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Demographic Transition and Policy Responses in India**

I am deeply grateful to the members of the Indian Association for the Study of Population for electing me the President of the Association for 1994-96. Since the founding of the Association in \91\ (when I had served as a Member of the Executive Committee up to 1973), it is for the first time that a member located outside our national capital has been elected President. I deem it my good fortune that there has been goodwill and widespread support for my candidature from all parts of the country. Let me take this opportunity to assure all the members resident in different parts of the country that with their continued support and the cooperation of the members of the Executive Committee, I will try my best to fulfil the high expectations evident in the considerable mail that I am privileged to receive.

The Theme of the Address

Today, I propose to review briefly the ongoing process of fertility transition in India and the appropriate policy initiatives to accelerate it further. Such an acceleration is essential because of the momentum of growth built into the young age distribution of our population. The momentum of growth makes it inevitable that in the absence of any unforeseeable catastrophe, our population will continue to grow for at least 70 to 80 years after it reaches a replacement level of fertility, probably during 2016-21. The total population at the beginning of the 22nd century would be about 1,818 million or a little less than twice the number we have now by March 1995 (approximately 910 million). This latter figure is frightening; but our grandchildren will certainly live in a country far more crowded than the one we live in. Before discussing the prospects ahead, let us assess the current status of our demographic data base and our understanding of the ongoing process of demographic transition or the changes in both mortality and fertility during the recent past, particularly the last quarter century.

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The Demographic Data Base in India

Compared to many other developing countries, India has been fortunate to have a long tradition of decennial censuses beginning with 1881. The post-Independence censuses have strengthened the scope of information relating to migration and the rural-urban differentials have also been portrayed in considerable detail through elaborate tabulation plans.

Prior to the 1971 Census, it was proposed also to include in the individual enumeration slip questions relating to children ever born and surviving and births during the year preceding the date of enumeration in order to obtain estimates of the levels of mortality and fertility in different districts of the country on the basis of the celebrated Brass method. The questions were pretested and no difficulty was experienced. Unfortunately, the decision-makers in the Planning Commission at the time were persuaded that the Sample Registration System could be used to achieve the same objectives. As a result, the 1981 Census was the first to incorporate these questions. Once again there was opposition to the inclusion of these questions when the scope of the 1991 Census was being decided. Fortunately, the opposition could be overcome. The 1991 census tables relating to even the basic characteristics of the population such as the age and marital status of the population are yet to become available; bjjt the release of the primary census abstracts for all the districts and villages on easily accessible floppies is a commendable landmark in the dissemination of the census data.

The Sample Registration System (SRS), which began effectively a quarter century ago (or around 1970), has recently shown a commendable improvement in the speed of publication of its provisional estimates of vital rates (crude rates) and infant mortality rates by rural urban residence and state. Some further streamlining of the data processing might help to expedite also the estimation of age-specific ferti lity rates. A more important issue with respect to the SRS is the gross under-utilisation of the tremendous potential of this unique longitudinal survey. Given the relatively limited resources available in the Office of the Registrar General for this purpose, the authorities need to forge institutional links with the researchers to explore the modalities of lowering the time and cost of such efforts. One hopes that the exploratory project launched during the past two years would help to forge close links between the SRS and the community of demographers represented by the IASP. The Office of the Registrar General would do wel I to adopt a policy norm whereby the researchers obtain freer access to the records and data of the SRS that were collected five years ago or earlier because such archival research tends to be laborious and attracts only very few scholars. The pay-off to such an enlightened policy of openness would be substantial.

A unique event of the past decade has been the completion between April 1992 and September 1993 of the National Family Health Survey (NFHS), with a sample of nearly 89,000 households and 90,000 ever-married women aged 13-49 years. The release of the preliminary all-India report and six state-level reports (for Uttar Pradesh, Tamil Nadu, Maharashtra, Goa, Haryana and Karnataka) between October 1994 and March 1995 has been an extraordinary achievement (UPS, 1994). Members of the IASP and other social scientists would do well to assign high priority to further analysis of this rich body of data. The reported plans to repeat the NFHS during 1997-98 suggest the need to expedite such further analysis

and to mobilise the requisite financial and professional resources. It is necessary also to identify the extent to which the next round of the NFHS can be tailored to enhance our understanding of the determinants of the ongoing process of fertility transition. It is essential to recognise that a well-conducted scientific survey is a superior basis for inferences than the quasi-journalistic 'field-work' involving casual conversations with a few households, and probably also the well-documented and analysed in-depth case studies or focus group discussions, although the latter are invaluable for generating hypotheses and obtaining leads for follow-up and confirmation. While these three components of our rich data base can usefully be drawn upon to understand the process of demographic transition in India, several key issues merit further research.

Demographic Transition in India

(a) *Mortality Trends*

The similarities between the Indian experience and the experiences of other countries with respect to the 'theory' of demographic transition are broadly well-known. The decline in mortality has indeed preceded the fall in fertility and the rate of natural increase has, as a result, risen to about 1.2-1.3 percent during 1921-51 and 2.0-2.2 percent during 1951-91. It is unfortunate that this stability in the average annual growth rate has been widely misinterpreted. Some have seen in the census results evidence of a 'dismal failure' of the family planning programme being pursued by India, nominally since 1952 (when the country released the final draft of the First Five Year Plan) but more effectively since about 1967. Nothing could be farther from the truth. The rate of inter-censal growth reflects trends in both mortality and fertility or death rates as well as birth rates. The continuing welcome decline in the death rate has compensated for the decline in the birth rate, which has come down to 29 by 1992 (from about 45 during the 1950s). There are noteworthy interstate differences in the pace of change in these rates, which merit careful attention. There is no doubt, however, that the mortality rates have declined at all ages, particularly during infancy and in adult ages. These declines constitute an important component of the gains in real incomes or the living standards of the people.

According to the SRS-based life tables prepared by the Office of the Registrar General, the expectation of life at birth has risen from 32 years in the 1940s to 50 years during 1970-75 and to 58 years during 1986-90; it is likely to be about 60 years in the early 1990s. Kerala continues to enjoy the highest length of life of 70 years whereas the lowest value was seen for Uttar Pradesh until 1981-85. During 1986-90, with a life expectancy of 53 years, Uttar Pradesh has improved its position through a relatively faster increase in life expectancy than Madhya Pradesh, which now has the lowest level of life expectancy. The difference between the life expectancy in the two states, however, was less than half a year.

As is seen in most countries during the process of demographic transition, the range of interstate differences in the length of life has gradually begun to narrow from 19 years or more during the 1970s to about 16.5 years during 1986-90. Dispersion (measured in terms of the

standard deviation around the arithmetic mean of the estimates) for 15 or 17 states during the two decades has also declined from 5 to 4 years.

According to the SRS data for 1993, the IMR has dropped to 74 in the country as a whole, but it was 82 in rural India and 45 in urban India. While an IMR of 74 is only about one-third of that prevailing when India became independent 48 years ago, it is sobering to remember that China had achieved an IMR of 69 by 1970. The subsequent decline in the IMR in China has been much slower and the 1992 figure is said to be 31 (World Bank, World Development Report 1994). In India, Kerala has achieved a much lower IMR of 13 by 1993. Several other states such as Maharashtra, Punjab, Tamil Nadu, Gujarat and West Bengal had IMRs of between 50 and 58, with Uttar Pradesh, Madhya Pradesh and Orissa reporting the high values of between 93 and 110. There is no doubt that infant mortality can and will be reduced further in the next several years, particularly if the female literacy rates and the proportion of births occurring in institutions rise further. (These two variables are significant explanators of the inter-state differences in IMRs.)

The goal enunciated in the National Health Policy adopted in 1993 to attain the sizeable rural-urban differential in chances of survival contributes to making urban living even in the slums an attractive option. Life expectancy at birth in urban India was higher than in rural Urdia by 11 years during 1970-75, and 7 years during 1986-90 (Office of the Registrar General 1989and 1994). We must endeavour to eliminate this shockingly large difference between rural and urban areas.

There is considerable need for further research on the determinants of the decline in mortality that has been achieved. It is widely held that along with the high life expectancy at birth, Kerala also has high levels of morbidity and therefore the real gain in the welfare of the people is perhaps limited. A careful analysis of the NSS data relating to the utilisation of and expenditure on health care during 1986-87 has indicated, however, that the morbidity level in Punjab was almost the same as in Kerala, although Punjab had a somewhat lower life expectancy at birth. Also, the percentage of illnesses for which treatment was not sought was less than 10 percent in Kerala and Punjab, much lower than in other states for which additional tabulation has been attempted (Visaria and Jacob 1995; Visaria and Cumber 1994). In my judgement, the reported differences in morbidity rates are not real but a result of the well-known difficulties of obtaining dependable data on morbidity in household surveys. One need not, therefore, fear that the gains in mortality in Kerala are spurious and involve greater suffering among the survivors. While the morphology of disease-causing organisms in tropical countries such as India is a grossly under-researched subject, scientific advances have been truly remarkable. Despite the well-known weaknesses of our service delivery systems, the effectiveness of antibiotics has been demonstrated last year in the surprising speed with which the dreaded plague epidemic was checked in Surat and its environs and in other parts of the country where it was threatening to spread. The experience illustrates the high likelihood that despite our low levels of per capita income, we shall be successful in preventing a resurgence of the major killers of the past. Obviously, there is no room for complacency and the urgent need to raise the levels of sanitation and to ensure adequate safe potable water to the population in both urban and rural areas is evident to all. The requisite

investments must be made on a priority basis. Overall, however, one can retain a fair degree of optimism that the future trends in mortality will continue to be downward and, consistent with our policy objectives, the interstate and rural-urban differentials will slowly but steadily narrow and eventually disappear.

An important issue is the relative role of the public and the private sectors in the provision of health care. Again, according to the NSS data for 1985-87, the share of the public sector health care providers in the provision of ambulatory or out-patient care was surprisingly small: between 26 and 28 percent in rural and urban areas. For treatment in hospitals, the public sector sources attended to between 61 -62 percent of the health care-seekers from rural and urban areas *(Sarvekshana*, 15(4): April-June 1992). These data are often cited to criticise the almost exclusive concentration of policy makers on the strengthening of the public sector institutions providing health care. But the latter play a more important role in regard to preventive care. Also, the factors contributing to the evident greater reliance on the private sector sources for out-patient care need to be studied carefully. This is particularly important for improving the access to health care in nearly 70 percent of India's villages, which had less than 1,000 population at the time of the 1991 Census. There is an important role for the public sector in regulating the activities of the private sector health functionaries as well as the training provided in the medical colleges and other similar institutions.

(b) *Fertility Trends*

Turning now to fertility, the recent data for 1991 and 1992, provided by the Sample Registration System (SRS) of India, suggest a clear decline in fertility almost throughout the country. About 10 percent of the population (in the two southern states of Kerala and Tamil Nadu with a total population of 85 million in 1991) has already attained a near or below replacement level of fertility. In another nine states with a total population of 389 million (46 per cent of the total), the total fertility rate (TFR) has declined from 6 or more in the 1950s to between 3.1 and 3.5. (The total fertility rate estimates the average number of children that would be born per woman, if there were no mortality at all during reproductive ages and all women gave birth to children at the rate observed during a particular period.) Even in the four large north Indian states with a total population of 336 million (40 percent of the total), which are regarded as the most backward in terms of demographic transition, the TFR has evidently declined by between 19 to 29 percent during the past 10 to 20 years.

The medium and low variants of the 1992 UN projections had envisaged for India a TFR of 3.85 and 3.77 during 1990-95. (The 1994 revision of the UN projections places these figures at 3.75 and 3.66, respectively.) However, the latest available SRS data have suggested a TFR of 3.6 during 1991 and 1992. In 1992 the rural TFR was estimated at 3.9 and urban TFR at 2.6. At the aggregate all-India level, fertility has declined at a rate faster than was expected by all of us. If rural-urban differences in TFR are presumed to be virtually negligible up to about the early 1960s or prior to the recent fertility decline, rural fertility has declined by about one-third and urban fertility by over 50 percent from a TFR of about 6. These figures suggest considerable progress of the order of 54 percent in rural areas and 87 percent in urban areas towards a replacement level of fertility or a TFR of 2.1.

The state-level estimates of TFR in urban areas are often based on a small sample and therefore, three year averages are more stable. Such estimates suggest a sharp decline in urban fertility to near or below replacement level not only in Kerala and Tamil Nadu but also in Assam, Himachal Pradesh, and West Bengal. This decline in urban fertility, with the urban sector including a total population of nearly 230 million by 1995, has considerable significance for the demographic situation in the country as a whole, because continuing interaction between urban and rural populations is likely to generate a fairly strong demonstration effect.

The fertility estimates based on the SRS have been confirmed recently by the results of the NFHS. Table 1 shows the SRS estimates of TFR during 1990-92 as well as the NFHS estimates relating to the TFR during the three years preceding the survey, conducted during April 1992-September 1993. The two sets of estimates are quite comparable and show very close correspondence between them. The correlation coefficient for the estimates based on the two sources was 0.95 for all areas as well as rural areas and 0.89 for the estimates for urban areas.

TABLE I: ESTIMATED TOTAL FERTILITY RATES IN DIFFERENT STATES OF INDIA BY RURAL-URBAN RESIDENCE ACCORDING TO THE SRS (1990-92) AND THE NFHS (THREE YEARS PRECEDING 1992-93)

State	*All Areas*		*Rural Areas*		*Urban Areas*	
	SRS 1990-92	*NFHS 1990-93*	*SRS 1990-92*	*NFHS 1990-93*	*SRS 1990-92*	*NFHS 1990-93*
India	3.7	3.4	4.0	3.7	2.7	2.7
Andhra Pradesh	3.0	2.6	3.1	2.7	2.5	2.4
Assam	3.4	3.5	3.6	3.7	2.1	2.5
Gujarat	3.2	3.0	3.4	3.2	2.9	2.7
Haryana	3.9	4.0	4.2	4.3	2.9	3.1
Himachal Pradesh	3.1	3.0	3.2	3.1	3.1	3.0
Karnataka	3.1	2.9	3.3	3.1	2.5	2.4
Kerala	1.8	2.0	1.8	2.1	1.7	1.8
Madhya Pradesh	4.6	3.9	4.9	4.1	3.3	3.3
Maharashtra	3.0	2.9	3.4	3.1	2.5	2.5
Orissa	3.3	2.9	3.4	3.0	2.4	2.5
Punjab	3.1	2.9	3.3	3.1	2.8	2.5
Rajasthan	4.5	3.6	4.8	3.9	3.5	2.8
Tamil Nadu	2.2	2.5	2.4	2.5	2.0	2.4
Uttar Pradesh	5.2	4.8	5.5	5.2	3.8	3.6
Bihar	4.6	4.0	4.7	4.2	3.4	3.3
West Bengal	3.2	2.9	3.6	3.3	2.0	2.1

The TFR estimates based on the NFHS differ from those of the SRS by more than 0.2 children in the eight states of A.P., M.P., Orissa, Rajasthan, Tamil Nadu, U. P., Bihar and West Bengal. Further, only in Tamil Nadu is the difference positive, with the NFHS reporting a higher TFR (2.5) than the SRS; elsewhere, the NFHS reports a lower value. The NFHS estimates for Rajasthan and Madhya Pradesh seem to be somewhat difficult to accept and further work appears essential. (It is learnt that in Rajasthan the field work was difficult because of a high turnover among investigators. The field work was completed by investigators who had earlier worked in Madhya Pradesh.)

In Table2 are shown the age-specific fertility rates based on the SRS forthe three triennia of 1970-72,1980-82,1990-92 and the NFHS estimates, separately by rural-urban residence. *1* here has been a clear shift in the age pattern of childbearing; the peak fertility now occurs

TABLE 2: AGE SPECIFIC FERTILITY RATES, ALL INDIA

Age group	*1970-72*	*1980-82*	*1990-92*	*NFHS 1992-93*
		All Areas		
15-19	103	89	78	116
20-24	254	246	235	231
25-29	259	231	193	170
30-34	203	165	117	97
35-39	134	100	68	44
40-44	63	46	31	15
45-49	27	21	12	5
TFR	5.2	4.5	3.7	3.4
		Rural Areas		
15-19	112	96	87	131
20-24	262	259	248	243
25-29	267	243	204	177
30-34	212	179	130	108
35-39	143	111	78	51
40-44	68	51	36	19
45-49	29	23	14	6
TFR	5.5	4.8	4.0	3.7
		Urban Areas		
15-19	72	62	46	76
20-24	226	204	196	203
25-29	228	190	160	154
30-34	166	117	80	71
35-39	95	61	38	27
40-44	37	25	16	6
45-49	15	12	6	4
TFR	4.2	3.4	2.7	2.7

in the age group 20-24 instead of in the age group 25-29. More importantly, fertility declines are evident in all age groups, but particularly at ages 30 and above. The NFHS estimates of fertility in urban areas are hardly different from those based on the SRS for 1990-92; but the rural fertility rates based on the NFHS forages 25 and over appear markedly lower than those based on the SRS. It seems unlikely that the SRS would overestimate fertility and, therefore, one is led to suspect some understatement of fertility in the NFHS in rural areas.

While such comparative assessments must continue, it is essential to recognise that the feasibility of such comparisons strengthens the Indian statistical system. One should not exaggerate and misinterpret the differences to condemn or belittle the contributions of a large pioneering activity such as the NFHS. A further analysis of the rich data gathered in the NFHS will help to understand much better than before the complex web of Indian behaviour with respect to child bearing, child rearing, and family formation. A few impressions on the factors contributing to the accelerating decline in fertility evident during the past decade can be noted here.

(c) *Determinants of Fertility Decline*

The substantial demographic diversity in a country as large as India is not surprising. It also provides a challenging opportunity for analysis of the factors contributing to the observed variations. As reported in a recent paper (Visaria and Visaria 1994), a multiple regression analysis of the TFRs in the 16 more populous states in terms of the conventional indicators of modernisation contributing to fertility transition shows neither urbanisation nor industrialisation to be significant. (As is well-known, our progress on both these indices has been rather slow.) The female worker-population ratios, adjusted in the light of the generally more dependable NSS data on the level and pattern of employment, also do not explain the interstate differences in the TFR. We are left with only the old faithful indicator of the status of women, namely literacy, as related to the interstate fertility differentials.

Perhaps, the limited degrees of freedom and the problems of measurement limit our ability to discern the complex reality and we must await the analysis of district level data that might become possible when the 1991 census data on children ever born and surviving and children born last year become available. Maribhat's district level analysis of the trends in fertility between 1974-80 and 1984-90, based on the data relating to children aged 0-6 is another promising investigation and its findings need to be studied carefully.

Pending further work, two points seem worth noting. First, there is an unfortunate tendency among our analysts to interpret the processes of change in our country in negative terms. The fertility decline in India is branded as poverty-induced, a term that is difficult to substantiate. The average annual rate of growth of per capita incomes in India was higher during the 1980s (3.0 percent) than during the preceding three decades (between 0.7 and 1.8 percent) (CMIE 1993). The proportion of population below the poverty line also appears to have declined from 48-52 percent during the 1970s to 37 percent during 1983-84 and 30 percent during 1987-88. The controversies about the validity of these estimates notwithstanding, the decline in poverty and the direction of the trend are virtually indisputable.

The continuing decline in infant mortality and in crude death rates bears testimony to the improvement in the living standards. Intolerable differences persist and they must be eliminated; but the direction of the trends cannot be denied. Besides, couples are understandably concerned about the number of living children and not about births as such. The substantial declines in infant and child mortality are certainly recognised by the people at large and they reduce the gap between wanted fertility and total fertility. ^ The norms about wanted fertility also seem to be undergoing a change and the desired number of living children per couple seems to be declining. Despite the persistent son preference, the social security motive seems to be weakening and daughters are being accepted as equals of sons, particularly in urban areas. These tendencies are likely to spread gradually to rural areas as well.

A question might be asked whether the dramatic decline in fertility in Tamil Nadu is attributable to its slow economic growth. There is evidence that Tamil Nadu's economic growth during the past two decades has been slower than that of the country as a whole. However, the rate of growth of per capita state domestic product at constant prices during the 1970s and 1980s, respectively, was 0.05 and 2.75 percent in Tamil Nadu and 1.0 and 3.3 percent in the country as a whole. In effect, therefore, the 1980s have witnessed an acceleration of the rate of growth both in Tamil Nadu and in the country as a whole. The aspirations, however, have probably grown even faster in Tamil Nadu than in the country.

The use of an old term such as the 'revolution of rising expectations' might seem a hyperbole, but it is quite likely that the aspirations about the level of living and the quality of life to be enjoyed by one's offspring have risen rapidly. The possibilities have been driven home not only by films, that are very popular in Tamil Nadu, and by television, but also by the Indian emigrants to the Middle East and the Western countries from Kerala, Gujarat, Punjab, and perhaps all the states of the country.

The steady declines in the size of land holding and the need to diversify the sources of household income in the face of continuing inflation are noticed extensively. The differentials between the levels of income enjoyed by the regular employees in the urban organised sector of the economy and the less fortunate workers in the informal sector or the self-employed are also felt acutely and they underlie the widespread demand for the increasingly elusive 'permanent' jobs, which command a high premium in Indian society. The gap between aspirations and drab reality creates a strong feeling of deprivation and stimulates a change in the traditional reproductive behaviour. Future social science research would do well to focus attention on the relatively soft area of inter-generational changes in the goals and aspirations of the people about their own and their children's living standards (or the quality of life) as well as occupational and job mobility in different parts of our country.

Appropriate Policy Responses

Given this perspective, we need to consider carefully the directions in which the state policy needs to move in order to accelerate the ongoing process of fertility transition. The issue has been discussed widely during the past two years in the wake of the appointment of

the Expert Group on the subject under the chairmanship of Dr. M. S. Swaminathan and the consensus embodied in the Programme of Action adopted at the International Conference on Population and Development held at Cairo in September 1994. Some key issues are evident in these discussions and in the entire body of literature that has built up on these issues over the nearly 45 years since the dawn of planning in the country. These issues include the high propensity of the Indian social scientists and analysts to ignore and overlook the positive aspects of the situation and to harp on the negative. This malaise has often clouded our ability to understand the complexity of our society. The tangential digressions in many of the comments on the draft of the National Population Policy prepared by the Expert Group chaired by Dr. Swaminathan are an excellent example. A balanced discussion is a rare event. I summarise here the highlights of my on-going review of decision-making in the area of population policy in post-independence India (with, the hope that these issues will be discussed further by fellow professionals).

(a) The policy pronouncements and discussions in the plan documents are quite balanced in their perspective and focus on the central issue of population policy being aimed at the welfare of the people in general and the health of mothers and children (MCH) in particular. An emphasis on lowering the morbidity and mortality are also a part of the plans and policies advocated in them. However, the assessments of the progress of policies have been focussed narrowly on their impact on the birth rate and the rate of population growth. As a result, the activities of the family welfare programme have become distorted and the achievement of prescribed targets has become the preoccupation of the bureaucrats and all the health functionaries recruited to deliver the MCH services.

(b) The social scientists invited to participate in the formulation and assessment of population policies have yielded to the pressure for a relatively limited focus on the birth rates or the growth rates. A telling illustration is the wishful thinking implicit in the illustrative exercises of the Working Group on Population Policy, appointed by the Planning Commission in 1978, that led to the adoption of the goal of a net reproduction rate of 1, to be attained by the country as a whole by 1996 and by all states of the country by 2001. Any effort at introducing realism in policy making and the relevant dialogue proves difficult because of the heavy burden of prejudices and preconceptions that haunts the thinking on population by different constituencies.

(c) The recent acceleration of the fertility decline in the country provides an excellent opportunity to eliminate the distortions that have begun to plague the activities of much of the infrastructure concerned with the delivery of services to the people. The country can dispense with method-specific targets of number of'acceptors' of family planning and instead concentrate on the provision of high quality services to all couples needing prenatal, natal and post-natal care. Counselling on these matters can usefully cover the entire range of issues covered by the term "reproductive health", so that the entirely unnecessary suffering on the part of millions of people can be eliminated.

(d) An improvement in the quality of infrastructure and the services being provided will certainly require a substantial increase in the financial resources provided for the family

welfare programme. Some reallocation of funds might be feasible if the monetary incentives for the providers as well as the acceptors are eliminated because they are no longer necessary in the emerging environment. However, the increased funds can be expected to contribute directly and significantly to the welfare of the people, particularly the poor, who suffer the most from the burden of reproductive ill-health, (e) The training provided to the female health workers and to their supervisors must be reoriented to deal not just with the symptoms but also with the deep-rooted factors that influence the number of living children desired by the people and also the unwanted fertility that they are often forced to accept. However, we cannot really expect the FH Ws to perform miracles. Much of the 'dysfunctional excess baggage' inherited by us from the past is a legacy of the underdevelopment or the low levels of income and associated high mortality, illiteracy and non-scientific approach to many of the problems. The persistent illiteracy is certainly not equivalent to ignorance or irrationality; the innate wisdom of our people is truly phenomenal. An acceleration of the spread of literacy particularly among girls would require not just formal school structures but considerable improvement in the content and environment of schooling, including the orientation and effectiveness of our teachers.

A substantial rise in female literacy and lowering of the high infant mortality are important worthwhile goals in themselves and we need to pursue them vigorously. (Such an effort would lead to a significant improvement in our "human development' score in the country as whole and particularly in the four large states of our country which are regarded as laggards with respect to fertility transition). They would also enhance the credibility of the political leadership and of the service delivery systems in the public sector. There is no plausible reason for the continuing persistence of the large inter-state differences in longevity and educational attainment for so long. While efforts at a proper diagnosis of this problem must be intensified, it must be accepted that the processes of change are unlikely to be uniform throughout our continental country.

These differences are relevant to the issue of the allegation of poverty—induced changes or declines in fertility. Pending further research, it must be noted that fertility has declined in almost all parts of the country to a greater or less extent. Also, the pace of decline is not necessarily the highest in states with the highest per capita incomes (i.e. Punjab or Haryana) or in the poorer states (such as Bihar or Orissa). So neither a rapid rise in living standards nor poverty seems to have led to a substantial fall in fertility. As suggested above, the gap between aspirations and the achieved level of living and the awareness of the gap might be a more potent force in bringing about a decline in fertility. Continuing on this line of argument, one can propose a hypothesis for exploration and testing that an acceleration of the rate of development, with or even without an accentuation of the inequalities in the level of living or even the recognition of the latter, resulting from the success of a sufficiently large number of enterprising persons in escaping the poverty trap could be an important factor contributing to an accelerated decline in fertility. If this hypothesis holds, the liberalization of the Indian economy during the past four years is likely to generate forces that would

accelerate the fertility decline. Admittedly, a democratic polity cannot pursue a policy or a goal of increasing inequalities asameansof accelerating fertility decline but such an outcome seems to be a likely by-product of the current configuration of various forces.

To conclude, we have not done enough inter- or multi-disciplinary research to understand the complex issues involved in social engineering. (In fact, the recent trends in our socio-economic setting raise serious doubts whether and how long our past tradition of high-quality research will continue and whether as a result of the changing structure of incentives, social science research will disappear from the Indian scene.) However, the exponential growth of population continues. Despite the acceleration of the fall in fertility, the average annual growth rate during the current decade is likely to average around 1.8 per cent and India will probably enumerate between 1017 to 1022 million persons in the next census in 2001. By 2015, our population will probably rise to 1252-1264 million (more than the number at which the Chinese wanted to stabilise their population when they adopted the one-child policy in the late 1970s). The problem of meeting the rising aspirations of our growing population are likely to demand imaginative solutions and continued research for technical development in agriculture as well as in the management of our industries, infrastructure, and the service delivery mechanisms. Our high national capacity for crisis management inspires optimism that we shall be able to cope with the problems but the challenge is to minimise the cost that would normally be borne disproportionately by the disadvantaged sections of our society. Fertility transition ushers in a quantum change in the life styles of the people, particularly women, who have so far suffered an intolerable burden of multiple roles of the drudgery of household management, including childbearing and rearing, and also of supplementing the limited earnings of their families. Let us hope that this situation will change within the next quarter century, as we attain the replacement level of fertility and eventually move towards a zero rate of growth before the end of the 21st century.,

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