Special Series Paper

Demographic Transition in South India

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Population Foundation of India

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The Special Series

The Population Foundation of India is happy to launch the Special Series papers. The papers will deal with topics vital to the current discourse on population, stimulating new thinking and guiding action.

It is a privilege to have the first paper in the series, *Demographic Transition in South India*, by eminent demographer Leela Visaria. Leela is an Honorary Professor at the Gujarat Institute of Development Research. She holds a PhD from Princeton University and is a former Professor and Director of GIDR.

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Introduction

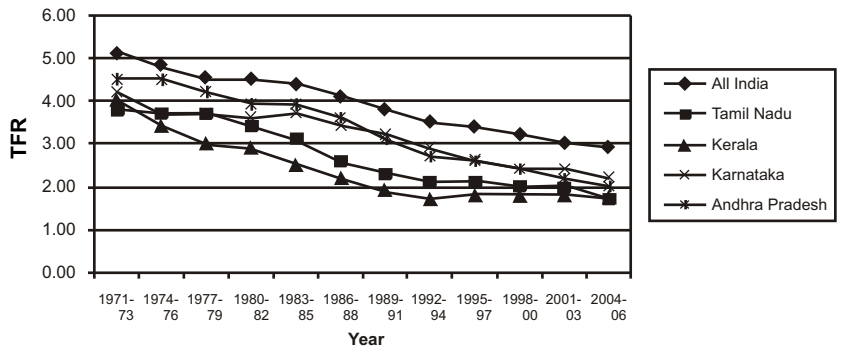
The four South Indian states of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu, where 20.7 per cent or 251 million of India's estimated total population of 1.21 billion (2011 Census) resides, have completed their fertility transition. Kerala and Tamil Nadu attained Total Fertility Rate (TFR) i.e. the replacement level of 2.1 (which is the average number of children born to a woman after allowing for a slight mortality factor) in the years 1986 and 1996, respectively. They were followed by Andhra Pradesh, where TFR of 2.1 was reached in 2004, with Karnataka joining the league two years later in 2006. Historically, even when time-series data on vital rates were not available, fertility and mortality measures estimated from the inter-censal growth rates and the age distribution of population available from the decennial censuses, showed that fertility in the southern region of India was somewhat lower than in the rest of the country. This was even though there was no evidence of a deliberate birth control practice, and when marriage was universal and also early (Visaria and Visaria, 1982). It is difficult to establish that some of the traditional practices that impose restrictions on sexual intercourse during the postpartum period or on certain days of religious importance were more widely followed in the southern states compared to other regions, leading to somewhat lower fertility.

Comparatively robust and direct annual estimates of fertility and mortality are available from 1970 with the advent of the Sample Registration System (SRS). A number of demographers and other scholars have analysed these and the household level data collected in national surveys, such as the three National Family Health Surveys (NFHS) conducted during 1992-2006 and the three District Level Household and Facility Surveys (DLHS) during 1998-2008 to discern geographical contours and determinants—proximate and cultural and socio-economic factors of fertility decline in the southern states of India since about 1980 (Guilmoto and Rajan, 2005; Rajaretnam and Deshpande, 2004; Zachariah, Rajan and Sarma, 1994; James, 1999). To understand the demographic transition in these states, I will briefly discuss the level and pace of decline in both fertility and mortality. This will be followed by examining the different pathways to demographic transition in the southern states, and the socio-economic and cultural explanations for the transition. Finally, I will explore the lessons it holds for the rest of India, especially for the large economically backward states.

Level, Onset and Pace of Fertility Decline

According to the latest estimates available for 2008, total fertility ranged between 1.7 and 2.0 in the four southern states of India.[1] The estimates clearly suggest that fertility transition in these states has been completed.[2] An examination of SRS data from 1970 for the major states of India points to two important facts. One, even at the beginning of the 1970s, total fertility rate in all the four southern states was lower than in the rest of the country. TFR ranged between a little less than four in Kerala to 4.5 children per woman in Andhra Pradesh, whereas the average for India was 5.2, and in some of the large North Indian states, it was close to six. The gap of one child in fertility level between the two distinct regions continued until about 1980. Two, since 1980, the pace of fertility decline in the two states of Kerala and Tamil Nadu quickened until mid-1990s, leading to an increase in the gap in the level of fertility between them and the other states. By early to mid 1990s, the TFR of Kerala and Tamil Nadu reached replacement level fertility and has now plateaued a few points below the replacement level. In the other two states of Andhra Pradesh and Karnataka, the pace of fertility decline became faster by 1995 and they began to catch up with their two neighbours (Figure 1). It appears that a decline in fertility

Figure 1: Three Year Moving Average of Total Fertility Rate in All India & Southern States, 1971-2006



from between four and five children to three children per woman took 15-20 years, but once the threshold of three was reached, the decline to around two children took just about 10 years. One may venture a guess that TFR in the country as a whole would reach replacement level by 2015; it has been inching towards it from a level

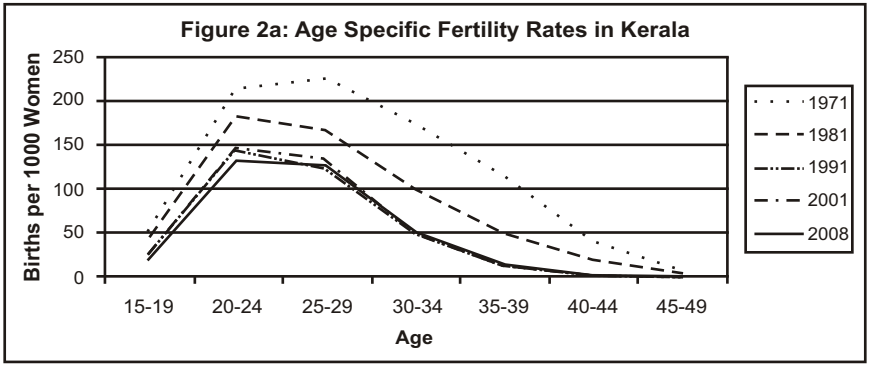
1. All the total fertility rate data, unless otherwise specified, is from the various volumes of Sample Registration Bulletin, which is published now twice a year by the office of the Registrar General of India, New Delhi.

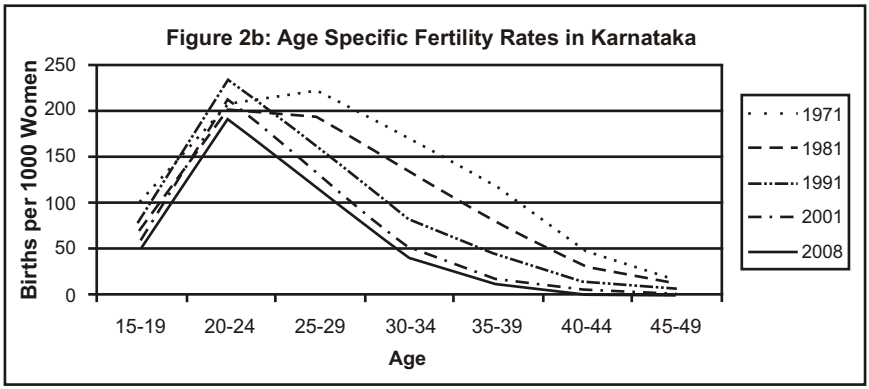
2. The other states that have joined this league of TFR at or below 2.1 are: Himachal Pradesh, Delhi, Maharashtra, Punjab and West Bengal. Also, except for the urban areas of Madhya Pradesh, Haryana, Rajasthan, Bihar and Uttar Pradesh, the urban TFR in the rest of the country has reached 2.1 or less. This suggests that fertility transition has been completed in nearly 47 per cent of India's population.

of three in 2003 and reached a level of 2.6 in 2008. However, it may be noted that not all states of India would attain TFR of 2.1 by 2015.[3]

In all the four southern states, as in the rest of the country, fertility differentials by place of residence, level of education, caste, religion, economic status, or occupation did exist. However, once fertility decline gathered momentum, it fell at a faster rate in rural areas compared to urban areas such that the differences in TFR between rural and urban areas have virtually disappeared. According to NFHS-3 data for 2005-06, TFR in urban areas was estimated to be 1.9 in Karnataka and 1.7 in the other three states. Rural TFR was only a little bit higher by 0.2 points than the urban TFR in all the states. Further, fertility differences by education of mothers, or among social groups and within states, between districts have also narrowed considerably leading to homogenisation in reproductive behaviour.

The age specific fertility rates for the four states show that the greatest fall in fertility has occurred in ages above 25 (Figures 2a and 2b). This is strongly





3. States like Uttar Pradesh and Bihar are unlikely to attain replacement level fertility before 2025 given their current TFR is around four. However, the pace of fertility decline among the late entrants may quicken in response to a number of factors ranging from changing aspirations to the role of mass media in spreading the two-child norm and influencing behaviour.

indicative of increasing control of fertility within marriage through the adoption of family planning. The typical bell-shaped age-specific fertility curve has become narrow in all the four southern states and compressed. At ages 15-19, the decline in age specific fertility mainly reflects a rise in the age at marriage of women, which has increased in all the states by varying measure. These changes mean that the average span of childbearing (measured in years) has declined considerably. In all the four southern states, childbearing has become concentrated into a very short period of six to seven years. Women marry, have their children and then adopt a fertility limiting method or sterilisation.[4]

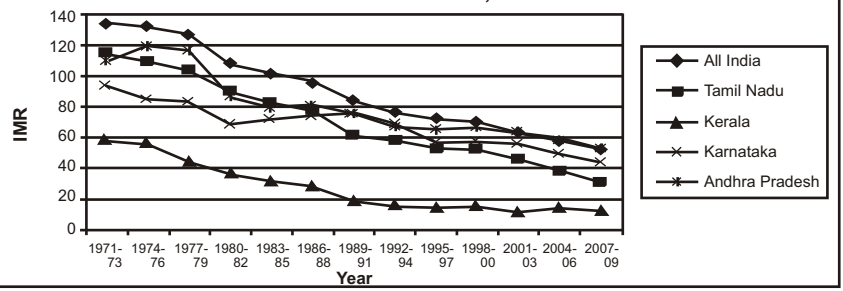
Trends in Mortality

Among the components of population change, mortality has historically played an important role in determining the growth of population. During the first and second stages of demographic transition, it is mortality that starts declining first, initially slowly and then rapidly, contributing to a gradually rising rate of population growth as fertility decline generally starts with a time lag.

From 1970 onwards, the annual estimates of crude death rates (CDR) and infant mortality rates (IMR) available from SRS indicate that the declining trend in mortality in the four southern states continued through the decades of 1970s and 1980s. This decline was possible due to advancements made in the field of medicine, improvement in public health, availability of immunisation services and the general betterment in living conditions. The pace of decline in mortality somewhat slowed down in the 1980s, but picked up some momentum later. However, it is to be noted that among the four southern states, Kerala has been well ahead in mortality transition compared to the other states.

As shown in Figure 3, even at the beginning of the 1970 decade, Kerala recorded

Figure 3: Three year Moving Average of Infant Mortality Rate in India & Southern States, 1971-2009



4. According to NFHS 3, the median age at sterilisation in the four southern states ranged between 23.3 and 27 years, the lowest being reported for Andhra Pradesh (IIPS and Macro International (2008) for Andhra Pradesh, Karnataka, Kerala and Tamil Nadu).

infant mortality rate (IMR) of around 60 per 1000 livebirths compared to above 100 in Tamil Nadu and Andhra Pradesh and above 90 in Karnataka. The all-India IMR was 125. Over time, although the pace of decline in IMR in the other three states has been somewhat faster than that in Kerala, the gap between them and Kerala continues to be quite wide. The IMR of Kerala is only 12 — a level very close to that of some of the developed nations of the world. The pace of decline in IMR in Tamil Nadu seems to be faster and at IMR of 28 reported for 2009, it is significantly ahead in its mortality transition of Andhra Pradesh and Karnataka, where the corresponding figures are 49 and 41, respectively. The IMR for Andhra Pradesh is almost the same as for India as a whole, a level that is not only unacceptably high but is also indicative of the fact that the state has quite a long way to go before completing mortality or health transition.[5] While general mortality responds rather quickly to public health measures, changes in infant mortality depend on a number of factors like availability and accessibility to antenatal and postnatal care facilities, services and facilities for infant care after childbirth, effective management of diarrhoeal diseases and respiratory tract infections besides improvements in the level of mother's education and general socio-economic development. Both Andhra Pradesh and Karnataka states need to allocate greater resources in improving the health of its children.

Factors Associated with Fertility Decline

It is important to understand what wide-ranging changes have taken place in the social milieu of each of the four South Indian states to bring about a decline in their fertility. Evidently, the onset, pace and paths to fertility decline in the four states have been distinctly different, and yet, today they all are at the same level of around replacement level fertility. It is important to understand the different pathways for lessons for other states and regions of the country. I shall discuss very briefly for each of the four states the associated factors of fertility—both proximate determinants and the socio-economic explanations.

Fertility Decline in Kerala and Tamil Nadu

Among the four states in South India, the demographic transitions in Kerala and in Tamil Nadu have been much more extensively studied in a historical context than that of the other two states. Kerala's transition is linked to the pattern of social development in the state since the nineteenth century. Religious reforms were

5. Health transition refers to the transitions in morbidity and mortality from infectious to non-communicable diseases as a consequence of medical interventions and improvements in material conditions of living. Health transition relates to the role that cultural, social and behavioural determinants of health play in raising life expectancy at birth (the mortality transition) and the decreasing proportion of all deaths caused by infectious diseases (the epidemiological transition).

introduced in order to break the rigidities of the caste system. Education was provided to members of lower castes. In addition, the forward-looking rulers of the region introduced land reforms, set minimum wages and also provided public health care, all of which contributed to a fairly egalitarian social structure. Many economists and social scientists have argued that the spread of education among women and changing perceptions of the cost of childcare played a very significant role in the control of fertility. This has been called the 'human development' path of fertility transition (Krishnan, 1998; Srinivasan, 1995). Zachariah's empirical study showed that in the 1950s and 1960s, the spread of female education and the related rise in age at marriage were the major factors behind fertility decline in Kerala. In the subsequent decades, adoption of family planning became an important determinant of further fertility decline. All social and occupational groups accepted family planning and lowered their fertility such that the socio-economic differentials in fertility levels have virtually disappeared in Kerala (Zachariah, 1994; Zachariah and Rajan, 1997).

On the other hand, the experience of Tamil Nadu suggested that the decline in fertility could take place even with a much lower level of female literacy and a higher rate of infant mortality than those observed in Kerala. Historically, in spite significant inter-district differentials in Tamil Nadu, fertility was never reported to be very high anywhere within the state and the relatively moderate level of fertility in the 1920s and 1930s has been attributed to the social and economic reforms that were initiated in the first half of the 20th century by E.V. Ramasamy Naicker, popularly known as Periyar. He advocated a higher age at marriage for women, a better status in society for them, widow re-marriage, the importance of family limitation, rejected the caste system and questioned the supremacy of Brahmanism (Anandhi, 1991).

More recently, Tamil Nadu's fertility decline has been explained in terms of the state pursuing a mixed path, involving elements of both social and economic development (Kishor, 1994; Ramasundaram, 1995; Mari Bhat and Rajan, 1990). It is even argued that given the high level of income poverty in the state, fertility decline is 'poverty driven'. The reasoning is that poor parents curtail their fertility in order to be able to invest their limited resources in their children's education. This would enable the children to get an urban employment, and in turn, improve the economic status of the family. A few qualitative studies undertaken in Tamil Nadu have suggested that the aspirations of young couples to provide better levels of education and health care for their offspring, compared to what they themselves received as children, have increased. Also increased is the awareness in the rural areas that with several children, land gets divided between them to such an extent

that the small piece of land that each son inherits becomes unviable for cultivation and survival. Such calculus prompts couples to desire and bear fewer children. Nagaraj (1997), terms this as 'social capillarity' where a large section of the population adopt family planning as a means for bridging the gap between increasing aspirations and expectations on the one hand, and the limited resources to meet these aspirations, on the other. Agrarian modernisation, strong rural-urban linkages, changing pattern of mobility, spread and reach of mass media and films, progressive Dravidian movement in the state are all perceived as the facilitators for the social capillarity to occur. Others have also alluded to the success of backward class movements in the state (Anandhi, 1996) and to the implementation of a vigorous family planning programme (Anthony, 1992).

Additional contributory factors to the fertility decline in Tamil Nadu have been the strong political backing from the leaders as well as the bureaucracy and an efficient transportation network (where even remote rural areas are well connected by public transport) and effective communication. All these have assisted the health and family welfare programme to promote the use of family planning among the masses. Studies also found that the media had strong negative influence on fertility (Ramasundaram, 1995; Srinivasan, 1995; Visaria, 2000).

Fertility Decline in Andhra Pradesh and Karnataka

In the states of Andhra Pradesh and Karnataka, the rapid decline in fertility is very recent; the pace increased only in the 1990s. Also, factors conducive to changing aspirations leading to fertility decline were more or less absent in these states, or were confined to very small pockets and did not spread across districts within states. The few studies undertaken are by and large based on the reanalysis of the NFHS data in the case of Andhra Pradesh, and linking the NFHS data with the Mysore Population Study conducted in 1951-52 and the Bangalore Population Study conducted in 1975 in the case of Karnataka. The studies have examined the trends in fertility and associated factors.

The analysis of NFHS data for Andhra Pradesh separately for its three major agro-climatic regions—Coastal, Telangana and Rayalaseema—undertaken by James (1999) showed that although contraceptive use has increased in all the regions, there are regional differences in the factors associated with the reported level of use. In the coastal region, literacy of mother or father had no significant association with contraceptive use (implying that contraceptive use increased among the illiterates also). Instead, mass media exposure and asset holdings of the household were found to be important in explaining family planning acceptance. However, in the

other two relatively backward regions, the influence of mass media was insignificant; instead, work participation of women was found to be positively related to the use of contraception. Clearly, when data are analysed at a disaggregated level, the results are inconclusive.

Some further analysis of the NFHS-2 data carried out more recently by James and Subramanian (2005) and Chakrabarty and Guilmoto (2005) indicated that the negative relationship between female literacy and fertility was not strong. Also, the positive association between fertility and infant mortality, which has been found to be quite significant in many settings, was also not found to be very strong in Andhra Pradesh. But, the widespread access to antenatal care available to mothers in Andhra Pradesh has a stronger association with fertility level and is likely to have contributed to fertility decline.[6] This implies that programmatic intervention through the provision of antenatal care to mothers (which may also include creating awareness about small family) has created a favourable environment for the acceptance of family planning in Andhra Pradesh. Exposure to cinema is also found to be positively associated with the practice of family planning in Andhra Pradesh. Even after controlling for the various background characteristics of women, those who regularly watched cinema were found to be more aware of the legal age at marriage for girls, used fertility control measures to limit their family size and initiated reproductive health care seeking behaviour (Rama Padma, Roy and Sureender, 2004). Cinema stars who are perceived as role models or whom people would like to emulate, are widely believed to influence and accelerate behaviour change in people.

It is also argued in the case of Andhra Pradesh that the policies of the government giving generous subsidies to the poor in the form of rice or pension to widows, and the widespread implementation of the Integrated Child Development Scheme (ICDS), which provides supplementary food, have led to some reduction in the incidence of poverty and a decline in fertility. Also, Andhra Pradesh's commitment to spreading and effectively implementing the family planning programme as well as improved governance in lowering fertility has drawn the attention of many policymakers, programme managers and advisors as a replicable model of fertility decline that can be pursued in other states of India.

Karnataka state was formed in 1956 by amalgamating the princely state of Mysore, districts from the two neighbouring presidencies of Bombay and Madras and also from the former Hyderabad state. Interestingly, unlike the neighbouring states,

6. According to NFHS-2, 93 per cent of mothers in Andhra Pradesh had accessed some antenatal care, with very small differences by place of residence, education level of mothers, caste, or religion (James and Subramanian, 2005). The recent NFHS-3 showed that 86 per cent of Andhra women had at least three antenatal care visits for their last birth with no significant rural-urban differences.

Karnataka did not experience any significant social and political movements, which could influence attitude and behaviour of people. The disparities in socio-economic development between the districts are quite high and get reflected in the demographic parameters as well. Based on the data from the earlier two surveys conducted in 1951-52 and 1975, it has been shown that the small decline in birth rate noted in the state was due to changes in marriage patterns and not due to a decline in marital fertility, which, in fact, had gone up due to relaxation of some traditional checks.

Apparently, the inter-district differences in the level of fertility that have narrowed significantly in the other three states, persist in Karnataka (Rajaretnarm and Deshpande, 2004). In the mainly coastal districts, where fertility is lower compared to other regions of the state, women marry later, their level of literacy is high, the participation of workforce in non-agricultural activities is higher and infrastructure development such as roads is also better. On the other hand, in the districts of the north eastern plateau, where 25 per cent of the state population resides, the mean age at marriage is still quite low and health infrastructure is quite poor. The region is also characterised by limited exposure to mass media, low status of women and rather slow decline in fertility (Sekar, Raju and Sivakumar, 2005).

While examining the factors that have very likely influenced fertility behaviour in the four states of South India, both historically and in recent times, it is important to highlight that all socio-economic factors or cultural practices that would influence fertility behaviour can affect fertility only through intermediate or proximate variables that determine exposure to sexual intercourse, to conception and carrying the pregnancy to full term such that it results in a livebirth. I shall, therefore, dwell a little bit on variations in the proximate determinants of fertility in the region.

Proximate Determinants of Fertility

The important among the proximate variables, which can be relatively easily measured in surveys, are marriage, use of contraception, breastfeeding and the use of abortion. Various policy interventions have attempted to influence these factors. The minimum legal marriage age for women has been raised to 18 years in India. Abortion has been made legal under fairly liberal conditions. India's family planning programme that was launched in the early 1950s has made contraceptive methods widely and freely available through health facilities. Data analysed from the first and second National Family Health Surveys conducted in the 1990s enable in estimating the contribution of these variables in the overall total fertility. Although the interval between the two surveys was only a little over six years, the

changes in the share of each of the variables over this period are also captured (Visaria, 1999).

Higher age at marriage and a larger proportion of women remaining single have some effect on depressing fertility compared to low age at marriage and marriage being universal for women. Available data indicates that both in Kerala and Tamil Nadu the median age at marriage of women was relatively high (21 and 19 years according to the NFHS-3, 2005-06), whereas in Karnataka and Andhra Pradesh it was estimated to be only 18 and 16 years, respectively. Other things being equal, this would imply that women in the latter two states stay in marriage for longer period since they enter marriage early, and thereby, are exposed to a greater risk of pregnancy resulting in higher fertility compared to the women in Kerala and Tamil Nadu. However, the TFR in all the four states in recent years, despite some variations in age at marriage, have been very similar suggesting that even if girls marry at a relatively young age, fertility can decline, or marriage as a factor to fertility can be undermined through other measures such as use of contraception or resorting to a permanent method of contraception at a very early age once the desired number of children are born. Andhra Pradesh is an example of fertility being compressed in six to seven years (Padmadas, 2004). According to a survey conducted in four districts of Andhra Pradesh in 2004, the average age at sterilisation ranged between 22.5 and 25 years (Visaria L. and Prakasamma, 2007).

In India breastfeeding is prolonged (around 25 months) and the estimated duration of breastfeeding has not varied much in the country. Longer duration of breastfeeding extends the period of postpartum amenorrhoea thereby increasing the inter-birth interval. The average duration of breastfeeding is somewhat lower in Kerala and Tamil Nadu (six to seven months) compared to that reported in Andhra Pradesh and Karnataka (10 to 11 months), but the differentials are not significant to have much effect on suppressing fertility in the latter two states.[7] The postpartum period of infecundability has changed little. Although one may expect that educated women might be breastfeeding their children for shorter length of time, the reduction seems to be offset by use of reversible forms of contraception among some of them, but very likely due to the acceptance of postpartum sterilisation by a large segment of the women. The drive to encourage women to exclusively breastfeed their children at least for few months is carried out for its beneficial effects on child health.

There is some indirect evidence that women in Tamil Nadu undergo induced abortion to a much greater extent than elsewhere in the country and that they use

7. Overall, the estimated effect of breastfeeding practice and thus of the postpartum period of infecundability in different regions of India is nearly the same.

abortion as a family planning method. However, information on induced abortion collected in surveys such as NFHS is deficient because women tend not to report having undergone abortion in spite of it being legal in India since 1972. It is therefore, not easy to estimate the contribution of abortion to fertility decline.

The fertility transition is achieved overwhelmingly through an increase in the use of modern contraceptive methods, primarily female sterilisation, not only in all the four states in South India, but also throughout the country. The contraceptive prevalence rate in all the four states ranged between a high of 69 per cent in Kerala and a low of 61 per cent in Tamil Nadu as per the NFHS 2005-06 data. According to the survey, female sterilisation accounted for more than 92 per cent of all modern methods (in NFHS-2 of 1998-99, the share of sterilisation among modern methods was 85 per cent) currently used in Tamil Nadu, Andhra Pradesh and Karnataka and more than 94 per cent in rural areas of these states. The only exception is Kerala, where the share of sterilisation was 84 per cent (in NFHS-2 it was 67 per cent), among all modern methods. Apparently, there is an increasing inclination towards sterilisation not only in these states but through out the country. Among the younger women, who have not yet completed their family size, there is some use of reversible methods of contraception reported. But, for majority of the women, female sterilisation is the first and the last method of contraception ever used. In fact, the public sector has been the major provider of family planning services.

The results from the four southern states clearly show that the transition from natural fertility to controlled fertility is not only achieved largely by the use of contraception but over time, the contribution of contraceptive use has increased. No doubt, the age at marriage has risen and the proportion of single in the young age group of 15-19 years has increased over time, thereby contributing to some decline in fertility. But widespread use of family planning, in the form of female sterilisation, is the major factor that has brought about fertility transition in the southern states. It is also likely to be the primary driver of fertility decline in the rest of the country.

Socio-economic Factors Associated with Fertility Decline

According to the conventional demographic transition theory, a decline in fertility level below a certain threshold level cannot be achieved without changes in material conditions, an increase in female literacy, improvement in the economic wellbeing of people, exposure to urban values and way of life and improvement in child survival. Many statistical analyses of data from countries across the world, including India, have so far supported this classical theory of transition.

A number of socio-economic factors have been identified by social scientists to understand what triggers fertility decline. In the context of the South Indian states also, such explorations have been undertaken. Using a range of innovative methodologies, analyses and interpretations, factors associated with fertility decline have been identified. An analysis of large-scale data from various sources has indicated that there is a strong inverse association between fertility and female education, implying that increasing the education level of women can bring about fertility reduction. Thus, even after controlling for the influence of other factors, the effects of higher levels of female education have been observed to be quite strong in reducing fertility (Jain, 1985). Undoubtedly, the theoretical arguments for these associations are convincing. Increased education keeps girls in school longer, which in turn helps raise the age at marriage. Schooling may also give young women greater awareness of services and confidence in negotiating with the service providers for better quality health care for themselves and for their children (Caldwell, 1982 and Caldwell, et al., 1985 for their work on Karnataka). Large macro-level analyses also found that the level of female literacy was an important factor in accounting for fertility variations both between regions and over time (Murthi et al.,1995; Dreze and Murthi, 2001). In contrast, general development and modernisation variables were found to have small effects. Similarly, a district level study by Bhat (1996), found that less than 10 per cent of fertility variation within the country was attributable to structural economic factors. On the other hand, differences in exposure to mass media and levels of female education accounted for 40 per cent of the variation.

However, recent evidence available from southern states of India in particular does not seem to conform either to the classical theory of fertility transition or to the macro level analyses that stress the role of education as the most important factor accounting for fertility decline. In states like Tamil Nadu and Andhra Pradesh, fertility decline has taken place for the most part without any noticeable improvements in female education or in the material condition of the people. In fact, fertility has declined among the illiterate as well as among educated women. The widespread adoption of contraception by illiterate women in the 1990s has raised questions about the role of education as a prime mover in the fertility transition. Bhat, for example, demonstrated with fertility data from the Censuses of 1981 and 1991 that 65 per cent of all fertility declines in India occurred among women with no education at all (Bhat, 2002). He attributed the decline in fertility among the illiterate women to ideational change, brought about through the influence of the mass media. A multi-level analysis by McNay et al. (2003), using the NFHS-2 data, also found that fertility has declined among uneducated women due to the increased use of contraception. They attributed this to the diffusion of

new ideas and increased aspirations for the children among the uneducated parents, which encourage them to limit the size of their families.

Fertility is generally found to be positively associated with infant mortality. It is argued that couples have more children as a form of a hedge against high infant mortality. When not all children born are expected to survive, in order to ensure that at least some survive to adulthood, couples have more children. In spite of steady decline in infant mortality over several years, the perception among parents that it has indeed been declining comes with a time lag. Fertility decline in Andhra Pradesh to a level below the replacement has occurred in spite of its infant mortality being higher than, or closer to, the national average. This has prompted some to argue that improvements in education or income levels, or health status, are not necessary conditions for bringing down fertility. A vigorous programme designed to promote family planning methods and access to services easier, and linking them to incentive payment, can achieve the desired result of lowering fertility. This has often been termed as the Andhra Model of demographic transition, which has gained some credence for its suitability for other states with similar socio-economic characteristics.

Another important factor associated with the fall in fertility in the southern states is the status of women. There is less patriarchal kinship structure in these states compared to that observed in the North Indian states and many studies have pointed out that women in South India enjoy greater autonomy and have greater decision-making power compared to their sisters in North India (Dyson and Moore, 1983). No restrictions on village endogamy, the practice of consanguineous marriages where women know the families in which they marry, contribute to women's freedom of movement in the South Indian states. On most measures of female autonomy, such as ownership of assets, degree of freedom, employment and access to money, income and participation in self-help groups, women from the south fare appreciably better than their sisters in the North Indian states. Greater autonomy enjoyed by southern women has also resulted in low son preference. Strong son preference evident in desiring at least two sons, does contribute to an increase in fertility. There may be small pockets within the southern states, which have had the tradition of female infanticide but overall the preference for sons is not as strong as observed in many North Indian states.

One of the important supply side arguments has been that all the states in southern India have made a huge commitment to promote the small family norm. The commitment has manifested in somewhat different ways, but that it is there, is very evident. In Tamil Nadu, along with providing family planning services, the state

machinery has also made efforts to address reproductive health needs of women in health care facilities. The Primary Health Centres (PHC) throughout the state are able to cater to women's health needs by keeping the PHCs open taking into account bus timings, or keeping them open 24 hours by hiring retired nurses on a contractual basis, ensuring that at least one of the two doctors serving in the PHCs are women, and also having stock of most essential drugs. In addition, the village health nurses are encouraged to hold monthly mothers' meetings in the villages they serve where women's health concerns are discussed.

The political will has been very strong in Andhra Pradesh and a range of incentives and disincentives has been provided to individuals or village local bodies. The public health facilities in Andhra Pradesh have ensured that all pregnant women receive the required antenatal care and checkups, thereby increasing their contact with the health facilities and health care providers and also providing timely intervention in case of risk. However, it is sometimes argued that the politicians and bureaucrats in Andhra Pradesh have initiated fairly aggressive targets and incentive-driven strategies to promote the greater uptake of sterilisation and that people are succumbing to pressure tactics employed to promote family planning. It is important to understand in depth the extent and impact of vigorous promotion of family planning and also whether women respond to, or accept, sterilisation because of payment of cash compensation or because they want to control their fertility, gain and assert their independence, or even defy and undermine the authority of the elders.

On the other hand, in Kerala, given the fact that literacy among women is nearly universal, family planning no longer needs to be promoted. Women come forward on their own to seek family planning services. Many in Karnataka feel that the backward districts of the state would need special efforts in promotion of family planning along with developments in their infrastructure and investments in human capital. The intra-state disparities are a source of concern in Karnataka.

In southern states, the media, both print and visual in the case of Kerala, and mostly visual in other states, has contributed a great deal to reaching health and family planning messages, not only through spot visuals, but also by weaving them in serials and other programmes, including discussions with 'heroes' and popular icons that are broadcasted on television channels. Television is clearly the most influencing factor in increasing awareness about conspicuous consumption portrayed on screen and creating a desire in people to own some of the convenience goods and thereby improve the quality of their life. Television has also exerted a lot of influence on the ideas of family building and family size. Feature films in local

languages are also very popular in the southern states. The percentage of even rural women, who visit theatres to watch films, at least once a month, is quite high in southern states compared to northern states.

Challenges and Lessons for the Rest of India

Having painted a somewhat rosy picture of the demographic transition in southern Indian states, I want to draw attention to some of the unaddressed issues. Before doing that, I would like to assert that fertility transition has been completed in South India and is also well established in the rest of the country. There is little reason to believe that the total fertility rate will stall or plateau for long at a level that is far above replacement. There is sufficient evidence that in no part of the country couples report more than three children as the ideal number, and younger women report only around two children as the ideal number that they would like to have. That this ideal has been translated into reality is evident from the estimates of total fertility rates available for all the major states of the country from the 2005-06 NFHS-3 and the SRS data. The 2008 TFR is less than four throughout the country but below three in all states except for Rajasthan and Madhya Pradesh, where it is 3.3, and for Uttar Pradesh and Bihar where it is 3.8-3.9. At the same time, the per cent of women with two children who reported that they did not want to have any more children is above 80 per cent in all the states except for Rajasthan where it is 73 per cent and Uttar Pradesh where it is 64 per cent.

In spite of our assertion time and again that India advocates the 'cafeteria' approach in promoting family planning, the fact of the matter is that female sterilisation is the overwhelming method used and available throughout India and certainly in the southern states. Even if there are no regrets reported by women for relying on the permanent method, the consequences of it are quite dire. In the zeal to achieve targets (which do operate even if the nomenclature has been changed), there are no efforts to collect information on reproductive tract infections (RTI) women may already suffer from or even information about their husbands' occupation. If before sterilisation, women are treated for their RTIs, the incidence of some of the debilitating illnesses such as backache, white discharge, lack of energy that they report would decline.

In the context of Andhra Pradesh and Tamil Nadu, where the incidence of HIV infection and AIDS cases are high, its spread in the general population and especially among largely monogamous women is likely to increase because once a woman is sterilised she cannot negotiate with her partner for the use of the condom. The promotion of dual methods of contraception, along with appropriate

counseling where one of the partners has high-risk behaviour has no place in the family planning programme. Media should be used to spread awareness among couples and the health functionaries would have to be informed and trained.

While recognising the fact that marriage for women is likely to remain nearly universal in India, and further that the vast majority of them will marry relatively young and have fewer children, the childbearing phase is going to be quite short. Women marry early, have their two or three children in quick succession and then undergo sterilisation. If the southern states are an example, the average reproductive span would be only about 6-8 years and would end when women are still in their twenties. Many believe that the overall condition of women has improved and they have become more empowered. There is less physical and mental strain due to avoidance of unwanted and repeated pregnancies. With having to produce fewer children, women have less childrearing responsibilities and free time to become actively involved in income generating activities. However, we have not explored the biological, medical and social ramifications of early sterilisation, an issue that needs to be explored with appropriately designed research.

In the pursuit of sterilisation targets, and the goal of attaining population stabilization, the quality of care before, during and after the procedure appears to have been compromised in most settings. Very limited information is available on sterilisation care and quality issues. Concerns such as preoperative assessment of clients, the choice of method offered to them, information given to them on consequences, maintaining privacy and dignity before, during and after sterilisation, following the correct and safe operative procedure, measures taken for prevention of complications, postoperative follow-up, care and treatment of complications are rarely addressed when the camp approach is followed for performing a large number of operations on a single day. The camps are sometimes held in schools where it is difficult to maintain cleanliness. Toilet facilities are not available and operation facilities do not meet even minimum standards. There is hardly any evidence on the extent to which such compromises in care lead to complications, because once a woman is an acceptor of a permanent method of contraception, she practically disappears from the trail of the health providers just as postpartum mothers are also rarely visited after the birth of the child. In the coming years, the dominance of sterilisation is unlikely to diminish, given its widespread, promotion and acceptability throughout India. The programme needs to widen its scope and promote reversible contraceptive methods so that women and men both have greater access to safe, affordable and effective methods of contraception.

The effective state-sponsored family planning programme pursued by Andhra Pradesh does appear attractive in the short run and is even propagated as worth emulating, especially in the backward states of the country. It is possible that some states may adopt similar approaches to Andhra Pradesh in the coming future, in a context in which state-level population policies are likely to play an increasingly prominent role in family planning. However, instead of basing the decision on a macro level, factors like literacy, low income, proportion of population living in rural areas and social issues including women's autonomy, son preference, prevailing caste-based equations, would also have to be taken into account. A backlash and its impact can be worse and longer lasting than even a badly implemented programme. What is worth emulating is the political commitment and bureaucratic readiness of Andhra Pradesh and efforts to provide family planning services along with comprehensive reproductive care as in Tamil Nadu. Good supervision and efficient monitoring mechanisms must receive priority. Tamil Nadu has succeeded to a great extent by paying attention to such details and to issues of quality.

Strong son preference is a thorny issue that seems to be plaguing many societies in the northern and western states of India, which has led to an increase in sex detection tests followed by female selective abortions. The liberal Act that does not permit Pre-Natal Diagnostic Termination of foetus has made the practice costly and clandestine rather than eliminate it. Occasionally one does hear of the violation of the PNDT Act in south India, but by and large, states here have not resorted to such practices mainly because son preference is not so strong. The somewhat liberal attitude towards daughters, and viewing them not as drain on family resources or someone else's property, but as assets, cannot easily be transplanted in another culture. But innovative uses of media and educational tools would hopefully help in inculcating the value of daughters. It is possible that in the regions of strong son preference, fertility decline itself may help to generate a more balanced view of the desirability of having daughters.

In spite of these challenges, one must accept the fact that Indian couples have changed their fertility in a whole range of different economic, cultural and kinship contexts, which themselves will change over time. Even within southern states, we noticed that fertility has fallen when literacy levels of women went up and also without any significant improvements in their literacy. It fell when age of marriage increased, but it also fell without any increase in the average age at marriage of women. It also fell without any significant reduction in infant and child mortality. There is no denying the fact that today women throughout the country desire few children to whom they can provide a good education and health care, and for whom

their aspirations are quite high. One must, therefore, recognise that a comprehensive package of care and well-executed health programmes would go a long way in changing the perception of infant and child survival and also to increase the adoption of the small family norm. Also, if our aim is to pursue the human development path, then regardless of what triggers fertility decline, the well being of people in terms of providing literacy, health care and employment, are desired goals in themselves, and no individual should be deprived or denied these as their rights.

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