Fertility Transition in India: Problems and Prospects

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Introduction

The rapid rate of population growth in India is adversely affecting every sector of its economic and social development and the country seems to be in the grip of the vicious circle of economic backwardness-high rate of population growth-more economic backwardness. The unprecedented rate of population growth in India has been caused due to the drastic decline in mortality without being accompanied with the commensurate decline in fertility after 1950. The ultimate solution to the growing population therefore, lies in the control of fertility.

The results of the 1991 census alarmed every one, as the intercensal growth rate of the population was as high as 2.14 percent per year, though slightly lower than that during 1971-81. The decline in the death rate as well as the birth rate during the 1970s and 1980s has been rather slow. However, the important feature brought out by the 1991 census is that the decadal growth rates in 15 major states (those with a population of 10 millions and above) has varied widely between 13.4 percent in Kerala to 25.0 percent in Rajasthan. Also, the in demographically backward states of Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh accounting for 40 percent of India's population the growth rate over the previous decade has increased, imparting higher momentum to their population growth. According to SRS 1993, the birth rate in Uttar Pradesh is 36 per thousand population against the death rate of 11. These figures clearly imply that in the near future U.P. might experience an even higher rate of growth of its population because of the further decline in the death rates, if the birth rate does not decline faster (see Pathak and Ram, 1991).

In the states where the growth rate has dropped during the decade of 1981-91; the decline in the birth rate may be the prime explanation, because the mortality conditions have considerably improved in these states during the 1980s. The states of Gujarat, Karnataka, Kara, Orissa and Tamil Nadu are the foremost in the transition process with the difference between mortality and fertility narrowing down due to a faster decline in the birth rate resulting in the decline of the growth rate to the level of below 2.00 percent during the 1981-91 decade. Though the states like Assam, Bihar, Haryana, Madhya Pradesh, Maharashtra, Rajasthan

and West Bengal have experienced a rate of growth of slightly more than 2.00 percent, they also seem to have advanced in fertility transition.

The study of the 1991 census growth rates highlights the different combination of the birth rates and death rates in the different states indicating different phases of demographic transition. This also implies that the problem of rapid population growth in India is essentially a regional problem. India is a vast country of demographic diversities with different cultures, social customs and socioeconomic setting. The future decline in the growth rate of the Indian population would largely depend on the decline in the birth rate of the major states like Uttar Pradesh, Bihar, Madhya Pradesh, Rajasthan and Haryana. To offset the effect of the decline in the further death rate on the growth rate, the birth rate has to decline further in order to stabilise India's population.

Fertility Levels, Trends and Differentials

Changes in fertility can be ascertained by studying trends in the levels of a summary measure of fertility such as CBR and TFR as well as in birth order distribution and age pattern of fertility, as the latter provides more information about the age and order of birth at which changes are occurring.

CBR and TFR

As a matter of fact, the fertility levels in India were far lower than those, which existed in the pre-transition European societies. For example, around the year 1950, before the introduction of the official national family planning programme, the total fertility rate in India was around six compared to the total fertility rate of 8.1 in Norway and 10.8 in Canada in the nineteenth century (Srinivasan and Pathak, 1981). The most reliable estimate for the birth rate (CBR) for the decade 1951-61 is of 45 and a total fertility rate in the slightly excess of 6 live births per woman. For the period of 1961-71, a marginally lower fertility is indicated: a CBR in the vicinity of 42 and a TFR of 6. Thus, the decline in CBR was more than in the TFR due to the fact that there was a decline in the percentage of women in the reproductive ages in the total population from 23.9 percent in 1951 to 22.3 in 1971. According to the 1972 fertility survey (RGI, 1972), at the all India level the TFR was around 5.8 and CBR was 40 per thousand. The National Family Health Survey (NFHS) 1992-93 gives a TFR of around 3.4 with CBR of 28.9. This implies a fall of 28 percent in the CBR during 1972-1992 and around 41 percent in the TFR. One reason for the still high level of birth rate in 1992-93 is that the number of couples between the ages 20 and 30 years increased faster during 1951-91 because of the improved mortality of children and the high fertility regime during the same periods.

As a matter of fact, India has attained by now the second stage of fertility transition after a drop in the CBR from a level of 40 plus to a moderate level of around 29. This drop has been brought about largely through the acceptance of sterilisation by the couples of high parity (3+) and older ages (30+) because they had achieved their desired family size and for which they needed facility rather than strong motivation. High parity couples accounted, on an average for over 60 percent of the acceptors of sterilisation in the 1970s and 1980s and over 70 percent of the acceptors of sterilisation in the 1990s.

According to SRS 1991, in the states like Andhra Pradesh, Gujarat, Kerala, Maharashtra, Orissa, Karnataka, Punjab, West Bengal and Tamil Nadu, the level of fertility is considerably low as against those in Madhya Pradesh, Uttar Pradesh, Bihar, Rajasthan, Assam and Haryana where birth rates are quite high. The urban population of states like Bihar, Gujarat, Haryana, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh have a higher fertility level than the national fertility level. In the case of Bihar, the situation is rather ambiguous. It is clear that different states in India are in different stages of fertility transition and they exhibit vast socio-economic and demographic diversity across the regions.

A perusal of the results of the 1972 Fertility Survey and the National Family Health Survey of 1992-93 clearly demonstrate the fact that the TFR in the rural areas of Uttar Pradesh remained above 5 for the period of 1972-1993 and TFR in the urban areas of Uttar Pradesh, Madhya Pradesh and Haryana declined from a level of 4 plus to the one between 3 and 4 and the TFR in urban areas of Bihar remained the same as during 1972-92. The very fact that for most of the states except Madhya Pradesh, Bihar, Haryana and Uttar Pradesh, the TFR has been found less than 4 and 3 for rural and urban areas respectively; there is hope for a decline in fertility in the future. It may however, be mentioned that Kerala, Karnataka, Maharashtra, Gujarat, Punjab and Tamil Nadu are the states where the levels of socio-economic development are also higher than those in Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh. These are also the states where the family planning programme has been more successful. This implies family planning efforts coupled with the socio-economic improvements seem to hold a greater promise for the decline in fertility in India.

Birth Order Data

In order to have an indication of the degree to which the large declines in the fertility of any population will be due to the decrease in the proportion of women having more than three children and to increase in the proportion of women of lower parity, we need to analyse the fertility rates by order of birth. The birth order distribution deviates from the static pattern due to the increase in prevalence of contraceptives. A transition in birth order distribution reflects not

only the quantitative but also the qualitative aspect of the programme achievements (Pathak and Ram, 1993).

For rural India, the proportion of higher order births (i.e., 4+) to all births declined from 47 percent in 1972 to 25 percent in 1991. In urban India, the decline is from 44 percent in 1972 to 20 percent in 1991. About a 50 percent reduction in higher order births is a significant achievement of the family planning programme and indicates the increased acceptance of the small family norm in rural and urban India. There is, however, a considerable variation among the Indian states. The maximum reduction in higher order births has been achieved in Kerala followed by Tamil Nadu (see Table 9.1). The increase of 32 percentage points in the CPR has contributed to a reduction of 22 percentage points in the higher order births over the period of 20 years. While the states that have recorded a higher increase in the CPR have also in general recorded a sharper decline in the proportion of higher order births, the relationship between the extent of the increase in the CPR and the reduction of higher births does not appear to be linear (Pathak and Ram, 1993).

Table 9.1: Total Fertility Rate for India and its States, 1972 and 1992-93

Rural		National Family Health Survey 1992-93			
		2-3	3-4	4-5	5+
Fertility Survey 1972	4-5	Andhra Pradesh, Kerala	Karnataka, Maharashtra, Orissa	Bihar, Madhya Pradesh	
	5+	Tamil Nadu	Assam, Gujarat, Punjab, Rajasthan, India	Haryana	U.P.
Urban		National Family Health Survey 1992-93			
		<2	2-3	3-4	4+
Fertility Survey 1972	3-4	Kerala	Assam, Karnataka, Maharashtra, Tamil Nadu	Bihar	
	4-5		A.P., Gujarat, Orissa, Punjab, India	Haryana, Madhya Pradesh, Uttar Pradesh	
	5+		Rajasthan		

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Table 9.2: Proportion of Births of Order 4 and Above for India and Major States, 1972-91

Region	Rural		Urban	
	1972	**1991**	**1972**	**1991**
India	47.0	25.2	44.0	20.2
A.P.	43.0	14.4	42.3	17.7
Bihar	44.4	34.2	37.1	31.9
Gujarat	47.9	18.3	4.7	19.8
Haryana	53.4	23.4	47.5	17.8
Karnataka	47.6	21.2	46.4	17.1
Kerala	42.8	7.8	40.7	5.6
M.P.	51.4	28.3	46.4	25.8
Maharashtra	46.8	20.5	43.3	16.8
Orissa	46.4	23.7	45.2	18.8
Punjab	45.3	17.7	48.0	17.0
Rajasthan	50.6	29.2	48.1	26.1
Tamil Nadu	40.1	12.1	53.7	8.6
Uttar Pradesh	53.7	33.0	51.4	31.1

Age Pattern of Fertility

More than 50 percent of births occur to women in peak ages between 20 and 30 years. During 1972-1992 the maximum fertility declined at ages beyond 30 (see Table 9.3). In the rural areas of Haryana, Punjab, Gujarat and Rajasthan decline was to the tune of two the or more children in old age (30+) during 1972-1992 as against one in other states such as Kerala, Tamil Nadu, Karnataka etc as well as India. While the total fertility of urban India after the age of 30 declined by one child, the decline was less than one for Assam, Bihar, Orissa, Tamil Nadu and Uttar Pradesh.

Table 9.3: Teen-age, Peak-age and Old-age Fertility of India and Its States, 1972-1992

Region	Teen-age Fertility		Peak-age Fertility		Old-age Fertility		Total Fertility	
	1972	*1992*	*1972*	*1992*	*1972*	*1992*	*1972*	*1992*
India Rural Urban	0.6 0.4	0.7 0.4	2.6 2.4	2.1 1.8	2.2 1.6	0.9 0.5	5.4 4.3	3.7 2.7
Andhar Pradesh Rural Urban	0.8 0.5	0.8 0.4	2.4 2.4	1.5 1.6	1.6 1.5	0.4 0.4	4.8 4.5	2.7 2.4
Assam Rural	0.5 0.3	0.6 0.4	2.7 2.1	2.0 1.6	2.0 1.3	1.0 0.6	5.3 3.7	3.7 2.5

Urban								
Bihar Rural Urban	0.4 0.5	0.6 0.5	2.4 1.9	2.2 2.0	2.3 1.6	1.3 0.8	5.1 3.9	4.1 3.3
Gujarat Rural Urban	0.3 0.3	0.5 0.4	3.2 2.6	2.1 1.9	2.5 1.6	0.6 0.4	6.0 4.5	3.2 2.6
Haryana Rural Urban	0.4 0.2	0.8 0.4	3.2 2.6	2.7 2.3	3.3 1.9	0.8 0.5	7.0 4.7	4.3 3.1
Karnataka Rural Urban	0.6 0.4	0.7 0.5	2.2 1.7	1.8 1.5	1.8 1.4	0.5 0.4	4.5 3.5	3.1 2.4
Kerala Rural Urban	0.3 0.3	0.2 0.2	2.3 2.0	1.4 1.4	1.7 1.3	0.5 0.3	4.3 3.6	2.1 1.8
Madhya Pradesh Rural Urban	0.9 0.4	0.9 0.5	2.8 2.5	2.3 1.4	2.5 2.1	1.0 0.3	6.2 0.7	4.1 3.3
Maharashtra Rural Urban	0.5 0.4	0.9 0.4	2.5 2.1	1.9 1.7	1.8 1.3	0.4 0.4	4.8 3.8	3.1 2.5
Orissa Rural Urban	0.7 0.4	0.5 0.4	2.3 2.2	1.9 1.7	1.8 1.3	0.7 0.5	4.8 4.0	3.0 2.5
Punjab Rural Urban	0.2 0.1	0.4 0.2	2.9 2.3	2.2 1.9	2.6 1.7	0.5 0.4	5.7 4.1	3.1 2.5
Rajasthan Rural Urban	0.7 0.5	0.6 0.3	3.0 2.8	2.2 1.8	2.8 2.1	1.0 0.6	6.5 5.3	3.9 2.8
Tamil Nadu Rural Urban	0.1 0.2	0.5 0.3	2.5 1.7	1.7 1.7	1.4 1.1	0.4 0.4	3.9 3.0	2.5 2.4
Uttar Pradesh Rural Urban	0.7 0.4	0.6 0.3	3.2 2.5	2.8 2.2	3.2 2.0	1.8 1.1	6.9 4.8	5.2 3.6

While teenage fertility over the period 1972-1992 has remained almost unchanged, the fertility in old ages (30+) drastically declined. In rural areas while women beyond age 30 could bear 2.2 children in circa 1972, according to the 1992 NFHS data, they could bear only 0.9 children at the all India (rural) level. In urban areas it decreased from 1.6 to 0.5 child during the same period. The minimum old age fertility in 1992 is observed in Andhra Pradesh (rural as well as urban) Gujarat (urban), Karnataka (urban), Maharashtra (rural as well as urban), Punjab (urban), Tamil Nadu (rural as well as urban) and Kerala (urban). The maximum old age fertility has been observed as high in rural Uttar Pradesh

(1.8) to be followed by rural Bihar (1.3), urban Uttar Pradesh (1.1), rural Rajasthan (1.0), rural Madhya Pradesh (1.0) and rural Assam (1.0). Peak-age fertility is still as high as 2.1 children in rural India and 1.8 children in urban India. In Uttar Pradesh this is as high as 2.8. Thus it is clear that in future, the prospects of further fertility decline lie in the case of peak-age of fertility (2.1/3.7)* 100 percent fertility in rural areas and (1.8/2.7)* 100 of total fertility in urban areas of India is accounted by the women in the age group of 20-29 years. In spite of the rise in age at marriage and decline in teenage fertility, its contribution towards total fertility is still less than one-seventh (13 percent).

Reproductive Process

It is possible to find out the extent of the use of the spacing method and sterilization in a population from the given data on the age specific fertility rate. It is observed from such estimates that the average age of women at first birth has shown an increasing trend between 1972-91 in all the major states. But the change has been very nominal. A significant change has been, however, observed in the mean age of the women at the last birth. For example, in the case of rural India, the mean age at the last birth was estimated to be around 38 in 1972 which reduced to 31 years in 1991. In the case of rural Kerala, the mean age at last birth was estimated to be 37 in 1972 and 29 in 1991. In the case of rural Uttar Pradesh, however, it was 40 years, which has come down to 38 in 1991. The estimated closed birth interval in circa 1972 was 3.6 years for rural India and 3.7 years for urban India. It increased marginally to 3.7 years for rural India and 4.7 years for urban India. In the case of Kerala, the closed birth interval of 3.7 years for rural and 4.0 years for urban in 1972 has increased to 5.5 years in 1991. As a matter of fact, due to the use of contraception especially sterilisation, the estimated reproductive life after first birth for India as a whole has decreased from 17.5 years for rural and 14 years for urban in 1972 to 10.7 years for rural and 7.9 years for urban in 1991. In the case of Kerala, however, this was 13.7 for rural and 12.8 for urban in 1972 which came down to 5.6 years in 1991. Even in rural Tamil Nadu, it was just 7.4 years in 1991 as against 17.2 in the case of Uttar Pradesh and 14.5 years in the case of Rajasthan and Madhya Pradesh. The average fecundability level of the women has also gone down over the period due to contraceptive use. The annual fecundability parameter at the all India level in 1972 was estimated to be around 0.5 (rural as well as urban) and was reduced to 0.4 for rural and 0.3 for urban in 1991. In the case of Kerala, it reduced from the level of 0.45 to 0.25 for rural and 0.40 to 0.25 for urban during the period 1972 to 1991. The implied proportion of women with zero parity has also increased overtime. It is now as high as 13 percent in Kerala, 11 percent and 13 percent for rural and urban Tamil Nadu, 7 percent for urban India and just 2 percent at die all India (rural) level. The proportion of women ever achieving motherhood both in the rural and urban areas has declined. It is also found that consistently a

lesser number of women in urban areas have gone for higher parity as compared to the women in rural areas. The proportion of women having 4 or more children is higher in rural areas than in urban areas. The use of the spacing method seems to have become more popular in the rural as well as the urban areas of Kerala. But, there has been a very marginal increase in the average closed birth interval of women in India indicating less use of spacing methods. It is also found that in Maharashtra, women have mostly reduced their reproductive span after the first birth, more by using terminal methods rather than by using spacing methods in Uttar Pradesh. Except in the case of Kerala, women in urban areas have almost 3 years more of reproductive life than urban women. (Table 9.4a, Table 9.4b)

Table 9.4a: Some Salient Aspects of Reproductive Process for a Synathetic Cohort of Women for India and Its Major States (Rural), Circa 1972 and 1991

Region	Statistics															
	P(0)		P(4 +)		TFR(X)		MAWFB		MAWLB		MCBI		ARS		1	
	1972	1991	1972	1991	1972	1991	1972	1991	1972	1991	1972	1991	1972	1991	1972	1991
India	0.003	0.021	0.848	0.543	6.0	3.9	20.5	20.7	38.0	31.4	3.6	3.7	17.5	10.7	0.476	0.454
Andhra Pradesh	0.007	0.046	0.721	0.372	4.9	3.1	20.0	22.4	34.9	36.6	3.8	3.6	14.8	14.2	0.435	0.476
Assam	0.003	0.028	0.848	0.478	5.0	3.6	20.4	22.8	34.9	32.7	3.0	4.0	14.8	9.5	0.667	0.400
Bihar	NA	0.011	NA	0.666	NA	4.5	NA	22.0	NA	35.2	NA	3.7	NA	13.2	NA	0.454
Gujarat	0.001	0.040	0.906	0.400	6.8	3.2	20.6	22.4	38.4	31.2	3.2	4.0	17.8	8.8	0.588	0.400
Haryana	0.001	0.014	0.945	0.620	7.6	4.3	19.9	22.2	39.0	34.8	3.0	3.8	19.1	12.5	0.667	0.435
Karnataka	0.008	0.035	0.719	0.430	4.9	3.3	21.2	21.9	36.8	31.8	4.0	4.2	15.6	9.9	0.400	0.370
Kerala	0.009	0.133	0.697	0.146	4.7	1.8	22.9	23.7	36.6	29.3	3.7	5.5	13.7	5.6	0.454	0.250
Madhya Pradesh	0.001	0.007	0.929	0.726	7.2	4.9	19.2	21.4	39.2	35.9	3.3	3.7	20.0	14.5	0.556	0.454
Maharashtra	0.005	0.034	0.766	0.438	5.2	3.4	20.9	20.5	36.4	31.0	3.7	4.4	15.5	10.5	0.454	0.345
Orissa	0.006	0.034	0.748	0.438	5.1	3.4	20.8	20.5	36.9	31.0	4.0	4.4	16.1	10.5	0.400	0.345
Punjab	0.002	0.040	0.853	0.400	6.1	3.2	22.2	22.4	38.0	31.2	3.2	4.0	15.8	8.8	0.588	0.400
Rajasthan	0.001	0.007	0.930	0.726	7.3	4.9	20.0	21.4	39.4	35.9	3.2	3.7	19.4	14.5	0.588	0.454
Tamil Nadu	0.011	0.112	0.666	0.179	4.5	2.3	22.0	23.2	35.2	30.6	3.7	6.2	13.2	7.4	0.454	0.213
Uttar Pradesh	0.001	0.000	0.944	0.800	7.6	5.4	19.9	20.9	40.4	38.1	3.3	3.8	20.5	17.2	0.556	0.435

Table 9.4b: Some Salient Aspects of Reproduction Process for a Synathetic Cohort of Women for India and its Major States (Rural), Circa 1972 and 1991

Region	Statistics															
	P(0)		P(4 +)		TFR(X)		MAWFB		MAWLB		MCBI		ARS		l	
	1972	1991	1972	1991	1972	1991	1972	1991	1972	1991	1972	1991	1972	1991	1972	1991
India	0.009	0.068	0.700	0.282	4.8	2.7	21.7	22.2	35.7	30.1	3.7	4.7	14.0	7.9	0.454	0.312
Andhra Pradesh	0.018	0.079	0.575	0.252	4.0	2.5	21.4	23.7	33.6	31.5	3.9	5.1	12.1	7.8	0.417	0.278
Assam	0.018	0.118	0.573	0.168	4.0	2.1	22.2	22.5	33.7	28.0	4.0	48	12.1	5.5	0.400	0.303
Bihar	NA	0.030	NA	0.466	NA	3.5	NA	23.4	NA	32.7	NA	3.7	NA	9.3	NA	0.454
Gujarat	0.007	0.058	0.729	0.318	5.0	2.9	22.4	21.5	36.6	29.9	3.6	4.6	14.2	8.4	0.476	0.322
Haryana	0.005	0.050	0.772	0.353	5.3	3.0	21.8	22.6	35.8	31.6	3.3	4.5	14.0	9.0	0.556	0.333
Karnataka	0.026	0.079	0.497	0.252	3.7	2.5	22.7	23.7	36.2	31.5	5.0	5.1	13.4	7.8	0.286	0.278
Kerala	0.015	0.133	0.610	0.146	4.2	1.7	22.8	23.7	35.6	29.3	4.0	5.5	12.8	5.6	0.400	0.250
Madhya Pradesh	0.004	0.034	0.813	0.438	5.6	3.4	20.8	20.5	35.2	31.0	3.1	4.4	14.4	10.5	0.625	0.345
Maharashtra	0.014	0.079	0.623	0.252	4.3	2.5	22.5	23.7	34.6	31.5	3.7	5.1	12.2	7.8	0.454	0.278
Orissa	0.012	0.112	0.647	0.179	4.4	2.3	20.8	23.2	34.6	30.6	4.0	6.2	13.8	7.4	0.400	0.213
Punjab	0.007	0.058	0.728	0.318	4.9	2.8	22.8	21.5	37.6	29.9	3.8	4.6	14.8	8.4	0.435	0.322
Rajasthan	0.004	0.025	0.803	0.503	5.5	3.7	20.8	22.7	37.3	33.5	3.7	4.1	16.6	10.9	0.454	0.385
Tamil Nadu	0.025	0.133	0.503	0.146	3.7	2.0	22.7	23.7	33.5	29.3	4.1	5.5	10.9	5.6	0.385	0.250
Uttar Pradesh	0.003	0.025	0.828	0.503	5.8	3.7	21.3	22.7	38.1	33.5	3.6	4.1	16.8	10.9	0.476	0.385
West Bengal	NA	0.118	NA	0.168	NA	2.1	NA	22.5	NA	28.0	NA	4.8	NA	5.5	NA	0.303

Note: P(x), TFR, MAWFB, MAWLB, MCBI, MOBI, ARS l refer probability that a women will have x births at the end of her reproductive life, total fertility rate, mean age of women at the birth of first child, mean age of women at the birth of last child, mean closed birth interval, mean open birth interval and Fecundability respectively.

Source: K.B. Pathak, 1994. Bio-social Aspects of Contraceptive Use in India, Paper presented in sixth annual meeting of the Indian Society for the study of reproduction and fertility, Nov. 21-24 at All India Institute of Medical Sciences, New Delhi.

Fertility and Infant Mortality

Many demographers and some public health specialists in the particular believe that high levels of infant mortality in the population reinforces high fertility both at the individual and community levels. The perception of high infant mortality with its own experience and the social norms of at least one or two sons in the family might inhibit the decision of a couple to stop at earlier parities because of old age security and protection. On the other hand, high infant mortality rates, by shortening the average duration of lactational amenorrhea of the mothers because of the death of the child, are likely to advance the onset of the next ovulation and the possibility of the next conception. A number of studies indicate that the intervals between the successive pregnancies are shortened in the case of mothers who lost their children in their first year of life (see Wyon and Gordon, 1962).

There is also another view that fertility reduction would bring a decline in infant and child mortality. Because of a high association between infant mortality and the higher order of births it is felt that an avoidance of a higher order of births would automatically bring dowry infant mortality (see Pathak, 1979). Again a couple which has terminated its reproduction specially through sterilisation would be very cautious in utilising the health facilities available and would provide better care and nutrition to its children. Viewed in this context the family planning programme in India may be considered as a child health care programme.

The above two view points are, however, complementary to each other. Srinivasan (1979) has analysed the relationship between fertility and infant mortality in conjunction with development variables (a cross-country study) and has observed that the infant mortality rate is likely to be influenced more directly and more, strongly by the developmental variables than fertility and the effect of developmental variables on fertility, though infant mortality decline is likely to be higher than the effect on the infant mortality through the fertility decline. In fact, the mortality declines in European countries and other industrially developed societies have preceded the decline in fertility. But, there are some instances in which the declines in fertility and mortality were more or less synchronous, for example, in France and Germany (see Coale, 1973). In the case of India too, the process of decline in fertility and mortality especially after 1966 were initiated almost together. Some time lag and difference in the degree of the actual declining trends are bound to be there because a decline in mortality as a result of an improvement in the environment can be achieved to a greater extent by an effective community health programme, while fertility reduction can only be achieved through individual motivation. A reduction in infant mortality alone, however, may not induce the couple to go in for the acceptance of family planning methods, unless the level of some ancillary factors such as the income

of the parents, the education of girls and the status of women are raised. Even, the reduction in infant mortality depends on these factors. The state of Kerala and Tamil Nadu where the total fertility rate has fallen below or around replacement level of fertility, have lower infant and child mortality. The state of Uttar Pradesh where the TFR is highest, is also the state where IMR is one of the highest. The overall correlation coefficient between the infant mortality rate and the total fertility rate circa 1992 across the state is found to be 0.7.

Fertility and Socio-economic Development

Among the several hypothesis for explaining the change in the fertility in relation to the socio-economic conditions of the population, the 'threshold hypothesis' has been gaining attention in the recent years. According to this hypothesis in a developing country where fertility is initially high, improving the economic and social conditions is likely to have little effect if any on fertility unless a certain level of social and economic conditions is reached, but once that level is achieved, fertility is likely to register a decided decline and continue downward until it is again stabilised on a much lower plane (See United Nation, 1963). As a matter of fact, India circa 1970 was below the threshold zone in respect of per capita income, life expectancy, female literacy and infant mortality. Only with respect to urbanisation it was within the zone. In circa 1980 its position was still below the threshold zones in regard to the four indicators of socio-economic development. However, when a combined threshold index worked out by Pathak and Murthy (1984) was used, India seemed to have moved in the combined threshold zone.

Further, the studies of differential fertility by education and annual income groups in India have clearly shown the decline in fertility from 1972 to 1984 for some groups. In 1984, while the total marital fertility rate of the illiterate population in rural areas was 6.2 and in urban areas 5.9, the same was found to be 4.5 and 4.3 in rural and urban areas respectively in the case of the females having education above matriculation. The total marital fertility rate in the rural areas for the expenditure groups below Rs. 5,000, Rs. 5,001-10,000 and Rs. 10,0001 and above were 5.7, 6.3 and 6.1 respectively. In the urban areas for the same group, the figures were around 5.3, 5.6 and 5,0 (see RGI, 1984). It is therefore quite clear that a cross section of the population in India with better education, income level and modernisation is experiencing a decline in fertility. The value of the small family perceived by a small section in the population is likely to be perceived by the other sections with a time lag, depending upon their achieving the minimum threshold limits of development. Even the study of Crimmins et al. (1981) supports modernisation as the crucial factor for bringing a change in the attitude of couples to adopt contraception to prevent births. In the pre-modernisation stage characterised by high infant mortality, low literacy, labour

intensive agricultural activity, natural fertility is a rational response to the couples basic reproductive circumstances. Caldwell (1983) is of the view that the major determinants of the fall in fertility in Kerala have been mortality decline and mass education. It is felt that education has separate effects on the family in terms of the impact of children being educated and the parents themselves being educated. Clearly education has a multi-generational effect and in other states of India its impact will accelerate with time, provided with time education improves.

Education inculcates better parenthood and brings greater trust in modern medical health. This helps in bringing down infant mortality and acceptance on the part of couples to go in for limitation in their family. It is also found that education is highly correlated with age at the marriage of the females and thus helps in the reduction of the reproductive life, on an average, and helps in the conscious efforts to limit the family size. The early marriage of the daughter in rural areas, is an expected rational behaviour, as long as there is mass illiteracy and poverty. The age at marriage for females cannot be raised by mere, legislation unless the socio-economic conditions of the rural people is improved and better educational facilities and occupational alternatives for the teenage girls are provided near their homes (see Pathak, 1980). The whole gamut of moral and social values associated with age at marriage of the girls has to undergo a change. Below we find the correlation coefficient between five major socio-economic and health factors with fertility (Table 9.5).

Table 9.5: Correlation Coefficient Between Total Fertility Rate and Socio-economic and Health Indicator, 1991

Variable	Urbanisation	Female Literacy	Female age at marriage	Child mortality	Proportion of women employed in the organised sector
Total Fertility Rate	-0.5587	-0.8521	-0.7019	0.7591	

The process of fertility decline in India can be better understood and probably analysed by assessing the impact of the family planning programme in relation to the economic development and social change on fertility. A number of studies in this regard attributed nearly 70 per cent variability in the acceptance of family planning among the states due to the difference in their socioeconomic

characteristics (see Pathak and Singh, 1994). Many studies during the last ten yews have also demonstrated the paramount importance of the non-terminal methods in enhancing the demographic effectiveness of the programme. So far, the family planning programme has been sterilisation oriented. In recent years, however, female methods like IUD and tubectomy are becoming more popular in some states (Pathak and Murthy, 1984 and Pathak and Nair, 1984). The fertility decline (from moderate to low level) involving a larger number of younger couples requires a reasonable level of socioeconomic development as a pre-condition to create the appropriate motivational environment. For the second and third stages of fertility decline what is now required is to emphasise on the family planning programme, along with sustenance of efforts made on the well being of the people.

Dynamics of Contraceptive Use

The family planning programme has been the most effective state intervention in reducing fertility in India. By 1972, 12.2 percent of the eligible couples were effectively protected against conception -9.7 percent by sterilisation and 2.5 percent by other methods. By March 1982 the percentage of protected couples had risen to 23.7 - 20.7 percent by sterilisation and 3.0 percent by other methods. By the end of March 1992, the percent of couples protected seems to have reached the figure of 43.3 percent, of which 30 percent are estimated to be through sterilisation. This shows a significant increase in the protection of the couples against conception.

In the decade of the 1980s the CPR almost doubled. Compared to the increase in the CPR, the TFR has declined only marginally. The TFR declined from 4.5 in 1981 to below 3.6 in 1991, a decline of 0.9 in 10 years and after doubling the CPR and rise in the mean female age at marriage from the level of 18 in 1980 to 19 by 1990. In Kerala and Tamil Nadu, there is some consistency in the change in the CPR and fertility. These are the two states, where the programme has attracted comparatively more younger couples. The spacing method is adopted even by the women with less than two children. The states like Haryana, Maharashtra and Punjab, which have a very popular programme of spacing method, have not achieved the expected decline in fertility. In these states spacing methods are adopted at much older ages and only after having three living children. It seems that even the spacing method is adopted as a terminal method for "Wait and See" before switching over to the permanent method. The example of Haryana and Punjab is classic. In Haryana, the TFR is 4.0 with the CPR of 58 percent. On the other hand, the TFR for Punjab is 3.1 with the CPR level of 74 percent. Kerala and Tamil Nadu have now achieved an NRR of one with a CPR which is much below 60 per cent. Our programme performance in terms of the acceptance rate or in

terms of the increase in the CPR has been quite successful, but it had not got the desired impact on fertility.

As a matter of fact, any voluntary family planning programme would succeed only if there exists a demand for lower fertility. In case favourable conditions for lower fertility exist, the family planning programme services would help a great deal in bringing down the fertility. It is quite evident that the demand for family planning, by and large, seems to be lacking in some states. Even those who advocate the importance of a family planning programme concede that the low progress of the Indian family planning programme is partly due to (a) high infant and child mortality among a majority of the population; (b) low level of literacy particularly among females; (c) low level of living of the rural population and slum dwellers in urban areas; and (d) large size and dispersion of the rural population and paucity of roads and the means of communication in rural areas. Those who advocate priority for a socioeconomic development maintain that the programme has failed to substantially lower down the birth rate in the country, because of the absence of a 'Threshold' level of the development (Pathak and Murthy, 1984). The current status of knowledge is, however, not adequate to thrash out this issue. It is no doubt that the socio-economic development is likely to create a climate in which the activities of a family planning prograrnme is likely to be expedited. On the other hand, the family planning programme plays an important, role in expediting the perception by the individual couples of the social as well as economic costs of their decisions about the family size and transform this perception into action to stop conception by using modern methods of family planning.

Future Perspective for Fertility Transition

The Indian population has already acquired a sizeable growth momentum. In spite of a vigorous family planning programme, the population size will grow. It is also likely that the size of the population below the poverty line will grow. The needs of the population in future in respect of food, housing, sanitation, employment, education and nutrition may be tremendously high. At the national level, the target for the birth rate is set to be around 21 by 2001, when the death rate will be nine. It means that the present birth rate of 29 has to decline by about eight points in the next six years. The target is not impossible but keeping in view the hurdles before the family planning programme, it is not so easy as well. It is essential that the development programme have to be made increasingly population oriented, specially in the rural areas. Moreover, the family planning programme has to emphasise more on the spacing methods so that the younger couples could be protected against conception and the programme gets more credibility. In fact, the decline in the fertility of younger couples will depend on the level of social and economic development. Unlike sterilisation, spacing

methods require a more extensive outreach and deeper community participation and with pursuing of the Panchayati Raj Act, it has now become possible.

Under the family planning programme more than 44 percent couples are said to be protected now. In some states, this figure is still higher. No doubt, the success of the family planning programme after more than 42 years of service is not very satisfactory specially in arresting and cutting down the growth rate of the population, but a measurable improvement in the quality of life of the people seems to have begun. What is, therefore needed at present is to generate a wave of social change in favour of the small family and to create a demand for different family planning methods because the decline in fertility through contraception seems to determine the economic prospects of the country. More serious efforts are required to generate confidence among the couples that their children are going to survive and their economic lot is going to improve with a small family. But to wait for development to promote the family planning practices and adoption of the small family norm would lead to an unduly burden of the population, which can frustrate all efforts of development in the country. Therefore, the state and society both have to compromise their respective expectations from each other and the family planning programme has to be recognised as an integral part of the overall socio-economic development plans. The involvement of the Panchayats and the empowerment of women to handle health and family planning activities will be the most desirable step. The NGO's might play a significant role in educating people to take new roles in this regard.
It is clear that the behaviour of the couples in respect of their childbearing would largely depend on the family and community in which they five. The favourable attitude for family limitation would be largely determined by their aspirations about their children and their life in future, conditioned by their present perception of their social and economic status. It is reported in some studies that children are regarded as an asset for the farmers and labourers, because in the case of family calamities, the song can substitute for parents and other elders. They can also compensate for the loss of income in the family due to the decrease in the productivity of the parents when they grow old. They provide old age security for the parents. The families with more male members in the village muster more respectability and social status because of the dominance of the village polity, given that all other factors are constant.

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