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Lessons from Goa, Kerala and Tamil Nadu: The Three Successful Fertility Transition States in**

Introduction

INDIA is characterized by a considerable degree of heterogeneity of her population with regard to their cultural history, traditional values and norms of the people as they influence their nuptiality patterns, family size norms, contraceptive use and fertility behaviour. Significant differences exist in the status of women in the society especially between southern and northern states and between religious and caste groups and get reflected in the age at marriage of girls and boys, the value placed on the male child and the significance attached to concepts such as celibacy, abstinence within marriage and terminal abstinence of couples after certain age or stage in their life cycle when they consider it shameful to become pregnant and have a child. As a consequence of modernization, the traditional values that have kept natural fertility of the country at a moderately high level for centuries in the past are breaking down with different pace in different states. The process of modernization has been found, however, to reduce or narrow down the influence of various traditional factors with regard to contraceptive use and fertility.

The various developmental programmes undertaken in the country since independence have had significant impact with regard to industrial development and agriculture production but fell short of the desired goals and targets and in comparison with many other developing countries in social development, especially with regard to education and status of women. The impact of these developmental programmes vary from state to state. Family planning programmes, even if implemented with uniform programme inputs and efficiency throughout the country, can be expected to generate interstate and interregional differentials in contraceptive acceptance, use and fertility change.

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The Constitution of India framed in 1950 has allocated the subjects of public health, primary and secondary education as the responsibilities of the state governments. The commitment of the states to these areas of development; the political will, financial allocations and the bureaucratic efficiency play an important role in the effectiveness and efficiency of these programmes. In some states there is a decentralization of political power to the district and village level to locally elected leaders under the system of democratic decentralization. Even before the 73rd and 74th amendments to the Constitution in 1993, resulting in the Panchayat and Nagarpalika Acts of Parliament which require decentralization of political and financial powers to the panchayats in villages and to the locally elected councils in towns and cities, a few states, such as Maharashtra, Gujarat and Karnataka have, by legislation, already decentralized their power base to the Zilla parishads to a large extent whereby they have statutory and fiscal powers delegated to them in most of the areas of the government. In these states, the chief of the district bureaucracy functions as the executive officer of the Zilla Parishad.

Thus, there is an interplay of cultural values and traditional norms pertaining to the proximate determinants of fertility on the one hand and the political will, budget allocations and bureaucratic efficiency in the implementation of education and family welfare programmes on the other that have contributed to the fertility declines at varying paces in different parts of the country during the past four decades. It can be expected that in societies that give no special preference and treatment to the male child, where the status of women is quite high and where the educational programmes for children especially for girls have been universalized, and where public health and development programmes have been successfully implemented in bringing down general mortality and infant mortality rates to low levels, in such a favourable social setting, family planning programmes will have substantial impact on fertility even when they concentrate on the supply side of the fertility regulation, i.e., offering easily accessible, high quality services. The motivational or the demand generation side of the fertility regulation problem, in such a situation, is taken care to a large extent by the favourable cultural milieu of the population and the successful educational and public health programmes undertaken by the state government. On the other hand, when the cultural milieu is operating against the equality of status for women, and the developmental efforts especially in educational and public health fields are not implemented effectively by the state government, the family planning programmes have to work against the current, as it were, loaded as they are with the additional burden of motivating couples for the adoption of a small family norm, and also supply of high quality, easily accessible contraceptive services. The motivational tasks of the family planning programmes becomes increasingly severe in those states or regions where the cultural milieu is still traditional and developmental efforts have not progressed, for lack of political will or bureaucratic efficiency.

The crucial role of state governments for the effective and efficient implementation of family planning programmes in India is not yet fully appreciated. Many of us continue to think that by framing national policies and goals and providing funds to the states we could achieve fertility transition uniformly in the country. The experiences with family planning programmes in a number of developing countries indicate that while both the socio-cultural

structure and developmental context do influence the desired family size and fertility behaviour, family planning programmes especially the components of political will, information, education, communication (IEC) and service delivery aspects in terms of provision of easily accessible high quality services (offering a variety of methods) do have an independent impact on the family size norm and fertility behaviour. How else can one explain the dramatic change in family size norm and decline in fertility by almost 50 percent within a period of seven years during 1978 to 1985, in such a large population of more than one billion in the People's Republic of China?

The experiences in those areas or states in India that have undergone successful fertility transition in recent years also indicate the power of certain types of social influences that can be brought to bear in bringing about rapid declines in the fertility level of the population. Four such forces can be identified: policy environment which includes political will and strategic planning; bureaucratic efficiency, including management skills and IEC activities; social change with special emphasis on improvements in the status of women, child survival programmes; and economic growth with reduction in economic disparities. When one or more of these influences or forces operate strongly and sustained for a certain length of time in the society, family size norms change, contraceptive practices spread rapidly and fertility tends to decline sharply. In other words, the routes to successful rapid fertility transition are many and can be different from society to society, and can be influenced by different mechanisms of social engineering. It is not necessary that a population should be economically advanced as in western societies or urbanized to a large extent or largely employed in non-agricultural occupations in order to enjoy the fruits of low mortality, high expectation of life and low fertility; in general, a better quality life under limited material circumstances

In the following sections, I propose to identify and elaborate on the nature and extent of these forces or influences as they operated in three states in India that have recently achieved successful fertility transition—Goa, Kerala and Tamil Nadu. It is felt that a macro level case study with an emphasis on the above factors, policies and programmes and how they have contributed to rapid diffusion of family planning ideas, contraceptive practice and sustained declines in fertility will throw light on the underlying dynamics of fertility transition in these states. The objective is to draw lessons for policy and programme implementation for the other areas of the country which have not been so successful in fertility transition in spite of long standing official programmes of family planning. In the following Section I present the case studies of Goa, Kerala and Tamil Nadu from the above perspectives.

The Case Study of Goa

Background

The territories of Goa, Daman and Diu lie on the western coast of the Indian peninsula on the borders of Maharashtra (see Figure 1). They were under continuous Portuguese rule from 1510, a few years after the visit of the famous Portuguese maritime explorer, Vasco de Gama, until they were liberated in December 1961 and became an integral part of the Indian

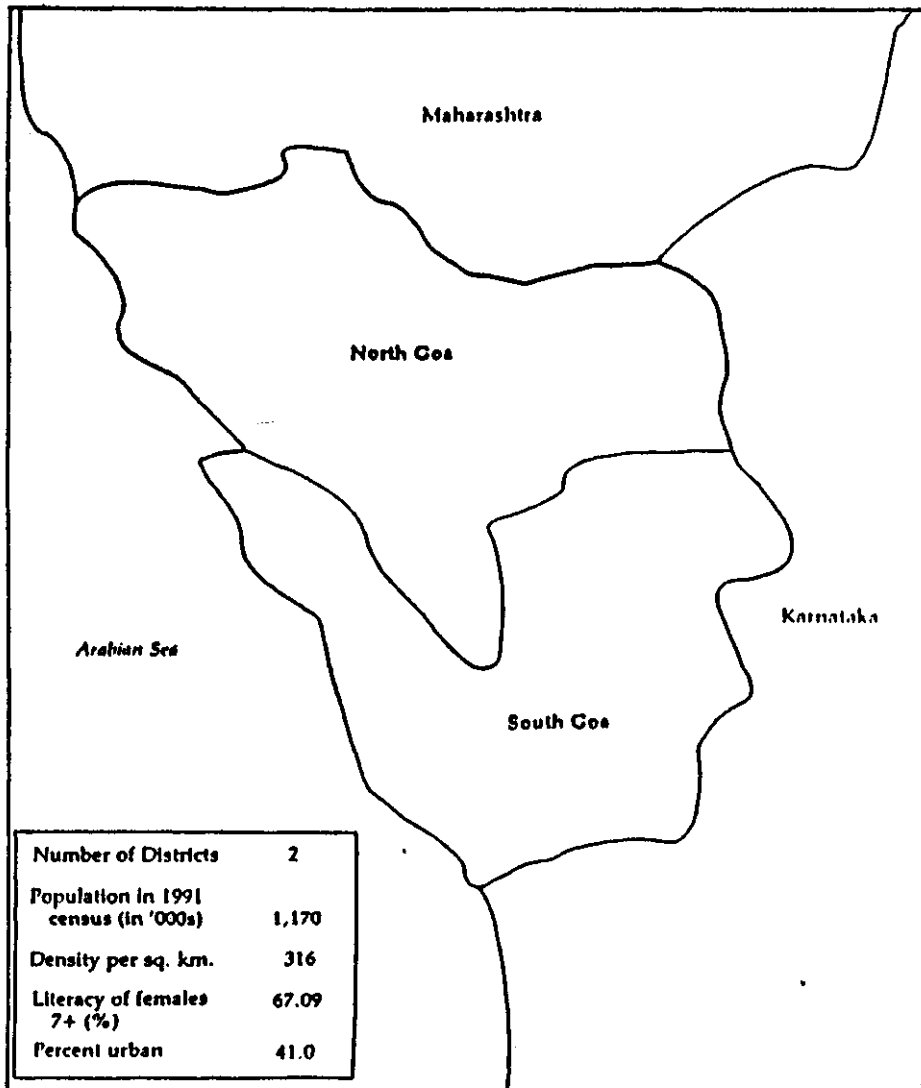


Fig. 1. Map of Goa

union. In May 1987 Goa was legally constituted as a separate state while Daman and Diu continue as a union territories governed by the central government.

Goa is the smallest of the states of the Indian union having a land area of 3700 sq kms and a population 1.170 million (1991 census). Since it was under the Portuguese rule for 450 years, the impact of Portuguese culture on arts and architecture, music and dance, and life-

styles of the people is apparent even to casual visitors to this state. The records of baptisms, marriages and deaths maintained by the parishes in Goa available for over hundred years are found to be of high quality and have been used for a number of historical demographic analyses (D'Souza 1975; Srivastava 1980). The Christian way of life—obeying government rules and regulations, attending churches and church related functions, maintenance of accurate family records of births and deaths is widely prevalent in Goa. Because of such a long association with the Portuguese and adoption by large section of the population the western culture and Christian ways of life, even the non-Christian Goanese population have, by and large, developed western habits in dress, music, dance, food habits, sanitation and personal hygiene and other ways of life.

The living standards of an average Goanese were far higher than those of the average Indian, even before independence, although not comparable to Portuguese and European standards. Because of its coastal location on the Arabian Sea and scenic beauty, Goa became a regular holiday resort for the Portuguese gentry in the past. Even at present the state is one of the important tourist spots in the country. The mortal remains of many great catholic saints including those of St. Xavier are buried in Panjim, capital of Goa and attracts millions of Christians from within and outside India to visit Goa regularly as a sacred place. Goa has a substantial income from tourists visiting for religious or vacation purposes.

The status of women has also been quite high in Goa, as compared to the rest of India. The strong preference for a male child, pervasive among the Hindus in India, is not observable to the same extent even among the Hindus in Goa, and much less among the Christians, although preference for a son does exist. Female literacy and educational levels are substantially higher in Goa than in the rest of India. The bride's age is higher and a high proportion of women are employed in the organized sector. Mortality levels, at any time in recorded history, were lower in Goa than in adjacent Bombay, possibly because of strict sanitation and public health rules. These social and economic conditions are highly conducive for the adoption of small family norm.

Fertility began a slow declining trend in Goa long before the introduction of organized official family planning programmes in 1961. A significant proportion of Catholic couples use natural methods of family planning (abstinence, rhythm, and coitus interruptus) with remarkable effectiveness. The socio-cultural context, rather than the official programme, has been largely responsible for the rapid diffusion of a small family norm, the increasing practice of contraception and sustained decline in fertility in Goa.

Population Size and Rate of Growth

The population of the Portuguese territory of Goa, Daman and Diu as a whole (in which the share of Goa's population was over 90%) grew rather slowly during the first six decades of this century. The average annual growth rate hardly exceeded 1 percent during this period and was consistently and significantly lower than what prevailed in India. During this period of 1901-51 the population of Goa grew at an average rate of 0.28 percent per year, the lowest as compared to other states of India (see Table 1). This phenomenon is largely attributable

TABLE 1: POPULATION GROWTH TRENDS: GOA AND INDIA (1901-91)

Year	Population in 000's	Goa		India	
		Annual Growth ^a	Sex Ratio ^b	Annual Growth ^a	Sex Ratio ^b
1901	475	—	1091	—	972
1911	487	+0.23	1108	+0.56	964
1921	469	-0.33	1120	-0.03	955
1931	505	+0.78	1088	+ 1.04	950
1941	541	+0.83	1084	+1.33	945
1951	547	+0.21	1128	+ 1.25	946
1961	590	+0.50	1066	+1.96	941
1971	795	+3.06	981	+2.20	930
1981	1008	+2.37	975	+2.22	925
1991	1170	+1.48	967	+2.11	927

Note:^a Annual Growth = average annual exponential growth rate per 1000 since previous date.

^b Sex Ratio = females per 1,000 males.

Source: India, Registrar General (1991b)

TABLE 2: PERCENTAGE OF LITERATE AMONG TOTAL AND FEMALE POPULATION ABOVE AGE 15: GOA, KERALA, INDIA AND PORTUGAL (1961-91)

Region	Total Population				Female Population			
	1961	1971	1981	1991**	1961	1971	1981	1991**
Goa, Daman and Diu	35.7	50.3	60.6	82.4	25.8	36.0	47.0	78.4
Kerala	56.8	69.2	78.1	94.2	44.0	59.4	70.8	92.9
India	27.8	34.0	40.8	55.7	13.2	19.3	25.7	45.7
Portugal*	61.9	71.0	79.4	NA	55.4	65.3	74.6	NA

*The values refer to 1960 and 1970 respectively. **Estimated from 1991 census.

Sources: India, Registrar General (1964, 1974b, 1981a); Census of India; Kerala, Reports and Tables Based on 5 Percent Sample Data (1981); UNESCO, Statistics of Educational Attainment and Illiteracy.

to lower birth rates in Goa for reasons to be highlighted in the next section. After its integration with the Indian union in 1961, there was a sudden spurt of population growth in Goa, which sustained for almost two decades before it began to decline. The average annual growth rate during 1961-71 was as high as 3.06 percent, 0.86 percentage points higher than India as a whole. Approximately 40 percent of the increase during this period is attributable to net in-migrants to Goa from other states, especially from the adjacent Maharashtra (Roy *et al.* 1985). Population growth began to decline in 1968-69, recording an average annual rate of 2.37 percent during 1971 -81 and 1.48 percent in 1981 -91, 0.63 percentage points less than for all India (Table 1).

Socio-economic and Demographic Indicators

The per capita net GDP in 1987-88 at constant prices was Rs. 3,545 in Goa, as compared to Rs. 1,910 for India and Rs. 1,416 for Kerala. The length of roads available in Goa for 100,000 population was 350 kms, as compared to 180 km for all India and 413 km in Kerala.

The sex ratio (number of female per thousand males) has steadily dropped in Goa since 1921 when it was 1,120; after liberation, it declined more rapidly during the next three decades to 967 in 1991, reflecting the sharply lower sex ratio among the in-migrants. However, even in 1991 the sex ratio of 967 in Goa was higher by 40 points than the all India average of 927, but 69 points lower than Kerala's. The decline in the sex ratio of Goa after 1961 can be attributed to larger number of male migrants into Goa seeking employment opportunities. The proportion of females married in the age group of 15 to 19 was just 3.1 percent in Goa as compared to 38.2 percent in India as a whole.

Goa had consistently higher levels of literacy than most of the states. According to the 1991 census, the percentage of women aged 7 and above who were literate was 67.1 in Goa, as compared to 39.3 percent in the country as a whole and 86.9 percent in Kerala. From the National Family Health Survey conducted during 1992-93 in the state it was found that 92.5 percent of girls and 94.7 percent of the boys in the age group of 6 to 14 were attending schools in Goa.

Table 2 presents information on percentage literate in 1961, '71, '81 and '91 in Goa among those aged 15 and above in the total population, and females separately, compared to Kerala state, India and Portugal. Goa's literacy rate was higher than that of India at the time of liberation in 1961, though it was significantly lower than in Portugal and Kerala state. This is true for the total population aged 15+, as well as for females in this age. The pace of increase in literacy in Goa after 1961 is found to be higher than in the rest of the country, including Kerala. In 1991 among those aged 15 and above, 82.4 percent of total population and 78.4 percent of females were literate in Goa, Daman and Diu. Part of the reason for lower literacy in Goa in 1961 was that during the major part of the Portuguese regime in Goa, the Hindus were discriminated against in the matter of education. Educational policy was revised only around 1910 when it was made accessible to all, irrespective of caste or creed. There were a number of English medium schools; but a person desiring to join such a school had compulsorily to pass the first standard examination of the Portuguese school (D' Souza 1975). Higher education in English medium was not available in the region and consequently a large number of Goanese seeking higher education in English left the territory.

Nuptiality Patterns

Table 3 presents the estimates of Singulate Mean Age at Marriage (SMAM) for males and females estimated from the census data on proportions single by age obtained from the 1961, '71 and '81 from the censuses and also from the NFHS conducted during 1992-93 for Goa, Kerala and India as a whole and also for Portugal obtained from the U.N. Demographic Year Books. From this table it can be seen that the age at marriage of Goa, Daman and Diu

TABLE 3: SINGULATE MEAN AGE AT MARRIAGE: GOA, KERALA, INDIA AND PORTUGAL (1961 -81)

Region	1961		1971		1981	
	Male	Female	Male	Female	Male	Female
Goa, Daman and Diu	27.14	20.82	26.93	21.31	28.31	22.84
Kerala	26.34	19.98	26.74	21.01	27.19	21.85
India	21.59	15.85	22.36	17.16	23.27	18.32
Portugal	26.38	23.95	24.87	22.83	27.5''	24.8'

Note: • 1988.

Sources: Indian data: India, Registrar General (1964,1974b, 1981 a); Portugalese data: UNSEDA (1964,1984,1991).

TABLE 4: PERCENTAGE OF WOMEN AGED 45-49 REMAINING SINGLE : GOA, KERALA, INDIA AND PORTUGAL (1961 -81)

Region	1961	1971	1981
Goa, Daman and Diu	6.53	3.95	3.27
Kerala	2.22	3.05	2.92
India	0.50	0.52	0.44
Portugal	15.93	12.07	NA

Note: NA = Not available.

Sources: Indian data: India, Registrar General (1964,1974b, 1981 a); Portugalese data: UNSEDA (1964,1984,1991).

TABLE 5: TRENDS IN CRUDE BIRTH AND DEATH RATES : GOA, DAMAN, DIU AND INDIA (1961-92)

	Goa, Daman, Diu		All-India	
	CBR	CDR	CBR	CDR
1961 ^a	32.0	13.4	41.5	20.9
1966 ^a	23.8	11.2	41.2	19.0
1971 ^a	28.8	9.2	39.2	17.0
1976 ^a	25.9	8.0	37.2	15.0
1981 ^b	18.3	7.0	33.9	12.5
1986 ^c	21.2	7.7	32.6	11.1
1987 ^c	18.9	7.5	32.2	10.9
1988 ^c	17.7	7.9	31.5	11.0
1989 ^c	15.7	7.9	30.1	10.3
1990 ^c	15.8	6.9	30.2	9.7
1991 ^c	16.8	7.5	29.5	9.8
1992 ^c	14.7	7.4	29.2	10.1
1993 ^c	14.7	6.7	28.7	9.3

^a For Goa, based on vital registration data until 1976 and SRS for Goa, Daman and Diu until 1987 and only for Goa thereafter.

^b For India, census based estimates until 1976 thereafter.

^c From Sample Registration System thereafter upto SRS Bulletin (July 1995).

is higher than in Kerala, and for men it is even higher than in Portugal in 1961 and 1971. Further, the bride's age at marriage has increased over the years and in 1981, for Goa, it was 22.8 years, the highest in the country. Table 4 provides percentage of women aged 45-49 remaining single in Goa, Kerala, India as a whole and Portugal. The proportion of women remaining single is highest in the union territory of Goa, compared to other areas in the country though lower than in Portugal. In 1971, 4 percent of women in this age group remained single compared to only 3 percent in Kerala and 0.5 percent in India as a whole. On the other hand, in Portugal about 12 percent of the women in the age group of 45-49 remained single. However, since 1961, the proportion of women remaining single in Goa has declined. While Goan women marry at an increasingly later ages, a larger proportion of them, in comparison even to women in Kerala, remain single. Goa's greater female celibacy may be partly attributed to the influence of Catholicism, strongly promoted by the Portuguese rulers for over three centuries in their colony.

According to 1985 survey by UPS Bombay (Roy *et al.* 1985), in Goa even among the illiterate women and those with no formal education, the average age at marriage was 18.3 years. The difference in marriage age between those lacking formal education and those who had completed high school (10 years and more of schooling) was more than five years. According to 1981 census, the number of married women of reproductive age (15-49) in Goa was 154 per thousand population and according to the 1985 survey it was 136. Even in the highly fertile age group of 20-29, only 44 percent of Goan women were married, as compared to 80 percent in the nation. Two factors responsible for Goa's lower fertility are older brides and more women remaining single throughout their life time—both attributable to Roman Catholicism and Portuguese rule in Goa.

Fertility and Mortality Trends

Historically speaking, fertility and mortality levels in Goa have been recorded to be substantially lower than those of India. Lower fertility has been attributed to several factors, particularly women's higher status in Goan society because of education, higher age at marriage, a higher proportion of women remaining single throughout life, long spells of separation because of husbands leaving Goa for work (in Portuguese colonies in Africa), and, as a consequence, a pervasive desire for a smaller family and adoption of contraceptive methods, including effective use of traditional and natural methods (Pai Panandikar 1983). In 1961, at the time of integration with the India, the territories of Goa, Daman and Diu were 36 percent Christians (mostly Catholic) but the fertility levels of Christians and Hindus were lower than the rest of India. Fertility and mortality trends in Goa seem to have followed almost similar to those in Portugal, with Goan rates always higher than in Portugal.

Estimates of crude birth and death rates since 1961 are given in Table 5. From the table it can be seen that the crude birth rate in Goa declined sharply during the period 1961 to 1966 from 32.0 to 23.8 but subsequently rose to 28.8 by 1971 and declined almost steadily thereafter reaching a low level 15.5 in 1989 and to 14.7 in 1993; similarly the crude death rate for Goa declined from 13.4 in 1961 to 7.8 in 1989 and to 6.7 in 1993. According to the

National Family Health Survey conducted in Goa in 1993 by the UPS, Bombay the crude birth rate during 1990-92 was 17.2 and the TFR was 1.89. These figures generally confirm the validity of the SRS figures. The rates for Goa are lower than the rates that prevailed in Kerala during the same period. The crude birth rate in Goa in 1993 according to SRS was almost half the crude birth rate in India as a whole (14.7 compared to 28.7) and the crude death rate is 75% of the all India level (6.7 compared to 9.3). The total fertility rate of Goa in 1990-92 was 1.90 children (compared to 3.39 for the country as a whole). There is no doubt that declines in the fertility and mortality levels in Goa have been most remarkable in the Indian context, more rapid than in Kerala, but much less publicized.

Family Planning Practice and Lessons

According to official family planning statistics, as of March 1988 only 27.6 percent of Goa's eligible couples used any modern method of contraception, but according to the 1988-89 ORG Baroda survey, the percentage of eligible couples in Goa who did so was 43 and the percentage using any method including the traditional ones was 61. According to the ORG survey, 14.8 percent of eligible rural couples and 18.5 percent of urban couples were practicing natural family planning methods in 1988. There appears to be a widespread practice of rhythm, abstinence and coitus interruptus, all methods widely supported by the Catholic church. Another 15 percent of the couples use modern contraception devices obtained through non-governmental sources, including pharmacies, private physicians, nursing homes, not included in sources not included in the official service statistics.

Thus, it is evident that Goa's fertility decline has largely been achieved by three major factors;

1. an increase in bride's age;
2. a good proportion of women remaining single throughout their reproductive span; and
3. a large proportion of women using natural methods of contraception on their own initiative (18 percent), another 15 percent using modern methods from non-governmental sources and another 28 percent using modern methods secured from governmental sources (61 percent total).

In summary, the fertility of Goan women was lower than the rest of India, even before Goa's integration- with the Indian Union. The decline accelerated after 1976 with the expansion of official service facilities under the national family planning programme. Goa's 1990-92 TFR of 1.90 was below the replacement level of fertility. The motivation for controlling family size in Goa started long before 1961, with the exposure of Goans to Western culture and civilization under Portuguese rule. The Catholic religion promoted the adoption of natural methods and control of fertility among Christians; the Hindus adopted modern methods. The practice became widespread with the initiation of national programme of family planning since 1961. Thus, the roots of demographic transition can be traced to Goa's socio-economic and cultural conditions, with the official programme of family

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planning playing a legitimizing and supportive role than the primary role of motivating couples towards small family and making them adopt modern contraception. Goan fertility decline typifies the powerful role of social, economic and cultural factors playing a dominant role in initiating fertility decline. Women's status in Goa was high even before any official programme was introduced and infant mortality was lowered. The social and health conditions for adoption of modern family planning methods were already ripe when the official programme was introduced to accelerate the contraceptive practice and fertility decline.

The Case Study of Kerala

Background

Kerala was constituted in 1956 on recommendations of the State Reorganization Commission on the basis of language, Malayalam, spoken by the majority of the people. The state is blessed with rich, alluvial soil and abundant rainfall, washed by 40 or more rivers flowing from western ghats into the Arabia Sea. The state is known for its scenic beauty—rich foliage, coconut and palm trees and plantations growing coffee, tea, rubber and spices—and also for the precious few of the rainforests preserved in the subcontinent.

Kerala, in its present boundaries, had always the highest density of population. The 1991 census enumerated Kerala's population as 29.10 million with a density of 748 persons per square km, the highest for any state in the country (except the union territories which are large urban areas).

Because of its long coastal line on the Arabian Sea, it was the meeting ground of various civilizations from the west. One of the apostles of Jesus Christ arrived in Kerala, followed by many missionaries, and preached Christianity in this part of India as early as the first and second century A.D. Islam came to Kerala through the traders from Arabia long before the Muslim invaders came to rule the subcontinent in the 12th century. The Portuguese and Dutch visited this state in the 15th and 16th centuries long before the British rule in India.

Kerala's cultural history, especially in the southern part of Travancore, was that of a princely state that enjoyed a good deal of autonomy under the British rule, and reigned by a succession of enlightened kings who were considered benevolent, scholarly, encouraging the fine arts, literacy among the population and above all promoting gender equality and sanitation and public health. The high status of women in Kerala can be traced historically to the matriarchal form of property inheritance from mothers to daughters in a sizable section of the society that went under the name of "Marumakkathayam." Similarly, the continuous exposure to western civilization because of missionaries and traders from the West landing on the state, mainly motivated because of the popularity of spices grown in the state, gave the state of Kerala a historical advantage of over a century in terms of education, infrastructure facilities of a network of roads and canals (to facilitate the movement of coffee, tea, rubber and spices to the coast), and social values of sanitation and personal hygiene.

TABLE 6: CRUDE BIRTH RATES OVER THREE DECADES: GOA, KERALA AND PORTUGAL (1961-93)

Region	1961-70	1971-80	1985-87	1991	7993
Goa, Daman and Diu	22.3 ^a	27.0 ^a	19.2 ^b	16.8 ^c	14.7 ^c
Kerala	37.5 ^a	28.0 ^a	22.5 ^c	18.3 ^c	17.4 ^c
India	41.2 ^a	34.4 ^a	32.6 ^c	29.5 ^c	28.7 ^c
Portugal	20.1 ^d	18.5 ^d	14.0 ^d	11.9 ^d	12.0 ^c

Note ^a Census based estimates

^b Only for Goa

^c Registrar General of India, Sample Registration System (vol. 29, No. 2, 1995);

^d United Nations (1979, 1991)

^e Population Data Sheet, 1995.

Computed from:

(i) *Vital Statistics of India*, 1961 - 1980.

(ii) Agarwala, S. N., *Indian Population Problems*.

(iii) Registrar-General of India, *Sample Registration System*, 1976-77.

(iv) United Nations *Demography Year Book, Special Issue: Historical Supplement*, 1979 and 1989.

TABLE 7: POPULATION GROWTH TRENDS : KERALA AND INDIA (1901-91)

Year	Population in thousands	Kerala		All India	
		Growth Rate	Sex Ratio	Growth Rate	Sex Ratio
1901	6,396	NA	1004	NA	972
1911	7,148	1.09	1008	0.56	964
1921	7,802	0.90	1011	0.03	955
1931	9,507	1.98	1022	1.04	950
1941	11,032	1.50	1027	1.33	945
1951	13,549	2.08	1028	1.25	946
1961	16,904	2.24	1022	1.96	941
1971	21,347	2.26	1016	2.20	930
1981	24,454	1.77	1032	2.22	935
1991	29,099	1.31	1036	2.11	927

Note: Annual growth rate = annual growth rate (exponential) since previous date;

NA = Not applicable

Source: India, Registrar General (1991b).

The demographic transition in Kerala has been rather unusual among developing countries. Until 1971, the annual rate of population growth in Kerala was higher, consistently and substantially, than in the rest of India (Tables 6 and 7). Even during the first decade of the century, Kerala's population grew almost twice as fast per year as did the nation's population. Not until 1968 did Kerala fall behind India. Kerala's demographic transition of consistent declines in mortality and fertility seems to have begun at least three decades prior to the rest of the country.

Even as early as 1931-1940, the death rate in Kerala was significantly lower than in India (Table 8). There has been a steady decline in mortality since 1931, and from 1966 to 1989 there was more than a 50 percent decline in crude death rate. Up to 1966 there had been very little difference between Kerala's crude birth rate and that of India: four births less per thousand in Kerala than in the nation. On the other hand, Kerala's brides have always been older than the rest of the country; for example, 4.6 years older than Indian brides, then their marital fertility should have been higher than in India for Kerala's crude birth rates to be almost identical to the rest of the country. However, in 1966, the marital fertility began to

TABLE 8: TRENDS IN VITAL RATES AND AGE AT MARRIAGE: KERALA AND INDIA (1931-93)

Period	Rates						Singular ^a Mean Age at Marriage	
	Crude Birth Rate		Crude Death Rate		Infant Mortality Rate		Kerala	All India
	Kerala	All India	Kerala	All India	Kerala	All India		
1931-40	40.0	45.0	25.0	31.2	NA	176	19.3	14.7
1941-50	40.0	40.0	20.0	27.4	NA	168	19.9	15.6
1951-60	39.0	42.0	16.1	22.8	120	148	19.8	15.1
1961-70	37.0	41.0	13.5	19.0	92	139	—	—
1966	36.0	40.0	13.0	19.0	74	135	—	—
1971	32.0	37.0	9.2	14.9	61	129	21.0	17.2
1976	26.0	34.0	8.3	15.0	56	129	—	—
1981	26.0	34.0	6.9	12.5	37	110	21.9	18.3
1986	22.5	32.6	6.1	11.1	27	96	—	—
1987	21.7	32.2	6.1	10.9	28	95	—	—
1988	20.3	31.5	6.4	11.0	28	94	—	—
1989	20.3	30.6	6.1	10.3	21	91	—	—
1990	19.6	30.2	6.0	9.7	17	80	—	—
1991	18.3	29.5	6.0	9.8	16	80	—	—
1992	17.7	29.2	6.3	10.1	17	79	—	—
1993	17.4	28.7	6.0	9.3	13	74	—	—

Note: • Computed by Hajnals method from census data.

Sources: Zachariah (1984) and publication of Registrar General of India, including Sample Registration System Bulletin (July 1995).

decline. Kerala's total fertility rate dropped by 63 percent in 20 years from 4.6 in 1972 to 1.7 in 1992—the maximum fertility reduction achieved by any state in India. During that period, infant mortality in Kerala also fell sharply as it did in the nation. Female life expectancy in the state during 1986 to 1991 has been estimated at 71.1 years. In life expectancy at birth, infant mortality, and fertility the present conditions in Kerala are comparable with those in Sri Lanka, Thailand, South Korea, and China and also with some developed countries.

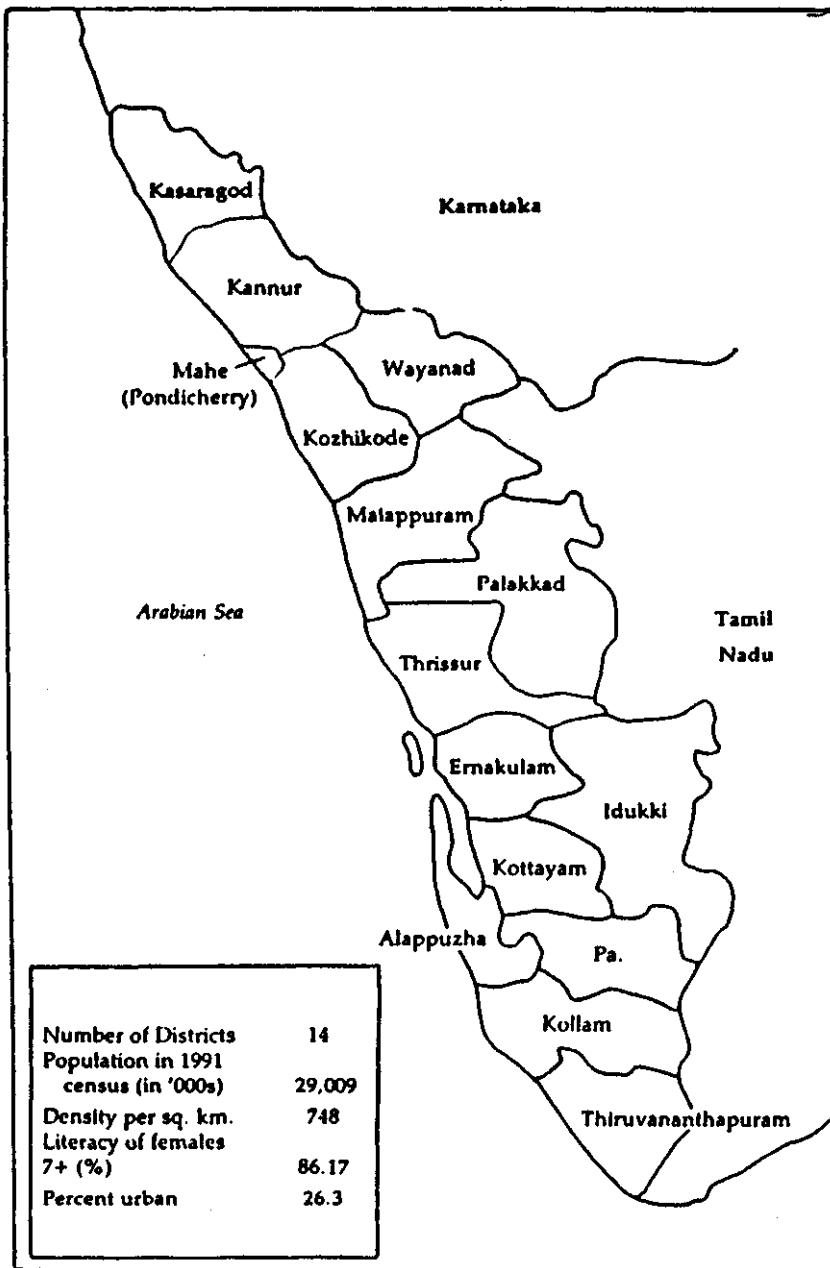


Fig. 2. Map of Kerala

On the other hand, Kerala continues to be an economically backward, even for India, with a per capita income estimated at Rs. 1,447 in 1989 (US \$ 120 at 1980-81 prices), as compared to the Indian average of Rs. 2,234 or US \$ 190. Kerala is also one of the less urbanized Indian states with only 26 percent of its population living in urban areas. How did an economically backward and rural state such as Kerala achieve such a high life expectancy (about 71 years), low infant mortality rate (17 in 1991), and low fertility rate (TFR of 1.8)?

Kerala's achievement in demographic transition is in essence much more significant than that in many developing countries such as Thailand, South Korea, Singapore and Sri Lanka. These nations not only progressed economically more rapidly than Kerala during their demographic transitions, but as independent nations pursuing their economic and demographic goals. They also laid out independent population policies and programmes. Kerala, on the other hand, as an integral part of the Indian union, followed the population policy and family planning goals laid out by the central government (though formally agreed to by its state government) and also adhered to the national staffing patterns and programme strategies. The same policies and programme strategies that were successful in Kerala were not so effective in many other Indian states, especially the large Hindi-speaking states of the north.

How did the same policies and programme strategies succeed so dramatically in Kerala, while they did not elsewhere? Various studies carried out by demographers and social scientists in Kerala and outside have led to a number of alternative hypotheses about plausible factors that have contributed to Kerala's rapid demographic transition.

Social Justice and Equity Hypothesis

Based on a careful analysis of various factors that have contributed to the rapid demographic transition in Kerala, Ratcliffe (1978) argues that the most important factor in Kerala's demographic transition was structural change in the political economy since the early 1950s : land reforms, minimum wages in agriculture and the organized sectors, and large public investments by the state government in primary and secondary education. The egalitarianism brought out by these policies of successive democratically elected Marxist governments for almost two decades has been reported to be instrumental in bringing about rapid fertility and mortality declines. Social and economic equity seems to have been the most distinguishing feature of Kerala. Whether such an equity in a developing country is achieved by a Marxist government or other forms of social democratic governments does not seem to matter.

Moni Nag (1982) compared conditions in West Bengal and Kerala, both under Marxist rule for over two decades and finds that mortality and fertility declines observed in Kerala are not apparent in West Bengal. He attributed this difference largely to differentials in female education, suggesting that social justice without female literacy may not be that effective in demographic change.

Political Capacity or Degree of Government Hypothesis

Political capacity is defined by Organski *et al.* (1984) as the ability of the government to penetrate society and extract resources. A government that has a higher political capacity can be expected to be more effective in the implementation of social development policies, including family planning, health, and educational programmes. It is a measure of the ability of the government to penetrate society to secure compliance with its policies and extract and distribute resources. In a major study undertaken in 1980 by Organski and his colleagues it was found that the tax structure in a country is the best measure of the capacity of the political system (Organski *et al.* 1984). They found that the demographic transition in developing countries is highly correlated with the increases in the taxes imposed by the government. The logic behind this relationship between the higher tax rate and the reduction in mortality and fertility rates is because of the higher resources available to the government for implementation of its welfare policies, including public health and family planning programmes. They demonstrated that broad trends in the crude death rates and birth rates in developed and developing countries were closely associated with increases in the tax burden of the people. It was concluded on the basis of empirical evidence that countries which have the ability to impose higher taxes on the people and collect them will also have a higher capacity to implement welfare and development programmes.

Rouyer (1987) empirically demonstrated the importance of the role of political capacity in his study of the differentials in fertility among the 15 large states of India. Operationally, political capacity is the ratio of per capita tax revenue to the government to the per capita GDP. He used this ratio to GDP in order to minimize the effect of macroeconomic conditions on tax effort. Using a path model with six variables—crude birth rate (dependent variable), family planning programme effort, mean female age at marriage, physical quality of life index (PQLI), income per capita, and political capacity—he showed that there is a strong significant effect of political capacity on fertility decline. However, the effect was indirect through both the PQLI and family planning effort. He found that among all the states in India, Kerala (in spite of its low per capita GDP) had the maximum tax/GDP ratio and the highest percentage of government expenditure on welfare. He concluded that under conditions of economic backwardness, as they prevail in India, it is politics and not economics that are the determinants of fertility patterns.

Socio-economic Determinants

Many authors (Krishnan 1986; Nair 1968; Zachariah 1984) argue that the socio-economic changes that preceded Kerala's demographic transition altered the cost-benefit ratio of children to parents and the society. They were primarily developments in public health and universal education over a long period of time. The increase in the number of surviving children, together with the parents' perceived higher cost of educating their children, raised the cost of child rearing in Kerala and paved the way for successful practice of family planning methods. The family planning programme by developing a network of

service facilities and making them easily available and accessible, met the rising needs of people in this direction.

The cutting edge of social change leading to demographic transition seems to be female literacy. With the rise in female literacy rate and educational levels of girls, age at marriage increased, the health care of the children within the family improved, child mortality declined and family planning acceptance increased, all these paved the way for fertility decline.

The rapid increase in the female literacy in Kerala after independence was unique in India and historically could be traced back to the higher status of women already existing among many communities (related to Marumakkathayam), and the Christian missionaries' emphasis on modern education for over three centuries. Despite the emphasis on literacy in both Kerala and the adjacent state of Tamil Nadu, Kerala succeeded remarkably in rapidly increasing female literacy, but Tamil Nadu could not achieve such an improvement. This was largely the result of cultural differences in the status of women in the two states. Thus, a combination of cultural, political, social and family planning programme factors seem to have played a synergistic role in promoting contraceptive practice and declining fertility in Kerala. To quote Zachariah (1984:58): "If the official programme has succeeded in reducing fertility very significantly in Kerala, as we have been able to show that it has, why has it not been as successful in many other States? What is different about Kerala is not greater family planning inputs, at least not as measured by budgetary allotments. The success in Kerala is more likely due to a more efficient delivery of services and a higher spin-off effect—that is, a higher interaction between family planning services and socio-economic conditions. The same level of family planning services as in other States has been more effective in Kerala because of the different socio-economic conditions, especially lower mortality and higher female literacy."

The Malthusian Hypothesis

Kerala has had, since the beginning of the century a very high density of population, as compared to the rest of the country. The number of persons per sq km, in 1991 was 748, the second highest after West Bengal in India. Kerala meets its food requirements by purchasing grains from other states since its agricultural land is mainly used for cultivating spices, coconuts, tea, coffee and rubber.

Kerala has a few industries and consequently few opportunities for employment in the organized sector. For decades Kerala has exported manpower to other parts of the country. A large proportion of nurses, midwives, teachers, typists and other skilled and semi-skilled persons working in other parts of the country, including the north Indian states of Rajasthan and Uttar Pradesh, are migrants from Kerala. When young men and women have to leave the state in search of jobs, the age at marriage rises, periods of spousal separation increase, family planning practices become accepted and fertility declines.

Kerala's per capita income has been quite low over the decades, although there is some homogeneity in the poverty. Increased age at marriage and use of contraception can be considered as Malthusian checks operating on the population which has multiplied beyond

its means of subsistence. There seems to be no alternative for Kerala but to adopt these checks if famine, hunger and epidemics are to be avoided. Again, the exposure of large segments of Kerala's population (especially in the coastal areas) to Western values and behaviour of the missionaries and traders who came in large numbers after the 18th century helped promote the concepts of late marriage for women, celibacy, and use of family planning methods. Kerala's Catholic population has contributed a substantially higher proportion of nuns who worked in Kerala, other states, and also in many other countries. Thus, Kerala's rapid fertility decline can be considered a Malthusian reaction of a population subjected to high density, low income, poor employment chances, and lack of subsistence in its own territory.

The Four Hypotheses

Each of the four hypotheses discussed above for explaining fertility decline in Kerala has its professional and theoretical advocates who have used the same data sets for supporting their particular point of view. It is extremely difficult, if not impossible, to arrive at unequivocal conclusions on the precise set of forces that have contributed to the fertility decline in Kerala. Such conclusions can be drawn only from experimental designs, longitudinal studies with control groups and a theoretical understanding of all the factors that influence fertility. In the absence of the above, findings from the correlations and regression analysis of cross-sectional data and an understanding of the dynamics of change in Kerala's population must suffice.

Based on the careful analysis, five factors emerged as unique in Kerala (Zachariah *et al.* 1994):

1. Better organised family planning programmes are most accessible and offer high quality of services. Without the strong family planning programme it would have been difficult in Kerala to produce a family planning acceptance rate among the poor as high or as close to that of rich.
2. The sequence in which policies affecting the determinants of fertility are implemented in Kerala, is as important as the policies themselves. The steps came in right order—reduction in infant and child mortality accompanied by an increase in female education, followed by redistribution policies and finally by the official family planning programme. The impact of Kerala's family planning programme would have been much smaller and more temporary had the programme being introduced prior to the substantial reduction in infant mortality rate, and substantial improvement in female education.
3. The principal socio-economic determinants of fertility decline in Kerala have been mortality decline and educational improvement. It is unlikely that the major demand-creating factor in other states would be much different. Thus, health and education are the principle variables to be manipulated to create additional demand for fertility control. The experience of Kerala in the 1980s shows that a well

executed MCH programme can go a long way in reducing fertility and should be a first priority in any long term strategy to reduce fertility.

4. Agrarian reforms including establishment of minimum wages, better working conditions and land ceiling seem to have helped increase both the demand for the smaller families and the demand for birth control in Kerala.
5. Higher status for women leading to more education for them, results in higher age at marriage, better care of infants and children by mothers and lower infant and child mortality.

Kerala typifies a balanced 'top-down' and 'bottom-up' forces operating for fertility decline. The top-down part includes the political capacity and organization of the national programme of the family planning in the state, and the bottom-up forces are the demand for such services from the population, especially from women because of their better education and higher status.

The Case Study of Tamil Nadu

Background

Tamil Nadu was formed as a separate state called Madras hi its present boundaries in 1956 on the recommendation of the state's reorganization commission constituting the states of India on linguistic basis. In 1974 the name was changed to Tamil Nadu, meaning the land of Tamil-speaking people. The Madras Province with its state capital at Madras city, was considered one of the most efficient, progressive, and well administered states of British India. With the reorganization of the states in 1956, Madras City lost its importance as the prime city of the South India.

According to the 1991 census, Tamil Nadu had a population of 55.86 million and a population density of 429 persons per sq km. In terms of population size Tamil Nadu ranks seventh, and in terms of density, the eighth in the country.

The state has a rich cultural heritage spanning over 2,000 years and the language of Tamil, is one of the oldest in the world, older than even Sanskrit. Sanskrit is considered to have been developed mostly by the Aryans in the north and although considered as a major cultural heritage of India, many Tamilians believed it blocked the further development of their unique language and culture called "Dravidian." The Tamilians are proud of their rich heritage of language and culture and since the beginning of this century there has been movements that attempted to revive the past glory of the Dravidian culture, establish its separate identity from the north Indian Aryan culture.

The Self-Respect Movement in Tamil Nadu

In the 1920s, a movement called "self-respect movement" was started by a party known as Justice Party of India. Its main objective was to free the Dravidians from the .oppressive

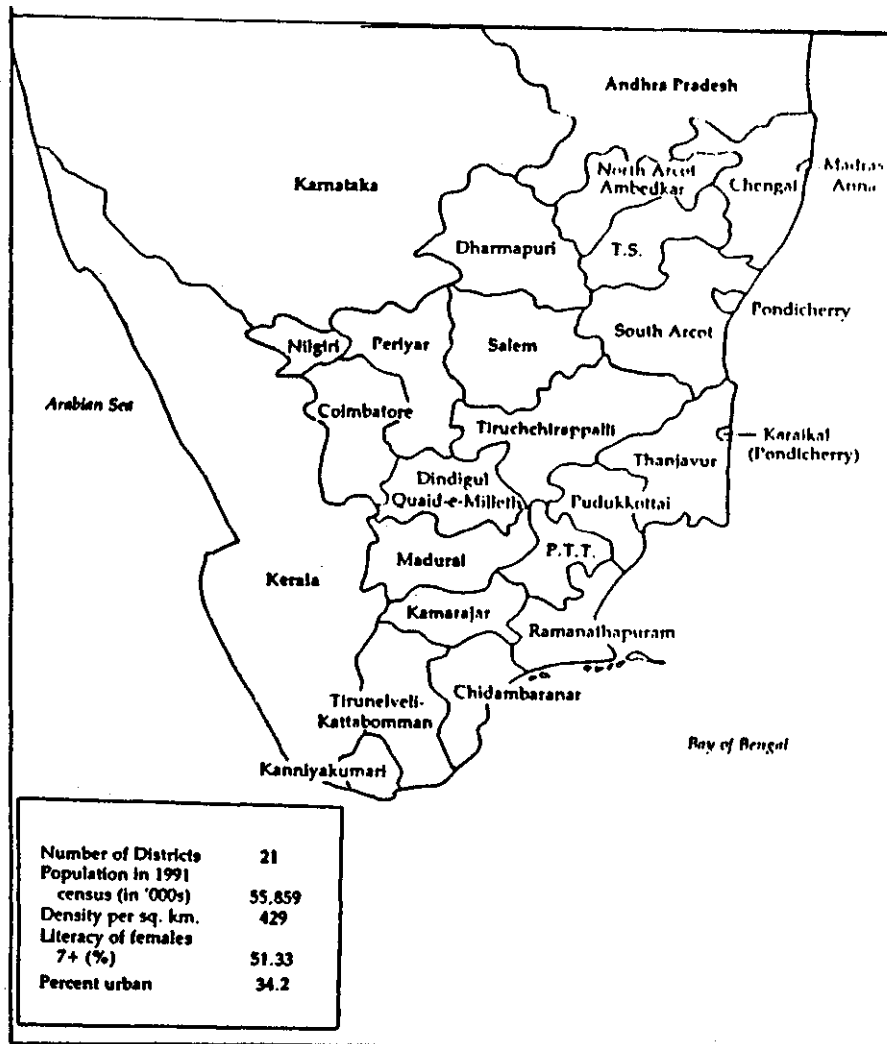


Fig. 3. Map of Tamil Nadu

cultural and economic influences of the Aryans, represented, in their perception by the Brahmin community. This movement was mainly directed against the evils of the caste structure and targeted against the Brahmins, who were considered responsible for maintaining and perpetrating the caste system, stratifying the society, and keeping the people of Tamil Nadu divided. The Justice Party over the decades has transformed itself and bifurcated into various parties such as Dravida Munnetra Kazhagam (Dravidians progressive group), ADMK (Anna Dravida Munnetra Kazhagam, named in honour of Mr. Anna Durai, a

charismatic leader) and AIADMK (All India Anna Dravida Munnetra Kazhagam)—the party currently in power in the state. During the past 25 years, one or the other of the regional parties has been in power in the state. The main goals of the regional parties were to promote the Tamil language and Dravidian culture, to eradicate the caste system afflicting the Hindu society and to develop the state economically.

The Justice Party and its offshoots had a number of charismatic leaders such as E. V. Ramaswamy Naicker, Mr. Anna Durai and has instituted a number of overt and covert social changes in the Tamil society. One of them is termed "self-respect marriages" which carries a threefold significance: (a) replacing the traditional purohit or Brahmin Priest who usually conducts the marriage rituals; (b) promoting intercaste marriages and (c) promoting equality of the sexes. At many intercaste marriages, conducted unofficially since 1925 and officially since 1967, the Dravidian Party leaders presided over the events, spoke of the evils of the caste system, emphasized equality of the sexes—the male and the female child—and, most importantly, for family planning advocates, spoke of the advantages of the small family. The self-respect marriages were legalized in 1967 by the DMK (Dravida Munnetra Kazhagam) government.

The political advantage emanating from self-respect marriages, seems to be the perpetration of small family norm in Tamil society even before independence. For example, in a biography on E.V. Ramaswamy Naicker, popularly called "Periyar" written by Anita Diehl (1977), discussed his views on women's rights. According to Hindu tradition, especially among higher castes, widows were seldom allowed to remarry. In his early opposition to caste regulations, Periyar advocated women's rights when he defied his orthodox kinsmen by encouraging his young niece to remarry after her husband had died early in marriage. In 1926 Periyar published in *Kudi Arasu*, a Tamil newspaper, 1921 census statistics showing that in India there were 1,189 widows below the age of five. Self Respect conferences in 1929-1930 emphasized women's right to divorce and property. Periyar believed that the marriage age for girls should be 16, as it was later laid down in the Sarda Act, and that widows should be helped to remarry. Periyar's propaganda for family planning has a place in this context.

Population Growth and Fertility Trends

Population growth rates in Tamil Nadu have been lower than the all India average (unlike in Kerala) since 1921, except during 1941-51. During the period of 1901-51 the average annual growth rate of Tamil Nadu was 0.88 percent, as compared to 1.5 percent in Kerala and only marginally higher than the national average of 0.83 percent. Since 1951 the growth rate of Tamil Nadu has been significantly lower than the rest of the country. This implies that fertility was lower than the all India average since mortality in Tamil Nadu has always been lower than the national average (See Table 9). Fertility decline in Tamil Nadu since 1970 has been very dramatic. The crude birth rate fell by 38 percent from 33.7 in 1972 to 20.8 in 1991; the total fertility rate declined more sharply—by 49 percent from 4.3 in 1972 to 2.2 in 1991, and the total marital fertility rate has declined 37 percent from 5.6 in 1972 to 4.1 in 1991 (see Table 10).

TABLE 9: POPULATION AND FERTILITY TRENDS IN TAMIL NADU

Year	Population (millions)	Sex Ratio	Inter Censal	
			Annual Growth Rate (%)	Crude Birth Rate
1921	21.6	1029	—	—
1931	23.4	1027	0.80	47.1
1941	26.3	1012	1.17	42.8
1951	30.1	1007	1.35	41.1
1961	33.7	992	1.13	35.8
1971	41.1	978	1.99	34.9
1981	48.4	977	1.63	30.4*
1991	55.9	974	1.39	24.1*

*SRS estimates for 1975-77 and 1985-87 respectively
 Source: India, Registrar General (1991b)

TABLE 10: RECENT TRENDS IN SELECTED INDICATORS OF FERTILITY AND MORTALITY IN TAMIL NADU

Years	Crude Birth Rate			Crude Death Rate			Infant Mortality Rate		
	Rural	Urban	All	Rural	Urban	All	Rural	Urban	All
1970-72	33.6	25.8	31.3	17.5	9.2	15.0	131	84	120
1973-75	32.1	25.1	30.0	16.7	8.7	14.3	123	68	109
1976-78	30.9	27.0	29.8	15.4	9.6	13.7	118	74	106
1979-81	29.6	25.2	28.3	13.1	8.4	11.7	117	61	95
1982-84	28.9	26.0	27.9	12.9	8.2	11.3	96	54	83
1985-87	24.5	23.5	24.1	10.9	7.2	9.6	93	54	80
1988	23.4	21.4	22.7	10.3	7.3	9.3	84	51	71
1989	23.5	22.4	23.1	9.7	6.8	8.7	80	43	68
1990	21.8	21.1	21.6	9.6	6.5	8.5	70	37	59
1991	20.8	20.8	20.8	9.5	7.6	8.8	65	42	57
1992	21.1	20.0	20.7	9.2	6.7	8.4	66	42	58
1993	19.7	19.1	19.5	9.4	5.8	8.2	66	38	56

Source: Sample Registration Bulletin, including latest SRS Bulletin, July 1995

The technique of standardization, adopted to decompose the changes in the crude birth rate due to various demographic factors indicated that 83 percent of the decline in crude birth rate from 1972 to 1989 can be attributed to declines in marital fertility of the population

(Srinivasan 1995). In the context of the rising trends in the natural fertility because of modernization, any reduction in observed marital fertility rates underestimates the fertility impact of the contraception.

The age of brides in Tamil Nadu has significantly increased over the years. The singulate mean age of marriage (SMAM) for women, estimated from the census data was 19.6 years in 1971 and 20.2 years in 1981 and is currently estimated to be around 21 years. For men the SMAM was estimated at 25.9 years in 1971 and 26.0 years in 1981 and the same in 1990. Thus, traditionally high age difference between husbands and wives in Tamil Nadu have narrowed in recent decades because of women's increased literacy and educational attainment. Among India's larger states, the maximum singulate age at marriage in 1981 for women was 21.8 in Kerala, with Tamil Nadu coming third.

Tamil Nadu has also experienced in the past two decades substantial declines in the general mortality as well as mortality of infants and children. The crude death rate declined by 6.8 percent from 1970-72 to 1993. However, the 1993 IMR of 56 is still considered high for the realization of such a low TFR of 2.2 in 1992. The fertility decline in Tamil Nadu with a population less literate than that of Kerala (only 51.3 percent of female literate at ages 7 and above in Tamil Nadu's 1991 census, as compared to 86.2 percent in Kerala) is also worth noting. While rural-urban mortality differentials still persist in the state (rural IMR almost doubled the urban rate), the fertility differentials have practically disappeared (Table 10).

Kerala had a higher 1971 female literacy rate than Tamil Nadu in 1991, with a TFR of 4.0 in 1971, as compared to Tamil Nadu's 1992 TFR of 2.2. A comparative demographic and socio-economic profile of Goa, Kerala, Maharashtra, Tamil Nadu and U.P. appears in Table 11. From the contextual conditions of female literacy, status of women, and general and infant mortality levels currently prevailing in Tamil Nadu, the achievement of such a low level of fertility of TFR of 2.2 is worth investigating. Part of the reason can be traced to the strong political will for a small family as expressed by the leaders of the regional parties (Dravida Munnetra Kazhagam and its offshoots). The other major reason for the success of family planning programme and decline in fertility of Tamil Nadu is the effectiveness and efficiency of the its official bureaucracy.

Political Will and Bureaucracy

(i) *Social and political will.* As mentioned earlier, Tamil Nadu had a unique social awareness movement since the 1920s under the leadership of great social reformer Periyar (E.V. Ramaswamy Naicker). His thoughts and ideas while shocking to a caste-dominated society, clearly set in motion strong social currents. In his acerbic style he chastised the concept of a woman being just "child bearing machine." Periyar enjoyed mass support and hence his pronouncements on status of women, caste marriage, contraception, birth control and social change created an atmosphere congenial to the acceptance of the 'small family' norm. Long before the government had a programme for Family Planning, Periyar emphasized the need to liberate women from frequent delivery by the use of contraception, the desirability of the two child norm at every marriage, and not allowing marriage of a woman

TABLE 11: COMPARATIVE DEMOGRAPHIC AND SOCIO-ECONOMIC PROFILES: GOA, KERALA, MAHARASHTRA, TAMIL NADU, UTTAR PRADESH AND INDIA (1981-91)

<i>Characteristics</i>	<i>Goa</i>	<i>Kerala</i>	<i>Mahara- shtra</i>	<i>Tamil Nadu</i>	<i>U.P</i>	<i>India</i>
Population in Millions, 1991 ^a	1.17	29.10	78.94	55.86	139.11	846.30*
Population Density per km ²	(316)	(748)	(256)	(429)	(473)	(257)
Bride's Age, 1981	22.80	21.90	18.80	28.20	17.80	18.30
Expectation of Life (Females) (1986-91)	67.50	71.10	62.90	60.80	49.60	59.10
Crude Death Rate, 1991	7.50	6.80	8.20	8.80	13.30	9.85
Decennial Population Growth (%), 1981-91	16.08	14.32	25.73	15.39	25.48	23.79
Literacy Rate, Females Aged 7 and more, 1991	67.09	86.17	52.32	51.33	25.31	39.29**
Per Capita Net Gross Domestic Product at Constant Price (Rs.), 1987-88	3,545	1,416	2,816	1,811	1,452	1,910"
% Population below Poverty Line (1987-88) ^c	16.00	16.90	29.10	32.80	33.00	29.20
Road Length per 100,000 Population (km), 1983	350.00	413.00	292.00	301.00	130.00	246.00
% Women Employed to total Employed in Organized Sector, 1989	28.00	35.00	12.80	20.60	7.60	12.00
Effective Couple Protection Rate, 31 March, 1990	33.20	54.40	54.40	57.10	33.30	43.30
Average No. of Living Children at IUD Insertion (1988-89)	1.60	2.00	1.80	1.90	2.70	2.30
Average No. of Living Children at Tubectomy(1988-89)	3.40	3.00	3.30	2.90	3.80	3.30
No. of Tubectomies per Bed in Postpartum Centers (1989-90)	5.00	125.00	65.00	115.00	62.00	69.00
Crude Birth Rate (1991)	16.80	18.30	26.20	20.80	35.70	29.50
Total Fertility Rate (1991)	2.40	1.80	3.00	2.20	5.10	3.60
Infant Mortality Rate (1 99 1)	28.00	16.00	60.00	57.00	97.00	80.00

Note:^a Final Population Totals from India, Registrar General, 1991 (paper 2 of 1992), ^bNet national product; ^c At Rs. 49 per capita per month at 1973-74 prices.

* Includes estimated population of Jammu and Kashmir.

** Excludes the population of Assam, Jammu and Kashmir *Source:* Census of India and Sample Registration System (1981-91)

before a woman is 22, so that 3 to 4 births could be averted. Fifty years ago all these views promoting contraception had to contend against strong social taboos. With the same party or its offshoots being in power at the state level since 1966, the concept of small family norm has diffused through all segments of Tamil society.

(ii) *Bureaucratic efficiency.* For almost three decades, Tamil Nadu had a successful record in implementing fertility regulation programme. To achieve this, Tamil Nadu had the advantage of strong social and political commitment, and a moderately high level of bureaucratic efficiency in implementing the programme.

In most of the states, health and family planning departments dealt with family planning activities on a vertical basis, without intersectoral linkages with other departments. On the other hand, in Tamil Nadu, the contraceptive target achievement was considered the district administrator's special function and responsibility. The advantage of this approach was that he could supplement the strength of the health department with the services and manpower of other departments such as rural development, municipal administration and even of regulatory departments.

All the government functionaries in various departments including the Collector of the district, other officers at the district level, medical officers and the paramedical workers were all instructed to regard the propagation of small family norm as a high priority activity in their agenda. One Chief Secretary in the mid eighties accorded such high status and priority for the family welfare programme that even departments like agriculture and transport (though not directly connected to the programme) initiated vigorous steps in spreading the message of the small family. The family welfare programme has been monitored closely and good performance has always been rewarded. The government has also encouraged innovative strategies at the district level (Antony 1992).

Tamil Nadu had also the benefit from the experience of a several successful experimental action research projects. Particularly useful were those conducted by the Gandhigram Institute of Rural Health and Family Welfare, since 1959. These projects demonstrated how influential and interested community leaders can be involved in the family planning and MCH programmes in rural areas, to motivate couples to accept a small family norm, and to promote the use of modern methods of contraception, and the use of MCH services. This field experiment stimulated involvement of thousands of popular, local leaders in the programme. The programme has now become really a people's programme.

(iii) *Effective communication strategies.* From the early seventies, considerable emphasis was given to communication programmes in the state. The widespread network of cinema as the medium of most popular entertainment in the state was used for the propagation of small family norm and family planning messages. Banners and posters sprouted all over the Tamil Nadu. Processions with attendance in the tens of thousands, paraded district headquarter towns proclaiming support for the Planned Family. An important step in communication was the coining and using of audience specific messages. For instance, the farming community was informed that "One Family One Heir" will prevent further bifurcation of the already fragmented land holdings in the next generation. Similarly, slum dwellers were shown mini-films of the quarrels that can ensue if their tiny hut must house several children. Employees were being educated about the importance of stopping childbearing when the father is 33, so that when he retires, usually at 58, his last child would be fairly well settled—already educated and married. These messages have been made into one to two

minute films used for discussions in the meetings of labour unions. To spread the message every available media is used, including the state helicopter bearing family planning symbols to distribute leaflets on slum areas. All public vehicles—buses, lorries etc.—bear prominent message on family planning and the well-known symbol, the inverted red triangle. The Chief Minister of the state of Tamil Nadu convenes meeting of the State legislators at which the main topic is developing new audience-specific messages.

The Chief Minister's Mid-day Meal scheme, which covers the whole state, at present, is based on the model schemes implemented in two districts of the state, with funding from the World Bank and DANIDA in 1980. Under the plan, the government endeavoured to banish malnutrition among children and simultaneously encourage continuation of children in schools, by providing every child in Tamil Nadu up to school leaving age, a hot mid-day meal with rice and vegetable curry. The scheme presently caters to about nine million children, at some 80,000 centers spread all over the state. About 10 percent of the state's budget is spent in the plan. It has improved the chances of child health and survival, encouraged continuation of children in the school and has prompted a perceptible shift away from the compulsions to have another 'extra child' as an insurance against death and disease, and altered the cost-benefit ratio of children to parents. Further since about 200,000 women recruited in their own environment, operate the meal plan, the social status and sense of responsibility of a large group of women, particularly in the lowest socio-economic level in the slums and rural areas, have been enhanced. These women served as important communicators in the family planning programme through daily contact with just that section of the population sector which is most difficult to reach with the message of the planned family.

The main influence on the programme has come from the political will and administrative efficiency in the state. For several years, the state health minister has reviewed the programme personally and periodically, even at the district level. State level senior administrators have also played a considerable role by systematic monthly reviews, and coordinating the efforts of departments other than health to support this programme. For instance, the family planning message now displayed on all public vehicles in Tamil Nadu has come about because of a state directive to transport authorities that a message be painted on the rear of every vehicle as part of the 'fitness certificates clearance procedure.' Within political and government circles, there is a strong movement for promoting a one-child family. Thus, the favourable political atmosphere and the bureaucratic efficiency of the programme which was able to combine the resources of many departments of the government (and not only those of the Department of Health and Family Welfare as in other states) for the task of motivation and organizing family planning services seem to have paved the way for the successful demographic transition in Tamil Nadu.

Based on a careful analysis of the various factors that have contributed to the rapid fertility decline in Tamil Nadu Ramasundram (1995) came to a slightly different conclusion. He acknowledged the significant role played by the official family planning programme implemented by the state but stated "In the ultimate analysis, the family welfare (or contraception) programme cannot be said to be the sole or even major cause for the rapid fertility decline in Tamil Nadu. On the contrary, the desire among couples to have smaller

families is brought about by a combination of several economic, social, cultural and infrastructural factors. Many of these factors are quantifiable and can be influenced by conscious government policies and programmes as seen in Tamil Nadu. Then there are several non-quantifiable factors such as cultural practices, social reforms, political will and official commitment. Together, all these factors motivate couples to have smaller families which, in turn, create a demand for contraceptive services. In such a situation, when contraceptive services are offered within easy reach, couples adopt contraception, resulting in fertility decline/ But when contraceptive services are offered in the absence of a substantial demand for such services (due to the lack of positive economic, social and infrastructural factors), acceptance levels tend to be low or inflated figures are reported to fulfil targets fixed by the government. This is the main difference between Tamil Nadu and the northern states of India with higher fertility".

Some Tentative Lessons from the Case Studies

From the case studies of three states, Goa, Kerala and Tamil Nadu, we can draw some lessons for successful fertility transition in populations of other states that have not been so successful. Goa's experience reveals that under social conditions wherein women's status in the society is high, mortality levels (especially of children) are low, the population is fairly literate, and, most importantly there is a long standing exposure to a contraceptive population (in this case the policy of the Portuguese as the rulers of Goa for over four centuries), then small family norms diffuse across cultural barriers, contraception (initially through natural methods) tends to be adopted, leading to acceptance of all modern methods of contraception, including sterilization and finally, successful fertility transition. In this case, neither political will nor the governmental programme of family planning played that crucial role in fertility decline. The official programme of family planning introduced in Goa after 1961 after its integration with the Indian Union helped to legitimize what was basically accepted and practiced earlier by the Goan population, to enlarge the service facilities and method options available and to accelerate the fertility decline. In the development parlance, this is essentially a 'bottoms-up' approach to fertility decline with very few 'top-down' contributions to fertility change.

In Kerala, although the status of women was quite good, literacy levels of men and women fairly high even in the 1950s, it was found that fertility decline did not start until organized family planning programmes were implemented with efficiency and imagination, from the early 1970s. There has been a positive, well balanced interaction between social change and family planning programme in achieving low fertility in Kerala. A balance of 'top-down' and 'bottom-up' forces operating in the state towards its successful fertility transition.

In Tamil Nadu, the factors of political will and efficient bureaucracy seem to have played a crucial role in the fertility transition, overcoming the intrinsic cultural barriers imposed by low literacy levels, relatively higher mortality, low standards of living, and high heterogeneity of the population. The 'top-down' forces seem to be more dominant than the

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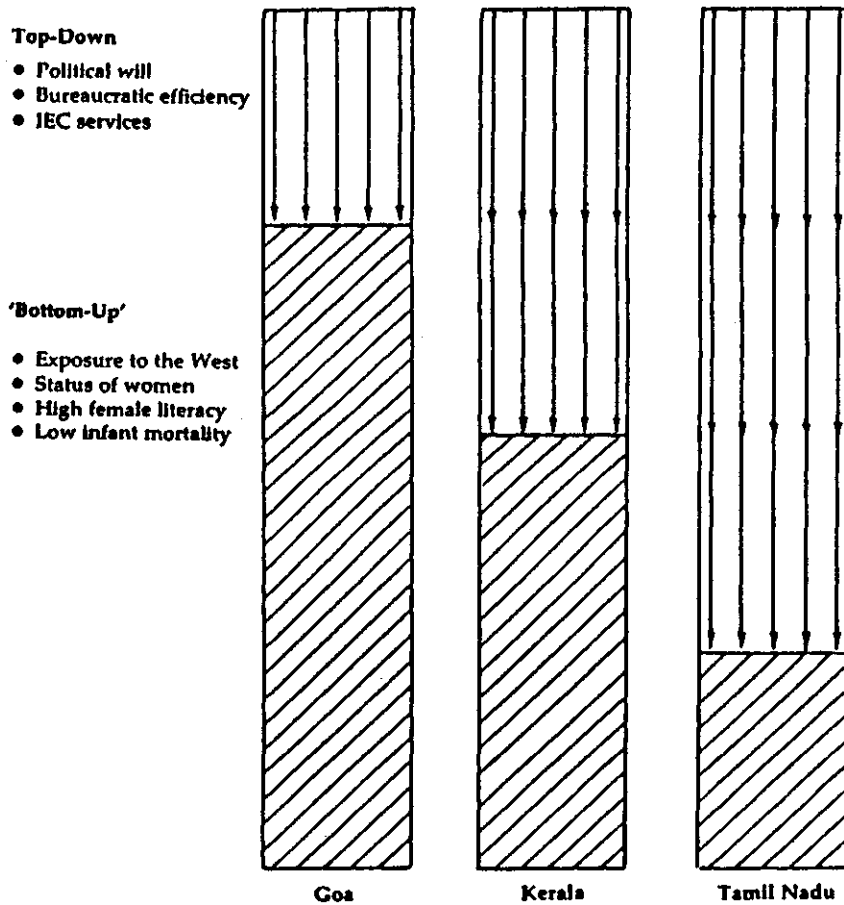


Fig. 4. Differential Contributions of 'Top-Down' and 'Bottom-Up' Forces in Achieving Fertility Transition in Goa, Kerala and Tamil Nadu.

'bottom-up' forces in expediting the fertility decline in Tamil Nadu. The relative strength of the 'top-down' and 'bottom-up' forces as they operated in these three states is schematically represented in Fig. 4.

Table 12 presents fertility and child mortality estimates together with information on current use of contraception, ideal family size, unmet need for family planning and ANC care and skilled attention at delivery for women reported 'illiterate' in the selected states from the National Family Health Survey. Had the literacy of individual women been the main factor in determining her demographic behaviour, one would expect a good deal of homogeneity in demographic parameters among illiterate women across different states. The table reveals that even the illiterate women in Goa, Kerala and Tamil Nadu have significantly lower levels

of fertility (TFR of 3.00, 2.31 and 2.84) compared to 5.3 in Uttar Pradesh. Similarly the child mortality levels in these states and wanted Total Fertility rates are lower as compared to India as a whole and Uttar Pradesh. Also, the percent using contraception and percent of pregnant women receiving ANC care among the illiterate women have also been higher. A fairly higher proportion of births for illiterate women got skilled attention at the time of delivery in Goa, Kerala and Tamil Nadu compared to UP. There is, thus, a significant state effect on family size norm and fertility behaviour. The institutional forces from the state seem to prevail in the community at large whereby even the illiterate women have adopted the small family norm in Goa, Kerala and Tamil Nadu.

TABLE 12: FERTILITY, CHILD MORTALITY, FAMILY PLANNING AND ANC PRACTICES AMONG ILLITERATE WOMEN IN INDIA, GOA, KERALA, TAMIL NADU AND UTTAR PRADESH (NFHS)

<i>Indicators</i>	<i>India</i>	<i>Goa</i>	<i>Kerala</i>	<i>Tamil Nadu</i>	<i>U.P.</i>
TFR 1990-92	4.03	3.00	2.31	2.84	5.36
Mean No. of CEB to women aged 40-49 1990-92	5.26	4.33	4.55	4.45	6.24
Total Wanted Fertility Rate 1990-92	3.15	2.48	2.01	1.89	4.3
Child Mortality Rate circa 1988	44.3	13.2	23.9	35.9	57.8
Current Use of FP Methods 1 992-93					
— Any method	33.9	46.6	66.7	47.5	15.5
— Any modern method	31.5	43.1	63.4	44.7	14.5
— Any trad. method	2.4	3.5	3.3	2.8	1.0
Not Using any FP Method 1 992-93	66.1	53.4	33.3	52.5	84.5
Percent of pregnant women not receiving ANC care, 1989-92	48.8	12.2	8.7	9.6	62.1
Assistance at delivery by (1989-92)					
— Doctor/Nurse	20.0	69.1	68.2	54.5	10.4
— TBA	41.8	11.3	23.1	33.5	35.8
— Relatives and others	36.8	16.4	5.8	11.0	52.3
Unmet need for FP 1992-93	20.3	10.6	8.0	13.5	30.2
Mean ideal no. of children for ever married women in age group of 20-24, 1992-93	2.9	2.9	2.5	2.2	3.3
Mean ideal no. of children forever married women in age group of 25-29, 1992-93	3.1	2.9	2.8	2.1	3.6

In Goa, although 'bottom-up' forces have operated for a long time in the evolution of small family norm and reduction of fertility, since the proportion of illiterate women is quite low they have adopted the norms set by the community at large. On the other hand, the experience of Tamil Nadu shows that 'top-down' approach may also create an environment in which the individual level norms on family size and decision making regarding the number

of children a couple should have and use of contraception have been largely shaped by state propaganda and the cinema and this has cut across literacy barriers. The unmet need for family planning has also been found low in these states compared to India as a whole and Uttar Pradesh in particular, which also support the argument of people following the institutional norms.

The effect of institutional factors in affecting family size norms and contraceptive behaviour especially those operating from strong state level policies, propaganda and services cannot be measured by questioning the individuals. They affect all people and influence their behaviour, psychologically, at subliminal levels, on a mass scale, and no particular individual will be able to attribute his desired family size or fertility behaviour on a rational basis. This seems to have occurred in Tamil Nadu with the continued influence of cinema, political support and intensive bureaucratic control over the programme. Without such an explanation, one cannot decipher how even illiterate women in the state, who constituted the majority of the female population when the fertility transition began, have a total wanted fertility rate of 1.89, lower than even in Goa and Kerala.

The lesson that comes out strong and clear from these case studies is that even in situations where social and economic development in a population is not of a level that can motivate a small family size and the use of modern methods of contraception as normal byproducts of modernization, it is possible to induce such attitudes and action by an effective combination of political will, bureaucratic efficiency and a well organized inter-sectoral family planning programme. The optimal approach seems to be in the strategic balancing of 'top-down' and 'bottom-up' forces required for successful fertility transition.

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