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Population Growth Rate in India: Emerging Trend in the Light of 1991 Census Results*

THE 1991 census count placed the Indian population provisionally at 844 million as on sunrise of March 1,1991, indicating that the average annual (exponential) growth rate of population, which was 2.22 percent during the 1971-81 decade, declined to 2.11 percent during the last decade (1981-91). The decrease in the growth rate during the last decade, although marginal, is particularly notable as it is for the first time during the post-independence era that such a trend has emerged. Some demographers consider this decline, though slight, encouraging (Premi 1991; Tyagi 1991; Goyal 1991), while others view that the decline is not real and the growth rate continues to increase in India (Bose 1991).

This marginal decline in growth rate during the last decade may arise due to varied lapses in the census of 1991 leading to greater under-enumeration in 1991 as compared to that in 1981 census. The net under-enumeration was of the order of 1.7 to 1.8 percent during the 1971 and 1981 census and it is claimed by the Census Commissioner that it would be of the order of 1.5 percent in 1991 (Bose 1991). For the time being, let us assume that in the 1991 census the extent of under-enumeration is not expected to be more than that found in 1971 or in 1981, particularly in view of the fact that the census count (843.9 million) almost exactly tallies with the projected figure of 843.6 million estimated by the Planning Commission's Standing Committee of Experts on Population Projections (Govt. of India 1989).

The question arises whether this decline at the national level is real, indicating that a stage for rapid decline in population growth is set, or is the decline illusionary, connoting a stage of demographic inertia. By this reckoning, should the family planning programme be regarded as effective? Once the detailed age-sex data as well as other details of 1991 census are known, one can comment with some confidence on these issues. A summary comparison of decadal growth rates for the country as a whole can hardly reveal the true situation and

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the dynamics behind it. It is necessary to have a clear understanding of the dynamics of population growth in terms of changes in vital rates at least at the state level. However for India, reliable estimates of vital rates are lacking. Nevertheless, an attempt has been made here to examine the available state level data from census and other sources to examine whether acceleration in the pace of population growth at the national level has reversed during the last decade as observed based on 1991 census results. Since India is a large country with its states at various stages of demographic evolution and all India trend is likely to confound changes taking place in a few slates which are leading in the transition process, the demographic trends in the major states are particularly examined to anticipate the pattern at the national level.

Population Growth Pattern

To help place the Indian population growth pattern over the past century in perspective we have shown in Table 1 the average annual growth rates of the population by various zones of India over the census decades. Considering the 1991 census results, the pattern of India's population growth can now be divided into four parts, the points of division being 1921,1951 and 1981. The year 1921 is considered as the 'great divide' because it demarcates the earlier period of naturally checked population from a period of moderately increasing growth. The rate of inter-censal growth was very low before 1921 and, in fact, negative during 1911-21. After 1921, a progressive control of epidemics of cholera and plague resulted in an acceleration of the rate of population growth to between 1.0 to 1.3 percent at the national level. The northern zone had shown exceptionally high population growth during 1931-41. The growth rate was otherwise virtually stable during 1931-51. The year 1951 marks the beginning of a period of rapid population growth as a result of sharper decline in death rates after Independence in 1947. The increase in population growth rate in western and southern zones has in fact been witnessed since 1941 (see Table 1). During the 30 year period 1951 -81, the population of India increased rapidly by almost 89 percent. The rate of India's population growth which has already risen to 1.96 percent during 1951-61 was even higher (2.20 percent) during 1961-71. This rate continued to rise, albeit slightly (2.22 percent), during 1971-81. The expectation that the growth rate at the national level would start declining during the 1970s, as a result of revamping of family planning programme in the late 1960s, did not come true. Nevertheless, the provisional results of the 1991 census indicate that the annual growth rate in the country during the 1980s declined, although marginally from 2.22 percent during 1971-81 to 2.11 percent during 1981-91. An examination of the zonal growth rate during 1981-91 reveals that all the zones have witnessed decline in growth rates of varying magnitudes, except central zone where it remained stable during the last two decades. Since the three zones, viz., southern, western and eastern which account for two-third of the country's population experienced a continous decline in growth rate over the past two decades, the growth rate at the national level has started to decline, albeit slightly, during the last decade. Thus, it appears that the year 1981 would be another great divide in the demographic history of India in that there has been a deceleration in the population growth rate since that year.

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TABLE 1: AVERAGE ANNUAL EXPONENTIAL GROWTH RATE OF POPULATION BY VARIOUS ZONES OF INDIA, 1901-1911 TO 1981-1991

Zone	*Average Annual Exponential Growth Rate of Population*								
	1901-11	*1911-21*	*1921-31*	*1931-41*	*1941-51*	*1951-61*	*1961-71*	*1971-81*	*1981-91*
Northern Zone	—0.16	0.06	0.01	2.68	0.91	2.29	2.51	2.70	2.44
Eastern Zone	0.65	0.00	1.08	1.45	1.08	2.32	2.24	2.14	2.13
Central Zone	0.32	-0.26	0.77	1.24	1.03	1.73	2.03	2.27	2.29
Western Zone	0.92	-0.09	1.33	1.33	1.72	2.19	2.49	2.28	2.03
Southern Zone	0.87	0.19	1.12	1.18	1.53	1.57	2.06	1.96	1.74
India	0.56	-0.03	1.04	1.13	1.25	1.96	2.20	2.22	2.11

Source : Computed from census data on population by zone for the period 1901-91 (Premi 1991)

Interstate Variations in Population Growth During The Last Two Decades

An examination of the rate of change in the exponential population growth rate during 1981-91 over 1971-81 in the 15 major states with a population of 16 million and above, reveals that 11 states experienced a decline while 4 had an increase in it. The highest magnitude of decline (more than 20 percent) has been shown by Gujarat, Karnataka and Kerala, followed by Tamil Nadu, Punjab and Rajasthan (10-20 percent), while lowest quantum of decline has been observed in Assam, U.P., Bihar, Orissa and Haryana (less than 10 percent). The states which have shown an increase in growth rate are Madhya Pradesh, Andhra Pradesh, West Bengal and Maharashtra. The observed interstate variations in growth rate are a function not only of differences in birth and death rates but also of the level and direction of migration. The detailed results of the estimated level of change in birth rate, death rate and net migration rate over the period 1971-81 and 1981-91 for all the major 15 states are therefore given in Table 2. This'table also provides the estimated levels of these rates separately for the two decades. It finally gives the estimated natural growth rate and the observed exponential growth for the 1971-81 and 1981-91 decades and the level of change during this period. One may raise doubt about the two sets of data used to obtain state level estimate. In the absence of other reliable data to study the relative significance of the three components of population change, the present analysis has been done to have a very rough idea of the size and nature of changes in the natural growth rate in each state over the last decade.

A comparison of the natural growth rates, based on vital rates derived from other sources, and the exponential rates revealed by the census for the whole country for both decades shows no notable differences. For the country as a whole, assuming migration to be negligible and insignificant, the marginal difference in the SRS and census growth rates for

TABLE2 : COMPONENTS OF POPULATION GROWTH IN INDIA AND DIFFERENT STATES, 1971-91

State	*Estimated Decadal Vital Rate*										*Atanees in the Decadal. Rates during 1971-81 to 1981-91*				
	1971-81					*1981-91*									
	B.R.	*D.R.*	*RNI*	*EGR*	*NMR*	*B.R.*	*D.R.*	*RNI*	*EGR*	*NMR*	*B.R.*	*D.R.*	*RNI*	*EGR*	*NMR*
Rate of change in EGR from 1971-81 to 1981-91 : Positive															
1 . Maharashtra	32.6	12.0	20.6	22.1	+ 1.5	29.4	8.8	20.6	22.6	+2.0	-3.2	-3.2	0	+0.5	+0.5
2. Madhya Pradesh	39.8	16.8	23.0	22.7	-0.3	37.3	14.2	23.1	23.7	+0.6	-2.5	-2.6	+0.1	+ 1.0	+0.9
3. West Bengal	35.0	14.5	20.5	21.1	+0.6	30.2	9.5	20.7	22.0	+ 1.3	-4.8	-5.0	+0.2	+0.9	+0.7
4. Andhra Pradesh	35.1	13.8	21.3	21.0	-0.3	29.8	10.3	19.5	21.4	+1.9	-5.3	-3.5	-1.8	+0.4	+2.2
Rate of change in EGR from 1971-81 to 1981-91 : Negative (< 10 Percent)															
1. Assam	43.1*	20.9*	22.2	21.2	-1.0	33.3	9.1	24.2	21.2	-3.0	-9.8	-11.8	+2.0	0	-2.0
2. Uttar Pradesh	45.0	21.0	24.0	22.9	-1.1	38.0	15.0	23.0	22.4	-0.6	-7.0	-6.0	-1.0	-0.5	+0.5
3. Bihar	40.9	18.8	22.1	21.7	-0.4	37.3	13.5	23.8	21.1	-2.7	-3.6	-5.3	+ 1.7	-0.6	-2.3
4. Orissa	36.4	18.8	176	18.5	+0.9 -	321	13.1	190	178	-1.2 -	-4.3 -	-5.7	+1.4	-0.7 -	-2.1 -
5. Haryana	378	12.2	25.6	25.5	0.1	35.6	9.4	26.2	23.3	2.9	2.2	-2.8	+0.6	0.2	2.8

State	Estimated Decadal Vital Rate										Changes in the Decadal Rates during 1971-81 to 1981-91				
	1971-81					1981-91									
	B.R.	D.R.	RNI	EGR	NMR	B.R.	D.R	RNI	EGR	NMR	B.R.	D.R.	RNI	EGR	NMR
Rate of change in EGR from 1971-81 to 1981-91 : Nega- tive (10-20 Per- cent)															
1. Tamilnadu	29.5	13.0	16.5	16.3	-0.2	25.5	10.2	15.3	13.9	-1.4	-4.O	-2.8	-1.2	-2.4	-1.2
2. Rajasthan	42.4*	17.9*	24.5	28.7	+4.2	36.9	12.7	24.2	24.7	0.5	-5.5	-5.2	-0.3	-4.0	-3.7
3. Punjab	32.3	10.8	21.5	21.6	+0.1	29.3	8.7	20.6	18.5	-2.1	-3.0	-2.1	-0.9	-3.1	-2.2
Rate of change in EGR from 1971 –81 to 1981-91 : Negative (> 20 Percent)															
l.Karnataka	35.3	11.6	23.7	23.9	+0.2	28.8	9.0	19.8	18.8	-1.0	-6.5	-2.6	-3.9	-5.1	-1.2
2. Gujarat	37.6	13.5	24.1	24.6	+0.5	32.2	10.8	21.4	18.9	-2.5	-5.4	-2.7	-2.7	-5.7	-3.0
3. Kerala	27.5	9.2	18.3	17.7	-0.6	22.9	6.4	16.5	13.1	-3.4	-4.6	-2.8	-1.8	-4.6	-2.8
India	37.2	15.0	22.2	22.2	-	32.7	11.5	21.2	21.1	-	-4.5	-3.5	-1.0	-1.1	-

SOURCE : The decadal birth
are obtained from SRS data by taking geometric averages of annual rates for the period 1981-91 (Goyal

* Adjusted based on estimate provided by Mukerji (198 1).

B.R. : Birth Rate D. R. : Death Rate RNI : Rate of Natural Increase EGR : Exponential Growth Rate NMR : Net Migration Rate

TABLE 3: PERCENTAGE DECLINE IN THE DECADAL BIRTH RATE AND INCREASE IN THE COUPLE PROTECTION RATE IN THE SELECTED MAJOR STATES BETWEEN 1971-81 AND 1981-91

Stale . 1991	*Proportion of Population*	*Percentage Change the Decadal Rate*	*Percentage Change in CPR during the Birth last ten years*	*CPR' 1988*	*Percentage Share of Sterilization in CPR* (1988)*	IMR' 1988	*Percentage of female literates to population aged? years & above*
Rate of Change in RNI from 1971-81 to 1981-91:Positive							
1. Assam	2.64	-22.74	53.94	26.2	92.8	100	43.70
2. Orissa	3.73	-11.81	73.50	37.5	82.4	122	34.40
3. Bihar	10.23	-8.80	1 19.77	22.9	88.2	97	23.10
4. Haryana	1.93	-5.82	40.05	56.4	53.2	89	40.94
5. West Bengal	8.06	-13.71	59.55	31.3	91.2	70	47.15
Rate of Change in RNI from 1971-81 to 1981-91:Negative (< 5 Percent)							
1. Maharastra	9.33	-9.82	65.94	54.7	78.5	68	50.51
2. Madhya Pradesh	7.84	-6.28	1 17.00	36.2	77.4	120	28.39
3. UttarPradesh	16.44	-15.56	87.27	28.8	60.4	123	26.02
4. Rajasthan	5.20	-12.97	122.11	27.9	79.9	103	20.84
5. Punjab	2.39	-9.29	83.85	68.2	53.7	62	49.72

State	*Proportion of . Population 199V*	*Percentage Change in the Decadal Birth Rate^*	*Percentage Change in CPR during the last ten years*	*CPR* 1988*	*Percentage Share of Sterilization in CPR (1988)*	*IMR" 1988*	*Percentage of female literates to population aged.7 years & above*
Rate of Change in RNI from 1971-81 to 1981-91:Negative (5-10 Percent)							
1. Andhra Pradesh	7.86	-15.10	72.50	39.0	86.5	82	33.71
2. Tamilnadu	6.59	-13.56	67.07	52.6	79.8	74	52.29
3. Kerala	3.44	-16.73	52.79	46.4	87.0	28	86.93
Rate of Change in RNI from 1971-81 to 1981-91:Negative (> 10 Percent)							
l.Karnataka	5.31	-18.41	121.34	42.3	82.7	74	44.34
2. Gujarat	4.88	-14.36	86.10	53.2	73.3	91	48.50
India	-	-12.10	34.9	39.9	72.6	94	39.42

Note : The states were reclassif led on basis of data on RNI in T: tble2

CPR : Couple Protectii MI Rate IMR : Infant Mortality Rate RNI = Rate of Natural
t Source : Office of R egistrar General (1991).
tt Computed from Table 2.
* SOURCE : Governr nent of India (1990)

the decade 1981-91 reflects the quality of reporting of births and deaths in the SRS. If it is further assumed that quality of reporting of births and deaths suffers equally in SRS, these rates can be adjusted for coverage error by a factor which is the ratio of growth rate revealed by the census and the growth rate based on SRS data. Since the adjustment factor is very close to one (0.995), the state and national level vital rates were not adjusted for the present analysis. The level of birth and death rates obtained for the states as well as for the country as a whole during the last two decades appear to be reasonably correct and the differences over a period of time could be considered as good indicators to explain the observed changes in population growth in India. At the national level, the birth rate has declined by 4.5 points from 37.2to32.7andthedeathrateby3.5pointsfroml5.0toll.5overtheperiod 1971-81 to 1981-91, indicating a decline in growth rate by one point during this period (see Table 2). A comparison of the natural growth rates, based on vital rates derived from other sources, and the- exponential rates revealed by the census for each individual state for both decades shows notable differences, which could mainly be explained by the third component i.e. migration, assuming that the birth and death rates estimated for the state reflect the true level of fertility and mortality. Thus, to have an idea about the likely pattern of population growth that would emerge at the national level, all the 15 major states were again reclassified on the basis of their rate of natural increase (RNI) obtained in Table 2, and are presented in Table 3. It is interesting to note that 10 major states have shown a decline in their natural growth rate during 1981-91 compared to 1971-81, while 5 have shown an increase in their natural growth (see Table 3). These ten major states which have shown a decline in growth rate, share more than two-third of the country's population (69.3 percent), while the remaining five which have shown an increase in their growth rate share about one-fourth of the country's population (26.6 percent). Table 3 also clearly shows substantial changes in the level of birth rates during this period in almost all major states. It is interesting to note that the states which have shown an increase in their natural growth rate have also registered substantial decline in birth rate, except Bihar and Haryana which have experienced only 6 to 9 percent decline in the birth rate. But it was not enough to compensate the decline in mortality. The other states which have shown less than 10 percent decline in birth rates during 1971-81 and 1981-91 are Madhya Pradesh, Punjab and Maharashtra. The decline in birth rate appears to be consistent with the substantial increase in the level of CPR during the last ten years (see Table 3). However, the present level of CPR is still low especially in states like Bihar, Assam, West Bengal, Orissa, Rajasthan, Uttar Pradesh and Madhya Pradesh. It is interesting to note that these states also have high infant mortality rate (above 1 00). This may be the reason that these states could not reduce their growth rate substantially. Nevertheless, the analysis clearly reveals notable and substantial reduction in the level of birth rates in the major states of India, at least enough to reverse the increasing trend in population growth at the national level.

Demographic Transition in India

It is necessary to have a clear understanding of the demographic transition process in terms of changes in vital rates to anticipate future population growth pattern in India. The theory of demographic transition developed on the experience of many developed and a few developing countries, can help to anticipate population changes. If one examines the

transition process in India, it appears that India is still passing through the third stage of transition with falling death rate but more rapidly falling birth rates (see Figure 1). Since the rate of natural increase which speeded up in the initial phases, has shown a tendency to reduce in the recent years, a stage is set to enter the next phase to bring about a new balance between mortality and fertility at lower levels. The speed with which India can achieve this stage or complete the transition can be assessed from the pattern of change in natural growth rates witnessed at the state level.

The 15 major states have been arranged into three broad groups according to the probable

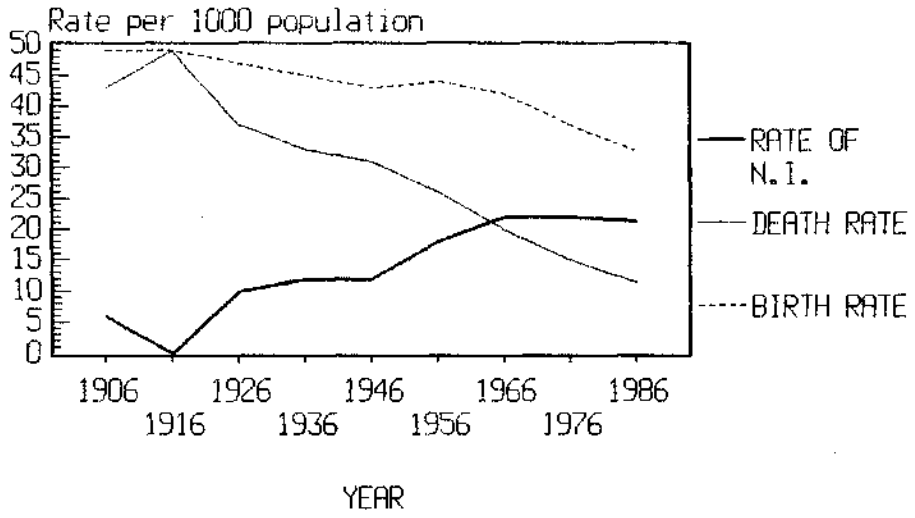

Fig. 1. Birth Rate, Death Rate and Rate of Natural Increase in India, 1906-1986

stage of demographic transition indicated by the trend in the birth rate and growth rate in each state during the last decade and are shown in Table 4. The trend in the rate of natural increase in each state during 1901 to 1991 is also examined in Table 4. The classification thus also takes care of the trend in birth and death rate over a period of time in each state. Since the state level vital rate estimates are not available for he period before 1951, zonal estimates were used to derive rate of natural increase at the state level for the period 1901-1951.

It is apparent from the analysis that declines in the death and birth rates during transition have not occurred at the same pace for each state. Thus, the period and pattern of transition are not similar for all the states. While there may be differences of opinion regarding the assignment of a particular state to one stage of demographic transition or the next, certain broad

TABLE 4 : RATE OF DECADAL NATURAL INCREASE AMONG DIFFERENT STATES OF INDIA, 1901-1991

State	*Rate of Decadal Natural Increase*								
	1901-11	*1911-21*	*1921-31*	*1931-41*	*1941-51*	*1951-61*	*1961-71*	*1971-81*	*1981-91*
Group I									
l.Kerala	9.0	2.0	10.0	12.0	16.0	22.8	23.8	18.3	16.5
2. T. N.	9.0	2.0	10.0	12.0	16.0	12.4	20.0	16.5	15.3
3. A. P.	9.0	2.0	10.0	12.0	16.0	14.5	18.8	21.3	19.5
4. Karnataka	9.0	2.0	10.0	12.0	16.0	19.4	22.3	23.7	19.8
Group II									
l.Orissa	5.0	0.0	11.0	12.0	12.0	17.5	20.8	17.6	19.0
2. Punjab	-3.0	0.0	11.0	16.0	15.0	25.8	19.5	21.5	20.6
3. Maharashtra	0.0	14.0	16.0	14.0	23.0	21.4	24.1	20.6	20.6
4. W.B.	5.0	0.0	11.0	12.0	12.0	22.4	25.8	20.5	20.7
5. Gujarat	9.0	-2.0	13.0	13.0	14.0	22.2	24.8	24.1	21.4
Group III									
l.U.P.	3.0	-2.0	7.0	14.0	10.0	16.6	18.3	24.0	23.0
2. M.P.	3.0	-2.0	7.0	14.0	10.0	20.0	25.1	23.0	23.1
3. Bihar	5.0	0.0	11.0	12.0	12.0	17.3	18.6	22.1	23.8
4. Rajasthan	-3.0	0.0	11.0	16.0	15.0	23.3	24.0	24.5	24.2
5. Assam	5.0	0.0	11.0	12.0	12.0	22.4	29.4	22.2	24.2
6. Haryana	3.0	0.0	11.0	16.0	15.0	25.8	27.7	25.6	26.2
India	6.0	0.0	10.0	12.0	12.0	18.0	22.0	22.0	21.2

SOURCE : Computed from the decadal birth rates and death rates obtained by reverse survival method for the period 1951-81, while the RNI for the period 1981-91 is computed from SRS data (see Table 2). However, zonal reverse survival vital rate estimates were used to derive RNI at state level for the period 1901-51 (Premi 1991).

Notes :

- Group I states have low birth rate (less than 30) and low rate of natural increase (RNI) (less than 2 percent), during 1981-91.
- Group in states have high birth rate (more than 33) and high RNI (more than 2.2 percent) during 1981-91.
- Group n states do not depict either of the above two exclusive patterns during 1981 -91. Interestingly, most of the states in this category have a pattern that approximates the all India average.

conclusions do emerge from this classification. The states are at various stages of transition. Some states are leading the demographic transition, while others are lagging behind in this respect. Out of 15 major states which contain 95.9 percent of India's population, only four states, viz., Kerala, Tamil Nadu, Karnataka and Andhra Pradesh forming Group I, are foremost in the transition process, with relatively large mortality and fertility declines, resulting in a declining growth rate in the last two decades. These states which form 23.2 percent of the country's population had lowest natural growth rate (below 2 percent) in the last decade. The Group II states of Punjab, Maharashtra, West Bengal, Orissa and Gujarat with more than one-fourth of India's population (28.4 percent) have also started declining their population growth rates by catching up the decline in mortality by the decline in fertility in the transition process, though these states still had growth rate of about 2.1 percent or less, closer to national average, in the last decade. The remaining six states which form Group III are lagging behind in the transition process, with increasing growth rates or more or less high stable growth rates over the three decades. These states are Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh, Assam and Haryana. In these states, the decline in fertility has not possibly caught up with the decline in mortality, resulting in an increasing or stable growth rate in the last decade. These six states which constitute 44.3 percent of India's population had a growth rate of 2.3 percent or more in the last decade.

Thus, the period and pattern of transition are distinctly different in the three groups of states. This is also evident from Figures 2 to 5 which show the probable position of each group of states vis-a-vis all-India pattern. The Group I states are leading the demographic transition and have a declining growth rate much below the national average. The Group II states are also advancing in the transition process with a declining growth rate, though it still remains closer to national average. However, the Group III states are still in the early stage of transition and are facing high population growth which is much higher than national average. Most of these states have high death rates, especially high infant mortality rates and are likely to face high population growth in future as a result of the decline in mortality, unless there is compensating fertility decline. Thus, the Group III states might be taking a longer span to complete the transition with a more gradual decline in the growth rate than the other two groups. This is also evident from Figure 5 where probable position of each group of states is shown according to their stage of demographic transition.

It is interesting to note that one of the crucial indicators of social change, namely, female literacy appears to be tied closely to the stage of demographic transition. The Groups I and II states which lead in the demographic transition have also relatively higher level of female literacy, while the Group III states which are lagging behind in this respect, have lowest level of female literacy. Forexample states like Kerala, Tamil Nadu, Maharashtra and Punjab which are in the Group I or II, have female literacy level of at least 50 per cent (Kerala with 87 percent), while Group III states, except Assam and Haryana, have female literacy level of less than 30 percent. In Assam and Haryana the level of female literacy is about 41-44 percent, while it is as low as 21 -23 percent in Rajasthan and Bihar. As a result, in these states age at marriage is low, preferred family size is high and the demand for family planning is very low. The percentage of couples effectively protected is very low (22 to 36 percent) in these states. It is, however, as high as 56 percent in Haryana, although 47 percent of them reported to have adopted spacing methods which may not be effective due to high drop out

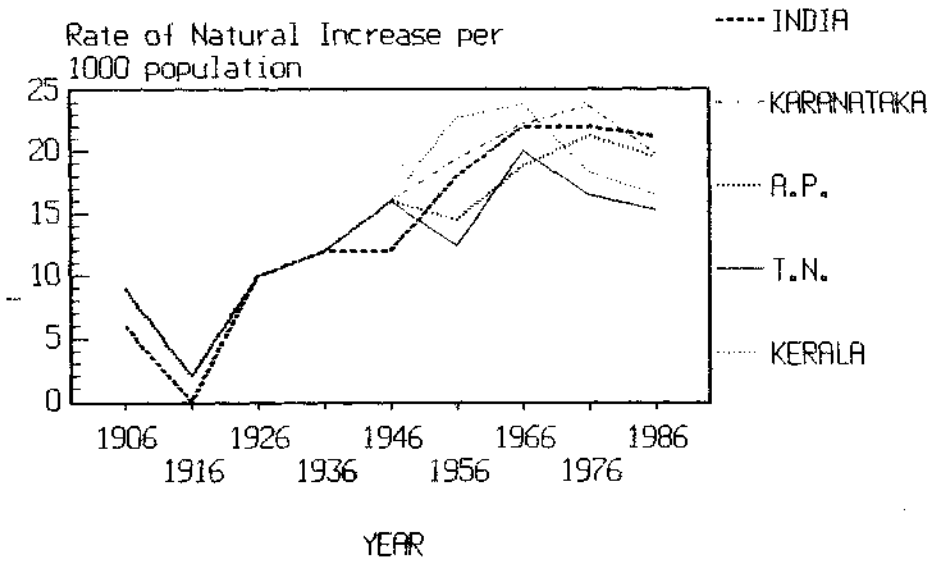

Fig. 2. Rate of Natural Increase among Group I States, 1906-1986

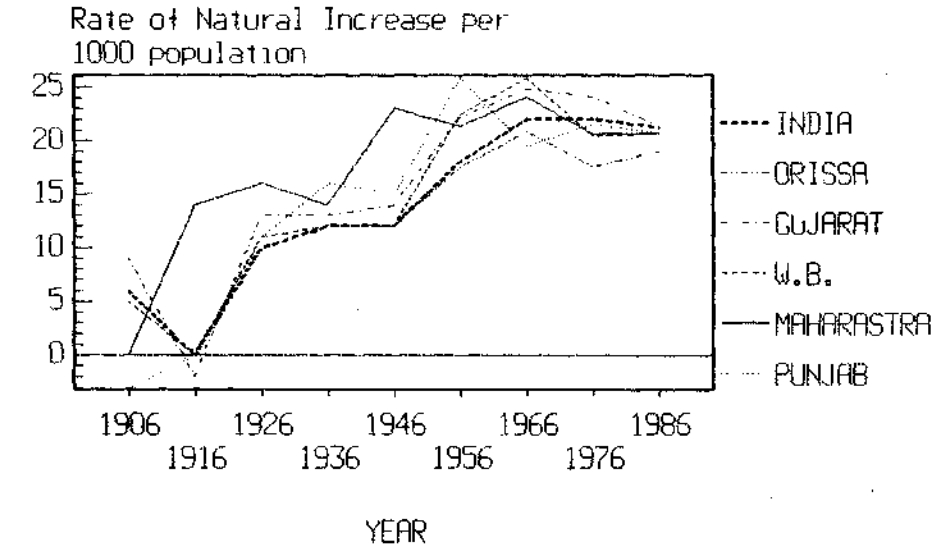

Fig. 3. Rate of Natural Increase among Group II States, 1906-1986

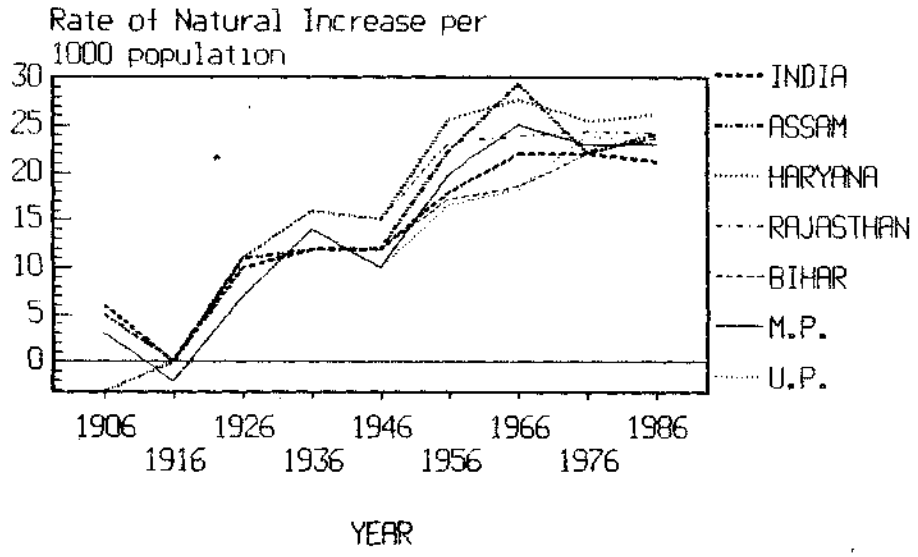

Fig. 4. Rate of Natural Increase among Group III States, 1906-1986

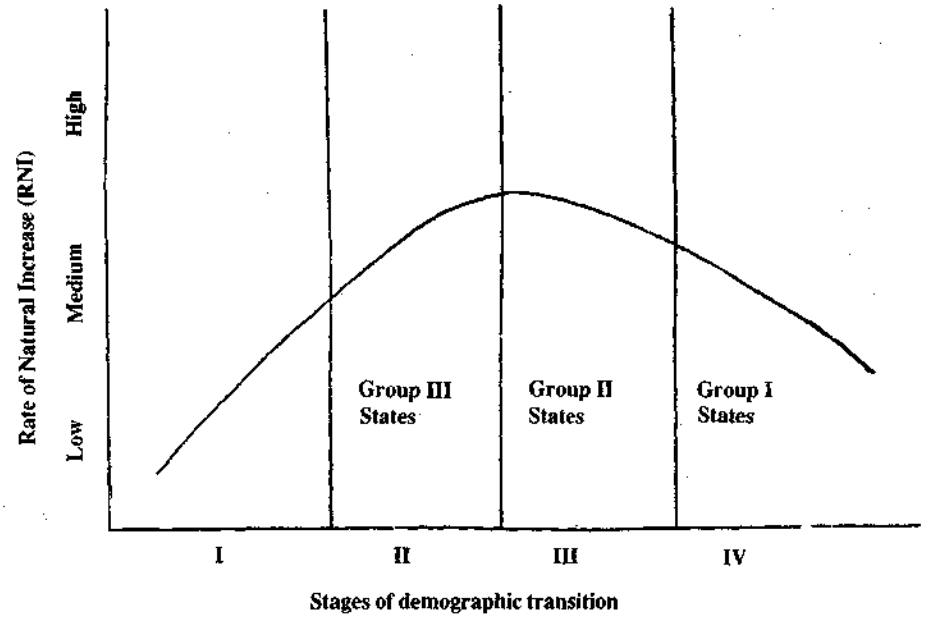

Fig. 5. Probable Position of Various States according to their Stage of Demographic Transition

rates. Therefore, there is limited decline in the fertility of these states. Nevertheless, it is interesting to note that cutting across socio-cultural barriers some of the backward states like Bihar, Madhya Pradesh, Uttar Pradesh and Rajasthan have increased their level of CPR by more than 80-120 percent during the last decade. If this trend is to persist, Group HI states might register a faster decline in fertility to arrest increasing trend in their growth rate. In fact, some of the backward and most populous states of the country like Uttar Pradesh and Rajasthan in the Group III, have also shown a tendency to decline in their natural growth rates during the last decade. In that case, these Group III states might take relatively less time, as anticipated, to complete the transition.

To sum up, the trend of population growth rate in India once again confirms that demographic transition is a slow process and it is basically linked with the process of social change. Although modern science and technology helped to reduce the death rates sharply, without a concurrent process of rapid social and economic development, in developing countries like India, it could not bring down the birth rate sharply. The decline in the birth rate in India is slow, indicating that it would also take a long time to complete the process of demographic transition. Moreover, the experience of certain states in India which are leading the demographic transition indicates that reduction in the birth rate is mainly linked with the spread of literacy and education, especially female literacy.

Concluding Remarks

On the whole, the above analyses, despite limitation of data, convey a hopeful message. The results clearly show that there was marked decline in fertility during the last decade in almost all major states and as a result at least ten major states comprising 69 per cent of the country's population, registered decline in their natural growth rate of population during the last decade. The implication of this is that at the all-India level acceleration in the pace of population growth has reversed during the last decade.

Considering the demographic trend in the major states which are at various stages of demographic evolution, as well as variations among the states with regard to social indicators, infant mortality rate and demand for contraception, it is satisfying to note that a stage is already set for a decline in rapid population growth in major states of India including backward and most populous states like Uttar Pradesh and Rajasthan which have also started experiencing decline in their growth rates. In view of this, one would expect that growth rate at the all-India level would decline further in near future. The time span required to enter the next phase of transition, with low levels of fertility and mortality, depends not only on the family welfare inputs, but more importantly on the proven social inputs, viz. the spread of female literacy, particularly in the backward Group III states in the country.

References

Bose, Ashish, *1991, Population of India: 1991 Census Results and Methodology,* B.R. Publishing Corporation, Delhi. Government of India, 1990, *Family Welfare Programme in India: Year Book, 1988-89*, Ministry of Health & Family
Welfare, Govt. of India, New Delhi.

Government of India, 1989, Standing Committee of Experts on Population Projections, Planning Commission, New Delhi. Goyal, R. P., 1991, First Results of 1991 Census: A Small Decline in Growth Rate. Paper presented in the Symposium on *The 1991 Census of India: Methodology and Implications of First Results* held at Institute of Economic Growth, Delhi, 16th April 199J. Office of the Registrar General and Census Commissioner of India, 1991, *Provisional Population Total,* Paper 1 of 1991, Census of India, New Delhi. *Premi,MahendnK..,l99\,India's Population: HeadingTowardsaBillion, An Analysis of 1991 CensusProvisional Results,* B.R. Publishing Corporation, Delhi. Mukerji, S., 1981, Natural Increase and Migration as Components of Population Growth: Indian Union and Major States, *The Journal of Family Welfare,* 28(2). Tyagi, R. P., 1991, Pattern of Population Change in India, 1981-91. Paper presented in the Symposium on *The 1991 Census of India: Methodology and Implications of First Results* held at Institute of Economic Growth, Delhi, on 16th April, 1991.