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The Provisional Results of 1991 Census: Implications of the Population Growth for Future Size of Population

THE population of India as on 1st March 1991 is 844.32 million. This population includes a projected population of 7.72 million of Jammu & Kashmir where census has not yet been conducted. The population of India during the decade 1981-91 has increased by 23.50 per cent. The corresponding growth rate during the decades 1961-71 and 1971-81 are 24.59 per cent and 24.87 per cent. The average annual growth rate (exponential) works out to be 2.11% per cent during the decade 1981-91 as against 2.20 per cent and 2.22 per cent respectively during 1961-71 and 1971-81. This is the first decade in this century when the growth rate has declined even though the decline is only marginal.

An analysis of the population growth in various States shows that in six most populous States, namely Uttar Pradesh, Bihar, Maharashtra, West Bengal, Andhra Pradesh and Madhya Pradesh, accounting for 59.7 per cent of country's population either the growth rate has increased slightly or declined negligibly i.e., less than 1 percentage point in a decade.

In the States of Andhra Pradesh, Arunachal Pradesh, Madhya Pradesh, Maharashtra, Meghalaya, West Bengal, Tripura and the Union Territories of Dadra & Nagar Haveli, Lakshadweep and Pondicherry the growth rate has increased. These States roughly contribute 1/3 of the population of the country. In all other States and Union Territories the growth rate has declined.

In the States of Goa, Gujarat, Karnataka, Kerala, Mizoram, Sikkim, and the Union Territories of Andaman & Nicobar Islands, Chandigarh and Dadra & Nagar Haveli the growth rate has declined by more than 5 percentage points. These States and Union Territories contribute about 14 per cent of India's population. In the States of Haryana, Himachal Pradesh, Manipur, Punjab, Rajasthan, Tamil Nadu and the Union Territory of Delhi the growth rate has declined by 1-5 percentage points. In Bihar, Meghalaya, Orissa, Uttar Pradesh, accounting for 30.62 per cent of India's population, the decline has been less than one percentage point.

The lowest decadal growth rate of 13.98 per cent has been registered in Kerala. The adjoining State of Tamil Nadu had also registered a growth rate of 14.94 per cent. In Goa, Himachal Pradesh and Orissa the decadal growth rate of population is less than 20 per cent.

The population of India is extraordinarily close to the projections prepared by the Standing Committee of Experts appointed by the Planning Commission to work out the projections for the formulation of the 8th Plan. The Standing Committee had projected the

population at 843.6 million as against the provisional totals of 844.32 million. The State-wise comparison of the projected figures with the provisional figures indicates that at State level also the figures are close. In view of the closeness of the projections and the provisional population totals a few conclusions can be drawn regarding the likely levels of current fertility and mortality and the likely path of future population growth.

The Standing Committee's projections were based on the fertility and mortality estimates released by the Sample Registration System (SRS) of the Office of the Registrar General, India. The estimates of fertility and mortality based on SRS are released annually by Office of the Registrar General, India. The closeness of the projected figures based on SRS and the provisional population results gives confidence that the data based on SRS are more or less accurate. On this basis, it appears that the birth rate during the decade 1981-91 for India as a whole may be around 32.8 and death rate may be around 11.5. The expectation of life at birth for India as a whole for the period may be close to the figures of 1981-88 based on SRS, namely 55.9 years for males and 56.1 years for females. It is emphasized that these conclusions are tentative. Only the release of 1991 census age-sex distribution, expected sometimes during 1993, could lead to firm conclusions.

Table 1 gives the expectation of life at birth during various periods, based on SRS.

TABLE 1: EXPECTATION OF LIFE AT BIRTH

<i>Year</i>	<i>Mid-point</i>	<i>Expectation of life at birth</i>	
		<i>Males</i>	<i>Females</i>
1961-71	1966 (Sept.)	46.4	44.7
1971-81	1976 (Sept.)	50.9	50.0
1981-88	1985 (Jan.)	55.9	56.1

The estimates of life expectancy during the periods 1981-88 and 1971-81 are based on Sample Registration System while those for 1961-71 are based on census. The increase in expectation of life at birth during the intervening periods was 4.5 years and 5.0 years for males and 5.3 and 6.1 years for females. The average improvement in life expectancy per year during the period 1976 to 1985 works out to be 0.61 years for males and 0.74 years for females. However, the improvement in expectation of life at birth, seems to be less during the later half of the decade as may be seen from the life expectancy during the two periods 1981-85 and 1986-88 (Table 2).

TABLE 2: EXPECTATION OF LIFE AT BIRTH DURING 1981-85, 1986-88

<i>Period</i>	<i>Mid-point</i>	<i>Males</i>	<i>Females</i>
1981-85	July 83	55.4	55.7
1986-88	July 87	56.9	57.4
	Increase	1.5	1.7

The gain during this period of 4 years has been 1.5 years for males and 1.7 years for females giving an annual increase of 0.375 years for males and 0.425 years for females. On the basis of this improvement, the life expectancy in 1991 may be estimated around 58.3 years for males and 59.0 years for females. This is lower than the estimates anticipated by the Standing Committee of Experts, namely 59.4 years for males and 60.4 years for females. In other words, the assumption made in population projections that the expectation of life at birth would continue to increase at the rate of 0.50 years per annum for males and 0.55 years for females seems to need a closer look. While for the decade as a whole, the mortality improvement seems substantial, in the later half the progress seems to be less. It is emphasized that these conclusions are tentative. The SRS age specific death rates for the years 1989 and 1990 and the 'Census age distribution' would have to be examined thoroughly to confirm this observation.

The Standing Committee had prepared population projections upto 2006. The Committee had estimated that the population will be around 1003 million in 2001 and would be around 1052 million by 2006. The Committee has not projected the population beyond 2006. The Committee's projections, however, imply that the goal of Net Reproduction Rate of unity would be reached only around 2011-16 as against target date of 2000. The near stagnation in growth rate of the six most populous States of India, namely, Andhra Pradesh, Uttar Pradesh, Bihar, Maharashtra, West Bengal and Madhya Pradesh, accounting for 60 per cent of the country's population, is a warning signal that the goal may be still far away.

Any long term projection beyond 20-25 years would involve certain assumptions and it would be rather hazardous to project the population for a longer period. However, it would be worthwhile to attempt one projection to see the likely level of population in India, when stability is reached. One such projection was attempted by the working group on population policy which had projected in 1980 that if NRR of one (1) is reached by 2001, the population of India could be stabilised around 1250 million in 2040. In view of the fact that the 1991 Census has shown that the NRR of one is not likely to be reached by 2001, it would be worthwhile to have some idea of the future population of India. A rough projection undertaken assuming that the NRR of one would be reached sometimes during the quinquennium 2011-16 and would remain at that level beyond that period indicates that the population of India is likely to exceed 1500 million by 2041. Even then, it would be growing at the rate of half a per cent per annum. It is interesting to note that the World Bank had projected that the population of China is likely to be around 1413 million by 2035 and it is likely to stabilize round 1426 million. It appears, therefore, that the population of India is likely to outstrip the population of China by around 2030 and worse still would be growing at a rate of around half a per cent, while that of China would have stabilised.

The long term population growth and progress towards stability are functions of the time-period required for transition from high fertility and high mortality conditions to low fertility and low mortality conditions. The first stage of this process is the mortality decline, the second is fertility decline. The first phase results in an increase in growth rate while the second phase results in stagnation and subsequent decline in growth rate.

In India, the first phase of increase in growth rate during demographic transition due to declining mortality seems to have started from 1921 onwards and is still on. The next phase of demographic transition namely, declining growth rate due to declining fertility seems to

have set in. The results of the 1981 and 1991 Censuses of India indicate that in India the fertility decline seems to have started around 1970 and it is still continuing. In the 1961-71 decade, the birth rate of India was 41.2 per 1000. This declined to 37.2 during 1971-81 and during 1981-91 it is tentatively estimated to be in the range of 32.5 to 33.0. The SRS of the Office of the Registrar General, India has indicated that the population growth has started declining from 1988. If the transition takes place very quickly then the population level can be much lower but in India's case the demographic transition seems to have been taking a much longer period. As a result, the population is likely to exceed 1500 million. In fact, the entire demographic transition starting from 1921 onwards will take about 120 years to complete. During this phase the population is likely to increase by about 6 times. In other words, from a population of 251 million in 1921 it is likely to reach around 1500 million in 2050.

The demographic transition is not occurring at a uniform pace in all parts of India. Kerala seems to have already reached the goal of NRR of one. In this case, the population is likely to stabilise in about 30-40 years. On the other hand, in Uttar Pradesh, the second phase of transition, namely, declining growth rate does not seem to have started as yet.

A comparison of the NRR for India and its States indicates that though Kerala and Tamil Nadu both have a very low NRR of around one, there is a lot of difference between these two States. Kerala has a life expectancy estimated around 70 years during 1986-88, whereas Tamil Nadu has a life expectancy of only 59. With more development, the life expectancy is likely to increase in Tamil Nadu faster. As a result, more people are likely to survive and the population is likely to grow. Therefore, much more stronger efforts would be required in Tamil Nadu to control fertility through family planning and non-family planning methods than in Kerala. In other words, even though both in Kerala and Tamil Nadu, NRR is around one and both show a low growth rate, a further analysis of the fertility and mortality indicates that in Kerala, the stability is likely to be reached soon while in Tamil Nadu the population is not likely to stabilise for some more time. Even then, Tamil Nadu is still better than most other States. In the northern States of Bihar, Rajasthan and Uttar Pradesh, the NRR is quite high, being over 1.8. In these States, therefore, it is very unlikely that the NRR of one may be reached by 2001 as has been targetted. One State where the couple protection rate shows very impressive growth is Maharashtra. However, in this State, the NRR in 1986 still continues to be around 1.5. In this State, the growth rate has also shown a slight increase during the decade. While a part of it may be due to migration, it appears that a closer look has to be given to the reasons for near stagnation in growth rate in the State. Of course, the age structure and migration data would have to be awaited to throw light on the reasons for the high growth rate in these States.

Another key result of the 1991 Census which has drawn considerable attention is the declining sex ratio of the population of India. The sex ratio of the population defined as females per 1000 males which was 972 in 1901 declined to 930 in 1971, increased to 934 in 1981 and has declined to 929 in 1991. Various reasons have been attributed for this adverse sex ratio observed in the census. One is the differential under-enumeration in the censuses.

The Post Enumeration Check Surveys conducted after each census do not, however, reveal any significant undercount of females. Further, there is no reason that the enumeration of females can be worse during the later period of 20th century than during the earlier period.

Out-migration of females can also be ruled out as a reason for this disparity. The relative gap in the health conditions of males and females and the change in the sex ratio at birth are offered as plausible explanations for change in sex ratios of the population. Of these two parameters, it is well known that in India, the expectation of life at birth was adverse to females and when the life expectancy went up for both males and females, the gap in the life expectancy widened. It was during the 80s that the expectation of life at birth was almost same for males and females. This can be substantiated from the results of the SRS.

Some demographers have expressed a view that in India the sex ratio at birth might be changing. It is well documented that the sex ratio at birth is generally adverse to *females*. Sex ratio at birth is around 952 *females* per 1000 males. This ratio is based on the large number of hospital records all over the world and demographers generally consider this as a biological constant. In India, a study based on 2 million births that took place in hospitals during 1949-1959 indicated that sex ratio at birth was 106 males per 100 females for the country as a whole but the ratio showed slight variation from 104 to 108 in the northern and central zones. Dramatic changes in the sex ratio can be ruled out. In view of this, the only major reason for the decline in sex ratio seems to be adverse health conditions of females in comparison with males.