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Transitions in the Determinants of Fertility Decline in India**

LET me first of all thank the President, Dr. Pravin Visaria, and the Executive Committee of the Indian Association for the Study of Population for inviting me to this annual meeting and asking me to deliver the "Presidential Address*. As you all know, I am not the President of our Association, not even a member of the Executive Committee. When I nominated Pravin Visaria for the Presidentship of the Association in the last elections, I did not know all its implications. He won; and two years later, here I am, asked to deliver the "Presidential Address". It is obvious that the spirit of liberalization and openness sweeping through the country has come to the activities of the I ASP also. I feel greatly honoured for the opportunity given to me to address you on this occasion.

The Theme of My Address

The principal theme of this conference is: "Policy and programme implications of the NFHS and the 1991 census results". Most of you here are more familiar with these data than I am and many have prepared papers on this theme. Therefore, I do not plan to talk about them. I will focus attention on a few areas in which I think I have a comparative advantage on the basis of my age and research experience.

The main theme of my talk will be: transitions in the determinants of fertility decline in India, their implications for fertility decline in the North Indian states, and the long-term population growth prospects in India. These issues have received some attention in most of the past presidential addresses of the IASP. I am just following the tradition.

I also intend to take this opportunity to talk a little about the developments in Demography in India as I have seen them over the past 40 years. I will conclude my address by giving my views on the next 'round' of the NFHS, assuming that there is going to be one. Let me first review briefly the developments in Demography in India over the past 40 years.

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Developments in Demography in India in the Past 40 Years

I am now 71 years old, retired from active duty. I learn my current demography mostly from newspapers and not from seminars and conferences. I became a demographer in 1956 when I was 32 years old. Most of you here, as also all my demographer colleagues in the Centre for Development Studies at Trivandrum, were not even born when I became a demographer.

The 40-year period between 1956 and 1996 has been a unique period in the history of demographic transition in India. Never again will we come across a period of such rapid population growth and accentuation in the demographic problems of our country. Never again will we see a period of such hectic activity in the field of demographic research, and formulation of policies and programmes. Perhaps, never again will we see a period of such extensive changes in our understanding of the determinants of demographic changes in the world.

As I look back over this 40-year period, I am struck by several changes in the Indian demographic scene and Demography as a discipline in India. Today, in the mid-1990s, the demographic situation in India is quite alarming in some respects, but quite encouraging (or at least something we can live with) in many other aspects. In 1956, the population of the country was only about 400 million, less than half of today' s population; the growth rate was about 1.9 percent per year (although at that time the Planning Commission thought that it was only 1.3 percent); the birth rate was over 40 and the death rate was over 20; women had on an average 6 children of whom 1 or 2 died in the first year of their life. Life expectancy at birth was less than or around 40 years. Few women had any control over the number of children they would ultimately bear or the number of children that would survive to adulthood. Few persons, not even the experts in the Planning Commission or elsewhere in the world, were aware of the momentum of population growth and its socio-economic consequences. No one in India knew how to influence demographic trends and moderate the rate of population growth through policies and programmes.

The situation elsewhere in the world was not very different. Reflecting on the demographic situation in the world when The Population Council was established, John D. Rockefeller wrote ". . . in 1952 there was no nation-wide family planning programme; indeed, there was no wide-spread recognition that a population problem existed. Much of what we now regard as commonplace family planning procedures could not even be discussed then in decent society. Many nations, including some parts of the United States, had laws against the transmission of not only birth control devices, but even birth-control information" (Berelson 1969: 5).

Demography as a discipline hardly existed in India in 1956. There were not many in India who would claim to know anything about Demography as a discipline or family planning programme as a government activity. Of course, there was no IASP at that time. The International Union for the Scientific Study of Population (IUSSP) existed; and its membership included just four persons from India: all statisticians, S. P. Jain, D. B. Lahiri, P. C. Mahalanobis, and K. K. Mathen. Today, in 1996, the IUSSP has over 90 Indian members;

one-third of them live outside the country. A Directory of Demographers in Asia, prepared by the then Demographic Training and Research Centre (DTRC) in 1963, included 135 names from India, but only a few of them had anything to do with Demography. 1 do not need to tell you about the number of members in the I ASP today. You know it. The President says it is over 650 and is growing at a very rapid rate.

I was perhaps the first person in India, who had the official title of a demographer, I was also the first person to hold the title of a demographer in the World Bank, and the only one in the Bank for over 15 years. I became a demographer by sheer accident. Needing a demographer and finding none, DTRC made me a demographer, although my application was for the post of a statistician. This was the best they could do in a bad situation. DTRC offered the post of statistician to a more qualified person, Dr K. V. Ramachandran. Thus, I became a demographer not because I knew Demography but because there were not many in India at that time who knew much more about it. Almost certainly, in 1956, there was nobody in India who could work out a population projection by the component method.

In retrospect, it seems surprising that it was the initiative of some enlightened women social workers such as Lady Dhanvanthi Rama Rau, that prompted the framers of the First Five Year Plan to recognise population growth as a major problem threatening the social and economic growth of the country. The statement on population problem in the First Plan document looks very good even today. It could very well have been written for the Eighth Five Year Plan document. It read: "The rapid increase in population and the consequent pressure on the limited resources available have brought to the forefront the urgency of problems of family planning and population control... The main appeal for family planning is based on considerations of the health and welfare of the family... All progress in this field depends, first, on creating a sufficiently strong motivation in favour of family planning in the minds of people, and, next, on providing the necessary advice and service based on acceptable efficient, harmless and economic methods" (India, Planning Commission 1952: 522).

The follow-up actions on the excellent statements of the population problem took several more Five Year plans to become operational. The Second Five Year Plan document assumed a rate of population growth of 1.25 percent for 1951 -60,1.33 percent for 1961 -70 and 1.40 percent for 1970-80 (India, Planning Commission 1956). Even when this was written, Coale and Hoover had made a very accurate prediction of the Indian population growth up to 1981. (Their figure of the projected population of India in 1981 was 682 million, almost the same as the census count of 683 million) (Coale and Hoover 1958: 35.)

But even in 1956, when our knowledge of the population problems was very rudimentary, when we had no example of a country to follow to find a solution to the problem, when we thought the annual population growth rate to be only 1.3 percent although the actual rate was 1.9 percent, when very few family planning devices were available, the Government of India did a few things which have made a considerable impact on finding an eventual solution to our population problems. Let me state a few of them which in my opinion had contributed very significantly to the progress of Demography as a science in the country. I will confine myself to Demography, and not cover family planning or other programme activities.

In 1956, the Government of India established what was then called the Demographic Training and Research Centre and is now called the International Institute for Population Sciences in Chembur, Bombay, in collaboration with Sir Dorabji Tata Trust and the United Nations. DTRC became the foremost training centre in Demography in the world; the best demographers of the world were only too happy to spend some time at the DTRC as an Expert or a Consultant. And indeed, at one time or another, all noted demographers of the world have spent some time at the Centre. Over the past 40 years, it has trained over 1,450 persons from all over the world. It has now the status of a Deemed University. Newer Demographic Centres like the ones in Cairo and Accra not only followed the training programme developed in Chembur, but also recruited their faculty members from DTRC. For quite some time, DTRC was the mother of all demographic centres, not only in India but also in other parts of the World.

The appointment of Mr Asok Mitra as the Registrar General and Census Commissioner of India to conduct the 19^Census was another of the fortunate things that happened to Indian Demography in its developmental stage. Under the leadership of Asok Mitra, the 1961 Census produced a mass of population data, unprecedented up to that time but unequalled thereafter as well. Even-more importantly, Mr Mitra gave easy access to the young Indian demographers to these data and established good working relationship with all of them. I do not have a clear idea of how far Mr Mitra's tradition has been continued in later years because I was away most of the time. I hope that the new Census Commissioner, Mr Vijayanunni, who is destined to preside over the historic first Indian census of the 21st century, will rise to the occasion, produce the necessary data in time, and establish mutually beneficial relationships with the IASP members, so that the live figures behind the census figures receive due attention and the information is utilized for planning an improvement in their living standards.

A third landmark was the establishment of the Sample Registration System (SRS). In collaboration with the US AID, the Government established a system of registering vital events in a sample.of localities. The SRS took some time to become a credible source of vital statistics, but eventually it did. And today SRS is the single most useful source of current vital rates in the country. But its full potential is yet to be fully exploited, and I hope that the Registrar General will not only respond positively to suggestions from independent organizations and individuals, but take the initiative to open up and improve the system.

Until recently, it could be said that the SRS results have not been evaluated by any independent agency. However, that criticism does not have much validity any more, as several independent studies have corroborated the SRS results. Another problem with the SRS was the very slow publication or release of its results. Although the situation has improved remarkably in recent years, there is still considerable scope for speeding up the publication of the SRS results. I look forward to seeing in the national network of the Doordarshan a Vital Statistics Report (like the weather report) once every month or once every quarter, on the BR, DR and the IMR. With the modern facilities in data processing and communication, this is not a Utopian idea. Also, in our northern states such as Uttar Pradesh or Bihar, etc., a more frequent reporting of the vital rates should be an integral part of the effort to accelerate fertility decline.

Further, the SRS treats small states such as Goa, Himachal Pradesh, etc., where the total population is less than ten million, on par with states like Uttar Pradesh with nearly 150 million persons, by giving just one set of statistics for each state. Region-level estimates are imperative in states like Uttar Pradesh. If the central SRS cannot cope with increasing the coverage in Uttar Pradesh or Bihar, it is high time that these states think in terms of SSRS or State Sample Registration System to produce the sub-state data.

To return to my review of the past 40 years, the fourth milestone was the Indian Government's foresight in allowing the Population Council of New York to help train Indian scholars in Demography in the USA and other foreign countries. I am happy to acknowledge that I was one of the beneficiaries of this foresight. Our President was also one of them. Between 1953 when the Council's Fellowship Programme was established and now, the Population Council has trained about 100 demographers from India in the USA and other countries. Of them, 36 are currently resident in India. Several of these trainees have occupied important positions in India or have served as demographic experts in the United Nations agencies, including the World Bank, ESCAP, ILO, Cairo Demographic Centre, Accra Demographic Centre, country teams, etc. I am happy to note that the Council is continuing to help Indian students get high level training in Demography.

These four landmark events of the past 40 years have, in my opinion, laid a firm foundation for the establishment and development of Demography as a discipline in India. They have helped to produce some of the best-trained demographers of the world and have contributed towards the formulation of sound population policies for the country.

I started my review of the past 40 years by recalling the demographic situation in India in the mid-1950s and was tempted to compare it with the situation in the mid-1990s. But I will refrain from doing so, because most of you here are quite familiar with it. Instead, let me conclude this section with a few observations.

First, the Indian performance in the management of our population problem is often criticized by international organizations by comparing India with Indonesia. Thailand, etc., where these organizations have invested much more and have thereby acquired a much larger stake in their successes than in India. I feel, and presume that many here will agree with me, that given the manifold problems of the country, and given that until almost the end of 1960s, nobody, not even the World Bank or the United Nations or other foreign experts, knew anything about organizing an efficient family planning programme in a country, our record is something we can be proud of. The country is definitely on the road to solving its population problem.

No doubt, we have made some mistakes. In several cases, we have been slow in recognizing our mistakes and taking corrective actions. In my view, one basic reason for the slow response and delayed corrections was the lack of openness in the central as well as state governments and their reluctance to allow an independent evaluation of government programmes. Openness is essential for learning and learning its essential for development (Thomas 1995:3-4). Learning through openness is an area where we could have done better. If the Government had been less sensitive to possible criticisms from within India and from abroad, we would have been more efficient in correcting our mistakes and working out more effective policies and programmes to deal with rapid population growth. I am referring not

only to the family planning programmes but also to other areas, including the activities of the data producing agencies in the government and government-supported organizations.

Secondly, there has been a certain imbalance in the interest of Indian demographers in research on fertility and family planning at the expense of research on migration and urbanization and other branches of Demography. Perhaps, the demographers cannot be blamed. Research grants and international travels are easier to get if one is interested in fertility and family planning. In the early 1960s, even mortality research was neglected as data were not readily available. But, with the introduction of the Brass Technique and the more recent feature of fertility surveys becoming a major source of accurate information on infant and child mortality, interest in mortality research has been revived.

When I was working in India, I had developed a strong interest in migration research and for some time I had concentrated my efforts in that field. I am glad to report that I plan to turn my attention once again to migration. Starting in early 1996,1 hope to direct a major study on international migration in Kerala.

Transition in Determinants of Fertility Changes in India

Let me now come to the main theme of my address. Some time towards the end of the current year, the IUSSP Committee on Fertility and Family Planning expects to hold a seminar on Comparative Perspectives on Fertility Transition in South Asia. One of the themes of the seminar will be: An Appraisal of Previous Explanations for Changes in Reproductive Behaviour.

We have a long history of research in the field of determinants of fertility decline in India. The latest in the series is the just completed National Family Health Survey (NFHS). It will, therefore, be very appropriate and a good occasion for all of us to sharpen our thinking about determinants of fertility changes in India. I would like to think aloud on this subject on the basis of my research experience.

Determinants of fertility decline in India have undergone several transitions in the past forty years. The story is still incomplete. More changes are likely to occur in the future, when the large north Indian States will complete their fertility transition.

When I became a demographer, our knowledge about the determinants of fertility changes was summarised in the first edition of the UN publication: *Determinants and Consequences of Population Trends* (United Nations 1953). Despite its title, the book rarely mentioned the word 'determinants'; the commonly used phrase was: "factors affecting...". The principal factors mentioned as affecting fertility were the basic socio-economic variables such as: urbanization, social mobility, status of women, family organization, level of living and cost of rearing children, decline of religious interest, women's employment, occupation, education, etc.

If we examine the Indian data of the 1950s and 1960s, these same factors differentiated high fertility groups from low fertility groups, with education occupying a significant position among them. We may call it the first ofseveral stages in the determinants of fertility decline in India. Strictly speaking, it was not the first stage; there were other stages preceding

it when biological factors were the principal determinants. The next stage came when the Government entered the field of population planning. Socio-economic factors began to lose some of their importance and a new factor, the family planning programme, began gaining importance. Of course, family planning was always the means through which fertility changes took place; but it was only when the Government initiated efforts at population planning that family planning programme became a cause of fertility decline in India. The main elements behind this change were the educational component in the programme and the provision of cost-free services. To my knowledge, family planning was mentioned as a cause of fertility decline first by Ronald Freedman in 1979. On the basis of his research experience in Taiwan, Hong Kong, Singapore, etc., he wrote: "I now believe there is a case for the thesis that once motivation is present, both the concept of and the means for family limitation can have independent causal effects in determining both the timing of the onset and the rapidity of the fertility decline" (Freedman 1979: 1-17). Note the phrase; 'once motivation is present...'

Kerala was the first major state in India to experience a significant transition in its fertility. Family planning programme became an important determinant of fertility decline in Kerala after 1965. While analyzing the determinants of fertility decline in Kerala before 1980,1 concluded that:

- Fertility decline has occurred in all major socio-economic groups in Kerala—the rich and poor, educated and illiterate, Hindus and Muslims, Nairs and Scheduled Castes. In general, the decline has been greatest in the mid-level socio-economic group. For example, the fertility decline was the highest among neither the most nor the least educated but among women with 1 to 4 years of schooling.
- Length of schooling of women has had a consistently negative relation to fertility.
- There is no evidence of a negative relationship between fertility and economic indicators. In general, however, the correlation between the two has become weaker in recent years.
- On the whole, fertility differentials have narrowed in recent years (Zachariah 1984:39).

The Kamataka study sponsored by the World Bank, which was conducted at the same time, came to more or less the same conclusions. It said: "The effect of socio-economic variables is generally weak... The fact that fertility has declined among the illiterates and less educated is significant... Although education of females affects fertility through later age at marriage, formal education of females does not seem to be necessary for a reduction in marital fertility... However, one thing the present study has demonstrated is that with effective implementation, a government-sponsored fam ily plann ing programme can succeed in conditions of poverty and illiteracy" (Baskara Rao *et al.* 1986: 181-183).

The results of my 1991 Kerala Fertility Study also confirmed the declining significance of socio-economic factors. It concluded that socio-economic variables have lost their relevance as the determinants of fertility in Kerala (Zachariah *et al.* 1994).

In a study of Gujarat conducted less than two years before my 1991 Kerala study, Pravin Visaria and his co-authors concluded that"... while the rise in female literacy and status of women and a sharp decline in mortality are intrinsically worthwhile goals, they do not constitute necessary conditions for a sizeable fertility decline... family planning programme has had a major effect on the behaviour of the people... A major contributory factor seems to be the current system of method-specific targets and the pressure exercised at various levels of administration to achieve them" (Visaria *et al.* 1995: 246-47).

In my 1980 World Bank study I had mentioned that the condition specified by Freedman, "once motivation is present", was not necessary in the case of Kerala. "In the case of Kerala, the official family planning programme has gone one step further. As a result of the econom ic incentives offered to officials and acceptors, the programme was able to create demand even where it did not previously exist. Thus, the programme provided free services where demand existed, strengthened demand where it was weak through educational programmes and publicity through the media, group discussions., individual counselling etc., and through incentives created demand especially among the poor where no demand existed previously" (Zachariah 1984: 145). It certainly did not mean that socio-economic factors were not important in Kerala's fertility transition. In fact, they played an important role on their own and through their interaction with the family planning programme.

The engine of fertility decline in Kerala was an increase in the economic value of education, a consequence of the land reforms and other socio-economic changes. The introduction of formal education as a criterion for entry into the public sector employment brought about a basic change in the society after centuries of fundamental stability. The society became so to say unhinged, ushering in a movement away from inherited to achieved status, from interdependence of castes to competition of individuals, from traditional authority to modern bureaucracy, etc. The family planning programme was more effective in Kerala than in the other states of India in the 1970s because of the higher spin-off (interaction) effect between the programme and socio-economic factors relevant to fertility decline (health and education in particular). One lesson from Kerala's experience is that the sequence in which the determinants of fertility unfold is as important as the determinants themselves. In Kerala, the determinants came in the right order—a reduction in infant mortality and child mortality, followed by or along with an increase in female education, followed by redistributive policies, and finally the official family-planning programme. The impact of Kerala's family-planning programme would have been much smaller and more temporary, if the programme had been introduced before a substantial reduction in infant mortality and a substantial improvement in female education.

A new stage in our knowledge of fertility transition in India has been reached as fertility has declined rapidly in Tamil Nadu and Andhra Pradesh and factors related to these declines are being analyzed. When Tamil Nadu's fertility rate dipped to near replacement level in the early 1990s, its IMR was hovering around 56, the female illiteracy was as high as 48 percent, the percent of population below poverty line was as high as 33 percent and Tamil Nadu had the distinction of occupying the last rank among the Indian states with respect to dietary energy intake. Tamil Nadu's fertility decline was sharper, and the conditions under which it

occurred were less favourable than those of Kerala. With the decline of Tamil Nadu's fertility to replacement level, a new era of fertility transition has been ushered in, where the determinants include factors other than socio-economic reforms, literacy, infant mortality and the standard Indian family planning programme.

In a Workshop organized in Madras in August 1995, by the Centre for Development Studies and the UNDP, the participants maintained that Tamil Nadu provides a new model of fertility decline in India. In Kerala, family planning worked because of the State's good performance in education and health, a relatively efficient administrative set up and a family planning programme with incentives. Tamil Nadu's family planning programme worked in spite of its poor performance in health and education. The family planning programme in Tamil Nadu could bring about the desired changes in fertility through an effective and committed administrative machinery supported by political will, innovative social welfare schemes which were not affected by changes in the party in power, social reform movements initiated by Periyar and a holistic approach to family planning programme well integrated with other women-centered programmes: MCH, universal immunization programme, adult literacy, mid-day meal programme, etc.

Srinivasan in his recent (1995) book has characterized socio-economic and family planning factors as 'bottom-up' and 'top-down' factors. According to his terminology, Tamil Nadu's fertility transition was caused mostly by [4]top down' factors. His chart giving the relative roles of these factors in Goa, Kerala and Tamil Nadu is a good way of illustrating the transition in the determinants of fertility decline in India.

In both Kerala and Tamil Nadu, poverty is sometimes mentioned as one of the causes of fertility decline (Basu 1986). In these states and several others, fertility is unexpectedly low among the poor, among the illiterates, among the scheduled castes, etc. My 1980 Kerala study showed that after controlling for other variables, propensity to get sterilized was negatively related to education. Similar results were obtained in 1991 also. According to the NFHS, the TFR among the scheduled castes in Kerala was only 1.37, compared to 2.04 among the non-scheduled caste groups (Kerala University, Population Research Centre, and UPS 1995,58, Table 5.2). The proportion of sterilized was 67.2 percent among the scheduled castes and 47.1 percent among the non-scheduled castes (Kerala University 1995: 85, Table 6.5). In Tamil Nadu, although the TFR was higher among the scheduled castes, the proportion sterilized was slightly higher among the scheduled castes (Gandhigram Institute, Population Research Centre, and UPS 1994: 85, Table 6.5).

It seems obvious that poverty was related to fertility decline and sterilization in Kerala and Tamil Nadu. But was poverty acause of fertility decline in these states? I have my doubts. People just don't go to a family planning clinic and get themselves sterilized simply because they are poor. I feel that the association is due to an intervening variable, namely, incentives. An incentive of rupees 150 or 200 means very much more to the poor than to the rich.

Therefore, the poor tend to accept sterilization more readily than the rich. If at all there is a causal factor, it should be the incentives and not poverty. And incentives are part of the programme. Therefore, it is not the socio-economic factor of poverty but the programme component-incentives—which caused the demand for sterilization.

Fertility transition to replacement level has been achieved in only three states in India by now. Sooner or later, perhaps sooner rather than later, the other states will follow. When their full story is unfolded, would there be new factors of fertility decline in these states? What would be relative roles of'top down' and 'bottom up' factors in the determinants of fertility decline in states, which are yet to reach the replacement level fertility?

In-depth analysis of data collected in some of the recent fertility surveys has indicated that we have certainly not identified all the factors involved in fertility decline in India. Regression analysis of determinants of fertility measures or family planning practice measures at the individual level has indicated very low predictive power for the regression models. For example, my 1980 Kerala study showed that ten independent variables, including demographic variables such as age, could account for only 51 percent of the variation in the number of children ever-born per woman. Forty percent out of the 51 percent explained variance was due to age. Thus, the socio-economic variables and use or non-use of family planning could account for only 10 percent of the observed variation. In the case qf period-specific fertility measures, the percent variation explained by the 10 independent factors was even less, 20 percent. The same situation holds for the use or non-use of family planning: only 23 percent of the variation could be explained by all the variables including age. Other studies have also indicated that the usual independent variables can explain only a relatively small percent of the total variation in the number of children born in a five year period or the use or non-use of family planning at any time. The Karnataka study (1980) gave an /^-square of 29 percent for births after 1975,2 percent for contraceptive practice in 1975, etc. Thus, it is evident that there are many other factors also involved in determining the use or non-use of family planning by an individual in India.

Dr. Ashish Bose has in one of his (1986) numerous presidential addresses, made a reference to the famous Davis's (1967) article, where Davis had emphasized the importance of demand factors and minimized the role of family planning programmes in fertility transition. Davis had a point no doubt in 1967, when family planning programme meant just the delivery of a few contraceptives. The demand for small family was really low in most less developed countries at that time. I am not sure whether the thesis of Davis that "family planning... does not undertake to influence most of the determinants" is really valid any more. Successive surveys in India have shown that family planning programme as it is delivered now, with its IEC component, administrative pressure at all levels, cash incentives, incentives in kind (MCH, Universal Immunization, mid-day meal, adult education, etc.) has become a major producer of demand for small families. If I were to speculate, we should expect a larger role for the 'top-down' factors in creating demand for small families in states which are yet to reach the replacement level fertility. Perhaps, new programme factors will be integrated with family planning services in the large north Indian states, and the 'top-down' factors will play a larger role than in Tamil Nadu. To get back to Kingsley Davis, it is not a really valid question whether family planning programme will succeed without the existence of demand for it. Demand is essential. But demand can be created in more than one way. The classical method was through female literacy, improved health conditions, urbanization, female work participation, etc. But this is not the only way. Demand can also

be created through a family planning programme. This latter method is quicker and cheaper. This is what is happening in many of the Indian states.

Let me conclude this section by making two suggestions. We are coming to the end of this century, and especially its second half, which saw tumultuous changes in India's demography and population problems. By the end of the century, we would have almost licked the problem. The population growth rate during the first decade of the next century will be more or less the same as in the 1950s, the first decade of the second half of this century. My first suggestion is that the I ASP should sponsor writing of a good record, the best that Indian demographers can produce, of the demographic transition in India in the second half of the 20th century, including policies and programmes that were tried to accelerate it. We have had many successes and many failures also. We have contributed much to Demography as a discipline and family planning as part of a government responsibility. Our record in training demographers is one of the best in the World. All these should be recorded. I would like the IASP to mobilize funds of few lakhs of rupees to be used by a team of Indian demographers who have worked in India most of their life and a few of the retired bureaucrats who were involved directly with the programme for long periods of time, to write a definitive book about our demographic transition during 1950-2000, and about the successes and failures of our policies and programmes to accelerate fertility and mortality declines. There is no country in the world with as much demographic diversity as India: regional diversity, religious diversity, caste variation, language diversity, educational diversity, income diversity, and so on. Dr Srinivasan has done a good job on the subject of fam ily planning. We need an equally good or better contribution on the demographic side.

The second thing I would like to see done is to work out the long-term population growth implications of the emerging faster than expected rate of fertility decline and lower than expected minimum fertility level observed in several states and population sub-groups in recent years.

The birth rate in India is now about 28, the level in TN in 1984 and the level in Kerala in 1975. From a level of 28, Kerala reached replacement level in 15 years but Tamil Nadu took only 10 years. With a good programme worked out on the basis of knowledge we have gained from the South Indian experience, let us hope that the speed of fertility decline would be maintained or even surpassed in the large north Indian states. There is no reason why India could not achieve replacement level fertility by 2005 or latest by 2010.

Most of the long-term projections for India, including that of the World Bank with which I was closely associated for a number of years, usually assume that the fertility rate, once it reaches replacement level, will be maintained at that level indefinitely (Bos Eduard *et al.* 1994). This assumption is unlikely to be realistic in the case of India. The chances are very high that Indian fertility will decline to below replacement level, say to a TFR of 1.5 or even lower. One child family has already become widespread, almost fashionable, in Kerala and it is likely that other states will follow suit. The TFR in Goa was 1.9 in 1988-92. It was as low as 1.4 among the Scheduled Castes in Kerala and 1.66 among the majority community of Hindus of that State. Tamil Nadu is aiming at a BR of 10 by 2010 (Tamil Nadu 1995:49). In any case, it is very likely that when fertility declines to below replacement level in the other

states, the low point will not be replacement level fertility (a TFR of 2); it could very well be 1.5 or even lower.

If the speed of fertility decline in the south Indian states can be replicated or surpassed in the north Indian states, an ultimate population size of 1.9 billions as projected by the World Bank is certainly not inevitable. I am not going to speculate, as I don't have the computer programme needed for that purpose. I would like to highlight before the Indian demographers the need to explore the implications of the recent fertility trends and changes in desired family size in Kerala, Tamil Nadu, Andhra Pradesh, Goa, and other south Indian states for the long term prospects of population growth in India.

National Family Health Survey

One of the themes of this conference is "The Policy and Programme Implications of the National Family Health Survey". In this connection I recall one of my World Bank Missions to India in 1985 to report on what the World Bank could do to strengthen demographic research in India. A Japanese economist, Mrs Shigeko Asher who was in charge of the social sector in the India Desk in Washington had come with me and together we visited Health Ministry, RG's Office, and several of the demographic research centres in India. Our main recommendation was that the best thing that the Bank or any other international organization could do to improve demographic research in India would be to strengthen the SRS organization and PRCs which we thought have an enormous potential by way of manpower. The main problems were the lack of leadership and funds. We recommended mat all the PRCs should be made to work on a single theme for a period of time, with close supervision by a central body and be given sufficient financial resources specifically to carry out the selected project. I don't know what happened to our report, but I was very much surprised to see the close parallel between our recommendations and the design of the NFHS. It is gratifying to see that all or most of the PRCs have worked on a single project resulting in excellent research reports on individual states and for the country as a whole.

I hope that our other recommendation regarding the SRS will also be implemented, if not at an all-India level, at least in the large north Indian states where we would like to get District level or regional level data at more frequent intervals.

I hope that the NFHS of 1992-93 will not be the last of its kind and that similar studies will be repeated at regular intervals utilizing the PRCs. For too long a time the PRCs have been at the receiving end of criticisms from all quarters; and it is high time that they receive some applause and occupy their rightful place in the field of demographic research in India.

In case we decide to have another round of the NFHS, should it be a repeat of the 1992-94 survey, or should it tread new paths? As we knew from the SRS data, and now know from the NFHS as well, the south Indian states are much more advanced than the north Indian states in their demographic transition. In south India, fertility rates have reached near or below replacement level. In five years, all the south Indian states could have their fertility below replacement level, and in some, very much below that level. Is it worthwhile to repeat the

1992-94 type NFHS in these states in 1997-98? My own feeling is that we will get better mileage from these studies in south India if a different set of objectives is pursued.

Earlier in my address I have mentioned that economic factors have lost much of their relevance as determinants of fertility and mortality changes; and the programme factors (such as family planning programmes, immunization programmes, etc.), have taken over as prime determinants of demographic changes. Things can change once again when Government gets out of family planning, when incentives are withdrawn and the providers of these services start charging for their services. Economic factors including education, health, and nutrition can regain their relevance once again as determinants of fertility decline. There is, therefore, a case for paying more attention to these basic factors. This is important because I believe that the quantitative achievements in recent years in education, health services, family planning and immunization programmes, etc., have been achieved at a cost; cost has been with respect to the quality of these services.

In a recent newspaper article, Leela Menon has called attention to one of the problems of Kerala's educational achievement. The title of her column was "Kerala's students learn ing 'rank incompetence' ". She had referred to two studies, one by the Human Resources Development Ministry and the other by the NCERT. According to the first study, the minimum level of learning (MLL) in the totally literate Kerala is almost at par with nearly-illiterate Bihar. The Baseline Achievement Studies on "learning achievements of primary school children" undertaken by NCERT have revealed that the achievement level of primary school children in Kerala is well below the national average. A national survey of achievements of primary school children in mathematics and language conducted by the NCERT, with World Bank aid, has revealed very low levels of learning achievement in Kerala. Children learn very little in the class rooms; studies are disturbed on most days by a students' strike, or a teachers' strike or a bus strike or a general hartal or other strikes by some other group. They learn mostly from private tutors and guide books. Education is not the prime objective of these factories; the aim is to make the students get a good 'rank' in the examinations. In recent years, students from Kerala have fared very poorly in all national level competitive examinations like the civil service examination. In their effort to achieve 100% literacy, universal primary education and such praiseworthy objectives without the necessary inputs in infrastructure and human resource development (teachers), the quality of education in Kerala seems to have suffered considerably. I am not aware of similar study on health system in Kerala. Actually you don't require an elaborate study to assess the quality of health services in Kerala. A mere visit to some of the PHCs is enough as Dr. D. Banerjee of the Jawaharlal Nehru University has done recently, It is instructive to note that Kerala has the highest morbidity rate in the whole of India.

Kerala's family planning programme and, in fact, that of most other states is virtually a sterilization programme. The follow-up care after sterilization is reported to be highly inadequate. There is a persistent clamour from the women's forum that sufficient attention is not given to the women's health in general and reproductive health in particular in Kerala's family planning programme. Unfortunately, we don't have a clear picture of the reproductive health of women in any state.

The situation with respect to nutrition is not very much different. Kerala' s dietary energy intake is lower than the national average.

Kerala's poor quality education, its high morbidity rate, poor reproductive health of its women, and poor nutritional level call for a fresh approach to the maintenance of the quality of these services. There is a need to go back to the fundamental determinants of demographic changes and maintain their quality.

In the next round of'NFHS' in South India, an attempt must be made to assess the quality of these basic services—education, family planning, immunization and MCH programmes, nutrition programme, etc.—rather than on the quantitative aspect of these services.

Continued low fertility has its undesirable effects, the most important of which is the rapidly increasing number and proportion of the elderly. A beginning should be made to work out a policy framework to deal effectively with the social and economic problems associated with ageing. A first step in this direction is to map out the nature of old age problems. The NFHS is eminently suited to serve this purpose. This is another area that the next round of NFHS should try to cover.

Conclusion

By way of conclusion, I want to recapitulate some of my major points. I began my address with some reminiscences about how things were in 1956 and how they are now. I also said that although we have made many mistakes, considering the enormous problems, that confronted us, we have a respectable record in Demography as a discipline and in family planning as a government programme. We have our distinct share of contributions to the discipline.

The purpose of my reminiscences was not merely to weep over our mistakes or to gloat over our successes, but also to point out that we could have avoided at least some of our mistakes and progressed a little faster, if only we had been willing to allow a little more independent evaluation of our programmes by national and international agencies. We should not have been shy of criticism. After all, we are a democracy which pays heavily to maintain an opposition. I hope that in this new era of liberalization, the population bureaucracy in India will also be liberalized and be willing to get their programmes continuously evaluated by nongovernmental agencies within India, if not by outside agencies.

We are near the end of the 20th century. The second half of this century, 1950-2000, was the most tumultuous period in the history of demographic transition. There will not be another similar half a century in the future. It is the moral responsibility of the present generation of demographers to prepare an accurate record of the demographic history of this period for posterity. Since no country in the world has so much demographic diversity as India, we have a lot to contribute to Demography as a discipline. Therefore, 1 urge the I ASP to rise to the occasion and take on the responsibility of writing this record.

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