	14144	3240
Solan	17215	5749	11466	11176	6039
Kheri	15807	8291	7516	15220	587
Pilibhit	13574	7345	6229	12920	654
Hisar	13506	4714	8792	5399	8107
Delhi North East	13200	6634	6566	543	12657
Shahjahanpur	12012	6302	5710	11544	468
Kathua	11615	2193	9422	7755	3860
Dehradun	11499	5057	6442	1821	9678
Panipat	11273	4838	6435	2325	8948
Ghaziabad	11230	5426	5804	1079	10151
Jind	10358	2174	8184	5789	4569
Thane	10308	5660	4648	666	9642
Remaining Districts of the Country	**394668**	**192548**	**202120**	**126624**	**268044**

Source: D2 Migration Tables of all states and U.T.'s of India, Census of India 2001, Data available on CD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INDIA
Distribution of Out-migrants from Punjab
(2001)
Data by Districts
D.N.A.
X
1 Dot : 300 Punjabi Out-migrants
D.N.A. : Data not available
X : Source Region
330 165 0 330 660 990 1,320
Kilometers

Fig. 2

employment in taxi driving, *dhaba* running, business in cloth, auto-spares and liquor (Kaur, 1979, p.173).

Within India, out-migration from Punjab has been mainly directed towards the neighbouring states (Fig.1). It comprises a little more than three-fourths of the interstate outflow from Punjab. These are places in Haryana, Delhi, Rajasthan, Uttar Pradesh, Chandigarh, Himachal Pradesh, Maharashtra, and Madhya Pradesh. Out of 100 persons migrating from Punjab to different places in India, 27 go to Haryana, 17 to Delhi, 13 to Rajasthan, 12 to Uttar Pradesh, 10 to Chandigarh, 7 to Himachal Pradesh, and four each to Madhya Pradesh and Maharashtra. The remaining 7 go to other states and union territories of India (Table 1). The above states and union territories together account for 93 per cent of the inter-state migrants from Punjab.

In 2001 also nearly one-third (29.05 per cent) of the total out-migrants from Punjab were enumerated in Haryana followed by Delhi (15.69 per cent), Rajasthan (10.69 per cent), Uttar Pradesh (10.51 per cent), Chandigarh (9.17 per cent), Himachal Pradesh (8.99 per cent) and Maharashtra (4.16 per cent) (Table 2 & Fig. 2).

The district wise distribution of out-migrants from Punjab reveals that except for five districts of North Eastern States, in every district of India there is a Punjabi person enumerated.

Out of a total of 1.6 million out-migrants about 75.82 per cent were enumerated in 35 districts of the country and the remaining 24.18 per cent in the other 541 districts. Of the 35 districts 12 were in Haryana, 6 in Delhi, 4 each in Himachal Pradesh and Uttar Pradesh, and 2 each in Jammu and Kashmir, Uttarakhand, Maharashtra and Rajasthan and the Union Territory of Chandigarh (Table 3). Except for the two districts in Maharashtra out-migration from Punjab is primarily over short distance and confined to the districts of neighbouring and nearby states. This is supported by data in Table 3 and Fig. 2 which reveal that majority of the out-migrants from Punjab are concentrated in districts which lie in the vicinity of the state.

The out-migration from Punjab to the districts of neighbouring states is associated with search of land which was available for cultivation at a low cost at different points of time. The out-migrants partly comprised of persons who had migrated to India after the partition of the country in 1947. The displaced Punjabi Hindus settled in the villages of Haryana after partition (Mohan, 2003).

A number of industries from Gurdaspur district were relocated in Faridabad and Panipat due to disturbed political condition in Punjab during the 80's. These industrialists not only shifted their machines but also the local skilled labour from Gurdaspur. This also led to an increase in the number of Punjabi migrants in Haryana.

The construction of Gang Canal in 1928 and Indira Gandhi Canal in 1958 resulted in the extension of irrigation facilities to the north-western part of arid Rajasthan. This also attracted Punjabi farmers to purchase land in this area. The introduction of canal irrigation and settlement of Punjabi migrant farmers have transformed the northern part of arid Rajasthan into a green and granary area.

In 1947, Govind Ballabh Pant, the first chief minister of Uttar Pradesh, decided to develop the *terai* districts of Nainital, Pilibhit, Kheri, Rampur etc. The *terai* had been known as a marshy and malarious tract. It was reclaimed for the settlement of Punjabi and Bengali refugees from the West and East Pakistan respectively. The Bengali in-migrants however could not acclimatize themselves to the physical environment of this area, and returned to Bengal. Thus the main influx was of Punjabi farmers, most of whom were Sikhs. Through the dent of their labour the inhospitablel terrain was converted into an agriculturally prosperous area. It is estimated that seventy per cent population of Udham Singh Nagar district comprises of Punjabis (Ahmad, 1998).

The population of Sikhs in Uttar Pradesh increased from 0.2 million in 1951 to 0.3 million in 1961 (a growth rate of 43.8 per cent). The highest increase was in the *terai* districts. There was nearly a sevenfold increase in the number of Sikhs in Nainital district, about six fold in Pilibhit district and more than five fold in Kheri district. The *terai* of Uttar Pradesh witnessed large scale reclamation of its agricultural wastelands in the early fifties. The availability of new cultivable land attracted streams of the Sikh peasants from the densely populated parts of Punjab. Thus, migration to areas with high agricultural potentiality has been one of the characteristic features of the Sikh population in Punjab (Kaur, 1979, p.135).

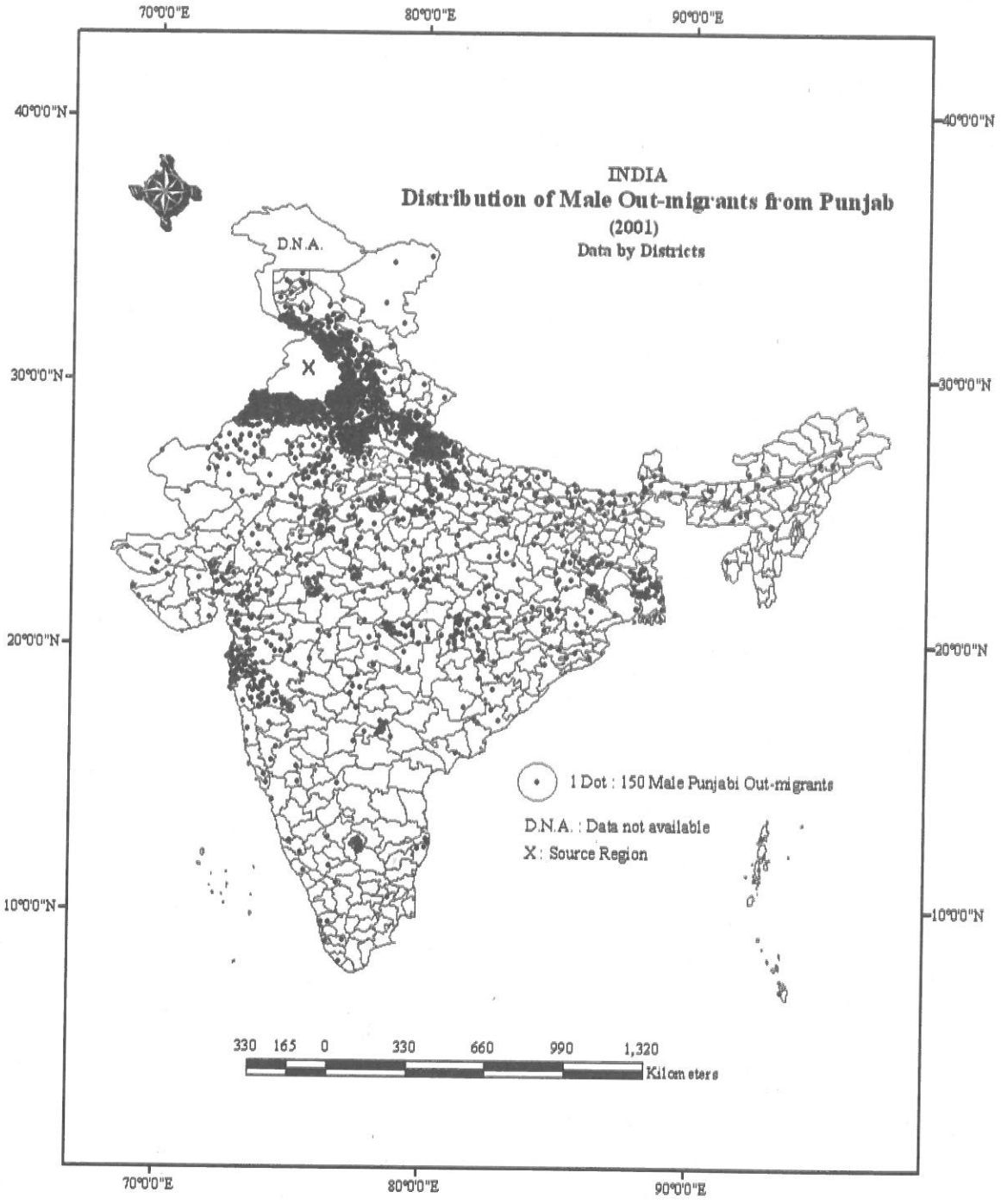
An interesting point in Punjabi diaspora is that each state and union territory of India has a migrant from Punjab. Even in Andaman and Nicobar Islands, which are 1100 kilometers away from the Indian mainland, there were 762 Punjabis in 1991 but their number decreased to 630 in 2001 census mainly due to natural decrease and out-migration. Most of these Punjabis are ex-servicemen from Indian armed forces who were provided land for cultivation at concessional rates under the Andaman and Nicobar Settlement Plan which was in force from Independence to the mid-seventies.

Composition of out-migrants by Sex and Residence

In 1991 out of 1.4 million out-migrants, 44 per cent were males and 56 per cent females. In 2001 the number of out-migrants increased to 1.6 million and the share of male out-migrants decreased to 42 per cent while that of females increased to 58 per cent.

In 1991 male out-migrants from Punjab were enumerated in Haryana (20.44 per cent), Delhi (19.86 per cent), Uttar Pradesh (13.02 per cent), Rajasthan (11.64 per cent), Chandigarh (10.92 per cent) and Himachal Pradesh (6.12 per cent) (Table 1). In 2001 although the choice of destination of male out-migrants remained the same, the intensity of migration varied. In 2001 the maximum proportion of out-migrants were enumerated in Haryana (22.90 per cent) followed by Delhi (18.85 per cent), Uttar Pradesh (12.25 per cent), Chandigarh (10.79 per cent) and Rajasthan (9.66 per cent) (Table 2 & Fig. 3). The district wise distribution of male out-migrants reveals that 71.59 per cent of the total were enumerated in 35 districts and the remaining 28.41 per cent in other districts of the country (Table 3). The male out-migrants from Punjab to the districts in the states of Haryana, Uttar Pradesh and Rajasthan were going to the rural areas due to such developments as reclamation of waste land by using corrective measures and construction of new canals. In comparison out-migrants to Delhi and Chandigarh were basically businessmen and service class people. Particularly the businessmen were going to Delhi and majority of service class people to Chandigarh. This can be safely stated on the basis of functionality and structure of both these cities.

In 1991, the female migrants from Punjab were enumerated in Haryana (31.62 per cent), Delhi (15.65 per cent), Rajasthan (13.47 per cent), Uttar Pradesh (10.76 per cent), Chandigarh (8.45 per cent) and Himachal Pradesh (7.69 per cent) (Table 1). The female out-migrants from Punjab are basically following their men. The 2001 pattern of female out-migrants is the same as that of male out-migrants so far as migration to nearby states is concerned e.g. Haryana registered the highest proportion of female out-migrants from Punjab (33.42 per cent), followed by Delhi (13.45 per cent), Rajasthan (11.42 per cent), Himachal Pradesh (10.89 per cent), Uttar Pradesh (9.28 per cent) and Chandigarh (8.02 per cent) (Table 2 & Fig. 4). Thus, the movement of female migration is attributable to marriage and family migration. The district wise distribution of female out-migrants reveals that 78.83 per cent of the total female out-migrants were enumerated in 35 districts and the rest 21.17 per cent in the remaining 541 districts of the country. This conforms to the theory that female migration is shorter distance type (Ravenstein, 1889).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INDIA
Distribution of Male Out-migrants from Punjab
(2001)
Data by Districts
D.N.A.
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1 Dot : 150 Male Punjabi Out-migrants
D.N.A. : Data not available
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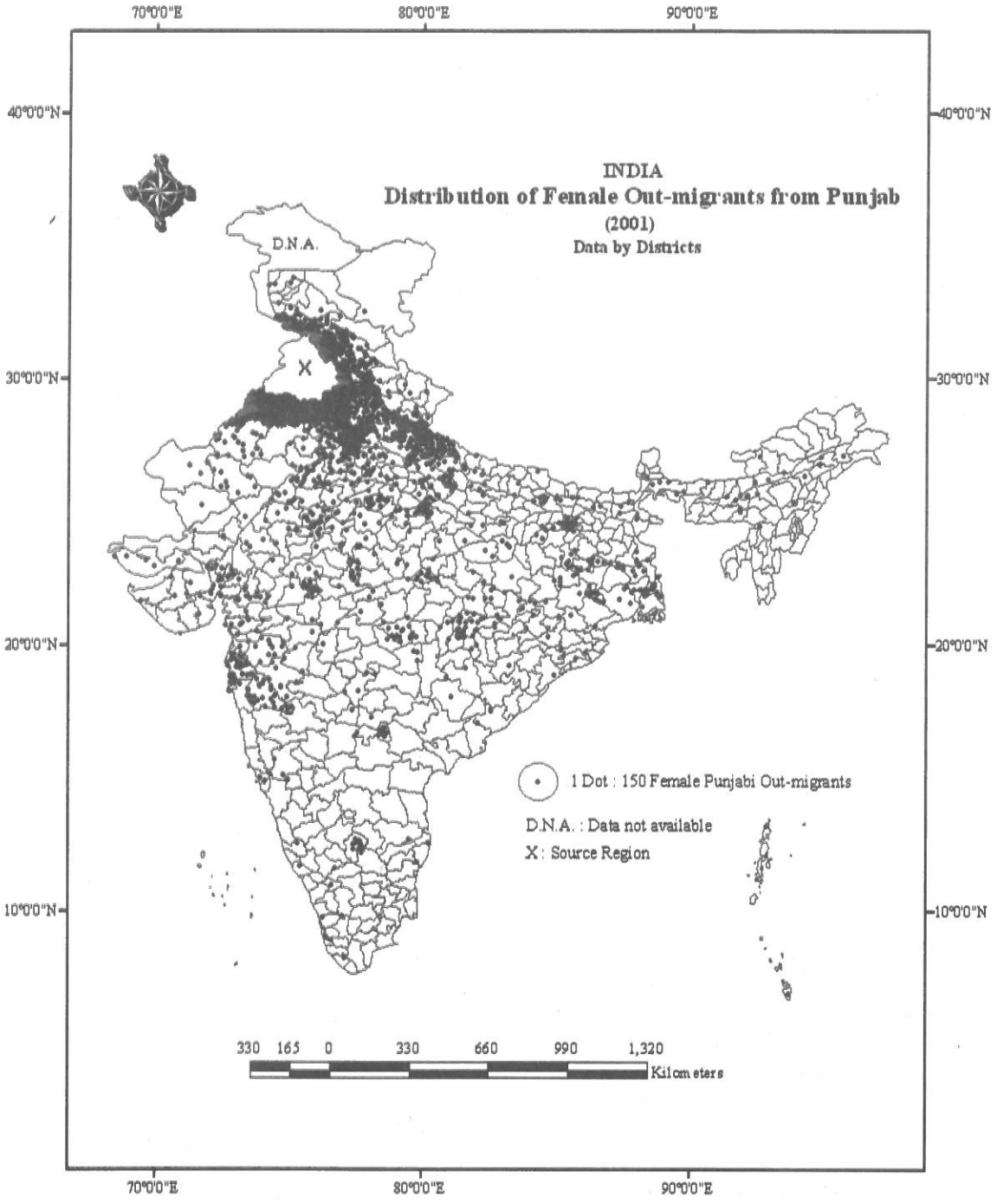
Fig. 3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(2001)
Data by Districts
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Fig. 4

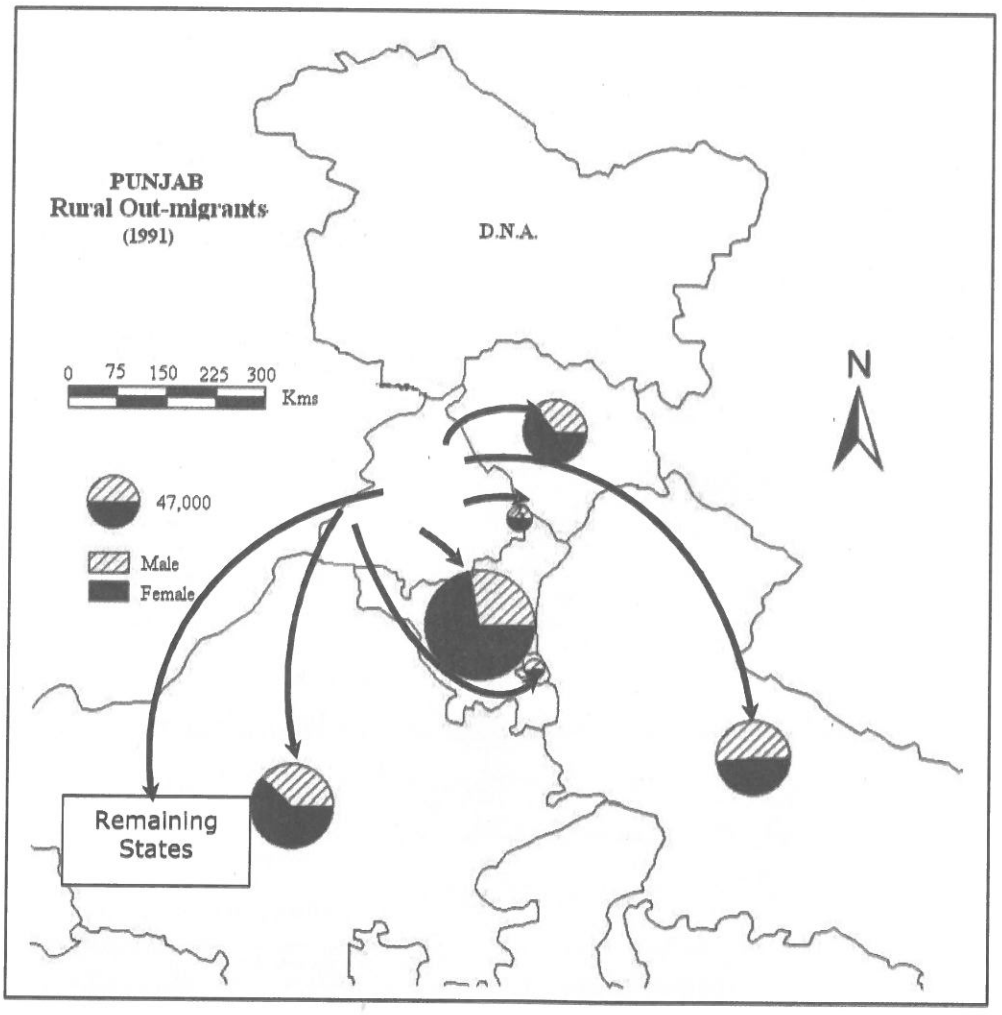
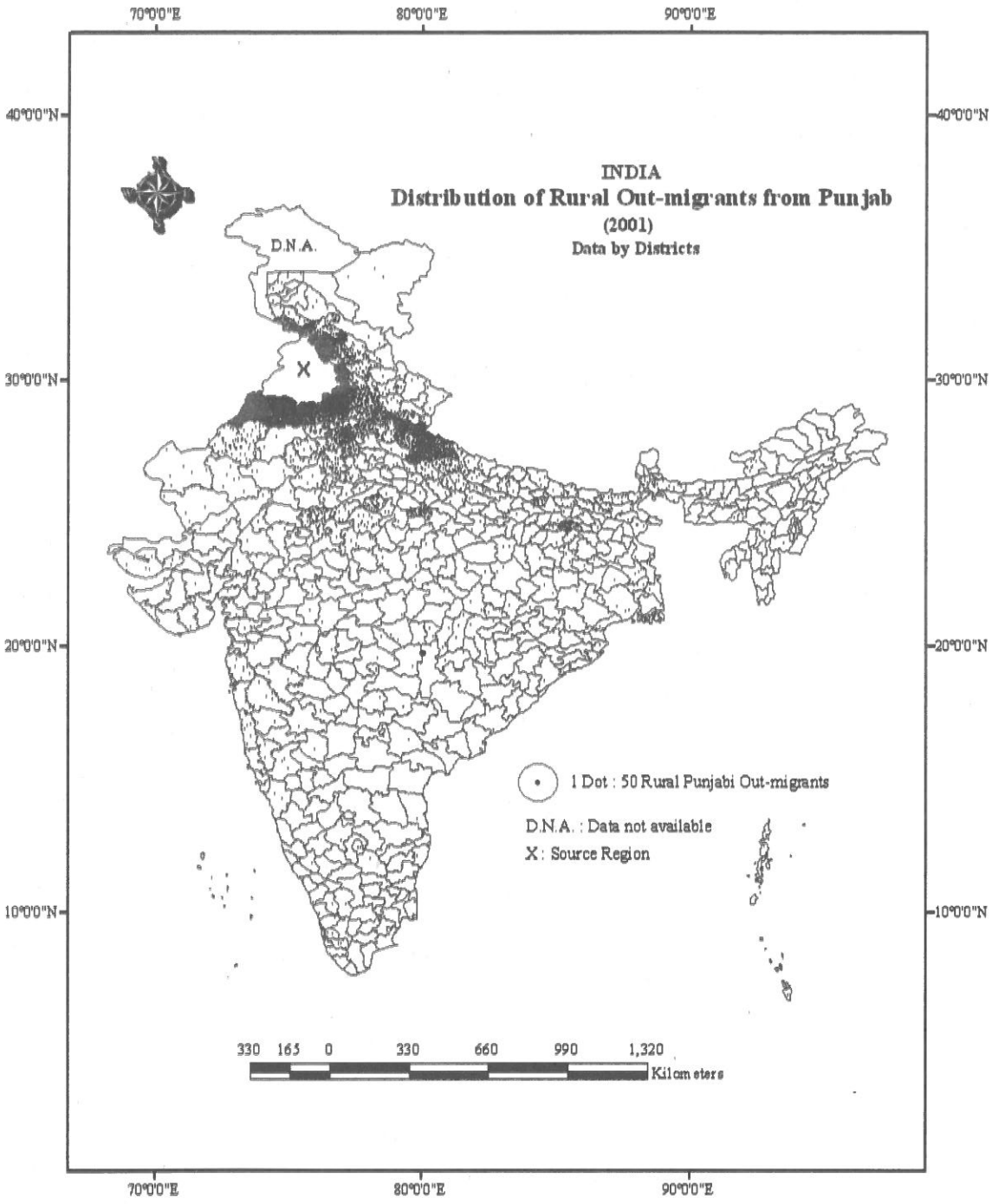


Fig. 5

As suggested above, the main reason for female migration is marriage and moved with household. The reason why large numbers of female out-migrants have been enumerated in the surrounding districts of Punjab state is that initially Punjab, Haryana and a large part of Himachal Pradesh was administratively one unit and it was only after the reorganization of states in 1966 that the present boundaries of these states came into existence. The people in the region shared common traditions and culture and marriages across the borders of the newly created states have been common. However, the marriage migration is not spread throughout the length and breadth of the state, but is more frequent in areas which are located close to the district boundaries on both sides of these states. This type of migration is not found between the extreme ends of any state. This suggests greater inter-district movement along the state boundaries.

The rural-urban distribution of out-migrants from Punjab in 1991 reveals that 39 per cent of the Punjabi out-migrants were enumerated in rural areas of India. The highest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Distribution of Rural Out-migrants from Punjab
(2001)
Data by Districts
D.N.A.
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1 Dot : 50 Rural Punjabi Out-migrants
D.N.A. : Data not available
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Kilometers

Fig. 6

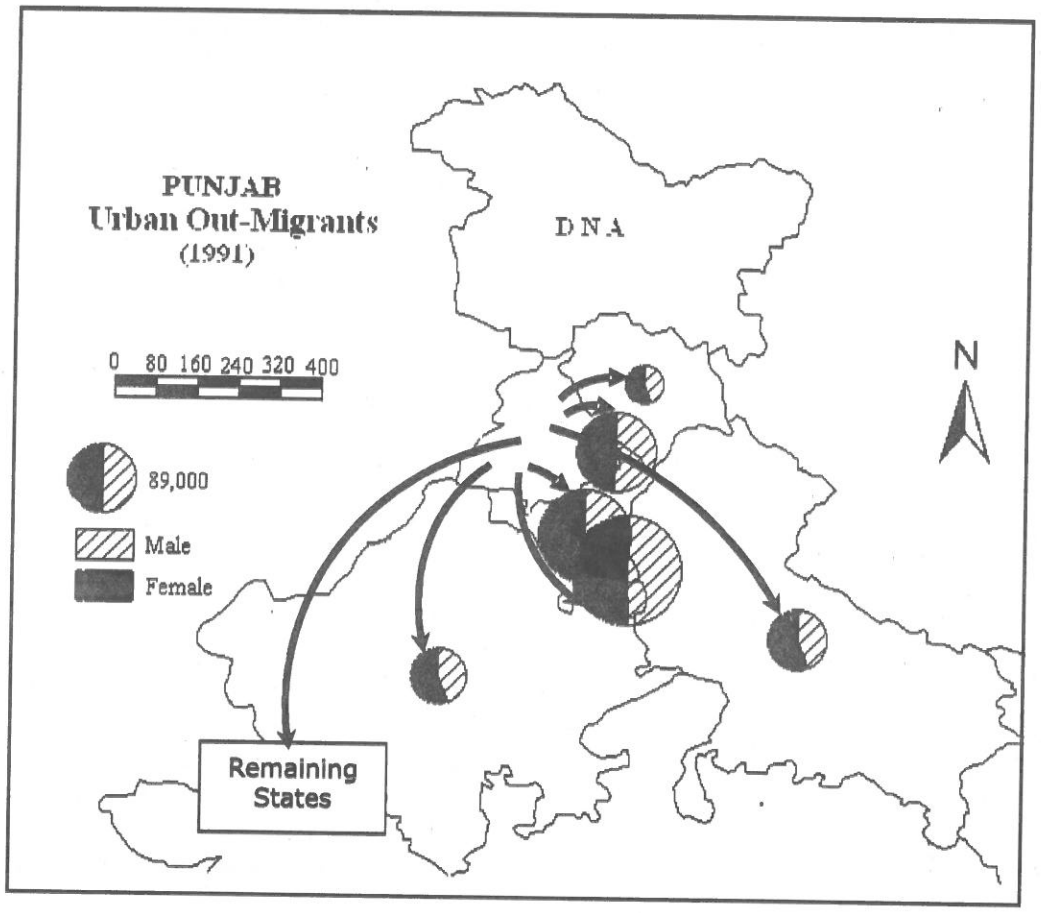


Fig. 7

proportion of migrants (38.10 per cent) went to the rural areas of Haryana, another 21.53 per cent to Rajasthan, followed by Uttar Pradesh (17.44 per cent) and Himachal Pradesh (12.78 per cent). The remaining 10.15 per cent went to the rural areas of other states and union territories of India (Table 1 & Fig. 5).

In 2001 the recipient states remained the same as that of 1991 the only difference was in the numbers of migrants. The highest proportion of rural out-migrants were enumerated in Haryana (38.54 per cent) followed by Rajasthan (17.73 per cent), Himachal Pradesh (16.89 per cent) and Uttar Pradesh (15.30 per cent) (Table 2 & Fig. 6). The district wise distribution of out-migrants in 2001 reveals that the majority of rural out-migrants from Punjab have gone to the districts of neighbouring states and union territories. About 80.61 per cent of the total rural out-migrants had been enumerated in 34 districts of the country (Table 3 & Fig. 6). This pattern of out-migration is not particularly of the 1991-2001 inter-censal decade, but is the result of historical distribution of population. The out-migration of Punjabi people to these districts had started even before independence but gained momentum after 1947. After independence, a large number of Punjabi displaced persons came from Pakistan. The immediate need was to rehabilitate them. For this purpose a substantial number of displaced persons from different provinces of Pakistan were settled in the rural areas of Karnal, Jind,

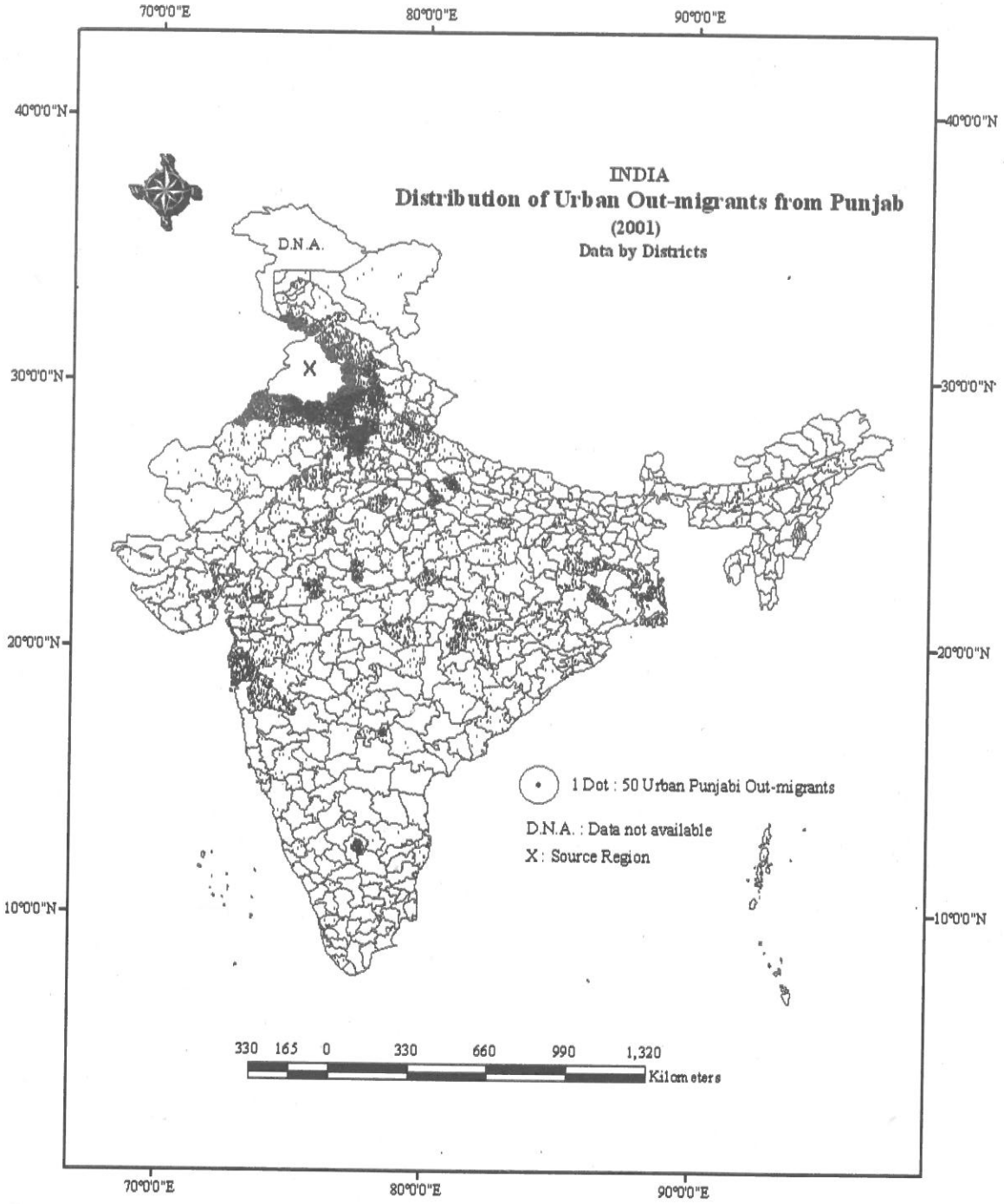
Narnaul, Ambala, Hisar and Gurgaon in present day Haryana, Bharatpur and Alwar districts of Rajasthan and in the western districts of Uttar Pradesh. During early fifties land was reclaimed in the *terai* districts of Uttar Pradesh, which attracted a lot of Punjabi peasants in the following decades. In Himachal Pradesh a large number of Punjabi people had moved to the rural tracts of Paonta valley in Sirmaur district. In Madhya Pradesh the Punjabi out-migrants went to the rural areas of Gwalior, Bhind and Morena districts in north-western parts of the state attracted by the availability of new agricultural land. In Bihar, Delhi and West Bengal the Punjabi out-migrants settled in the rural areas located in the vicinity of large cities. Thus, the present distribution of Punjabi migrants in other states has its roots in the history of the Indian sub-continent.

The data for 1991 reveals that Punjabi out-migrants moved in large numbers to the cities/towns of other states and union territories of India. Majority of Punjabi out-migrants were enumerated in Delhi (27.74 per cent), followed by Haryana (19.54 per cent), Chandigarh (14.28 per cent), Uttar Pradesh (8.17 per cent), Rajasthan (7.09 per cent) and Maharashtra (5.80 per cent). The remaining 17.38 per cent were enumerated in urban centres of other parts of India (Table 1 & Fig. 7). In 2001 the choice of destination was quite similar to that in 1991; the migrants were going to Delhi (25.46 per cent), Haryana (22.73 per cent), Chandigarh (14.09 per cent), Uttar Pradesh (7.32 per cent), Maharashtra (6.45 per cent) and Rajasthan (6.00 per cent). The only change was in the intensity of migration (Table 2). In 2001 almost 1 million Punjabi out-migrants were enumerated in the urban areas of the country. These formed about 60 per cent of the total out-migrants from Punjab. Fig. 8 reveals a concentration of Punjabi urban out-migrants in every part of the country.

Some of the states and union territories reveal well defined streams of in-migration from Punjab in 1991 as well as 2001. The out-migrants followed these streams. This is in accordance with the hypothesis forwarded by Lee in 1966 regarding the streams of migration. According to him "Migration tends to take place largely within well defined streams". It is a common observation that migrants proceed along well-defined routes and to highly specific destinations.

In recent decades there has been a reversal of the trend in the sense that the rural areas of other states and union territories of India are no longer the preferred destination of the Punjabi out-migrants. This is because of the reason that availability of land for cultivation- be it the waste lands of Haryana, marshy and highly insect ridden land of *terai* of Uttar Pradesh, suitable land available for cultivation in the northern districts of Rajasthan- seems to have reached a saturation point and the Punjabi migrants are currently moving more to urban areas.

In the end it may be stated that out-migrants from Punjab are going mainly to the urban areas of India and that too particularly of the neighbouring states. The volume of migration is low in areas located at a greater distance. This is in conformity with the laws of migration given by Ravenstein in 1889. The out-migration from Punjab is directed towards those areas from where there is large scale in-migration to Punjab. Thus in-migration to Punjab is also generating a counter stream of out-migrants from Punjab to the source regions of in-migrants. This is also in conformity with the hypothesis regarding the streams of migration envisaged by Lee (1966). According to him, "For every major migration stream, a counter-stream develops". Once migration starts taking place to a particular destination, the people become aware of the opportunities available at the place of origin of in-migrants. This may generate counter-streams of out migration. Through this process the counter streams of migration are being generated from Punjab. The out migration from Punjab can be understood in terms of the process of generation of counter-streams also.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Distribution of Urban Out-migrants from Punjab
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D.N.A.
X
1 Dot : 50 Urban Punjabi Out-migrants
D.N.A. : Data not available
X : Source Region
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Kilometers

Fig. 8

Table-4
Punjab: Out-migrants by Duration of Stay (1991)

		Total	
	Person	Male	Female
Total migrants	**1376312**	**602890**	**773422**
Less than1 year	3.85	4.44	3.39
1-4 yrs	19.10	19.58	18.73
5-9 yrs	14.37	12.96	15.47
10-19 yrs	22.13	19.81	23.94
20+ yrs	35.54	36.59	34.71
Period not stated	5.00	6.61	3.75
		Rural	
Total migrants	**532421**	**201362**	**331059**
Less than1 year	4.32	6.00	3.31
1-4 yrs	15.93	16.87	15.36
5-9 yrs	13.51	11.82	14.55
10-19 yrs	22.91	20.57	24.34
20+ yrs	37.74	35.72	38.97
Period not stated	5.58	9.03	3.48
Total	**100.00**	**100.00**	**100.00**
		Urban	
Total migrants	**843891**	**401528**	**442363**
Less than1 year	3.56	3.67	3.46
1-4 yrs	21.10	20.94	21.26
5-9 yrs	14.91	13.53	16.16
10-19 yrs	21.64	19.44	23.64
20+ yrs	34.15	37.03	31.53
Period not stated	4.64	5.39	3.96
Total	**100.00**	**100.00**	**100.00**

Source: D2 Migration Tables of all states and U.T.'s of India, Census of India 1991, Data available on CD

Table-5
Punjab: Out-migrants by Duration of Stay (2001)

	Total		
	Person	Male	Female
All Durations	**1632410**	**677793**	**954617**
Less than 1 year	3.18	3.89	2.67
1-4 years	14.91	14.73	15.04
5-9 years	12.62	11.50	13.42
10-19 years	24.00	22.36	25.16
20+ years	39.31	39.86	38.93
Duration not stated	5.98	7.67	4.78
Total	**100.00**	**100.00**	**100.00**
	Rural		
All Durations	**653150**	**220216**	**432934**
Less than 1 year	4.38	7.16	2.96
1-4 years	14.87	16.03	14.28
5-9 years	12.86	11.56	13.52
10-19 years	21.26	17.26	23.29
20+ years	41.09	38.67	42.32
Duration not stated	5.55	9.32	3.63
Total	**100.00**	**100.00**	**100.00**
	Urban		
All Durations	**979260**	**457577**	**521683**
Less than 1 year	2.38	2.32	2.43
1-4 years	14.94	14.10	15.67
5-9 years	12.46	11.47	13.33
10-19 years	25.83	24.81	26.72
20+ years	38.13	40.42	36.12
Duration not stated	6.27	6.87	5.74
Total	**100.00**	**100.00**	**100.00**

Source: D2 Migration Tables of all states and U.T.'s of India, Census of India 2001, Data available on CD

Duration of out-migration

According to the Census of 1991, about 37.32 per cent of the total migrants out-migrated during the inter-censal decade of 1981-91 and 35.54 per cent of Punjabi out-migrants had migrated more than 20 years ago i.e. before 1971 and the remaining 22.13 per cent had migrated during 1971-81 decade (Table 4). In 2001 almost one third of the total out-migration from Punjab took place during the inter-censal decade of 1991-2001 and during this decade, the majority of out-migration occurred during 1-4 years prior to 2001 census. The least amount of out-migration occurred in the one year prior to the

2001 census (Table 5). In fact if the average migration of the last decade i.e. 1991-2001 is calculated then the out-migration in the last one year is marginally higher than the average. Since the other durations of stay are clubbed into four or five years, the proportion of out-migration appears to be less in the last year. The out-migrants whether male or female from rural or urban areas of Punjab followed the same pattern in both the censuses.

During the early 1970's i.e. in the beginning of Green Revolution the employment situation in Punjab improved because of high growth in agricultural production. However, toward the end of 1970's the capacity of Punjab's farming sector to absorb surplus labour force started declining because of a consistent decrease in agricultural growth. During this period, a significant increase in agricultural labour force had taken place comprising of the inhabitants of Punjab as well as those who had migrated from other states. However, this also led to growth of unemployment in the rural areas of the state. The rural poor who earlier used to work as tenant-cultivators were forced to leave the lands because they could not afford the increased cost of inputs after Green Revolution. In addition many marginal owner-cultivators also voluntarily sold their uneconomic landholdings. This created conducive conditions for economically active 15-59 years age group to migrate to other places in search of employment (Singh, 2004).

The out-migrants who migrated more than 20 years ago went to the neighbouring states of Haryana, Delhi, Rajasthan, Uttar Pradesh, Chandigarh and Himachal Pradesh. Majority of migration from Punjab has been towards these states during these years. Although a small variation in the male, female or rural or urban distribution of out-migrants can be identified during 1991 and 2001.

Reasons for out-migration

One of the important aspects of studying migration is to find out the reasons for which a person leaves his residence to find a new one. The reasons for out-migration from Punjab are quite different and distinctive from those of the in-migrants. Table 6 provides details of reasons for out-migration from Punjab by last residence in 1991. As the table shows, the reasons for out-migration in case of males and females vary significantly. Nearly 32.72 per cent of total out-migrants reported marriage as a reason for their migration and 57.38 per cent

Table-6
Punjab: Out-migrants by Reason for Migration (1991)

Reason for Migration	Total		
	Person	Male	Female
Total migrants	**1376312**	**602890**	**773422**
Marriage	32.72	1.09	57.38
Family moved	32.00	34.39	30.14
Employment	15.62	32.49	2.47
Business	6.59	13.51	1.19
Education	1.65	2.39	1.08
Natural calamities	0.40	0.55	0.29
Others	11.02	15.58	7.45
Total	**100.00**	**100.00**	**100.00**
	Rural		
Total migrants	**532421**	**201362**	**331059**
Marriage	43.90	1.35	69.79
Family moved	27.04	38.93	19.82
Employment	9.78	22.80	1.86
Business	6.20	14.17	1.35
Education	0.80	1.25	0.53
Natural calamities	0.50	0.84	0.30
Others	11.76	20.66	6.35
Total	**100.00**	**100.00**	**100.00**
	Urban		
Total migrants	**843891**	**401528**	**442363**
Family moved	35.13	32.11	37.87
Marriage	25.67	0.97	48.09
Employment	19.31	37.35	2.93
Business	6.83	13.17	1.08
Education	2.19	2.96	1.48
Natural calamities	0.34	0.40	0.28
Others	10.54	13.04	8.27
Total	**100.00**	**100.00**	**100.00**

Source: D3 Migration Tables of all states and U.T.'s of India, Census of India 1991, Data available on CD

Table-7
Punjab: Out-migrants by Reason for Migration (2001)

	Total		
	Person	Male	Female
Total Migrants	**1632410**	**677793**	**954617**
Marriage	33.19	0.74	56.23
Moved with Household	29.21	30.02	28.63
Work/Employment	18.54	40.50	2.94
Moved after birth	4.07	6.01	2.69
Business	1.53	3.26	0.30
Education	1.08	1.67	0.66
Other	12.39	17.81	8.55
Total	**100.00**	**100.00**	**100.00**
	Rural		
Total Migrants	**653150**	**220216**	**432934**
Marriage	46.74	1.13	69.94
Moved with Household	22.68	31.65	18.12
Work/Employment	13.67	35.80	2.42
Moved after birth	4.10	7.56	2.34
Business	0.48	1.13	0.15
Education	0.36	0.71	0.19
Other	11.95	22.02	6.83
Total	**100.00**	**100.00**	**100.00**
	Urban		
Total Migrants	**979260**	**457577**	**521683**
Moved with Household	33.56	29.23	37.36
Marriage	24.15	0.55	44.86
Work/Employment	21.78	42.76	3.37
Moved after birth	4.04	5.26	2.98
Business	2.22	4.28	0.42
Education	1.56	2.14	1.05
Other	12.68	15.78	9.97
Total	**100.00**	**100.00**	**100.00**

Source: D3 Migration Tables of all states and U.T.'s of India, Census of India 2001, Data available on CD

of the total female out-migrants reported the same reason. Another 32 per cent reported family moved as their reason for out-migration from Punjab. Interestingly majority of male migrants (34.39 per cent) reported family moved as a reason for out-migration instead of employment. Employment was the second most important reason and was reported by 32.49 per cent of total male out-migrants. Business accounted for 13.51 per cent of Punjabi male out-migration. This out-migration of Punjabi businessmen could be attributed to the disturbed conditions which prevailed during 1981-91 in Punjab. As expected the out-migration from Punjab was least associated with natural calamities (Table 6).

In 2001 also the major reasons for out-migration were the same as in 1991. Like in 1991, in 2001 also the largest number of females out-migrated from the state due to marriage. For males the main reason for out-migration was employment (Table 7). The choice of destination in 2001 was same as in 1991, females moving to the rural areas and males going to the urban areas of the country. The proportion of male out-migrants for business declined significantly from 13.51 per cent to 3.26 per cent. This substantiates the earlier statement that out-migration from Punjab for business was not for the opportunities available outside the state, but was distress migration due to the disturbed political conditions which prevailed in the state (Bal, 2005, p.3980, and District Census Handbook, Gurdaspur, p.7).

Tables 6 & 7 reveal that the females from Punjab have out-migrated mainly due to marriage. In1991 more than half (57.38 per cent) of the total female out-migration was due to marriage. An additional 30.14 per cent moved out with family. In 2001 these values were 56.23 and 28.63 per cent respectively. In comparison the males out-migrated for employment (32.49 in 1991 and 40.50 per cent in 2001) and an additional 34.39 per cent in 1991 and 30.02 in 2001 moved with household. Interestingly a small proportion of out-migrants from Punjab went for attaining some education in other parts of India and even within this group one can clearly visualize the bias against females attaining education outside the state (Tables 6 and 7).

Table 8 depicts the state wise distribution of out-migrants from Punjab and the reason for migration. Marriage as a reason for out-migration is very significant in case of

Table-8
Punjab: Out-migrants by Reason for Migration to Major States (1991)

Reason for Migration	States				
	Haryana	**Delhi**	**Rajasthan**	**U. P.**	**Chandigarh**
Total migrants	**367768**	**240752**	**174450**	**161748**	**131149**
Employment	9.57	21.17	15.14	11.67	23.13
Business	5.84	6.10	6.59	7.47	5.13
Education	0.86	0.80	0.93	1.43	4.10
Family moved	26.53	42.36	28.55	36.54	33.87
Marriage	47.78	22.76	39.79	28.69	18.51
Natural calamities	0.49	0.24	0.28	0.89	0.05
Others	8.93	6.57	8.72	13.30	15.21
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
	H. P.	**Maharashtra**	**M. P.**	**W. B.**	**Bihar**
Total migrants	**96323**	**53486**	**48273**	**25166**	**20880**
Employment	11.09	17.91	21.46	21.85	28.40
Business	6.04	10.37	9.01	6.91	6.66
Education	2.49	3.42	1.33	1.67	2.01
Family moved	23.91	28.94	34.89	28.73	21.93
Marriage	40.53	18.30	20.36	24.58	34.00
Natural calamities	0.28	0.26	0.62	0.95	0.19
Others	15.67	20.79	12.33	15.30	6.80
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
	Gujarat	**Karnataka**	**Andhra P.**	**Assam**	**Tamil Nadu**
Total migrants	**16940**	**7270**	**7190**	**6270**	**6060**
Employment	20.43	18.16	24.34	17.38	16.67
Business	12.46	4.26	7.09	16.11	5.12
Education	1.30	16.37	2.36	2.07	10.07
Family moved	33.88	38.10	40.61	32.22	32.34
Marriage	14.05	9.22	11.13	22.33	18.32
Natural calamities	0.12	0.41	0.00	0.64	0.33
Others	17.77	13.48	14.46	9.25	17.16
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Source: D3 Migration Tables of all states and U.T.'s of India, Census of India 1991, Data available on CD

neighbouring states of Punjab but as the distance increases marriage as a reason for out-migration loses its significance. Similarly employment as a reason for out-migration is more significant in the states located at a greater distance as compared to neighbouring states. It also depends upon how well developed the urban areas in the recipient

Table-9
Punjab: Out-migrants by Reason for Migration to Major States (2001)

Reason for Migration	States				
	Haryana	Delhi	Rajasthan	U. P.	Chandigarh
Total Migrants	**474296**	**256119**	**174533**	**171626**	**149718**
Employment	13.23	23.19	17.81	20.33	25.82
Business	0.61	1.95	0.51	1.06	2.18
Education	0.35	0.96	0.38	0.55	4.09
Marriage	45.59	20.24	40.41	22.95	19.48
Moved after birth	5.01	3.05	4.24	1.06	6.38
Moved with Household	24.86	38.29	27.38	36.47	31.78
Other	10.35	12.33	9.26	17.57	10.26
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
	H. P.	**Maharashtra**	**M. P.**	**J & K**	**Bihar**
Total Migrants	**146737**	**67881**	**46543**	**41845**	**27024**
Employment	12.52	27.73	25.36	16.63	18.48
Business	1.13	2.26	2.15	1.72	1.45
Education	1.09	2.25	0.65	0.54	0.84
Marriage	53.56	17.87	18.55	37.00	35.86
Moved after birth	4.95	6.15	2.77	1.24	1.32
Moved with Household	15.19	30.03	37.44	26.60	21.57
Other	11.58	13.70	13.08	16.26	20.47
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
	W. B.	**Gujarat**	**Karnataka**	**Andhra P.**	**Orissa**
Total Migrants	**21966**	**17897**	**7656**	**7006**	**6409**
Employment	18.17	19.44	21.79	19.14	21.74
Business	6.86	10.96	4.00	4.97	11.97
Education	1.29	0.91	12.80	1.50	1.30
Marriage	17.32	14.56	8.25	7.32	17.38
Moved after birth	2.72	4.98	2.76	2.88	1.84
Moved with Household	32.45	36.97	34.67	31.69	28.51
Other	21.20	12.18	15.74	32.50	17.27
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Source: D3 Migration Tables of all states and U.T.'s of India, Census of India 1991, Data available on CD

states are. In case of Haryana although it receives largest number of out-migrants from Punjab but those going in search of employment former just about ten per cent of the total out-migrant population in 1991. The proportion of migrants from Punjab reporting employment as a reason for migration is the lowest in Haryana and those reporting marriage

is the highest in the whole country. In case of Delhi majority of migrants from Punjab reported family moved as a reason for migration. Marriage and employment was reported by nearly equal number of migrants to Delhi. These three reasons are the main causes of out-migration from Punjab to the states and union territories of India.

The proportion of out-migrants from Punjab for business varied with from one state to another. It was 27.97 per cent in Manipur and just 2.35 per cent in Kerala in 1991. The states which received sizeable number of Punjabi people due to business were not only the neighbouring states but also states like Maharashtra, Gujarat, Assam and Orissa etc.

For attaining education, the Punjabi people migrated to Chandigarh, Karnataka and Tamil Nadu. Chandigarh is known as the knowledge city of North India and a lot of students from the neighbouring states of Punjab, Haryana, Himachal Pradesh and Jammu and Kashmir have been coming to the city for attaining higher education. Karnataka and Tamil Nadu had a large number of professional educational institutes during late 1980's and early 1990's which admitted students in engineering and medicine field without any entrance test but with donation. This could be one probable reason for Punjabi students who could not get admission in the colleges of Punjab or Chandigarh and went to these institutes for higher studies and were enumerated as out-migrants from Punjab.

In 2001 the main reasons for Punjabi out-migrants were the same with only a minor change in their proportion. The out-migrants went more towards the neighbouring states than the ones located farther off (Table 9). The reasons were almost the same, marriage, moved with household and employment being the dominant ones. From the above analysis of 1991 and 2001 data regarding out-migration of Punjabi people, it is evident that marriage continues to remain the most important reason for migration among females. However, for males employment and family moved continue to be important reasons.

Conclusions

A large number of out-migrants from Punjab are moving to the neighbouring states. Majority of them are females and the reason for their migration is marriage and movement with family or the associated reasons. The common cultural tradition perhaps has facilitated the migration of women in greater numbers to the adjoining states. In comparison the males have been going to the urban areas of other parts of the country and the main reasons for their migration are employment, moved with family and business. Most of the out-migration took place more than 20 years ago. Not very large numbers of Punjabi out-migrants have been enumerated beyond the neighbouring states and union territories of India. Thus, regionalism has impeded inter-state migration to some extent; the fact that the volume of migration is inversely related to distance is also an important aspect which has led to the present spatial distribution of Punjabi out-migrants in India.

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POPULATION GEOGRAPHY Volume 31 Numbers 1 & 2 June-December 2009

EDUCATIONAL DEVELOPMENT AMONG SCHEDULED TRIBES OF HIMACHAL PRADESH : A SPATIO-TEMPORAL STUDY (1971-2001)

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Abstract

The notified tribal area of Himachal Pradesh constituting the entire Kinnaur and Lahaul & Spiti districts and Pangi and Bharmaur blocks of Chamba district is inhabited by such distinct scheduled tribes as Gaddis, Pangwalas, Lahaulas, and Bhots to name a few. The tribal population constituted about 4 per cent of the total population of the state in 2001. The present study aims at describing the spatio-temporal variations in the level of literacy and attainment of education among scheduled tribes of Himachal Pradesh and the spatial variations in gender disparity at various levels of education. Sopher's disparity index, modified by Kundu and Rao (1985) has been used to compute gender disparity in literacy at both village and household levels. The study is based on both primary and secondary data. The primary data have been collected from 1132 households spread in 21 sample villages selected using purposive sampling. The household survey was carried out during mid May to early August, 2008. The village level secondary data relating to literacy have been collected from the District Census Handbooks, Directorate of Census Operations, Shimla for 1971 and 2001. The study reveals that literacy rate in the tribal region has witnessed about three times increase during 1971-2001. The gender inequity in level of literacy has also declined considerably during the same period. However, the impact of the process of social transformation has not been equal on the two sexes since there continues to exist a wide gender disparity in the level of literacy and education in the region. The gender inequity in the attainment of education increases with the increase in the level of education. It is quite significant in Bharmaur block and Kinnaur district. The process of educational attainment is still in the developing stage as only about 30 per cent of educated persons have attained higher secondary and higher educational level.

Introduction

Anthropologically Himachal Pradesh can hardly be termed a tribal state though some of its parts have a concentration of such distinct scheduled tribes as Gaddi, Kinnaura, Lahaula, Pangwal, and Lamba to name a few. In 2001 the total tribal population of Himachal Pradesh was 2, 44,587 persons which constituted only about 4 per cent of the total population of the state. Thus, the population ratio of tribals and non-tribals in Himachal Pradesh is about 1:25 (Census of India, 2001). Characterised by hostile geographic environs, extreme cold and dry agro-climatic conditions, non-industrialization, and limited basic infrastructure facilities, the notified tribal areas of Himachal Pradesh continue to be backward and characterized as being at the subsistence level with low land productivity. The tribal

population of Himachal Pradesh is concentrated in the strategic region bordering Tibet (China). It mainly depends upon agriculture, pastoralism, and horticulture. Unlike in many other parts of the country where the tribal population has been engaged in a struggle to protect their land resources from encroachment, in Himachal Pradesh legal measures have been strengthened to protect the land rights of the tribal people. As in other parts of India the scheduled tribes of Himachal Pradesh are characterized by a distinctive life style and cultural ethos, continue to be geographically and politically isolated, and have socio-economic inequalities (Thakur, 2010, p. 30).

Since independence, efforts have been made through successive Five Year Plans to improve the socio-economic conditions of tribal people (Joshi, 1983, pp.35-36). But the tribal areas did not recieve due attention for about two and half decades. The Fifth Five-Year Plan could be termed as a landmark in the development planning for the tribal people of the country. In this plan, a new approach (Tribal Sub-Plan) was envisaged for tribal development with a number of objectives. One of the objectives was to raise the level of literacy and educational attainment thereby building up inner strength of the people and improving their organizational capabilities (Hasnain, 2001, pp.370-71). The response to programmes of literacy and of formal education has varied significantly across different regions and tribal communities depending on the socio-cultural, economic, demographic characteristics and on the magnitude and direction of the forces of modernization, urbanization and industrialization (Bose, 1970). As a result there are significant variations in the regional pattern of literacy (Shrikant, 1966).

Literacy rate provides a good measure of human development (Naseer, 2005). Among the various demographic attributes, the level of education is probably the best indicator of the level of socio-economic development in an area. Due to its bi-fold function of cause and effect in the process of modernization, it serves as a sensitive barometric indicator of the level of development which a society possesses for its future progress. It is education which prepares the individual for full participation in a rapidly changing social and economic order. Hence, level of education is an effective expression of the socio-economic attainments by the societies in transition (Dube and Mishra, 1981).

The Census definition of literacy covers the entire range of individuals from highly educated to those who can both read and write any passage in any language with an understanding. Definition apart, being literate is the first step necessary to attain education and higher goals in an individual's life (Raza *et al.*, 1985, p.104). While an overall progress in literacy and education is necessary in a country, equally important is its distributional spread in all its areas - towns and villages - and the two sexes (Gosal, 1979).

The social benefits of education are far higher than its economic gains (Sengupta and Guha, 2002). Education provides many indirect benefits which might be considered predominant as compared with the direct financial benefits as the former are perpetuated from generation to generation (Samanta, 2003). Education is therefore a sound medium for all round development and acquisition of human qualities (Singh and Singh, 1988, p. 36).

Level of literacy is undoubtedly one of the most important indicators of social and cultural development among the tribal communities. The various dimensions of socio-cultural change in a tribal society can be better understood in the light of the levels of literacy and education (Raza and Ahmad, 1990, p. 258).

It is in this context that the literacy and level of educational development among the scheduled tribes of Himachal Pradesh have been studied in this paper.

Objectives

The present study has been conducted with the following objectives:


Himachal Pradesh
Location of
Notified Tribal Area
JAMMU & KASHMIR
KILAR
Pangi
(Chamba)
REI
PURTHI
MARGAON
UDAIPUR
Chamba
Lahaul
KEYLONG
PALAN PUDAN
SUAI
BHARMAUR
Bharmaur
(Chamba)
(Lahaul and Spiti)
Spiti
CHINA
(Tibet)
KAJA KHAS
TABO
POH
LEO
POO
Kinnaur
YANGPA
LIPPA KHAS
TAPRI
RECKONGPEO
SUNGRA
SAPNI KHAS
SANGLA
Kangra
Kullu
Hamirpur
Mandi
Una
PUNJAB
Bilaspur
Shimla
UTTARAKHAND
Solan
HARYANA
Sirmaur
U.P.
Boundaries
International
State
District
Block
Sample villages
Notified tribal area /study area
0
50
Kms.

Fig. 1

Table - 1
Study Area: Sample Villages, Sample Households and Sampling Method

Area	CD Block	Sample Village	Sample Households
Kinnaur (District)	Poo	Poo*	36
		Leo**	32
		Lippa Khas***	43
	Kalpa	Reckongpeo*	167
		Sangla**	95
		Sapni Khas***	45
	Nichar	Sungra(Bhawanagar) *	126
		Tapri**	48
		Yangpa ***	51
	Total	**9**	**643**
Lahaul (CD Block)	Lahaul	Keylong*	108
		Udaipur**	52
		Margaon***	23
	Total	**3**	**183**
Spiti (CD Block)	Spiti	Kaja Khas (Spiti) *	39
		Tabo**	32
		Poh *** (As per criteria- Sangam)	19
	Total	**3**	**90**
Pangi (CD Block)	Pangi	Kilar (Mahliat) *	37
		Purthi ** (As per criteria- Dharwas)	25
		Rei***	27
	Total	**3**	**89**
Bharmaur (CD Block)	Bharmaur	Bharmaur*	58
		Suai**	45
		PalanPulan***	24
	Total	**3**	**127**
Grand Total		**21**	**1132**
Sampling Criteria		* CD Block Headquarter ** Largest Populous but Accessible Village in CD Block as per 2001 Census *** Largest Populous but Inaccessible Village in CD Block as per 2001 Census	

(i) to study the spatio-temporal variations in the level of literacy in tribal areas of Himachal Pradesh;

(ii) to study attainment of levels of education in the study area; and

(iii) to study the regional variations in gender disparity at various levels of literacy and education in the study area.

Data Base, Sample Design and Methodology

The present study is based on secondary as well as primary data. The secondary data relating to literacy at the village level for two periods of time i.e. 1971 and 2001 have been computed from the District Census Handbook, Directorate of Census Operations, Shimla. To get a fair representation and comparative picture of literacy pattern Community Development Blocks have been considered for sampling at the village level. Purposive sampling has been used for selecting the sample villages and collecting primary data. The spatial variations within the tribal region have been studied with reference to each notified tribal area. In total, 1132 households randomly selected from 21 sample villages have been surveyed (Fig.1). The details of sample villages, sample households and sampling criteria are presented in Table 1. It should be noted here that in two blocks namely Spiti and Pangi two sample villages as shown in table could not be surveyed as per the sampling method due to land slide problem. Hence, two other villages close to sampling criteria have been selected. The accessibility of villages has been considered in terms of availability of motorable metal surfaced road.

The relief and drainage map has been prepared using Arc GIS 9.2 software from the topographical sheets procured from Texas University websitei.e.*www.lib.utexas.edu/maps/ams/India*. The village wise data on literacy suffer from a major limitation. The 0-6 age population was not computed separately in 1971 Census. So, in order to facilitate comparison, the percentage of literates has been computed out of total population (crude literacy rate) for 2001 Census. However, for computing the literacy rate and levels of educational attainment at household level, 0-6 age group population has been excluded from total population. The percentage of literates to the total literate population has been grouped as literates without educational level and into five educational levels viz. primary, middle, high, intermediate and higher. Sopher's disparity index, modified by Kundu and Rao (1985) as given below has been used to compute gender disparity in literacy at both village and household levels.

$$Ds = \text{Log } (x_2 \backslash X_1) + \text{Log } (200\text{-}X_1 \backslash 200\text{-}X_2)$$

Where, Ds is gender disparity index, X1 is percentage of literate females to total female population and X2 is percentage of literate males to total male population.

Study Area

LOCATION

Entire Kinnaur and Lahaul-Spiti districts, and Pangi and Bharmaur blocks of Chamba district constitute the tribal scheduled areas in the state, fulfilling the criterion of a minimum of 50 per cent scheduled tribe population concentration in a community development block. These areas are situated in the north and north-east of the state forming a contiguous belt in the far hinterland behind high mountain passes and are amongst the remotest and relatively inaccessible areas in the state. The study area lies between 31°6' 15"N and 33°15' 55"N and 76°13'47"E and 79°1'25"E (Fig. 1). The eastern part shares the international boundary for about 201 km with Tibet (China), the western boundary is formed by Chamba and Churah *tehsils* of district Chamba. In the north, the study area shares its boundary with Jammu and Kashmir state and in the south with Kangra and Kullu districts. Spreading over an area of approximately 23,655 sq km, the tribal region has 681 inhabited villages spread across five ITDPs (Census of India, 2001). The study area constitutes about 42.49 per cent of the state's

geographical area (55673 sq km) and represents 2.74 per cent of the total population (60.78 lacs) of the state (Census of India, 2001).

PHYSIOGRAPHY

Large glaciers, high altitudes and highly rugged terrain criss-crossed by fast flowing rivers, their tributaries, passes, ridges, peaks, spurs, valleys and natural lakes are the characteristic topographic features of the study area (Fig 2). Altitude in the study area varies between 1550m to 7030m above mean sea level. Physiographically the study area is enclosed on the southwest by the lofty Dhaula Dhar, on the north by the Great Himalayan Range, on the south by an extension of Pir Panjal Range which ultimately meets the Greater Himalayan range in the southeast and Zanskar range in the east. The Zanskar range separates Spiti and Kinnaur from Tibet. This physical setting makes the tribal region isolated from the rest of Himachal Pradesh. The most frequent entries to this 'territory of tribals' are along the course of rivers and mountain passes. The lofty mountain ranges which surround the study area are broken only at some places by narrow gorges of prominent Himalayan rivers namely Satluj, Spiti, Pin, Chandra, Bhaga (Chenab) and Ravi and their tributaries. The study area can be divided into the following five altitudinal zones (Fig. 2): *(i)More than 6000 meters above mean sea level:* This zone has high peaks and ridges covered with massive sheets of snow and ice all year round and constitutes about 2.12 per cent of the study area. Among the major glaciers in this zone are Bara Singri, the largest glacier, located above the Chandra river valley of Lahaul. The entire tract is devoid of vegetation cover and resembles parts of Ladakh and Tibet rather than Lahaul; (ii) *Between 5000 to 6000 meters above mean sea level:* This zone covers 29.87 per cent of the study area and is covered with snow for most part of the year. Pir Panjal Range is the most prominent mountain range covering the study area from northwest to southeast. Glaciers in this zone descending into lower elevation U-shaped valleys melt in the summer months and feed the streams and rivers; (iii) *Between 4000 to 5000 meters above mean sea level :* This zone covers about 46 per cent of the study area and is the largest of all relief categories. Its implication is that majority of the tribal belt under study is characterized by a high altitude landscape and because of this is sparsely populated. Only some parts of the area are devoted to farming and are accessible mainly during summer season through mountain passes *viz.,* Kunzum La links Lahaul with Spiti, Baralacha La links Lahaul with Ladakh, Sach pass links Churah (Chamba) with Pangi. Other major passes are Shipki, Rohtang, Barakanda Chobia, Chobu, Parang, Lagudarsi and Charang; (iv) *Between 3000 to 4000 meters above mean sea level :* This zone constitutes about 17 per cent of the study area. Most of the terrain in this zone lies in river banks, valleys and flat agricultural areas surrounded by higher mountains. Some of the larger village settlements of the tribal area under study are situated in this zone. Kaza village situated at 3660 metres in the heart of Spiti valley is a perfect example; (v) *Less than 3000 metres above mean sea level :* This zone constitutes only 5.4 per cent of the study area. It covers mainly lower Baspa valley, Satluj below the confluence with Spiti river, and Chandra-Bhaga (Chenab) below Tandi (Fig. 2). Most of the land in this zone comprises of the river valleys which are virtually gorges. Thus the only sizable valleys suitable for human habitation are those of the Ravi river and its tributaries in Bharmaur block of Chamba district.

CLIMATE

The climatic conditions in the study region are greatly influenced by altitude and configuration of relief features. The climate of the tribal region varies from dry temperate to semi-arctic. During summer, the climate of the region is moderate and pleasant. Despite being located in the subtropics, the region experiences severe winters and receives snowfall from December to March. At higher altitudes, snowfall begins much earlier. The winter snowfall is so heavy that at times one cannot find even a small patch of bare land. The altitudinal effect on temperature restricts

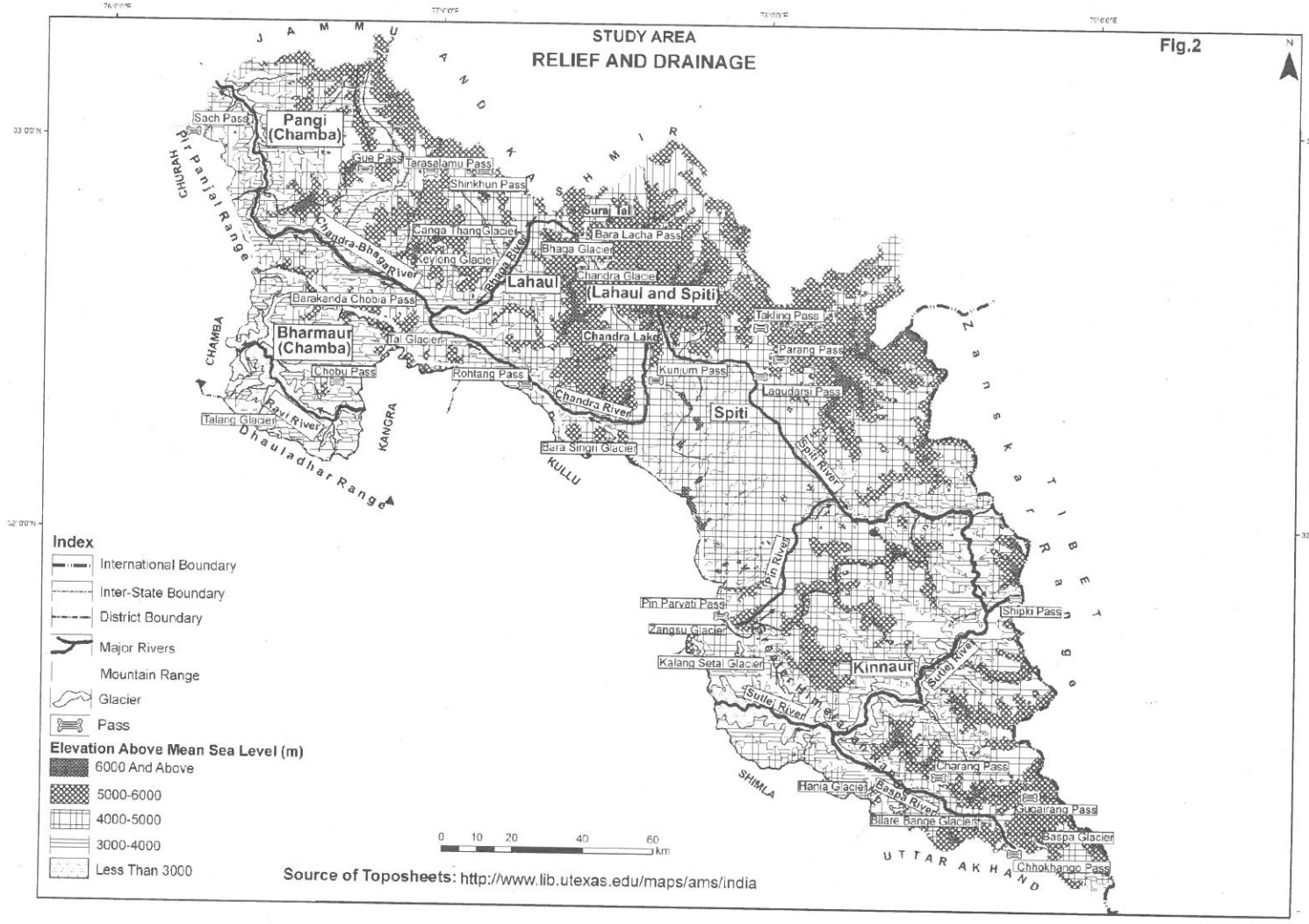
STUDY AREA
RELIEF AND DRAINAGE
Fig.2
Pangi (Chamba)
Lahaul (Lahaul and Spiti)
Bharmaur (Chamba)
Spiti
Kinnaur
Sach Pass
Gue Pass
Tarasalamu Pass
Shinkhun Pass
Surai Tal
Bara Lacha Pass
Bhaga Glacier
Chandra Glacier
Barakanda Chobia Pass
Tal Glacier
Chobu Pass
Rohtang Pass
Chandra Lake
Takling Pass
Parang Pass
Kunjum Pass
Lagudarsi Pass
Talang Glacier
Bara Singri Glacier
Pin Parvati Pass
Zangsu Glacier
Kalang Setal Glacier
Shipki Pass
Charang Pass
Hania Glacier
Bilare Range Glaciers
Gubarang Pass
Baspa Glacier
Chhokhango Pass
Chandra-Bhaga River
Chandra River
Spiti River
Pin River
Sutlej River
Baspa River
Ravi River
Dhauladhar Range
Pir Panjal Range
Zanskar Range
Index
International Boundary
Inter-State Boundary
District Boundary
Major Rivers
Mountain Range
Glacier
Pass
Elevation Above Mean Sea Level (m)
6000 And Above
5000-6000
4000-5000
3000-4000
Less Than 3000
0 10 20 40 60 km
Source of Toposheets: http://www.lib.utexas.edu/maps/ams/india

Fig. 2

Table - 2
Study Area: Villages by Proportion of Literates (1971 and 2001)

Area	Year	Percent Literates							
		Less than 10	10-20	20-30	30-40	40-50	50-60	More than 60	Total Villages
Kinnaur (District)	1971	3 (3.90)	23 (29.87)	26 (33.77)	15 (19.48)	8 (10.39)	1 (1.30)	1 (1.30)	77 (100.00)
	2001	3 (1.28)	2 (0.85)	Nil	9 (3.85)	15 (6.41)	13 (5.56)	192 (82.05)	234 (100.00)
Lahaul (Block)	1971	15 (9.62)	20 (12.82)	57 (36.54)	44 (28.20)	13 (8.33)	4 (2.57)	3 (1.92)	156 (100.00)
	2001	Nil	2 (1.04)	3 (1.56)	2 (1.04)	7 (3.65)	24 (12.50)	154 (80.21)	192 (100.00)
Spiti (Block)	1971	11 (23.40)	20 (42.55)	8 (17.02)	3 (6.38)	4 (8.51)	Nil	1 (2.13)	47 (100.00)
	2001	9 (9.47)	1 (1.05)	3 (3.16)	1 (1.05)	13 (13.68)	7 (7.37)	61 (64.21)	95 (100.00)
Pangi (Block)	1971	46 (50.00)	32 (34.78)	7 (7.61)	3 (3.26)	Nil	2 (2.17)	2 (2.17)	92 (100.00)
	2001	Nil	Nil	1 (1.69)	1 (1.69)	5 (8.47)	29 (49.15)	23 (38.98)	59 (100.00)
Bharmaur (Block)	1971	76 (67.86)	25 (22.32)	4 (3.57)	2 (1.79)	2 (1.79)	Nil	3 (2.68)	112 (100.00)
	2001	1 (0.99)	Nil	3 (2.97)	2 (1.98)	10 (9.90)	37 (36.63)	48 (47.52)	101 (100.00)
Total	1971	151 (31.20)	120 (24.79)	102 (21.07)	67 (13.84)	27 (5.58)	7 (1.45)	10 (2.07)	484 (100.00)
	2001	13 (1.91)	5 (0.73)	10 (1.47)	15 (2.20)	50 (7.34)	110 (16.15)	478 (70.19)	681 (100.00)

Source: Census Data: 1971 and 2001; Figures in parentheses show percentage to total inhabited villages.

cultivation in the tribal region mainly up to 4700m above mean sea level.

Changing Pattern of Literacy at Village Level (1971 and 2001)

The literacy level at the village level in 1971 and 2001 in the tribal areas of Himachal Pradesh is presented in Table 2. The data shows that in 1971, about 55.99 per cent of total inhabited villages in tribal region had very low literacy i.e. less than 20 per cent. Of these 31.20 per cent had extremely low literacy rate of less than 11 per cent. Only 3 per cent of villages had a rate exceeding 50 per cent.

During the last three decades the scenario has changed drastically. In 2001, about 86 per cent of the villages had a literacy level of more than 50 per cent. In about 70 per cent of the villages in the study area the proportion of literates was more than 60 per cent. Only 7 per cent villages had a literacy level between 40 per cent to 50 per cent.

The increase in the proportion of literates has been recorded in all the tribal areas of Himachal Pradesh, though the increase has not been uniform in all areas. The increase has been very high in Kinnaur district. In 1971, about one-third of the inhabited villages had 20 per cent literacy rate. In about 4 per cent of the inhabited villages, the literacy rate was less than 11 per cent. There were only 2 villages in the area having more than 50 per cent literates. In comparison in 2001, about 87 per cent of inhabited villages in Kinnaur district had literacy rate exceeding 50 per cent. In about 82 per cent of the inhabited villages the literacy rate was more than 60 per cent.

Lahaul block has also witnessed a significant increase in the proportion of literates. In 1971 about 22 per cent of inhabited villages had a literacy rate upto 20 per cent. In about one-tenth of the villages the proportion of literates was less than 11 per cent. But in 2001 about 92 per cent of villages had a literacy rate of more than 50 per cent. In only about 4 per cent of villages literacy rate ranged between 40 to 50 per cent.

The proportion of literates has also registered an increase in Spiti block, located in the eastern part of Lahaul and Spiti district but not to the same extent as Lahaul block and Kinnaur district. The literacy level was low in Spiti block in 1971. About two-third of the inhabited villages had a literacy rate of less than 20 per cent in 1971. In 2001, the proportion of literates in about 71 per cent of villages in Spiti block was more than 50 per cent. About 13.68 per cent of the villages in the area had literacy rate between 40 to 50 per cent as compared to 8.5 per cent in 1971 (Table 2).

The level of literacy also improved considerably in Pangi and Bharmaur tribal areas of Chamba district. In 1971 about 90 percent of the villages in Bharmaur had a low literacy rate of less than 20 per cent. Of this in 68 per cent of villages the proportion of literates was less than 10 per cent. In 2001 only one village registered literacy of less than 10 per cent while about 84 per cent of villages had literacy rate exceeding 50 per cent. Nearly half (47.5 per cent) of these had more than 60 per cent of their population as literates. About one-tenth of the villages in this block had a literacy rate between 40 to 50 per cent in 2001. In 1971 the proportion of literates was less than 10 per cent in 50 per cent of the villages in Pangi block. In 2001 the proportion of literates ranged between 50 to 60 per cent in 49 per cent of villages while an additional 38.98 per cent villages had more than 60 per cent literacy (Table 2).

The comparison of village-wise proportion of literates in 1971 and 2001 shows that there has been a significant increase in literacy level among tribal communities of Himachal Pradesh during last three decades. The level of literacy has tremendously improved in Kinnaur district and Lahaul block

Table - 3
Study Area: Percentage of Literates by Sex and Gender Disparity in Literacy

Area	Year	Literate Population			Disparity Index	Total Population		
		Male	Female	Total		Male	Female	Total
Kinnaur (District)	1971	11379 (43.09)	2424 (10.35)	13803 (27.70)	0.70	26407	23428	49835
	2001	31589 (74.90)	20324 (56.20)	51913 (66.27)	0.16	42173	36161	78334
Lahaul (Block)	1971	5616 (43.28)	1087 (10.29)	6703 (28.48)	0.71	12975	10563	23538
	2001	9315 (74.12)	5500 (55.12)	14815 (65.71)	0.19	12567	9978	22545
Spiti (Block)	1971	1567 (38.62)	153 (4.87)	1720 (23.90)	0.98	4057	3139	7196
	2001	4411 (75.09)	2383 (49.59)	6794 (63.62)	0.26	5874	4805	10679
Pangi (Block)	1971	1619 (22.52)	156 (2.35)	1775 (12.84)	1.03	7189	6635	13824
	2001	6013 (64.94)	3149 (37.76)	9162 (52.06)	0.32	9259	8339	17598
Bharmaur (Block)	1971	2621 (18.24)	308 (2.43)	2929 (10.82)	0.91	14367	12700	27067
	2001	12124 (62.95)	7703 (42.83)	19827 (53.23)	0.23	19259	17987	37246
Total	**1971**	**22802 (35.08)**	**4128 (7.31)**	**26930 (22.17)**	**0.75**	**64995**	**56465**	**121460**
	2001	**63452 (71.19)**	**39059 (50.55)**	**102511 (61.60)**	**0.21**	**89132**	**77270**	**166402**

Source: Census Data: 1971 and 2001; Figures in parentheses show the percentage to total population.

in the region. Spiti, Bharmaur and Pangi blocks, in spite of being relatively inaccessible, have also shown significant improvement in literacy. It is encouraging to note that in spite of slow economic progress the region has been able to perform so well on its literacy front. In addition to the efforts made by state government, international agencies like UNICEF and World Bank have also played their role in the rapid growth of literacy in the state (Bhardwaj, 1999).

Gender Disparity

The response of Indian tribes to various programmes of literacy and formal education has varied significantly across tribal groups and regions depending upon their socio-economic and demographic characteristics, and the magnitude and direction of the forces of modernization.

Although the level of literacy has increased in the study area, the gender bias against female education continues to exist

Table - 4
Study Area: Literacy Status and Gender Disparity

Area	Percent Literates			Disparity Index	Total Population (0-6 age Group Excluded)		
	Male	Female	Total		Male	Female	Total
Kinnaur (District)	1434 (87.28)	1147 (73.67)	2581 (80.66)	0.12	1643	1557	3200
Lahaul (Block)	553 (86.00)	383 (66.72)	936 (76.91)	0.17	643	574	1217
Spiti (Block)	186 (87.74)	168 (76.02)	354 (81.76)	0.10	212	221	433
Pangi (Block)	161 (70.31)	103 (50.74)	264 (61.11)	0.20	229	203	432
Bharmaur (Block)	279 (82.54)	211 (68.06)	490 (75.62)	0.13	338	310	648
Total	2613 (85.25)	2012 (70.23)	4625 (77.99)	0.13	3065	2865	5930

Source: Primary Survey-2008; Figures in parentheses are percentage to total population excluding 0-6 age group.

resulting in lower literacy rate among females. Table 3 presents the area wise male and female literacy rates and gender disparity in literacy in 1971 and 2001 in the study area. In 1971 only 22.17 per cent of total population of the region was literate. This value increased to 61.60 per cent in 2001 (Table 3).

The female literacy rate has increased significantly from merely 7.31 per cent in 1971 to 50.55 per cent in 2001. The male literacy rate has increased from 35.08 per cent in 1971 to 71.19 per cent in 2001. The gender disparity in literacy rate has decreased significantly during the last three decades. There was a very high gender disparity in literacy rate in 1971 (disparity index 0.75). In 2001 this value decreased to 0.21 (Table 3).

The area wise analysis reveals that in 1971 female literacy varied from 2.35 per cent in Pangi block (Disparity Index 1.03) to 10.35 per cent in Kinnaur district (Disparity Index 0.70) . In comparison, male literacy varied from 18.24 per cent in Bharmaur block to the highest proportion of male literates in Lahaul block (Disparity Index 0.71) and Kinnaur district where 43 per cent of total male population in each area was literate. Thus, it can be inferred that mass illiteracy was prevalent during 1970s in the study area but the condition of females was still worse across

Table - 5
Study Area: Percent Literates by Education up to Middle School and Disparity Index

Area	Level of Education											
	Literate Without Educational Level			Disparity Index	Primary			Disparity Index	Middle			Disparity Index
	M	F	T		M	F	T		M	F	T	
Kinnaur District	187 (13.04)	216 (18.83)	403 (15.61)	- 0.18	317 (22.11)	278 (24.24)	595 (23.05)	- 0.05	205 (14.30)	197 (17.18)	402 (15.58)	-0.09
Lahaul Block	54 (9.76)	50 (13.05)	104 (11.11)	- 0.14	75 (13.56)	68 (17.75)	143 (15.28)	- 0.13	71 (12.84)	53 (13.84)	124 (13.25)	-0.06
Spiti Block	25 (13.44)	25 (14.88)	50 (14.12)	- 0.05	47 (25.27)	38 (22.62)	85 (24.01)	0.05	18 (9.68)	24 (14.29)	42 (11.86)	-0.19
Pangi Block	19 (11.80)	16 (15.53)	35 (13.26)	- 0.12	60 (37.27)	29 (28.16)	89 (33.71)	0.14	26 (16.15)	22 (21.36)	48 (18.18)	-0.14
Bharmaur Block	34 (12.19)	42 (19.91)	76 (15.51)	- 0.24	62 (22.22)	60 (28.44)	122 (24.90)	- 0.13	45 (16.13)	28 (13.27)	73 (14.90)	0.09
Total	319 (12.21)	349 (17.35)	668 (14.44)	- 0.17	561 (21.47)	473 (23.51)	1034 (22.36)	- 0.05	365 (13.97)	324 (16.10)	689 (14.90)	-0.07

Note : Figures in parentheses are percentage of literates to total literate persons.
Source: Field Survey

Table-6
Study Area: Percent Literates by Education above High School and Disparity Index

Area	Level of Education														
	High			Disparity Index	Higher Secondary			Disparity Index	Higher			Disparity Index	Total Educational Attainment Score		
	M	F	T		M	F	T		M	F	T		M	F	T
Kinnaur District	313 (21.83)	203 (17.70)	516 (19.99)	0.10	217 (15.13)	174 (15.17)	391 (15.15)	- 0.00	195 (13.60)	79 (6.89)	274 (10.62)	0.31	1434 (100.00)	1147 (100.00)	2581 (100.00)
Lahaul Block	127 (22.97)	68 (17.75)	195 (20.83)	0.12	85 (15.37)	77 (20.10)	162 (17.31)	- 0.13	141 (25.50)	67 (17.49)	208 (22.22)	0.18	553 (100.00)	383 (100.00)	936 (100.00)
Spiti Block	50 (26.88)	28 (16.67)	78 (22.03)	0.23	34 (18.28)	40 (23.81)	74 (20.90)	- 0.13	12 (6.45)	13 (7.74)	25 (7.06)	- 0.08	186 (100.00)	168 (100.00)	354 (100.00)
Pangi Block	31 (19.25)	19 (18.45)	50 (18.94)	0.02	18 (11.18)	14 (13.59)	32 (12.12)	- 0.09	7 (4.35)	3 (2.91)	10 (3.79)	0.18	161 (100.00)	103 (100.00)	264 (100.00)
Bharmaur Block	63 (22.58)	50 (23.70)	113 (23.06)	- 0.03	50 (17.92)	25 (11.85)	75 (15.31)	0.19	25 (8.96)	6 (2.84)	31 (6.33)	0.51	279 (100.00)	211 (100.00)	490 (100.00)
Total	584 (22.35)	368 (18.29)	952 (20.58)	0.10	404 (15.46)	330 (16.40)	734 (15.87)	- 0.03	380 (14.54)	168 (8.35)	548 (11.85)	0.25	2613 (100.00)	2012 (100.00)	4625 (100.00)

Note: Figures in parentheses are percentage of literates to total literate persons.
Source: Field Survey

all areas. In 2001 however Kinnaur district had highest female literacy rate of 56.20 per cent (Disparity Index 0.70 in 1971 and 0.16 in 2001). Pangi block where the female literacy rate was lowest (37.76 per cent) in 2001 has also experienced a very significant improvement in female literacy which was merely 2.35 per cent in 1971 (Disparity Index 1.03 in 1971 and 0.32 in 2001).

Kinnaur district has registered the highest male literacy (74.90 per cent) closely followed by Lahaul block (74.12 per cent). Bharmaur block with 62.95 per cent of its total male population as literate is at the other end of the scale (Disparity Index 0.23 in 2001 as compared to 0.91 in 1971). In 1971, there was a discernible gender disparity in literacy rate across all areas. The gender disparity index in 1971 was very high in the relatively geographically inaccessible areas of Pangi and Spiti (1.03 and 0.98 respectively). The lowest gender disparity in literacy existed in Kinnaur district. Table 3 reveals that by 2001, the gender disparity in literacy reduced significantly across the whole region. The index of disparity was highest in Pangi block (0.32 in 2001 as compared to 1.03 in 1971). In other areas of the region the Disparity Index values were lower than that of Pangi block. In this regard the tribal areas of Himachal Pradesh have registered a significant reduction in the gap between male and female literacy.

Literacy and Education Level in Sample Villages

Table 4 presents the gender and area-wise literacy and educational status of the sampled population. It reveals that 77.99 per cent of sampled persons are literate. It also reveals that there is still a significant difference between male and female literacy. The literacy rate among males is as high as 85.25 per cent, whereas, about 70.23 per cent of females are literate. Literacy rate of both males and females is highest in Spiti block (Disparity Index 0.10) followed by Kinnaur district (Disparity Index 0.12). It could be attributed to better facilities of schools and transportation in these two areas. The lowest literacy rates have been recorded in Pangi (70.31 per cent male and 50.74 per cent female literates) and Lahaul (86.0 per cent male and 66.72 female literates)blocks. Incidentally, these blocks also have higher gender disparity in the level of literacy (Disparity Index 0.20 and 0.17 respectively).

Data on educational attainment is presented in Tables 5 and 6. The proportion of literates without any educational level in the sample villages is 14.44 per cent. The proportion in this regard is highest in Kinnaur district (15.61 per cent) followed by Bharmaur block (15.51 per cent) and lowest in Lahaul block (11.11 per cent). The proportion of literates without educational level is higher among females in all the five areas. Hence, the gender disparity index suggests greater attention for women education at this level. 22.36 per cent of the literates have got through the primary standard. The female literacy rate is higher at the primary level in areas other than Pangi and Spiti blocks. The proportion of total literate persons above middle level is 14.9 per cent. Interestingly, the female literacy rate is higher than males in all areas except Bharmaur block. About one-fifth and 16 per cent persons are above matric and plus two standards respectively. A little more than one tenth of total literates have attained higher education. There is a significant gender disparity in the attainment of education at matric and above level. At the primary and middle level females have higher proportion than males in almost all the areas (Table 5). This may be attributed to the fact that males have higher level of educational attainment than females and low proportion of females in total population. The proportion of the persons having acquired higher secondary and higher

education is higher in the better accessible Lahaul block and Kinnaur district (Table 6). In comparison, the relatively inaccessible areas of Bharmaur and Pangi still lag behind. The gender inequity in attainment of education increases with an increase in the level of education. It is quite significant in the Bharmaur block and Kinnaur district.

Conclusion

The study reveals that the literacy scenario has undergone considerable positive change during the last 30 years in the tribal areas of Himachal Pradesh. However, there has not been a uniform spread of literacy in the region. The existing situation of literacy across different areas shows that accessibility is an important factor in this context (Thakur and Jaglan, 2008, pp.271-280). It has also been observed that gender gap in level of literacy has declined considerably during 1971-2001 although the impact of the process of social transformation has not been equal on the two sexes. The overall literacy rate in the tribal region has increased significantly. Female literacy rate has also increased at a faster pace resulting in significant narrowing down in the literacy gap between males and females. However, there is a wide gender disparity in the level of education in the region. The gender inequity in the attainment of education increases with the increase in the level of education. It is quite significant in Bharmaur and Kinnaur areas. The educational system is still in a developing stage as only about 30 per cent of literate persons have attained higher secondary and higher educational level. But the performance in this regard is satisfactory in Lahaul, Kinnaur and Spiti areas. The proportion of educated persons, more specifically, at matric and higher levels is low in Pangi and Bharmaur blocks.

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Acknowledgement: *The present research paper is part of a major research project funded by Indian Council of Social Science Research (ICSSR), Ministry of Human Resource Development, Government of India. The author is grateful to the ICSSR for providing the financial assistance.*

BOOK REVIEW

M. K. Premi (2009) : *India's Changing Population Profile*, National Book Trust, India, New Delhi, pp. 244, Tables 62, Maps 3, Figs. 20, Price Rs. 65.

Professor M. K. Premi is one of the top few professionally trained demographers in India. Ever since he did his doctorate from the University of Chicago, he has been regularly publishing research based papers/ books on Indian population. With his good grounding in statistics, he has created his own data on several attributes of population, especially fertility, mortality and size of future populations as per his projections. In view of the scarcity of data on these vital elements in the past as also at present, his contributions to India's demographic situation are notable indeed.

It was in the fitness of things that the Director of the National Book Trust, India, invited Professor Premi to write a book on India's population for the benefit of the general readers in the country which he has gracefully done. He did this project in two parts (1) Population of India in the New Millennium : Census 2001 (released in December 2006), and (2) India's Changing Population Profile, published by the National Book Trust in 2009 - the subject of this review.

The book consists of seven chapters, each providing a detailed account of a specific attribute of India' population changing over time, as far back as permitted by the availability of reliable (or nearly so) information on the subject. It admirably succeeds in bringing out the country's changing population profile during the pre - and post - independence periods, as far as possible. The way the relevant data in each chapter are systematically organized and presented in tabular form, enables the reader to understand the subject with ease. The author has not only produced a comprehensive description of the changing population of the country, but also raised questions on issues not resolved as yet. On the whole it is description that dominates, perhaps excessively. Explanation comes in only scantily. To explain population phenomena, micro-level fieldwork and surveys would be necessary. There are person to person, community to community, and region to region variations in attributes, aspirations, behaviour relating to various population aspects, all requiring both extensive and intensive investigations in the matter.

In the first chapter the author has provided valuable perspective on Indian Census - its decennial occurrence, the nature and quality of data collected, the use of these data in relation to various facets of national life, etc. He dwelves upon the innovations introduced in the 2001 Census. On the whole, the chapter provides a useful background.

The second chapter deals with the size, distribution, growth, density and characteristics of the country's population. While dealing with growth of population, the author identifies three important breaks - 1921, 1951 and 1981. The year 1921 distinguishes the earlier 30 - year period

as one of chequered growth from the following 30 - years as of moderately increasing numbers. From 1951 to 1981 there is accelerated growth, while 1981 provides the beginning of a slowdown, particularly in birth rate. The growth during 1991-2001 is illustrated by a map based on district level data. Desirably, on the basis of this map, spatial analysis of population growth should have been done comprehensively. Likewise, population density depicted on a map using district wise data, deserved more justice to be done in terms of description and interpretation. The section on urbanization is better done. However, I wish the author had given a real spatial perspective on urbanization in India, instead of a state level description. Social and economic developments cut across state boundaries and should be treated accordingly.

Population composition, particularly various facets of sex composition, has justifiably been discussed in detail. Sex ratio change through time, death rate by sex and temporal change therein, child sex ratio, sex ratio at birth, etc., are brought out through well - prepared tables. Regional problems in child sex ratio (0-6 years) experienced in recent years have been discussed elaborately. Effort has been made to highlight their social and demographic implications. This is the best part of the chapter.

The next section dealing with population change, fertility, mortality and migration is commendably organized and developed. The trends in the three determinants of population change are traced with competence, not only in the country as a whole but also in the various states. Socio-economic factors associated with fertility and mortality are discussed in appropriate detail. The section on migration, likewise, is very satisfactorily done. Finally, the author has given an elaborate account of demographic transition in India, as also in several of its states. They are graphically illustrated, highlighting trends in their demographic situation. For a layman the technical appendix given at the end is extremely helpful.

Apart from a well written descriptive account of India's changing population and some interpretation of the emerging issues, the most notable contribution of this publication is detailed data flawlessly arranged both through time and space, and given in fine tabular form. Nowhere does one get so much of information about India's population, so well presented through tables and graphs, in a small publication like the one under review. My warmest compliments to the learned author !.

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