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Pattern of Population Growth and Redistribution in India

Introduction

AS of March 1991, India's population has been enumerated as 843,930,361. During 1981-91 lition was to the tune of about 161 million persons — 26 million more than the addition during the period of 1971-81. Apparently, India's population might touch the mark of a billion before 2000. To avoid this distinction in 20th century, annual growth rate has to be below 1.75 per cent in 1990s, which seems to be quite difficult to achieve. The natural growth rate of India's population during 1980s has in fact been fluctuating around 2.14 per cent per annum: higher than that experienced even in 1970s. The contribution to the absolute increase in India's population during the period of 1981-91 of the so-called 'BIMARU' states (namely, Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh) has been 49 per cent as against 41 percent during the period of 1971-81. This clearly indicates the demographic diversity of India which cannot be overlooked while outlining the development plans for different areas. Even our population policy has to be geared up for taking the demographic diversity into consideration.

India's future population dynamics would mainly depend upon the changes taking place in the 'BIMARU' states. Different states of India presently are at different stages of demographic transition, and it seems that some states like Kerala and Tamil Nadu are at the verge of completing the transition. In fact, Kerala is generally quoted as a model for other states. In view of this, it may be necessary to examine the pattern of population growth over a period of time and attempt to build-up a similarity, if any, in the pattern keeping Kerala as standard. This would help us in estimating time lag in transition and time to reach to the stage where Kerala is today. It may also be worthwhile to study those environments (socio-economic) indicators when major changes begin to take place in the population growth of Kerala. While doing the analysis and presenting conclusion, we would like to ask ourselves the following questions:

- (1) under given environment, are we expecting too much from 'BIMARU' states to achieve during a comparatively shorter period ? (ii) for quick change, what are the minimum possible steps which can be taken up for the immediate action and intervention ?

Alongwith the pattern of population growth it may also be interesting to examine the spatial distribution of population. This may throw some light on whether any regional imbalance is taking place in India as far as the distribution of population is concerned.

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Pattern of Population Growth

In Table 1, we present overall percent change in population of India and major states during 1901-81 and 1951-91. This would indicate for each state the absolute addition with respect to their base population. It may be observed that in 80 years period i.e. from 1901 to 1981, Kerala seems to have added more people (on average) than any other state except Assam. We have taken 1981 as cut off point because substantial change in the natural growth of Kerala has taken place only after this period. Until 1981, natural annual population growth in Kerala has been fluctuating around 1.95 per cent. It seems that this is the time when Kerala probably completed the third stage of demographic transition and entered the fourth stage.

TABLE 1 : OVERALL PERCENT GROWTH RATES OF POPULATION OF MAJOR STATES DURING 1901-81 AND 1951-91

<i>India/States</i>	<i>Percent Growth Rate</i>	
	<i>1901-81</i>	<i>1951-91</i>
India	186.8	133.5
A.P.	180.1	113.1
Assam	505.0	177.7
Bihar	155.7	122.6
Gajarat	273.4	151.2
Haryana	178.0	187.6
Kamataka	183.8	131.0
Kerala	297.2	114.1
M.P.	209.2	153.7
Maharashtra	223.3	146.0
Orissa	155.0	115.2
Punjab	120.9	120.4
Rajasthan	231.3	174.7
T.N.	150.9	84.7
U.P.	128.0	119.5
W.B.	221.6	158.5

On the other hand, the growth rate in Assam is certainly an indicator of illegal migration from Bangladesh. The so-called BIMARU states which are said to be a stumbling block for achieving the national goal of $NRR = 1$ have not experienced extraordinarily high growth of their population in their present stage of transition. It may, however, be pointed out that these states may experience still higher growth rate before they enter into the fourth stage of demographic transition, due to the momentum of population growth (see Pathak and Ram 1987).

Pattern of Population Growth and Redistribution in India

It may be further seen from Table 1 that growth rate for 1951-91 in Kerala is again not very different than that in Bihar and UP., the two major states of 'BIMARU' Group of States which have nearly 67 per cent of population of the group. As a matter of fact, real change in the growth rate has taken place only in 1980s. At this juncture it may be mentioned that in Kerala, the demographic transition in terms of the mortality transition probably began in 1940s because the secular increase in the exponential growth rate above two per cent per annum was observed from the period of 1941-51 onward and touched the peak during 1961-71 and started declining after 1971-81 mainly due to migration and marginally due to the decline in fertility.

In case of BIMARU states exponential annual growth rate crossed two percent mark for M.P. and Rajasthan during 1951-61 and for Bihar and UP. during 1971-81. Data on mortality for these states indicate that mortality transition in these states actually began in late 1950s and early 1960s. Thus there was a lag of nearly 20 years in the onset of demographic transition as against Kerala in BIMARU states. From Table 2 it may also be seen that Kerala remained in the zone of above two per cent growth rate continuously for the three decades, i.e. 1941 to 1971.

TABLE 2 : GROWTH RATE FOR INDIA AND MAJOR STATES SINCE 1951

Area	Exponential Growth Rate				1971-81		1981-89	
	1951-61	1961-71	1971-81	1981-91	Av. N.G.	C.V. (%)	Av. N.G.	C.V. (%)
India	1.95	2.21	2.20	2.11	1.97	3.5	2.14	1.5
A.P.	1.45	1.90	2.08	2.14	1.90	4.7	2.00	4.1
Assam	3.00	2.98	2.10	2.12	1.79	11.0	2.16	2.0
Bihar	1.80	1.93	2.16	2.11	1.79	15.8	2.44	7.0
Gujarat	2.38	2.58	2.44	1.89	2.26	2.3	2.18	5.0
Haryana	7.91	2.79	2.33	2.53	2.50	9.7	2.62	1.9
Karnataka	1.95	2.17	2.37	1.88	1.73	3.6	1.99	3.3
Kerala	2.21	2.33	1.76	1.31	1.96	4.5	1.71	9.5
M.P.	2.16	2.52	2.25	2.37	2.17	2.1	2.33	2.8
Maharashtra	2.12	2.43	2.19	2.26	1.72	4.0	2.07	2.5
^a Orissa	1.81	1.83	1.84	1.78	1.66	5.0	1.90	4.5
Punjab	1.95	1.96	2.14	1.84	2.06	5.0	2.07	2.3
Rajasthan	2.33	2.46	2.85	2.47	2.17	8.3	2.46	5.9
T.N.	1.12	2.01	1.61	1.39	1.62	2.2	1.54	6.9
U.P.	1.54	1.80	2.27	2.24	2.14	3.9	2.28	3.0
W.B.	2.84	2.38	2.09	2.20	1.92	6.1	2.09	3.0

* Natural Growth rate

** C. V. = Coefficient of Variation.

Before we proceed further, it may also be pointed out that T.N. has been in somewhat different position compared to all other states including Kerala. T.N. experienced population growth rate of above 2 per cent only for the period of 1961 -71. Orissa also falls in a different category but in Orissa the growth rate has been quite stable at the level of 1.8 per cent until 1981 whereas T.N. has experienced more ups and downs in its population growth rate. In 1970s as well as 1980s, T.N. experienced natural growth less than two per cent and substantially lower than what had been observed for Kerala. It seems that in T.N. fertility transition took place, probably with faster rate at comparatively higher level of infant and child mortality than that in Kerala (Pathak and Ram 1987).

Now let us attempt to gauge the prospect of population growth for India and some states especially BIMARU ones in the light of growth pattern over the time experienced by Kerala. From Table 2, it may be observed that for India, annual growth rate has been static about 2.2 per cent since 1961-71 with only marginal decline in 1981-91. After the publication of 1991 census, several demographers (Pathak and Ram 1991; Srinivasan 1991 and Visaria 1991) have pointed out towards a gross under-enumeration of population in 1991 census. The observed decline in sex ratio of population in 1991 combined with mortality differentials in 1980s, suggests that females are under-enumerated to the tune of 7-10 million. Therefore, the growth rate for 1981-91 seems to be artificially reduced. These facts also lead one to conclude that growth rate of India's population had not been less than 2.2 per cent so far during 1981-91. Registrar General of India (Nanda 1991) argues that an under count of 1.5 per cent would be an achievement. In view of this optimism, the population growth for the 1980s may work out to be higher than that for the 1970s. In fact, data on birth rate and death rate from the SRS also show upward trends in natural growth rate. Further, there is not yet secular downward trend observed in the natural growth. Nevertheless, like Kerala, India has also been in the region of above two per cent growth for the last three decades. Hence one must examine whether India would experience decline in the growth rate during 1990s, the way Kerala experienced in 1970s. Let us have a look at the trend of natural increase of population in India.

It may be seen from Table 2 that the even natural growth rate for India has increased from 1.97 per cent in 1970s to 2.14 per cent in 1980s. From the average natural increase, it may be observed that only Gujarat, Kerala and T.N. experienced decline in their natural growth rate during the last two decades. Mention may, however, be made that even for these states, the decline in natural increase began after 1980. It seems that natural increase in Kerala began to decline with faster pace when mortality level reached to its low static level. In 1980, Kerala had CDR of about 6.8, IMR of about 38 and female literacy of 66 per cent. This obviously implies that the states like Assam, Bihar, M.P., Orissa, Rajasthan and UP., where CDR is still around 13 or above might experience a further increase in the natural growth rate due to drop in their CDRs. On average, BIMARU states have IMR well above 100 per one thousand live births in 1988 and female literacy below 20 per cent.

Now let us examine the prospects of growth in BIMARU states which are said to set the national growth pattern. Analysis presented above indicates that BIMARU States enter two per cent or above growth region only in 1971-81, 30 years later than Kerala. Kerala experienced decline in the growth rate of population in 1971-81 mainly due to migration as natural growth did not show substantial decline in 1970s. Of course in 1980s, it seems to be

more due to decline in natural growth. As a corollary to the above, the BIMARU states might take three decades before they come out of the critical region of two per cent growth rate. Rather during this period, they may experience more accelerated growth rate than what Kerala experienced in the 1950s and 1960s unless the use of contraception increases faster in the next decade.

Thus, in BIMARU states, demographic transition may not be as fast as observed in Kerala. Kerala experienced the growth rate virtually in the absence of family planning programme. When the F.P. programme got impetus in 1970s, social environment seemed to have been very conducive to the use of contraception and adoption of small family norm was already under way. In addition, age at marriage was already quite high in Kerala. Now demographic transition in the BIMARU states is taking place under vigorous governmental programme in absence of favourable social environment e.g., female literacy is very low and child mortality is high. So under the present situation, BIMARU states may take more than three decades to come out of the third stage of demographic transition. This would surely lead one to believe that India may continue to experience growth rate in the vicinity of two per cent also for 1991-2001 period. For the Eighth Five Year Plan some researchers have given the lower limit of the growth rate as 2 per cent (Pathak *et al.* 1991).

There are a number of other states like Assam, Haryana, Maharashtra, Punjab and WB where natural growth rate has been above two percent and no definite trend has emerged in the 1980s. This enforces our stand about the continuation of the present level of population growth rate in India for another one decade. However, states like Maharashtra, Punjab and W.B. may experience sudden change in their natural growth rates as they have very high level of prevalence of contraception and they live in a conducive social environment for adoption of the small family norm.

The above analysis clearly indicates that there is wide diversity in demographic transition taking place in the different states of India. It may be visualized that India's population may continue to grow at around two per cent for yet another decade because the BIMARU states would have greater role in determining the population dynamics of India and their population might grow with higher annual growth rate for the next two or three decades.

Population Redistribution

The growth rate of urban population in India during 1981-91 has been substantially lower than that for 1971-81 (36.19 in 1981-91 against 46.14 per cent in 1971-81). This led to marginal increase in the percentage of urban population. Percentage of urban population increased from 23.3 in 1981 to 25.7 in 1991. This may indicate slow down in the rural to urban migration and also reduction in the natural increase of the urban population during 1981-91. However, the natural growth rate in urban India has been more than two per cent even in the recent years. Except the states of Assam, Kerala, Orissa, Tamil Nadu and West Bengal, for all other states urban population had natural growth rate well above 2 per cent. Here too BIMARU states are at the top and their urban population experienced the natural growth rate well above 2.2 per cent. So the present level of natural increase of urban population undermines the role of rural to urban migration in the urban growth rate.

The decline in growth rate of urban population may be due to the following three factors:

- (i) decline in natural increase,
- (ii) decline in rural-urban migration rate,
- (iii) declassification of the urban areas.

At all India level, it may be seen from Table 3 that natural growth of population in urban areas has been fairly constant during the last two decades. This indicates that the decline in urban growth may be attributable to only rural-urban migration and declassification. Out of an absolute increase of 56.45 million in urban population of India (excluding Assam and J & K) during 1981-91, 9.47 per cent is attributed to declassification. The corresponding figure for 1971-81 was about 14.9 per cent. Thus the absolute change in the urban population during 1981-91 due to reclassification is merely 5.35 million as against 51.10 million due to the factors of natural growth and rural-urban migration. Since the natural increase for urban areas was about 1.0 per cent per annum during 1981-91, the rate of rural-urban migration has contributed much less in the increase of the urban population. Hence the population movement during 1981-91 from rural to urban areas might have not exceeded that of 1971-81 period.

TABLES: ANNUAL EXPONENTIAL GROWTH RATE AND NATURAL INCREASE OF POPULATION IN THE URBAN AREAS OF SELECTED STATES

<i>India/State</i>	<i>Exponential Growth Rate (%)</i>		<i>SRS-based Natural Growth Rate (%)</i>	
	<i>1971-81</i>	<i>1981-91</i>	<i>1971-81</i>	<i>1981-91</i>
India	3.83	3.09	1.93	1.96
Andhra Pradesh	3.96	3.55	2.12	2.08
Assam	5.01	3.27	-	-
Bihar	3.64	4.37	-	2.36
Gujarat	3.44	3.47	2.15	2.11
Haryana	3.04	4.67	2.17	2.37
Karnataka	3.02	4.10	1.77	1.97
Kerala	3.05	3.19	1.94	1.66
Madhya Pradesh	3.83	4.45	2.23	2.26
Maharashtra	3.42	3.36	1.86	2.06
Orissa	5.09	5.22	2.00	1.98
Punjab	2.25	3.68	2.02	2.13
Rajasthan	3.25	4.62	2.26	2.27
Tamil Nadu	3.27	2.47	1.71	1.62
Uttar Pradesh	2.68	4.74	2.04	2.20
West Bengal	2.50	2.76	-	1.36

The observation of natural increase at state level (Table 3) indicates that except for the states of Kerala, Tamil Nadu and West Bengal, natural increase may be a dominant factor in urban growth rate in other states. Further, the differential in the changes in urban growth rate of the various states cannot be fully explained through the variation in the natural growth as it has not changed substantially for the majority of the states. In other words, whatever the small change in urban growth rate is, it is mainly due to reclassification and change in rural-urban movement (R.G.I. 1991).

In Table 4, we have presented the population concentration index and redistribution index taking state as unit. It may be observed that population concentration and redistribution indices have remained constant during the last two decades. This probably indicates the fact that, the distribution of population by states has almost remained static since 1981. This is due to the fact that natural growth is not only a dominant factor in population growth but also it is well above two per cent in most of the states. T.N. and Kerala are the only two states which have lost their share of the population in total population.

TABLE 4 : INDEX OF POPULATION CONCENTRATION AND REDISTRIBUTION IN INDIA SINCE 1951

<i>Time</i>	<i>Population Concentration Index (PCI)</i>	<i>Redistribution Index</i>
1951	27.0	-
1961	26.0	2.09 (9.20)*
1971	25.3	1.50 (5.90)
1981	24.6	1.15 (4.00)
1991	24.2	1.15 (4.70)

Note: Up to 1981, figures are taken from Pathak and Murthy (1985).

* Index calculated by taking population by size class urban units. This index is multiplied by 100.

Index of redistribution by taking rural-urban distribution in total population of India changes from 3.65 for 1971-81 to 2.61 for 1981-91. This may again indicate the comparatively lesser importance of the rural-urban movement in 1980s compared to 1970s. Since lesser number of towns and rural areas are classified or added in urban areas in 1980s, the distribution of population by size class may be quite static as index of redistribution by size class is very low. There is slight change in the index from 1971-81 to 1981-91. Above analysis on redistribution probably shows that pattern of population growth in India and movement across the states have not made impact on spatial distribution after 1971.

Concluding Remarks

This paper examines the pattern of population growth and its redistribution in India with greater emphasis on Kerala and 'BIMARU' states. It is felt that transition in the growth rate at the national level may be determined in future by the BIMARU states. While Kerala took nearly three decades to come out of the 'Two Per Cent Growth Rate Syndrome' inspite of very favourable social environment, i.e. high female literacy and very low infant and child

mortality, it may be very difficult for the BIMARU states and, hence, for India to come out of the above two per cent growth rate in less than three decades. India has already experienced this growth rate for the three decades. It seems that the BIMARU states may continue to grow above two per cent for another two or three decades unless family planning programme, along with supporting educational programme and health programme become more responsive to local needs and become more acceptable to the people.

Analysis of SRS data also indicates that there is no substantial change in the natural growth of the urban population in almost all the states except Kerala and Tamil Nadu. In fact, natural increase is still a dominant factor in the increase of urban population. Movement of population across the states has no significant impact on the distribution of population. This is again because natural increase in most of the states is around two per cent.

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