POPULATION GEOGRAPHY

POPULATION GEOGRAPHY Volume 26 Numbers 1 & 2 June-December 2004

CONTENTS

POPULATION GEOGRAPHY Volume 26 Numbers 1 & 2 June-December 2004

COMPOSITION OF MIGRANTS IN FOUR CITIES OF MAHARASHTRA, INDIA

VIJAYA P. KHAIRKAR
Pune, India

Abstract

India is getting increasingly urbanized. In 2001, according to Census of India, 29 percent people are staying in urban places. This growth is not only due to natural increase but also due to migration. When we study migration it is not only the volume or number of migrants that matters but also the composition of the migrants that is equally important as far as their contribution to the socio-economic development of the region is concerned. Composition has various aspects, viz. economic, demographic, and social. The economic aspects include proportion of workers; occupational structure etc. while demographic and social aspects include age structure, proportion of literates, educational attainment, sex ratio and marital status. This paper describes the composition of population of migrants to four large cities of Maharashtra, namely, Mumbai, Pune, Nagpur and Kolhapur. A comparative analysis has been attempted on the basis of data for 1961 and 1991

Introduction

In a study of migration not only the volume or number of migrants but also the composition and structure of migrants is important as far as their contribution towards the socio-economic development of the region to which they have migrated is concerned. Composition has various aspects, viz. demographic, economic and social. The economic aspects include proportion of workers, occupational categories, etc. while demographic and social aspects include age structure, proportion of literate population and their educational attainment, sex ratio and marital status.

Mumbai, the capital of Maharashtra and the Primate city of India, is hardly 200 kilometers away from Pune city. These two cities are well connected by transport network promoting an intense interaction between the people. Everyday, more than 600 buses ply between these two cities for the movement of people including commuters. More than 40 trains connect these two places. Out of these, six daily trains commute the people between Mumbai and Pune. These two cities have a very high social and economic affinity.

Nagpur is the second capital of Maharashtra. It lies in the eastern- most part of the State. It is an important industrial and educational centre of eastern Maharashtra.

The fourth city, Kolhapur, is a relatively small city having a dominance of agro- based industry. This city is well connected to the southern part of peninsular India by rail as well as by road.

Sources of data

For the purpose of analysis and appreciation of the composition of the migrant population in the four selected cities, the data contained in 1) the Migration Tables for the years 1961 and 1991, published by the Census of India. 2) District Census Handbook of Mumbai, Pune, Nagpur and Kolhapur Districts for the years 1961 and 1991 have been used.

Table 1

Total and Migrant Population in four cities of Maharashtra (1961 and 1991)

Name of the city	1961		1991	
	Total Population	*Migrant population*	*Total Population*	*Migrant population*
Mumbai	4,152,000	3,395,095 (81.77)	9,925,891	4,436,167 (44.69)
Pune	721,896	553,735 (76.7)	1,727,113	684,765 (39.6)
Nagpur	643,639	292146 (45.3)	1,624,752	621,955 (38.2)
Kolhapur	597,562	76,898 (12.8)	920,050	550,700 (59.8)

Note: Figures in brackets refer to percentage of migrants to total population.

Source: District Census Handbook, Mumbai, Pune, Nagpur and Kolhapur: 1961,1991. Migration Tables, Census of India: 1961,1971,1981,1991.

Total and Migrant Population (1961 and 1991)

The population of the four cities of Maharashtra has increased during the period 1961 to 1991. It is to be noted that in 1961 the growth of Mumbai and Pune was mainly due to migration. In 1991 Kolhapur had the highest proportion of migrants among the four cities. Although the proportion of migrants to the other cities has decreased considerably as compared to 1961, it continues to be substantial. Mumbai is the capital city of Maharashtra and also has the advantage of being the primate city and a port city. Due to these economical advantages and industrial development migrants are attracted more to Mumbai. The economic as well as industrial impact of Mumbai is also reflected in the growth of Pune which is also an important attraction for migrants. In the last two decades, due to decentralization of industry, people have also been attracted to the other cities of Maharashtra like Nagpur and Kolhapur etc. (Table 1).

Sex Ratio of Migrants (1961 and 1991)

In terms of the sex composition of migrants in the four cities in 1961, females were less than the males. Mumbai had the lowest ratio of 552/1000 male migrants among the four cities.

Table 2

Sex Ratio of Migrants in four cities of Maharashtra (1961 and 1991)

Cities	Mumbai		Pune		Nagpur		Kolhapur	
Year	*1961*	*1991*	*1961*	*1991*	*1961*	*1991*	*1961*	*1991*
Females per 1000 Males	552	778	892	1018	905	1115	954	1027

Source: Migration Tables: Census of India, 1961, 1991. Pp. 472 - 482.

According to 1991 data, it is observed that there is an increase in sex ratio for all the four cities but Mumbai continues to have the lowest sex ratio, which is 778/1000 male migrants, among the four cities. Interestingly, the other three cities had an excess of females over male migrants in 1991.

Age Structure of Migrants (1961)

In 1961, the analysis of the migrants according to their broad age groups indicates that, in the active age group (15 to 59 years) the proportion of migrants was more than 70 per cent in the four cities.

Table 3

Number and Percentage of Migrants by broad Age Group in four cities of Maharashtra (1961)

Age groups (Years)	Mumbai		Pune		Nagpur		Kolhapur	
	Number	*%*	*Number*	*%*	*Number*	*%*	*Number*	*%*
All ages (total)	2,667132	100	308699	100	292146	100	76898	100
0-14	400754	15.02	58659	19.00	44401	15.19	15822	20.57
15-34	1371173	51.41	138777	44.95	133861	45.82	33878	44.05
35-59	785615	29.45	92201	29.86	91334	31.26	22599	29.39
Above 60	109134	4.09	19001	6.15	22501	7.70	4598	5.98

Source: Migration Tables: Census of India, 1961, Pp. 472 – 482.

In 1961 in the case of Mumbai, the 0 to 14 years age group migrants accounted for 15.02 per cent of the total migrants, the lowest among the four cities. Kolhapur and Pune had the highest proportion of migrants in the same age-group, 20.57 and 19 per cent respectively(Table 3)

The proportion of migrants in 15-34 years age-group in Mumbai was the highest (51.41 per cent). It was followed by Nagpur (45.82 percent), Pune (44.95 percent), and Kolhapur (44.05 percent).

Nagpur had the highest proportion of migrants in 35 to 59 years age group. It was followed by Pune, Mumbai, and Kolhapur (Table 3).

In the case of above 60 years age group, the proportion was higher for Nagpur (7.70) and Pune (6.15). Mumbai had the lowest proportion of migrants(4 percent) in this age-group.

In respect of economically active migrants the percentage is higher in Mumbai and Nagpur, which is 80.86 and 77.11 percent respectively. In case of Pune, it is 74.81 percent and for Kolhapur it is lowest among the four cities (73.45 percent). This shows that Mumbai and Nagpur attracted higher proportion of economically active population.

Age Structure of Migrants (1991)

According to 1991 data, there was an increase in migrant population in 35 to 59 years age group in all the four cities as compared to 1961. Interestingly, there was a comparative decrease in the proportion of migrants in all the four cities in 15-34 years age-group. In the case of the dependent age groups of migrant population, which is 0 to 14 years, and above 60 years, there has been an increase for Mumbai and Pune between 1961 and 1991. In Mumbai, their proportion was 19.11 percent in 1961 which increased to

Table 4

Number and Percentage of Migrants by broad Age Group in four cities of Maharashtra (1991)

Age groups (Years)	Mumbai		Pune		Nagpur		Kolhapur	
	Number	*%*	*Number*	*%*	*Number*	*%*	*Number*	*%*
All ages (total)	4,436167	100	684,765	100	621955	100	550,700	100
0-14	580,160	13.08	130,270	19.02	71400	11.48	69553	12.63
15-34	1881386	42.41	286,965	41.90	260536	41.89	218848	39.74
35-59	1617271	36.46	212580	31.04	220669	35.48	207063	37.60
Above 60	343100	7.73	52450	7.66	68415	11.00	55235	10.03

Source: Migration Tables: Census of India, 1991, Pp. 536 – 559.

20.80 percent in 1991. In the case of Pune, it was 25. 15 percent in 1961 and it increased to 26.68 percent in 1991. For Nagpur however, it was 22.89 percent in 1961 and decreased to 22.48 percent in 1991. For Kolhapur also it decreased from 26.55 percent in 1961 to 22.66 percent in 1991.

The proportion of active age group migrants, i.e., 15 to 59 years for Mumbai was 80.86 percent in 1961. It decreased to 78.87 percent in 1991. For Pune, it was 74.81 percent in 1961 and decreased to 72.94 percent in 1991. In comparison Nagpur and Kolhapur show an increase in active age group migrants. In the former, it was 77.11 percent in 1961 and it increased to 77.52 percent in 1991. In Kolhapur, it was 73.45 percent in 1961 and increased to 77.34 percent in 1991. This shows that the proportion of economically active migrants is increasing in Nagpur and Kolhapur but declining in Mumbai and Pune, which have much larger populations.

According to Garnier (1966: 216) the factor of attraction may be real or imaginary, and it is here again that the economic and psychological aspects mingle; the appeal of the town may correspond to a reality, meaning less arduous labour, more regular wages and an improved living standard- but it often happens that this is simply a mirage, and the real thing is simply another form of struggle against poverty.

In the case of Maharashtra, it is to be noted that skilled as well as unskilled workers migrate to cities because of development of industries which, due to the multiplier effect promote the growth of activities to provide goods and services leading to further increase in demand for labour. Not only skilled, and semi skilled but also the unskilled labour having only physical energy for work finds employment in the industrially developed cities.

Sex Composition (1961)

The percentage of male and female migrants in each age group to total migrants in the same age group in 1961 are presented in Table 5. The proportion of male migrants was higher than that of females in the four cities. But for Mumbai the proportion was significantly higher for the working age-group migrants. It was 66.02 percent for male migrants in 15-34 years age group and for 35 - 59 years age group the male migrants accounted for 68.85 percent of total migrants in the same age group. In the case of the above 60 years age group, the male percentage is lower than the female for Pune, Nagpur and Kolhapur.

Table 5

Sex Composition of Migrants by broad Age Groups in four cities of Maharashtra (1961)

Age groups (Years)	Mumbai		Pune		Nagpur		Kolhapur	
	Male	Female	Male	Female	Male	Female	Male	Female
	%	%	%	%	%	%	%	%
0-14	52.8	47.2	51.60	48.40	52.52	47.48	52.04	47.95
15-34	66.02	33.97	51.62	48.37	51.73	48.27	52.46	47.53
35-59	68.85	31.15	56.33	43.66	55.22	44.78	50.32	49.68
Above 60	55.32	44.68	48.61	51.39	46.02	53.97	42.58	57.42

Source: Migration Tables: Census of India, 1961, Pp. 472 – 482.

Sex Composition (1991)

The pattern of proportion of male and female migrants in different age-groups identified in 1961 was broadly similar to the one for 1991 also, although there was a change in their relative proportions. In Pune, Nagpur and Kolhapur the proportion of female migrants in the working age group of 15-34 years was higher than the male migrants. In the case of above 60 years age-group also Pune and Kolhapur had higher proportion of females than males(Table 6).

The increase in the percentage of female migrants may be related to the fact that unlike Mumbai, Pune, Nagpur and Kolhapur cities receive more migrants from within Maharashtra and women from Maharashtra have a perception of greater cultural affinity and safety in these three cities.

Table 6

Sex Composition of Migrants by broad Age Groups in four cities of Maharashtra (1991)

Age groups (Years)	Mumbai		Pune		Nagpur		Kolhapur	
	Male	Female	Male	Female	Male	Female	Male	Female
	%	%	%	%	%	%	%	%
0-14	51.7	48.3	52.70	47.3	52.02	47.98	51.00	49.00
15-34	58.8	41.2	44.12	55.88	48.73	51.27	49.14	50.86
35-59	67.17	32.83	50.92	49.08	49.307	50.60	51.60	48.49
Above 60	54.23	45.77	48.89	51.11	51.63	48.38	48.62	51.38

Source: Migration Tables: Census of India, 1991

Occupational Structure of Migrants (1961 and 1991)

The number and proportion of migrants engaged in different occupational categories in the four selected cities of Maharashtra is given in Table 7.

Table 7

Occupational Structure of Migrants in four cities of Maharashtra (1961)

Occupational Category	Mumbai		Pune		Nagpur		Kolhapur	
	Number	%	Number	%	Number	%	Number	%
Industries	688572	41.6	52261	30.5	83262	40.9	16698	35.6
Construction	44906	2.71	7803	4.56	11360	5.59	1487	3.17
Trade and Commerce	303817	18.4	30762	17.9	31694	15.6	8093	17.26
Transport	189260	11.5	21144	12.3	29492	14.5	3685	7.86
Other Services	428193	25.9	59276	34.6	47296	23.3	16911	36.1

Source: Migration Tables, Census of India: 1961, Pp. 160-209.

Occupational Structure of Migrants (1961)

In order to study the participation of migrant workers in different economic activities in 1961, different categories are considered(Table 7). Highest proportion of migrants in 1961 was engaged in 'Industries", followed by 'Other Services' and "Trade and Commerce' in all the four cities. Among these, Mumbai and Pune had the highest and the lowest proportion of migrants in industries respectively; the highest proportion of migrants in 'Other Services' was in Kolhapur and the lowest in Nagpur; Mumbai had the highest proportion of migrants in 'Trade and Commerce' while Nagpur had the lowest proportion for the same activity. For the other two activities Nagpur had the highest proportion of migrants engaged in 'Transport' as well as 'Construction'. Kolhapur had the lowest proportion of migrants in 'Transport' and Mumbai in 'Construction'.

Occupational Structure of Migrants (1991)

According to the 1991 data it is observed that the percentage of migrant workers in industries has increased for Mumbai, Pune and Kolhapur cities as compared to 1961 (Tables 7 and 8). For Mumbai, it has increased from 41.63 percent in 1961 to 54 percent in 1991. For Pune, it increased from 30.50 percent in 1961 to 50 percent in 1991. For Kolhapur it has increased from 35.62 percent in 1961 to 38 percent in 1991. In case of Nagpur however, the proportion of migrants engaged in industries decreased from 40.99 percent in 1961 to 35.62 percent in 1991.

In all the four cities industries continued to have the highest proportion of migrant workers. Except for Mumbai, 'Other 'Services' continued to have the second highest proportion of migrant workers. In Mumbai 'Trade and Commerce' had a marginally higher proportion of migrant workers as compared to 'Other Services'.(Table 8). 'Trade and Commerce' continued to have the third highest proportion of migrant workers, except in Mumbai. As in 1961, Nagpur had the highest proportion of migrant workers engaged in Transport (11 percent) as well as 'Construction'. In Pune there was an increase in the proportion of migrant workers

engaged in 'Construction' from 4.56 in 1961 to 10 percent in 1991, which was the same as in Nagpur (Table 8). The lowest proportion of migrant workers in 'Construction' was recorded in Kolhapur (2 percent).

Table 8
Occupational Structure of Migrants in four cities of Maharashtra (1991)

Occupational Category	Mumbai		Pune		Nagpur		Kolhapur	
	Number	%	Number	%	Number	%	Number	%
Industries	756684	54.00	125708	50.00	37964	36.00	9792	38.00
Construction	102093	4.00	48805	10.00	23455	10.00	3811	2.00
Trade and Commerce	519188	17.00	62747	13.00	38941	17.00	12618	24.00
Transport	251190	9.00	26822	5.00	23886	11.00	4285	8.00
Other Services	472966	16.00	104051	21.00	56781	25.00	14048	27.00

Source: Migration Tables, Census of India: 1991, Pp. 800 – 900.

In respect of 'Construction', the percentage of migrant workers engaged in this activity has increased for Mumbai, Pune and Nagpur between 1961 and 1991. For Mumbai it was 2.66 percent in 1961 and increased to 4 percent in 1991. For Pune, the increase was from 4.56 percent to 10 percent. In the case of Nagpur, the increase was from 5.59 percent in 1961 to 10 percent in 1991. The proportion of migrant workers in 'Construction' in Kolhapur decreased marginally by 1.17 percent from 3.17 in 1961 to 2 percent in 1991 (Tables 7 and 8).

In the case of 'Trade and Commerce' the proportion of migrant workers engaged in this category decreased between 1961 and 1991 for Mumbai and Pune by 1.37 and 5 percent respectively. For Nagpur and Kolhapur it increased by 1.40 and 6.74 percent respectively.

In respect of 'Transport and Communication' the percentage of migrant workers in Mumbai, decreased by 2 percent from 1961 to 1991. For Pune and Nagpur the decrease was by 7.34 percent and 3.52 percent respectively from 1961 to 1991. But for Kolhapur there was an increase of one percent in the same period.

The analysis of the migrants according to their participation in 'Other Services' for four cities during 1961 and 1991 shows that there was a decrease in Mumbai, Pune and Nagpur. In the case of Mumbai, the decrease was by 9.89 percent, for Pune by 7 percent, and for Kolhapur by 9 percent. In case of Nagpur the percentage of migrants engaged in 'Other Services' increased by 1.72 percent.

The overall analysis of this aspect indicates that during 1961 and 1991 in all the four cities, 'Industries' continued to employ a higher proportion of migrants as compared to other activities. In the case of all other activities, the percent change in the employment of migrant workers is either low or negative.

Literacy Level of Migrants (1961 and 1991)

An analysis of the migrants' literacy rates in 1961 indicates that in general the

proportion of literates among the migrants was low. Mumbai had the highest proportion of literates among its migrants (24.32 percent) and Kolhapur had the lowest proportion (12.79 percent) among the four cities (Table 9).

Table 9
Percentage of Literate Migrants to Total Migrants in four cities of Maharashtra (1961 and 1991)

Mumbai		Pune		Nagpur		Kolhapur	
1961	*1991*	*1961*	*1991*	*1961*	*1991*	*1961*	*1991*
24.32	72.49	19.10	69.96	13.75	72.72	12.79	70.21

Source: Migration Tables: Census of India, 1961,1991.

In1991 the percentage of literate migrants to total migrants had increased significantly for all the four cities as compared to 1961 (Table 9).

Educational Attainment of Migrants (1961 and 1991)

Education is used as an index of socio-economic status and also as a measure of population quality, whether as a reflection of investment in human capital or genetic differences (United Nations 1973: 183). A discussion on the educational attainments of migrants, grouped into a) primary and middle, b) matriculation, c) diploma, d) graduates and post-graduates, e) those having a technical degree and, f) others, in the four selected cities of Maharashtra is presented below:

Educational Attainment of Migrants (1961)

In 1961 in the four cities, the highest proportion of migrants had acquired education upto primary and middle level. Kolhapur had the highest value in this respect (74 percent) followed by Nagpur, Mumbai and Pune (Table 10). In comparison Pune had the highest proportion of migrants who were matriculates (28 percent) followed by Mumbai, Nagpur and Kolhapur.

Table 10
Educational Attainment of Migrants in four cities of Maharashtra (1961)

Educational Category	Mumbai	Pune	Nagpur	Kolhapur
Primary and Middle	67.00	63.00	68.00	74.00
Matriculation	25.00	28.00	24.00	20.00
Tech. and Non Tech. Diploma	1.00	1.00	1.00	1.00
Graduates and Post Graduates	5.00	5.00	5.00	3.00
Tech. Degree	1.00	1.00	1.00	1.00
Others	1.00	2.00	1.00	1.00

Source: Migration Tables, Census of India: 1961, Pp. 160-209.

In respect of migrants holding technical and non-technical diploma and technical degree, the proportion was the same, which is, one percent.

The proportion of Graduate and Post Graduate migrants was the same (5 percent) in Mumbai, Pune and Nagpur, while it was 3 percent for Kolhapur. The above data suggests that a majority of migrants had acquired education up to matriculation level only.

Table 11

Educational Attainment of Migrants in four cities of Maharashtra (1991)

Educational Category	Mumbai	Pune	Nagpur	Kolhapur
Primary and Middle	56.00	53.00	50.00	50.00
Matriculation	31.00	30.00	30.00	32.00
Tech. and Non Tech. Diploma	10.00	11.00	15.00	12.00
Graduates and Post Graduates	1.00	3.00	2.00	3.00
Tech. Degree	2.00	3.00	3.00	3.00

Source: Migration Tables, Census of India: 1991, Pp. 800 - 900.

Educational Attainment of Migrants (1991)

In 1991 the percentage of migrants educated up to primary and middle level decreased in all the four cities as compared to 1961. For Mumbai, it decreased from 67 percent in 1961 to 56 percent in 1991. For Pune, the decrease was from 63 percent in 1961 to 53 percent in 1991. In case of Nagpur, it decreased from 68 percent in 1961 to 50 percent in 1991. For Kolhapur, it was 74 percent in 1961 and decreased to 50 percent in 1991 (Table 11). However, the highest proportion of migrants in the four cities continued to be of ones with primary and middle education, and Mumbai continued to have the highest value in this respect.

There was an increase in the proportion of migrants with 10^{th} and 12^{th} standard education in all four cities. In the case of Mumbai, it increased by 6 percent, for Pune it increased by 2 percent, in Nagpur it increased by 6 percent and in Kolhapur it increased the highest that is by 12 percent from 1961 to 1991. Kolhapur had the highest proportion of its migrants in this category (32 percent) followed by Mumbai (31 percent).

In the same way the percentage of diploma (technical and non-technical) educated migrants also increased for all four cities from 1961 to 1991. In the case of Mumbai it increased from one percent in 1961 to 10 percent in 1991, in the case of Pune it was one percent in 1961 and increased to 11 percent in 1991. For Nagpur also it was one percent in 1961 and increased to 15 percent in 1991. In the case of Kolhapur the percentage of Diploma holding migrants increased from one percent in 1961 to 12 percent in 1991. Nagpur had the highest proportion of migrants in this category (Table 11).

As far as migrants having Graduate and Post Graduate degrees are concerned the percentage has decreased for all the four cities from 1961 to 1991, except Kolhapur. In the case of Mumbai, it was 5 percent in 1961 and it decreased to 1 percent in 1991. For Pune it decreased from 5 percent to 3 percent during 1961 to 1991. In the case of Nagpur it decreased by 3 percent. In the case of Kolhapur, the proportion of migrants having Graduate and Post Graduate Degree has remained the same (3 percent) in 1961 and 1991.

In respect of percentage of migrants having technical degree the proportion has increased for all the four cities during 1961 to 1991. In the case of Mumbai it was one percent in 1961 and increased to 2 percent in 1991. For Pune it increased by one percent from 1961 to 1991. For Nagpur and Kolhapur the increase in percentage is the same, which is from one percent in 1961 to 3 percent in 1991.

The overall analysis of educational attainment of migrants indicates that during 1961 and 1991 the percentage of primary and

middle educated migrants and graduate and postgraduate educated migrants has decreased. But in the case of matriculate, technical as well as non-technical diploma and technical degree holding migrants, the percentage increased. This shows that due to expansion of industrial sector, the demand of trained manpower has increased.

Marital Status of Migrants in four cities of Maharashtra (1961 and 1991)

Marital status of migrant population forms one of the major themes in migration studies. The proportion of migrant population according to the marital status in the four selected cities of Maharashtra in 1961 is given below :

Table 12
Marital Status of Migrants in four cities of Maharashtra (1961)

Marital status	Mumbai	Pune	Nagpur	Kolhapur
Married	63.00	62.00	62.00	57.00
Widow and separated	5.00	2.00	9.00	7.00
Unmarried	32.00	36.00	29.00	36.00

Source: Migration Tables, Census of India: 1961, Pp. 490 - 513.

Marital Status of Migrants (1961)

In 1961, the analysis of the migrants according to their marital status indicates that, for all the four cities the percentage of married migrants was more than that of the unmarried and widow and separated migrants. In Mumbai 63 percent of migrants were married, the highest among the four cities. In Pune the percentage of married migrants was 62 percent, in Nagpur 62 percent and in Kolhapur 57 percent, which was the lowest among the four cities (Table 12).

The percentage of unmarried migrants was 36 percent in Pune and Kolhapur, the highest among the four cities. In Mumbai it was 32 percent, and in Nagpur 29 percent, the lowest among the four cities.

The percentage of widow or separated migrants was 9 percent in Nagpur, 7 percent in Kolhapur, 5 percent in Mumbai, and in Pune it was 2 percent.

Table 13
Marital Status of Migrants in four cities of Maharashtra (1991)

Marital status	Mumbai	Pune	Nagpur	Kolhapur
Married	66.00	61.00	65.00	58.00
Widow and separated	5.00	6.00	8.00	6.00
Unmarried	29.00	33.00	27.00	36.00

Source: Migration Tables, Census of India: 1991, Pp. 560 - 576.

Marital Status of Migrants (1991)

In 1991 there was an increase in the proportion of married migrants for Mumbai, Nagpur and Kolhapur. There was a decrease of one percent for Pune from 62 percent in 1961 to 61 percent in 1991.As in 1961 the highest and the lowest proportion of married migrants continued to be for Mumbai and Kolhapur respectively.

In the case of married migrants in Mumbai, the percentage increased from 62 percent in 1961 to 66 percent in 1991. For Nagpur the percentage of married migrants increased from 62 percent in 1961 to 65

percent in 1991. For Kolhapur it increased by one percent in 1991.

In respect of unmarried migrants there was a decrease in Mumbai, Pune and Nagpur. In Mumbai it was from 32 percent in 1961 to 29 percent in 1991. In the case of Pune there was a decrease by 3 percent and for Nagpur by 2 percent. In Kolhapur the percentage has remained the same (36 percent) in 1961 and 1991.

As far as proportion of widow and separated migrants to total migrants is concerned it has remained the same in Mumbai (5 percent). In the case of Pune, it has increased by 4 percent, for Nagpur and Kolhapur it decreased by one percent. Nagpur continued to have the lowest value in this respect among the four cities.

It needs to be pointed out that little information is available on migration differentials by marital status than by sex and age, and most discussions of the former are therefore less systematic in their coverage. A stumbling block in this connection is the problem of inferring marital status at the time of migration from available information on status at the time of enumeration. (United Nations 1973: 182). In the case of marriage migration, such as in India (Bose 1967: 185; Davis 1951: 111-114) and in pre-industrial Japan (Taeuber 1958: 139) this distinction is not very important as long as marriage usually occurs around the time of migration. In at least some of the instances of preponderantly male migration to cities in Africa and Asia, many of the unaccompanied men are in fact married and either remit money home to their family or else return with their savings at the end of their migration period (United Nations 1957: 121). Similar associations can be assumed in the case of marital status of migrants in the four cities of Maharashtra.

The overall analysis of marital status of migrants for the four major cities of Maharashtra shows that among total migrants more married persons have migrated to the cities and the proportion of widow and separated migrants is small.

Conclusion

The study has considered six important aspects of composition of migrant population in the four selected cities of Maharashtra, namely, age, sex, literacy, educational attainment, marital status and occupational structure. Further, the data for the four selected cities of Maharashtra has been analyzed for 1961 and 1991 for comparing the changes in their composition.

The analysis of occupational structure of migrants for 1961 and 1991 reveals that in the four major cities of Maharashtra, industrial activities continue to employ the highest percentage of migrants as compared to other categories.

The analysis of the age - sex structure of migrants indicates that, in the case of all the four cities there is a larger percentage of migrants in the economically active age group that is 15 to 59 years. In all four cities males are more than females but in Mumbai the proportion of male migrants is significantly higher resulting in the lowest sex ratio in 1961 and 1991 among the four cities. Interestingly the sex ratio of migrants in 1991 is in favour of females in Pune, Nagpur and Kolhapur.

The analysis of educational attainment of migrants shows that there has been an overwhelming increase in the proportion of literate migrants in 1991. A majority of the migrants are educated upto primary and middle level, followed by matriculates in the four cities. In 1991 however, the proportion of migrants with technical and non-technical diplomas has increased as compared to 1961.

The analysis of the migrants according to their marital status indicates that, for all the four cities married migrants are more than unmarried and widow / separated migrants.

References

Chandna, R. C. (1986) : *A Geography of Population : Concepts, Determinants and Patterns*, Kalyani Publishers, New Delhi.

Davis, K. (1951) : *Population of India and Pakistan*, Princeton University Press, Princeton.

Garnier, B. (1966) : *Geography of Population*, Longman, London.

Khandewale, S. V. and Chorghade, S. V. (1994) : *Migration of Unskilled Labour*, Classical Publishing Company, New Delhi.

Mujumdar, P. and Mujumdar Ila (1978) : *Rural Migrants in Urban Setting*, Hindustan Publishing Corporation, New Delhi.

United Nations (1973) : *The Determinants and Consequences of Population Trends*, Vol. I, United Nations, New York .

Bose, Nirmal K. (1965) : "Calcutta : A Primitive Metropolis", *Scientific American*, September.

POPULATION GEOGRAPHY Volume 26 Numbers 1 & 2 June-December 2004

HOUSEHOLD ENVIRONS AND INFANT MORTALITY IN RURAL SOUTH MAHANADI BASIN, CHHATTISGARH, INDIA

M.P. GUPTA and SARLA SHARMA
Raipur (Chhatisgarh), India

Abstract

The main objective of this study is to analyse the effects of family environs on rural infant mortality in South Mahanadi Basin of Chhattisgarh. The Infant Mortality Rate in the region has been 64.47 per thousand, which is lower than the state average (88 per thousand). The Perinatal Mortality Rate, Neonatal Mortality Rate and Post-neonatal Mortality Rate are 33.81, 42.77, and 21.70 per thousand respectively. The mortality rate among female infants (70.90 per thousand) has been higher than the male infants (57.58 per thousand) in the basin. The family level factors namely residential condition, type of family, place of delivery, delivery assistant, sources of cooking energy, availability of toilet, sewage, electricity, news paper and television, and cleanliness of house, and village level factors e.g. source of drinking water, existence of educational institutions, availability of market, and distance from neighbouring towns, have considerable effect on infant mortality

Introduction

Both the Crude Death Rate and Infant Mortality Rate happen to be relatively higher in rural areas than urban areas due to illiteracy, poverty and lack of proper and cheaper health care services in the former. The substandard environmental conditions are mainly responsible for high infant and child morbidity and mortality rates in developing countries. The role of factors related with polluting of household environment is important in determining the high mortality in rural areas. The conditions of household environment directly or indirectly affect the child and infant mortality (Merrick, 1985). Therefore, special recognition has been given to the effect of environment in programmes related with the care and life expectancy of children (Satterthwaite, *et al.* 1996).

Objective

The main objective of this study is to analyse the effects of household environs on the patterns of infant mortality in rural South Mahanadi Basin (SMB) and describe the association between the social and economic variables in SMB and spatial variations in rural infant mortality rates in the region.

Data and Methodology

This study is based on primary data collected through schedules in 2001. The South Mahanadi Basin in Chhattisgarh state includes six districts namely Raipur, Dhamtari, Mahasamund, Durg, Rajanadgaon and Kawardha (Kabirdham). Taking 30 villages from each district, in all 180 villages from these districts have been studied on a random basis. Information from each such woman who

had delivered a baby or whose baby died or birth and death of a baby occurred during one year period, has been collected. In all 3,194 women from these districts have been interviewed for collecting data through schedules. These women delivered 3,180 live and 14 still babies, and 205 babies died after taking birth. Thus, the paper is based on an analysis of data collected from 180 villages covering 3,194 women.

Study Area

The SMB is located between 19°45' and 22°32' N latitudes and 80°23' and 83°20' E longitudes with an area of 41,775.45 Km^2 and a population of 84, 12, 102 persons according to 2001 census. The adjacent western and southern parts comprise of highlands mainly occupied by tribal people. The National Highway Nos. 6 and 43, and Howrah - Mumbai rail line pass through this part in which the capital city- Raipur - and the industrial city - Bhilai - are located.

Patterns of Infant Mortality

Infant mortality represents an unusual death and is considered as an important parameter of level of socio-economic developmrnt in a region. Usually the Infant Mortality Rate (IMR) happens to be higher than the death rate of +65 years age persons which lowers the life expectancy value (Bouge, 1969). Though, the IMR in India is gradually decreasing, the disparity in rural and urban IMR reflects the influence of household environs. The rural IMR in Chhattisgarh (88 per thousand), is higher than urban IMR (58 per thousand) as well as higher than the national average i.e. 72 and 42 per thousand for rural and urban areas respectively (SRS Bulletin, 2001). The rural IMR in SMB has been 64.47 per thousand which is lower than the state average. The central part of SMB is a highly developed part in the whole state and has the benefits of availability of all the amenities.

Age of the infant is an important factor in determining the mortality rate. With this consideration the infant mortality has been calculated as Perinatal, Neonatal, and Post-neonatal infant mortality rates. In the rural SMB the Perinatal Mortality Rate (PMR), Neonatal Mortality Rate (NMR) and Post Neonatal Mortality Rate (PNMR) have been 33.81, 42.77, and 21.70 per thousand respectively. The highest PMR (39.70 per thousand) and PNMR (30.24 per thousand) have been observed in Raipur district, while the highest NMR has been reported from Dhamtari district (58.62 per thousand). The lowest PMR (24.51 per thousand) and PNMR (12.25 per thousand) has been observed for Durg district and NMR (28.74 per thousand) for Rajnandgaon district. In general the mortality rate decreases with an increase in age.

Generally the resistance of male infants is less than female babies. As a result the mortality rate among females of every age group is lower than males. However, a lot more care is provided to boy babies in Indian society and girls remain neglected, causing high mortality among girls. This fact has been observed by Dasgupta (1990). In rural Chhattisgarh the IMR among boys (77 per thousand) exceeds the IMR among girls (68 per thousand). At the national level the condition is the same i.e. IMR of 77 per thousand among boys against 74 per thousand among girls. This situation in rural SMB is reverse i.e. 57.58 per thousand for boys against 71.90 per thousand for girls. The rate of male infant mortality is higher in Raipur and Kawardha districts, while in the remaining districts the female infant mortality rate is higher. At the perinatal period the IMR for male infants (40 per thousand) exceeds IMR for female infants (30.06 per thousand).

Table 1
South Mahanadi Basin : Infant Mortality

S. No.	Infant Mortality	IMR (per thousand live births)
1.	Infant mortality	64.47
2.	Male infant mortality	71.90
3.	Female infant mortality	57.58
4.	Perinatal infant mortality	33.81
5.	Male PNM	40.00
6.	Female PNM	30.06
7.	Neonatal Mortality	42.77
8.	Male NM	49.67
9.	Female NM	43.03
10.	Post-neonatal Mortality	21.70
11.	Male PNNM	22.88
12.	Female PNNM	19.71

Source: Personal Survey, 2001.

The IMR at Neonatal and Post neonatal stages has higher values for male infants (49.67 and 22.88 per thousand respectively), as compared to those for female infants (Table 1)

Determinants of Infant Mortality

Generally the seasons and infections affect infant mortality. Transitional seasons are a sensitive period for infants. Blacker (1991) has pointed out the seasonal variations in infant mortality. Vaidyanathan (1972) has analysed the effect of monsoon on infant mortality in August and September. A high IMR in December (15.61 per thousand) and July (11.22 per thousand) and lowest in March (2.93 per thousand) have been observed in SMB. The virus are more active during transition of seasons and cause cold, cough, diarrhea, jaundice and fever among infants. Weakness is a major cause of infant casualty in SMB (17.56 percent) followed by fever and cold (15.61percent each), diarrhea (13.17 percent), and jaundice (11.22 percent). The infants acquire weakness from mothers who get it due to malnutrition.

Effect of Household Environment on Infant Mortality

Chandrashekhar (1959) has analysed the household factors covering biological, economic, social and cultural aspects. Mosley and Chen (1984), Jain (1985), Mahadevan (1986), Nag (1986), Visaria (1988) and Ren (1996) have also analysed these factors.

Jatrana (1999) has studied the relationship between household environs and child and infant mortality, and life expectancy. In developing nations the major cause of child and infant mortality is substandard health conditions along with water borne diarrhoea. (Stephens, *et al.*, 1985). Various household pollutants directly influence the child and infant mortality. Therefore, with the help of the present study an attempt has been made to provide empirical evidence for the associations between household environ pollutants and child mortality.

The level of crowding (number of persons per room), disposal of food refuse and location of animal shelter inside house etc. comprise the household environ. Absence of

these characteristics in a household reduces the risk of infant mortality. Low quality of physical environs increases the risk of infection (Puffer and Serrano, 1973). Low social, economic and residential conditions in rural areas play an important role in polluting household environs. To analyse the influence of household environs on infant mortality, housing conditions, place of delivery, delivery assistant, source of cooking fuel, availability of electricity, sanitation around houses, access to news paper and television have been considered.

Housing Conditions

Housing conditions in rural areas are an important component of household environs. Because, these not only reflect the cleanliness around houses but also manifest the economic status of the family. The association between such factors as type of house, number of rooms, type of family, availability of sewerage, source of drinking water and location of cattle-shed is important in determining the housing conditions. The proportion of families and the respective IMR values in terms of these factors in the study area are presented in Table 2.

(i) HOUSE TYPE

The houses in rural areas are mainly '*kutcha*' type made of mud and bricks with mud floor. Only the well to do families live in '*pucca*' houses. During the rainy season the *kutcha* houses are damp and full of foul odour making the environ more dangerous to infants. The design of *kutcha* houses also influences the health of infants. In the study area 88.4 percent houses are of *kutcha* type. The highest percentage of *kutcha* houses is in Kawardha district (98.02 percent).

The IMR in *kutcha* houses (68.85 per thousand) is more than double of the one for *pucca* houses (31.83 per thousand). The highest IMR among residents of *kutcha* houses has been obtained in Dhamtari district (92.21 per thousand) and lowest in Rajnandgaon district (52.40 per thousand).

(ii) NUMBER OF ROOMS

Number of rooms is related with the level of crowding (number of persons per room) in a house. The risk of high infant mortality is more in highly crowded houses. This deduction has been made in studies by Da'venzo *et al*, (1983); Jain, (1985); Victoria, *et al*, (1989); and D'souza, (1997). The incidence of contagious diseases, mainly respiratory diseases, like tuberculosis, bronchitis, and cold is high in crowded houses (Pandey *et al*, 1989). In the region 38.81 percent houses have less than one or two rooms, 38.40 percent have 3-4 rooms, 15.35 percent have 5-6 rooms and 7.45 percent have 7 or more rooms. The percentage of small houses, having 1 or 2 rooms, is highest in Durg district (64.80 percent) and lowest in Kawardha district (48.61 percent), while the proportion of large houses, having 7 or more rooms, is highest in Rajnandgaon district (9.19 percent). The IMR (78.61 per thousand) in houses with 1 or 2 rooms is more than three times as compared to houses having 7 or more rooms (25.32 per thousand) in the region. The highest IMR in case of small houses has been obtained in Dhamtari district (113.21 per thousand). The IMR decreases with an increase in number of rooms in a house (Table 2).

(iii) TYPE OF FAMILY

Type of family and crowding are of specific importance while considering the family responsibility. The number of family members is more in joint families and the responsibility of family lies with the family head whereas, both wife and husband bear responsibility of family in nuclear families and the effect of this situation can be observed in infant mortality. In the study area 53.96 percent families are of joint family type and the IMR for these comes to 48.37 per thousand, nearly half of the one for nuclear families (83.33 per thousand).The highest

Table 2
South Mahanadi Basin: Housing Conditions and Infant Mortality

S. No.	Housing Condition	Families (in %)	IMR (per thousand live births)
1.	Types of House		
	A. *Kutcha* House	88.40	68.85
	B. *Pucca* House	11.60	31.83
2.	Number of Rooms		
	A. 1-2	38.80	78.61
	B. 3-4	38.40	67.16
	C. 5-6	15.35	40.98
	D. >7	07.45	25.32
3.	Source of Drinking Water		
	A. Tubewell	74.34	56.60
	B. Well	22.36	94.23
	C. Tap	03.30	38.09
4.	Facilities of Sewerage		
	A. Yes	22.48	22.38
	B. No.	77.52	76.67
5.	Facilities of Lavatory		
	A. Yes	09.53	23.10
	B. No.	90.47	68.82
6.	Type of Family		
	A. Joint	53.96	48.37
	B. Nuclear	46.04	83.33
7.	Cattle sheds in House		
	A. Yes	67.31	49.18
	B. No	32.69	08.44

Source: Personal Survey, 2003.

percentage of joint families is in Mahasamund district (65.03 percent) and of nuclear families is in Raipur district (64.65 percent). Among joint families the highest IMR has been obtained for Dhamtari district (74.42 per thousand) and Mahasamund district among nuclear families (122.81 per thousand). In nuclear families of rural areas both the wife and husband are engaged in earning bread and therefore, they are unable to take proper care of their infants and as a result a high IMR is associated with these families. In Mahasamund district the variation in IMR in joint and nuclear families is more than 4 times i.e. 28.30 per thousand for joint and 122.81 per thousand for nuclear families, while the lowest variation of 1.16 per thousand has been observed in Durg district. It is also noted that the percentage of houses having 1 or 2 rooms, is more in Durg district (64.80 percent) and hence a higher level of crowding in a room. Also the lowest proportion of nuclear families has been observed in Durg district (55.97 per thousand).

(iv) SOURCE OF DRINKING WATER

Source of drinking water is an important factor in influencing the rate of infant mortality, particularly in rural areas. Tube well (74.34 percent), well (22.36 percent) and tap (3.30 percent) are the sources of water supply in SMB. The quality of tube well water is better than that of open wells. The bacteria of diarrhea, dysentery, jaundice etc. develop very fast in dirty surroundings of open wells in rural areas, and infect the whole family. In SMB the higher percentage of open wells is in Mahasamund (35.17 percent) and Raipur (33.65 percent) districts and of tube-wells in Kawardha district (88.54 percent). In Dhamtari district 10.48 percent of the drinking water is supplied by taps which is the highest proportion in SMB. The Government and Tribal Welfare Department have provided most of the tube-wells in Kawardha district. The IMR has been lowest in areas using tap water (38.09 per thousand), lower in areas using tube-well water (56.60 per thousand) and highest among those who are using well water (94.23 per thousand). The highest IMR among open well water user has been observed in Dhamtari district (109.59 per thousand) and lowest in Mahasamund district (75.58 per thousand). Rajnandgaon district recorded the lowest IMR among tube-well water users (37.38 per thousand).

(v) SEWERAGE

No systematic sewerage system exists in the rural areas. As a result the domestic sewer containing food residue, cattle refuse and such other residuals is left in the fields or house gardens. In small houses this waste water drains either in the front or back of the houses or on roads and invites diseases by polluting the environs, increasing the risk for infant mortality. In rural SMB 77.52 percent families are living without sewerage facility. The IMR is 76.67 per thousand for these houses against 22.38 per thousand in houses having sewerage facility (Table 2). The highest variation has been observed in Durg district (3.81 times) between houses having sewerage facility and those without it. It is surprising that all the houses in Kawardha district are without sewerage facility but record the lowest IMR (64.97 per thousand) as compared to 107.76 per thousand IMR for Dhamtari district.

(vi) CATTLE SHEDS

In rural areas the cattle sheds are mostly built inside the house where the family members and cattle live together. The cattle refuse and garbage makes the household environ unhygienic and effects the health of occupants. The houses having small number of living rooms are usually without cattle. Only 22.79 percent families in rural SMB have cattle and 32.69 percent of these families have separate cattle sheds. The IMR in houses having separate cattle sheds is 8.44 per thousand compared to 49.18 per thousand in houses without separate cattle shed (Table 2). The highest IMR in houses without cattle shed has been obtained in Mahasamund district (58.57 per thousand) and lowest in Durg district (38.96 per thousand).

The highest percentage of houses having a separate cattle shed has been reported from Dhamtari district (45.87 percent) and the lowest from Rajnandgaon district (25.13 percent), where 919 families live in houses with more than 7 rooms. In Dhamtari district in the SMB 45.87 percent agricultural families have cattle, and therefore live in a less clean environment.

(vii) AVAILABILITY OF TOILET

A clean toilet keeps the household environ clean. Usually lavatory facility is lacking in rural areas. In the absence of lavatory facility the elder people use the open space as a toilet while the children soil in the house garden or in drains which increases the risk of infections, particularly among infants. In the rural SMB only 9.53 percent houses have toilets. In these the IMR of 23.10 per thousand has been reported against 68.82 per

thousand in houses without a toilet (Table 2). Dhamtari district ranks first in case of infant mortality (90.56 per thousand) in houses without toilet. Almost all the houses in Kawardha district are without a toilet. Mahasamud district records the highest IMR (41.67 per thousand) in houses having toilet facility.

Place of Delivery

Poverty associated with ignorance keeps the rural people away from modern medical facilities which are available at urban places. There is a high correlation between place of delivery and infant mortality (Ren, 1996). In rural areas most of the delivery cases have been performed at home, and the people move to hospital only in case a complication arises. This attitude many a times puts the life of the mother and the child at a risk. On an average 89.43 percent of delivery cases in rural SMB have been performed at home. This proportion is 99.41 percent in case of Kawardha district. On the other hand a maximum of 21.81 percent delivery cases in Durg district have been performed at hospitals. The IMR in cases of delivery at home (69.27 per thousand) is nearly thrice of the delivery at hospitals (29.81 per thousand) (Table 3). The variation in these values is maximum in Raipur district (3.45 times) and lowest in Durg district (1.96 times). It is surprising that only 3 delivery cases have been performed at hospitals in Kawardha district.

Delivery Assistant

The family members, relatives, neighbours, or untrained midwives (*dai*) usually function as delivery assistants in rural areas. The success of a delivery depends upon the efficiency of these assistants. The IMR in case of trained delivery assistants happens to be low (Khan, 1988). Chandrashekher (1959) considers the untrained delivery assistants as a great blot. In rural SMB 89.43 percent of families had delivery cases performed at home. In the region 60.88 percent deliveries have been performed by untrained midwives, 27.36 percent by trained midwives, 11.76 percent by doctors or nurses (Table 3). Kawardha district has the highest proportion of 72.53 percent delivery cases performed by untrained midwives. Damtari district has the highest proportion (44.40 percent) of delivery cases performed by trained persons. The IMR in cases of untrained persons is more than three times (77.48 per thousand) against 24.06 per thousand in cases of trained assistants (Table 3). More than four- times variation in these values has been obtained in Raipur district, and 2.25 times, the lowest, in Durg district. The highest IMR (95.84 per thousand) has been obtained in cases of untrained assistants in Dhamtari district, and lowest IMR (17.54 per thousand) in cases of trained person in Rajnandgaon district.

The babies delivered at hospitals are more protected than naturally delivered babies (Khan, 1988). The effect of place of delivery and delivery assistants can be observed on infant mortality in rural areas.

Source of Cooking Fuel

The rural people use gathered firewood, dung cakes and kerosene as fuel for cooking food. The fumes produced by these fuels spread over small rooms and harm the health of the infants. In rural SMB 95.65 percent families are using firewood and dung cakes for cooking. This value is 99.60 percent in Kawardha district. Only 4.47 percent families in the region are using LPG or bio-gas (Table 3). The highest proportion (9.40 percent) of families using these fuels, particularly bio-gas in the region, is in Mahasamund district.

The IMR in families using firewood and dung cake was found to be 69.27 per thousand and 29.81 per thousand in families using biogas or LPG (Table 3). The highest IMR among firewood and dung cake users has been reported from Dhamtari district (88.07

per thousand) and lowest in Rajnandgaon district (50.51 per thousand).

Cleanliness in Houses

The low level of living conditions affects the IMR. Only 54.46 percent of the families live in clean houses in rural SMB (Table 3). A maximum of 79.24 percent houses in Durg district have been found to be clean. While 69.17 percent houses in Kawardha district do not appear clean. The IMR in clean houses in rural SMB has been 42.15 per thousand which is less than a half for unclean houses i.e. 91.16 per thousand (Table 3). The highest variation in these values has been observed in Mahasamund district (2.95 times) and lowest in Durg district (1.60 times). The IMR in these districts are 118.21 and 70.27 per thousand respectively.

Access to News Papers and Television

News papers and television are simple and effective mediums through which the Mother and Child Welfare Programmes can be advertised. In rural areas television is easily available and is more effective than the news papers. The illiterates or less educated rural people can more easily understand the messages of family welfare through television. In the rural SMB 13.74 percent families have access to news papers and 31.85 percent families have television sets (Table 3). The effect of television programmes is of permanent nature. The IMR in families having no access to news papers, is 70.36 per thousand in comparison to 80.29 per thousand for families without television sets (Table 3). The IMR for families without news papers (88.57 per thousand) is highest in Dhamtari district.

Table 3

South Mahanadi Basin : Family Level Facilities and IMR

(Rate per thousand live births)

S. No.	Family Level Facilities	Families (in %)	IMR (per thousand live births)
1.	Cooking Fuel		
	A. Wood and cakes 95.65	69.27	
	B. Gas	10.57	29.81
2.	Facility of Newspaper		
	A. Yes	13.74	27.46
	B. No.	86.26	70.36
3.	Facility of TV		
	A. Yes	31.85	30.60
	B. No.	68.15	80.29
4.	Place of Delivery		
	A. Home	89.43	69.27
	B. Hospital	10.57	29.81
5.	Delivery Assistant		
	A.Untrained midwives	0.88	77.48
	B. Trained midwives	27.36	24.06
	C. Doctor/ Nurse	11.76	-
6.	Cleanliness of House		
	A. Clean	54.46	42.15
	B. Unclean	45.54	91.16

Source: Personal Survey, 2003.

Table 4

South Mahanadi Basin : Summary results of factors of family environs and IMR

S. No.	Covariates	Regression Co-efficient (R^2)	Correlation (r)	SE - r	Slope-b	SE B
A	Housing conditions					
	1. *Kutcha* House	0.9890***	0.9945	0.0525	1.0684	0.0564
	2. Number of Rooms A. 1-2	0.9062**	0.9519	0.1531	1.4787	0.2379
	3. Source of Drinking Water : Tube well	0.9493**	0.9743	0.1126	1.0237	0.1497
	4. No Sewerage	0.7129*	0.8443	0.2179	0.9650	0.3062
	5. No Lavatory	0.9254**	0.9620	0.1366	0.9423	0.1338
	6. Cattle sheds in House	0.9815***	0.9902	0.0512	1.0631	0.0514
	7. Unclean House	0.7741**	0.8798	0.3376	01.0495	0.4928
B	Family Level Conditions					
	1 Cooking Fuel : Wood and Cakes	0.9739***	0.9868	0.0808	0.7515	0.0776
	2. No News paper	0.8926**	0.9447	0.1639	1.2952	0.1364
	3. No T V	0.8926**	0.9519	0.1531	1.4787	0.2379
	4. Nuclear Family	0.6839*	0.8269	0.2807	0.9471	0.1872
	5. Place of Delivery : Home	0.9635***	0.9817	0.0955	0.0925	0.0901
	6. Delivery Assistant : Untrained midwives	0.9452**	0.9722	0.1170	1.0237	0.1232

*P = 0.05, **P = 0.01, ***P = 0.001.

The lowest IMR for families without newspapers has been obtained in Durg district (64.79 per thousand). The people around the industrial city - Bhilai- are more well informed and vigilant towards family welfare.

News papers and television are playing major role in spreading the messages of Mother and Child Care and Vaccination Programmes, which prevent the mothers and children from serious ailments. In the region 93.87 percent mothers and 86.82 percent infants have been vaccinated. The IMR among mothers and children who have not been vaccinated is very high i.e. 174.36 and 236.28 per thousand respectively. The worst effect of non-vaccination has been seen in Dhamtari district where the IMR for non-vaccinated mothers and children reaches 310.34 and 292.31 per thousand respectively, and lowest in Rajnandgaon district i.e. 117.65 and 160.49 per thousand respectively. In the region only 27.53 percent of infants took the full course of vaccination with the result that 47.98 out of one thousand babies put their lives at risk. Dhamtari district was the worst sufferer in case of non-vaccinated infants with an IMR of 70.46 per thousand, while the least effected was Durg district with an IMR of 8.62 per thousand.

Significance of Determinants Affecting Infant Mortality

Various determinants of household environs have been discussed above. The Multivariate Model (Cox, 1972) used by Jatrana (2001) has been used to know the significance of these determinants. A high level of significance (P=0.001) of the effect of determinants, namely *kutcha* house, cattle sheds inside the house, use of firewood and dung cakes as cooking fuel, has been observed on infant mortality (Table 4). A medium level of significance (P=0.01) between such factors as drinking water from tube well,1-2 room houses, house without toilet, untrained midwives, families having no newspaper and TV set, and the level of IMR has been observed. A low level of significance (P=0.05) between such factors as nuclear type of family, house without sewerage, and IMR has been obtained (Table 4). It is evident that these factors reduce the effect of Mother and Child Welfare Programmes with the result that the infant mortality decreases at a slow rate.

Conclusion

Though the IMR in rural SMB is lower as compare to the one for rural Chhattisgarh, the neonatal mortality rate is relatively high. The effect of sex discrimination has been observed in the region. The household environ is a major factor affecting IMR. Within this such factors as type of house, number of rooms in a house, source of drinking water, sewerage and lavatory facility, type of family and the location of cattle shed in the house have been studied. The study finds that house holds living in *pucca* houses, large number of rooms, tap as the main source of water, availability of sewerage and lavatory facilities, joint family system and cattle sheds located outside the house have lower IMR. Similarly, in the case of house holds using bio-gas/LPG as cooking fuel, having access to newspapers and television, utilizing hospitals as place of delivery and using the services of trained mid-wives and having a clean living environment have lower IMR. The IMR among children who received vaccination is low. It is suggested that pre-natal and post-natal care of the mother and the child must receive more attention. Education of parents to bring awareness about nutrition and child care can further bring down the IMR in the region. Additional and more intensive field work needs to be done for understanding the inter-district variations in the IMR and its association with determinants of the housing environs.

References

Blacker, J.G.C. (1991) "Infant and Child Mortality: Development, Environment and Custom", in R. G. Feamchem and D.T. Jamison (eds.) *Diseases and Mortality in Sub-Saharan Africa*, Oxford University Press, Oxford, pp. 75-86

Bouge, Donald, J. (1969) *Principles of Demography*, John Willey & Sons, New York.

Chandrashekhar, S. (1959) *Infant Mortality in India 1901-55*; George Allen & Unwin Ltd., London.

Cox, D.R. (1972) "Regression Models and Life Tables". *Journal of the Royal Statistical Society*, 34, pp. 187-220.

Das Gupta, M. (1990) "Death Clustering, Mother's Education and the Determinants of Child Mortality in Rural Punjab", *Population Studies,* 44, pp. 489-505.

Directorate of Economics and Statistics, Chhattisgarh(2000) *Annual Vital Statistics.*

D'Souza, R. M.(1997) "Housing and Environmental Factors and their Effects on the Health of Children in the Slums of Karachi, Pakistan" *Journal of Biosocial Sciences*, Vol 29,pp. 271-281.

DaVanzo, J. W.P. Butz, and J.P. Habicht (1983) "How Biological and Behavioural Influence on Mortality in Malaysia Vary during the First Year of Life" *Population Studies*, Vol 37, pp. 381-402.

Jain, A. K. (1985) "Determinants of Regional Variations in Infant Mortality in Rural India", *Population Studies,* 39, pp 407-24.

Jain, A. K. and P. Visaria (1988) "Infant Mortality in India: An Overview", *Infant Mortality in India: Differentials and Diterminants.* Sage Publications, New Delhi, pp. 23-64.

Jain, S.P. (1979) "Levels and Differentials of Infant and Child Mortality Determinants and Demographic Impact", in K. Shrinivasan and other (eds.) *Demographic and Socio-Economic Aspects of Child in India*, Himalaya Publishing House, Mumbai.

Jatrana, S. (1999) Deteminants and Differentials of Infant Mortality in Mewat Region of Haryana State, India, *Unpublished Ph. D. Thesis*, Demography Program, Research School of Social Sciences, Canberra, The Australian National University.

Jatrana, S., (2001): "Household Environmental Factors and their Effects on Infant Mortality in Mewat Region of Haryana State, India", *Demography India*, Vol.30, No.1, pp. 31-47.

Khan, M.E., (1988) : "Infant Mortality in Uttar Pradesh: A Micro Level Study", inA.K. Jain and P. Visaria (eds.) *Infant Mortality in India: Differentials and Diterminants*, Sage Publications, New Delhi, pp 227-46.

Mahadevan, K. (1986) "Mortality, Biology and Society: Analytical Framework and Conceptual Model", in K. Mahadevan (ed.) *Fertility and Mortality: Theory, Methodology and Empirical Issues,* Sage Publications, New Delhi, pp 239-301.

Merrick, T.W., (1985), "The Effect of Piped Water on Early Childhood Mortality in Uraban Brazil, 1970 to 1976", *Demography*, Vol. 22, pp1-24.

Mosley, W. H (1974) "Epidemiological Strategies in Infectious Disease Control", *Indian Journal of Community Medicine,* X (2).

Mosley, W. H. and L.C. Chen (1984) "An Analytical Framework for the Study of Child Survival in Developing Countries", in W.H.Mosley and L.C., Chen (eds.) *Child Survival: Strategies for Research, Supplement to Population and Development Review*, Population Council, New York, 10, pp. 24-45

Nag, M. (1988) "A Framework for the Study of Proximate Determinants of Infant Mortality in Less Developed Countries". in A. K. Jain and P. Visaria (eds.) *Infant Mortality in India: Differentials and Determinants,* Sage Publications, New Delhi, pp. 363-73.

Pandey, M. R. , J.S.M. Boleeji, K.R. Smith and E.M. Wafula (1989), Indoor Air Pullution in Developing Countries and Acute Respiratory Infection in Children, *Lancet*, Vol. 1, pp-427-429.

Puffer, R.R. and C. V. Serrano (1973) *Patterns of Mortality in Childhood,* Scientific Pulication No. 262, Washigton DC, Pan American Health Organization.

Registrar General, India (2001) *Sample Registration Bulletin*, 29, July (New Delhi).

Ren, X. S. (1996) "Regional Variation in Infant Survival in China", *Social Biology,* 43, pp. 1-19.

Satterthwaite,D., R. Hart, C. Levy, D. Mitlin,, J. Smith and C. Sterphens (1996) *The Environment for Children*, London, UNICEF, Earthscan, pp-475-496.

Stephens, B., J. P. Manson, and R. B. Isely (1985) Health and Low-cost Housing. *World Health Fourm*, Vol 6, pp.59-62.

Vaidyanathan, K. E. (1972) "Some Indices of Differentials Mortality in India", in K.E. Vaidyanathan (ed.) *Studies in Mortality in India*, The Gandhigram Institute of Rural Health and Family Planning, Gandhigram.

Victora, C. G., P. G. Smith , J. P. Vaughan, and S.C. Fuchs (1989) "Risk Factor for Deaths due to Respiratory Infections among Brazilian Infants". *International Journal of Epidemiology,* Vol 18, pp. 918-925.

POPULATION GEOGRAPHY Volume 26 Numbers 1 & 2 June-December 2004

EDUCATIONAL DEVELOPMENT AND STRUCTURE OF EMPLOYMENT IN WESTERN UTTAR PRADESH

FARASAT ALI SIDDIQUI and YASMEEN NASEER
Aligarh, India

Abstract

The paper aims to describe levels of educational development and employment by major occupation groups and the association between educational development and employment in western Uttar Pradesh. It is based on district level secondary data obtained from the Census of India 1991 and 2001, and the State Planning Institute, Lucknow.

The study reveals that literacy rate varies from 38.83 to 71.50 per cent among the districts. It tends to increase from east to west in the region. The distribution of employment under major occupation groups is quite notable. Primary occupations are characterized by a gradual increase from west to east. Secondary and tertiary occupations are marked by a substantial increase from east to west. In fact higher levels of educational development, industrial development and economic development are registered in the districts of western part of the region. The dimension of relationship between education and employment shows a very complex picture. Multiple regression analysis suggests that 82 per cent variation in primary occupations, 86.10 per cent in tertiary occupations and 25.23 per cent in secondary occupations is explained by educational development.

Introduction

The level of educational development and employment provide information about the quality of human resources and the nature and extent of their utilization. They play a dominant role in influencing the quality of human resources. Investment in human capital contributes to productivity by improving the quality of population.

Literacy rate forms an important demographic element and is a good measure of human progress towards modernization. As per definition of the Census of India 2001, a person who can both read and write with understanding in any language is taken as literate. All children below the age of 7 years have been treated as illiterate. In the 1961 and 1971 Censuses, children below the age of 5 years were treated as illiterate.

The growth and spread of literacy level, its distribution, causes and historical consequences have been studied in the context of demographic, social and economic situation of Uttar Pradesh (Siddiqui, 1977; Singh, 1979). Most of the studies on educational status have been attempted with reference to literacy rate in general and literacy by sex and residence (Gosal, 1964, 67, 79; Burke, 1983; Mathur, 1988; Tiwari and Tripathi, 1993). Some of the studies also deal with such correlates as working population and the results have found these to be inversely related to each other

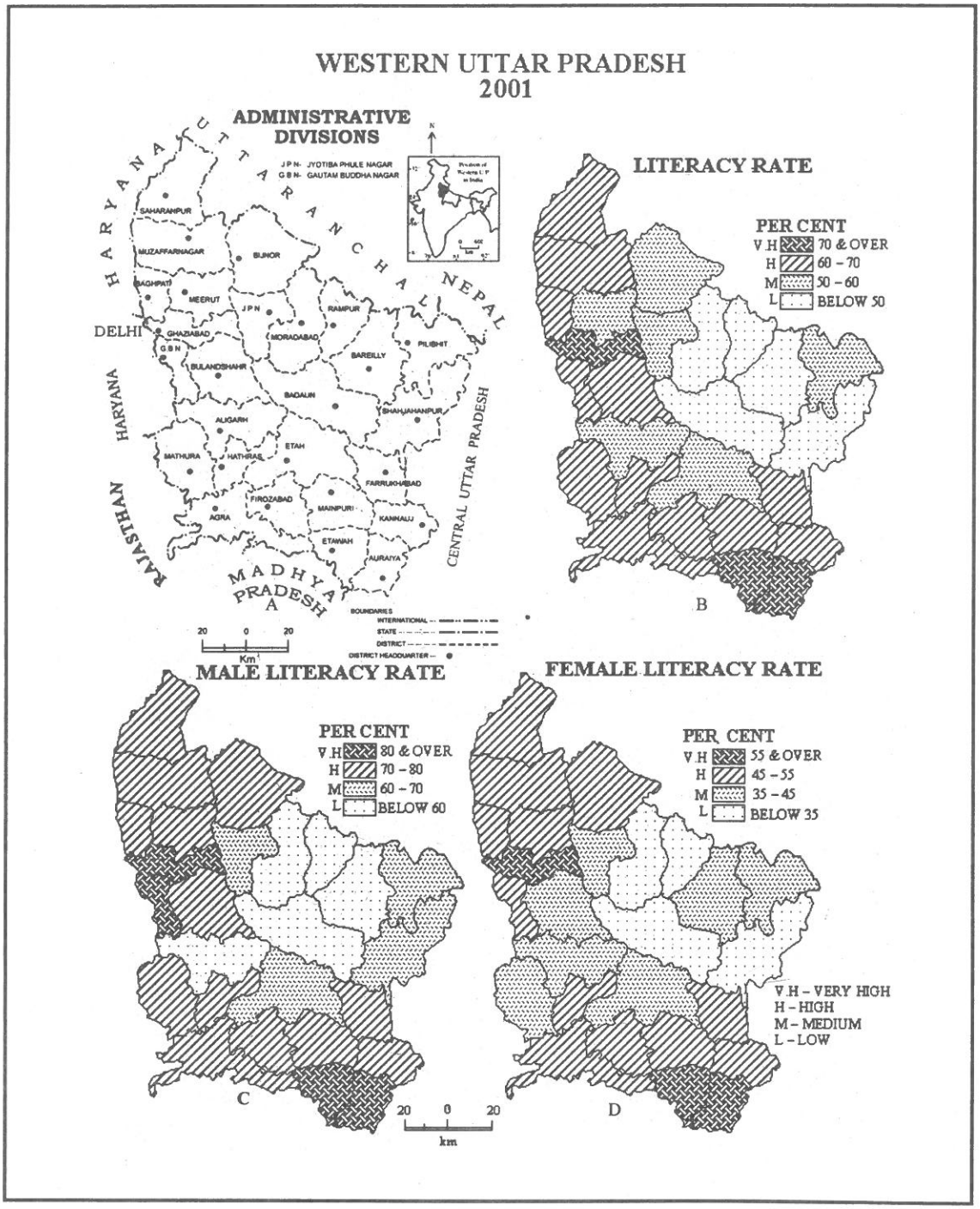

WESTERN UTTAR PRADESH
2001
ADMINISTRATIVE DIVISIONS
J.P.N- JYOTIBA PHULE NAGAR
G.B.N- GAUTAM BUDDHA NAGAR
HARYANA
UTTARANCHAL
NEPAL
DELHI
RAJASTHAN
HARYANA
CENTRAL UTTAR PRADESH
MADHYA PRADESH
SAHARANPUR
MUZAFFARNAGAR
BIJNOR
BAGHPAT
MEERUT
J.P.N
RAMPUR
GHAZIABAD
MORADABAD
PILIBHIT
G.B.N
BULANDSHAHR
BAREILLY
BADAUN
SHAHJAHANPUR
ALIGARH
ETAH
MATHURA
HATHRAS
FARRUKHABAD
FIROZABAD
MAINPURI
AGRA
KANNAUJ
ETAWAH
AURAIYA
A
20 0 20
Km
BOUNDARIES
INTERNATIONAL
STATE
DISTRICT
DISTRICT HEADQUARTER
LITERACY RATE
PER CENT
V.H 70 & OVER
H 60 - 70
M 50 - 60
L BELOW 50
B
MALE LITERACY RATE
PER CENT
V.H 80 & OVER
H 70 - 80
M 60 - 70
L BELOW 60
C
FEMALE LITERACY RATE
PER CENT
V.H 55 & OVER
H 45 - 55
M 35 - 45
L BELOW 35
D
V.H - VERY HIGH
H - HIGH
M - MEDIUM
L - LOW
20 0 20
km

Fig. 1

(Acharya, 1984; Singh, 1986; Tripathi, 1993). The educational disparity in India is linked with socio-economic conditions (Raza and Aggarwal, 1986; Nuna, 1989; Pacione, 1997). The inter-state disparities in educational development in India have been analysed by Tilak (1979), Redy (1985), Zaidi (1986), Mehta (1990) and Malhotra (1999). The study of inter-district inequalities in terms of literacy and educational development has been attempted by Saradamoni (1981) and Dash (1993). Educational attainment by gender has been analysed by Hazra (1997), Joshi (2000) and Dougall (2000). Some of the studies (Bahadur and Ahmad, 1981; Salldanha, 1999; Chaubey and Chaubey, 1998) have highlighted that education in India reflects an urban bias.

The relationship between education and regional/economic development has been examined by Dube and Misra (1981), Chaudhary and Nair (1981) and Singh (1986). The socio-cultural factors affecting the education and work participation of women, occupational structure of population and its distribution by major categories and residence are highly relevant to productivity and economic growth (Malathay, 1994; Saha and Mathur, 2001; and Kothari, 2003). This has also been analyzed with reference to its implications in terms of a series of independent variables (Rafiullah and Siddiqui, 1981; Singh and Deen, 1981; Basu, 1991; Shafiqullah and Siddiqui, 2001; and Siddiqui, 2003). But perhaps there is no particular study on educational development and structure of employment (primary, secondary and tertiary occupations). Therefore, an attempt has been made to study the levels of educational development, which play a crucial role in the structure of employment, taking Western Uttar Pradesh (WUP) as a case study and the district as the unit of analysis.

Western Uttar Pradesh is a relatively more developed and prosperous region of the state of Uttar Pradesh. It occupies the fertile northwestern portion of the Upper Ganga Plain, and is well endowed with water resources and good climatic conditions. These have favoured agricultural development. It lies approximately between 26°20'N and 31°N latitudes and 77°E and 81°E longitudes and comprises of 26 districts (Fig.1A). It covers an area of about 80.076 sq km and holds about 61.06 million population of which 32.75 million (53.66 per cent) are males and 28.29 million (46.34 per cent) are females as per Census of India 2001.

The discussion in the paper is divided into three parts. The first part describes the educational development in terms of general literacy rate and literacy by sex. The second part describes the levels of employment by major occupation groups i.e. primary, secondary and tertiary. The third part pertains to the regional patterns of association between educational development and employment on the basis of regression analysis. The present study is based on district wise data from Census of India 2001 and the State Planning Institute, Lucknow.

EDUCATIONAL DEVELOPMENT

Literacy rate in Western Uttar Pradesh continues to be abysmally low, as hardly 59.46 per cent of population above 7 years of age is literate against the national average of 65.38 percent. Moreover, the average literacy rate conceals the variations in terms of social groups and regions. Total literacy rate in the region has increased from merely 41 per cent in 1991 to 59 per cent in 2001. Similarly, the female literacy rate is lower than total literacy rate, but its growth is higher (73 per cent) than the growth in total literacy (44 per cent) during the period 1991-2001. There is a high degree of spatial correspondence between the total literacy rate and male and female literacy (Fig. 1-B,C and D).

Due to economic hardship the dropout rate in schools is very high and only about half of the students continue education after the primary stage. According to official

statistics enrolment ratio in 1995-96 was 90.8 percent in the age group of 6-11 years, as compared to 55.7 per cent in the age group of 11-14 years. Enrolment ratios for girls are even lower i.e., 78.3 per cent at primary level and 39.4 per cent at secondary level. Girls constitute 40.5 per cent of total enrolment at primary level, but the figure goes down to 33.5 per cent at the secondary level.

The educational infrastructure is very large and consists of 28,586 junior basic schools, 7163 senior basic schools and 3337 higher secondary schools. However, in relation to per lakh population this number is 47, 12 and 6 respectively at the three levels of infrastructure. These figures are very unsatisfactory in qualitative terms both with respect to the availability of required facilities and the quality of education being imparted.

Literacy rate in WUP is 59.46 per cent (Table1). It is 2.08 per cent points higher than the state average literacy rate of 57.38 per cent. Fig. 1B reveals that districts with high literacy rates (60 to 70 per cent) namely Saharanpur, Muzaffarnagar, Meerut, Baghpat, Bulandshahr, Gautam Buddha Nagar, Mathura, Hathras, Agra, Firozabad, Mainpuri, Farrukhabad and Kannauj constitute a prominent zone in the north-western part of WUP. The districts with a moderate literacy level (50 to 60 per cent) viz. Bijnor, Jyotiba Phule Nagar, Aligarh, Etah and Pilibhit do not form a notable zone. The districts of low level of literacy rate (below 50 per cent) form an identifiable region in eastern part of WUP. They are Moradabad, Rampur, Bareilly, Budaun and Shahjahanpur. Only three districts have very high literacy rate (70 per cent and above). They are too scattered to form a distinct zone.

The male and female literacy rate in WUP is 70.73 and 45.53 per cent respectively. The districtwise distribution of male literacy rate is depicted in Fig.1C. Very high male literacy rate (80 per cent and over) is identified in two pockets (a) in the western part which includes the districts of Ghaziabad and Gautam Buddha Nagar, and (b) two districts of Etawah and Auraiya, situated in the extreme southern part of the area. The districts of high male literacy (70-80 per cent) also form two pockets, one of which occurs in the southern part and includes the districts of Mathura, Hathras, Agra, Firozabad, Mainpuri, Farrukhabad and Kannauj. The other lies in the extreme northern part and is composed of the districts of Saharanpur, Muzaffarnagar, Baghpat, Bijnor, Meerut and Bulandshahr. Four districts namely, Jyotiba Phule Nagar, Etah, Shahjahanpur and Pilibhit having medium male literacy (60 to 70 per cent) do not form an identifiable zone. The districts of Moradabad, Rampur, Bareilly, Budaun and Aligarh form a region of low literacy rate (below 60 per cent) in central part of the study area.

Female literacy rate in WUP varies considerably with a maximum of 60.08 per cent in Auraiya and a minimum of 27.97 per cent in Rampur. The spatial pattern of distribution of female literacy rate is shown in Fig.1D. A large number of districts have high literacy (45 to 55 per cent). Two distinct zones of high female literacy can be identified in WUP. One lies in the extreme northern part and the other in the southern part. A continuous belt of medium female literacy (35 to 45 per cent) is found in the central part. It includes the districts of Jyotiba Phule Nagar, Bulandshahr, Aligarh and Mathura. The remaining two districts- Bareilly and Pilibhit also having medium literacy occur as an isolated patch. Only four districts have low literacy (below 35 per cent). These are situated in the western part of the region (Fig 1D). They are Moradabad, Rampur, Budaun and Shahjahanpur. The figure shows that two distinct zones of very high literacy (55 per cent and over) are found. One located in the western part includes the district of Ghaziabad, the other located in extreme southern part includes Etawah and Auraiya districts.

Table 1
Districtwise Literacy (in per cent) and percentage of Employment by major occupation groups in Western Uttar Pradesh, 2001.

S. No.	Districts	Literacy Rate			Percentage of Employment		
		Persons	Males	Females	P.O.	S.O.	T.O.
1.	Saharanpur	62.61	72.26	51.42	52.61	3.51	43.88
2.	Muzaffarnagar	61.68	73.11	48.63	58.76	3.31	37.89
3.	Bijnor	59.37	70.18	47.28	57.46	5.95	36.59
4.	Moradabad	45.74	56.66	33.32	55.36	5.22	39.42
5.	Rampur	38.95	48.62	27.97	66.32	6.41	27.27
6.	Jyotiba Phule Nagar	50.21	63.49	35.07	63.63	7.83	28.54
7.	Meerut	65.96	76.31	54.12	36.89	4.75	58.35
8.	Bhagpat	65.65	78.60	50.38	58.89	3.97	37.15
9.	Bhaziabad	70.89	81.04	59.12	24.36	4.26	71.38
10.	Gautam Baddha Nagar	69.78	82.56	54.58	32.19	3.39	64.42
11.	Bulandshahr	60.19	75.55	42.82	52.01	5.59	42.40
12.	Aligarh	59.70	59.96	43.58	52.41	6.27	41.32
13.	Hathras	63.38	77.17	47.16	58.99	6.21	34.80
14.	Mathura	62.21	77.60	43.77	57.15	4.21	38.63
15.	Agra	64.97	79.32	48.15	40.08	5.87	54.05
16.	Firozabad	68.53	77.81	53.02	46.10	6.09	47.81
17.	Etah	56.15	69.13	40.55	73.26	4.42	22.32
18.	Mainpuri	66.51	78.27	52.87	78.19	2.16	19.65
19.	Budaun	38.83	49.85	25.53	77.96	2.69	19.35
20.	Bareilly	47.99	59.12	35.13	59.12	4.64	36.23
21.	Pilibhit	50.87	63.82	35.84	71.64	3.23	25.1
22.	Shahjahanpur	48.79	60.53	34.68	72.81	3.15	24.04
23.	Farrukhabad	62.27	72.40	50.35	67.27	7.68	25.05
24.	Kannauj	62.57	73.38	49.99	69.85	13.37	16.78
25.	Etawah	70.75	81.15	58.49	67.05	3.63	29.3
26.	Auraiya	71.50	81.18	60.08	74.12	3.11	22.76
	Western U.P.	59.46	70.73	45.53	58.63	5.04	36.33

Source : Census of India 2001 & 1991.
P.O.-Primary Occupations; S.O.-Secondary Occupation: T.O. - Tertiary Occupations.

STRUCTURE OF EMPLOYMENT

Major categories of occupations used by the Census of India have been adopted for the present study. The Census has identified nine categories viz., I. Cultivators, II. Agricultural labourers, III. Livestock, forestry, fishing, hunting and plantation, IV. Mining and quarrying, V. Manufacturing and processing: (a) Household and (b) Other than household, VI. Construction, VII. Trade and commerce, VIII. Transport, storage and communication, and IX. Other services. The first four categories constitute the primary occupations, the fifth and sixth make up the secondary occupations and the seventh, eighth and ninth together form the tertiary occupations. The proportion of workers engaged in primary, secondary and tertiary occupations in WUP is 58.63, 5.04 and 36.33 per cent respectively (Table 1).

Primary Occupations

The percentage distribution of workers engaged in primary occupations is marked with notable variations in its distribution among the districts of WUP. It varies from 24.36 per cent in Ghaziabad to 69.85 per cent in Kannauj district with an average of 58.63 per cent in the region as a whole (Table 1). The districts are grouped into four categories i.e. below 45, 45 to 55, 55 to 65, and 65 per cent and above.

The spatial distribution of proportion of workers in primary occupations shows that very high participation rates are found mainly in the eastern-central part (Fig. 2A). These districts in descending order of the percentages are Mainpuri (78.19 per cent), Budaun (77.96 per cent), Auraiya (74.12 per cent), Etah (73.26 per cent), Shahjahanpur (72.81 per cent), Pilibhit (71.64 per cent), Kannauj (69.85 per cent), Farrukhabad (67.27 per cent), Etawah (67.05 per cent) and Rampur (66.32 per cent). The districts having high values (55 to 65) form a compact zone in the northeastern part. They are Jyotiba Phule Nagar (63.63 per cent), Bareilly (59.12 per cent), Baghpat (58.88 per cent), Muzaffarnagar (58.76 per cent), Bijnor (57.46 per cent) and Moradabad (55.36 per cent). The second zone of the same category is relatively small, and comprises two districts of Mathura (57.15 per cent) and Hathras (58.99 per cent). Two districts with medium values (45 to 55 per cent) constituting a small patch are Aligarh (52.41 per cent) and Bulandshahr (52.01 per cent). On the other hand, two compact zones of very low percentage of participation (below 45 percent) are found in the western and southern part of WUP.

Secondary Occupations

Secondary occupations have the lowest proportion of workers and account for 5.04 per cent of the working population in WUP and 5.33 per cent in U.P. Table 1 shows the percentage distribution of workers by districts engaged in secondary occupations in the study area for the year 2001. The values range from 2 to 13 per cent with a minimum of 2.16 per cent in Mainpuri district and a maximum of 13.37 per cent in Kannauj district. The percentage values have been grouped into four categories viz., less than 4 per cent, 4 to 6 per cent, 6 to 8 per cent, and 8 per cent and above to identify the regional variations in the secondary occupations (Fig. 2B). Considering these categories separately, we find that the districts having low participation (below 4 per cent) constitute three small but distinct zones. The first lies in the northern part to include three districts namely, Saharanpur (3.51 per cent), Muzaffarnagar (3.31 per cent) and Baghpat (3.97 per cent). The second is located in the east-central part and includes the districts of Budaun (2.69 per cent), Pilibhit (3.23 per cent) and Shahjahanpur (3.15 per cent). The third is located in the southeast and comprises of Mainpuri (2.16 per cent), Etawah (3.63 per cent) and Auraiya (3.11 per cent) districts (Fig. 2B).

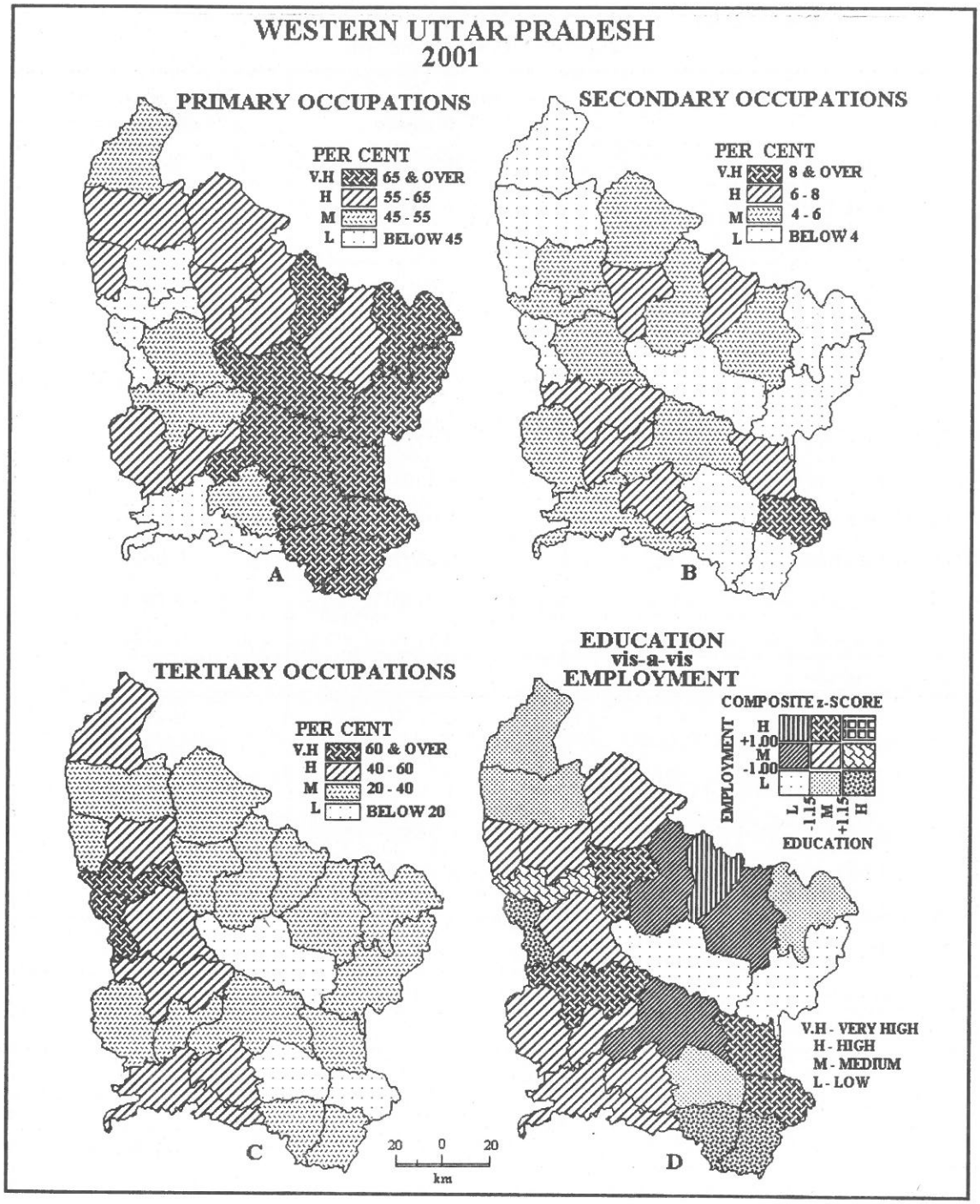

WESTERN UTTAR PRADESH
2001
PRIMARY OCCUPATIONS
PER CENT
V.H 65 & OVER
H 55 - 65
M 45 - 55
L BELOW 45
A
SECONDARY OCCUPATIONS
PER CENT
V.H 8 & OVER
H 6 - 8
M 4 - 6
L BELOW 4
B
TERTIARY OCCUPATIONS
PER CENT
V.H 60 & OVER
H 40 - 60
M 20 - 40
L BELOW 20
C
20 0 20
km
EDUCATION
vis-a-vis
EMPLOYMENT
COMPOSITE z-SCORE
EMPLOYMENT
H +1.00
M -1.00
L
L -1.15
M +1.15
H
EDUCATION
V.H - VERY HIGH
H - HIGH
M - MEDIUM
L - LOW
D

Fig. 2

Table 2
Districtwise Levels of Education and Employment in Western Uttar Pradesh

S. No.	Districts	Mean z-score of Education	Mean z-score of Employment
1.	Saharanpur	0.3705	-1.1926
2.	Muzaffarnagar	0.2668	-0.2235
3.	Bijnor	0.0363	0.1146
4.	Moradabad	-.4092	0.0226
5.	Rampur	-2.1166	0.1744
6.	Jyotiba Phule Nagar	-0.9542	0.3519
7.	Meerut	0.7245	-0.0408
8.	Bhagpat	0.6583	-0.1334
9.	Bhaziabad	1.2401	-0.1049
10.	Gautam Baddha Nagar	1.0905	-0.2123
11.	Bulandshahr	0.0898	0.0683
12.	Aligarh	-0.4320	0.1536
13.	Hathras	0.4136	0.1476
14.	Mathura	0.2658	-0.1039
15.	Agra	0.5790	0.1006
16.	Firozabad	0.8283	0.1296
17.	Etah	-0.3543	-0.0737
18.	Mainpuri	0.7664	-1.3561
19.	Budaun	-2.1658	-0.2897
20.	Bareilly	-1.1804	-0.0496
21.	Pilibhit	-0.8919	-0.2234
22.	Shahjahanpur	-1.1197	-0.2331
23.	Farrukhabad	0.3250	0.3339
24.	Kannauj	0.3563	1.0484
25.	Etawah	1.2164	-0.1742
26.	Auraiya	1.3008	-0.2381

Calculation is based on Table 1

The largest number of districts (ten) have moderate values (4 to 6 per cent). They are concentrated mainly in the north-central part. The other two zones of moderate values are separated by the high value districts. About one fourth of the districts have high values of 6 to 8 per cent. These districts are scattered throughout the study area and do not form an identifiable zone. A small but distinct zone of very high values (8 per cent and above) is located in southeastern part. It may be observed that in general, the distribution of workers in secondary occupations does not show any particular spatial pattern. However, high percentage of workers in secondary occupations in a district reflects industrial development in it.

Tertiary Occupations

Table 1 reveals that the percentage of workers engaged in tertiary activities among the districts varies from 16.78 per cent in Kannauj to 71.38 per cent in Ghaziabad. The average for the region is 36.33 per cent. The proportion of workers in tertiary activities in different districts may conveniently be arranged into four categories of below 20 per cent (low), 20 to 40 per cent (medium), 40 to 60 per cent (high), and 60 per cent and over (very high). Fig. 2C shows that more than half of the districts (fifteen) comprise the medium category (20 to 40 per cent) of tertiary occupations. These districts constitute a continuous zone stretching from northern part to south-central part. The other two districts in this group - Etawah and Auraiya lie in the extreme eastern part. One small zone of very high values (more than 60 per cent) is located in the western part and comprises the districts of Ghaziabad and Gautam Buddha Nagar. A high percentage of workers in tertiary occupations (40 to 60 per cent) is found in six districts. These districts do not form a notable zone. Only three districts have very low percentage in tertiary occupations, two of them form a small zone in the eastern part and include Mainpuri and Kannauj districts. The general pattern of the percentage distribution of tertiary occupations is marked by a gradual decrease from west to east in WUP.

EDUCATION vis-à-vis EMPLOYMENT

After examining the spatial patterns of levels of education and the structure of employment separately, it would be worthwhile to study education in relation to employment in the study area. An attempt is made to identity regions of relationship between education and employment. For this purpose districtwise z-score for each variable is calculated (Table 2). The values so obtained for all the variables are added for each district which may be known as composite z-score (CS) for that district. It is expressed as:

$$CS = \frac{\sum zij}{N}$$

where

N refers to the number of variables and zij indicates sum of z-scores of variables j in district i.

The spatial distribution of education/ literacy vis-à-vis employment comprising of two sets of variables (literacy rate-total, male and female and work participation rate-total, male and female) is depicted in Fig.2 D. It may be noted that the range of variations in the level of literacy is higher than that of employment level. The category of medium level of literacy comprises of sixteen districts out of the total twenty-six in the study region. Twelve of these districts have medium level of employment and most of them form a continuous zone in western half of WUP. Four districts of Jyotiba Phule Nagar, Farrukhabad, Kannauj and Aligarh fall under the category of medium proportion of level of literacy and high proportion of employment. They do not form any identifiable zone. Out of eight districts of medium level of literacy and employment, four are located in the

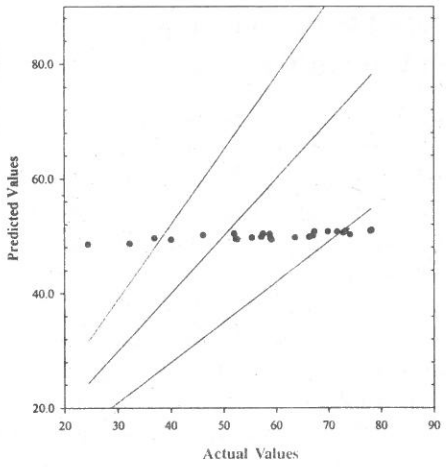


Fig. 3

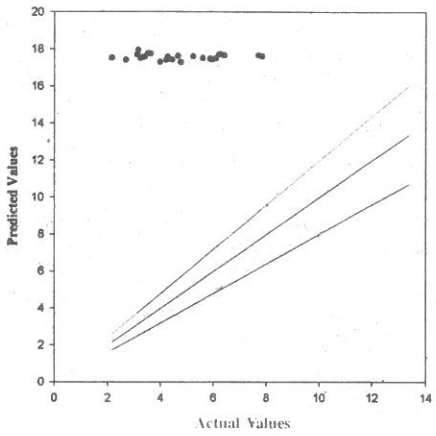


Fig. 4

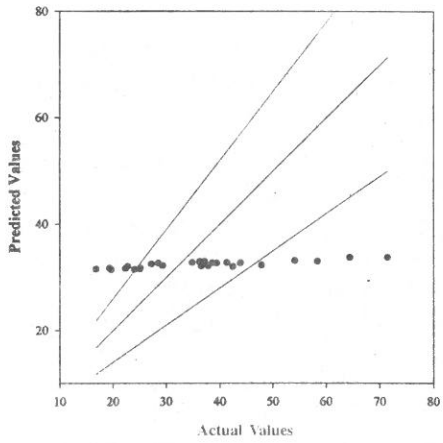


Fig. 5

Fig. 3 : Comparison between predicted and actual values of Primary Occupation

Fig. 4 : Comparison between predicted and actual values of Secondary Occupation

Fig. 5 : Comparison between predicted and actual values of Tertiary Occupation

southwestern part in the form of a cluster. They are Mathura, Hathras, Agra and Firozabad. The other three districts are located in the northern part in the form of a continuous narrow belt. They are Baghpat, Meerut and Bijnor. Out of four districts of low level of employment and medium literacy rate, two are located in the extreme northern part. They are Saharanpur and Muzaffarnagar.

The category of low level of literacy includes six districts, three of which belong to medium (Moradabad, Etah and Bareilly), two to low (Budaun and Shahjahanpur) and one (Rampur) to high level of employment. These districts form a cluster in the east-central part of WUP. Out of four districts of high proportion of literacy rate, three (Gautam Buddha Nagar, Etawah and Aligarh) belong to low and only one (Ghaziabad) to medium level of employment.

Multiple regression model specifies the relative predictive contributions of the independent variables to the explanation of the dependent variables. Multiple regression equation expresses a functional relationship between a dependent variable, Y, and a set of independent variables (Draper and Smith, 1966). Here the result is obtained as a consequence of an initial investigation of the relation between major occupation groups -Y_1 (primary occupations), Y_2 (secondary occupations), and Y_3 (tertiary occupations), and eight (X_1 ...X_8) selected independent variables of educational status. These are:

X_1 (Literacy rate)

X_2 (Male literacy rate)

X_3 (Female literacy rate)

X_4 (Percentage of primary education)

X_5 (Percentage of middle education)

X_6 (Percentage of senior secondary education)

X_7 (Percentage of graduates and above) and

X_8 (Percentage of professional education)

The hypothesis is that district wise variations in percentage distribution of occupation groups (Y_1 , Y_2 , Y_3) are the function of X_1 ...X_8 variables. The multiple regression equations obtained are

$$Y_1 = 1.34146 \times 10^{50}\ X_1^{3.486}\ X_2^{-2.418}\ X_3^{-1.330}\ X_4^{-0.127}\ X_5^{1.883}\ X_6^{0.997}\ X_7^{-4.877}\ X_8^{-0.908}$$

$$Y_2 = 9.92801 \times 10^{18}\ X_1^{-0.353}\ X_2^{0.194}\ X_3^{0.212}\ X_4^{-0.714}\ X_5^{0.560}\ X_6^{-0.362}\ X_7^{-0.583}\ X_8^{0.810}$$

$$Y_3 = 5.97555 \times 10^{30}\ X_1^{-3.134}\ X_2^{2.225}\ X_3^{1.118}\ X_4^{0.843}\ X_5^{-2.481}\ X_6^{-0.636}\ X_7^{5.463}\ X_8^{0.095}$$

Regression model $Y = f(X_1 \ldots X_8)$ produces $R^2 = 83.66$ per cent as the variance of the dependent variable- Y_1 explained by the general literacy rate. Since F (8, 17, 0.05) = 2.25 and calculated value is 10.88 which exceeds the critical value (2.55) the overall regression is statistically significant. Similar is the case with tertiary occupations (R^2 = 86.10 per cent and F value 13.17). F value calculated for Y_2 (secondary occupations X_1 ...X_8 independent variables) is 0.717 which is less than the critical value of F (8, 17, 0.05) and therefore the overall regression is statistically not significant. R^2 is calculated to be 25.23 per cent which indicates that 74.77 per cent of variability remains unexplained and therefore new variables should be found to bring R^2 value up to a significant level.

A comparison between the actual (observed) and predicted values of dependent variables under the influence of quantitative impact of independent variables are depicted in Figs. 3, 4 and 5. The graphs, drawn with the deviation of ±30 per cent, compare the actual and predicted value of primary and tertiary occupations and ±20 per cent variation of secondary occupations. Fig 4 shows that none of the values predicted for secondary occupations lie under ±20 percent variation from the normal.

CONCLUSION

The present study identifies some notable characteristics on the basis of which certain findings can be drawn. Literacy rate varies from 38.83 to 71.50 per cent among the districts. It tends to increase from east to west in the region. These variations are associated with educational facilities, urbanization, infrastructural facilities and per capita income. In case of females the literacy rate is quite low as compared to male literacy. The range of variation is from 25.53 to 60.08 per cent in the case of female population, whereas it is 48.62 to 82.56 per cent in male population. These variations are particularly high in the districts located in the extreme eastern part of the region and are relatively low in the extreme western districts. Low level of female literacy rate is significantly determined by a low level of urbanization, low level of income, large size of family and low level of educational and health facilities.

Regional distribution of employment under major occupation groups is quite notable. Primary occupations are characterized by a gradual increase from west to east. Secondary and tertiary groups are marked by a substantial increase from east to west. The extreme west lying districts have relatively high participation in industries and services. In fact, the higher level of educational development, industrial development and economic development is registered in the districts of western part of the region. The relationship between education and employment shows a very complex picture. A high level of literacy with low level of employment has been observed in the southern most districts of the region. Medium levels of literacy with medium level of employed population are identified in the western part. Districts with medium levels of literacy with low level of employment are located in northern part of the study area. Low level of literacy with high and medium levels of employment characterises the east-central part. The eastern districts of the region are relatively less developed as compared to the western districts. The regression analysis of eight independent variables of educational status for the explanation of three separate dependent variables concludes that 82 per cent of the variations in primary occupations, 86.10 per cent in tertiary occupations and 25.23 per cent in secondary occupations are explained by educational status. The overall regression is statistically significant only with reference to primary and tertiary occupations. Predicted values over actual values of secondary occupations occur far apart from the curves drawn between ±20 deviations from normal. In the light of these findings it is suggested that efforts should be made for development of less developed districts and improvement in the level of literacy in the districts to minimize regional imbalances between educational development and employment structure in Western Uttar Pradesh.

References

Acharya, P. (1984) : "Problems of the Weaker Section of the Rural Community", *ICSSR Research Abstracts Quarterly*, Vol. 13, No. 3 & 4, July-Dec. pp. 29-40.

Bahadur, S. and Ahmad, A. (1981): "Inequalities in Higher Education in India", *Indian Journal of Regional Science,* Vol. 13, No. 2, pp. 181-186.

Basu, S. (1991): "Occupation Structure of the Urban Units in the Lower Damodar Valley", Geographical Review of India, Vol. 53, No. 4, pp.19-26.

Burke, F. (1983): "Spatial Disparities in the Literacy of Scheduled Caste of Uttar Pradesh", Paper presented at National Association of Geographers, India. 5th Annual Congress, December 26-28, Aligarh.

Chaubey, R.K. and Chaubey, G. (1998): "Rural–Urban Disparity in Literacy: Inter –State Variation in India, *Indian Journal of Regional Science,* Vol. 30, No. 1, pp.22-37.

Chaudhary, M.D. and Nair, K.P.G. (1981): "Education and Regional Development in India". *Indian Journal of Regional Science,* Vol. 13, No. 2, pp. 170-180.

Dash, N.R. (1983): "Characteristics and Correlates of Literacy Among the Scheduled Tribes of India". Paper presented at 5th IGC, National Association of Geographers, India, December 26-28, Aligarh.

Dash, T.R. (1993): "Regional Inequalities in Educational Development in Orissa", *Indian Journal of Regional Science,* Vol. 25, No. 1, pp.19-29.

Doughal, L.Mc. (2000):"Gender Gap in Literacy in Uttar Pradesh, Questions For Decentralized Educational Planning", *Economic and Political Weekly,* May 6-12, Vol. 30, No. 19, pp. 1649-1651.

Draper, N.R. and Smith H. (1966): *Applied Regression Analysis*, John Wiley & Sons, New York.

Dube, R.S. and Misra, R.P. (1981): "Level of Education – A Versatile Indicator of Regional Development", *Geographical Review of India,* Vol. 43, No. 3, pp. 278-285.

Gosal, G.S. (1964): "Literacy in India – An Interpretative Study", *Rural Sociology,* Vol. 9,pp. 261-77.

Hazra, J. (1997):"Women and Literacy", *Geographical Review of India,* Vol. 59, No. 1, pp.62-74.

Joshi, H. (2000): "Education Development in India: Spatio–Temporal Appraisal", *Indian Journal of Regional Science,* Vol. 13, No. 2, pp.87-93.

Kothari, S. (2003): "Female Occupational Structure in Rajasthan – A Regional Analysis", *Indian Journal of Regional Science*, Vol. 25, No.1, pp. 99-107.

Malathy, R. (1994): "Education and Women's Time Allocation to Non – Market Work in an Urban Setting in India", *Economic Development and Cultural Change,* Vol. 42, No. 4, pp. 743-746.

Malhotra, N. (1999): "Human Development in India and Inter-state Pattern", *Indian Journal of Regional Science,* Vol. 31, No. 1, pp. 31-45.

Mathur, B.B. (1988): "Rural Literacy in Uttar Pradesh: A Spatial Analysis", *The Geographer,* Vol. 15, No. 2, pp. 80-90.

Mehta, G.S. (1990): "Educational Equality: Reality or Myth", *Indian Journal of Regional Science,* Vol.12, No.1, pp. 87-93.

Nuna, S.C. (1989): "Regional Disparities in Educational Development – Policy and Planning Implications", Paper presented at National Seminar on Regional Disparities in Educational Development, September 25-27, 1989, NIEPA, New Delhi.

Pacione, M. (1997): "The Geography of Educational Disadvantage in Glasgow", *Applied Geography,* Vol. 17, No. 3, and pp.169-175.

Rafiullah, S.M. and Siddiqui, F.A. (1981): "Analysis of Occupation Regions of Uttar Pradesh", *National Geographical Journal of India,* Vol. 30, part I, pp.21-30.

Raza, M. and Aggarwal, Y.P. (1986): "Inequalities in the Levels of Literacy in India", in Shafi, M. and Raza, R. (eds) *Spectrum of Modern Geography*, Concept Publications, New Delhi, pp.193-225.

Redy, U.B. (1985): "Regional Disparities in Educational Development in India: An Inter–State Analysis", *Geographical Review of India,* Vol. XLVII, No. 2, pp.22-27.

Saha, D.K. and Mathur, Y.N. (2001): "Differentials Characters and Work Participation of Women in an Arid Village of Western Rajasthan", *Man in India,* Vol. 81, Nos. 3 & 4, pp . 305-311.

Saldanha, D. (1999): "Residential Illiteracy and Uneven Development: Patterned Concentration of Literacy", *Economic and Political Weekly,* Vol. 34, No. 27, July 3-9, pp. 1773-1800.

Saradamoni, K. (1981): "Education or Leveller: A Probe into Kerala's Experience", in Nair, K.R.G. (ed) *Regional Disparities in India*, New Delhi, pp.121-135.

Shafiqullah and Siddiqui, F.A. (2001): "Work Force and Level of Socio-Economic Development in Uttar Pradesh", Indian Journal of Regional Science, Vol. 33, No. 1, pp. 41-50.

Siddique, M. (1977): "The Geography of Literacy in Uttar Pradesh", *Geographical Review of India,* Vol. 39, No. 4, pp. 374-388.

Singh, A. (1986): "Agricultural Population in the Urban Centres of Varanasi City Region –A Geographical Analysis", *National Geographical Journal of India*, Vol. 32, No. 1, pp. 40-48.

Singh, C.P. (1979): "Literacy in the Rural Population of Meerut District", Geographical Observer, Vol. 15, pp. 32-37.

Singh, D. N. (1986): "The Role of Education in National Development (Hindi)", *Bhu-Vigyan,* Vol. I, No. 1, pp. 32-37.

Singh, R.N. and Deen S. (1981): "Occupational Structure of Urban Centers of Eastern Uttar Pradesh: A case Study of Trade and Commerce", The Indian Geographical Journal, Vol. 56, No. 1, p. 55-63.

Tilak, J.B.G. (1979): "Inter – State Disparities in Educational Development", *Eastern Economist,* Vol. 73, No. 3, pp.140-146.

Tiwari, R.P. and Tripathi, R.S. (1993):"Literacy Among Scheduled Castes in Tikamgarh (M.P.)", *The Geographer,* Vol. XL, No. 1, pp. 75-81.

Tripathi, R.S. (1993): "Impact of Urbanization on Literacy and Concentration of Non – Agricultural Workers in Rural Areas of Bundelkhand (U.P.), *Geographical Review of India*, Vol. 55, No. 2, pp.78-82.

Zaidi, A.N. (1986): "Educational Planning and Regional Disparities ", in Tilak, J.B.G. (ed) *Education and Regional Development,* Yatah Publication, pp. 170-182.

POPULATION GEOGRAPHY Volume 26 Numbers 1 & 2 June-December 2004

SUICIDE IN INDIA : TRENDS AND REGIONAL PATTERNS

ARADHANA SRIVASTAVA and SANGHITA BHATTACHARYYA
New Delhi, India

Abstract

Suicide is among the top ten causes of death in most countries. More than one million people around the world take their own lives every year. This trend is rising alarmingly particularly among the young. It is also projected that there will be a rising incidence of suicide specially in developing countries. In India the alarming rate of suicide is well reflected in the suicide statistics which show that there has been a steady increase in suicide deaths. It is important to study the causes of suicides and the position of India in this regard. This paper deals with the pattern of suicide deaths in India and their distribution across such categories as age and, economic status, marital status and educational status. It also tries to explain the regional variations in the rate of suicides in the country.

Introduction

"If death is tragic, death by suicide is even more so." V. Sridhar[1]

Nothing can be more tragic and extreme than a person putting an end to one's own life. Since the circumstances that drive the individual to this extreme step are a product of the social and psychological pressures acting on the individual mind, such events are a telling comment on the inability of the current social structure to provide adequate support to the individual. According to the WHO, suicide is among the top ten causes of death in most countries and one of the three leading causes of death in the 15 to 35-year age group. The psychological and social impact of a single suicide, on the family and society, is enormous. To place the magnitude of the problem in a global context, the burden associated with suicides is at least equal to those caused by wars and homicide, roughly twice of the one caused by diabetes, and equal to the one caused by birth asphyxia and trauma. More than one million people around the world take their own lives every year. The evidence is that in many societies the number of suicide deaths, particularly among the young, is rising alarmingly. This is especially so in the developing countries. In the last 45 years suicide rates at the world level have increased by 60 per cent. Suicide attempts are up to twenty times more frequent than completed suicides. These statistics are indeed unsettling as suicide emerges as a significant cause of death in the world. The WHO estimates that in 2020, 1.5 million people are likely to commit suicide. Its projection is that

1 . V. Sridhar: Speech in 21st Congress of The International Association for Suicide Prevention, Chennai.

the rate of suicides (measured in terms of the incidence of suicides per 100,000 population) will increase to about 19 from the current level of about 16 mainly because of the rising incidence in developing countries. In the light of the above it is important to study the causes of suicides and the position of India in this regard.

Objectives and Data Source

This paper deals with the pattern of suicide deaths in India and their distribution across such categories as age and sex, economic status, marital status and educational status. The paper also tries to explain the regional variations in the rate of suicides in the country. The data used in the study is from the report of National Crime Records Bureau, 2000.

Causes of Suicide

Suicides cannot be attributed to any single cause. The contributing factors can vary from social, psychological, environmental, biological and genetic. It is always a combination of several such factors working on the individual, which give rise to the feeling of hopelessness and worthlessness in the person, finally culminating in suicide. Social and psychological factors play a major role in leading a person to his/her own death. They result in amplifying the individual's biological or psychological weakness. It is now widely accepted that suicide is a multidimensional disorder resulting from a complex array of factors - biological, genetic, psychological, sociological and environmental. According to WHO 40 to 60 per cent of people who commit suicide had been to a physician rather than a psychiatrist in the month prior to committing suicide. This is more so in developing countries, where mental health services are almost non-existent. Hence the role of the general practitioner in suicide prevention is crucial in these countries[1].

The sociological explanation for suicide lies in the role of social factors and relationships as well as the complex impersonal nature of society. Most psychologists, on the other hand, attribute suicidal behavior to an expression of internalized aggression and hopelessness. More recently biochemists have stressed on the genetic cause of suicides, relating it to neurotransmission disorders which may be triggered by both external and internal influences. Sociological influences on human beings come from the primary groups of family and friends as well as the secondary groups such as classrooms and workplaces. They are based on the formation of attachments and bonds in the process of socialization of the individual and his/her efforts towards personal growth. One of the most commonly cited reason is the excessive loneliness and frustration resulting from failed relationships or their non-existence altogether, or in some cases death of partner or breakup due to mutual differences. The depersonalization of society is one of the main contributing factors to this phenomena.

Psychology is also a major explanatory factor for suicides. Mental disorders are the major cause of suicides all over the world. There are many studies substantiating this in both developing and developed countries. In most cases of completed suicides, mental disorders have been found to be the main driving cause. People suffering from mood disorders such as depression and hypertension as well as other conditions such as schizophrenia, form the group with the highest risk of suicides.

The psychologists point out that suicides are the result of mental trauma and emotional disturbances already existing within the individual, which are often worsened by external factors. Psychological causes may lie deep within the subconscious

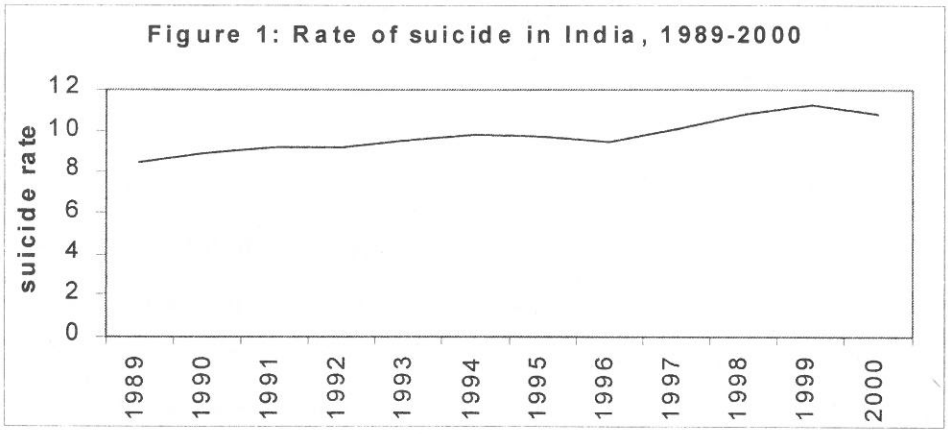
[1] WHO, 2000.

mind depending on the motivating power of the individual, and often the conflicts of the inner mind can be sufficiently traumatic to cause suicide. However, in most cases a combination of both internal and external factors is at play, since society exists both inside and outside of people, intermixing with the mind and with the psyche. The sociological and psychological factors are collectively referred to as psychosocial factors.

The increasing trend of suicides over the years is a cause for concern since it indicates the increasing inability of the individual to cope with social and psychological pressures. For this purpose it is necessary to understand the pattern of suicide deaths in India and the inferences that can be arrived at by analyzing the data in this regard.

Suicide Deaths in India

The alarming nature of suicide in India is well reflected in the suicide statistics. During the decade of 1990-2000 the incidence of suicides rose at a compound growth rate of 4.0 percent as against that of population, which had a compound growth rate of 1.9 percent[1]. The suicides registered an increase of 5.6 percent from 1990 to 1999. The suicide rate was 10.8 per thousand population for the year 2000. In the last decade, except for the years 1995 and 1996, there has been a steady increase in the rate of suicides in India.



Source: Accidental Deaths and Suicides in India, NCRB 2000

Among the states in the year 2000, Maharashtra recorded the highest proportion of suicides in the country (12.9 percent), followed by West Bengal (12.8 percent). Tamil Nadu, Karnataka and Madhya Pradesh also accounted for a high incidence of suicides in the country. These states accounted for 57 percent of total suicides in the country.

In almost all the countries the suicide rates for women are substantially lower than that for men. The lower suicide rate for women is generally ascribed to several factors. Their greater level of religiosity is said to make women less prone to suicide. Psychiatric evidence suggests that women have more "flexible coping skills"; are more willing than men to seek professional help when they encounter suicidal tendencies; have more "extensive social support systems" when dealing with problems; and are less prone to denying warnings such as an onset

[1] National Crime Records Bureau (2000), *Accidental Deaths and Suicides in India*, Ministry of Home Affairs, p. 109.

of a depressive bout. In India the ratio of male to female suicide victims was 61:39 in 2000.

Suicide Victims by Socio-Eonomic and Demographic Profile

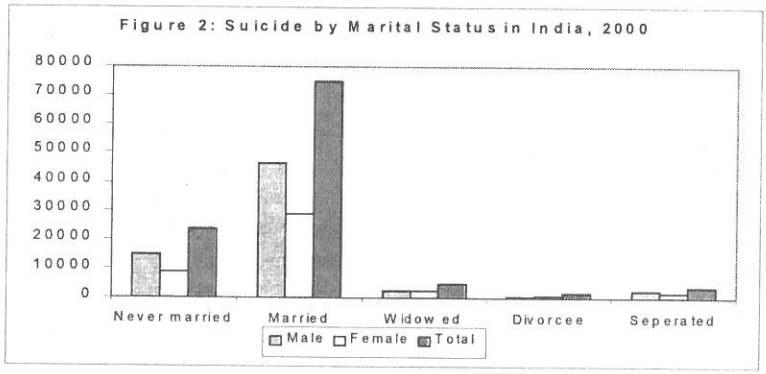
Youth (15-29 years) and middle-aged people (30-44 years) are the prime groups taking the path of suicide. Among males, middle-aged persons and among females young women in the age group of 15-29 years are the main suicide victims in India (Table 1). Persons in younger age groups have lesser coping skills with regard to the pressure imposed on them due to concerns of career, education, personal relationships and the drive to excel. They are therefore more prone to stress often resulting in extreme reactions like suicide.

Table 1
Number of Suicides by age-groups in India (2000)

Age Group	Total	Male	Female
0-14	3.1	1.6	1.5
15-29	35.6	18.2	17.5
30-44	33.8	21.6	12.2
45-59	19.6	14.0	5.7
60+	7.8	5.5	2.4

Source: National Crime Record Bureau, 2000.

It is generally acclaimed that suicide is less common among married people, than it is among single or widowed individuals, as isolation from friends and family contributes to suicidal behavior. But in the case of India the situation is quite different as 69 per cent of suicide victims are married, while only 22 per cent are unmarried. Instead of being a source of security and companionship, marriage seems to be more a source of stress and mental pressure. When married persons feel that they have failed to fulfill their responsibility in supporting the family, they tend to opt for suicide. Widow, divorcee and separated constitute quite an insignificant proportion (Fig. 2). However the proportion of suicide victims among female widows is higher. This indicates the poor plight of widows in Indian society as they often suffer isolation and destitution.



Source: Accidental Deaths and Suicides in India, NCRB 2000

[3] National Crime Records Bureau (2000), *Accidental Deaths and Suicides in India*, Ministry of Home Affairs, p109.

Suicide data by work status shows that half the suicides in case of males were of persons who were self employed (Table 2). This may be because of lack of income security and professional pressures such as failure in business. In case of females, 52 percent of suicide victims were housewives. This again shows the tremendous emotional strain that marriage imposes, specially on women.

Table 2
Suicides by Professional Status in India (2000)

Status	Total	Male	Female
1. Housewife	20.45	0.00	52.17
2. Service	9.81	13.09	4.73
3. Student	4.93	4.52	5.57
4. Unemployed	9.01	12.10	4.20
5. Self-employment	39.66	51.35	21.55
6. Retired person	0.81	1.01	0.49
7. Others	12.71	14.56	9.85

Source: National Crime Record Bureau, 2000.

Educational profile of the suicide victims shows that a higher incidence of suicide is more common among persons with no education or a low education such as up to primary level (Table 3). With less education they face greater financial stress and hardships in life and this may lead to suicide. The situation is same in case of both the sexes.

Table 3
Educational Status of Suicide Victims in India (2000)

Educational levels	Total	Male	Female
No education	23.52	30.48	26.25
Primary	25.47	27.47	26.25
Middle	24.01	21.55	23.05
Matriculate/Secondary	16.88	13.16	15.42
Hr.Sec/intermediate/Pre-university	6.83	5.12	6.16
Diploma	0.98	0.59	0.83
Graduate	1.83	1.27	1.61
Post Graduate and Above	0.47	0.35	0.42

Source: National Crime Record Bureau, 2000.

Regional Profile of Causes of Suicide Deaths

In order to throw light on the factors leading to suicides and their regional pattern, the 22 causes of suicide have been categorized into 6 main groups. They are economic, health, social, psychosocial, personal and other causes.

In India among the specified causes, health, personal and economic causes are the main reasons for suicides. Personal causes include family problem and death of dear persons. In almost all the states in India health and personal reasons are the main cause of suicide.

Table 4
Incidence of Suicide by Reasons in India (1999)

Economic	Health	Social	Psycho-social	Personal	Others
9.86	22.21	3.80	8.68	21.83	33.63

Note : Values indicate proportion in total suicides

Economic Reasons

In economic reasons, causes like bankruptcy, poverty, professional/ career problems, property dispute and unemployment have been taken into consideration. The southern states and Maharashtra have a higher share of suicide cases due to economic reasons. The suicides of farmers due to crop failure have a large share in the deaths in this category in the case of Andhra Pradesh and Karnataka.

Table 5
Regional Pattern of Suicide Deaths Due to Economic Reasons

Category	States
High (Above 10 percent)	Kerala, Maharashtra, Andhra Pradesh, & Karnataka.
Medium (5 percent- 10 percent)	Madhya Pradesh, Tamil Nadu, Gujarat, West Bengal & Assam.
Low (0-5 percent)	Bihar, Goa, Haryana, Himachal Pradesh , Jammu and Kashmir, Orissa, Punjab, Rajasthan , Sikkim, Uttar Pradesh , North – Eastern States.

Source: National Crime Record Bureau, 2000.

Health Reasons

In health related causes are included illness due to various diseases like cancer, paralysis, AIDS, insanity and drug abuse. Diseases such as AIDS, paralysis and cancer are mostly fatal, implying heavy treatment expenses and physical dependency of patient; hence the patients prefer ending their own lives rather than being a burden on the family. This factor accounts for an overwhelming proportion of suicide victims in the southern states. A probable reason could be the higher longevity and hence higher incidence of such diseases in these states.

Table 6
Regional Pattern of Suicide Deaths Due to Health Reasons

Category	States
High (Above 10 percent)	Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu & Kerala
Medium (5 percent- 10 percent)	Madhya Pradesh, West Bengal & Gujarat.
Low (0-5 percent)	Bihar, Goa, Haryana, Himachal Pradesh, Jammu and Kashmir, Orissa, Punjab, Rajasthan , Sikkim, Uttar Pradesh , North – Eastern States.

Social Reasons

These include reasons like dowry dispute, fall in social reputation, illegitimate pregnancy and physical abuse. Suicide mortality due to such causes in Uttar Pradesh, Madhya Pradesh and Maharashtra is significantly high (Table 7).

Table 7
Regional Pattern of Suicide Deaths Due to Social Reasons

Category	States
High (Above 10 percent)	Madhya Pradesh, Maharashtra and Uttar Pradesh.
Medium (5 percent- 10 percent)	West Bengal, Andhra Pradesh & Karnataka.
Low (0-5 percent)	Bihar, Goa, Haryana, Gujarat, Himachal Pradesh , Jammu and Kashmir, Orissa, Punjab, Rajasthan , Sikkim, North – Eastern States, and Kerala

Psychosocial Reasons

Psychosocial reasons include causes like not having children, cancellation of marriage, divorce, failure in examinations, love affair, suspected relationship and hero-worship. West Bengal and Madhya Pradesh have an overwhelming proportion of suicide deaths due to this reason.

Table 8
Regional Pattern of Suicide Deaths Due to Psychosocial Reasons

Category	States
High (Above 10 percent)	West Bengal and Madhya Pradesh
Medium (5 percent- 10 percent)	Tamil Nadu, Maharashtra, Andhra Pradesh, Assam, Karnataka & Gujarat.
Low (0-5 percent)	Bihar, Goa, Haryana, Himachal Pradesh , Kerala, Jammu and Kashmir, Orissa, Punjab, Rajasthan , Sikkim, North – Eastern States.

Personal Reasons

Causes included in personal reasons have already been listed above. Among these family problem is the predominant cause of suicides. The proportion of such suicides is high in Tamil Nadu where one third of all suicides belong to this category. Other states reporting a high incidence of suicides due to personal reasons are Maharashtra and West Bengal (Table 9).

Table 9
Regional Pattern of Suicide Deaths Due to Personal Reasons

Category	States
High (Above 10 percent)	Maharashtra Tamil Nadu and West Bengal
Medium (5 percent- 10 percent)	Kerala, Karnataka, Andhra Pradesh , Madhya Pradesh and Gujarat
Low (0-5 percent)	Bihar, Goa, Haryana, Himachal Pradesh, Jammu and Kashmir, Orissa, Punjab, Rajasthan, Sikkim, North Eastern States.

Conclusion

The above study notes that suicide deaths have been consistently increasing in India. This is a reflection of the increasing instability in the society. It is alarming as the majority of suicide victims are in the productive age group of 15 to 44 years. Suicide is more prevalent among males than

females. An interesting observation is that contrary to the general trend suicides are much higher among married persons than among unmarried persons. Thus marriage seems to be more a source of stress and mental pressure than companionship and support. Economic stress is a major cause of suicide deaths, especially among males. The highest proportions of suicides due to economic reasons were recorded in Andhra Pradesh, Karnataka, Kerala and Maharashtra. Psychological and physical health are dominant factors forcing people to commit suicide. West Bengal has the highest proportion of suicide cases due to psychological reasons. Generally, while health and economic factors are the more prevalent causes of suicide among the southern states, social and psychosocial reasons are more dominant in the northern and eastern states.

The alarming trend of increasing suicide deaths calls for specific interventions. Among the specific intervention measures, psychiatric counseling is a very effective tool, however it is yet to find acceptance among the people because of the stigma attached to it which prevents people from seeking professional help. Basic economic security especially among the rural poor can also help prevent a large number of suicides. Suicides due to reasons such as dowry and illegitimate pregnancy can be prevented only through a general social upliftment and awakening among the masses for which perhaps widespread education is the most effective medium.

References

Baller, R.D. and K.K. Richardson (2002), 'Social Integration, Imitation and the Geographic Patterning of Suicide', *American Sociological Review* 67(6), pp 873-88.

Burr, J. (2002) 'Cultural Stereotypes of Women from South Asian Communities: Mental Health Care Professional's Explanations for Patterns of Suicide and Depression', *Social Science and Medicine* 55(5), pp 835-45.

Halliburton, M. (1998), 'Suicide: A Paradox of Development in Kerala', *Economic and Political Weekly* XXXIII (36-37), Sept. 5-11, pp 2341-45.

Kunce, M. and A.L. Anderson (2002), 'Impact of Socioeconomic Factors on State Suicide Rates: A Methodological Note', *Urban Studies* 39(1), pp 155-62.

National Crime Records Bureau (2000), *Accidental Deaths and Suicides in India*, Ministry of Home Affairs, Government of India.

Pampel, F. C. (1998), 'National Context, Social Change and Sex Differences in Suicide Rates', *American Sociological Review* 63(5), pp 744-58.

Philomena, L.K.S. et al. (1996), 'Social Support and Suicide Attempts', *Indian Journal of Social Work* 57(3), pp 386-95.

Shambhu Prasad, C. (1999), 'Suicide Death and Quality of Indian Cotton: Perspectives from History of Technology and Khadi Movement', *Economic and Political Weekly* XXXIV (5), Jan. 30 – Feb. 5, pp PE12-25.

United Nations (1996), *Prevention of Suicide: Guidelines for the Formulation and Implementation of National Strategies*, Department for Policy Coordination and Development.

Vasavi, A.R. (1999), 'Agrarian Distress in Bidar: Market, State and Suicides', *Economic and Political Weekly* XXXIV (32), Aug. 7-13, pp 2263-65.

Wagner, B.M. (1997), 'Family Risk Factors for Children and Adolescent Suicidal Behavior', *Psychological Bulletin* 121(2), pp 246-98.

POPULATION GEOGRAPHY Volume 26 Numbers 1 & 2 June-December 2004

REGIONAL IMBALANCES AND CHANGING PATTERN OF LITERACY IN JAMMU & KASHMIR STATE (1961-2001)

ABDUL QAYOOM KHAN
Udhampur, J&K, India

Abstract

The remote hilly and far flung areas in India are generally characterized by a low level of literacy and socio-economic development. The Jammu and Kashmir state is no exception. The state remained neglected during the pre-independence period. However, in post-independence period, especially after 1975, the state of Jammu and Kashmir showed a positive trend in the level of literacy due to the introduction of various educational development schemes by the government and the positive attitude of parents to send their wards to schools. The study examines the changing pattern of literacy in the state during 1961 and 2001. The study reveals a substantial change in literacy from 11.03 percent in 1961 to 54.46 percent in 2001. The improvement in female literacy is more pronounced as it increased from 5.05 percent in 1961 to 41.82 percent in 2001. An interesting fact that emerges from the study is that although the Kashmir valley dominates in all the social indicators it lags behind in literacy rate when compared with other regions in Jammu and Kashmir state

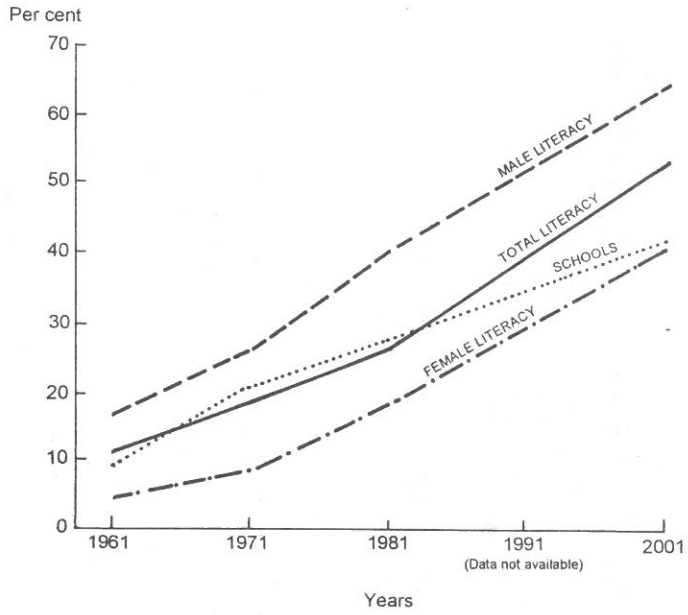
Introduction

After 55years of independence, India still has millions of illiterate people. In percentage terms 27 percent of men and 50 percent of women in India are illiterate. Literacy opens up a vast world of opportunities and ideas and has a great instrumental value in the process of economic growth and development. Literacy plays a critical role in the process of demographic transition. Female education is important in the process of lowering fertility and mortality rates and is associated with better health care. There is a strong empirical correlation between literacy and life expectancy. An educated and skilled workforce contributes to higher economic growth. In political and social terms too, schooling creates an educated population and more knowledgeable citizenry. The trends in literacy are therefore, considered as an index of the pace at which the socio-economic transformation of society is taking place. (Parikh, 1999-2000, p. 69).

The Population Commission of United Nations considers ability to both read and write a simple message with understanding in any language a basis for classifying a person as literate. The Census of India has adopted this classification. A person who can only read but cannot write, is not literate. It is not necessary that to be treated as literate a person should have received any formal education or passed any minimum educational standard. Further, literacy could also be achieved through adult literacy classes or through any non-formal educational system. Persons who are blind and can read in Braille are treated as

Jammu & Kashmir
Natural Regions

Fig. 1



Jammu & Kashmir
Change in Literacy,
(1961-2001)

Fig. 2

literate. This has been the concept of literacy in Indian census and with this approach each and every person aged 6 years and above is recorded as literate. Until 1981 the Census of India considered the population aged 5years and above while enumerating literate population (Alvi, 2003, p.5).

Literacy plays a vital role in human resource development and it can help in understanding the various dimensions of socio-economic and socio-cultural development of a backward state like Jammu and Kashmir. In this paper an attempt has been made to understand the present level of literacy as well as the changing patterns in Jammu and Kashmir during the period 1961-2001.

The Study Area

Jammu and Kashmir is the northern most state of India. It has a common boundary with Himachal Pradesh and Punjab in the south, China, Afghanistan and Uzbekistan in the east, north, north-west and Pakistan in the west. (Fig.1) The state has undergone a number of changes in the post-independence era. At present the state comprises of 14 districts, 59 tehsils, 121 blocks, 6652 villages and 75 urban centers out of which two are Class 1 cities. The total occupied residential houses in the state are 8,19,172 out of which 6,62,334 are in rural areas and 1,56,838 in urban areas. (Directorate of Economics & Statistics, 2001-02, p.3) Jammu and Kashmir state comprises mainly mountainous region with a narrow belt of plain area in the southern part of Jammu region. A large part of the state consists of the western section of the Himalaya which besides containing many lofty mountain ranges varying from an elevation of 3000 to 6000 metres and above also include a number of valleys, rivers, lakes, passes, glaciers, plateaus and plains. The Pir Panjal range separates the vale of Kashmir from the Jammu region in the south. The Zanskar range separates the Kashmir division from Ladakh division in the north. As a result of the hilly and mountainous nature of terrain, the number of *nallas*, brooks and rivers is fairly large.

Objectives

The main objectives of the study are: (i) to analyse the changes in literacy rate during 1961-2001 and describe its pattern of distribution in Jammu and Kashmir state in 2001; (ii) to analyse the regional imbalances in literacy in Jammu and Kashmir state, (iii) to analyse the social and economic determinants of changes in literacy rate in the state; and (iv) to suggest measures and methods for growth of literacy in the state in future.

Data Base and Methodology

The study is based on published data at district level obtained from different sources. The major source of data are the District Census Handbooks of different districts of the state for 1981, the Digest of Statistics 2001-02 published by the Directorate of Economics and Statistics, Planning and Development Department J&K Government, Directorate of School Education, Kashmir and Jammu regions. Suitable statistical and cartographic techniques are employed in the analysis of data and preparation of maps.

Distribution of Social and Literacy Indicators

Table1 provides an insight into some of the variables which are essential for educational planning of the state. The dispersed pattern and small size of settlements, poor means of transport and communication in mountainous areas, particularly in the greater Himalayan zone of Ladakh and hilly areas of Kashmir and Jammu pose serious problems in the development of education. Ideally, each settlement should have its own school. However, economic considerations and small population size of settlements rules out the provision of a school in every settlement. On the other hand a general absence of

transport services particularly during the winter months when most of the area of the state remains under snow prevents mountain residents from utilizing educational facilities.

Table 1
Jammu and Kashmir:Social and Literacy Indicators by Natural Region (2001)

Natural Region	Percent Population	Settlement Density ($Km^{2)}$	Density of H.H.	Density of pop. (persons/ $Km^{2)}$	Percent schools	Percent urban pop.	Percent Literacy	Percent teachers
Kashmir	54.03	0.55	45.13	341.19	47.06	26.92	45.95	46.66
Jammu	43.66	0.30	29.91	167.19	40.66	20.54	58.73	39.06
Ladakh	2.31	0.09	0.49	2.40	12.28	14.79	60.23	14.28

Source: Digest of Statistics (2001-02) Govt. of Jammu and Kashmir, Directorate of Economics & Statistics, Planning and Development Department

Data presented in Table 1 reveals significant inter-regional variations in social and educational indicators. The density of settlements, density of house-holds, density of population, density of urban population are highest in Kashmir region followed by Jammu and Ladakh regions. A similar pattern emerges with regard to the percentage of schools, percentage of teachers and distribution of population also where Kashmir region ranks first, followed by Jammu and Ladakh regions. However, Kashmir region lags behind in literacy rate. The reason can be that the other expenses such as those on uniforms and text books may be too high for poor parents to send their children to even government schools which do not charge any tuition fees. The high level of expenditure relative to income for many house-holds such as that of an agricultural labourer or a small farmer may also deter poor parents in rural Kashmir from sending their wards to schools. Thus free schooling along with incentives such as free meals and books are needed to overcome the problems of non-enrollment in the Kashmir region.

Growth of Literacy (1961-2001)

Since independence, the state of Jammu and Kashmir had missed two censuses (1951and1991) due to the disturbed conditions in the state. The data available on literacy (Table 2) relates to only four census years. An analysis of data shows that in 1961 literacy in the state was very low and only 11.03 persons in 100 were able to read and write. Among females the average was as low as 5.05 percent. The dismal picture of literacy in the state was an extension of the existence of pre-independence conditions, physical and socio-cultural isolation of Jammu and Kashmir, vagaries of climate, poverty and backwardness, engagement of almost all the people (more than 90 percent) in agricultural activities, agro-pastoral sustenance type of economy and paucity of schools (Table 2).

The state has recorded a substantial change in literacy during the last forty years (1961-2001) period. The total literacy rate of the state increased by more than four times from 11.03 percent in 1961 to 54.46 percent in 2001. This was the direct outcome of opening new schools, appointment of more

teachers and increase in the number of students on roll which in turn increased the literacy rate. The of correlation between percentage of schools and literacy (r = + 0.957), percentage of students on roll and literacy (r = + 0.640) and percentage of teachers and literacy (r = + 0.986) shows the positive relationship between the different variables.(Table 2, Fig. 2). This positive trend was the outcome of the implementation of various education development schemes such as provision of scholarships, free uniform, books, stationary items and day time meals to students at primary and middle level. The government policy to finance the children who go to school provided a mighty starting swing. These incentives changed the attitude of poor parents and motivated them to send their children to school with the expectation that by acquiring some standard of education their wards may get jobs in non-agriculture sector.

Table 2
Jammu and Kashmir : Growth of Literacy(1961-2001)

Year	Percentage of schools	Percentage of students on roll	Percentage of teachers	Percentage of literates		
				Total	Male	Female
1961	9.49	8.29	5.51	11.03	16.97	4.26
1971	21.48	15.57	12.65	18.58	26.75	9.28
1981	26.73	21.77	20.70	26.27	41.45	18.37
2001	42.30	54.37	61.14	54.46	65.75	41.82
Correlation	r = + 0.957	r = + 0.640	r = + 0.986			

Source : Digest of Statistics (2001-02), Govt. of J & K

The state had recorded an increase in literacy from 11.03 percent to 18.58 percent during 1961-71. In addition to opening of more schools, appointment of new teachers and continuation of government education programmes introduced earlier, introduction of reservation policy in government jobs for Scheduled Castes, Scheduled Tribes and for those belonging to Backward Areas of the state contributed further to the improvement in literacy.

During 1971-81 literacy in the state increased from 18.58 percent to 26.27 percent. Although more schools were opened, new teachers were appointed and the proportion of students on roll also increased (Table 2,Fig 2) during this decade the slow improvement in literacy could be associated with the poor economic conditions of parents who in spite of the incentives provided by the government were not in a position to send their wards to schools.

The two decades 1981-2001 recorded a substantial increase in literacy from 26.27 percent to 54.56 percent. Although literacy increased by 28.19 percent during this period, the rank of Jammu and Kashmir came down from 22nd in 1981 to 33rd in 2001 among

different states of India. It was higher than Bihar (47.53percent) and Jharkhand (54.13 percent) when compared at national level. No doubt the literacy picture in 2001 was quite encouraging as more than half of the population of the state acquired the ability to read and write but the figure is discouraging when compared with the country as a whole (65.38 percent). The slow increase in literacy could largely be attributed to the prevailing political circumstances (militancy) since 1989 which destroyed the basic infra-structure for education in many parts of the state. Many schools were burnt down and teachers migrated to Jammu and other parts of the country.

Literacy by Residence (2001)

In Jammu and Kashmir the proportion of urban literates is more than 75 percent where as the proportion of literates in rural areas is below 50 percent. There exist wide variations in rural and urban literacy rates in different districts of the state. In 2001 the proportion of rural literates varied from 36.06 percent in Srinagar district to 71.95 percent in Jammu district. The proportion of urban literates varied from 57.11 percent in Budgam district of Kashmir valley to 88.84 percent in Poonch district of Jammu division (Table 3). This disparity in rural and urban literacy rates is associated with the differences in the type of economy, degree of concentration of educational institutions, status granted to the female population and the migration pattern of population in rural and urban areas. The rural and urban differences in literacy are narrowing down due to the opening up of a large number of schools in the rural areas and also the increasing degree of socio-economic awakening among the rural masses. However, many of the rural males who get educated migrate to urban areas in search of jobs.

An analysis of Table 3 reveals an interesting picture. Poonch and Rajouri districts of Jammu region having a remote location have highest urban literates, 88.84 percent in Poonch district and in Rajouri 88.72 percent and rank first and second in the whole state followed by Udhampur (86.35 percent). In all the other three districts of Jammu region the proportion of literates is more than 80 percent.

Table 3
Jammu & Kashmir : Literacy by residence and Gini's Co-efficient

S.No	Districts	Rural (%)	Urban(%)	Gini's Co-efficient (G)
1	Jammu	71.95	83.79	7.32
2	Kathua	62.64	80.73	1.01
3	Leh	56.47	81.64	2.54
4	Kargil	55.88	81.22	2.53
5	Rajouri	55.33	88.72	7.92
6	Poonch	48.31	88.84	0.90
7	Anantnag	48.22	72.17	7.59
8	Udhampur	47.59	86.35	4.11
9	Pulwana	45.78	63.57	6.48
10	Doda	43.68	83.59	7.50
11	Baramulla	41.00	61.26	3.82
12	Kupwara	39.84	62.88	0.02
13	Budgam	38.09	57.11	0.44
14	Srinagar	36.06	65.09	0.56

Source: Computed from Digest of Statistics, 2001-02. J&K Govt.

Leh and Kargil districts of Ladakh region rank 6th and 7th at state level. The high literacy among the urban residents of these districts is due to education awareness among the urban residents and concentration of educational institutions in the urban areas. On the other hand, the urban centers of Kashmir region show a some what different picture. The urban literacy rates range from 72.17 percent in Anantnag district to 57.11 percent in Budgam. The low urban literacy values among the Kashmir region districts, as compare to Jammu and Ladakh regions may be due to mass migration of Kashmiri *pandits* from Kashmir to Jammu and other parts of the country due to the disturbed circumstances prevailing in the state.

In Jammu region Jammu district has the highest proportion of rural literates (71.95 percent), followed by Kathua (62.64 percent), and Rajouri (55.33 percent). The remaining three districts, Poonch (48.31 percent), Udhampur (47.59 percent) and Doda (43.68 percent) are about to touch the fifty percent mark. Leh and Kargil districts of Ladakh region have 56.47 percent and 55.88 percent literates among their respective rural populations.

In Kashmir region the highest rural literates are found in Anantnag district (48.22

Table 4
Jammu and Kashmir – District-wise level of literacy by sex (1961-2001)

	1961			1971			1981			2001		
District	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Person	Male	Female
Jammu	18.51	25.60	10.50	30.34	39.23	20.63	42.86	52.60	32.24	77.30	84.82	68.75
Kathua	11.52	17.84	4.52	21.64	30.24	12.30	31.90	41.67	21.24	65.29	75.73	53.92
Leh	8.31	15.37	1.05	12.70	22.17	2.99	25.17	36.74	11.48	62.24	71.98	50.03
Srinagar	14.50	20.66	7.27	22.71	29.39	12.68	33.90	41.97	24.67	59.31	68.97	48.11
Kargil	---	---	---	---	---	---	18.86	32.27	3.14	58.21	73.58	40.56
Rajouri	7.37	12.15	2.05	14.43	22.21	5.80	24.73	34.16	14.32	57.65	69.64	44.14
Uhampur	8.82	13.70	3.48	15.62	22.72	7.80	23.50	32.55	13.54	54.16	66.43	39.89
Poonch	8.47	14.19	2.14	14.62	23.26	5.05	23.39	34.20	11.23	51.07	65.41	35.30
Pulwama	---	---	---	---	---	---	20.47	30.55	9.20	47.35	58.87	34.93
Doda	8.69	14.77	1.94	13.88	22.81	4.47	18.50	28.59	7.34	46.92	63.56	28.35
Baramulla	7.93	13.39	1.59	13.16	21.01	3.59	20.62	30.24	9.58	44.57	56.39	31.42
Anantnag	8.04	13.69	1.47	14.48	23.60	4.81	22.93	33.57	10.94	44.10	55.56	31.51
Kupwara	---	---	---	---	---	---	16.82	27.07	4.89	40.80	53.55	26.83
Budgam	---	---	---	---	---	---	17.86	26.51	8.02	39.54	51.23	26.60
J&K State	11.03	16.97	4.26	18.58	26.75	9.28	26.27	41.45	18.37	54.46	65.75	41.82

percent) and lowest in Srinagar (36.06 percent). The reason for low rural literacy could be the lack of attention towards female education, more involvement of people in horticulture and handicraft industry and migration of students for education and jobs to other parts of the country.

Literacy by Sex (2001)

Women's issues have attracted special attention in many world conferences and the need for literacy and education of women has been realized (Hazara, 1997, p.62) The changes in male and female literacy in Jammu and Kashmir are presented in Table 4 , which shows that female literacy in the state doubled itself from 4.26 percent in 1961 to 9.28 percent in 1971. It increased by the same margin in 1971-81 but it has taken two decades to double its proportion from 18.37 percent in 1981 to 41.82 percent in 2001 . It has shown an increase of 23.45 percent in 20 years. The slow growth rate of female literacy in the state may be attributed to disturbed political conditions since 1989 which have destroyed the basic infrastructure for education in many parts of the state and caused a decline in the registration of children particularly the female child.

An analysis of Table 4 shows that disparities in female literacy at district level exist. Two districts of Jammu province (Jammu 65.75 percent and Kathua 53.92 percent) have highest female literacy. Doda district of Jammu province has the lowest female literacy. The other five districts of the region have a literacy rate ranging from 35.30 percent in Poonch to 53.92 percent in Kathua. A contrasting picture exists in the valley of Kashmir where female literacy rates range from 26.60 percent in Budgam to 34.93 percent in Pulwama. Both Kargil (40.96 percent) and Leh (50.03 percent) districts of Ladakh region have better female literacy rates. An analysis of the data at regional level shows that the regional imbalances do exist among the regions. The Ladakh (45.50 percent) and Jammu (45.06 percent) regions are better placed in female literacy as compared to Kashmir valley where only 33.23 percent of females can read and write . In other words 66.77 percent of valley's females are illiterate .

Measurement of Inequality

The Gini's co-efficient is a useful method for evaluation of spatial distribution on the basis of equality. The Gini's co-efficient (G) has been worked out for urban and rural literacy for each district of the state (Table 3). An analysis of the Table shows that a very high positve correlation between rural and urban literacy exists in Rajouri (7.92), Anantnag (7.59), Doda (7.50), Jammu (7.32), and Pulwama (6.48) districts. Udhampur (4.11), Baramulla (3.82), Leh (2.54), Kargil (2.53) and Kathua (1.01) districts have high G values for rural and urban literates. Four districts are in the category of less than unity values. They are Poonch (0.90), Srinagar (0.56), Budgam (0.44), and Kupwara (0.02).

Literacy at District Level (2001)

The population of Jammu and Kashmir is characterized by a low overall rate of literacy 54.46 percent in 2001 (65.75 percent for males and 41.82 percent for females).There are wide variations across regions, districts, rural and urban and male and female population. In 2001 the highest male literacy rate was 84.92 percent in Jammu district whereas Badgam and Kupwara had the lowest male literacy rate 51.23 percent and 53.55 percent respectively (Table 4). Among women, the highest rate of literacy was 68.75 percent in Jammu district. Badgam and Kupwara had the lowest rate of 26.60 percent and 26.83 percent respectively. The progress of literacy was not uniform in all the districts of the state (Table 4). Jammu, Kathua and Srinagar districts have always remained advanced in education as compared to other districts.

Jammu and Kathua districts have maintained the growing trend in literacy in 2001 also (Table 4). Srinagar district with 59.31 percent literates lost its third position to Leh district with 62.24 percent literates and occupied 4th position. In Kashmir valley Srinagar district is the only district which has more than half of its population as literate while Doda is the only district of Jammu province which has missed the 50 percent mark of literacy. It is clear from Table 4 that there is a dominance of illiterates in the valley of Kashmir. Even the difference between the districts having the two capitals of the state is very wide. Jammu district has 77.30 percent literates while it is 59.31 percent in Srinagar district, a difference of 17.99 percent.

Spatial Patterns of Literacy (2001)

The proportion of literate population of Jammu and Kashmir state is 54.46 percent as per 2001 Census. Table 5 shows that there exist wide variations in percentage of literate population from district to district ranging from 77.30 percent in Jammu to 39.54 percent in Badgam.

On the basis of location quotient values, the literate population of Jammu and Kashmir state can be grouped in to three categories (Fig. 3)

1. Areas of High Literacy with location quotient value of more than 1.10
2. Areas of Moderate Literacy with location quotient value between 1.00 and 1.09.
3. Areas of Low Literacy with location quotient value below 0.99.

Areas of High Literacy

The districts having a location quotient value of more than 1.10 have been classified as very high literacy area. The districts which fall in this category are Jammu, Kathua and Leh. The location quotient value among these ranges from 1.41 in Jammu district, which is highest in Jammu and Kashmir state, to 1.14 in Leh. Kathua district has a value of 1.20. The high literacy areas are located in south-west, south and north-eastern parts of the state. The high concentration of literacy rate in Jammu and

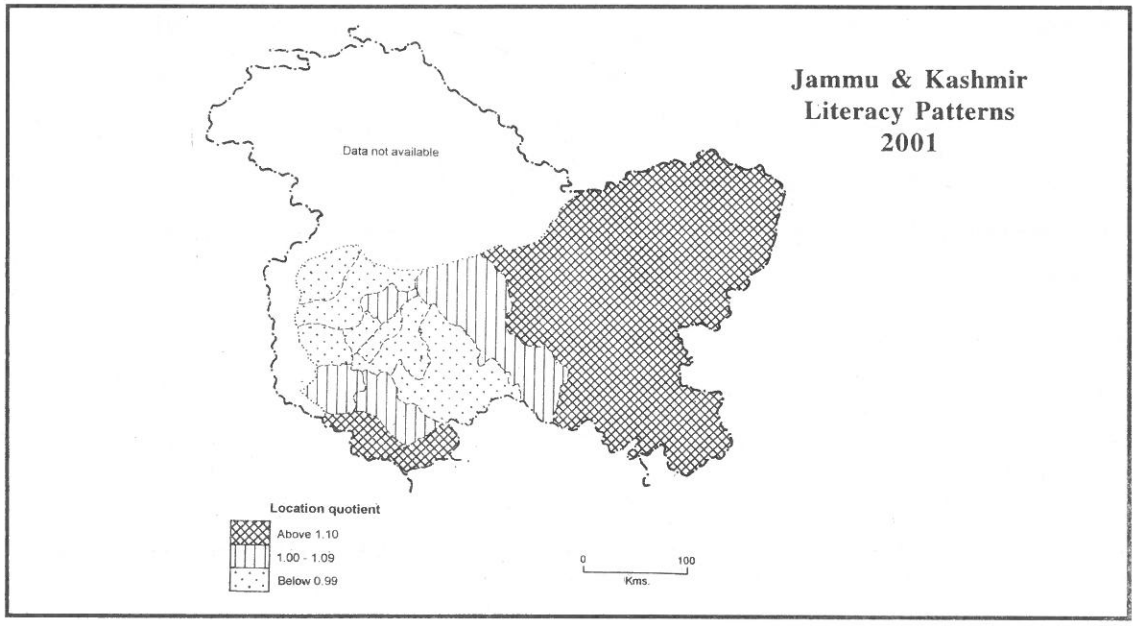


Fig. 3

Kathua districts among both the sexes can be ascribed to fertile and developed character of the area, a large number of schools, efficient means of communication, a fair proportion of the population engaged in non-agricultural activities and trade as well as in administrative and professional jobs, and a greater interaction of these two districts with the rest of the country. The high concentration of literacy in Leh district (L.Q value 1.14) may be attributed to its status of district headquarters, tourism, location of schools in almost all villages, free uniform, books and scholarships, and Scheduled Tribe status to Ladakh.

The female literacy in the districts in this category is also high. Besides these factors, Leh district is inhabited by a large number of *Lamas* and *Chomos* (Buddhist monks and nuns) for whom ability to read and write the inscriptions of Buddhism is essential.

Areas of Moderate Literacy

The districts having location quotient values ranging between 1.00 to 1.09 are categorised as moderate literacy areas. Four districts, Srinager, Kargil, Rajouri and Udhampur, come under this group. The districts are located in different parts and regions of Jammu and Kashmir state. Two districts of Jammu region are located in south-eastern and south-western parts of the state while Kashmir and Ladakh regions have one district each in this category. The location

Table 5

Jammu and Kashmir : Literacy by Districts (2001)

Districts	Percentage of literate Population	Location Quotient
Jammu	77.30	1.41
Kathua	65.30	1.20
Leh	62.24	1.14
Srinagar	59.31	1.09
Kargil	58.21	1.07
Rajouri	57.65	1.06
Udhampur	54.16	1.00
Poonch	51.07	0.93
Pulwama	47.35	0.87
Doda	46.92	0.87
Baramulla	44.57	0.81
Anantnag	44.10	0.80
Kupwara	40.80	0.74
Badgam	39.54	0.72
Jammu and Kashmir	54.46	

Source: Computed from Digest of Statistics 2001-2002. J&K Govt., Srinagar.

quotient value of these districts ranges from 1.00 in Udhampur district to 1.09 in Srinagar district. Kargil and Rajouri districts of this group have a value of 1.07 and 1.06 respectively (Table 5 and Fig. 3). Among the districts in this category Kargil and Rajouri have registered a higher change in literacy. This may be due to the incentives and the reservation policy in jobs by the government, Scheduled Tribe status to Kargil and to Gujjar and Bakarwal population in other districts. The mobile schools for nomadic population have motivated the parents to send their children to school.

Areas of Low Literacy

Seven districts of Jammu and Kashmir recorded a low level of literacy with location quotient value of less than 0.93 . Militancy, far-flung mountainous nature of the area and the emigration of literate population to Jammu city and to the rest of the country for seeking employment and acquiring higher education have contributed to the low literacy rates in these districts.

Out of the seven, five districts are located in Kashmir region. These are Pulwama (L.Q.value 0.87) , Baramulla (L.Q.value 0.81), Anantnag (L.Q.value 0,80), Kupwara (L.Q.value 0.74) and Badgam (L.Q.value 0.72). A very high proportion of population in these districts is engaged in agriculture , horticulture, handicraft and construction which suggests that most of the population is engaged in activities for which education, especially female education, is less important. A lack of awareness about education and low level of availability of educational facilities in the far flung and remote areas are the other reasons of low literacy.

Conclusions

To sumup it may be observed that Jammu and Kashmir state during the post-Independence period has witnessed a substantial growth in literacy. The overall literacy has increased by nearly 5 times during the last 40 years from 1961-2001 The increase has been more than 3.85 times for males and 9.80 times for females. Overall more than half of the population (54.46 percent) had acquired the ability to read and write . This increase in literacy can be attributed to:

1 The incentives provided by the government for the promotion of education and opening of new schools.

2 Growing interaction between the people of the state with the rest of the country which has encouraged the people to acquire education.

3 Positive motivation of parents and children towards education.

4 Continuation of the trend developed during the initial decades.

5 Job reservation policy for Scheduled Caste and Scheduled Tribe population and Scheduled Tribe status to Leh and Kargil and other backward areas of the state have prompted the poverty ridden parents to educate their children for making them eligible for government jobs. The growth of both male and female literacy during the last 40 years suggests changing socio-economic conditions and breaking the barriers to the spread of education.

Jammu, Kathua and Srinagar districts have consistently registered higher literacy rates since 1961 because of the interaction of these districts with the rest of the country. However, Srinagar lost its third position in 2001. This may be due to emigration of the educated people to other parts of the country and even abroad for acquiring education and seeking jobs. Besides, militancy has also compelled the people to migrate to Jammu and other parts of the country. Srinagar is the only district of Kashmir region which has comparatively higher rates of literacy. The remaining districts of Kashmir region have low and very low values. Impact of militancy,

cost of education, declining trend of tourism, reduced interaction with the rest of country are the main reasons for dismal situation of literacy in Kashmir region. Jammu division has made considerable progress in education sector, and all the districts of Jammu division have crossed the 50 percent mark in literacy except Doda district. In Ladakh region, Kargil (58.21 percent) and Leh (62.24 percent) districts have also made tremendous progress in literacy .

To conclude, the growth in literacy in Jammu and Kashmir is one of the lowest achievements combined with significant inequalities across regions, districts and sexes. Particular attention needs to be paid to the gender gap in literacy achievements and to promoting the education of girls and women especially in Muslim belts. More schools, adequate funds and other incentives and infrastructural facilities need to be provided at village level. The literacy planning in the state should take in to consideration the equity method rather than efficiency aspect while making future plans for the development of literacy. The area based initiatives, with an emphasis on equity criterion can strengthen literacy planning in the state.

REFERENCES

Alvi, N.M.(August 17,2003) *The Daily Kashmir Times* (K.T. Group of Publications), Jammu, p.5.

Directorate of Economics and Statistics, Planning and Development Deptt. (2001-02) *Digest of Statistics*, Govt of Jammu and Kashmir, pp.3-4.

Dutta, Gouri (1982) "Analysis of Literacy Rate in the Southern Districts of West Bengal", *Geographical Review of India*, Vol 44, (2), pp.19-26.

Gosal,G.S.(1964) "Literacy in India : An interpretative study" *Rural Sociology*, Vol.29, (3), pp.261-77.

Gosal,G.S.(1964) "Regional Aspects of Rural literacy in India", *Transcation of the Indian Council of Geographers* (4), pp.1-15.

Gosal,G.S.(1979) "Spatial perspectives on literacy in India", *Population Geography*, Vol.1, Nos.1 and 2, pp.41-67.

Hazara, Joyoti (1997) : "Women Literacy". *Geographical Review of India*, 59, (1),pp.62-74.

Krishan, Gopal and Madhav, Shayam (1977) "Literacy in India", *Geographical Review of India*, Vol. 39, pp.117-25.

POPULATION GEOGRAPHY Volume 26 Numbers 1 & 2 June-December 2004

CREATION OF SMALL STATES

V. NATH
New Delhi, India

Abstract

The population of the States and Union Territories in India varied in 2001 from 166 million in Uttar Pradesh to less than 1 million in Sikkim and Mizoram among the states, and 974,000 in Pondicherry to 61 thousand in Lakshadweep among the Union Territories. This paper provides a historical perspective to the present organization of the Indian Union during the period 1947-2000. It examines the constraints and potentials for economic development and promotion of welfare of the people of the three new states that were created in 2000. With the examples of Punjab and Haryana, it is explained that although the creation of new states leads to some problems which take a long period to resolve, but by and large the creation of new states eventually leads to economic development and administrative stability. It is premised that all states with a population above 40 millions should be bifurcated into smaller states and in case it is not possible to divide the large states on political considerations, decision making structures at the level of agro-climatic regions in all such states should be created.

Introduction

When India became independent in 1947, it had 3 British administered presidencies, five provinces and about 600 odd princely states. The princely states varied in size from Hyderabad, located in the heart of the Indian peninsula, which had an area and population equal to or greater than that of any one of British administered provinces, to tiny bits of territories, sparsely populated and covering a few sq. kilometers each, located in the western Himalayan region.

The first step in administrative re-organization was accomplished during 1948 with the accession of princely states with the Indian Union and creation of new states by merger of a number of small states. The accession of nearly all the princely states was peaceful. The princes agreed to accede to the Indian Union on assurance of being granted privy purses and certain other privileges. However in case of Hyderabad, accession became possible only after the Indian army defeated the Nizam's forces in a brief campaign in October 1948. In case of Jammu and Kashmir, the accession of the state to India by its ruler has not been accepted by Pakistan. The state has great strategic importance because it borders Pakistan, Afghanistan and Tibet region of China. About 2/3 of the state is occupied by India and the remaining 1/3rd is under occupation of Pakistan. Four wars have been fought over it, in 1948, 1965, 1971 and 1999. Efforts towards a resolution of the dispute between the two countries are continuing.

After the integration of the princely states, the next step was to create new states by merger of numerous small states into a union of states. The large number of small states of the Kathiawad peninsula and Kutch were merged to form the new state of Saurashtra. The numerous small hill states in the western Himalayan region, which used to be administered from Punjab, were merged to form Himachal Pradesh. Five small states, which had Sikh rulers, and one, which had a Muslim ruler, were merged to form the new state of PEPSU. Similar unions by merger of small states were created in Madhya Bharat/ Vindhyachal. The numerous small states of inland Orissa were merged with the British administered province of Orissa. A number of other small states were merged with the presidencies or provinces within which they were situated.

Six small hill states bordering Assam, which share borders with Myanmar, Tibet or Bangladesh and which have tribal population were created in the 1960's, but only after the Indian army ended years of insurgency in some of them. The former Portuguese possession of Goa, Daman and Diu and the former French enclave of Pondicherry were constituted into separate states in the 1960's when the Portuguese and the French left. The small state of Sikkim which has a strategic location on the route between India and Tibet, became a part of India in the early 1970's.

The Union Territories include the city-state of Chandigarh, capital of Punjab and Haryana, which had a population of 900,914 in 2001, Andaman and Nicobar Islands in the Bay of Bengal, Dadra & Nagar Haveli, a tiny enclave within Gujarat and Lakshadweep, a group of atolls with a population of less than 1 lakh, located in the Arabian sea, about 150 kilometres from Kerala.

The Union Territories are administered directly by the Central Government through administrators appointed by it. They have full powers of governance of these territories within the guidelines provided by the Central Government. Each of the large states has a democratically elected Legislative Assembly and a Council of Ministers headed by the Chief Minister. The Governor of the state, appointed by the Central Government assumes executive powers for six months at a time, only when no political party is able to form a government. He relinquishes executive powers and reverts to his position of a non-executive constitutional head when an elected political party forms a government.

The state governments have full powers of maintenance of peace and security within their territories as well as implementation of programmes aimed at increasing agricultural and industrial output, expansion of communications which includes maintaining national and state highways and providing approach roads to villages, rural electrification and providing health care and primary, secondary and higher education. The Central Government also provides funds for implementation of these programmes. Thus, the states are the principal units of administration and policy formulation below the level of the Central Government.

The process of creation of new states, started in 1948, was completed in the early 1970's after the accession of Sikkim to the Indian Union. More recently, the demand for creation of Uttaranchal, Jharkhand and Chattisgarh by separating areas from Uttar Pradesh, Bihar and Madhya Pradesh gained momentum in the later half of the 1990s. The three new states were created in 2000.

This paper examines the administrative problems and development potential of the three new states that have been created. The point has been made that the creation of the new states shall assist in economic development of their areas and also contribute to making administration in the new states more people oriented. It is argued further that all the states which have a population of more than 40 million, should be divided into

small states and if that is not feasible on political grounds, administrative structures should be created at the level of the agro-climatic regions at which level all decisions relating to detailed formulation and implementation of programmes of economic and social development should be taken. The structures should not be merely bureaucratic but should have popular representation on them. The senior most minister of the state government hailing from the region should be the chairman of the regional structure.

All the states with population above 40 million have two or more agro-climatic regions within them. The regions are relatively homogenous in physical, economic and social conditions. There is considerable information on agro-climatic regions in the reports of the Planning Commission and the Ministry of Agriculture. The Ministry formulates and implements its programmes for increasing agricultural output and providing security against crop failure with agro-climatic region as the unit. Furthermore, it regularly issues reports on the prospects of crop production in different agro-climatic regions. The administrative structures should be created in largest cities in the major agro-climatic regions, so that most of the decisions relating to economic development and welfare of the people can be taken at the regional level.

Against this background the development potential of the three new states that were created in 2000 has been described briefly. It is argued that the poor people of these backward states will benefit by faster, people-oriented economic development. This may be expected because the funds will be in the hands of ministers and officials resident in the new states who have a much better understanding of the needs and problems of the people than those located in distant capitals.

Historical Perspective

The issue of reorganization of states dates back to the 1920's when the Indian National Congress indicated its commitment to formation of linguistic states. Creation of such states became unavoidable after the integration of princely states with the Indian Union during 1948. Furthermore, some of the then British provinces had within them people of several linguistic groups. The then Madras Presidency, for instance, comprised the whole of present Tamil Nadu, the coastal districts of present Andhra Pradesh, four districts of present Karnataka and one district of Malayalam speaking people. Thus it included people speaking four languages, Tamil, Telugu, Kannada and Malayalam. It extended for about a thousand kilometres along the east coast and also included large inland areas. Bombay Presidency included western Maharashtra including Konkan, coastal Gujarat and one Kannada speaking district south of Konkan. It contained people speaking three different languages.

The issue came to a head and an early action for reorganization of states became inescapable when a prominent political leader of Andhra Pradesh died after a fast unto death in support of the demand of the people of Andhra Pradesh for creation of a separate state. The Government of India then appointed a three member States Reorganization Commission. It was chaired by Justice Faizl Ali and had Sardar K.M. Panikar and Pandit Hridaya Nath Kunzru as its members. The Commission accepted the principle of creation of linguistic states. Andhra Pradesh was constituted by merging the Telugu speaking districts of the Madras Presidency and the Telugu speaking districts of the Nizam's state of Hyderabad. The largest city, Hyderabad, was made its capital. Karnataka, similarly, was constituted by merging the old Mysore state with the Kannada speaking districts of Hyderabad, and of Madras and Bombay presidencies. The capital was located in Bangalore, which had a large number of buildings to house the offices of various departments of the state government. Kerala was constituted by merging the princely states

of Travancore and Cochin and two Malayalam speaking districts of the Madras Presidency. Maharashtra was constituted, similarly, by the merger of Marathi speaking areas of western Maharashtra, Konkan, and Marathwada, which had earlier comprised the Marathi speaking districts of Hyderabad and Vidarbha, which were included in the British administered province of Central Provinces and Berar. A few small princely states located within its territory were merged in Maharashtra. Gujarat was formed, similarly, by merging the Gujarati speaking districts of Bombay Presidency with Saurashtra which had been formed in 1948. The state of Rajasthan had already been formed in 1948 by merger of about 20 Rajput states. The British administered district of Ajmer was merged with it. Two districts of Punjab located in the hills were merged with the new state of Himachal Pradesh.

The largest (in area) and the most unwieldy state, resulting from the recommendations of the Commission, was Madhya Pradesh. Its borders extended from the vicinity of Gwalior, located about 200 kilometres from Delhi to the hilly district of Bastar, inhabited mainly by tribal people, which borders Orissa and Andhra Pradesh and which now forms part of Chhattisgarh state.

Most of the recommendations of the Commission were accepted by the Government of India. The most notable exception was its recommendation to constitute Bombay into a Union Territory. This was opposed so strongly by the Marathi speaking people that the Government of India had to accept their demand for including the city in Maharashtra. It has been the capital of the state since then.

The process of creation of new states continued through the 1960's and the 1970's. The former Portuguese dominions of Goa, Daman and Diu and the former French enclave of Pondicherry were constituted into separate states when they became part of the Indian Union in the 1960's. This decision was taken at the instance of the Prime Minister, Pandit Nehru, who was keen that the distinctive cultures of these territories should not be changed radically. Six states, each dominated by a separate tribe, were created in the northeast, but only after ending several years of insurgency by the people of some of them. Sikkim, which has a strategic location on the route between India and Tibet, became a part of India in the early 1970's.

It is of interest to note that the Commission made no recommendation for division of Uttar Pradesh and Bihar despite their very large areas and populations consisting of several ethnic groups. Bihar, for instance, included besides the Hindi speaking areas of north and south Bihar, the mineral-rich forested area, inhabited mainly by tribal people of Chhota Nagpur, which now forms the state of Jharkhand.

Creation of New States

The government created in year 2000 three new states: Uttaranchal comprising the hilly and mountainous areas of western Uttar Pradesh; Jharkhand which comprises the hilly, largely forested area, inhabited mainly by tribal people of Bihar, and Chhattisgarh comprising similar hilly, forested area inhabited mainly by tribals of eastern Madhya Pradesh. The decision, after the initial problems of construction of buildings and development of an administrative infrastructure for the capital have been solved, will contribute to faster, people-oriented economic development in these backward new states.

Better governance and more efficient implementation of development programmes are expected because they will be in the hands of officials who belong to the new states and understand and appreciate the needs, problems and aspirations of the people, and also appreciate the impediments to the development of these regions.

Uttaranchal

Consider Uttaranchal: When it was part of U.P., an average resident of the region had to travel for a day, or a day and a half, from his home, say in Pauri Garhwal to Lucknow, the state capital, and incur large expenditure for the travel if he or she had a problem with the state administration. However, with the creation of Uttaranchal and the location of its capital at Dehra Dun, the time and expense of travel from home to the state capital have been reduced greatly. Furthermore, the people have to deal with officials who understand and appreciate their problems and not with those who may have an inkling about these.

The development potential of Uttaranchal, because of its hilly and mountainous terrain and the limited area available for agriculture, is limited. No large commercially exploitable minerals have been discovered, thus mining or mineral based industries cannot be developed. The forest resource has been greatly depleted during the last 100 years through thoughtless deforestation. There is need to reverse the process and undertake a programme of re-afforestation and construction of small check dams for conservation of soil and water. Local women's groups and some non-governmental organizations have been active in some areas in saving the trees from being cut by rapacious forest contractors. As a result, the trees and the vegetation below them are coming back slowly, yielding fuel and fodder to the villagers and protecting their farms from soil erosion in the monsoon season.

The region has a potential for large and small-scale hydropower development. However, the controversy over the construction of Tehri Dam, a high concrete dam located in Tehri Garhwal district, an earthquake-prone region, indicates such development is not free from risk. Small check dams to conserve the water of the streams flowing down the hills could be built and repaired every year to supply irrigation water and prevent soil erosion. Water wells constructed below the dams will supply water for domestic use throughout the year.

The region has great strategic importance because it borders both Nepal and Tibet. The strategic needs of the country are being met through construction and improvement of roads reaching the borders and posting of defense personnel at the borders. Keeping the roads in good repair and meeting the needs of the armed forces provide employment to a large number of persons. Some sections of the population of the region have a tradition of military service, which has remained an important source of employment for a large number of young men who join the army. Many others join the police force. Remittances home from soldiers and policemen are a major source of income for many families in the region.

The region has enormous potential for tourism – for pleasure and for pilgrimage to religious places located within it. There are three popular hill stations - Mussoorie, Nainital and Ranikhet – in the new state. The first two have suffered considerable environmental damage in the last 50 years through thoughtless commercial development and disregard for vulnerability through pollution, of their principal natural resource – forests. The lake, the principal attraction of Nainital, is being steadily polluted due to dumping of untreated sewage of the town into it. This should be stopped by diverting the wastewater flow into various *nallahs* (small streams) that flow through the hills. Furthermore, there are a number of villages above Nainital, each located alongside a small lake, which are suitable for development of chalet-type tourism on the Swiss model. Small but clean, medium priced hotels could be built in most of them. In order to make them popular, they need a well thought out programme for educating the people in environmental hygiene and hospitality for the tourists.

The real economic potential of the region is in development of religious tourism. From the Himalayan foothills in Haridwar to its source near the temples of Badrinath and Kedar Nath, the valley of the Ganga has been a valley of pilgrimage for millions of Hindus through the centuries. Roads and road transport within the valley have been greatly improved in the post-Independence years. The bus service, for instance, which terminated earlier at Rishikesh, a few kilometers above Haridwar, has been extended to Joshi Math, and then upto temples of Badri Nath. As a result, the pilgrims, who had to walk for several days, now have to walk a few hours only. However, there is a dearth of clean, low priced hotels for overnight stay of the pilgrims and the sanitary conditions along the road are less than satisfactory. Removal of these deficiencies will make the pilgrimage to the temples a rewarding experience to be cherished over the years by the pilgrims. Besides it would provide remunerative employment for tens of thousands.

When the proposal for creation of Uttaranchal was first announced by the government in 1999, there were strong protests against it from two groups. The leaders of the Sikh community wanted that Udham Singh Nagar, which forms part of the sub-Himalayan *terai* sub-mountaine area, to which Sikh farmers migrated from Punjab in the 1950's and the 1960's to establish large, highly productive farms producing wheat, rice and sugarcane, should not be included in Uttaranchal. The area was thinly populated earlier because of the prevalence of endemic malaria. With clearing of the land and control over malaria as a result of the National Malaria Eradication Programme in the 1950's, the area became very productive. A number of rice, wheat flour and sugar mills came up to process the crops. The Sikhs feared that they would be a small minority in the new state. A more legitimate fear was that their highly productive farms, which average more than 20 hectares in size would be broken into small farms if the state government enacted a law limiting the size of individual farms to 1 or 2 hectares, which is the average size of most of the farms in the region. This demand is no longer being pressed. Apparently some assurance has been given to the Sikhs by the Central Government that their land would not be subject to the ceiling on size of farms.

The people of Haridwar district also did not wish their district to be included in Uttaranchal. Although Haridwar is the gateway to the valley of the Ganga, it is located in the plains and its people feel greater affinity with the people of the plains than with those of the hills. Their demand has also not been accepted and Haridwar is included in Uttaranchal. The capital of the state is in Dehra Dun. The formation of the state has been remarkably smooth and no major problem of political instability has been experienced so far (2002).

The state has in its capital and other cities, a large number of high schools and colleges. The number of graduates from them is so large that there is a problem of unemployment of the educated. This despite the fact that a large number of educated men and women work as teachers, nurses and paramedics in their own state. Others go to Dehra Dun to work in offices of the state government, the Oil and Natural Gas Commission as well as in the Indian Military Academy and the Forest Research Institute. Others migrate to New Delhi to work in the offices of the Central Government and in those of the public sector undertakings and private companies.

The developments mentioned above have resulted in such an increase in remunerative employment and income of the people that there is a change in the quality of migrants from the region. During the 1950s and 1960's, a large number of barely educated young men went to Delhi to work as domestic servants, messengers in offices or bearers in small hotels. Many of the young men who go to Delhi now are educated; they seek and get

jobs of clerks or junior officers in offices of the Government of India or in various public sector undertakings.

The new state of Uttaranchal should have a stable government after the initial troubles about selection of a Chief Minister and his cabinet ends and a grant for building

Table 1

India : Population of States (1991- 2001) *(in thousand)*

States	1991	2001
Andhra Pradesh	66,508	75,728
Arunachal Pradesh	865	1,091
Assam	22,414	26,638
Bihar	86,374	82,879
Delhi	9,421	13,783
Goa	1,170	1,344
Gujarat	41,310	50,597
Haryana	16,464	21,083
Himachal Pradesh	5,171	6,077
Jammu & Kashmir	7,719	10,070
Karnataka	44,977	52,734
Kerala	29,099	31,839
Madhya Pradesh	66,181	60,385
Maharashtra	78,937	96,752
Manipur	1,837	2,389
Meghalaya	1,775	2,306
Mizoram	690	891
Nagaland	1,210	1,989
Orissa	31,660	36,707
Punjab	20,282	24,289
Rajasthan	44,006	56,473
Sikkim	406	541
Tamil Nadu	55,859	62,111
Tripura	2,757	3,191
Uttar Pradesh	139,112	166,053
West Bengal	68,078	80,221
Union Territories:		
Andaman & Nicobar Islands	281	356
Chandigarh	642	901
Dadra & Nagar Haveli	138	220
Daman & Diu	102	158
Lakshadweep	52	61
Pondicherry	808	974
All-India	**846,303**	**1,027,015**

Source: Census of India, 2001 - Paper I, Provisional Population Totals

a capital obtained. There are few disparities of caste, or social and economic status among its people. Furthermore, the entire population is aware of the need for building and maintenance of roads to the Indo-Tibetan border and development of leisure and religious tourism, the path of development.

Regarding the three hill stations, Mussourie, Nainital and Ranikhet, keeping them scrupulously clean and maintaining well the roads leading to them are the priority. The same can be said about the roads leading to temples of Badrinath and Kedarnath.

Jharkhand

There was strong opposition also to the creation of Jharkhand by separating the hilly, forested, mineral rich part of Bihar, which is inhabited mainly by tribal people, from the rest of the state. The state government opposed any division of the state although it is very large and populous. It had a population of more than 86 million in 1991 which increased to 98 million by 2001 (Table 1). The law and order situation is bad; there is recurring conflict in some parts of the state between the former landlords *(zamindars)* and their tenants and implementation of development programmes is ineffective. However, the opposition has been overcome and Jharkhand was crated in 2000 along with Uttaranchal and Chhattisgarh.

The leaders of the Jharkhand Mukti Morcha (JMM), who had been agitating for creation of Jharkhand consisting of the hilly, forested areas, inhabited mainly by tribal people of Bihar, inland Orissa, some districts of West Bengal and parts of Madhya Pradesh, were also opposed to creation of a much smaller Jharkhand carved only out of Bihar. They are satisfied now with the creation of Jharkhand and Chhattisgarh, hoping that a larger Jharkhand could be formed later, if they keep up their demand.

Jharkhand is rich in mineral resources - coal, iron ore, bauxite, manganese, mica and others. Some of the minerals are exported but most of the production is used in two large integrated steel plants located at Jamshedpur and Bokaro. Two large mills processing bauxite to produce alumina and metallic aluminum and a heavy machinery plant is located at Ranchi, which has been made the capital of the state. Plants for manufacturing cement and chemical fertilizers are located at other suitable locations. Furthermore, the state has a number of thermal power generation plants based on coal, which supply electricity all over north India, from Kolkata to Delhi and a part of Haryana.

However, despite the riches of the state, the tribal people are very poor and suffer from near starvation when the rice crop fails and food supplies from outside are delayed due to poor communication. The small fields in which they grow rice and other food crops are washed away during the monsoon. The government of the new state, with assistance from the Central Government, has undertaken a programme of building good motorable roads, so that food, water, medicines and blankets can be rushed to the people when (a) their fields and huts are washed away by the floods; and to reduce mortality from communicable diseases when they are living in temporary structures, and (b) building material, seeds, chemical fertilizers and pesticides can be provided when the floods recede and the people can replant the crops and rebuild their huts. The government has also initiated programmes of education of tribal youth, and health care for all. An increasing number of tribal young men are able to get jobs as skilled workers in the various factories located in the region and as white-collar workers in the government, which were held earlier by people from other regions.

There is greater emphasis on eradicating poverty and illiteracy among the tribal people. The law and order situation will also be improved by controlling, with assistance provided by the Central Government, the

activities of the gangs, which live on robbing the mining contractors and executives of various industrial units.

With improvement in the law and order situation, there would be greater incentive to locate various steel fabrication industries in the region. Production of rice and coarse grains can be greatly increased by a sustained programme of construction of check dams on a large number of small streams that flow through the region, to irrigate the fields. The check dams will also reduce soil erosion and flooding of the fields during the rainy season.

Chhattisgarh

Chhattisgarh was carved out of the state of Madhya Pradesh by including in the new state its southern and eastern most districts. Large parts of the region are forested; the tribals in the state are even more backward than those in Jharkhand. Penetration of outsiders such as forest and mining contractors to exploit the region's natural resources and its poor, ignorant tribals will need to be greatly reduced. Furthermore, effective measures will need to be taken for reforestation because the forests have been greatly depleted on account of extensive deforestation during the last 50 years in order to supply timber for construction of houses and other buildings in north western, western and central India.

The region has large areas of plains in which rice and coarse grains are the main crops. Yields of rice will need to be increased with use of dwarf high yielding varieties, chemical fertilizers and pesticides and by providing assured moisture by a large programme of construction of check dams on small streams. Its capital Raipur is located in the valley of one such stream.

A large hydro-electric power and irrigation supply dam is located in Andhra Pradesh just outside the region. The hydro-electric and mineral resources of the region need to be surveyed in greater detail than has been done so far for the establishment of mineral processing industries and power plants in future.

It is of interest to note that in contrast to the misgivings that had been expressed before, the creation of the new states has been remarkably smooth.

Need for Special Central Assistance

Uttaranchal will need special financial assistance for the first two decades. Such assistance will be needed to build a capital, perhaps at Dehradun, and for development of tourism and hydroelectricity. Thereafter, its revenues from tourism and development of power should finance its administrative infrastructure. Jharkhand too would need special central assistance for the next decade or so for building a state capital, probably at Ranchi, and a special police force in order to check activity of the gangs that have thrived on robbing the mining and forest contractors or managers of large industrial units. Special assistance will be needed also to impart technical education to tribal youth for their employment. Assistance will be needed also for irrigation and soil conservation programmes to check ravages of floods during the monsoon. The Government of Bihar has also been demanding compensation for losing its mineral rich portion as a result of formation of the new state.

Chhattisgarh will need special financial assistance for carrying out a detailed survey of its forest, power and, mineral resources. This could be done by the central agencies. Special assistance will need to be given for tribal welfare, education, health and poverty welfare programmes to raise the economic conditions of the tribal people. Attempts should also be made to prepare the ground for an effective programme of extension education for the farmers, to teach them the use of high productivity techniques. The

extension officers could be deputed from various districts of coastal Andhra Pradesh or Tamil Nadu where such high productivity techniques are already being used.

Broadly, financial assistance will be needed by the three states to build the administrative infrastructure, for creating internal security, taxation and development services. The Geological Survey, the Indian Forest Service and the ministries of Industry, Power and Agriculture will have to conduct special surveys of the mineral, forest and irrigation and power resources of the three states since the agricultural, mineral, forest and power resources of the region have not been surveyed in detail.

The Case for Small States

The idea of small states is not new. Sardar K.M. Panikar had suggested division of India into about 50 small states, each with a population of 10-20 million; the total population of India in 1951 was only 361 million compared to 1027 million in 2001. He had argued that the small states would be better administered and develop more rapidly because their governments, being closer to the people, would be more responsive to their needs and aspirations. The unity of India would be strengthened because small states with limited financial resources would be in no position to separate from the Union. His arguments were not accepted, however, by the other members of the Commission who opted for creation of linguistic states despite the large areas and populations of some of them.

Experience in Creation of Small States: The Case of Punjab and Haryana

It is necessary to caution that creation of smaller states could create problems, which could be solved only over a period of time with sagacity and a spirit of give and take by the governments of the smaller states. Consider Punjab and Haryana, which were created in 1966, by reorganising the post-Independence East Punjab. There was much opposition to the division of East Punjab in the 1960's despite the strong demand of the people of Haryana for having a state of their own. However, in the nearly four decades after the reorganisation, both Punjab and Haryana have developed more rapidly than they would have done as a single state. The development of Punjab is based on its highly productive agriculture based on use of modern, high productivity techniques in most of its cropland area which is irrigated by canals, tube wells or wells. The principal crops are high yield dwarf varieties of wheat, rice and maize. It has hundreds of small, medium or large scale industrial units located in Ludhiana, Amritsar and Jalandhar which provide employment to tens of thousands of workers. It is the state with one of the highest per capita income in India.

The agriculture of Haryana has also been transformed through adoption of modern, high productivity techniques on lands irrigated by canals, tube wells or wells. The area under irrigation increased greatly in Haryana after building of the Bhakra-Nangal dam on Satluj river in the late 1950's. There was also a large increase in availability of electricity for agriculture and industries in both Haryana and Punjab.

Haryana, which had hardly any industries in the 1960's, has developed a strong industrial sector particularly in Gurgaon and Faridabad, the two cities located within 30 kilometres of Delhi. Gurgaon has in its environs, Maruti Udyog, which manufactures India's most popular car and a rapidly increasing number of medium and small-scale industrial units. The Government of Haryana has implemented for more than four decades, a highly remunerative programme of land development for residential, commercial and industrial uses and has also developed an

information technology park, which has become a major center of the information technology industry. A number of large commercial houses including foreign companies, have established their national or regional headquarter offices in the environs of Gurgaon in order to escape the high rents for office space and air and noise pollution of Connaught Place, the central business district of Delhi. Furthermore, much larger office space needed by these companies is available at much lower rents in Gurgaon than in New Delhi.

Faridabad, located about 30 km. south of New Delhi, is another residential-cum-industrial satellite city of Delhi. It has one of the largest factories making tractors, which caters to the demands of farmers in Punjab, Haryana, western U.P. and Rajasthan. The highway linking it with New Delhi is completely lined with small or medium sized industrial units and workshops. It exhibits ribbon development at its productive best.

Despite rapid economic development in both states, the dispute between them relating to division of water for irrigation from Satuj and Beas rivers in Punjab and location of the capital of Haryana has not been finally resolved even four decades after the creation of the two states. This has not caused any problems, however, since there is enough water in the two rivers to meet the needs of irrigation of croplands in both states as well as in northwestern Rajasthan. The governments of both states have agreed to abide by ad-hoc arrangements about decisions arrived at between them from time to time. Chandigarh was built in the 1950's as the capital of east Punjab. It serves now as the capital of both Punjab and Haryana states; building of the capital in any other city is just too expensive. The financial resources of the two governments are much better utilized in promoting agricultural and industrial development and providing education and effective healthcare to all their people.

The creation of Himachal Pradesh provided a strong incentive to economic development of the state. Production of food crops (rice, wheat and maize) has increased in its valleys and production of apples, potatoes and tomatoes in other areas has led to an increase in remunerative work for its small farmers and agricultural laborers. The export of fruit and vegetables to cities in the plains is facilitated by construction of motorable roads. Producers' Cooperatives provide short and medium-term loans to plant the trees, to buy inputs such as chemical fertilizers or pesticides and provide living expenses to the growers until sale of their fruit and vegetables. Cold storages for storing the fruit and vegetables until they are ready for markets have also been built by these cooperatives. The state government has established a large capacity fruit processing unit at Parwanoo.

The hill stations – Shimla, Kullu and Manali are visited by thousands of tourists in the summer. As a result there is hardly any migration of young men to work as domestic servants as it was in the 1950's and the 1960's. Most of those who go to Delhi, Shimla or other cities are educated and work either as white collar workers or skilled workers such as drivers of motor vehicles. They are paid much more than domestic servants. The government of the state has undertaken an effective programme of rural electrification and extension of telephones to all large villages. As a result, the migrants can keep in touch with their families when they work in Delhi or Shimla.

Need for Division of Uttar Pradesh and Bihar

Uttar Pradesh

Even after creation of Uttaranchal, the existing state of U.P. is still too large to be administered from Lucknow. It should be divided into four small states or regional agro-climatic divisions. (i) Western U.P. with its headquarters at Meerut; (ii) central U.P. with

its headquarters at Lucknow; (iii) eastern U.P. with its headquarters at Allahabad; and (iv) peninsular U.P. with its headquarters at Jhansi. Two of the cities, Lucknow and Allahabad, already have a large number of administrative buildings and a large investment will not be needed for establishing capitals or regional headquarters in them. The headquarter of western U.P. should be located in Meerut. It is a large, industrial city and has in its cantonment a large number of buildings constructed by the Indian Army. Some of them could be temporarily requisitioned for the capital secretariat or regional structures pending construction of new buildings. The new building structures could be easily financed out of the revenues of the highly productive agriculture and numerous industrial units located in the region.

Much expenditure would not be needed in creating the administrative infrastructure in Jhansi also. Moreover, it could be recovered within one decade through better administration of this underdeveloped region. The ravines of the Chambal, which sheltered the dacoits, have been steadily reclaimed by construction of check dams on small streams and larger reservoirs to harness the flow of the rivers. The cultivated and irrigated area has increased steadily during the last four decades with consequent increase in agricultural output. Implementation of land reforms and increase in remunerative employment for rural people have put an end to the problem of dacoits more effectively than action by the police.

Bihar

After creation of Jharkhand, division of the remaining parts of Bihar into north and south Bihar should be considered carefully. The two regions would be better administered than at present. The immediate benefit would be an improvement in the law and order situation and, the conflict between the high caste land-owners and the low caste tenants and agricultural workers. Although the conflict would not be eliminated through creation of new states or regional structures, it would be reduced in course of time. Patna, which would be the capital of north Bihar, has already got the infrastructure of a state capital. Similar infrastructure will need to be created at Gaya with financial assistance provided by the Central Government.

The cost of the infrastructure at Gaya could be more than repaid within two to three decades through development of the city for religious tourism. Thousands of tourists from Buddhist countries of Southeast and East Asia, from Thailand to Japan, visit Gaya, the place of enlightenment of Lord Buddha, every year. His birthplace located in Nepal, across the border of north Bihar, and several other cities in Bihar are associated with his life and work. The great Buddhist university of Nalanda is located near Gaya. The number of tourists and earnings from them would increase rapidly if there were adequate facilities for their reception and stay in Gaya, Nalanda and other places. Roads would need to be greatly improved just as railway and airline connections of Gaya with Kolkata and Varanasi, near which Lord Buddha preached his first sermon. While investment in improving the railway and airline connections will be made by the Government of India, hotels could be made by private entrepreneurs to house tourists of different income groups. Rapid increase in the number of tourists will also strengthen India's economic relations with countries of Southeast and East Asia. In spite of economic and social advantages from division of the two large states into six or more states, the political leadership is likely to oppose and delay such a division. Incase the division is not possible several administrative agro-climatic regional structures should be created in these states for administrative efficiency and balanced development.

Creation of New States and Stability

Respect for the human rights of the people is fundamental for a widespread acceptance by the people of the rights of the government to rule over them. The government

must not only claim to be 'of the people' and 'by the people' but also for 'all the people'.

If there are sharp cleavages within a population, its government must be seen to be responsive to and meeting the needs of all the people, irrespective of caste, creed and differences in economic/ occupation or social status. The Governments of the new states, which were created on popular demand during the 1960s and 1970s appear to be meeting these criteria and are stable despite changes in leadership from time to time.

Punjab, Haryana and Himachal Pradesh in the north, Tamil Nadu, Karnataka, Kerala and to a large degree Andhra Pradesh, Gujarat and Maharashtra in the west and West Bengal in the east have enjoyed a period of stability for 25 years. The state of West Bengal, however, had 15 years of turmoil from the mid-1960s to the 1980s. Madhya Pradesh and Rajasthan have enjoyed long periods of stability despite the poverty of the people because the Governments seem to be doing the best they can for promoting the welfare of the people despite the constraints of environment. The unstable governments are Assam, Uttar Pradesh, Bihar and Orissa.

The principal cause of instability in Bihar is the cleavage between the 'other backward castes' and the scheduled castes on the one hand and the high caste landlords on the other.

The cleavages in Uttar Pradesh, confined mainly to the central and eastern Uttar Pradesh, are related to both economic status and religion. This largest Indian state has an area of stability namely in the western part but the other regions are unstable. No government can stay in power for long unless these cleavages are resolved.

Orissa is unstable because no government seems to be working for the people who see no use in changing it, because any new government will be as unresponsive to their needs as the previous one.

Among the new states, Jharkhand and Chhattisgarh, are likely to face a long period of instability because of cleavages of interest between the people of the plains and others. But these are expected to be resolved quickly because there are no sharp cleavages of ethnicity or economic interest among the people. Even in the states, which were created on linguistic basis where there were sharp differences these were settled after a period of conflict.

Creation of Agro-Climatic Regional Structures in Large States

There is a strong case for division of very large and populous states of Uttar Pradesh, Bihar and Madhya Pradesh into smaller states. The process could be considered to have started with creation of the three new states. In U.P., Bihar, M.P. and other large states with populations above 40 million, division into smaller states may, however, be opposed by the political leadership and could create an unnecessary difficult problem. If the local sentiment is against creation of small states in these areas there is need for creation of agro-climatic administrative regions.

With decision making power with the officials of agro-climatic administrative regions, the needs and aspirations of the people would be better understood and local development programmes would be formulated with closer understanding of the development potential and limitations of the regions. The *panchayati raj* institutions would also work more efficiently since most of the decisions about correcting deficiencies in implementation of rural development programmes could be taken at the regional level instead of being referred to distant state capitals.

The structures e.g. a Council should not be merely bureaucratic but should have a popular representation on them. The senior most minister of the State Governments hailing from the region should be the Chairman of the

regional structure and the senior most Commissioner as its Secretary. Members should include Ministers of the Central and State Government and members of Parliament and the State Legislature from the region, all Commissioners and Collectors of districts and officers responsible for agricultural and industrial development and social welfare of the people, besides Mayors of the Municipal Corporations of all metropolitan cities of the region. The council should take all decisions relating to agricultural and industrial development of the area and welfare of the people with concurrence of the governments of the states. The creation of such councils is most urgent in U.P. and Bihar which are very large and populous with large under-developed areas. Its creation in Marathwada and Vidarbha regions of Maharashtra will contribute to more rapid development of less developed areas of Maharashtra.

There is the experience of creation in the 1990's of the regional council for Gorkhaland containing Darjeeling and neighboring districts of West Bengal in which the people of Nepalese or Indo – Nepalese stock form the majority of the population. They felt that they were poor and backward because they were being exploited by the plains people of the state. After the creation of the Council, all funds for agricultural development, education, health care and social welfare of the people are earmarked separately for them in the development plans of West Bengal. There is large migration of young men and women from the area, to work as guards, watchmen, etc. (men) and domestic servants (women) in cities in north India from Kolkota to Delhi. Others work in tea gardens; large numbers join the Indian army, usually after graduation from higher secondary schools. They continue a century old tradition of Gorkha Regiments which continue to be considered the most disciplined and valiant.

There is considerable information on agro-climatic regions in the reports of the Planning Commission and the Ministry of Agriculture. The ministry formulates and implements its programmes for increasing agricultural output and providing against crop failure with agro-climatic regions as the units. Furthermore, it regularly issues reports on the prospects of crop production in different agro-climatic regions.

Conclusion

The paper gives a historical perspective about formation of new states in the Indian Union during 1947-1970. The demand for creation of additional states has been met by creation of three new states – Jharkhand, Uttaranchal and Chhattisgarh.

A review of the economic and administrative viability of the states created on linguistic basis finds that all of them, after facing an initial period of teething problems have experienced stable governance and economic prosperity during the last 25 years or so. It is expected that the three new states will also follow a similar path to economic development after a period of adjustments and support from the Central Government for creation of additional administrative structures. Investment by the Central Government and other stake holders in setting up industries, expansion and improvement of road and communication networks, development of irrigation and power and boost to tourist industry will add up and lead to rapid economic development in the new states.

There is a need for bifurcation of all the states with a population above 40 millions. Such need is paramount in case of U.P. and Bihar, which are economically backward because of their large size and caste and class conflicts. Although there is no strong demand for such a division at present and it is likely to be opposed by the current political leadership, however, for economic progress and administrative efficiency it is important to decentralize decision making by creation of agro-climatic regional administrative structures. The paper suggests creation of at least four such regional bodies in U.P. and two in Bihar, until a consensus for bifurcation of the big states into smaller states is reached.

POPULATION GEOGRAPHY Volume 26 Numbers 1 & 2 June-December 2004

BOOK REVIEW

Baljit Kaur (2003): *Progress of Literacy in Punjab,* Madaan Publications, Patiala, pp. ii + 276, Maps 88, Rs. 600/-

A comprehensive study in a spatio-temporal perspective, *Progress of Literacy in Punjab,* is a welcome publication. It covers the period 1881-1991, starting from the earliest year from the point of view of availability of census data of usable quality. The scholar is conscious of the problems of comparability of data originating from differing definitions of literacy, and changing administrative units by which the census figures are available over the more-than-a- century long period. She has resolved these problems innovatively so that the study becomes smooth, coherent and meaningful for the purpose. I have enjoyed reading it, and have found it well-organised and educative.

Baljit Kaur has pursued this piece of research work in-depth, conscientiously attending to male-female, rural-urban and inter-religious differentials, as also areal variations, in literacy in Punjab (as constituted now) from decade to decade. While she used, unavoidably, data by districts and native princely states for the years 1881 to 1951, she brought in figures by tahsils for the years 1951 to 1991 making the analysis of literacy during the post-independence era far more detailed and comprehensive than the pre-independence decades. Because of the differences in the scale of available data, the presentation of the investigation for the two periods (1881-1951, and 1951-1991) is qualitatively different. The various attributes of literacy (distribution, change, male-female, rural-urban and inter-religious differentials from decade to decade upto 1951) have been presented in statistical tables, not graphically, basing the whole discussion on them for the pre-independence period. On the other hand, the study for the post-independence years (1951-1991) is based on detailed maps drawn from tahsil-wise data, supplemented with tables. There are as many as 88 maps all of which bring out areal variations in different aspects of literacy most meaningfully.

Thus, while the scholar has done her best to throw as much light as possible on the progress in the various facets of literacy in Punjab during the entire period: 1881-1991, the analysis of literacy in the post-independence period 1951-1991 is in greater depth and in greater detail. However, it does not imply any lack of scholarly effort in dealing with the pre-1951 years. In fact, it was more challenging to handle it in view of the data by districts and native princely states working under different styles of administration. The way she has organised and manipulated these data, and produced and excellent account of the progress of literacy in the region speaks of her grip on the subject and her ability to do a fine job in a difficult situation. A comparative view of the development of literacy in the British administered districts and the native princely states in the early years is of special interest. The role of the social and religious movements toward the promotion of literacy and education among men and women in rural and urban areas in these decades has been brought out well.

While investigating into the progress of literacy in Punjab in both the periods, the scholar has not only been able to describe it very coherently and cohesively, but has also done an excellent job in explaining the patterns.

The study is structured in terms of decades, justifiably so, because the census data are available decennially. For 1881-1951, the chapters are covering two or three decades together in each case, presenting a more generalised picture of the twenty/thirty years as the case may be. The 1951-1991 period is covered by single-decade chapters (based on data by tahsils), each chapter bringing out greater details about the progress of literacy in its different dimensions. The situation with regarding to the scheduled castes in recent decades has also been referred to. The study is concluded with an over view of the progress, with valuable suggestions for future development.

There are very few attributes of population which have been comprehensively studied in the case of Punjab as this one relating to literacy. The scholar deserves rich compliments for producing a work of outstanding quality.

Gurdev Singh Gosal
Professor Emeritus
Deptt. of Geography
Panjab University
Chandigarh.