POPULATION GEOGRAPHY

Volume 8 Numbers 1 and 2 June-December 1986

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POPULATION GEOGRAPHY Volume 8 Numbers 1&2 June-December, 1986

IMPACTS OF RIVER BANK EROSION ON POPULATION DISPLACEMENT IN THE LOWER BRAHMAPUTRA (JAMUNA) FLOODPLAIN

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This study has attempted to focus on dimensions and impacts of displacement by river bank erosion in the lower Brahmaputra (Jamuna) floodplain of Bangladesh. Based on a survey of 547 randomly selected households, it was observed that about two thirds of the floodplain inhabitants were displaced at least once in their life time. An analysis of the displacees themselves and their relative's destination following the hazard indicated that they either stayed within the *upazila* boundary or moved to distant rural areas of other districts. It was also found that marginal and middle farmers were affected most by losing their means of survival. The study concludes that unless institutional attention are paid to these problems, the locality would not be able to realize the benefits of the developmental efforts in the future.

The swallow up of village after village by the changing river courses through bank erosion is a recurrent phenomenon in the major floodplains of Bangladesh. The extent and intensity of the bank erosion hazard are relatively greater in the lower Brahmaputra (locally known as Jamuna) floodplain than others. While the impact of bank erosion on the human habitat are the loss of human lives, destruction of houses, trees, and other tangible goods, the options for human adjustments are mainly concentrated on "loss acceptance" (Haque, 1986). Despite the fact that the bank erosion hazard dislocates thousands of people each year, adding to the already existing massive amount of landless population of the country, no attempt for systematic study of the socio-economic impact of this hazard has yet been taken. Jannuzi and Peach (1982) and the Bureau of Statistics (1981) indicated that the proportion of landless comprise more than 50 percent of the total rural households. Thus, the loss of any parcel of land and the dislocation of massive rural population are likely to have devastating effects upon the socio-economic spheres.

In the light of these perspectives, the present paper is primarily intended to focus on the magnitude and characteristics of displacement by the bank erosion hazard and the resultant socio-economic impacts exemplifying from the Kazipur upazila area of the lower Brahmaputra floodplain of Bangladesh. Needless to say, these aspects are fundamental for an understanding of the problems of adjustments to natural hazards *vis-a-vis* the resource, population and development planning of the country.

The Study Area and Methodology

A number of studies on the channel characteristics of the Brahmaputra-Jamuna have indicated that the west bank of the river is relatively more susceptible to erosion hazard (Coleman 1969, Chowdhury 1973). The upazila of Kazipur, of which about two-thirds of the *area are chars* (mid-channel islands), is one of the worst affected areas on the west bank of the river (Currey 1979, Khan and Rashid 1985). This upazila was therefore considered to be an appropriate spatial unit for a socio-economic questionnaire survey of the present study.

In total, eight sample mouzas were chosen randomly on the basis of their location with regard to bankline during the survey period. These sample units were selected from three areal classification of the total eleven unions : two mouzas from the mainland unions without bankline; two mouzas from the mainland unions with bankline; and four mouzas from *char* unions. The household units were considered to be the primary sampling units, and household heads were directly interviewed to represent his/her household. In aggregate, 547 units were chosen for final interview from the household population of the eight sample mouzas (to meet a statistically significant sample size within three percent confidence limit with 95 percent confidence level). In order to substantiate the findings on displacees [defined as the persons (i.e., household heads) who lost homestead land at least once in his/her life-time], 10 percent sample from the households resided on the Brahmaputra Right Bank Flood Protection Embankment (locally known as WAPDA bandh) were also covered in the survey (i.e., 72 samples). These altogether resulted in an aggregate sample size of 619 household units. It is perhaps worth mentioning here that in each stage of sampling, a simple random sample procedure was followed to ensure a representative sample distribution of the population (Kish, 1965, Dixon and Leach, 1978).

DIMENSIONS OF DISPLACEMENT

Magnitude and Frequency of Displacement

The information on displacement characteristics was collected from the displacee household heads. Out of 619 sample respondents, 394 reported to have been dislocated at least once in their life-time by the bank erosion hazard. This indicates that in Kazipur villages, the proportion of displacee population is remarkably high (i.e., 63.65%). While Currey (1979) identified 66 upazilas of the country as liable to river bank erosion out of a total of 473, this proportion of displacees in the already affected or vulnerable upazilas is indicative of the massive size of displacees in the whole country.

Again, the frequency of dislocation per household in the sample villages was found to be quite high (the average of the frequency of dislocation was more than 6). This is reflected in the bimodal distribution of the displacement frequencies; about 17% of the respondents were displaced three times and 15% were displaced more than 10 times (Table 1). The recorded highest displacement frequency was 32. Notably, only one-eighth of the total displacees faced such forced migration just once in their life time.

Table 1

Distribution of Displacement in Lifetime of the Displacees (Per cent)

Frequency of displacement	Frequency of displacee household	Percentage
1	53	13.49
2	38	9.67
3	66	16.79
4	38	9.67
5	38	9.67
6	23	5.85
7	28	7.12
8	21	5.34
9	11	2 80
10	18	4.58
11 and more	58	14.76
Don't know	1	0.26
Total	393	100.00

Over all the figures on proportion of displacees among the total population and the frequency of displacement indicate that the extent of hazard affect is remarkably high in the floodplain area, given its recurrent nature, on the one hand, and a complex but dynamic adjustment system to it by the floodplain inhabitants, on the other. These processes ultimately result in a huge number of displacement for the hazard victims.

Distance and Locational Dimension

In the studies on migration, one of the most significant concerns of social scientists is the distance moved by the migrants ; and this aspect has received considerable attention in the literature (Revenstein, 1889 ; Olsson, 1965 ; Wolpert, 1967; Miller, 1972; Johnston, 1973; 1976; Unesco, 1982). In the context of the present paper, the major findings of the study carried out by Unesco (1982) in India to determine the characteristics of voluntary migration in rural areas would be worth mentioning. The study indicates that more than two-thirds of the total migrants remained within the district boundary. Interdistrict migration accounted for another one-fifth of the total migrants; and the rest moved across state boundaries. Libbee and Sopher (1972), supporting these findings, further revealed that the majority of intra—rural migration in India moved within a distance of 12 miles. They concluded that the preference for migration over a short distance is common except for the following types : (1) "those induced by disaster which force people to go to bigger urban centres where relief is expected to be better organized"; (2) those organized by employers; and (3) the voluntary movement of the members of financially stable families for education and employment.

Table 2

Distance Moved by the Displacees during Their Last Dislocation

Distance in mile	Frequency of displacee households	Percentage
Less than ¼ mile	66	16.75
¼ mile — ½ mile	107	27.16
½ mile — 1 mile	87	22.08
1 mile — 2 mile	86	21.83
2 miles — 5 miles	39	9.90
5 miles — 10 miles	8	2.03
More than 10 miles	1	0.25
Total	394	100.00

Table 2 shows the distance moved by the displacee house-holds in Kazipur villages of Bangladesh. The mode of the distribution lies in the distance-category of one quarter to half a mile (i.e., 27. 16%). Remarkably, until two miles of distance, each distance-category contains a considerable proportion of displacees (more than 15% in each category). This indicates a general tendency of the displacees to remain in the nearest possible location. The overall patterns show that more than 87% of the displacees remained within two miles of distance from their place of origin during their last move; only about 10% moved between 2 to 5 miles, and about 3% moved to a distance more than 5 miles. The respondents informed the investigator that the tendency to remain in the vicinity of the bank or *char* areas (midchannel islands) was influenced by two factors : first a sizeable proportion of the displacees can not afford to move a greater distance in terms of economic ability to bear the transport cost and other initial expenses at the place of destination; second, the majority of the displacees have a strong perceptual bias towards the concept that their land would reemerge soon, allowing them to return to their place of origin in the near future. In most cases, however, that becomes a despair (Haque, 1986, P. 13).

Although precise information about the population already moved out from the Kazipur upazila area due to bank erosion hazard is not directly obtainable from the survey design of the present study, it is possible to grasp the general trend from a close scrutiny of the destination of relatives

of the displacees following the hazard events. In Kazipur, out of 394 displacee respondents, 232 (about 59%). reported that their relatives were also dislocated by bank erosion hazard in recent years. From Table 3, it is evident that majority (63.80%) of displacees' relatives have chosen to move to rural areas of other districts. Surprisingly, only four households reported that their relatives or kins took shelter on the Brahmaputra Right Bank Flood Protection Embankment i.e. WAPDA. While during the survey period, 720 households were enumerated to be residing on the WAPDA *bandh*, such a low frequency may be attributed to underreporting by the respondents. This may have been caused by the fact that a confession of destitute relation might hamper so-called *man-samman* (social prestige) and affect the future social and matrimonial activities of the family. About one third of the relatives of respondents kept themselves within the upazila boundary of Kazipur, but a nominal proportion of them remained within the district of Serajganj.

In aggregate, the patterns show that displacees generally tend to remain within a close proximity to their place of origin, or otherwise, they tend to move to rural areas at a long distance, presumably where jobs and higher wages are available. In contrast to the Indian perspective, only a small proportion of displacees' relatives, dislocated by bank erosion hazard, migrated to the urban centers. As Wallace (1957) explained, in choosing to remain close to the place of origin, displacees attempted to reduce the amount of cognitive restructuring necessary to adapt to a new physical and social environment. In the case of Peruvian earth-quake victims, Oliver-Smith (1982, p.102) also empirically found that the survivors tended to be "conservative" to

Table 3

Distribution of Displacees' Relative's Destination of Migration as Effect of Bank Erosion Hazard (Per cent)

Destination of Displacees	Frequency of displacee household	Percentage
WAPDA Embankment	4	1.72
Rural areas within Kazipur upazila	68	29.31
Rural areas within Serajganj district	8	3.45
Rural areas of other districts	148	63.80
Towns and cities	2	0.86
Outside the country	2	0.86
Total	232	100.00

spatial mobility—"the conservatism was predominantly a defensive stance against the incursion of further stress". The continuity of socioeconomic support and cultural identity is of vital concern to such hazard victims, in particular in precapitalist societies. As mentioned earlier, in the case of the displacees of Kazipur, the hope for reemergence of land from the river bed and subsequent repossesion of land, acts as one of the most significant factors in the migration-decision process. In this respect, Wahed et al (1983) noted that :

> one of the perpetuating myths regarding erosion has been that what goes down must always come up. This is not necessarily true. Most of the silt is lost in the flow of the river and it ultimately is washed into the sea. The total volume of silt which is lost annually is calculated to be substantially over one billion tons. This never returns.

This interplay of hope and despair is a common feature in the riparian environment of the lower Brahmaputra floodplain. The analysis of the underlying reasons for moving to the current place of residence both by displacees and their relatives could explain the polarized patterns in migration distance more precisely.

Reasons for Choosing the Current Place of Residence

By now, a great deal of literature focussed on the factors operating at the two ends of a migration stream. In his seminal work, Lee (1966) distinguished between the factors associated with the area of origin and destination in the case of voluntary migration. The differences usually arise with regard to acquaintance of the individuals with area of origin, uncertainty in the possible new area, stages of the life cycle, and the nature of intervening obstacles. Lee finally concluded that "migrants responding primarily to plus factors at destination tend to be positively selected" (1966: 55). This conceptual framework of general migration does not fit with involuntary migration where individuals move out of their place of origin against their willingness to depart, compelled by natural or social forces. Kunz's (1973) definition of refugees fits well in the case of such involuntary migrants:

> It is the reluctance to uproot oneself, and the absence of positive original motivations to settle elsewhere which characterizes all refugee decisions and distinguishes the refugee from the voluntary migrant.

Once people are uprooted by such forces, in which the victims are helpless, they must make a decision about the destination: where to go ? in geography, the spatial preference and information modelling "paradigms" have dealt with the choosing process for potential migrants (Gould,1975: 1979), but only a little focus has been given to involuntary migrants in them.

In the Bangladesh context, where most of the victims of natural hazards are marginal and poor peasants, the question of survival is most vital to the displacees in choosing the destination. The process is also likely to involve many other non-economic factors. Table 4 presents the percentage distribution of reasons for moving to the current place of residence by the displacees at kazipur. It is evident that

Table 4

Distribution of Reason for Moving to the Current Place of Residence by the Displacees (Per cent)

Reason	Frequency of response	Percentage
Had own land	88	15.04
Availability of Khas land	19	3.25
Availability of Kot land	41	7.01
Relatives provided land as gift	35	5.98
Returned to accreted land	45	7.69
Hoped land would reemerge	29	4.96
Existence of relatives	125	21.36
Availability of support from relatives	44	7.52
Availability of support from friends	7	1.20
Had closer ties with Samaj	34	5.81
Did not want to leave ancestral land	7	1.20
Had no money to move elsewhere	30	5.13
Had no time for alternatives	49	8.38
Others	22	3.76
Total	585	100.00

the existence of relatives in the place of destination and owned land together accounted for more than 36% of all reasons of moving to the current place of residence by the displacees (21.36% and 15.04% respectively). Availability of land from different sources appeared to be the other major indicators for attracting the displacees. In effect, the reliance on relatives for shelter in an emergency and the attachment to land resulted in short distance movements by the displacees. In case of the relatives of dislocated people, availability of higher wages and jobs, land and the existence of kin/ relatives in the place of destination played significant roles in choosing their destination. However, the economic considerations were given priorities in such decision making processes. The sociocultural factors, such as availability of better educational and health facilities or the question of avoidance of the bank erosion hazard accounted for a nominal proportion al together.

Table 5

Distribution of Reasons for Moving to the Current Place of Residence by the Displacee's Relatives (Per cent)

Reasons	Frequency of responses	Percentage
Availability of land for purchasing	46	14.75
Availability of jobs	65	20.83
Availability of higher wages	95	30.45
Availability of better educational opportunities	2	0.64
Availability of better health care facilities	4	1.28
Existence of relatives	65	20.83
Avoidance of bank erosion hazard	20	6.41
Others	15	4.81
Total	312	100.00

The reasons for choosing the destination by the displacees as well as by their relatives indicate that the victims of the bank erosion hazard were primarily economically motivated, since most of them lost their means of survival—land, house, crop, job, etc. In the absence of effective institutional support, one's decision to select a destination usually directed toward immediate adjustment measures to cope with the hazard losses.

IMPACTS OF BANK EROSION HAZARD

The dimensions of the human impacts of river bank erosion hazard in Bangladesh are yet to be studied. These impacts may vary from loss of human lives to fragmentation of *gosthi* and *samaj*, and thus a detachment from social ties. Since the general rural economy of the country is characterized by a subsistence agricultural practise, on the one hand, and by a sizeable proportion of functionally landless households on the other, the loss of any parcel of land by the erosion hazard stimulates the marginalization process of the peasants. The overall social, economic, and cultural implications appear to be devastating.

Loss of Land

In contrast to other natural hazards, the river channel shifting process also produces some outputs, i. e., the land emerges from the river beds to form *chars*.

The probability of such emergence of land creates an illusive hope in the minds of hazard victims in general, although in most cases such hope becomes despair. In the study area of Kazipur upazila, out of 394 displacee households, 86 reported that they did not have any homestead land during their life time (i.e., 17.62%). This implies that they were displaced while residing on other person's land, mostly on a relative or a friend' house, or by taking land on a *kot* (lease on a short term basis). Further, 44 displacee households reported that they were always without any cultivable land

Table 6

Distribution of Land Lost and Acquired by the Displacees (Per cent)

Size group by acre	Cultivable land		Homestead land	
	Frequency	Percentage	Frequency	Percentage
LAND LOST				
Less than 1.0	50	14.29	266	81.60
1.0< 2.0	49	14.00	40	12.26
2.0< 3.0	31	8.86	6	1.84
3.0< 6.0	93	26.57	11	3.37
6.0< 9.0	39	11.14	3	0.92
9.0< 12.0	23	6.57	—	—
12.0< 24.0	42	12.00	—	—
24.0< 36.0	10	2.86	—	—
36.0< 48.0	2	0.57	—	—
48.0 >/	11	3.14	—	—
Total	350	100.00	326	100.00
LAND ACQUIRED				
Less than 1.0	21	22.83	50	84.75
1.0< 2.0	17	18.48	9	15.25
2.0< 3.0	8	8.70	—	—
3.0< 6.0	26	28.26	—	—
6.0< 9.0	10	10.26	—	—
9.0< 12.0	5	5.43	—	—
12.0 >/	5	5.43	—	—
Total	92	100.00	59	100.00

(i.e., 11.17%). Table 6 illustrates the distributional patterns in land lost and acquired by the displacees. It appears that 44.28% of the households lost cultivable land within the range of 3.0 to 12.0 acres; and 37.15% within the range of 0.1 to 3.0 acres; the remaining 18.1 % of them lost more than 12 acres. The mode of land size-group was found to be between 3 0 to 6.0 acres, which accounted for 26.57% of the displacees, followed by 0.1 to 1.0 and 1.0 to 2.0 acres size categories (i.e., 14.29% and 14.00% respectively). This pattern is indicative of the fact that a considerable proportion of marginal and middle farmers lost their cultivable land, while only few of them could acquire reemerged land. For instance, out of 220 households who lost cultivable land, only 44 could acquire similar amount of land (i. e., 20%). Similarly, in the case of homestead land, none could acquire more than 2 acres of land. The proportion of displacee households who acquired household land following erosion hazard also appeared to be very low (i.e., 18%).

Impact on Family Conditions

While asked about the displacees' perception of the impact of dislocation on the family conditions, majority of them indicated serious effects on three components: (1) drastic decline in the level of living (23.72% of total responses), increased frequency in mental illness in family (22.33%), and loss of assets (20.1%). These altogether accounted for more than two-thirds of all responses on this issue. Among other components, increased physical illness (11.37%) and cuts in living standard (10.82%) and cuts in living standard (10.82%) appeared to be significant effects of displacement of family conditions. In aggregate, deterioration in economic condition and increased psychological stress from the hazard effects had strong adverse impacts upon the displacee families, while social components, such as children's education or social position, etc. received lesser concern by the displacees.

Change in Occupation

Change in occupation as a result of dislocation has important bearing upon the current level of income and other socio-economic status of the household. Obviously, while settlement in a new location involves multi-dimensional adjustment process, the question of occupational adjustment is to be considered one of the vital issues in coping with the hazard loss and other impacts. Table 7 shows the distr.butional patterns in major occupations of the displacee household head in a comparative perspective—prior to last displacement and the current status.

It appears that primary production (which includes farming, animal husbandary and fishing) dominated most in displacee household head's past occupation (i.e., 55.84%). This was followed by labor category of occupation (which includes household labor, wage labor, *rakhal* household labor hired on a year basis, boatman, and rickshaw peddler) which accounted for 32.23% of the total displacee household heads. Manufacturing, commerce, service and others accounted for nominal proportions. It is interesting to look at the fact that, as a result of dislocation and other social changes, primary production became second to labor category in their current occupational status.

Table 7

Distribution of Past (Before Displacement) and Present Occupation of the Displacee Household Heads (Per cent)

Occupational category	Frequency		Percentage	
	Past	Present	Past	Present
Primary production	220	121	55.84	30 71
Manufacturing	8	12	2 03	3 05
Commerce/Business	8	22	2.03	5.58
Service	6	16	1.53	4.06
Labour	127	205	32.23	52 03
Student	6	1	1.53	0.25
Unemployed	—	15	—	3.81
Never employed	10	—	2.53	—
Others	9	2	2.28	0.51
Total	394	394	100.00	100.00

Labour accounted for 52.03% while primary production accounted for 30.71%. This is clearly indicative of the process that persons engaged in primary production with relatively closer ties with the means of production (i. e., land) have been separated over time, in which, presumably, the river bank erosion hazard had the most significant impact. A rapid marginalization and proletarianization process may therefore be assumed to be under operation in the Jamuna floodplain. The real income of the respondents with such "downward mobility" in occupation is likely to be declined steadily; and thus would affect the overall family well being. In another section of occupation, nominal "upward mobility" has been marked (Table 8). Notably, 10 household heads reported that they were not eligible to work when displaced since they were not within the manpower age group (i.e., under 10 years of age). According to the current situation, all of them have entered the manpower age group, but 15 household heads reported to be currently unemployed.

Impact on Social Ties and Relationships

The role of *bangsha* or *gosthi* and *samaj* as local level social groupings is well recognized in the Bangladesh literature, particularly in the studies on political

Table 8

Distribution of Responses with Regard to Impacts on Family Conditions (Per cent)

Impacts on family conditions	Frequency of responses	Percentage
Serious cut in standard of living	171	23.72
Some cut in standard of living	78	10.82
Hampered children's education	17	2.36
Increased illness in family	82	11.37
Mental illness in family	161	22.33
Loss of assets	145	20.11
Loss of social position	36	4.99
Fragmented Bangsha	22	3.05
Others	9	1.25
Total	721	100.00

anthropology (Bertocci, 1980; Thorp, 1978; Westergaard, 1978; Zaman 1977, 1982). The *gosthi* is a group form based on kin relationships that determines political, ritual and ceremonial ties in the village. As Zaman (1982 : 41) puts it, "a gosthi is a patrilineal kin group reckoned through a remembered 'common' male ancestor in a given group of people" (also see Ellickson, 1974). The *samaj* is a relatively larger intravillage group "based on common social and religious interests in the village" (Zaman, 1982, P. 39). The functional structure of the *samaj* is usually informal but it's influence on the relationships and decisions over social, ritual, ceremonial and religious matters is quite significant. Both *gosthi* and *samaj* people usually help their group in times of economic troubles, social ceremonies, natural hazards and other disasters. The functions operate through providing manual labor by the group people, food, financial aid, and other material supports. Therefore, any detachment from *gosthi* or *samaj* puts the victims in a relatively unfamiliar situation where scope for sharing the losses of hazard or economic trouble is limited. Further, arrangement of marriage and proclaimation of other social rights often become difficult while separated from *gosthi* or *samaj*.

Table 9

Type of Assistance Received From Gosthi and Samaj in the Adjustment Process to the Bank Erosion Hazard (Per cent)

Type of assistance	Source		Percentage	
	Gosthi	Samaj	Gosthi	Samaj
Moral support	19	16	51.35	69.57
Assitance with housing	6	5	16.22	21.73
Assistance with land	4	—	10.81	—
Financial loan	8	2	21.62	8.70
Total	37	23	100.00	100.00

In Kazipur, out of 394 displacee respondents, 230 households were separated from their *gosthi* as an impact of displacement by bank erosion hazard (i.e., 58.38%). Among these separated, 222 reported that their *gosthees* have been fragmented following the erosion hazard (i.e., 96.52%). Only eight households informed that their *gosthi* still could maintain group integrity. On the other hand, among the total displacees (N=394), 141 were separated from their respective *samaj* (i.e., 35.79%). The separated displacees again reported that only in 11 cases, the *samaj* remained together even after the hazard event (Table 10). In the process of involuntary migration, only 32 households received help from *samaj* organization (i.e., only 5 84%). Moral or non-material support dominated over other kinds of help. Material help through providing land, housing and money accounted for only an insignificant proportion.

Table 10

Distribution of Nature of Problems Faced by the Displacees With the Samaj of the Place of Destination (Per cent)

Types of problems	Frequency	Percentage
To get work	68	33.66
To get land for purchase	69	34.16
Reluctance for matrimonial relationship	11	5.45
Social inhibition	19	9.41
Others	35	17.32
Total	202	100.00

Since *samaj* is a unique form of traditional grouping, the adjustment and assimilation to a new *samaj* depends on a number of factors : intergenerational stay over a particular place, patronage from *samaj* leaders, matrimonial linkages, etc. Thus the problems faced by the dislocated settlers in adjusting themselves to *samaj* organization at the place of destination may become serious hindrances to overcoming the adverse impacts of dislocation by bank erosion. From the Kazipur survey data, it is seen that about 33% of the displacees faced adjustment problems to new *samaj* situation (N=130). Table 8 shows the distributional patterns of problems faced by the displacees. In terms of frequency of responses, the displacees indicated that they usually find it difficult to purchase land (34.16% of total responses), or to get work (33.66%). Among other problems, although minor, there exists reluctance of old settlers to establish matrimonial relationship with the displacees.

Summary and Conclusions

This paper has attempted to focus on dimensions and impacts of displacement by river bank erosion in the lower Brahmaputra (Jamuna) floodplain of Bangladesh. It is seen that about two-thirds of the floodplain inhabitants were displaced by the hazard at least once in their life time. On the other hand, the average frequency of displacement was more than six times. This was primarily influenced by the fact that most of the displacees stayed within the vicinity of their place of origin. An analysis of the displacees themselves and their relatives' destination following the hazard indicated that they either stayed within the upazila boundary or moved to distant rural areas of other districts. The hope for reemerged land, financial inability to bear the transport cost for a longer distance, closer ties with local social organization were the prime determining factors for such patterns. The displacees thus generally resettled within a highly vulnerable zone of a potential recurrent hazard; and the longer distant movements were found to be primarily economically motivated (i. e. , job, higher wage and income).

The loss of land, change in occupation, change in relationships with social organizations, and change in overall family conditions have been examined to assess the impacts of bank erosion hazard. It is found that marginal and middle farmers were affected most by losing their last means of survival. This has also been reflected clearly in the change in occupational pattern. It indicated that a considerable proportion of people previously (before displacement) engaged in primary production became laborer following the dislocation by the bank erosion hazard. While the displacees received very little material support by the social organizations and local institutions, the respondents identified two major areas of adverse effects of the hazard on their families : economic well being and psychological stress expressed in increased mental illness. In effect, these changes acting together are indicative of a rapid marginalization and pauperization process at work in the lower Brahmaputra flooplain as effect of river bank erosion hazard. Unless social measures are taken to ameliorate this problem, the country would not be able to realize the benefits of any developmental efforts in the future.

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Acknowledgement

The survey of the research was conducted under the auspices of the International Development Research Centre, Ottawa. Logistic and research supports provided by John Rogge, Professor of Geography, University of Manitoba, are gratefully acknowledged.

POPULATION GEOGRAPHY Volume 8 Numbers 1 & 2 June-December, 1986

A SPATIAL PERSPECTIVE ON THE DISTRIBUTION OF THE INDIANS IN THE UNITED KINGDOM, 1981

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A majority of the Indians living in the U.K. immigrated recently after the mid-fifties. During the immigration period lasting for a quarter of a century they immigrated in such a large number that in 1981 they formed the largest ethnic group among the non-white immigrants from the countries of NCWP*. The present paper attempts to analyse their spatial distribution in the U.K. in 1981. Indians are settled almost in every part of the U.K. However, 97 per cent of them are distributed in England, overwhelmingly concentrated in five counties, with high proportion of urban populationin the Indian belt. The spatial variation in the distribution of Indians is attributed to the historical and economic reasons. The area where Indians are concentrated are largely a consequence of where immigrants settled during the fifties and sixties. They went to areas where there was a demand for labour because their immigration has been essentially job-oriented.

Immigration from India to the U.K. has been in progress for a very long time. If the observations made by Kondapi (1949), Ballard (1972) and Ballards (1977) are put together, the history of Indian immigration goes back not only to the period in between the wars or the beginning of the present century but is traceable in the previous century as well. Ballards observed that there was evidently a well established settlement of Asian seamen in the U.K., in 1837, most were of Indian origin while Ballard writes, "there has been migration from India to Britain for a very long time: even before the first world war. By 1939 almost every large city, seemed to have had a small number of Indian reside nts." Kondapi estimated the number of Indian immigrants in the U.K. to be about 5000.

According to Ballard the immigrants who arrived before the first world war were almost all 'ex-seamen' or 'pedlars'. It is only during the period in between the two wars when some of them started thinking to put down permanent roots. The flow became substantial after the second world war which associated with a huge and increasing demand for unskilled or semi-skilled labour in British industry. This was the beginning of the large scale migration from India. Subsequently, the immigration started increasing gradually during the late 1950s(Ram, 1985; Table 3.5). In particular,

* NCWP stands for New Commonwealth and Pakistan.

it became numerically significant during the late 1950s and the 1960s. After attaining a maximum high during 1963-68 (Ram 1985; Table 7.9) it started decreasing during the late 1960s and the 1970s and it came down to the lowest ebb by 1981. The decline in the volume of immigration was the result of various immigration checks imposed after 1962 by the British Government (Ram, 1985; Table 7.8). However, during the immigration process lasting for quarter of a century and the 'post immigration process' of family reunification the group has experienced many changes in its spatial distribution in the U.K.

A perusal of the literature reveals that only a few researchers such as Coates and Rawstron (1971) studied the spatial patterns of overseas born immigrants in the U. K. and observed that Asians (Indians and Pakistanis) were one of the most dispersed groups in the U. K., in 1961. They also found that the South-East, the West-Midlands and the North-West (Lancashire and West Riding) represented a large number of the Asians which was the result of high inflow during the 1950s into those regions. However, what are the spatial patterns of the Indians in the U.K. in 1981 is viewed in this paper. In particular, this study has been greatly initiated to discover the answer to a number of questions : What is the spatial distribution of the Indian population in the U.K. ? Is there an existing preference for the rural or the urban areas by the Indians in the U.K. ? Beginning with the premise that the Indian population in the U.K. is largely inhabiting the urban areas, are there some areas of specific concentration of the Indian population and why ? If there are some metropolitan areas of specific concentration of Indians in the U.K, whether the concentration is the result of direct immigration of the Indians into those urban centres or the concentration is associated with the 'post immigration inter-city migration'? What are the socio-economic and historic factors which may have largely influenced the existing spatial distribution of Indians in the U.K. ?

It has been observed from the literature that although censuses have been the main source of information they do not provide adequate and accurate information about the Indian community in the U. K. However, Ram (1985) found that Table 11 (OPCS,* 1982), first ever published by OPCS provides accurate information on the entire Indian community for England & Wales with minimum under/over counting. Similar counts of the Indians in Scotland were estimated (Ram, 1985; Chapt. 3). Therefore, the present study is based largely on the statistical information contained in this table (Table 1).

Spatial distribution of the Indians is shown by percentages whereas the size of the group in each county/region** is displayed by proportionate circles (Fig. 1). However, the group distribution in relation to the whole population is measured (only for the urban regions with high group con-

**Office of the Population Censuses and Surveys.

*Scotland is divided into regions unlike the counties in England and Wales.

centration) by the Location Quotients (L. Qs) (Table 2).

Analysis

Indians are distributed in almost every county/region of the U. K. (Figure 1). However, four major areas with high concentration of Indians are observed : Greater London and some adjoining conties, the Midland area, the North-West and the Strathclyde region. The first three are located in England and form a continuous belt which runs from the South-East (Kent, London) to the North-West (West Yorkshire, Greater Manchester and Lancashire). This belt accommodates a majority of the Indians in England and therefore, is called, 'the Indian belt'. However, Indians are comparatively sparsely populated in the counties away from the belt, particularly to the north-east, north and south-west of the belt. Probably a fair proportion of them are whites, born in India during the 'Raj' (Coates and Rawstron, 1971) and their children.

Greater London, with about 224 thousand Indians, represents the highest proportion (33.2%) of the Indian population in the U.K (Table 1). Kent, Surrey Berkshire, Hampshire, Essex, Hertfordshire and Bedfordshire are other adjoining counties under the 'field effect' (Jones, 1978) of, and around Greater London where the number of Indians varies between 8000 and 17000, higher in the southern counties as compared to the northern ones (Fig. 1). Employment opportunities in Industry and in services account for their high concentration in this area. Proximity to the airport where most of the earlier immigrants landed also helped the area to accommodate a large number of Indians who arrived during the 1950s and the 1960s.

The Midland area forms the second major concentration where the West Midlands and the Leicestershire are the counties of highest concentration of Indians. Both together represent 24 per cent of the Indian population in the U. K. whereas each county accommodates 120 thousand (17.9%) and 40 thousand (5.9%) Indians respectively. In the West Midlands they are concentrated in multi-functional towns such as Birmingham (43 thousand) and Wolverhampton (24 thousand), and fast growing towns such as Coventry (18 thousand). Within the county of Leicestershire, Leicester district shelters some 35 thousand Indians. The high concentration in Leicester is associated with two factors: the direct immigration of Indians from East African countries (Kenya, Uganda and Tanzania) into Leicester and gravitation of such immigrants, having similar cultural backgrounds (such as Gujaratis) to this town after living for sometime elsewhere in the U. K. (Phillips, 1983). Besides, Derbyshire, Nottinghamshire and Warwickshire are other counties in the Midland area, each having 5-10 thousand Indians (Table 1). These counties have also one or more fast growing industrial business towns which provided employment opportunities to the Indian immigrants during and after the high immigration period.

Two Metropolitan counties of West-Yorkshire and Greater Manchester and the county of Lancashire formed the third knot in the north-west in the Indian belt which contributes about one-tenth of the Indian population of the U.K. They accommodate respectively about 35, 29 and 19 thousand

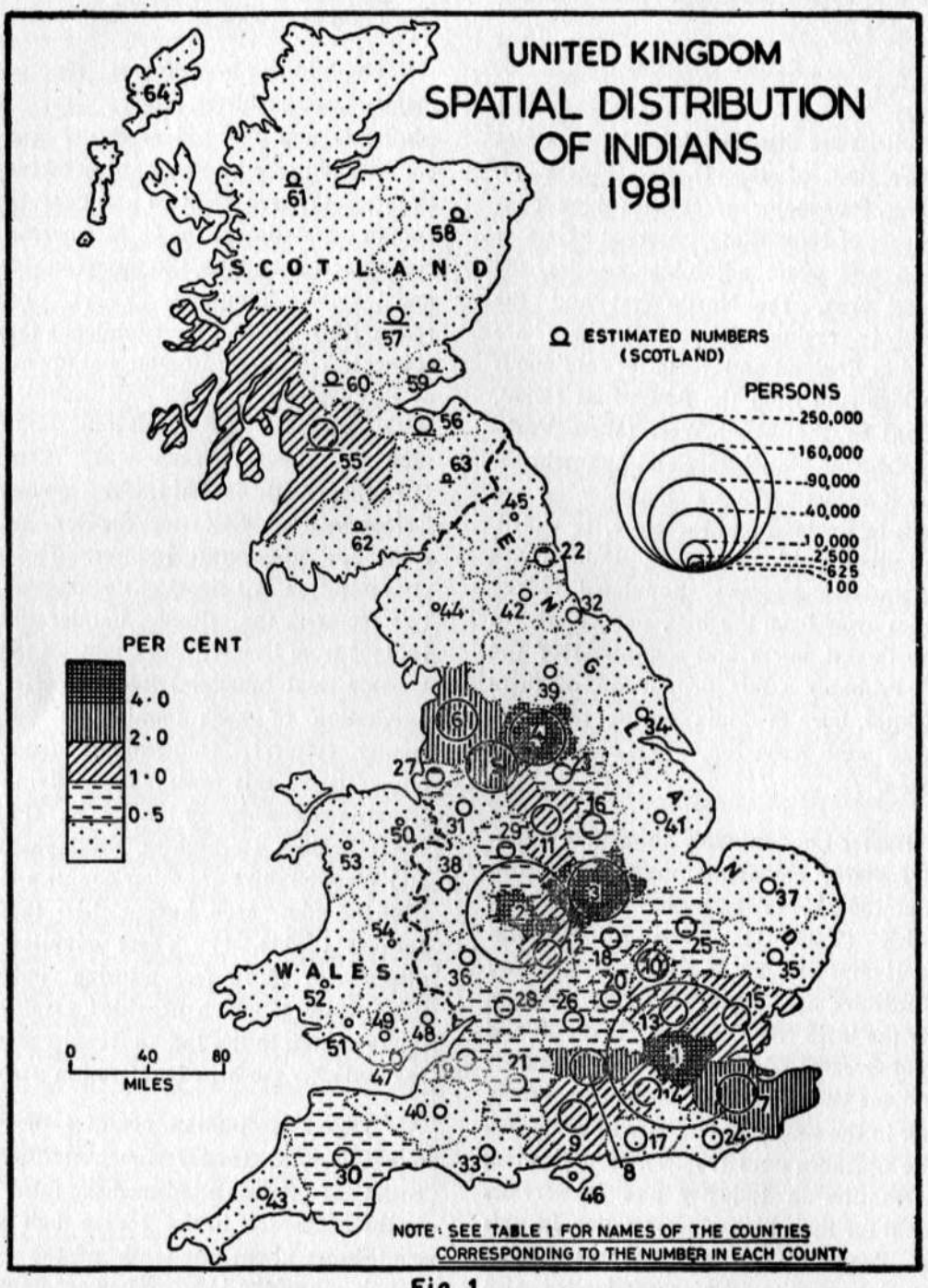
UNITED KINGDOM
SPATIAL DISTRIBUTION
OF INDIANS
1981
SCOTLAND
WALES
ESTIMATED NUMBERS
(SCOTLAND)
PERSONS
250,000
160,000
90,000
40,000
10,000
2,500
625
100
PER CENT
4·0
2·0
1·0
0·5
0 40 80
MILES
NOTE: SEE TABLE 1 FOR NAMES OF THE COUNTIES
CORRESPONDING TO THE NUMBER IN EACH COUNTY

Fig. 1

Indians in 1981. The textile industry in the area which povided employment opportunities to the immigrants (Jones,1978) had been the main attraction for the new arrivals from India (as well as from Pakistan) during the pre-1980 period. In this area, Manchester, Leeds, Blackburn, Bolton, Bradford and Huddersfield are the major textile conurbations which have broad-based employment structures.

Strathclyde region, with Glasgow as the biggest urban and industrial centre in Scotland is the fourth area which contains 1.2 per cent of the total Indian population in the U.K and 52 per cent of the Indian population in Scotland. Thus, about 84 per cent of the Indian population lives in 15 counties of England and in 1 region in Scotland, each representing more than 1 per cent of the Indian population of the U.K. (Table 1). The remaining 16 per cent of the Indian population is distributed in rest of the (48) counties/regions of the U.K. which are either located away from the Indian belt or on the periphery of the country. Small size of the circles indicates that these counties represent very small number of Indians. Most of them are probably whites, born in India, during the 'Raj' and their children.

It is clear from the above discussion that the size of the Indian population in counties/regions is largely associated with the nature of the urban functions and the proportion of the urban population in the counties. This relationship is further supported by the figures in Table 2, which gives information on the size of the group (Indian) and the group concentration with respect to the total population for the urban regions, where group population is 2000 or more and group concentration is more than the national average (i.e. L.Q. 1).

It is evident from Table 2 that persons born in India are highly concentrated in a few urban regions. Only 28 urban regions (out of the total 233) accounting for 77 per cent of the Indians have a L.Q. of more than 1 in 1981, that is, more than the national average proportions of Indians. Leicester, Smethwick and Wolverhamptom in the Midland area and Slough in Greater London are the urban regions where the Indian-born population is highly concentrated and proportion of the Indian population is more than 3 times the national average. The value of L.Q. ranges between 2 and 4 in another 15 urban regions. Of these, London, Gravesend and Bedford are in the South-East; Blackburn, Bolton, Dewsbury, Bradford and Preston in the North-West textile area and the remaining 7 in the Midlands. Only 9 regions in scattered locations have slightly higher concentration (L.Q.= 1 to 2) than the national average whereas in Dudley (in the Midlands) the proportion is comparable (L.Q. = 1). Elsewhere Indians are less represented than the whole population.

Thus, almost whole of the Indian community lives in the urban centres in the major industrial belt, extending from north-west to south-east of England and they had their preference for those urban centres which could provide employment opportunities to them.

Conclusion

There were 673 thousand Indians in the U.K. in 1981. About 97 per cent of

Table 1

All Indians Usually Residents in the U. K., 1981

County/Region	Indians	Per cent of the total Indians	Per cent of the total county population
ENGLAND			
1. Greater London*	223,664	33.22	2.11
2. West Midland*	120,577	17.91	2.40
3. Leicestershire	39,797	5.94	2.55
4. West Yorkshire*	34,715	5.16	0.86
5. Greater Manchester*	29,612	3.95	0.59
6. Lankashire	18,820	2.80	0.70
7. Kent	16,628	2.47	0.71
8. Berkshire	14,639	2.17	1.36
9. Hampshire	11,071	1.64	0.48
10. Bedfordshire	10,752	1.60	1.22
11. Derbyshire	9,758	1.45	0.60
12. Warwickshire	9,071	1.36	1.06
13. Hertfordshire	8,997	1.35	0.58
14. Surrey	8,117	1.26	0.54
15. Essex	7,904	1.21	0.34
16. Nottinghamshire	6,620	0.97	0.39
17. West Sussex	4,833	0.75	0.52
18. Northamptonshire	4,537	0.69	0.52
19. Avon	4,323	0.64	0.28
20. Buckinghamshire	4,307	0.64	0.47
21. Wiltshire	4,193	0.62	0.51
22. Tyne and Wear*	4,130	0.61	0.21
23. South Yorkshire*	4,058	0.60	0.18
24. East Sussex	3,915	0.58	0.46
25. Cambridgeshire	3,760	0.56	0.40
26. Oxfordshire	3,457	0.52	0.44
27. Merseyside*	3,392	0.50	0.14
28. Gloucestershire	3,324	0.50	0.40
29. Staffordshire	3,261	0.48	0.20
30. Devon	3,115	0.46	0.23
31. Cheshire	2,520	0.38	0.16
32. Cleveland	2,387	0.35	0.23
33. Dorset	2,371	0.35	0.30

Contd...

County/Region	Indians	Per cent of the total Indians	Per cent of the total county population
34. Humberside	2.151	0.34	0.16
35. Suffolk	2,035	0.31	0.24
36. Hereford & Worcester	1,976	0.30	0.20
37. Norfolk	1,888	0.28	0.18
38. Shropshire	1,888	0.28	0.30
39. North Yorkshire	1,752	0.26	0.17
40. Somerset	1,586	0.24	0.26
41. Lincolnshire	1,357	0.20	0.16
42. Durham	1,146	0.18	0.12
43. Cornwall & Isle of Scilly	1,017	0.16	0.18
44. Cumbria	731	0.12	0.10
45. Northumberland	411	0.06	0.09
46. Isle of Wight	366	0.05	0.26
WALES			
47. South Glamorgan	2,240	0.32	0.33
48. Gwent	1,186	0.17	0.15
49. Mid-Glamorgan	960	0.15	0.11
50. Clwyd	734	0.11	0.13
51. West Glamorgan	560	0.08	0.11
52. Dyfed	482	0.07	0.11
53. Gwynedd	306	0.05	0.10
54. Powys	116	0.02	0 09
SCOTLAND			
55. Strathclyde Region	8,179	1.20	0.20
56. Lothian Region	2.626	0.39	0 21
57. Tayside Region	1,623	0,24	0.24
58. Grampian Region	1,046	0.15	0.13
59. Fife Region	701	0.10	0.12
60. Central Region	618	0.09	0.13
61. Highland Region	373	0.05	0.12
62. Galloway Region	234	0.04	0.11
63. Borders Region	208	0.03	0.14
64. Islands Areas	35	0.01	0.06
United Kingdom	673,206	100.00	1.30

*Metropolitan counties

Source : Calculated from Table 11 OPCS 1982, Census 1981 County Reports (part—1) for the counties in England and Wales. Figures for Scotland are estimated and are taken from Table 3.3, Ram (1985).

Table 2

Size and Concentration of Persons Born in India by Urban Regions by Rank Order, 1981

Rank No.	Size: Urban regions	Number ('000)	% of the total population in Great Britain	Concentration: Urban regions	% of the total population in urban regions	Location quotients
1	London	144.7	36.9	Leicester	3.56	4.87
2	Birmingham	23.4	6.0	Smethwick	3.39	4.63
3	Leicester	19.5	5.0	Slough	3.09	4.22
4	Wolverhampton	12.9	3.3	Wolverhampton	3.08	4.21
5	Coventry	11.1	2.8	Grevesend	2.79	3.81
6	Smethwick	7.1	1.8	West Bromwich	2.72	3.72
7	Bradford	6.2	1.6	Leamington	2.36	3.22
8	Slough	5.9	1.5	Coventry	2 26	3.09
9	Walsall	5.5	1.4	Blackburn	2.09	2.86
10	Bolton	5.4	1.4	Bolton	2.07	2.82
11	Manchester	5.0	1.3	Loughborough	2.00	2.74
12	Derby	4.7	1.2	Walsall	1.98	2.71
13	Leeds	4.7	1.2	Dewsbury	1.91	2.60
14	Blackburn	4.1	1.0	London	1.87	2.56
15	Glasgow	3.6	0.9	Bradford	1.74	2 38
16	Preston	3.5	0.9	Bedford	1.72	2.34
17	Nottingham	3.5	0.9	Birmingham	1.63	2.23
18	West Bromwich	3.5	0.9	Preston	1.60	2.18
19	Luton	3.3	0.8	Derby	1.53	2.09
20	Dewsbury	3.1	0.8	Medway Towns	1.23	1.67
21	Gravesend	3.0	0.8	Huddersfield	1.19	1.62
22	Medway Towns	2.9	0.7	Letchworth & Hitchin	1.18	1.62
23	Southampton	2.9	0.7	Crawley	1.13	1.54
24	Bedford	2.8	0.7	Rugby	1.07	1.47
25	Leamington	2.6	0.7	Maidenhead	1.02	1.40
26	Huddersfield	2.5	0.6	Luton	1.02	1.40
27	Newcastle-upon-Tyne	2.1	0.5	Wellingborough	0.96	1.31
28	Bristol	2.0	0.5	Ashton and Hyde	0.78	1.06
	Total	301.7	76.8			
	Great Britain	391.9	100.0	National average	1.00	1.00

Source : CURDS' unpublished statistics for functional regions in Great Britain by place of birth, 1981, CURDS (Newcastle).

Note : CURDS (a regional centre for the census information by functional regions in Great Britain, New Castle) provides the information, by urban functional regions as defined by Coombes et. al, (1982) on the persons by their place of birth.

them are concentrated in England while the rest live in Scotland and Wales. Some 62 per cent of the total Indians living in the U.K. are overseas born while the rest are U.K. born.

Although Indians are settled almost in every part of the U.K., yet they are, overwhelmingly concentrated in five counties with high proportion of urban population in the Indian belt. The West-Midlands Metropolitan county accommodates about half of the Indian population living in Greater London while both together represent more than half of the Indian community living in the U.K. in 1981.

The spatial variation in the distribution of Indians is attributed to the historical and economic reasons. The areas where Indians live are largely those where immigrants settled in the 1950s and the 1960s. They went to the larger conurbations, particularly London and some other areas in the South-East, where there was a demand for labour. They also went to the metal manufacturing industries in the West Midlands and the textile industry in the north (The Runnymede Trust and the RSRG, 1980) because their immigration has always been essentially job oriented (Jones, 1978). As the cosmopolitan character and job opportunities of large cities attracted the immigrants in large numbers (Doherty, 1969) it can be concluded that the distribution of Indians in the country characteristically proceeds down the urban hierarchy.

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POPULATION GEOGRAPHY Volume 8 Numbers 1 & 2 June-December, 1986

POVERTY, DEVELOPMENT AND PATTERNS OF RURAL MALE OUTMIGRATION IN UTTAR PRADESH

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AND

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In the absence of relevent data at district level, the present paper is an attempt to develop a method to estimate an index of rural male outmigration (RMOM) and to explain change in the patterns and intensity of RMOM in Uttar Pradesh occuring since 1961. The sex ratio among non-migrants has been taken as an sufficient indicator to show regional variations in RMOM. The paper highlights two population divergence zones in the state namely, (i) Northern hilly region, and (ii) Eastern plain region. Incidently these are the underdeveloped parts of the state. The centre-periphery relationship in the process of economic development under the capitalist mode of production seems to be breaking of Eastern zone which is being replaced slowly by border districts of Uttar Pradesh. During 1961-71 decade the disparities in rural male outmigration were observed increasing but slowed down during 1971-81 decade.

Migration is a process of redistribution of population which is generated due to defective organization of space economy i.e the socio-economic disparity, steming out of man's relation with geographical diversity, exerts pressure on population to move atleast horizontally if not vertically. The male selective migration is largely attributed to economic reasons and to pursue higher education. The female migration, a dominating scene in an exogamous society is attributed to social practices of kinship development (associated with "The incest is tabooed"). A large proportion of rural to urban female migration is also associated with the rural male outmigration in India. A lion's proportion of rural male outmigrants is steered towards agglomerated urban areas (Khan, 1981) considered potential for employment.

The consequences of rural male outmigration are disturbing the regional economic development. It has been observed that young and skilled population, which is the change prone population, dominates the rural-urban migration stream, therefore, this process deprives of the place of origin, of the potential work force. In such mechanism the backward areas (the place of origin) are left with traditional and dependent population and hence remain underdeveloped.

The condition at the receiving end is also not very satisfactory. The process of rural male outmigration has been creating the problems of slum development and pressure on social amenities in big cities. The proportion of work force in manufacturing did not rise as it should have been but the proportion of workers in tertiary sector increased considerably, depicting

"the development of underdevelopment" (Raza, 1977).

The legacy of imperial suction economic system is still seen where the big settlements are increasing at the cost of smaller ones, negating "the umbrella effect" of big cities that is limited up to 30 km. radius from them. It is this system which has been responsible for the decay of smaller towns and break of rural - urban continuum (Premi , 1980). Probably this regional economic system has thwarted the transformation of big villages into towns and therefore the growth of urbanization could not be significant enough during the last forty years of Independence.

It is in the above perspective that the present paper explores the spatial economic system as reflected by the rural male outmigration in Uttar Pradesh. The other objective of the paper, in the absence of data pertaining to rural male outmigration, is to develop a method for estimating the required data in order to answer the following questions : (a) which are the areas prone to rural male outmigration; (b) What is the intensity of rural male outmigration; (c) Whether spatio-sectoral development has anything to do with rural male outmigration; (d) Which are the explanatory variables associated with rural male outmigration, and (e) to observe change in the spatial economic system over two decades from 1961 to 1981.

There have been many studies on migration but most of them relate to the place of destination rather than the place of origin because of the lack of relevant data in the census.

There are very few studies on migration conducted at the place of origin. Most of these are conducted at micro level. The studies related to outmigration at macro regional level are non existant. This study on outmigration showing regional patterns studied in the context of spatial economic system can be useful for regional planning to overcome the economic imbalances and for reorganization of space within the state.

Methodology and Premises

The present study attempts to develop a method of estimating the intensity of rural male outmigration. The outmigration could be 'short distance,' (within the districts); 'medium distance,' (within state but outside district); and 'long distance' (outside the state). The sex-ratio among non-migrants (M/F) is used as a proxy indicator of rural male outmigration on the basis of following premises :

(a) The village exogamy is practised in the state. (Though there are some village endogamous groups as well but in U.P , the proportion of such marriages is very insignificant).

(b) The average age at marriage for rural female in Uttar Pradesh does not vary significantly, therefore, could be held constant for practical purposes.

(c) The sex-ratio at birth is constant in all the areas and it is in favour of males.

The data available in D-Series Tables, the population classified by place of birth has been used to show the regional variations in the intensity of rural male outmigration (RMOM) for all the censuses of 1961, 1971 and 1981.

For the proof of the proxy indicator to be an estimator of RMOM,

'p' is the probability of rural males born in the village to migrate and 'q' the probability of rural males, born in the village, that do not migrate,

so $p+q=1$ (1)

$M = k.F$ (2)

M=male population born in village

F=female population born in village

$k \geq 1$, constant

$NM = q.M$ (3)

NM=non-migrant male population born in the village.

$NF = b.F$ (4)

NF=non-migrant females born in the village

b=constant of female outmigration by virtue of marriage (can be treated as constant)

Now $\frac{NF}{NM} = \frac{b.F}{q.M}$

$= \frac{b.F}{q.k.F}$ From (1) $M=k.F$

Or $\frac{NF}{NM} \times \frac{k}{b} = \frac{1}{q}$ Let $\frac{k}{b} = h$

$h.\frac{NF}{NM} = \frac{1}{q}$

Or $q = \frac{NM}{h.NF}$

If q is higher, p would be low, and if q is lower, then p (the intensity of male outmigation) would be higher. The estimation of 'h' is not possible in the absence of relevant data. Therefore, only 'q' variate (the number of males per thousand females) can reflect the regional variation and can also be used for other analysis like showing the relationship with some explanatory variables because :

$Var(q) = Var(p)$

& $r_{qz} = -r_{pz}$ where z is some other variable

Limitations of Data and Methodology

The population data in 1961 Census are classified by 'place of birth' while 1971 Census data are classified by place of 'last residence' except for 'Table D-I' that shows the population data classified by place of birth. If this data are used, the comparability is achieved but significant information on 'return migration' is lost. Therefore the data related to 'place of birth' is used at best to ensure the comparability.

Since the method is based on village exogamy premise and many parts of India are inhabited by endogamous groups, so, contrary to first premise, the method has a limited scope to be used in village endogamous society/regions. If the female population, married in the parent village, is subtracted from nonmigrant female population, the impact of endogamy can be reduced significantly from the data before use and thus the 'q' variate can be used at all India level. If the married female inmigrants are subtracted from married females in a

district (rural/urban), the resultant would be the number of females married in the parental villages. Though the effect of those females who come to stay with their parents in case of pragnancy or otherwise, for a short while and are counted as married in their parental villages, on 'q' variate can not be eliminated absolutely. Since such events are rare, therefore, their effect to influence 'q' variate would be insignificant.

$$F_{Er} = F_{Mr} - INMF_{Mr}$$

Where F_{Er} = number of female married in the same village (or urban areas for calculating urban male outmigration).

F_{Mr} = number of married female in rural (or urban) areas of the district.

$INMF_{Mr}$ = number of married female inmigrants in rural (or urban) areas of the district.

Now $$q = \frac{1}{h} \quad \frac{NM}{(NF\text{-}F_{Er})}$$

This formula can be used for showing the intensity of 'rural male outmigration' in endogamous societies as well, at district level.

The mortality differentials by sex could be a disturbing factor for estimating the 'q' variate. It has been observed that the age at marriage is reduced in areas of high mortality. Therefore both these factors nullify each others effect and the regional variations can be taken care of by group intervals. The map will show the correct picture.

To overcome the problem of return migration population data classified by 'place of last residence' can be utilized. On an average the difference between the population classified by 'place of birth' and by 'place of last residence' is not more than two per cent where the latter is greater in number.

Regional Patterns

Maps 1, 2 and 3 reveal more or less similar patterns of rural male outmigration in the state. The state exhibits two core population divergence zones namely (i) northern hilly region, and (ii) eastern plain region. Though both the divergence zones are backward.

It is interesting to note that the eastern divergence zone has been circumscribed by another moderately high rural male out migration belt. It reveals the physical contiguity concept of region behaviour. The present shape of region configuration could be the differential intervention of man's skill in the process of development, in the form of transportational lines, canal and tubewell irrigation on one hand and on the other administrative boundry of the district which blurs the distance decay function and gives rise to a particular shape. Over a period of two decades there have been many changes in this core population divergence zone. Some districts experienced lower intensity of male outmigration as compare to others but still the region seemed to be as an monolith in its outmigrating behavior. The tendency of shift in this zone is northward along the Nepal border.

The absence of moderately high outmigration belt around another core popula-


UTTAR PRADESH : OUTMIGRATION PATTERNS
UTTAR PRADESH
RURAL MALE OUT MIGRATION
1961
VERY HIGH
MODERATELY HIGH
MODERATELY LOW
VERY LOW
40 0 40 80 120 160 Kms
Map 1
RURAL MALE OUTMIGRATION
1971
VERY HIGH
MODERATELY HIGH
MODERATELY LOW
VERY LOW
40 0 40 80 120 160 Kms
Map 2
UTTAR PRADESH
RURAL MALE OUT MIGRATION
1981
VERY HIGH
MODERATELY HIGH
MODERATELY LOW
VERY LOW
40 0 40 80 120 Kms
Map 3
UTTAR PRADESH
INTENSITY OF INTRA DISTRICT
RURAL OUTMIGRATION TO NON-CITY
URBAN AREAS, 1971
Percentage of Migrants to
total Rural Population
4
3
2
1
40 0 40 80 120 160 Kms
Map 4

tion divergence zone of Northern hills vindicates the heavy impact of physical discontiguity being manifested into discontinuity in human propensity of outmigration. This region remained underdeveloped because of the physical constraints

Though both the regions have one thing in common i.e., the strong tendency among males to move out but they have strong differentiation interms of causality. The rural male outmigration in hilly region has been subjected to physical constraints. These constraints are ruggedness of terrain, poor soil, heavy erosion etc. These factors indirectly or directly have an impact in poor agricultural development and industriallization. In the case of Eastern plain of Uttar Pradesh, the human factor itself became more important giving rise to heavy rural male outmigration. Here the human factor can be observed as skewed distribution of land holding, strong hold of fuedalism, castism, lack of irrigation facilities etc. These factors give rise to low production and general poverty in the society studded with high growth of population.

The other factor, responsible for rural male outmigration in hilly region is the 'centre-periphery relationship'. In the process of development it leads to deplition of resources, capital and people which tend to concentrate at centre. The regional setting of regional primate cities, Delhi and Calcutta influences the RMOM in Eastern U.P. that lies at periphery of fading influence zone of these functional nodal regions.

The western part of Uttar Pradesh is comparatively much developed to other parts and therfore, has not experienced such exodus of population as experienced by earlier mentioned population divergence zones. The industrial development has been responsible for attracting sufficiently large rural population of the districts to the towns. The district of Meerut which experienced high rural male outmigration in fifties, soon became least outmigrating. The districts of Bijnor, Moradabad and Rampur experienced higher rural male outmigration in sixties. The districts of Ghaziabad, Bulandsahar, Aligarh, Mathura, Agra, Etah, Etawah, Badaun, Bareilly, Shahjahanpur etc. are the least outmigrating districts of western Uttar Pradesh.

Bundelkhand which comprises, Jhansi, Lalitpur, Jalaun, Hamirpur and Banda reveals mixture of the least and the high outmigrating areas. The western part of Bundelkhand is behaving closely to western U.P. while the eastern part of it is very near to eastern core divergence zone.

The border districts of Uttar Pradesh which forms the Tarai belt in the state from Pilibhit to Gorakhpur form a separate belt of rural male outmigration. The western part of this belt during 1961 was one of moderately low outmigrating zone which merged into core population divergence zone eastward. During 1971 this belt was broken and developed many low and high male outmigrating districts. The agricultural extension work provided considerable employment opportunities restricting outmigration. Under the pressure of centre - periphery relationship in capitalist mode of production, slowly this region is turning into moderately high outmigrating zone. In future this zone might replace the eastern core population divergence zone of the state.

Distance travelled

Map 4 reveals the pattern of intensity of intra-district rural outmigration to class-II and smaller towns. It seems that intra-district rural male outmigration is higher in western and southern Uttar Pradesh. The migrants travelled shorter distances here. Many parts of hills and eastern Uttar Pradesh including border districts experienced low intra-district moves ment. At the same time these are the parts of high outmigration, therefore, it can be concluded that migrants from core population divergence zones travel longer distances. The general perception of labour migrants to Punjab proves this fact.

Temporal change

Under the system of capitalist mode of production the regional disparities are bound to occur. The increasing disparities in the levels of economic development over time progressively increase the differential rate of outmigration. As can be seen (see table 1) that many districts in Uttar Pradesh became more prone to rural outmigration from 1961 to 1971. The average sex ratio among non-migrants went down from 1996 to 1873 during 1961 to 1971. Though 1981 census also reveals the decreasing trend of sex ratio among non migrants but the number of districts in first and last categories have gone down. It could be because of restraining tendency in the intensity of male outmigration. The average sex ratio among non-migrants which has emeliorated in 1981 over 1971 also proves the above said fact. It could be because of decrease in the regional disparities due to economic development or the population convergence zones are not ready to accept inmigrants. The possibilities of the second factor seems to be more sound (see Kundu, 1986).

Table No. 1

Distribution of Districts by Intensity of Rural Male Outmigration In Uttar Pradesh.

'q' variate Males per thousand females among non-migrants	No. of districts		
	1961	1971	1981
1600 and Less	2	8	6
1600 — 1800	10	10	12
1800 — 2000	14	13	16
2000 — 2200	15	17	14 a
2200 — 2400	13	3	7
2400 and more	—	3	1 b
Total	54	54	56

Note : The average sex ratios among non - migrant population for 1961, 1971 and 1981 censuses of Uttar Pradesh are 1996, 1873 and 1934 respectively.

a) Includes Ghaziabad (New District)
b) Includes Lalitpur (New District)

Table No. 2

Distribution of Percentage Change in the Sex Ratio Among Non-Migrants in Uttar Pradesh (1961-1971).

Percentage change	No. of districts	Regions in Uttar Pradesh				
		Northern	Western	Central	Eastern	Southern
—18 and less	9	—	2	3	4	—
—18 to—12	4	—	3	—	1	—
—12 to— 6	7	1	4	—	2	—
— 6 to 0	13	4	3	3	1	2
0 to 6	13	2	3	2	4	2
6 to 12	5	—	1	1	3	—
12 to 18	1	—	1	—	—	—
18 and more	2	1	1	—	—	—
Total	54	8	18	9	15	4

Table 2 shows the percentage change in the sex ratio among non-migrants in Uttar Pradesh by districts since 1961 to 71. Out of 54 districts, 21 have experienced high rate of rural male outmigration in 1971 since 1961. These districts are 3 from northern region, 6 from western region, 3 from central region, 7 from eastern region and 2 from southern region. Western and eastern regions experienced significant change in the intensity of RMOM. It could be because of inequality development within the region.

Causation

Apart from natural calamities, the migration process is the function of regional economic inequalities on one hand and on the other increasing rural-urban dichotomy. In the capitalist mode of production the push factors become strong in underdeveloped areas and pull factors in developed areas to influence male outmigration from country side. The rich vs poor dichotomy also works at the same time in all the areas.

The infrastructural development may influence RMOM differently in different regions. The proportion of villages connected with pucca roads has stimulated RMOM in western and eastern Uttar Pradesh and restricted RMOM in central Uttar Pradesh (see table 3). Machanisation in agri-

Table No. 3

Percentage Variation Explained in Intensity of Rural Male Out-migration by Different Indicators : A Stepwise Regression Analysis, Uttar Pradesh — 1971.

Regions	Indicators	Direction of relationship	$\bar{R}^2$	% variation explained
	UTTAR PRADESH			
1.	Rural female participation	+	0.1211	12.11
2.	Rural agricultural labourers	+	0.2266	10.55
3.	Road density	+	0.2642	3.76
4.	Rural family size	—	0.3103	4.61
5.	Mechanisation index	—	0.3493	3.90
I	**UTTAR PRADESH HILLS**			
1.	Cropping intensity	+	0.4789	47.89
2.	Rural density of population	+	0.5565	7.76
3.	Rural workers engaged in manufacturing	—	0.7448	18.83
II	**WESTERN UTTAR PRADESH**			
1.	Rural population growth	+	0.3249	32.49
2.	Rural density of population	—	0.4509	11.60
3.	Rural per capita loans	+	0.5521	10.12
4.	Agricultural labourers	—	0.6334	1.13
5.	Villages connected by pucca roads	+	0.7933	15.99
III	**CENTRAL UTTAR PRADESH**			
1.	Mechanisation index	—	0.4264	42.64
2.	Electrified villages	+	0.6304	20.40
3.	Villages connected by pucca road	—	0.7814	15.10
4.	Rural workers engaged in manufacturing	+	0.8798	9.84
5.	Agricultural labourers	—	0.9815	10.27
IV	**EASTERN UTTAR PRADESH**			
1.	Cropping intensity	+	0.4489	44.89
2.	Land holding size	+	0.6790	23.01
3.	Rural female participation	+	0.7310	5.20
4.	Villages connected by pucca roads	+	0.8538	12.28
5.	Mechanisation index	—	0.9082	5.44

Note : The data pertaining to some of the explanatory variables were taken from a study by Sinha (1983).

culture has restricted RMOM while electrification of villages worked in opposite direction. Cropping intensity and rural workers engaged in manufacturing were found positively associated with RMOM in backward regions of the state. The increase in agricultural labourers restricted RMOM in western and central Uttar Pradesh. Higher growth of population and density of population were found stimulating outmigration in western and northern part of the state respectively.

From the above discussion it seems that the hierarchy among explanatory variables to explain variations in the intensity of rural male outmigration in different regions varies significantly (see table 3) . Such patterns are associated with stages of development in a particular region.

For the state as a whole, rural female participation rate, agricultural labourers and road density are positively associated with rural male outmigration. While higher rural family size (prevalence of joint family) and mechanisation in agriculture have restricted outmigration. Female participation is more a cultural factor rather than economic. Though it has been originated from economic factors. It is not the compulsion created by male outmigration to force female to work but the availability and willingness of female to look after land and house in the absence of male seem to have influenced the decision of male outmigration. Joint familly provides cushion against unemployment and restricts male outmigration.

The process of infrastructural development combined with cultural factors and inadequate employment opportunities in some parts seem stimulating rural male out migration. Regional imbalance in economic development seems to be working as a suction economic system. The developed regions in India are utilising the labour force of backward areas. Probably this has resulted in the accentuation of rural male outmigration from core population divergence zones. The number of districts of high and moderately high rural male outmigrating has gone up. It simply reflects widening gap in individual's income on one hand and increasing regional inequality on the other. Unless the process is reversed heavily in favour of rural areas and system of concentration is changed, all the strategies being adopted for rural development will simply work in regional capitalistic framework which will serve the interest of developed regions or small pockets of urban areas.

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POPULATION GEOGRAPHY Volume 8 Numbers 1 & 2 June-December, 1986

RELIGIOUS COMPOSITION OF PUNJAB'S URBAN POPULATION, 1981

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Based on 1981 census data, the study examines religious composition of Punjab's urban population. The paper is addressed primarily to the following questions:

Why the proportion of various religious communities exhibits striking spatial differences? What is the relation between the religious composition and size-classes of urban centres? What has been the pattern of urbanisation of various religious communities in the wake of the Green Revolution in the State?

Pattern of religious proselytization coupled with striking inter-religion variations in migration to urban areas are the two factors responsible for religious composition of the State's urban places. Constituting 64.16 per cent of the urban population, the Hindus are in majority in 103 of the 134 urban centres. Their proportion increase from lower to higher size categories of urban places while the reverse is true for the Sikhs.

Religion continues to be an important determinant of socio-cultural contours of India. Apart from its key role in understanding of the present socio-political pulse of a region, the study of religious composition also unlocks the past patterns of religious proselytization and migrations. But, interestingly, geographical studies on this research frontier have been few and far between (Dutt and Davgun, 1979). The present study is a small step in this direction.

Punjab's history carries a strong imprint of religion in its various manifestations. The tract is known to have witnessed active religious co-operation, healthy denominational competition and fierce communal strife during different periods. Ironically, the post-independence period has been characterised by growing cleavages along religious lines due mainly to lack of proper understanding of the State's social reality on the part of the state/central rulers. Consequently the hold of religion on socio-political processes in Punjab, as in other parts of the country, continues to be a decisive one. In this context, an indepth study of religious composition of the state's population is bound to be of considerable academic as well as practical interest.

Distributed among 134 urban centres of various sizes, Punjab's urban population stood at 4,647,757 in 1981, constituting 27.68 per cent of the total population (Fig. 1). Unlike the heavy Sikh majority (71.30 per cent) in the countryside, the Hindus are preponderant in the urban areas (64.16 per cent). Table 1 clearly shows that the Hindus and the Sikhs, constituting 64.16 per cent and 33.19 per cent respectively, together make 97.35 per cent of the urban population of the state, followed by the Muslims (1.30 per cent), the Christians (0.72 per cent), the Jains (0.55 per cent) and others (0.09 per cent).

FIG.1


PUNJAB
URBAN CENTRES, 1981
INDIA
Sujanpur
Narot Jaimal Singh
Pathankot
Dinanagar
GURDASPUR
Dera Baba Nanak
Ramdas
Dhariwal
Mukerian
Talwara
Ajnala
Fatehgarh Churian
Qadian
Batala
Majitha
Dasuo
Garhdiwala
Sri Hargobindpur
Urmer Tanda
Harjana
AMRITSAR
Amritsar Cantt.
Jandiala
Beowal
Bhulath
HOSHIARPUR
Nadala
Rayya
Bhogpur
K-KAPURTHALA
Dhilwan
Kartarpur
Alawalpur
Sham Chaurasi
Adampur
Tarn Taran
KAPURTHALA
JALANDHAR
Talwandi Chaudrian
Jalandhar Cantt.
K.
Naya Nangal
Nangal Township
Patti
Chola Sahib
Sultanpur
Phagwara
Banga
Garhshankar
Anandpur Sahib
Khem Karan
Lohian
Matsian
Goraya
Nawashahr
Nakodar
Shahkot
Nurmahal
Phillaur
Rahon
Balachaur
RUPNAGAR
FIROZPUR
Zira
Dharamkot
Talwandi Bhai
Firozpur Cantt.
Moga
LUDHIANA
Machhiwara
Chamkaur Sahib
Kurali
Jagraon
Mullanpur Dakha
Doraha
Samrala
Morinda
Khanna
Bassi
Kharar
S.A.S. Nagar
Guru Harsahai
FARIDKOT
Bagha Purana
Raikot
Hathur
Ahmedgarh
Payal
Gobind garh
Sirhind
Amloh
Dera Bassi
Jalalabad
Kot Kapura
Banur
Bhadaur
Malerkotla
Rajpura
Muktsar
Baruwali
Jaitu
Fazilka
Lakhewali
Dhuri
Nabha
Tapa
Barnala
PATIALA
Sanaur
Goniana
Rampura Phul
Dhanaula
SANGRUR
Bhawanigarh
Giddarbaha
BATHINDA
Longowal
Samana
Abohar
Malout
Bhucho Mandi
Sangat
Kot Fatta
Sunam
Maur
Ghagga
Patran
Killianwali
Raman
Talwandi Sabo
Mansa
Budhlada
Lehragaga
Barsta
Moonak
Khanauri Kalan
INTERNATIONAL BOUNDARY
STATE / U.T. BOUNDARY
DISTRICT BOUNDARY
DISTRICT HEADQURTER
0
20 Km.

Religious Composition and Size-Classes of Urban Centres

Table 1 brings out, that religious composition of the Punjab's population varies considerably with regard to various size-classes of urban centres. This is especially the case in respect of the Hindus and the Sikhs. Whereas the proportion of the former declines progressively from class I (population 100,000+) to class VI (population less than 5,000) urban centres, the proportion of the latter correspondingly increases from class I to class VI towns. This pattern of variation in the proportion of these two major religious communities by the size-classes of urban places reflects their varying historical experience of urbanisation as well as their differential lure for and participation in the non-agricultural activities. The rural-urban differential in the rate of conversion to Sikhism also made its own contribution in this regard. The Hindus in the state have been far ahead of the Sikhs in the level and also the pace of urbanisation. This stems mainly from two factors : (i) their predominance in migration from smaller to bigger urban centres in Punjab; (ii) greater incidence of inmigration of the Hindu workers (and later of their dependents) from other states of the country to bigger urban centres in the state.

The reverse position in case of the Sikhs is chiefly attributable to their late and lesser involvement in the process of urbanisation itself as well as in the migration stream from smaller to bigger urban places in the State. In addition, the recency of graduation from village to town status of most of the smaller urban places also accounts for relatively large proportion of the Sikhs on this side of the size classes. This is because the Sikhs usually predominate in the rural settlements and their high share is naturally carried forward when some such settlement acquires urban status. This point is further confirmed by a simple glance on the religious composition of 'new' towns (Table 1). For instance, the Sikhs constitute 47.48 per cent of the population of the 'new' towns as against their proportion of 33.19 per cent in the total urban population. Correspondingly, the proportion of the Hindus to the population of 'new' towns is only 51.21 per cent which is considerably lower than their percentage (64.16 per cent) in the total urban population of the state.

Constituting 1.30 per cent of the urban population of the state, the Muslims account for 6.81 per cent of the persons living in class II urban centres (Table 1). This is because of the town of Malerkotla, which alone accommodated 73.24 per cent of the state's Muslim population in 1981, is included in this size class. Malerkotla town remained the capital of the Muslim princely state of Malerkotla in the pre-1947 period, and it went virtually unaffected by population exchange between India and Pakistan at the time of the Partition of the Indian sub-continent in 1947. Despite widespread and intense communal disturbances in the sub-continent in the wake of the partition in 1947, the Muslims of this princely state suffered little loss of life or property and were left free to decide whether to stay here or to leave for Pakistan. Evidently, a massive majority of them continued staying here as before. This historic anomaly occurred as the Sikhs had resolved to safeguard the life and property of the people of Malerkotla state in

Table 1

PUNJAB : Religious Composition of Urban Population by Size Class of Urban Centres, 1981

Size Class	Christians	Hindus	Jains	Muslims	Sikhs	Others	Index of diversification
			(Per tent)				
I (Population : 100,000+)	0.70	65.39	0.43	0.24	33.14	0.11	.463
II (Population : 50,000 to 99,999)	0.66	66.87	0.59	6.81	25.03	0.04	.485
III (Population : 20,000 to 49,999)	0.62	64.86	0.66	0.42	33.34	0.09	.468
IV (Population : 10,000 to 19,999)	0.80	59.64	0.85	0.83	37.79	0.08	.501
II (Population : 5,000 to 9,999)	1.24	56.98	0.49	0.38	40.83	0.08	.505
VI (Population below 5,000)	0.43	53.28	0.09	0.34	45.80	0.06	.506
New towns*	0.45	51.21	0.44	0.36	47.48	0.06	.513
Total urban population	0.72	64.16	0.55	1.30	33.19	0.09	.478

SOURCE : Computed from *Census of India, 1981, Paper I of 1984, Household Population By Religion of Head of Household.*

*New towns are the places which did not have an urban status at the previous census of 1971.

recognition of the fact that one of its ex-rulers had protested against the decision of the then governor of Sirhind in December 1704 A.D. to brick alive the younger two sons of the tenth Guru of the Sikhs, Guru Gobind Singh.

Christians, Jains and 'Others' constituted 0.72 per cent, 0.55 per cent and 0.09 per cent respectively of the state's urban population in 1981. Any small variation in the respective numerical strength of these communities was enough to alter their proportion in various size categories of urban places. Their proportion showed little relationship with the size of urban places.

The population residing in class I and class II urban centres constituted 60.77 per cent of the total urban population of Punjab in 1981. The corresponding figures for the Hindus and the Sikhs were 62.27 per cent and 57.16 per cent. On the other hand, 6.78 per cent of the urban Hindus and 9.66 per cent of the urban Sikhs were recorded in class V and class VI urban centres which otherwise shared 7.71 per cent of the state's population.

Changes : 1971-81

During the decade 1971-81 the state's urban population increased by 44.51 per cent (Table 2). The Sikhs recorded the highest growth rate in urban population (55.76 per cent), followed by the Muslims (42.76 per cent), the Hindus (39.64 per cent), the Jains (28.83 per cent), and the Christians (24.51 per cent). Spurt in the growth rate of the Sikhs stemmed mainly from a gradual urbanward trickle of affluent section of farmers, rural-urban flow of artisans, particularly the Ramgarhias, and the continual settlement of a large number of retired persons, mainly officers, in the

Table 2

PUNJAB : **Growth of Urban Population by Religion, 1971-81**

	Total population	Christian	Hindus	Jains	Muslims	Sikhs	Other
				(Per cent)			
Per cent growth rate	44.51	24.51	39.64	28.83	42.76	55.76	147.62
Per cent growth rate (excluding population of 'new' towns of 1981)	37.96	21.01	34.59	24.06	40.98	45.66	140.49

SOURCE : Computed from (i) *Census of India, 1971, Punjab Part II C (i) and Part V-A., and* (ii) *Census of India 1981, Punjab, Paper I of 1984, Household Population by Religion of Head of Household.*

urban places. The phenomenal success of Green Revolution, and the attendant agricultural mechanization as well as the simultaneous weakening of the Jajmani system also helped in the release of a large number of agricultural workers from their traditional vocation. Many of these workers drifted to the State's urban places. Easy availability of cheap migrant agricultural labourers, mainly from Uttar Pradesh and Bihar, rendered further help in the townward flow of the Sikhs from the countryside.

The unprecedented high increase in the urban Sikh population has also been partly due to change in the mode of enumeration of religion at the time of 1981 census when the religion of head of household only was taken into consideration instead of religion of the each member of the household as was done at the time of 1971 census*. Due to the new method of recording data on religion, the household servants, most of whom happened to be Hindu migrant labourers, were counted as Sikhs wherever they were working for and living with the Sikhs households. Conversely the new method of enumeration somewhat depressed the proportion of the Hindus. Besides, relatively high growth rate of the Sikhs in the urban population of the state is partly connected with emergence of many 'new' towns which inherited relatively high share of the Sikhs. Similarly absorption of dozens of villages in various urban centres during the past decade has also contributed to pushing up the growth rate of the Sikhs in the urban areas. Other religious communities also recorded growth rates above their natural rates of growth which is attributable to migration from other states of the country.

Religious diversity not only adds variety to the look of an area, it also gives a new dimension to its political processes. Other things being equal, the greater the index of diversification the higher the potential for politico-religious rivalry and conflict. This is particularly true of areas/countries with widespread scarcity of resources.

Table 3

Punjab : Change in Religious Diversification of Urban Population 1971-81

Size class	Index of religious diversification		Change in index of diversification
	1971	1981	1971-81
Total	.464	.478	.014
Class I	.454	.463	.009
Class II	.397	.485	.088
Class III	.502	.468	—.034
Class IV	.481	.501	.020
Class V	.485	.505	.020
Class VI	.441	.506	.065
New towns	—	.513	—

SOURCE : Computed from (i) *Census of India, 1971, Punjab Part II C (i) and Part V-A, and* (ii) *Census of India, 1981, Punjab, Paper I of 1984, Household Population By Religion of Head of Household.*

* In case of institutional population, the religion of each member was recorded.

Religious diversification index* of the urban population of the state varies inversely with the size class of the urban centres. It is low in the bigger urban centres and high in smaller ones (Table 3). The highest value of index of diversification (.513) was recorded by the 'new' towns. The decline in the religious diversification with the increase in size of the urban places, is primarily connected with much larger share of the Hindu migrants to bigger urban places in state. All the size classes of urban centres have recorded increase in the index of religious diversification, except the class III from where the Muslim-majority town of Malerkotla has moved up to class II which consequently registered the highest increase in the index (Table 3).

Spatial Pattern

The Hindus constitute more than 50 per cent of the population in 103 of the 134 urban centres of the State, and this figure is more than 70 per cent in 44 of them. In another town (Ajnala) they are numerically the first ranking community (49.72 per cent). The numerical strength of the Hindus is nearly equal to that of the Sikhs in three other towns, namely Faridkot, Jagroan and Zira, where none of the religious communities is in absolute majority. In 20 urban centres their proportion is less than 40 per cent and in only two towns it is below 20 per cent.

Table 4

PUNJAB : Urban Centres with Absolute Majority of Various Religious Groups, 1981

Absolute majority of	Number of urban centres
Hindus	103
Sikhs	26
Muslims	1
None	4

SOURCE : Computed from : *Census of India 1981, Paper I of 1984, Household Population By Religion of Head of Household.*

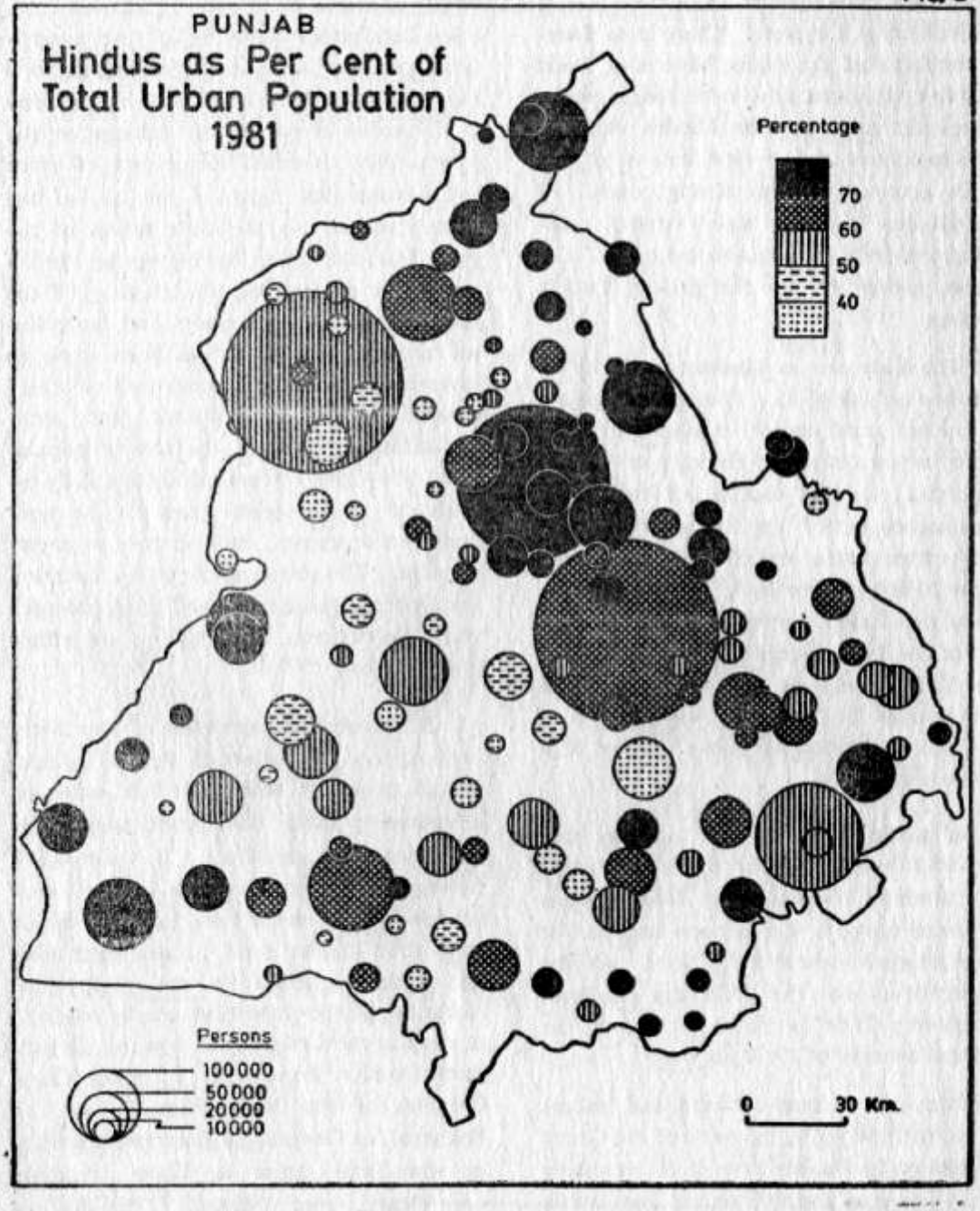
Fig. 2 reveals that the Hindus enjoy majority in all the cities (population 100,000+); in other big urban places; and in cantonment towns as well as important industrial and commercial centres. The small number of towns without absolute majority of the Hindus primarily include (i) new towns which have recently graduated from the rural status, and still carry large proportion of the Sikhs as was the case in their respective predecessor rural settlements; (ii) smaller and/or stagnant towns experiencing perceptible out-migration of the Hindus owing to their little economic attraction.

Being traditionally the leading business community of Punjab, 48 per cent of the Hindus in Punjab were urban by residence

* The index is derived using the formula : $I = \frac{\Sigma x^2}{(\Sigma x)^2}$

where X is the percentage of persons belonging to each religious group. When the whole population belongs to one religious group the index is 0, and when it is evenly distributed in six categories the index is .833. See Gibbs and Martin (1969, p. 150).

FIG. 2


PUNJAB
Hindus as Per Cent of
Total Urban Population
1981
Percentage
70
60
50
40
Persons
100000
50000
20000
10000
0
30 Km.

in 1981. This community has monopolized a very large part of the trade, commerce, and industry in the State. There is no denying the fact that the Sikhs have also made notable entry, especially in the recent years, in these activities, but the Hindus continue to be in control of the vital sinews of the State's economy. The strong control of the Hindus over the state's trade, commerce, and industry seems to be one of the factors giving rise to the present Punjab problem.

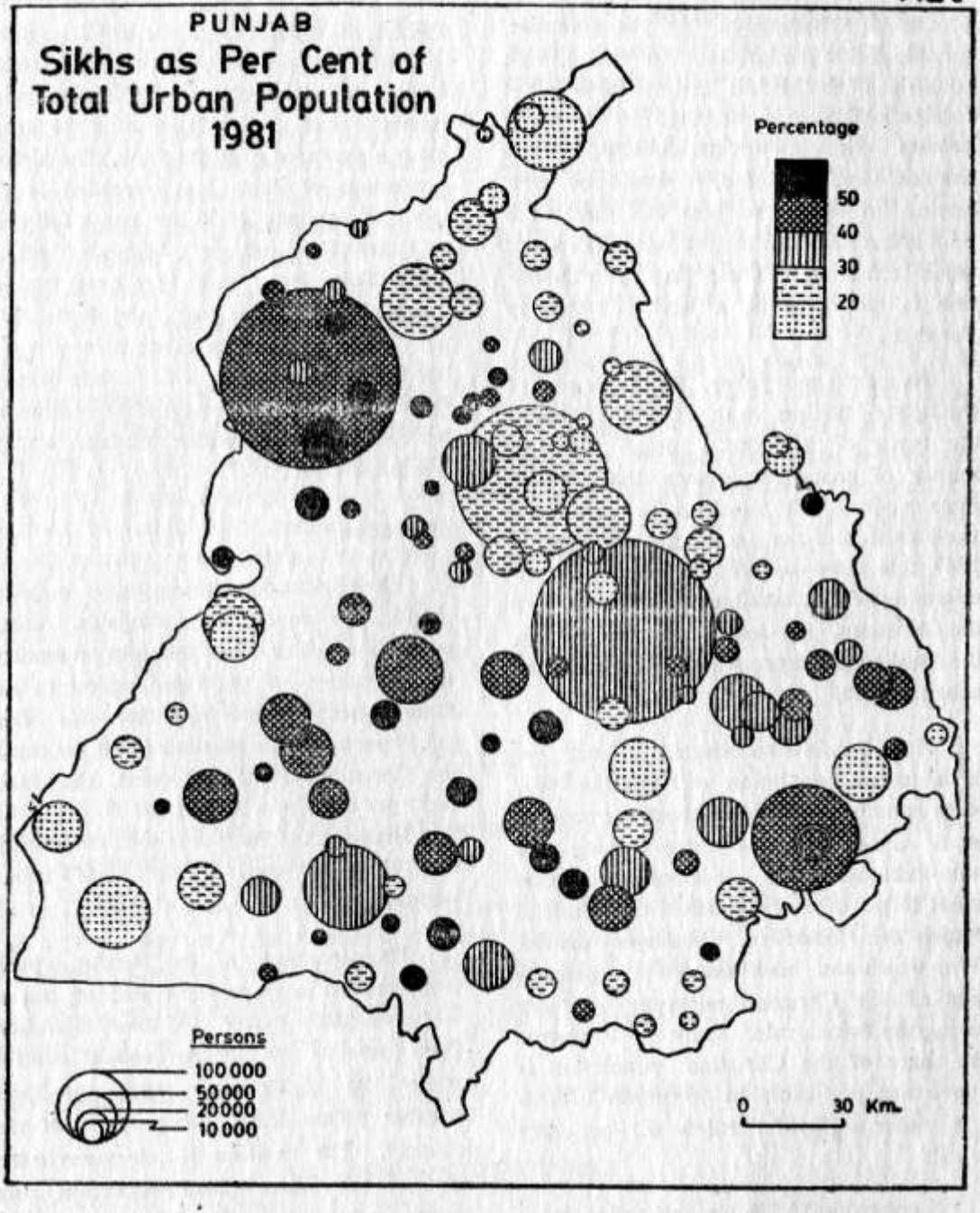
The Sikhs are in absolute majority in 26 towns only (Fig. 3). These urban places are either small and/or stagnant or have gained urban status only recently or are the important religious centres of the Sikhs. For instance, out of the 26 towns, 12 are 'new' urban centres and 16 have population below 10,000 persons each. Most of these towns are found scattered in the interior part of the Malwa region, and also in or close to the relatively less developed flood plain tract of the Beas river. The share of the Sikh population is above 70 per cent in five towns only.

It would be surprising to many that only 15.13 per cent of the Sikhs in Punjab were urban by residence as in 1981. This is the lowest figure in comparison to those for other religious groups in the State. At the country level also the Sikhs are the least urbanised ; 21.66 per cent as against the national average of 23.70 per cent.

It may be pointed out here that, except for its first few years, the gains of the Green Revolution in Punjab have been gradually less in favour of the agricultural population, which is the main vocation of the Sikh community in the state. The gains of the Green Revolution in Punjab have been largely cornered by those engaged in purchase and further handling of the agricultural produce and supply of agricultural inputs. Incidently an overwhelming majority of this group of population belongs to the Hindu fold. It would not be out of place to mention that most, if not all, of the studies related to the distribution of the gains from the Green Revolution in Punjab have been centred on the sharing of the gains between the cultivators and agricultural labourers, while little has been done to investigate about the distribution of these benefits between agricultural and non-agricultural sections of the state's population. Any such in-depth study is likely to bring out much bigger gains to the non-agricultural classes, and thereby to urban segment. The existence of such a situation usually tends to acquire conflictual potential where the division of labour is on ethnic lines (Weiner, 1978).

Relatively low proportion of the Sikhs in the urban population of Punjab is connected primarily with their late entry to urbanisation and their continuing over-dependence on agriculture. It is also worth noting in this connection that rate of conversion to Sikhism has been lower in urban areas than in the rural. Farm land have had special attraction for the rural Sikhs. Accordingly, they have been chiefly involved in rural-to-rural migrations toward agricultural frontier areas, may it be the Canal Colonies of the West Punjab (now in Pakistan), or Ganganagar tract in Rajasthan, or the Terai areas in Uttar Pradesh, or Hissar and Karnal Districts of Haryana, or the culturable waste lands along the various rivers in the State.

FIG. 3


PUNJAB
Sikhs as Per Cent of Total Urban Population 1981
Percentage
50
40
30
20
Persons
100 000
50 000
20 000
10 000
0
30 Km.

gained urban status as new towns only at the last census.

Both the Hindus and the Sikhs recorded relatively high growth rate during 1971-81. Whereas the high growth rate among the Hindus was attributable mainly to migration from other states in addition to some intra-state rural-urban migration, the Sikhs' rapid growth stemmed mainly from rural-to-urban migration from within Punjab. Other religious communities, except the Christians, also recorded significant influx to urban areas.

The religious diversification of urban places in the State is inverse to their population size. In other words, bigger urban places are more homogeneous in their religious composition. The state experienced modest increase in the religious diversification of its urban population during 1971-81.

The Hindus are in absolute majority in 103 of the 134 urban centres of the state whereas the Sikhs enjoy that position in only 26 towns. The Muslims are in absolute majority only in a solitary town of Malerkotla. In the remaining four towns, no community is in absolute majority. The urban centres with the Hindu majority include cities and other bigger urban centres, commercial and industrial nodes and the cantonment towns. On the other hand the Sikhs are in absolute majority in most of the new towns and many of the small and/or stagnant urban places. The Sikhs are the least urbanised among the various religious communities in the state. Their lag in urbanisation is indeed an economic handicap to them.

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ACKNOWLEDGEMENT

The author is grateful to Mr. P. D. Bhardwaj, Department of Geography, Punjabi University, Patiala for preparing all the maps.

POPULATION GEOGRAPHY Volume 8 Numbers 1 & 2 June-December, 1986

DENSITY OF RURAL POPULATION IN AN INDIAN SITUATION A CONTEMPORARY APPROACH

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The spatial patterns in the density of rural population in an area are a function of complex interplay of physical, economic, social and technological forces. But natural forces play more prominent role than others in this respect. This is especially true of the developing world where application of modern technologies are limited and economies are predominantly agricultural in nature. This paper establishes quantitatively the superiority of physical environment in effecting spatial patterns in the density of rural population in Punjab.

Density of rural population varies widely from area to area on the surface of the earth. Some parts of the world have a rural population density of less than 5 persons per square kilometre while some others are overcrowded to the tune of over 500 persons per square kilometre. Such a wide areal disparity in density of rural population is a function of the complex interplay of physical, economic, technological and social forces operating in different combinations and intensities in different areas. However, in most of the developing world where economies are predominantly agricultural in nature and technological developments are at low level, physical forces maintain their supremacy over others in this respect. The purpose of this paper is to measure the role of selected natural variables in determing the spatial patterns in the density of rural population in Punjab.

The Basic Premise

The density of rural population in predominantly agricultural economies of the world is largely a function of physical forces, such as climate, configuration of land, quality of soil and availability of potable water, provided. :

1. the rural population is agro-based
2. the processes of settling in the past have been gradual, uncontrolled and undisturbed.

Spatial variations in the density of rural population in the developing world where agricultural activities predominate are largely a legacy of the settling processes of the past. During earlier period of the history of settlement, modern technology was unknown and human activities were strongly affected by natural forces. This was especially true of agriculture which was almost an exclusive economic activity of those days. Under the then primitive and traditional modes of production, people preferred to settle first in those areas which were ecologically more conducive for agriculture. Such areas experienced sustained

inmigration and became more crowded. On the other hand, environmentally less favourable areas for agriculture received people only after sufficient pressure of population was built in more favourable areas. Due to the faster growth of population early settled areas became more crowded from where people started moving out to less favourable areas. Such a type of movement, however, is more true of the recent past and has been largely facilitated by the advances in technology. Extension of infrastructural facilities to environmentally less favourable areas, introduction of modern farm machinery and implements and increased use of chemical and biochemical inputs enable the exploitation of environmentally less conducive marginal or other lands and thus encouraged such migrations. (Finch and others, 1957, p. 513). However, restrictions posed by the political boundaries on free movement and limited availability of unoccupied land in less crowded areas were the major hindrances for rural-rural migration. Some ruralites also moved to towns and cities for better economic opportunities and amenities. But the magnitude of such a movement too has been small. Therefore, despite recent changes, the density of rural population in environmentally more congenial areas for agriculture, i.e. the areas where people settled first and multiplied faster, continued to be higher till today due to initial momentum.

In order to test the above stated conceptual frame work the following hypotheses have been proposed and subsequently tested by taking Punjab as a test area :

1. The higher is the mean annual rainfall in an area, the greater will be its density of rural population.
2. Quality of soil and density of rural population are directly related to each other.
3. The greater is the availability of potable water in any part on the earth, the higher will be its density of rural population.

The aforesaid hypotheses clearly imply that mean annual rainfall, quality of soil and availability of potable water have been considered relevant independent variables in explaining spatial variance in density of rural population in this study. These three explanatory variables displayed notable spatial variations in Punjab in the past and continue to be so until today. However, temperature and configuration of land—the other two significant physical forces, have not been taken into consideration for the purpose. It is because these two do not vary areally in the test area and thus play an insignificant role in explaining variance. In other areas these two elements may be relevant. Temperature conditions in various parts of Punjab are quite similar at any time of the year and the topography of the state is predominantly flat and featureless. Only 3 per cent of its area is hilly.

Before testing the proposed hypotheses a brief introduction of the test area will be useful.

The Test Area

Punjab, a northwestern state of India, has been selected for testing the above stated logical conceptual framework. Extending 29° 33′ to 32° 32′ N and 73° 54′ to 76° 56 E, it covers only 1.53 per cent (50,376 square kilometres) of India's area and contains 2.43 per cent (16,788, 915

persons in 1981) of the nation's population. Nearly 73 per cent of the people of Punjab dwell in villages. It has a rural population density of 245 persons per square kilometre as against the national average of 166 in 1981. The state is characterised with agglomerated type of rural settlements which have emerged in response to strong community organization among its people and for reasons of social security against local banditry in the past. Rural population of the state is overwhelmingly dependent, directly or indirectly on agriculture. The settling processes in the state have been gradual and uncontrolled. However, these were not undisturbed. Invasions from the northwest in the ancient times did disturb the settled people.

A tahsil has been taken as the basic unit of study in this paper. It is the smallest administrative unit. There are 45 such tahsils in the state. Most of the data for Punjab pertaining to population, agriculture, industries etc. are available in published form by tahsil. Data concerning rural population and rural area for calculating density of rural population were taken from the 'General Population Tables of Punjab, Part II, Census of India, 1981.' Other relevant data for the purpose were collected from the published and unpublished revenue records of the state. All these data were mapped (Figs. 1 to 4).

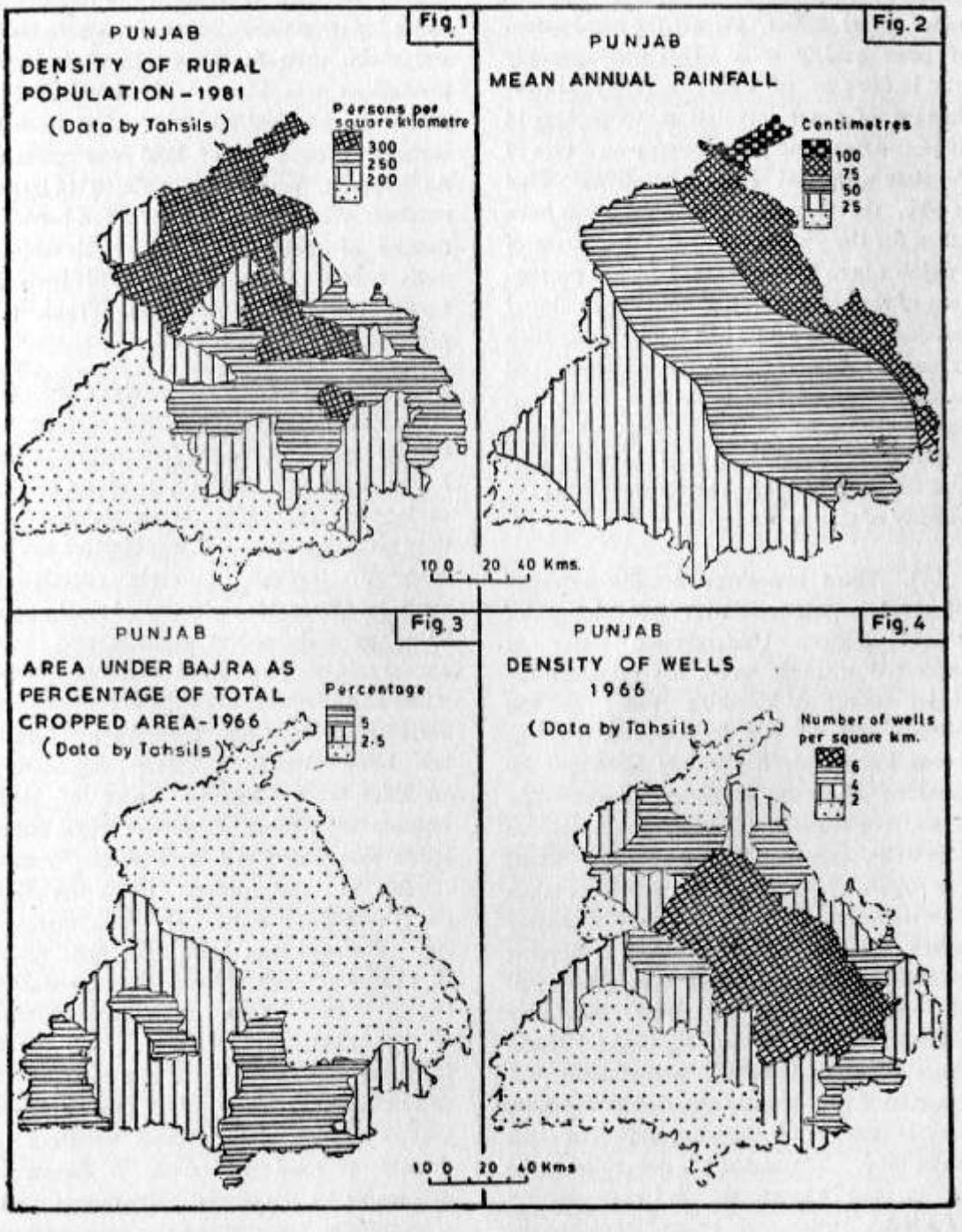
The following four variables have been taken for testing the proposed hypotheses :

1. Density of rural population (Rural Population-Rural Area, ratio)
2. Mean annual rainfall
3. Percentage area under pearl millet in 1966 (as a surrogate of soil quality)
4. Density of wells in 1966 (as a surrogate of the availability of potable water).

Hypotheses

1. First hypothesis relates to density of rural population to mean annual rainfall. All those areas which had higher rainfall in the past continued to receive it in higher amount even today. Such parts of the earth had more of water for growing crops. Thus, they were marked with higher agricultural production, relatively more stable agriculture and higher supporting capacity of land. Naturally, people preferred to settle in larger number in such areas in the past. The same spatial order in the density of rural population has been carried forward. A strong positive correlation ($r_{1\cdot2}=0.63$) between first and second variable clearly established the validity of this hypothesis. A strong direct relationship between both these variables was also provided by Robinson (Robinson, 1961, p. 215)

2. Relationship between density of rural population and quality of soil is the subject matter of the second hypothesis. Quality of soil in the present context refers to its worthiness for agricultural production under natural conditions. The quality of soil is reflected by its physical, chemical and biological properties. Data relating to these aspects of soil for various tahsils of the state are not available. Thus, percentage area under pearl millet (*bajra*) in 1966 has been taken as a surrogate of the same. Pearl millet is generally grown in lighter sandy soils where other crops fail to give reasonable return. Such soils are poorer in structure and are deficient in organic matter, nitrogen and other plant nutrients. It is


PUNJAB
Fig. 1
DENSITY OF RURAL POPULATION – 1981
(Data by Tahsils)
Persons per square kilometre
300
250
200
PUNJAB
Fig. 2
MEAN ANNUAL RAINFALL
Centimetres
100
75
50
25
10 0 20 40 Kms.
PUNJAB
Fig. 3
AREA UNDER BAJRA AS PERCENTAGE OF TOTAL CROPPED AREA – 1966
(Data by Tahsils)
Percentage
5
2.5
PUNJAB
Fig. 4
DENSITY OF WELLS 1966
(Data by Tahsils)
Number of wells per square km.
6
4
2
10 0 20 40 Kms

presumed that higher the percentage area under pearl millet, greater the areal extent of poor quality soils. This was especially true in the case of Punjab before the introduction of green revolution technology in 1966. After this year the crop structure of the state witnessed many alterations. That is why, the data for this variable has been taken for the year 1966. All those areas of Punjab where *bajra* occupied higher proportion of the cropland, had lower agricultural production and hence had lower supporting capacity. Consequently, such areas had lower density of rural population in the past and continue to be so till today. A strong negative correlation of 0.57 between first and the third variable clearly establishes the validity of this hypothesis.

3. Third hypothesis associates density of rural population with availability of potable water. Underground water, as exploited through wells, has remained the major source of drinking water in the historic past. Water from surface drainage being unhygienic has rarely been used for drinking after the invention of the wells. Thus, the number of wells (wells include tubewells, pumping sets and other wells) per square kilometre in 1966 has been taken as a surrogate of the availability of potable water. Before 1966, green revolution technology in Punjab was non-existent and the number of wells fairly accurately reflects the groundwater conditions. Settlement reports of Punjab written in the last quarter of 19th century also reflect the same spatial pattern in the distribution of wells as in 1966. The higher the density of wells in an area, the greater was the availability of potable water and hence higher was the density of rural population. Secondly, the density of wells is reflective of the use of water for irrigation. Naturally, where more water was used for irrigation, agricultural production was higher, risk involved in practising agriculture was lower and supporting capacity of land was greater. As a result, people accumulated in larger numbers over there. The correlation between density of rural population and density of wells comes out to be 0.49. This is significant at one per cent level. Thus, the proposed hypothesis is valid.

Simple correlation analysis so far attempted portrays only the degree of mutual linearity between different variables. But it does not establish the joint role of explanatory variables in explaining the dependent variable. This objective can be achieved through multiple correlation analysis. By taking density of rural population as a dependent variable and mean annual rainfall, percentage area under pearl millet and density of wells as independent variables, a multiple correlation analysis has been attempted. The explanatory variables were taken in order of their importance. When density of rural population was correlated with mean annual rainfall at the outset, the correlation ($R_{1\cdot 2}$) turned out to be 0.63. The introduction of percentage area under pearl millet in the next step raised the correlation ($R_{1\cdot 23}$) to 0.68 and the addition of the density of wells ($R_{1\cdot 234}$) raised it further to 0.73. It gives a coefficient of determination $(R_{1\cdot 234})^2$ of 0.53 which means that 53 per cent of the spatial variation in density of rural population in Punjab is explanable by the three independent variables jointly. Since all the three explanatory variables belong to physical environment

and they together account for more than one-half of the total variance, the thesis that physical forces largely determine spatial variation in the density of rural population is proved. Nearly 47 per cent of the variation in density of rural population remains unexplained. The unexplained variance is a function of, economic, human, technological and other physical factors some of which are known and others unknown. Changes in physical resource base brought by the advancement in technology during the recent past and associated redistribution of rural population, migration from rural areas to urban places, distance from urban centres and from the border with hostile Pakistan, attitude of the people towards land at the time of land occupance, systems of land tenure, recurrence of floods, soil erosion and historical realities] are the other variables which are likely to account for a significant part of the residual variance.

Simple and multiple correlation analysis establishes the individual and joint role of independent variables in explaining the spatial variations in the dependent variable for the whole region. But as spatial scientists, the geographers are more interested in spatial variations in their relationship. Our major concern is to identify areas where the relationship expressed by multiple correlation is closer to the generalization for the entire region and where it deviates substantially from it. Such an objective can be achieved by resorting to regression and residual analysis. The following model of linear multiple regression has been employed for the purpose :

$$Yc=a+b_1x_1+b_2x_2+b_3x_3$$

where Yc stands for predicted density of rural population, a is the intercept, x_1, x_2 and x_3 are the independent variables and b_1, b_2 and b_3 are the regression coefficients.

The regression equation for the study area comes out to be :

$$Yc=119.3+379\ x_1+2.87\ x_2+5.67\ x_3$$

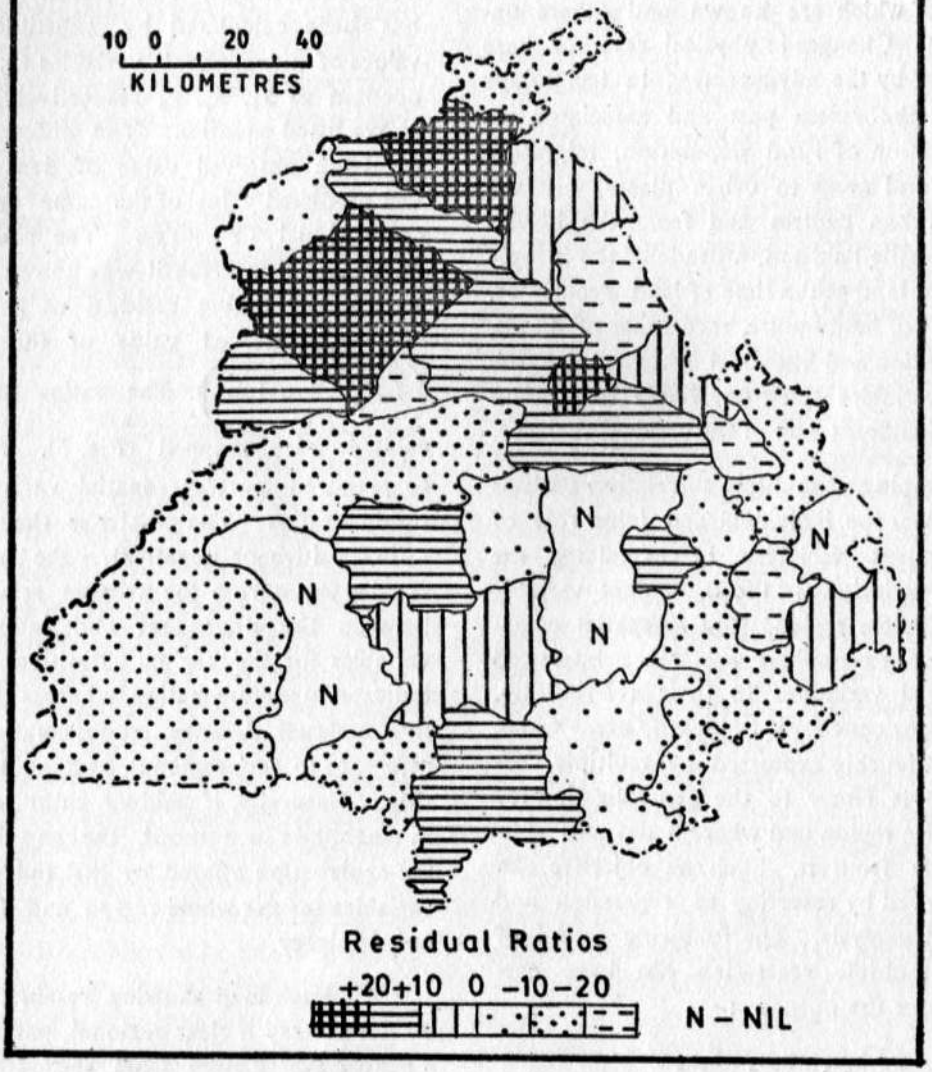
Density of rural population (Yc) for each enumeration unit (tahsil) of Punjab has been calculated by substituting the values of independent variables (2, 3 and 4 denoted as x_1, x_2, x_3 respectively) in the above listed equation. The difference between the observed value of density (Yo) and predicted value of the same (Yc) gives the residual (Yo—Yc). The residual so obtained for each tahsil was converted into a ratio by taking residual as percentage of the observed value of the density $\left(\frac{Yo-Yc}{Yo}\times 100\right)$. The ratios thus calculated were mapped (Fig. 5). The map so prepared portrays spatial variations in residual ratios. The greater is the residual ratio (positive or negative), the higher is the departure from the average relationship between the dependent and independent variables for the region. Positive residual indicates underestimation whereas the negative residual denotes overestimation with reference to the regional average relationship. Naturally, if residual ratio is larger in magnitude in a tahsil, the gap between the explanation offered by the independent variables for the whole region and for that unit is higher.

Although map showing residual ratios do not portray a clear regional pattern, yet a generalized picture from the same may be drawn. Most of northern Punjab (areas north of the river Satluj) is marked with

Fig. 5

PUNJAB

RESIDUALS FROM THE RELATIONSHIP BETWEEN DENSITY OF RURAL POPULATION–MEAN ANNUAL RAINFALL, QUALITY OF SOIL AND AVAILABILITY OF POTABLE WATER



positive residual ratios while a large part of southern Punjab either register zero or negative residual ratios. It indicates that northern areas of the state support more people than predicted while in the south the prediction either matches the actual or is less than it. This is despite the fact that north has experienced more of outmigration and the south inmigration. A larger number of big towns and cities which act as economic magnets for rural people, greater application of science and technology in farming and higher use of chemical and biochemical inputs and resultant higher agricultural productivity per hectare in northern Punjab than south largely explains this fact.

Spatial Variations

From an average of 245 persons per square kilometre, density of rural population in Punjab ranges from as low as 158 in Fazilka tahsil of Ferozepur district to as high as 391 persons in Baba Bakala tahsil of Amritsar district (Fig 1). Northeastern Punjab has the highest concentration of rural people where their density is over 250 persons per square kilometre. Relatively higher rainfall, better soils and an abundance of good quality sub-soil water closer to the surface largely explain this fact (Figs. 2, 3 and 4). Only those parts of northeastern Punjab, where floods were a serious menace and where high degree of dissection has been caused by the action of running water, display relatively lower density of rural population. By comparison the southwestern Punjab, where rainfall is the lowest (below 40 cms), soils are coarser and less fertile, and sub-soil water is deep and brackish, is marked with lower (below 250) density of rural population.

Conclusion

Only three variables taken from natural set up, i. e. rainfall, soil and water jointly explain over one-half (53 per cent) of the spatial variance in the density of rural population in Punjab. It clearly proves the supremacy of physical forces over others in determining spatial patterns in the density of rural population in an agricultural area of the developing world. However, the concept needs further testing in some other similar areas to establish its validness on a wider scale.

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ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to Professor G. S. Gosal and Dr. R. C. Chandna for their valuable comments on an earlier draft of this paper.

POPULATION GEOGRAHPY Volume 8 Numbers 1 & 2 June-December, 1986

CHANGING POPULATION CONCENTRATION IN INDIA : A MACRO-REGIONAL SCENARIO

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There are great spatial variations in the distribution of the fast growing population of India. About 70 per cent of the population (1981) is concentrated in only 40 per cent of the geographical area. Such a pattern of population concentration, with its spatio-temporal dimension, can be understood better if examined at the macro-regional level considering the physico-climatic and socio-economic diversity of the country. The present paper intends to do that. This is done by way of analysing district level data for India as a whole and also for its various macro-regions.

As per a recent estimate of the Washington based Population Reference Bureau, India's population is expected to exceed 800 million by mid-1987. The population of India, growing at an alarming rate, may leave China behind in near future. This overall increase in population shows striking variations from one region to another as well as within regions.

One of the significant aspects of studying this growth of population and its spatial variations relates to a comparison of the number of persons per unit area at two different time points of 1971 and 1981. This may help an understanding of the spatial aspects of the population increase by way of identifying the areas of rapid growth as well as those of meagre growth. An exceptionally fast increase in number of persons per unit area may be taken as a reflection of polarization process in the distribution of population.

Objectives and Data Base

The present attempt is meant to examine (i) the pattern of population concentration at the macro-regional level in temporal perspective, and (ii) the spatial variations in the population increase per unit area at district level aggregated into a macro-regional frame. The data for the census years of 1971 and 1981 have been analysed on the 1981 territorial set-up so as to render comparability. The mode of population concentration has been explained through drawing the Lorenz curves and computing the Ginni co-efficients for each macro-region as well as for the country as a whole. The population increase per unit area during 1971-81 at the district level is simply a difference between the absolute number of persons per km^2 in 1971 and 1981. In other words, it is an increase in the density of population during the said period.

The Macro-Regional Scenario

India has experienced sizeable increase in its population during 1971-81. However, in line with the nature of population distribution, this increase also shows some striking spatial variations. The uneven distribution of India's population is noted

from the fact that about 70 per cent of population resides in only about 40 per cent of total area (Fig.1 A). There are the areas which have densities as high as 31,779 persons per km² (Calcutta) and as low as 1 person per km² (Ladakh). Such spatial variations in population distribution are enormous.

A detailed picture is obtained by examining data at the macro-regional level. In the Northern Mountains, about 70 per cent of the population is confined to only 20 per cent of the geographical area (Fig. 1B). It gives a Ginni co-efficient of 0.6328. It represents the highest concentration ratio among all the macro-regions of the country. This pattern of population concentration experienced little change during 1971-81 as evidenced from only a very slight decrease in the Ginni co-efficient (0.6332 in 1971 and 0.6328 in 1981). It may, however, be held as indicative of a slight decline in concentration of population (Table 1). This apart, the region does not show any impressive increase in the number of persons per km² as compared to other regions of the country. An increase of only 30 persons or less is typical of its 67.13 per cent of districts covering 83.60 per cent of area (Table 2). In the districts of Ladakh and Lahul and Spiti, the density has not changed (Fig.2). However, a higher increase (upto 100 persons per km²) is met along the southern margins of the region where some fast growing urban centres act as 'gateway' between this region and the Great Plains. In general, the overall slow growth in the density may be ascribed to a continuous outmigration of people for livelihood, econmic backwardness and physico-climatic constraints.

Table 1

INDIA : Ginni Co-efficient of Population Concentration by Macro-Regions

Macro-region	Ginni Co-efficient		Variation
	1981	1971	
India	0.4273	0.4217	0.0056
1. Northern Mountains	0.6328	0 6332	—0.0004
2. Great Plains	0.3898	0.3902	—0.0004
3. Deccan Plateau	0.1775	0.1654	0.0121
4. Coastal Plains & Islands	0.3730	0.3625	0.0105

The case of Great Plains and Coastal Plains and Islands is different. About 70 per cent of population is distributed over 40 per cent of area in both of these regions (Fig. 1C and 1E). The Ginni co-efficient for these regions is worked out as 0.3898 and 0.3730, respectively, in 1981. Despite considerable similarity in the spatial pattern of the concentration, two regions differ in their concentration trend. The concentration ratio in the Great Plains shows a decrease by 0.0004 while that in the Coastal Plains & Islands shows an increase by +0.0105 during 1971-81. This represents a tendency towards more equitable dispersion of population in the former and a growing concentration in the latter. Of course, the variation, positive or negative, is quite small in both the cases (Table 1). This may be explained by the relative emphasis on agricultural development in the former and industrial develop-

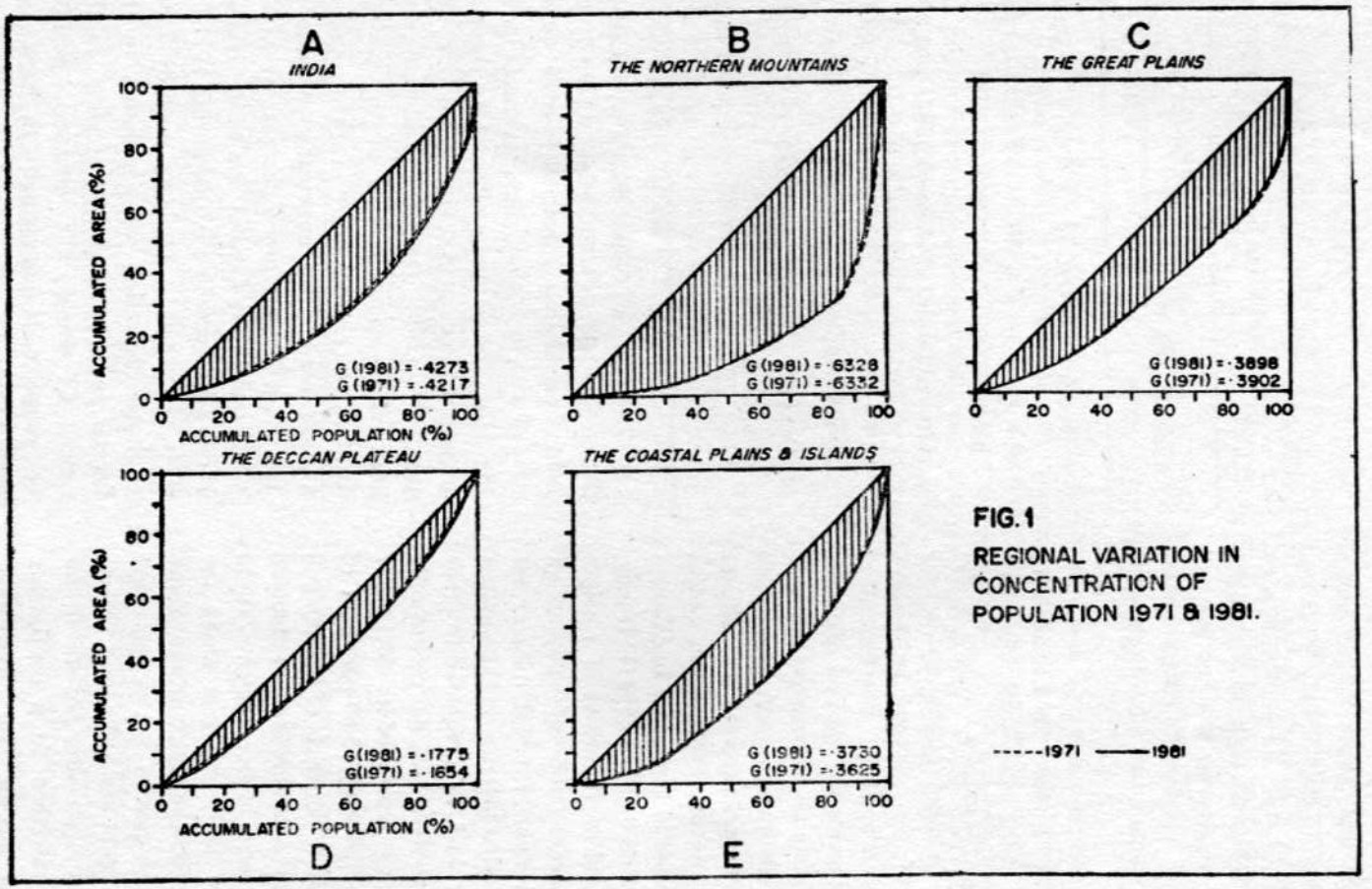

FIG. 1

REGIONAL VARIATION IN CONCENTRATION OF POPULATION 1971 & 1981.

-----1971 ——1981

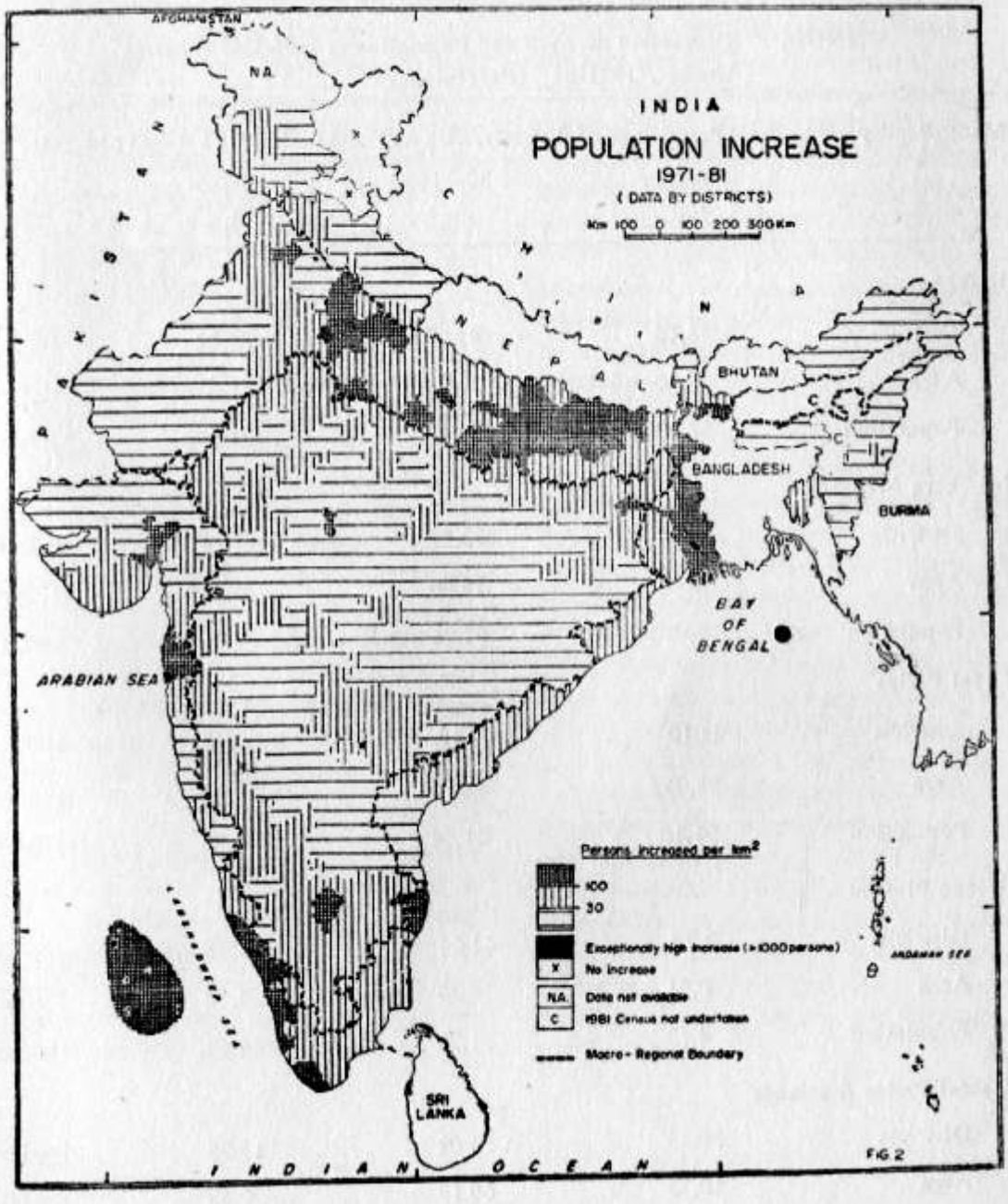
INDIA
POPULATION INCREASE
1971-81
(DATA BY DISTRICTS)
Km 100 0 100 200 300Km
AFGHANISTAN
NA
BHUTAN
BANGLADESH
BURMA
BAY OF BENGAL
ARABIAN SEA
SRI LANKA
INDIAN OCEAN
ANDAMAN SEA
Persons increased per km²
100
30
Exceptionally high increase (>1000 persons)
X No increase
NA Data not available
C 1981 Census not undertaken
Macro - Regional Boundary
FIG 2

Table 2

INDIA : Proportion of Area and Population in Different Increase Groups, 1971-81 (Percentage)

Macro-region	Percentage of districts, area and population with density increase of			
	Above 100	30—100	Below 30	Total
INDIA				
Districts	18.66	45.27	36.07	100.00
Area	8.30	39.98	51.72	100.00
Population	28.22	50.19	21.59	100.00
Northern Mountains				
Districts	—	32.87	67.13*	100.00
Area	—	16.40	83.60*	100.00
Population	—	61.98	38.02*	100.00
Great Plains				
Districts	43.10	49.15	7.75	100.00
Area	28.95	42.14	28.91	100.00
Population	54.10	41.54	4.36	100.00
Deccan Plateau				
Districts	2.77	44.45	52.78	100.00
Area	0.91	39.37	59.72	100.00
Population	4.12	51.29	44.59	100.00
Coastal Plains & Islands				
Districts	30.43	53.62	15.95	100.00
Area	10.33	60.19	29.48	100.00
Population	29.79	61.42	8.88	100.00

* Including the share of two districts, viz., Ladakh and Lahul and Spiti showing no population increase per unit area.

ment in the latter. The pattern of increase in the number of persons per km² in both these regions also conforms. A vast majority of the districts (92.25 per cent districts in the Great Plains and 84.05 per cent in the Coastal Plains & Islands) in these regions show an increase of above 30 persons. In some metropolitan cities, such as Madras (4,100), Bombay (3,770) and Hyderabad (2,664), this increase is enormous.

The disparity in population distribution is noted as the least in the Deccan Plateau (Fig. 1D). Nearly 70 per cent of the population is spread over 55 per cent of area. This gives a Ginni co-efficient of 0.1775. A relatively homogenous distribution of population is indicated. However, a tendency toward growing concentration can be discerned. The Ginni co-efficient has increased by 0.0121 during 1971-81. This is consequent upon localised industrialization which attracts population to a small number of large industrial urban centres.

A lower increase (below 30 persons per km²) is noted in about 53 per cent of the districts which cover about 60 per cent of the area and 45 per cent of the population of this macro-region (Table 2). In the remaining areas, the increase of 31 to 100 persons per km² is prominently observed. Despite the growing concentration of population in this region, the increase of population per unit area has not shown much variation from one district to another. Perhaps the spatial shift of the population within as well as beyond this macro-region in search of better prospects of sustenance has been the main reason responsible for this peculiarity. While the inside-shift causes polarization of population in the industrial/commercial nodes which are already highly populated, the outside-shift restricts the increase of population per unit area.

Conclusion

There are striking spatial variations in the pattern of population concentration in India. At the macro-regional level the Northern Mountainous region shows the most uneven distribution of population and a lower population increase per Km². The Great Plains and the Coastal Plains, & Islands show an akin typology characterised with a homogenous distribution and a higher population increase. The Deccan Plateau shows the most homogenous dispersion of population. The concentration of population has been observed to be declining in the Northern Mountains and the Great Plains while it is accentuating in the Coastal Plains & Islands and the Deccan Plateau. Evidently, the north and south India are showing opposite trends in population concentration.

POPULATION GEOGRAPHY Volume 8 Numbers 1 & 2 June—December, 1986

SLOW GROWING TOWNS IN INDIA

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Some variation in the growth rates of towns is more or less a universally accepted phenomenon. But why some towns are not even able to sustain the population added due to natural increase in an overall rapidly urbanising environment is the central theme of this paper. An analysis of slow growing towns in India, conducted at both macro-and micro-levels reveal that : (i) the slow growing towns are concentrated in a few states which are characterised by a high urbanisation level but a slow urban growth rate ; (ii) practically all of them have suffered net out-migration, barring those whose slow growth was due to reduction in the territorial jurisdiction, and (iii) their slow growth is attributed to a low administrative status, poor transport connectivity, inadequate developmental efforts, and fast growth of some town(s) in close proximity.

Inspite of a large mass of research on growth poles, growth centres and service centres as well as on other urban growth related issues, the question why certain towns register high growth rates while others lag behind, or even lose population, continues to be elusive.[1] The differences in the rate of urban growth have often been attributed to the existence or non-existence of a range of factors, economic, physical, social, historical, administrative, political and so on. At the same time, it has been felt that the dynamics of urban growth, or lack of it, is much too complex to be explained by the existence or non-existence of the classical factors of urban growth. It is even more difficult to establish a cause and effect relationship between urban growth and these factors in any definitive way. But the question which is more intriguing is : why some towns are growing slowly, or declining, in an overall rapidly urbanising environment ? This paper addresses itself to examining the phenomenon of slow growing towns in India.

There are three basic determinants of urban population growth, namely, natural increase, change in the area of the towns, and net migration. There can be a number of reasons for net outmigration, which is the most important determinant of slow population growth of towns. For example, diminishing economic vitality of the town or the region, comparatively faster growth of other towns in the same region, etc. Slow growth resulting from any one or a combination of these factors will be of a different type indicating different underlying processes at work and having specific normative implications. In this paper, attempt has been made to answer the following questions :

(i) Are slow growing towns spatially concentrated, indicating strong links with the regional growth patterns ?

1. The term 'town' refers to all urban centres, irrespective of their size.

(ii) Is slow growth a specific characteristic of certain size class of towns ?

(iii) How consistent is their growth pattern over the past two decades ?

(iv) What are the main reasons for their slow growth ?

(v) Is slow growth of towns merely a demographic phenomenon or is it associated with economic, infrastructural and socio-political changes ?

(vi) Is slow growth a manifestation of the inherent growth dynamics of the town itself or is it an outcome of the regional growth process ?

(vii) Do we need to worry about all types of slow growing towns ?

Methodology

All the towns which recorded growth rates lower than 20 per cent, or the estimated 'natural' growth rate of urban population, during 1971-81 have been identified as slow growing[2]. Some of the slow growing towns have experienced negative population growth and these have been termed declining towns. Fast growing towns were those which registered decadal growth rates of over 46.24 per cent, (the national average excluding Assam), and all the towns with growth rates between 20 per cent and 46.24 per cent were categorised as moderately growing towns.

This analysis of slow growing towns has been undertaken at two levels, viz., macro or all India level, and micro or town level. The macro-analysis is based on secondary data obtained from the census tables, while the micro-analysis also draws upon data collected from 35 sampled slow growing towns. The sample towns were selected by applying stratified random sampling technique. Field surveys were carried out, using a questionnaire, containing sections on (i) town economy, infrastructure, land, housing, etc., (ii) regional (district) economy, and (iii) views of the district and towns level administrators.

Macro—Perspective

During the decade 1971-81, 487 towns experienced slow growth which was lower than the estimated natural growth rate of urban population. The slow growing towns accounted for 20.1 per cent of the 2,420 towns which existed in both 1971 and 1981 censuses. Amongst all the slow growing towns, only 44 (9.0%) recorded negative population growth and were identified as declining towns. A large majority of slow growing towns (66.9%) had growth rates between 10.00 and 20 00 per cent. Presumably, most of the slow growing towns must have added some population to their 1971 base through natural increase but a part of it may have been lost through net

2. The natural growth rate (birth rate minus death rate) for urban population of the country was 19.24 per cent for 1971-81 period, which has been rounded up on the higher side of 20 per cent considering under estimation in the registering of births. *Sample Registration Bulletin*, Registrar General of India, New Delhi, December, 1984.

Table 1

INDIA : Distribution of Towns by Population Growth Rate, 1971-81

Category	Per cent decadal growth rate, 1971-81						
	Negative	Less than 10.00	10.00 20.00	20.00 46.24	46.25 75.00	75.00 100.00	More than 100.00
Fast growing (568)	—	—	—		408 (71.8)	76 (13.4)	84 (14.8)
Moderately growing (1365)	—	—	—	1365 (100.0)	—	—	—
Slow growing (487)	44 (9.0)	117 (24.0)	326 (66.9)		—	—	—

Note : Excluding Assam.
Source : Census of India, Statewise General Population Tables, 1981.

outmigration. On the other end of the scale were 568 towns which grew at rates higher than the average urban growth rate of the country. Also, as many as 1,365 towns managed to maintain a moderate growth rate during the period (Table 1). These growth patterns reveal the general trend of growth of towns in India, which is at least higher than the natural growth rate. Several of them have even recorded extraordinarily high growth rates of over 100 per cent.

However, the incident of differential rates of growth at the town level is not a unique feature of the 1971-81 census decade. Such a phenomenon characterised earlier censuses as well. During 1961-71, excluding Assam there were 616 slow growing towns with less than 20 per cent decadal growth rate, 1,011 were moderately growing, and 595 were fast growing which registered growth rates higher than 37.96 per cent or the national average urban growth rate for this decade.[3]

The regional distribution of slow growing towns suggests a tendency towards concentration. An overwhelmingly large number of such towns fall in the three states of Tamil Nadu, Maharashtra and Gujarat Tamil Nadu alone has over 23 per cent of the slow growing towns in India. The other two states with relatively higher levels of concentration of such towns are Maharashtra (14.99%) and Gujarat (11.50%). These three states together account for nearly half of the slow growing towns of the country (Table 2). These states also have the highest levels of urbanisation as well as below national average annual urban growth rates in the country.

3. Also see A.L. Narula (1981) : "Declining and slow growing urban settlements 1961-71 : identification," in Gopal Bhargawa ed. : *Urban Problems and Policy Perspectives*, Abhinav Publications, New Delhi, pp. 322-371.

Table 2

INDIA : Disbribution of Slow Growing Towns by Growth Rates, 1971—81

State/U. T./India	No. of towns by growth rates				Percentage of slow growing towns
	Negative	0—10.00	10.00—20.00	Total	
STATES					
Andhra Pradesh	4	6	18	28	5.75
Arunachal Pradesh	0	0	0	0	0.00
Bihar	2	1	10	13	2.67
Gujarat	3	4	49	56	11.50
Goa	0	0	1	1	0.21
Haryana	0	1	11	12	2.46
Himachal Pradesh	6	2	8	16	3.29
Jammu & Kashmir	2	0	8	10	2.05
Karnataka	1	8	29	38	7.80
Kerala	1	13	7	21	4.31
Madhya Pradesh	0	3	18	21	4.31
Maharashtra	9	17	47	73	14.99
Manipur	0	0	0	0	0.00
Meghalaya	0	0	0	0	0.00
Mizoram	0	0	0	0	0.00
Nagaland	0	1	0	1	0.21
Orissa	0	1	6	7	1.44
Punjab	3	7	13	23	4.72
Rajasthan	1	0	8	9	1 85
Sikkim	0	0	0	0	0.00
Tamil Nadu	8	42	64	114	23.41
Tripura	0	1	2	3	0.62
Uttar Pradesh	3	6	11	20	4.11
West Bengal	1	3	16	20	4.11
UNION TERRITORIES					
Andaman Nicobar	0	0	0	0	0.00
Chandigarh	0	0	0	0	0.00
Dadra & Nagar Haveli	0	0	0	0	0.00
Delhi	0	0	0	0	0 00
Daman & Diu	0	0	0	0	0.00
Lakshadweep	0	0	0	0	0 00
Pondicherry	0	1	0	1	0 21
India	44	117	326	487	100.00

Note : Excluding Assam.

Source : National Institute of Urban Affairs, *Interim Report on Dynamics of Urban Growth and Stagnation : A Study of Fast Growing and Slow Growing Towns*, New Delhi, p. 5.

Table 3

INDIA : Distribution of Slow Growing Towns by States' Levels of Urbanization, 1981 and Urban Population Growth Rates, 1971-81

Urban growth rate 1971-81	Levels of urbanizatian, 1981	
	Higher than the national average (23.7+)	Lower than the national average (23.7—)
Higher than the national average (46.24+)	40 (8.21)	121 (24.85)
Lower than the national average (46.24—)	286 (58.73)	40 (8.21)

Note : Excluding Assam

Source : National Institute of Urban Affairs, *Interim Report on Dynamics of Urban Growth and Stagnation : A Study of Fast Growing and Slow Growing Towns*, New Delhi, p.8.

If we analyse state level patterns of urbanisation we find that 58.73 per cent of all the slow growing towns are located in states and union territories with high levels of urbanisation and low rate of urban growth (Table 3). Slowing down of urban growth rate with higher levels of urbanisation appear to be correlated, indicating reaching of a plateau like state in the process of urbanisation in certain regions of the country.

Distribution of slow growing towns by districts shows that almost one-fourth of the slow growing towns are located in districts which experience an urban growth rate which was higher than the national average of 46.24 per cent. A considerably large proportion (67.97%) of such towns fall in moderate urban growth districts and only about 8 per cent of them are located in the districts which recorded lower than 20 per cent average urban growth rate during 1971-81 (Table 4). Such a locational pattern implies co-existence of fast growing as well as slow growing towns in the same district and it may not be far fetched to state that some towns may be growing at the cost of the others in the same micro-region.

Table 4

INDIA : Distribution of Slow Growing Towns by Urban Growth Rate of Districts of their Location, 1971-81

% decadal urban growth rate of the districts	No. of slow growing towns	% of slow growing towns
Negative	8	1.64
0-20.00	30	6.16
20.00-46.24	331	67.97
46.25-100	111	22.79
100+	7	1.44
Total	487	100 00

Note : Excluding Assam.

Source : Census of India, 1981.

Slow growing towns are not a special feature of any particular population size class. Distribution of slow growing towns is not drastically different from the relative position of all the towns of the country in the six-fold size class categorisation. A comparatively smaller percentage of slow growing towns falls in the class I and II categories. The largest percentage (38.60%) of slow growing towns is in the class IV category, which includes towns of 10,000 to 20,000 population (Table 5).

Table 5

INDIA : Percentage Distribution of Towns by Size Classes, 1981.

Size Classes	Population	All the towns	Slow growing towns
I	100,000 and more	6.60	1.85
II	50,000-100,000	8.18	5.13
III	20,000- 50.000	22.51	20.94
IV	10,000- 20,000	32.08	38.60
V	5,000- 10,000	22.96	22.38
VI	Less than 5,000	7.66	11.09
Total		100.00	100.00

Note : Excluding Assam

Source : National Institute of Urban Affairs, *Interim Report on Dynamics of Urban Growth and Stagnation : A Study on Fast Growing and Slow Growing Towns, New Delhi, p. 6.*

An examination of growth trends over the past two decades reveals that 215 or 44.15 per cent slow growing towns recorded growth rates of less than 20 per cent (estimated average natural growth rate of urban population) in both the decades. It will be quite appropriate to term them consistently slow growing towns which are unable to attain a better rate of growth. Some of the consistently slow growing towns improved their growth rate while others showed further decline in their growth rate in this period. On the other hand, an equally large percentage of slow growing towns had growth rate of more than 20 per cent in 1961-71, a few of these having growth rates even higher than the average urban growth for this decade. These declining towns may have experienced diminishing economic vitality which resulted in their inability to sustain the growth rate of the previous decade.

Table 6

INDIA : Growth Trends of Slow Growing Towns, 1961-71 and 1971-81.

Growth Trend	No. of slow growing towns	% of slow growing towns
Did not exist in 1961	51	10.47
Less than 20% growth rate in both the decades	215	44.15
Decline from more than 20% growth rate in 1961-71 to less than 20% growth rate in 1971-81	221	45.38
Total	487	100.00

Nate : Excluding Assam

Source : Census of India, Statewise General Population Tables, 1981.

Amongst the 487 slow growing towns only 19.30 per cent experienced increase in their area, 17.25 per cent decreased in area, and 62.83 per cent of them witnessed no change in their area during 1971-81 (Table 7). Therefore, decrease in the area can not explain the slow growth of most of the towns in India. In most likelihood, they may be net outmigrating towns. But the question whether they are outmigrating because of economic reasons or some other reasons will be investigated while analysing the results of the sample survey.

Table 7

INDIA : Change in the Area of Slow Growing Towns, 1971-81.

Type of change in area	No. of slow growing towns	% of slow growing towns
Increase	94	19.30
Decrease	84	17.25
No change	306	62.83
Data not available	3	0.62
Total	487	100.00

Note : Excluding Assam

Source : Census of India, Statewise General Population Tables, 1981.

Micro-Analysis

The micro-analysis of slow growth is based on data collected from 35 sampled towns (Table 8). The sampled slow growing towns include two cities with more than one lakh population each, one class II town, and 32 towns having less than 50,000 population in 1981.

At the state level, most of the 35 sample towns fall in regions with higher than the national average level of urbanisation and lower than the national average urban growth rate during 1971-81. No discernible pattern has been observed in the distribution of slow growing towns and urbanisation pattern of the districts they are located in. However, all the slow growing towns, except three, are located in districts which have average urban growth rate of over 20 per cent. This certainly suggests that these districts have moderately growing as well as fast growing towns alongwith the slow growing ones. Moreover, it is not uncommon to find the shadow effect of fast growing towns located in the vicinity but outside the district.

Three of the 35 sample towns recorded a negative growth, 14 grew at the rate of less than 10 per cent, while in the case of 18 the growth rate was between 10 and 20 per cent. Most of the towns show a declining trend in their growth rate between 1961-71 and 1971-81. Only 3 slow growing towns improved their growth rate while 26 recorded comparatively lower growth rate during 1971-81. The number of consistently slow growing towns was 13, with less than 20 per cent growth rate in both the decades. Six of the slow growing sample towns did not exist in 1961 (Table 8). These demographic trends indicate that the degree and pattern of growth differ in the case of each slow growing town.

As many as 22 slow growing towns were located in states with lower than the

TABLE 8

Population and Growth Rate of Slow Growing Sample Towns

Sample town	District	State	Population 1981	Percentage decadal growth rate	
				1961-71	1971-81
Bardhaman	Bardhman	West Bengal	167364	32.43	16.72
Rajapalayam	Ramnathapuram	Tamil Nadu	101640	22.12	16.89
Mayuram	Thanjavur	Tamil Nadu	67675	17.13	12.43
Attingal	Trivandrum	Kerala	29645	22 68	9.59
Coondapoor	Dakshin Kannad	Karnataka	28315	35.88	18.82
Irinjalakuda	Trichur	Kerala	26096	13.75	2.72
Wai	Satara	Maharashtra	24661	18.03	17.21
Badnagar	Ujjain	Madhya Pradesh	23925	16.77	19.29
Karkal	Dakshin Kannad	Karnataka	20713	19.68	11.40
Talode	Dhule	Maharashtra	20055	16.29	17.79
n					
Sholivghur	North Arcot	Tamil Nadu	17396	28.05	18.35
Bhanaad	Jamnagar	Gujarat	15451	14.30	14.38
Dhar$_a$mpur	Valsad	Gujarat	14116	22.27	18.05
Khap	Nagpur	Maharashtra	12722	26.68	5.31
Kamu^{t}hi	Ramnathapuram	Tamil Nadu	12614	15.38	9.14
Virajpet	Kodagu	Karnataka	11676	20.20	19.36
Madhapar	Kuchchh	Gujarat	11244	0.00	12.46
Deoli	Tonk	Rajasthan	11159	133.20	—9.27
Satara Road	Satara	Maharashtra	10867	32.51	5.17
Rajam	Srikakulam	Andhra Pradesh	10768	26.82	9.86
Aduthurai	Thanjavur	Tamil Nadu	10561	14.09	7.80
Sikka	Jamnagar	Gujarat	9650	50.83	—27.11
Betul Bazar	Betul	Madhya Pradesh	8914	21.21	9.17
Talbehat	Lalitpur	Uttar Pradesh	7681	0.00	2 17
Puvalur	Tiruchirapalli	Tamil Nadu	7355	13.89	5 27
					0
Kanapaka	Vizianagaram	Andhra Pradesh	6406	0.00	0.98
Vembadithalam	Salem	Tamil Nadu	5667	0.00	14. 0
Dhalavoipuram	Ramnathapuram	Tamil Nadu	5246	0.00	12.02
Malkapur	Kolhapur	Maharashtra	4845	14.15	6.88
Jakhalmandi	Hissar	Haryana	4609	24.86	17.61
Garhdiwala	Hoshiarpur	Punjab	4459	19.03	18.81
Kasauli	Solan	Himachal Pradesh	3872	8.41	3.06
Sangat	Bhatinda	Punjab	2859	22.86	—19.03
Chaitudih	Dhanbad	Bihar	2077	73 44	19.37
Chenani	Udhampur	Jammu & Kashmir	1301	0.00	3.13

Source : Census of India, 1981, *State Level General Population Tables.*

national average rate of natural increase of urban population. Growth rates of most of these towns was lower than the state average, except in the case of 4 towns where it was marginally higher than the state average. The fact that the largest number of slow growing sample towns are located in Tamil Nadu, which not only has low natural increase rate but is also a net outmigrating state indicates positive relationship between the regional rate of natural increase and incidence of slow growth of towns.[4]

Further, decrease in the urban area does not appear to be a strong factor of slow urban growth. Out of the 35 sample towns, only 5 show decrease in their area, 3 have actually enlarged their area, and 27 (including 6 with marginal variation in the area which can be attributed to computational error) have experienced no change in the municipal area. It can be implied, therefore, that most of these are outmigrating towns.

As mentioned earlier, outmigration results largely from lack of adequate employment absorption capacity, or a number of other factors which act as constraints on the town's economy in sustaining its population growth. Some of these factors are the towns' location, poor transportation, and low level of infrastructure. Often, it is difficult to clearly assertain a cause and effect relationship between a particular growth pattern and related events and processes. Therefore, we have resorted to situational analysis and have attempted to identify characteristics which are associated with slow growth of towns. It may lead to identification of the factors of slow growth eventually. Some of the major data based findings pertaining to the 35 sample towns can be summarised here :

(i) Only one district headquarter, 19 tahsil headquarters and 15 urban centres with no administrative status speak for the low level of administrative centrality assigned to these towns.

(ii) Out of 35 sample slow growing towns 21 have municipal local bodies and 14 have non-municipal local bodies.

(iii) Regarding road transport, the slow growing towns are not at a highly disadvantageous position, 27 of 35 towns being either on a national highway, state highway or on both.

(iv) These towns are not well connected by railways, with 20 of them having no railway station. Amongst the remaining 15 towns, 6 are on trunk railway lines, 5 on trunk and other railway lines, and 4 are on other types of railway lines[5].

(v) Industrial development appears to be of low level in the slow growing

4. According to one estimate, the net outmigration from Tamil Nadu was -0.41 per 1,000 persons. See K. Srinivasan (1983) : "India's Demographic trends : a reassessment of the 1981 Census" in P. Padmanabha, Leejay Cho and Robert D. Retherford (eds.) : *Recent Population Trends in Asia*, Proceedings of the Conference organised by the Registrar General of India, New Delhi, 1983, pp. 173-184.

5. A railway line directly connecting a town with any one or more of the four largest metropolitan cities of the country has been adopted as trunk railway line in this study.

towns, though there has been an increase in the number of industrial units as well as in industrial employment during 1971-81. Only 7 of these towns, have any large-medium industries, 4 have industrial estates, and 32 of them have small scale industries. The number of industrial units, and persons employed therein, of course varies in each of the cases. Secondly, none of these towns have experienced closure of industrial units, or decline in industrial employment which can explain their slow growth. On the country, 4 of the large-medium units located in towns have been established during the seventies and 29 urban centres have recorded an increase in the number of small scale industrial units during 1971-81, either from a no industry situation or from a comparatively smaller industrial base in 1971.

(vi) Similarly these towns exhibit an upward trend in trade and commercial activities during this period. Although, only 17 towns perform mandi functions (4 of these having more than one wholesale (*Mandi*) 20 out of 21 towns, for which time series data is available, have registered an increase in the number of shops between 1971 and 1981.

(vii) Concerning developmental factors, the slow growing towns clearly emerge as being poorly off. Only six of these towns have a Development Authority, Improvement Trust, and/or a Housing Board. Also, in only 12 out of 35 sample towns some development programme/scheme was implemented. Only one of these towns is coverd by the Integrated Development of small and Medium Towns programme. However, some of these urban centres are presumably excluded from being covered by any planned development efforts merely due to their small population size.

Further, interviews with the district collectors and officials of the local bodies concerned present an interesting set of explanations for the slow population growth of the sample towns. Two to six reasons appear to be applicable in most cases, therefore, it is not possible to assign relative weights to each of the factors of slow urban growth. However, the frequency of each factor operating in association with a number of other factors also indicates the order of their importance. The most important reason of slow growth that emerges from these responses is inadequate industrial development, closely followed by fast growth of a nearby town, shortage of water, adverse socio-political conditions, poor transport connection, inadequate trade and commerce and the effect of flood and being low lying areas. The other 4 reasons stated appear to be applicable in very few of the cases (Table 9).

Conclusions

This analysis of slow growing towns in India leads to several broad conclusions, which provide some answers to the questions raised in the first part of this paper. These can be summarised as follows :

(1) The regional distribution of slow growing towns shows concentration in a few states which recorded high level of urbanisation in 1981 but lower than the national average urban growth rate during 1971-81. The

TABLE 9

Reasons for Slow Growth of Sample Towns
(Computed from the interviews)

Reasons	No. of towns where it is applicable
1. Inadequate industrial development	21
2. Fast growth of near by towns	20
3. Shortage of water	17
4. Adverse socio-political conditions	15
5. Poor transport connections	13
6. Inadequate trade & commerce	11
7. Flood-affected/low lying	8
8. Closiug down of major institutions	4
9. Constraints on land for expansion	3
10. Predominantly tribal/refugee population	3
11. Division of the town	3
12. Constraints pertaining to defence	1

Note : Excluding Assam.

Source : National Institute of Urban Affairs, *Interim Report on Dynamics of Urban Growth and Stagnation : A Study of Fast Growing and Slow Growing Town:*, New Delhi, p.5.

phenomenon of slow growth of towns appears to be correlated with the regio nal pattern of urbanisation.

(2) Over 90 per cent of the slow growing towns are localised in fast or moderate urban growth districts indicating that some of the fast growing towns are growing at thg cost of others.

(3) Most of the slow growing towns had less than 50,000 population in 1981.

(4) Excluding the slow growing towns which did not exist in 1961, the growth trend over two decades reveals that half of them were consistently slow growing while the other half recorded a decline in their growth rate during 1971-81.

(5) Change in urban area can not explain slow growth of towns. It is inferred, therefore, that most of them are experiencing not outmigration.

(6) There are several reasons for outmigration, and hence for slow growth. In most cases a number of factors seem to be at work simultaneously, home easily identifiable while others invisible or indirectly operating. The relative importance of each factor varies from town to town. In General, while slow population growth of towns appears to be associated with the low level of administrative status, poor transport connectivity and inadequate planned developmental efforts are the other factors. There is no clear cut relation-

ship between the economy of these towns and their slow growth. Most of the sample towns, instead of showing diminishing economic vitality, are in fact recording an expansion in their industrial and commercial base. This leads us to consider two plausible explanations : (i) the rate of expansion of the economic base is slower than the rate of population growth, however low that may be, or (ii) the economy of these twons may have been in such a poor state for quite some time that the change in the seventies is just about managing to meet only a part of the already existing demand, let alone meet the additional requirements of moderate or fast urban growth.

(7) One of the additional major causes of slow urban growth, indicated by the government officials is comparativly faster growth of a nearby town implaying that slow growth is not only a result of the growth potential of the town itself but is also determined by the shape of development processes working in the micro-regional economy.

(8) Finally, if the slow growth is in response to readjustment of economic activites at places which have natural, historical, economic or political comparative advantages there is little that can be done to reverse the trend. But, if the slow growth is largely due to economic or infra-structural inadequacy of specific towns, some attempts can be made for the towns to grow at a faster rate if redistribution of urban growth is considered desirable in the regional context.

ACKNOWLEDGEMENT

This paper is based on research work done for an on going research project of the National Institute of Urban Affairs, entitled, *Dynamics of Urban Growth and Stagnation : A Study of Fast and Slow Growing Towns.* The author is thankful to all her colleagues associated with the project. In particular, she acknowledges the assistance of Dr. Indu Patnaik and Mr. M. Ahmed. She is grateful also to Dr. O.P. Mathur for his comments and suggestions on the first draft of this paper.

POPULATION GEOGRAPHY Volume 8 Numbers 1 & 2 June-December, 1986

IS INDIA OVERURBANISED ?

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This paper questions the frequently posed thesis of India being overurbanised. The diverse connotations of the term 'overurbanisation' have been taken into account and tested against the Indian reality. It is concluded that on a net balance of positive and negative effects emanating from urbanisation, there is no reason to believe that India is urbanised to an extravagant degree. Any continued adherence to the 'overurbanisation' thesis is likely to distort our perceptions about the vital role which Indian urbanisation is playing in economic growth.

The most impressive feature of India's urbanisation is its massive size : about 160 million (158 million excluding Assam where the last census could not be held) in 1981. This virtually equals the urban population of the United States (161 million) and is only a trifle smaller than that of the Soviet Union (169 million). China, however, has a considerably larger urban population of about 209 million (*World Development Report*, 1983, Table 1). India's urban population is the fourth largest in the world, and is bigger than the *total* population of all the countries, barring the three mentioned above.

In terms of its share in the total population, India's urban population is 23.31 per cent (23.70 per cent excluding Assam), as recorded by the 1981 census. This figure is somewhat higher than the 21 per cent in China but only one-third of 70 per cent in the United States. A majority of the developing countries, including Pakistan (29 per cent), Egypt (44 per cent), and Brazil (68 per cent), are more urbanised than India. To be precise, out of the 94 countries classified as low and middle income economies, 60 excel India in terms of the percentage of urban population (*World Development Report*, 1983, Table 2).

Rapid pace is another salient feature of India's urbanisation. The decennial growth rate of India's urban population during 1971-81 was 46.39 per cent. This yields an annual growth rate of 3.88 per cent during the decade. If the estimated figures for Assam are excluded, the decennial urban growth works out to 46.24 per cent and the annual growth rate to 3.87 per cent.

Although India has a long tradition of urbanisation, it entered the twentieth century as only one-tenth urban (Table 1). Some deurbanisation took place under the initial impact of colonial rule which caused a decline of several traditional industrial towns. The proportion of urban population in India decreased during the mid-eighteenth to mid-nineteenth century (Petrov, 1985, p. 22). The urbanisation process regained its pace in the later phase of British rule but it was only after Independence in 1947 that urbanisation began to

acquire a gigantic dimension. The country's total population doubled while its urban population tripled during 1947-81. During 1901-81, India's population grew by 2.9 times, its rural population by 2.5 times, and urban population by no less than 6.1 times, from 26 million to 160 million. Evidently this was the outcome of massive rural-urban migration, in addition to the contributions made by the natural increase and reclassification of settlements. Over one-third of India's urban population was recorded as migrant at the 1981 census.

Table 1

INDIA : Urban Population, 1901 - 81

India	Number of towns*	Urban population	Percentage of urban population in total	Decadal urban growth rate in percentage
1901	1917	25851873	10.84	—
1911	1909	25941633	10.29	0.35
1921	2047	28086167	11.17	8.27
1931	2219	33455989	11.99	19.12
1941	2424	44153297	13.85	31.97
1951	3060	65443709	17.29	41.43
1961	2700	78936603	17.97	26.41
1971	3126	109113977	19.90	38.23
1981**	4029	159727357	23.31	46.39

Source : Census of India, 1981

*Components of various urban agglomerations have been treated as separate units. Otherwise, the number of towns/urban agglomerations in India (excluding Assam) was 3301 in 1981. Among these 272 were urban agglomerations.

**Including 80 towns and their projected population in Assam.

Overurbanisation Thesis

The massive size of India's urban population, coupled with impressive regular increments to it, has put a severe strain on urban resources. This manifests itself in a variety of aggravating problems related to housing, transport, water supply, sanitation, power and employment. Such a situation has given rise to a belief that India is overurbanised (Davis and Golden, 1954; Unesco Research Centre, 1956; Lipton, 1977). This proposition is generally qualified by the following observations :

i) At a comparable level of urbanisation, India is much less industrialised than today's developed countries were in the past. Also the process of tertiarisation of its economy has outpaced its secondarisation. As a result, urban unemployment is pervasive and income levels low.

ii) Indian cities are growing faster than the capacity of the economy to support them. This escalates the cost of urbanisation for the nation. It is further argued that cities are not in a position to generate enough resources for their social investment and thereby get subsidised by any surplus generated in the rural areas. This leads to less than optimal allocation of resources between the rural and urban sectors. The pace of economic growth suffers in the process.

iii) The existing urban infrastructure and services, including housing, water supply, power, transport, health and education, are not in a position to cope up with the large

and fast expanding size of the urban population. Problems relating to pollution are intensifying. The quality of urban life is deteriorating towards a crisis situation.

Overurbanisation has, thus, been referred to variously as :

i) the mismatch between the level of industrialisation and urbanisation;

ii) the high cost of urbanisation impinging upon the rate of economic growth; and

ii) the deterioration in the state of urban infrastructure and services.

The present paper intends to have a critical look at this thesis.

Discussion

A study of the Indian situation does not support the overurbanisation thesis. We need not emphasise the hazards involved in comparing the present stage of industrialisation/urbanisation in the developing countries with that of the developed countries at a comparable stage in the nineteenth century. The technological context of industry (in terms of its relative labour-intensiveness) as also of the social framework of urbanisation (with regard to the proliferation of the service sector) has undergone a sea change the world over during this period. We would do better to compare the picture as it emerges in India with what has happened in other developing countries.

The information contained in the *World Development Reports* shows that there is nothing peculiar about the Indian urbanisation experience. If data are examined for 94 low and middle income economies or countries (out of which two did not report the necessary information), representing the developing realm, it is found that only eight countries are at a higher level of industrialisation and lower level of urbanisation than India. In 50 countries, the levels of both industrialisation and urbanisation are higher, and in another 23 both are lower than in India. Further, ten countries are at a higher level of urbanisation but lower level of industrialisation. This speaks of a high degree of conformity of the Indian pattern with that of other developing countries (Table 2).

Table 2

India and the Development Countries : Cross Tabulation of Levels of Urbanisation and Industrialisation, 1981

Group of countries	Number	Percentage
Higher in both urbanisation and industrialisation than India	50	55
Lower in both urbanisation and industrialisation than India	23	25
Higher in urbanisation but lower in industrialisation than India	10	11
Lower in urbanisation but higher in industrialisation than India	8	9
Total (excluding India)	91	100

Source : *World Development Reports*, 1983 and 1985

Note : i. Data for 94 countries, classified as low and middle income economies, were taken into account.

ii. Data not available for two countries.

iii. India : percentage of urban population, 24; percentage of industrial workers, 13.

The same observation is supported by data on urbanisation as related to diversification of the economy, the latter being measured in terms of percentage of non-agricultural workers (Table 3).

Table 3

India and the Developing Countries : Cross Tabulation of Level of Urbanisation and Deversification of Economy, 1981

Group of countries	Number	Percent
Higher in both urbanisation and economic diversification than India	52	57
Lower in both urbanisation and economic diversification than India	22	24
Higher in urbanisation but lower in economic diversification than India	8	9
Lower in urbanisation but higher in economic diversification than India	9	10
Total (excuding India)	91	100

Source : *World Development Reports*, 1983 and 1985

Note : i. Data for 94 countries, classified as low and middle income economies, were taken into account.

ii. Data not available for two countries.

iii. Diversification of economy was referred to the percentage of non-agricultural workers.

iv. India : percentage of urban population, 24; percentage of non-agricultural workers, 29.

Likewise, both urbanisation level and per capita gross national product are higher in 52 countries than in India; in another ten both are lower (Table 4). Only 14 countries are at a lower level of urbanisation but higher in per capita gross national product. Three countries recorded a lower per capita gross national product despite a higher level of urbanisation.

Table 4

India and the Developing Countries : Cross Tabulation of the Level of Urbanisation and Per Capita Gross National Product. 1981

Group of countries	Number	Percent
Higher in both urbanisation and per capita GNP than India	52	66
Lower in both urbanisation and per capita GNP than India	10	12
Higher in urbanisation but lower in per capita GNP than India	3	4
Lower in urbanisation but higher in per capita GNP than India	15	18

Source : *World Bank Reports*, 1983 and 1985

Note : i) Data for 94 countries, classified as low and middle income economies, were taken into account.

ii) Data not available for 13 countries.

iii) India : percentage of urban population, 24; per capita GNP, U.S. $ 260.

Thus, seen in the light of industrialisation, diversification of economy, and level of income, Indian urbanisation is in line with the conditions prevailing in about 80 per cent of the developing countries. Such a universal experience could not be deemed as negative. Its very pervasiveness is not without some inbuilt rationale.

The contention that rapid urbanisation in India is causing a distortion in the allocation of resources between urban and rural areas, and thereby negatively affecting the pace of economic development is also not substantiated by the facts. The available data show that the real per capita product in the country increased by about 50 per cent during 1951-81. Meanwhile the share of the primary sector in the gross domestic product declined from around 60 per cent in 1951 to less than 40 per cent in 1981. This was accompanied by a rise in the share of the secondary and tertiary sectors. The employment structure, however, remained practically the same. This means that the productivity of the manufacturing and service sectors (representing the urban segment) has risen much higher than that of the primary sector (representing the rural segment). A strong positive relationship is observed between the levels of urbanisation and economic development within the states in India (Mohan, 1985, p. 640). The Indian urbanisation has promoted rather than hindered the process of economic development.

It is beyond dispute, however, that the prevailing urbanisation rate is exerting an increasing pressure on the avilable urban infrastructure. About one-fifth of India's urban population lives in slums; one half of the households reside in dwellings measuring less than 20 square metres each ; not even one-third of India's urban population has direct access to sanitation, and nearly one-third does not get safe water (National Institute of Urban Affairs, 1986). Also, the available water is far too inadequate, making water supply a problem common to all towns and cities. The suspended particles in the environment of most cities, and more particularly of Calcutta, Delhi, Kanpur, Nagpur and Bombay, far exceed the maximum acceptable limits. The situation is worsening with the passage of time due to the financial and managerial incapacity of the civic bodies to augment urban infrastructure and services commensurate with the growing size and rising needs of the towns and cities. But here again one has to see the net balance of positive or negative external effects arising from a given urbanisation level and if benefits are greater than costs to the society as a whole there is nothing to suggest overurbanisation (Graves and Sexton, 1979). The net balance is certainly in plus.

Conclusions

i) India is certainly not overurbanised when tested on economic parameters. Here our conclusion is in line with the thinking of Sovani (1964), Bose (1980) and Mills and Becker (1986). The National Commission on Urbanisation rightly points out in its *Interim Report* (1987) that urbanisation is a necessary concomitant of the development path we have chosen and urban India has a very positive role to play in restructuring the Indian economy over the next few decades. The process of economic growth will slow down if the pace of urbanisation is impeded.

ii) India, however, seems to be overurbanised in the context of the deteriorating level of urban infrastructure and services. Here one has to remember that many of the apparent symptoms of urban inefficiency, in particular congestion and pollution, are due to inappropriate policies within the city rather than the result of inefficient city size or inefficiently high rate of urbanisation (Linn, 1982).

(iii) Since economic growth must get a priority in any scheme of things in India, there is no justification for stemming the urbanisation process. Nor can urban infrastructure be allowed to remain under an increasing strain of demographic pressure. Therefore, neccessary financial and management resources have to be made available for redeeming the situation.

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ACKNOWLEDGEMENT

The author is thankful to the National Institute of Urban Affairs, New Delhi for providing the necessary facilities in preparing this paper.

POPULATION GEOGRAHPY Volume 8 Numbers 1 & 2 June-December, 1986

CHRISTIANITY IN INDIA : A TEMPORAL-SPATIAL VIEW

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The paper attempts to analyse the spatial diffusion of Christianity in India from the earliest times to the present. When did Christianity arrive in India ? Where was it introduced first ? How did it get diffused over the country ? What was the response of different social groups to Christianity ? In which manner did the establishment of colonial rule in the country contribute to the growth of Christianity ? Did Christianity suffer from any setback after the termination of colonial rule ? These are some of the questions which this study looks into. The investigations reveal that Chirstianity reached India in the first century of the Christian era. Initially Christianity got introduced in those areas which had trade links with the Mediterranean world. It succeeded in striking roots particularly in those areas where sizable Jewish population was already present. Its real expansion, however, began only after the arrival of the Portuguese on the scene. Subsequently it made notable progress during the British rule. Its growth continued almost unabated even after the termination of the British rule. However, despite its presence in the country for such a long period, Christianity could cover only a small fraction of India's population, that too largely from its lowest strata comprising the low castes and the tribals. The distribution of Christians in the country is highly uneven and is associated with the vast historic, socio-economic and political diversity of various parts of the country.

Census data for the year 1981 reveal that out of 665,287,849 persons living in India (excluding Assam for which no census were conducted in 1981), 82.4 per cent are Hindus, 11.35 per cent Muslims, 2.43 per cent Christians, 1.96 per cent Sikhs, 0.71 per cent Buddhists, 0 48 per cent Jains and 0.42 per cent as belonging to other religions and persuasions.

Christians with a population of 16,165,447 persons form the second largest religious minority in India after Muslims. Although the size of Christian population in India is as large as the total population of Australia or German Democratic Republic yet they constitute only 2.43 per cent of the total population of the country. In some parts of the country, however, their proportion in the total population is as high as in any part of Europe.

Christians in India, like the rest of the population, are overwhelmingly rural Only about 29.1 per cent live in urban areas. This is far below the level one would expect of a community which is generally considered to be associated with westernisation and modernisation.

Christian population in India is distributed in a highly uneven manner. They are

concentrated in a few clusters, located mostly in the peripheral areas of the country. In the rest of the country, particularly the heartland, their distribution is scanty. The use of the word peripheral in this context is significant not only in the spatial sense but also in the social sense. Christianity has appealed to only those groups which are placed at the periphery of Hinduism, such as, the low castes and the tribals. The higher castes generally remained aloof from Christianity. The variations in the distribution of Christians in India are confined not only to their numbers alone, their share in the total population also varies from just negligible to as high as 95.4 per cent. These variations are not without reasons, understanding of which is the prime concern of this paper.

The present distributional pattern of Christian population in India is the result of a very long process involving penetration of external influences, varied internal response to these influences, and certain historical events or developments within the country as well as outside the country. Political patronage to the faith or persecution of its adherents at one time or the other in some pockets has also left its own imprint on it. As a prerequisite to a proper understanding of their present distributional pattern, it is deemed necessary to know how Christianity reached India ? When and where was it introduced in the beginning ? How did it penetrate and get diffused in a well stratified, caste-ridden, traditional society ? How did the various socio-economic and cultural groups respond to Christian influences ? How did Christianity reach almost every corner of the country from a few locations ? What role did the foreign men and money play in its growth ? To what extent did the establishment of colonial rule in India contribute to the growth of Christianity in the country ? Did Christianity suffer from any serious setback after the termination of British colonial rule in India ? How did the partition of the country in 1947 affect their distributional pattern ? How far have the programmes initiated by the government after Independence for the socio-economic upliftment of the depressed castes and the tribals have succeeded in arresting further conversion to Christianity ? The paper attempts to answer the above questions to the extent it was possible from the census data and other documented material.

The Initiation

It is generally accepted that Christianity was brought to India by St. Thomas, one of the twelve immediate disciples of Jesus Christ, around the middle of the first century of Christian era. It is claimed that he preached Christianity on the Malabar coast, Coromandel coast, and in and around the capital city of Taxila in northwestern India (Moraes, 1964, pp. 13-45). However, his efforts met with success only on the Malabar coast where socio-political conditions were favourable to the faith, particularly the presence of a sizable Jewish population at a number of places, preaching of Christianity among whom (because of their close cultural and linguistic affinity) was far easier than among any other community. Some people also believe that almost around the same time another Apostle, St. Bartholomew, preached Christianity at Kalyan, an important port of that time, in the vicinity of Bombay (Moraes, 1964, pp. 43-45). An ancient

Jewish settlement, Bene-Isreal at Kalyan is considered to be the main source of attraction for the Apostle. The early converts to Christianity were drawn from the Jewish community as well as from the higher castes of Hindus-including Brahmins. By the time of St. Thomas's death, a number of Christian settlements had emerged on the Malabar coast. Since the Majority of the early converts were drawn from the Jewish community, and the seven churches believed to have been constructed by St. Thomas were also located, with the exception of one at Chayal, in or near the Jewish colonies at Caranganore, Parur, Palayur, Quilon, Muttom and Chenot, most of the Christian settlements emerged in or near these settlements (Cheriyan, 1973, pp. 31-41).

The areas where efforts to introduce Christianity are believed to have been made were selected by the Apostles not without reasons. All these places had well established trade links with the Mediterranean world, the home of Christianity. Because of these links it was far more convenient for the Apostles to travel to these places. Presence of Jewish population at some of these places must have served as an additional attraction because one of the main objectives of the dispersal of Apostles after the death of Jesus Christ was to convey his message to the fellow Jews settled in different parts of the world.

Consolidation during the Early Centuries

Although Christianity was successfully introduced on the Indian soil by St. Thomas, the credit for its consolidation on the Malabar coast must go to the Syrian Christians whose first batch came to the area in 345 A.D. After the death of St. Thomas, Christianity in India was left without a leader and was on decline. The inmigration of Syrians brought a new vigour to Christianity on the Malabar coast (Thomas, 1954, P. 33) . Through these migrants the Malabar Church came in contact with the Persian church which at that time was the most important Church of the East. Although it is not certain whether the relations between the two Churches were hierarchical or independent, yet one thing is certain that for its requirement of clergy and bishop, the Malabar Church did depend upon the Persian Church (Cheriyan, 1973, pp, 99-110). The migrants not only activated the Malabar Church but also brought a socio-economic transformation in the life of the local Christians (Thomas, 1954, p. 33). Under the able guidance of these migrants, who were very capable businessmen and had trade connections outside the country, the local Christians also took to business and agriculture, and soon established their hold on the inland trade of Malabar. It did not take long for the two communities to merge into a single community thenceforth known as Syrians. For a number of generations the community maintained cordial relations with the ruling kings of Malabar and succeeded in getting many favours from them. With their almost complete monopoly over the inland as well as sea borne trade of Malabar, the power and prestige of the Christian community got enhanced giving them a high social status in the caste hierarchy of the region. But their high social status soon became a big hurdle in the growth of Christianity as in order to preserve their high social status and the privileges associated with it, conversion to Christianity was made highly restricted. Only those belonging to higher castes were

allowed entry into the faith (Moraes, 1964, pp, 293-294).

Stagnation during the Middle Ages

Christian community flourished on the Malabar so long as it retained its hold on the sea borne trade of Malabar. With the rise of Arab Muslims as the major maritime force during the ninth century, the sea borne trade of Malabar slipped out of the hands of the Christians. The centre of business activity on the Malabar also shifted from Caranganore (the Christian stronghold) to Calicut (the Muslim stronghold) in the north (Thomas, 1954, p. 38). Consequently the power and prestige of the Christian Community declined. Some other factors like the isolation of the Christian community from the Christian world in the west due to Arab blockade over land and sea routes, weakening of the Persian Church after the fall of the Sassanid Empire to rising Muslim power, and division of Malabar into three independent kingdoms having new political alliances, further added to the misfortunes of the community (Thomas, 1954, p 38). Thus, when at the close of the fifteenth century the Portuguese came to India, Christianity was passing through a state of stagnation and was confined to the Malabar coast only.

Revival after the coming of the Portuguese

The establishment of Portuguese hold on Goa in 1510 not only marked the beginning of the colonial rule in India but also a very promising phase in the history of Christianity. From that time to the middle of the twentieth century the growth of Christianity in India remained closely associated with the colonial rule in the country. The places where the Europeans established their early trading centres and enclaves, the way they expanded their possessions and areas of influence, and the policies and programmes which they pursued from time to time have left their own mark on the distributional pattern of Christians in India.

The Portuguese were the pioneers of colonial rule in India. After the establishment of their hold at Goa the Portuguese began to expand their area of influence in the country. Within a short period they carved out many enclaves and had established their forts and factories in the coastal belt of India. The Portuguese were known for their crusading spirit. They had taken upon themselves the responsibility of spreading Christianity in the East for which they even made frequent use of force. Thus, Christian missionaries who found in them an ideal patron followed them wheresoever they went (Thomas, 1954, p. 50). The first batch of Christian missionaries reached India within a few years of the coming of the Portuguese. To begin with the missionaries concentrated their efforts in the vicinity of Goa and at locations where the Portuguese had built their forts and factories (Moraes, 1964, p. 125). As the Portuguese influence expanded along the coast the missionary activity also spread to many new locations on the Konkan, Malabar and Coromandel coasts.

The Portuguese were very quick in realising that they would not be able to protect their colonial interest in India for long unless they raise a new race or community in India which in addition to its loyality to the Portuguese should be able to meet locally their requirements for army recruitments. For that purpose they en-

couraged their soldiers to marry Indian women and soon a new race of Anglo-Indians emerged on the Indian soil (Moraes, 1964, p. 155-159).

Since the Portuguese projected themselves as the protectors of Christian communities even in those areas which were not directly under their rule, many individuals and communities living outside the Portuguese territory accepted Christianity to seek their protection. The most notable example of such conversion is that of the Paravars (the pearl fishers) in the vicinity of Tuticorin on the southeastern coast of the country where about 20,000 fishermen embraced Christianity *en masse* during 1535-37 to seek the protection of the Portuguese against their Arab masters (Moraes, 1964, p. 145).

No doubt Christianity spread in India during the sixteenth century largely through missionary efforts and also through forcible conversion by the Portuguese. But in some of the areas in the vicinity of Portuguese territories, particularly in the Kanara tract, Christianity reached through the process of forced migration. The Portuguese, as we know, were very intolerant towards the Indian religions. In order to prevent the new converts from practising Hindu customs they imposed inquisition in Goa in 1560 which resulted in the exodus of many of them to the adjoining areas (Chopra, 198?, p. 249).

Towards the close of the sixteenth century Christian missionaries also began to explore the possibility of spreading Christianity outside the narrow coastal belt. Some of the missionaries who were planning to conquer the country through the conversion of Akbar, the most powerful ruling Moghul king of that time, did try to win him and his successors to the faith but they could not succeed in their objective. However, missionary efforts to plant Christianity in Peninsular India met with encouraging results. A missionary centre was set up at Madurai (called Madura at that time) in 1607. The Madura Church, which allowed its followers to retain their caste and other signs of social distinction and which organised separate churches for the low castes and the high castes soon had a very large number of adherents spread over a vast area in south India (Thomas, 1954, pp. 73-75).

With the coming of some of the other European powers, such as the British, the French, the Dutch and the Danes on the Indian scene during the seventeenth century, who too established their trading centres in the coastal belt, the Christian missionary activity spread to much wider area along the coast. However, barring the field of the Madura Church, Christian missionary activity up to the end of the eighteenth century remained confined to the coastal areas only because the colonial influence, at least up to the middle of the eighteenth century, did not expand beyond the littoral belt.

The Christian missionaries in the country during the second half of the eighteenth century remained generally inactive due to various reasons such as the eviction of Jesuits from India who were the most active group of missionaries in the country, the struggle for dominions between the British and the French, decline in the power and prestige of the Portuguese and unhelpful attitude of the British who were

the rising force in India during that period. Unlike the Portuguese the British were least concerned about the propagation of Christianity in India. They did tolerate the missionaries initially but apprehending that the missionary activity might disturb the peaceful atmosphere of the country and thus ruin their business interests, they soon put restrictions on the missionary activity and in 1793 imposed a complete ban on the entry of missionaries into the territories under their control (Latourette, 1944, p. 69). Christian communities also suffered persecution at the hands of Tipu Sultan, the ruler of Mysore state, in Carnatic tract, Mysore and some pockets on the western coast. Consequently Christian population in India, particularly in the areas where it was persecuted, declined considerably (Dubois, 1823, p. 30).

Expansion under the British Colonial Rule

Though expansion of British colonial rule in India began around the middle of the eighteenth century, it was only after 1813 when the British withdrew the restriction imposed on the entry of Christian missionaries that Christianity began to spread on the mainland. Since the British conquest started from Bengal the diffusion of missionary activity on the mainland during the nineteenth century also took place from there. However, because of the restricted policy of the British the first missionary centre in Bengal was set up in a Danish enclave of Serampore near Calcutta around the turn of the century. After the withdrawal of the restrictions in 1813, the activity of the Serampore mission spread to the entire state of Bengal, Assam, Chota Nagpur plateau and Burma. The change in British policy towards the missionaries and expansion in their colonial rule in India took place at a time when the church in Europe and America was passing through a state of renewed vigour. Thus, supported by numerous societies, Christian missionaries from U.K., U.S.A., Germany and many other countries of the world began to pour into India. Soon the entire Indo-Gangetic plain was dotted with missionary stations and substations. Christian missionary activity also experienced notable expansion in the Bombay Presidency, Hyderabad state, southern parts of Travancore state and adjoining areas of Madras Presidency. Some inroads were also made into the tribal areas of northeastern region and Chota Nagpur plateau.

Christian missionary activity did suffer a minor setback in north India during the Great uprising of 1857-59, but after the transfer of power from the East India Company to the British crown in 1858 and the final suppression of the uprising subsequently, which had resulted in the virtual surrender of almost the entire country to the British, Christian missionary activity once again picked up rather more vigorously. The inflow of men and money for missionary work markedly increased after 1859. With the exception of minor interruptions during the two world wars, the missionary activity in India continued almost unabated till the end of the British rule in India in 1947.

The establishment of British colonial rule over the entire country had strengthened the position of Christian missionaries in the country. Some of the steps which the British took to consolidate their hold in the country, such as strengthening of the law and order maintaining machinery, setting up of numerous cantonments and adminis

trative centres, extension of transportation network, adoption of the western model of education etc. also served the Christian interests in the country. Although the British followed a policy of religious neutrality and noninterference in the customs and affairs of the Indians, there was no dearth of British officials who were sympathetic to the cause of the missionaries, and helped them to the extent it was possible without violating the government rules and policies (Latourette, 1944, p. 70). At many places missionaries came to set up their centres on the invitation of local committees of Europeans eager to spread the Christian faith among the Indians (Webster, 1976, p.s.). The fact that the country was being ruled by a Christian power served as a morale booster to the missionaries. It also helped in attracting to the faith many of those who wanted to gain some favours from the British (Latourette, 1944, p. 70).

The missionary attitude and their approach towards the non-Christians underwent a significant change during the later part of the nineteenth and early years of the twentieth century (Pathak, 1967, pp. 93-134). Prior to 1859, Christian missionaries subscribed to the theory of downward percolation, that is, if the higher castes are converted first, the Christian influnce will percolate downward to the lower castes, ultimately resulting in their conversion too at a later date (Forrester, 1980, p. 69). They also considered the caste system in the Indian society as the greatest hurdle in the progress of Christianity. They had never visualised the promise which the low castes and the tribals held for Christianity. It was only during the 1860s and 1870s when large scale group conversions to Christianity, which are generally referred to as 'mass movements', began among the depressed castes, and the tribals in some parts of the country, that the Christian missionaries realised for the first time that stratification of Indian society along caste lines was not such a big barrier in the progress of Christianity because diffusion of Christianity in different caste strata was possible through caste and kinship linkages. This realisation on the part of the Christian missionaries brought about a major change in their approach and future programmes (Forrester, 1980, p. 69). The phenomenon of mass movement which originated in the Krishna-Godavari delta soon spread to almost the entire country. These mass movements were not confined only to Christianity, other religious groups also experienced similar contemporary movement (Forrester, 1980, p. 73). Although it is difficult to know the real cause of this wide spread upsurge, some of the studies (Forrester, 1980, p. 74) conducted into the phenomenon suggest that it was largely the result of the western influences which percolated into the country and created a general restlessness among the depressed castes and the tribals. Under the impact of western influences the traditional productive relationships and the system of reciprocal duties and services called *jajmani* were breaking up, and with that the lowest sections of the village society had lost the economic security which they had under the old system. This change in fact had pushed many of them in a worse economic situation than before. The general loosening of social links within the community set the depressed caste groups free to fend for themselves and look for new patrons. The socio-economic dislocation of depressed castes became all the more acute during

times of famine or drought. The timely help rendered by the missionaries to the destitutes in times of such calamities sparked off 'mass movements' among them towards Christianity in the affected areas. In addition to the immediate economic assistance, which the depressed castes received from the missionaries the advantage of having the missionaries as their new patron, who could intercede with the government and protect them against money lenders was also a great attraction which drew them to the Christian fold. Conversion to Christianity also provided them an escape from degradation and opened up educational and many other avenues for progress which sustained these movements for a much longer duration. Consequently Christian population experienced manifold increase in the country in a span of less than a hundred years (from 1859 to 1947). A number of new clusters of Christian concentration emerged on the map of India, such as in the Krishna-Godavari delta, the central Gujarat plains, the western Maharashtra plateau, the western Uttar Pradesh, the central Punjab (pre-partition) plains, the northwestern region, and the Chota Nagpur plateau to name only the important ones. In addition to these new clusters Christian population also experienced significant growth in its old strongholds as well as in main cities, cantonments and administrative towns, and hill resorts etc. However, in comparison to princely states and feudatary territories Christianity progressed much faster in the British territories. The census data from 1881 to 1941 reveal that the Christian population consistantly recorded a very high growth rate during each decade, and it was highest among all the religious groups for the total time period, that is, 1881 to 1941 (Table 1). Apart from new conversions to the faith

Table 1

INDIA * : Percentage Growth in Population by Religions[1]

Decade	Total population	Hindus	Muslims	Christians	Sikhs	Jains	Buddhist	Others
1881-1891	11.76	10.49	14.24	21.66	2.76	15.94	45.41	25.73
1891-1901	1.54	—0.34	8.85	28.29	14.91	—5.83	20.28	—10.01
1901-1911	6.74	5.00	9.20	32.08	37.42	—6.47	15.12	17.08
1911-1921	0.90	—0.44	4.67	22.66	7.52	—5.63	9.63	—5.35
1921-1931	10.45	10.35	11.69	32.66	33.73	6.28	18.80	—15.54
1931-1941	15.20	13.23	19.09	24.50	31.60	15.81	4.28	20.26
1881-1941	55.50	43.83	89.07	317.63	207.08	18.61	173.48	27.37

*Excluding Portuguese and French territories in India.

1. Based on table 77 in *The Population of India and Pakistan by Kingsley Davis (1951)*

one of the reasons for their comparatively high growth rate probably was that the community entered the second phase of the demographic transition (widening of the gap between birth rate and death rate due to sharp decline in death rate) much before the rest of the population. This observation is based on the fact that the majority of the converts were drawn from the low castes and the tribals. These groups generally had a comparatively high birth and death rates. But, after their conversion to Christianity the missionaries provided them medical care, protection against starvation deaths and also inculcated in them habits of healthy living and cleanliness etc., which must have brought down their death rate considerably.

No doubt Christianity experienced notable growth during the British rule, but it does not mean that it did not face any opposition or challenge from any quarter. Developments like revivalism in Indian religions, particularly in Hinduism and Sikhism, rise of Indian reform movements, growth of Indian nationalism and emergence of certain anti-Christian organisations etc., during the later part of the nineteenth century, (Pathak, 1967 pp 116-118) and intensification of the struggle for independence during the twentieth century adversely affected the growth of Christianity in India. But for these developments the growth of Christianity during the British rule would have been even more impressive.

Progress after Independence

With the termination of the British rule in India in 1947, the political patronage to Christianity in the country almost came to an end which was seen by many as a great setback to Christianity. Though the partition of the country at that juncture hardly had any impact on their distributional pattern as it did not generate any major movement for exchange of population among the Christians, yet the uncertainty about the future of minorities in free India during the early years of Independence did create some outmigration among the Anglo-Indians and certain other sections of Christian community. Some of them, who were more educated or had technical skills also migrated to other countries around that time for better economic prospects.

On 26th January 1950, the country was proclaimed as a secular democratic republic, and with that all speculations and uncertainties about the future of minorities in India were laid to rest. However, the Christian missionaries who had been placed in a disadvantageous position after the termination of the British rule, faced many new challenges in the country after Independence. No doubt the spread of Christianity in the pre-Independence period was greatly facilitated by the colonial rule but to attribute its phenomenal growth entirely to the colonial rule will be an exaggeration. In fact the inherent weakness in the socio-economic structure of the country provided the real foothold to Christianity in India. Prevalence of poverty, ignorance and perpetuation of socio-economic injustice and discrimination against certain sections in the country actually forced many people to leave their original faith and join the Christian fold.

After the Independence the national government took upon itself the task of socio-economic reconstruction in the country. A planned programme of socio-

economic development was initiated in the country. Special attention was paid to the problems of the weaker sections of the society. Free education, reservations in jobs etc. and many other concessions were provided for them. Laws against untouchability, slavery and bonded labour etc. were also enacted to impart social justice to them. The government also succeeded to a great extent in controlling the miseries caused by natural calamities. Not that the phenomenon of drought and flood did not occur in the country after Independence, but the damage caused by them was greatly reduced due to government intervention. All these steps on the part of the government resulted in discouragement to conversion to Christianity. Provision of reservations and certain other concessions etc. to the scheduled castes, backward classes and the tribals served as a great incentive to keep them within the Hindu fold. Conversions from the scheduled castes and backward classes became increasingly difficult because conversion from Hinduism to any other religion, except Sikhism, debarred them from enjoying these concessions.

But despite these setbacks and many other hurdles Christianity continued its progress in the country after Independence, particularly during 1951-71, almost unabated. Contrary to all expectations Christian population recorded the highest rate of growth among all the religious groups during 1961-71, and second to only Buddhists during 1951-1961 (Table 2). However, during the latest decade Christian population experienced the lowest-growth rate recorded during any decade since 1881, which was also lowest among all the religious groups during 1971-81.

As in the past, most of the converts to Christianity during the post-Independence period were drawn from among the low castes and the tribals, which suggests that probably the benefits of reservations and other concessions extended to depressed castes and the tribals did not reach the intended beneficiaries, atleast not during the first two decades of the Independence, or

Table 2

INDIA : Percentage Growth in Population by Religions

Decade	Total population	Hindus	Muslims	Christians	Sikhs	Buddhists	Jains	Others
1951-61	21.51	20.29	25.61	27.38	25.13	1670.71	25.17	—13.01
1961-71	24.50	23.69	30.85	32.60	32.28	17.20	28.48	26.10
1971-81*	24.74	24.19	30.58	16.78	26.15	24.54	23.70	26.63

*Growth rates for 1971-81 have been worked out after excluding the population of Assam from 1971 data as census could not be conducted in Assam in 1981.

the benefits accruing from these concessions were too meagre to dissuade them from drifting to the Christian fold. Why did the depressed castes continue to be drawn to the Christian fold even at the cost of losing all concessions offered by the government? Was there anything special in the approach of the missionaries or something wrong in the implementation of the government programmes? Does the success of missionaries in any area indicate the failure of the government programmes of socio-economic upliftment of the poor and the depressed castes? Does a sharp drop in the growth rate of Christian population during 1971-81 in the country, particularly in the areas outside the tribal belts indicate that the government programmes mentioned above have at last started yielding some results? Or has the scope for conversion to Christianity reached a saturation level? Or has the Christian community reached the third stage of the demographic transition? These are some of the questions which need further investigation.

The Present Pattern

The history of the process of growth of Christianity in India from the earliest times to the present has left a deep imprint on the present distributional pattern of the Christians. A casual look on the map showing the distribution of Christians in the country in 1981 reveals the degree of unevenness in their distribution. The magnitude of skewness in their distribution can be gauged from the fact that nearly one-third of the total Christians in the country are confined to only about one per cent of its area More than 70 per cent of the total Christian population is located in the area lying to the south of a line joining the island of Bombay (on the western coast) with the Krishna-Godavari delta (on the eastern coast). Even within this tract their concentration is largely along the coast. Kerala and Tamil Nadu, the two southernmost states of India account for almost half of the total Christian population of the country. Christian numbers are also fairly large in the tribal areas of northeast and Chota Nagpur plateau. Apart from these areas, central Gujarat plains, western Maharashtra plateau, hilly areas of Orissa, border district of Punjab, tea plantation areas of northeast and a few urban centres are the only other areas where their numbers are of any consequence.

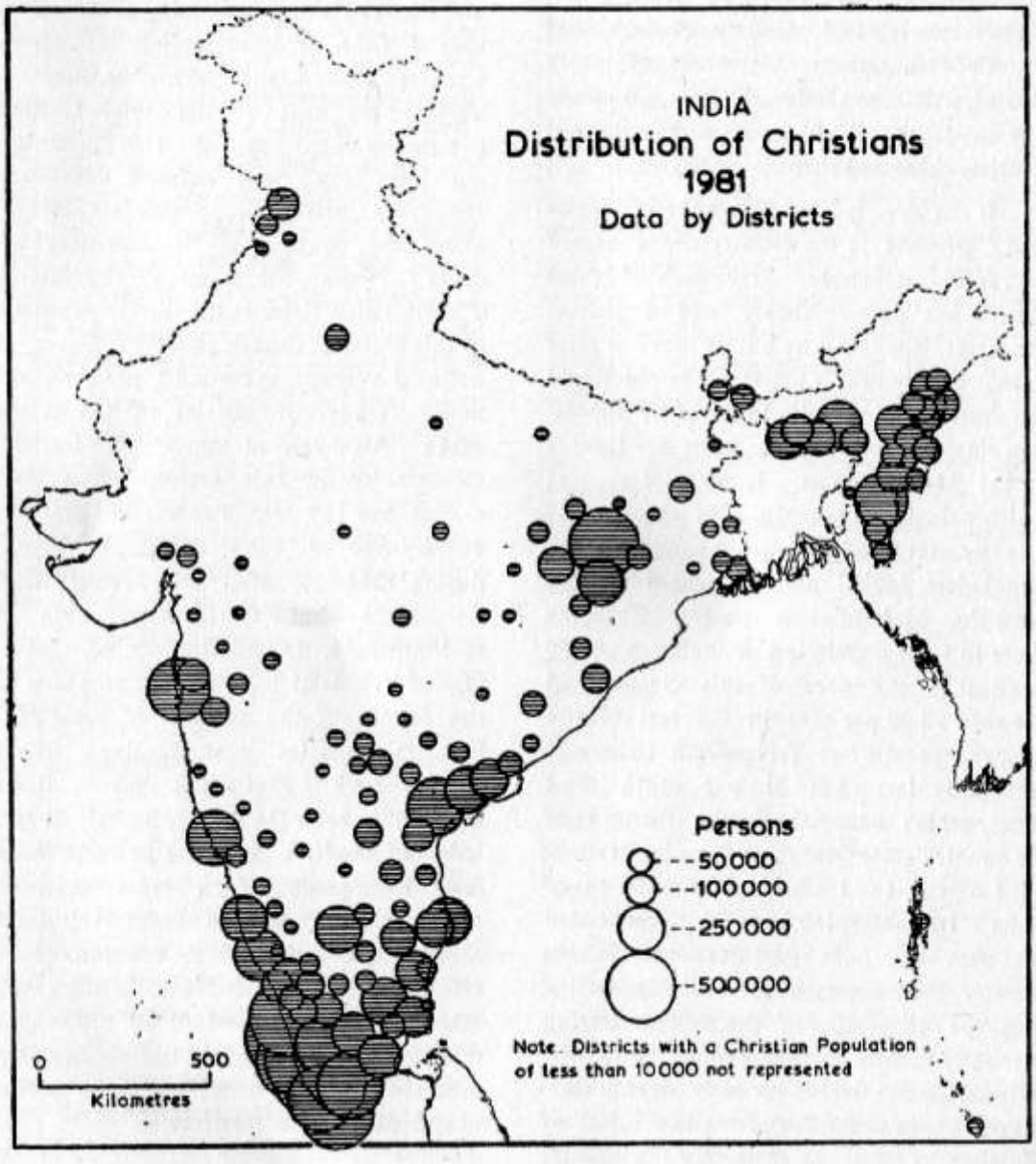
The proportion of Christians in the total population also displays marked variations ranging from almost nothing to as high as 95.4 per cent. In nearly one-third of the districts their proportion is just negligible (less than 0.1 per cent) and it falls short of the national average (2.43 per cent) in about 80 per cent of the districts. On the other hand in about 5 per cent of the districts mostly located in the northeastern region of the country, Christians constitute more than half of the total population. Christian proportion is also very high (between 20 to 50 per cent) in Goa and southern part of Kerala which form the core areas of Christianity in India. In some of the areas like Ranchi and its adjoining districts on Chota Nagpur plateau, district Guntur in the Godavari delta, and a few districts on the southernmost tip of the Peninsula which had witnessed phenomenal growth in Christian population (generally through mass movements) during the past about one hundred years, and in plantation areas of Nilgiri hills and adjoining district of Wayanad Christian percentage is also fairly

large (between 10 to 20 per cent). Apart from these areas the proportion of Christians is above the national average only in a few areas, such as, most of Tamil Nadu state, Rayalseema tract of Andhra Pradesh, hill tracts of Orissa, tea garden areas of north Bengal, Krishna-Godavari delta, Bombay city and its vicinity and some isolated districts here and there.

It has already been pointed out earlier that Christians in the country are confined to a few clusters only. Since each of these clusters has its own history and a distinct character, it will not be out of place to refer to that briefly in this paper. The oldest and the most prominent (in terms of its population size) of these clusters is the one located on the Malabar coast. It occupies an area which coincides roughly with the former princely states of Travancore and Cochin. Ernakulam, Idukki and Kottayam districts form the core of this cluster. Christian share in total population is between 40-50 per cent in the core of this cluster and between 20-40 per cent in the rest of the area except district Trivandrum (where it is slightly less than 20 per cent). This cluster which occupies only a fraction of the country's area accounts for almost one-third of the total Christian population of India. Its coastal location which facilitated the area to have contacts outside the country, the advantage of an early beginning, the inmigration of the Syrians during the early centuries, its contact with the Persian Church during its early days, political patronage to the faith from the rulers of Malabar as well as from the Portuguese, and eruption of mass movements towards Christianity among the Shanars (the today tappers) and certain other low castes more recently are the main reasons for the growth of Christianity to its present size in this cluster.

The coastal tract between Kanyakumari and Madras, and its adjoining areas on the upland form another major cluster of Christian concentration which accounts for about 14 per cent of the total Christian population of the country. This cluster does not have any well defined core area. However, Christian concentration is more along the coast, and it decreases with distance from the coast to the interior. The Christian share in the total population in this cluster, though generally above the national average, exceeds 10 per cent only in the Tirunelveli district in the extreme south. Although attempts to introduce Christianity in this region were made earlier too (by St. Thomas in the first century and by John of Monte Carvino during 1291-92), after the arrival of the Portuguese Christianity made its real foothold. In addition to the advantage of its coastal location, the area also had the benefit of the services of some of the best missionaries ever received in the country such as St. Francis Xavier, Robert De Nobili, John De Britoo, Beschi, Ziegenbalg and Fredrick Schwartz to name only a few. Emergence of a mass movement among the Nadars in Tirunelveli district around the middle of the last century (Hardgrave, 1969) and among the Parias (Oddie, 1979, pp 128-146) in the vicinity of Madras city during the last decade of the nineteenth century strengthened the position of Christianity in this tract.

In comparison to the areas discussed above, Christianity was introduced in the Krishna-Godavari delta and its adjoining areas at a much later date. Although Chris-


INDIA
Distribution of Christians
1981
Data by Districts
Persons
50000
100000
250000
500000
Note. Districts with a Christian Population of less than 10000 not represented
0
500
Kilometres

tian missionaries were present in this area since long Christianity began to spread there only during the 60s of the last century. A severe famine in the area in 1878 sparked off a mass movement towards Christianity among the depressed castes, particularly the Malas and the Madigas (Oddie, 1975). Soon the movement spread to the adjoining areas of Rayalseema and Telangana. These movements continued in the area for a much longer period. Christianity experienced significant growth in the area up to 1971. But during the last decade that is, 1971-81, Christian population experienced a net decrease of about 20 percent in the region. Despite that there are still more than 1.4 million Christians in this cluster. District Guntur, where over one-tenth of its population professes Christianity, forms the core of this cluster. Christian proportion is also fairly large (between 5-10 per cent) in the interfluvial deltaic segment. In the rest of the area Christian proportion is generally between 2.5 to 5.0 per cent. Christian concenration in this cluster is highest in its core and declines gradually with distance from this core.

Of the various clusters of Christian concentration, the one which emerged in the hilly tract lying to the south of the Brahmputra valley in the northeastern region of the country is the most significant one, not because of the size of its Christian population which is about 2.2 millions, but due to the fact that it is the only area in the country, except island of Nicobar, where Christians are a majority community. The Christian share in the total population in most of the districts is generally above 50 per cent, and in large number of districts it is even above 75 per cent. In one of the districts (Zunheboto in Nagaland) Christian proportion is as high as 95.4 per cent. Concentration of Christianity in the hilly areas is not difficult to understand as the converts to Christianity in this area have been drawn almost entirely from the hill tribes. Christianity was introduced in this area somestimes around the middle of the last century. Opening of a road link between Sylhet and Gauhati, through the Shillong plateau had made it possible for the missionaries to penetrate into the inaccessible hilly areas of this region. The first missionary centre was set up at Cherrapunji and a contact was established with the Khasis. Gradually the missionaries succeeded in establishing links with the other tribal groups such as the Garos, the Nagas, the Mizos etc. living in the adjoining hilly areas of the region. Tactful projection of Christianity as a religion superior to Animism practiced by the tribals and the socio-economic transformation brought in their life after conversion, were the main attractions which drew these tribals into the Christian fold. In a span of just about a hundred years, the Christian missionaries have brought a vast majority of the tribal population of this region within the Christian fold.

Chota Nagpur plateau is another area where Christianity has met with notable success among the tribals. Christianity was introduced in this region also around the middle of the last century. In this region too, the missionaries adopted the same technique to attract the tribals to Christianity as were used by them in the northeastern region. In the beginning the missionaries operated from Ranchi, the main town in the region, but soon many new missionary centres emerged in the area. This cluster spreads over parts of three states, namely Bihar, Orissa and Madhya

Pradesh. District Ranchi (Bihar) which has a Christian population of more than 5 lakhs, and where Christians constitute about one-sixth of the total population forms the main core of this cluster. Christian numbers are also fairly large (more than 3.5 lakhs) in the adjoining districts of Sundergarh (Orissa) and Raigarh (Madhya Pradesh) and they form more than 10 per cent of the total population of these districts. Christian concentration in the mining and industrial centres within the region is also quite noticeable. In rest of the area Christian concentration generally declines with distance from the core. The Oraons, the Mundas and the Santhals are the main tribal groups in this region which got attracted to Christianity.

In addition to the main clusters discussed above, there are a few more clusters of Christian concentration in the country which are not that large. Some of these clusters are located on the western coast of the country. The most important of these clusters is centred at the former Portuguese territory of Goa, which had remained for quite some time the main centre for the diffusion of Christianity in India. Goa, which was considered at one time the citadal of Catholic faith in India had lost much of its past glory by the middle of the 18th century due to the decline in the power and prestige of the Portuguese in the East. Because of that, a process of outmigration from Goa to more promising areas outside the country (particulary to Lisbon) as well as within the country (specially to Bombay) had set in. The continuous decline in the Christian proportion in the total population suggests that the outmigration was largely from the Christian community. From a position of an overwhelming majority, Christians have been reduced to less than one-third of the total population in about one hundred years. The total number of Christians in Goa at present is about 3 lakhs.

Emergence of another two clusters of Christian concentration on the western coast, one located at around Bombay city and the other on the southern Kanara tract and its adjoining areas of northern Kerala is also associated to a great extent with the rise in Portuguese influence on the western coast during the sixteenth and seventeenth centuries. Revival of missionary activity in these areas during the nineteenth century and early twentieth century strengthened the position of Christianity in these pockets. However, the emergence of Bombay as a magnet city to attract migrants from near and far off places contributed mostly to the rise of Christian population there to its present size (about 4 lakhs in the city and another over one lakh in its surrounding areas). The size of Christian population in the southern Kanara tract and its adjoining areas of northern Kerala is over 7 lakhs and they constitute a little less than 10 per cent of the total population there. Plantation cultivation which attracted Christian cultivators from other areas also contributed significantly to the growth of Christian population in this cluster.

Christian numbers are also fairly large in some of the areas around the main clusters, the border districts of Punjab (this in fact is a truncated part of the cluster which had emerged in the central Punjab before partition), Tea garden areas of northern Bengal and Assam, hilly areas to the south of river Mahanadi in Orissa, western Maharashtra

plateau, central Gujarat plains, major cities, cantonment towns, industrial and mining centres. In most of these areas growth of Christian population to its present size is generally due to the efforts of the Christian missionaries during the past hundred years or so. In the rest of the country there is only a thin sprinkling of Christian population.

Conclusion

The diffusion of Christianity in India took place in different phases of initiation in early centuries, stagnation during the Middle Age, revival after the coming of the Portuguese, expansion under the British Colonial rule, and continued progress after independence in 1947. After its successful introduction on the Malabar coast, Christianity consolidated its position there during the early centuries. With the arrival of the Portuguese on the scene, Christianity began to spread along the coast. Its diffusion on the mainland took place during the British rule. Right from the beginning, the progress of Christianity in India remained largely dependent on the outside support. Christianity flourished in India during those periods in which Christians, whether they were Syrians, Portuguese or British, dominated the Indian seas as it facilitated the inflow of outside help to Christianity. By contrast, Christianity suffered setback whenever outside support to Christianity failed to reach the country. It emerges that for the diffusion of a faith or any other phenomenon on an alien soil, the presence of proper linkages with the area of origin of such an impulse, favourable socio-political environment and constant support from some source can play a very significant role.

The rigid startification of Indian society, along caste lines, has served as a great hurdle in the spread of Christianity in the country. Caste prejudices against the low castes (who got attracted to Christianity in large numbers) generally kept the higher castes aloof from Christianity. Acceptance of Christianity by a caste group generally encouraged conversion in other castes, usually ranked equal or lower in status than that caste, but discouraged among those ranked higher in a region. It is very rare, though not unknown, that acceptance of Christianity by the low castes induced conversion among the higher castes. It indicates that in a traditional society in which caste or class prejudices still persist, diffusion of influences of many kinds can take place either horizontally in each strata through caste or kinship linkages, or percolate downward from the higher castes to the low castes, but cannot move upward (from the low castes to the higher castes) so easily.

Despite its presence in the country for such a long period, Christianity could attract only a small fraction of the country's population, that too from its lowest strata. Christianity succeeded among the depressed castes and the tribals not for its appeal as a superior religion but for the socio-economic benefits it provided to them, particularly during periods of drought or famine.

The variations in the distribution of Christians in the country are associated with the vast socio-economic, political and historical diversity in the country. Christians are concentrated mostly in the areas which (i) remained exposed to maritime influences, particularly of the Europeans; (ii) remained under the colonial rule for a long period; (iii) received political patronage

for Christianity in the past, and (iv) were more prone to drought and famine or suffered from glaring socio-economic disparities, and had expirienced 'mass movements' towards Christianity, and (v) had concentrated tribals population. Since most of the areas mentioned above are located in the peripheral zone of the country, particularly along the coast and the Northeastern Region, there is a comparatively higher concentration of Christians there. By contrast, there is only a sprinkling of Christians in the heartland of the country, particularly in the Hindi belt, where they are found in sizable numbers only in the major cities, cantonment towns, and places which attained special significance, such as hill stations, during the colonial rule.

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ACKNOWLEDGEMENT

The author is extremely thankful to Professor G. S. Gosal, Department of Geography, Panjab University, Chandigarh, for his guidance in preparation of this paper.

POPULATION GEOGRAPHY Volume 8 Numbers 1&2 June- December 1986

BOOK REVIEW

Peter Mc Donough and Amaury de Souza : A Politica de Populacao no Brasil (Brazil's Population Policy)
Paz e Terra, 1984, 209 pp.

Reviewed by Odeibler S. Guidugli.

The topic which involves the question: the populational policy is quite comprehensive taking over a characterization which allows an analysis to be done both in a multi and interdisciplinary way. The first modality, more frequently elaborated than the second one has presented significant contributions for the study of the topic. As to this question, one cannot help recognizing that many analysis take a controvertial character, for they end up unilaterally transforming themselves into an exercise predominantly involved with issues concerning the family planning which is actually one of the aspects, maybe not the most important one, which involves both the governments and the populations of the different countries.

In Brazil, the issues concerning the topic population policy have been constant, in an explicit way or not, in the context of the action of the different governments which have followed and which have presented the most diverse characteristics (from the Populists through the Elitists, from the concentrators of power through the ones who had more decentralized positions). In the same way, one cannot deny that the theme, at various levels, has always been the the concern of the population in general. Thus, the important task is to evaluate, within the panorama of differentiations, not only how the relations between the government and the people take place in this aspect but also the considerations on the forms through which they evaluate between themselves their actions and decisions.

Due to so much diversity the task does not seem an easy one, but it is important and feasable just the same. Mc Donough and Sousa's contribution, now being analysed, fulfils some of the most indispensable requirements for the study of the populational policies. Among them, the theoretical reflexions on the behaviour of the population's different segments, the government roles and actions, the appraisal of the national consensus in terms of wishes and aspirations which directly or indirectly result from the issues entailed to the population policies in the country deserve emphasis, and the little comprehensiveness with which the consensus has been made operational, is exhaustively discussed.

In a global view, the text results from an analysis carried out at the level of the significant detail, and for this reason, as the authors made it evident, it has been necessary to establish two important limitations. A first one concerns the analysis of only one area of the country, the one

which was stipulated as Southeast in spite of, in this delimitation, the inclusion of the State ofRio Grande do Sul into this region. The second limitation is related to temporal delimitation of the field researches—1972-73—an understandable face since the extension of the analysis period could certainly produce deviations in the interpretation of the results. However, the considerations on the population global political issue, practically involved the seventies, what can be seen through the literature mentioned in the text.

The three chapters which make up the main part of the work and called: A opiniao das elites, A opiniao publica e, As percepceos das elites (*The Elite's Opinion*, *The Public Opinion*, and *The Elite's Perceptions*) are preceded, in an introductory character, by another one named "*A Global View*", where the authors seek on one hand to evaluate the political context of the Population Policy in Brazil, and on the other hand to offer the parameters of the procedures used throughout the analysis reported.

The initial part of the first chapter deserves some remarks for being a little bit generalist when it makes evident in a too concise way the processes which increased the country's population from 10 million in 1872 to a total of 120 million in 1972 (the epoch when the analysis was made). One can easily realize that the idea of an excessive growth is imbedded in this analysis. However, the major aspect which one can make restrictions to lies in the foundations which were used for the establishment of an indentifying characterization of the absence of problems of excessive population (in spite of the growth) from two aspects: the territorial extension and the potencial of economical growth. The two orientations, even though not totally strange, end up generating, in the text the view that we would have for the epoch, a problem of sub-population rather than one of excessive population.

However, these very aspects are contradicted later on when the results of the field research are presented. As to the economical dimension imbedded in the population issue, the writers themselves take charge of making evident the excessive growth of both rural and urban casting out in the seventies and the skepticism which srpead all over the country, specially after 1973 with the end of the "Economical Miracle", by the time of the reduction of the capacity of the economy to keep high rates of growth with the consequent economical recession. These characteristics are important mainly because they represented the background under which the text was written.

In accordance with the proposition of the authors, the text has not aimed at concentrating itself on the structural relationships between the economical growth and the demographic growth in Brazil, but it has aimed at approaching the trends of the population policy practiced in the country during the period analyzed. Some characteristics indicate these trends and it is important to emphasize them because they are essential for the understanding of the text: the country's institutional setting, the church's role in the debates on the population policy, and the conceptions of the elite's different groups due to the opinion of the population in general.

It is from these parameters that an

entire consideration is developed sometimes at a higher level of details, sometimes at a lower level of details. In the first case, the field investigation carried out and the results involving a detailed study of the roles of variables such as sex, age, religion and education deserve emphasis in the considerations on the population policy in Brazil.

The general orientation of the discussion of the topic is indicated by procedures of contrasts analysis. Thus, the differentiations between the governmental conceptions and the ones of the population in general concerning the problem as well as, in greater details, the existing dichotomy amoug the groups considered as an elite (professions, union leaders, industrialists, bankers, government officials in top positions, bishops of the Catholic Church, and the leaders of the political parties which existed at tne epoch—ARENA and MDB) and, aggregatively, the whole regarded as public opinion, are analyzed. However, the analyst, or simple user of the text, needs to consider that the different groups do not indicate homogeneity at all. For instance, under the label of the political parties existing at the epoch, there was a diversity of political —ideological orientations. In the same way, the union leaderships showed identical diversity.

An important aspect to be emphasized for the book users is in the political conditions prevailing at the time of the analysis what, in a certain way, may have produced less adequate responses in the opinions of the politicians or of the population in general. Even for the planning topic, this was a time of much fear as to offering any question. Thus, the authoritarian context under which the country, lived must have had a great influence upon the manifestations collected.

The main part of the book presented in the Chapters Two (A Opiniao das Elites (The Elites' Opinion)), Three (A Opiniao Publica (The Public Opinion)) and Four (As Percepcoes as Elites (The Elites' Perceptions))' involve the main issues appraised in all of the contribution which deserve to be emphasized : the differences between the elites' preferences and those of the public's as to the population policy, being included here the appraisal of the priority assigned to the populational planning, the connections between the attitudes due to the populational planning and other matters of political relevance such as the income distribution, foreign investment, or the agrarian reform, the attitudes related to the alternative and complementary mechanisms for the populational planning and the different ways by means of which a varied elite carried out appraisals and, in the whole, considered the opinions prevaling among the population in general.

In this latter issue, the text is quite vast and, on some occasions, it is also quite repetitious, while on other occasions, the text is too superficial in the treatment of certain aspects. The conceptual issue of Populational Policy itself, the work title, does not show a satisfactory level of details. What exists are references to a set of aspects which can or must compose a policy but not an overall concept.

However, if the vast subject of the book does not necessarily represent a novelty to the readers who are usually

involved with analysis of populational issues in our country, the field research recovers the characteristic mentioned. And from this characteristic one easily finds out that the authors do not regard the populational issue as something unitary but as a set of alternatives which are reflected in the very field research. In it the transversality in the analysis procedure among the variables considered represents one of the most important aspects.

The presentation of the whole development of this field research is quite positive and didactic. The contribution for the learning process of the populational topic is extensive and significant. Thus the sample assembling technique, the parameters considered, the delimitation of the analyzed area, the procedures used to establish the groups of elites' different categories and the steps followed to design the questionnaire applied. are relevant aspects of this populational theme.

The utilization of analysis techniques to evaluate the alienation coefficient in accordance with what was established by Guttman—the Lingoes's and Krusbal's techniques are also very contributive for the ones who are willing to follow all the course followed in the research. This is a positive aspect of the work since the globalist view which the topic has been given has not been, in a general way, extensively practiced by those ones who have been involved with the studies of the Populational Policy in Brazil. The topic is frequently seen through a clearly economical perspective, or exclusively as the result of a governmental decision or, still, simple as something that can be classified as an alarmist approach.

Another interesting aspect that emphasizes all of its presentation is the consideration of the variables—the governments' actions and the church's role as an indispensable component for the analysis of the other topics. They work as a control variable. The contraposition between one and the other is the remarkable trait of the contribution.

In the last chapter presented, the conclusions rigorously result from the field research carried out. As the main results such a reseach presents the evidence of an extensive popular support for the governmental initiatives as to the family planning and the significance of age and sex in detriment of the religion aspect in the considerations on the populational policy. Similarly, differentiations among the forms by which the elites see in an aggregate manner, the family planning issue in contrast with the public opinion, have been shown. Here, the main evidence is that the family planning in Brazil does not represent a controversy which permits, in a certain way to establish an aligment of the leftists versus rightists. The population topics have been shown in a conclusive way, as having a small ideological content as well as being subject to having practical but fragmentary solutions.

The authors' concern with the population growth in Brazil and the colours of a birth rate control policy become evident in the conclusions whether when they advocate the necessity for the government to provide birth rate control services, or when they show concern with the characterizing inertia of the population absolute growth reducing the fertility rate to a minimum.

A varied bibliography permits the reader to trace details concerning the topics dealt with and the inclusion of two appendices showing the whole processing in the elaboration of the samplings (of the elites and those of the population in general) enlarge the meaning of the work.

The few incongruences or flows like, for instance, the one related to the little importance given to the policies of the population's spatial distribution and redistribution does not make it obscure the fundamental congruence of the work which has been to demonstrate due to the understanding of the populational policy used, a series of mechanisms (whether social or not) to regulate the changes in the national population. There has been a clear proposition in the beginning of the book, and in the terms under which it has been placed, the authors achieved to develop it with competence.

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POPULATION GEOGRAPHY Volume 8 Numbers 1 & 2 June-December 1986

BOOK REVIEW

K. V. Sundaram and Sudesh Nangia Eds. : Population Geography
Haritage Publishers, New Delhi, 1981, 400 pp.
Price Rs.300/-

Reviewed by Mehar Singh Gill

This volume stands at number VI in a ten volume series entitled *Contributions to Indian Geography* being brought out under the general editorship of professor R.P. Misra. It is a collection of 16 essays written by twenty authors, including several key figures in population geography research. With only one exception, all the chapters are based on census data. Twelve of the studies are on country scale, one of state level, two deal with small regions, and one is methodological in nature. It is not just a matter of coincidence, however, that one-fourth of the contributions have come from the Department of Geography, Panjab University, Chandigarh, which is so well known for its population studies.

In the introductory chapter, the editors of the volume give a gist of the various essays included in the volume. Besides, they indicate several important research areas requiring due attention of population geographers. However, the study of various ethnic/religious groups in their varied environmental contexts, which is surely one of the most fecund research frontier in geography, have somehow skipped their notice.

In Chapter I, M.K. Premi and R.P. Tyagi deal with changes in population numbers and density in India during 1901-71. The discussion is mainly based on maps prepared by using district level data. Spatial patterns of population growth during 1901-21, 1921-51 and 1951-71 have been discussed briefly. The growth rate and population density were found to be inversely correlated.

P. Sen Gupta's stimulating paper on "Formation of Economic Regions By Population Characteristics and Resource Development" is devoted to analysing the degree of population pressure in India and dividing the country into population-resource regions. For calculating pressure of rural population on land resources in the countryside, the gross value of output for each district from primary sector, and income per person from these activities desired for slight improvement in living standards was taken into consideration, instead of crude density of population. Further the author, divides the country into 19 population - resource regions based on the density and growth rate of population, resource potentiality, and levels of socio-economic development. These regions are then grouped into three characteristic population - resource regions : the dynamic regions, prospective regions, and the problem regions. Though the criteria used are not the same, these regions roughly

conform to those devised by Zelinsky (1966) for the world as a whole. It needs to be pointed out, however, that the otherwise good account of migration given in the chapter does not fit smoothly into the general run of the discussion.

Chapter III by R.C. Chandna focusses upon population growth of Indian cities during 1901-71. Birth rate, death rate, migration and change in the jurisdictional boundaries of cities emerge as the determinants of city population growth. The year 1931 stands out in differentiating periods of sluggish and rapid growth of city population. Seen in a spatial context "the process of city growth has been faster in the south than in the north India" (p. 102).

Asok Mitra examines declining sex ratio of India's population since the beginning of the present century. The author emphasizes that the continuing decline in sex ratio certainly can not be attributed to increased undercount of females. The main responsibility goes to persisting higher female mortality in the country which, in his view, stems from lower status accorded to females. For paucity of reliable and long term data, the hypothesis that male ratio at birth is substantially higher is discounted. But the author does not offer any explanation as to why female mortality has gone up during 1931-61, particularly between 1951 and 1961, when it should have actually be on the decline concomitant with rapid spread of literacy and the well-directed and sustained role of media in this regard.

In Chapter V, M.M. Phednekar and K. Sita dwell on spatial trends in sex ratio during 1951-71 in South Konkan, a region of highest sex ratio in Maharashtra. Notable spatial variations in sex ratio were observed in the intervening area between the coastal and the interior regions, owing to their differential response to the "pull" of Bombay city. The basic pattern of sex ratio remained unchanged during the study period.

Sudesh Nangia's study "A Demographic Profile of Metro-Hinterlands in India" has been designed to analyse the influence zones of nine "million" cities of India in 1971. Based on 1971 census data, the study makes use of fourteen socio-demographic variables. The metropolitan zones of influence bear close relationship with size of the city and intensity of transport and communication linkages with the surrounding areas. The influence areas of Calcutta and Bombay were found to extend upto a distance of 40 miles while in case of other seven cities these did not exceed 20 miles. It is notable that "with different metropolitan centres sometimes, the trend of the same variable has been different" (p. 147).

A K. Dutt and S. Davgun's contribution to this volume relates to religious contours of India. Besides a brief survey of relevant geographical literature, the authors provide an interesting account of distributional aspects of various religious communities. Further, they divide the country into religious regions using factor analytic technique. However, some of their observations are not substantiated by empirical data. For instance the authors' view that the spatial distribution pattern of the Hindus has not undergone any major change since at least 1881" (p.155) does not hold good when one compares very low proportion of the Hindus in parts of the tribal belt of Central India in 1931 (Davis, 1951, Map 17) with their very

high share in these very areas in 1971. Similarly, high growth rate among the Sikhs during 1961-71 has been attributed to higher fertily among the Sikhs which is not borne out by the recent data (Census of India, 1981).

Based on 1961 census data, B.K. Roy Burman's rather lengthy paper provides a very stimulating account of the distributional pattern of the scheduled tribes and its implications. Though the scheduled tribes make a minority group in the country as a whole, one-third of them lived in districts where they were in majority. Significantly, the areas of relatively high concentration of these people are mostly situated either on the international borders in Northeast India or along linguistic-cultural formations within the country. Apart from discussing the fusion, fission and proliferation of the scheduled tribes, the author also discusses their role in the context of bridge-buffer model of inter-community dynamics. The problem of identity among the tribals is not solely due to their characteristic 'polar' model of distribution as viewed by the author. Many other factors play far more important role in the process of identity formation.

Chapter IX by A.B. Mukerji deals with "regional contrasts in distribution, density and relative strength of scheduled caste population in Andhra Pradesh" as revealed by 1961 census data. These people were "essentially rural" and were mainly engaged in agricultural labour and miscellaneous services. Areas with relatively high proportion of these persons include paddy growing ones and those with relatively large land holdings. On the other hand, their low share was found in areas with low agricultural productivity and where conversion to Christianity and Islam has been higher. In brief, the spatial distribution of scheduled castes have been discussed in great detail. However, the author's observation that "it is the lower castes who have played the negative roles of friction and drag in the overall development of societies in particular regions" (p. 231) is not sustainable.

G.S. Gosal provides a lucid and precise interpretation of patterns of literacy in India. The prevailing illiteracy in the country, largely a lagacy of the past, is attributable to the lack of governmental attention in the pre - 1947 period and also to the prevalence of caste system under which literacy was not only functionally unnecessary for certain castes but it was also 'strictly forbidden' for many groups. Large scale rural-urban and male-female differentials in literacy, though now on the wane, have been a characteristic feature of our country. Relatively high literacy rate was found in the coastal area, tract along the Bombay-Calcutta rail route, regions having been under the strong influence of Christian missionaries, Punjab area, and a number of highly urbanized districts. Conversely low literacy rate was a characteristic feature of non-Christian tribal areas, and the densely populated tradition-gripped tract of the middle Ganges Plain.

Asok Mitra's paper on 'Agricultural employment by crop regions' deals with changes in agricultural employment in the rice, wheat and millet regions of India between 1901 and 1971. In the districts selected for the study, proportion of agricultural workers has come down during the period under consideration. However,

in most of the wheat and rice districts "there has been, more or less, a continuous increase in the absolute number of agricultural workers" from 1901 to 1971, while the case was opposite for the millet districts. The post-independence period recorded a steep rise in the number of agricultural labourers which, as suggested by some scholars, has been mainly due to pauperization and proleterianization of marginal farmers.

Gopal Krishan's paper gives a succinet account of spatial pattern of non-agricultural workers in India. As per 1971 census, the proportion of non-farm workers was quite low (17.7 per cent) in the country. The author holds that two-thirds of the rural non-agricultural workers were serving the local rural population and only one-third wereconnected with wider regional/national market. Thereby, he tries to decompose the rural non-farm sector into basic (regionaly oriented) and non-basic (local based) segments, and identifies effective diversification of rural economy in different areas. The proportion of rural non-farm workers "was found contingent upon richness and effective utilization of local resources, commercialization of agriculture, rates of rural literacy, density of road network and rural electrification" (p. 319).

B.K. Roy's essay on "Internal Migration in India's Manpower Resources" provides a brief account of major migration streams and some characteristics of migrants in India. Besides, it includes a useful table on net migration in the country.

The Chapter on "Seasonal Migration of Tribal Labour : An Irrigation Project in Gujarat" is the only one based on primary data. It focuses on economic determinants of rural-rural seasonal migration of tribal workers from the economically backward district of Panchmahals to the agriculturally advanced neighbouring Kaira District. Actual earnings at the area of origin as well as the employment activities associated with livestock maintenance were found to make negative effect on the rate of outmigration. On the other hand 'expected earnings at the destination' as a factor works in the opposite direction.

Graham Chapman and Sudhir Wanamali examine urban-rural relationship and the level of development in India at the national and district levels. Using data by 1800 urban centres, with population above 10,000 each, and 350 districts, various population potential maps have been generated, along with a cogent interpretation of these 'potential' surfaces. According to the authors, "there can be no national solution to problems of rural and urban integration" which vary from region to region. It is further opined that "a single growth pole placed in a backward area will not flourish" as it will be held back "by the regressive elements of the rural background". However, linked sets of growth centres is considered to be a different proposition.

In the last chapter, K.V. Sundaram focuses on the delimitation of urban boundaries for census purposes. Since the 'political city' is arbitrarily delimited, it is considered inadequate from demographic and economic points of view. Besides discussing the criteria for delimitation of cities, the author analyses the concepts of 'town group', 'standard urban area', satellite towns, suburbs, and urban fringe, including

the problems involved in their demarcation.

Most of the contributions to the volume are well written in a lucid and concise style. The book makes a significant contribution to population geography with regard to both the range and vitality of contributions. However, it also suffers from some minor shortcomings, such as poor reproduction of maps, lack of uniformity in bibliographic referencing, and inconsistency with regard to international boundary in Jammu & Kashmir. The price of the book is also somewhat on the higher side.

Overall, this volume makes an excellent addition to population studies on India.

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