CHAPTER 2

REVIEW OF LITERATURE

Literature review is divided into four sections covering,

(A) A review of the theoretical paradigms that have been postulated to explain the occurrence of declining fertility rates in countries around the world;

(B) A review of the socio-economic determinants of declining fertility as espoused in different countries and in the Indian context, with particular reference to Tamil Nadu and Maharashtra;

(C) A review of the social and economic impact of declining fertility as experienced in countries with low fertility rates;

(D) The unique socio-cultural canvas that demands a differentiated approach in India.

Declining fertility has now come to occupy the demographic centre stage globally. In fact, there is rising concern about whether fertility will continue falling, perhaps to the very low levels experienced in some countries of Europe. Theories have been propounded to explain why fertility rate is declining, which would help in arriving at appropriate policy prescriptions. A brief review of these theories is done in the first section.

(A) Review of Literature on the Theoretical Paradigms on Declining Fertility

Considerable stimulus to the development of transition theory came in the 1960s with the emergence of global concern about high population growth in developing countries. It was viewed that ‘if a universal explanation of demographic transition could be established then its features could be fostered or imposed in high fertility societies’ [McDonald, 2001, p1]. Theoretical explanations of the demographic transition were based on the evidence of the European transition (most European countries experienced transition between about 1870 and 1930). A grand social theory

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3 Peter McDonald’s paper [2001] gives a brief review of the transition theory.
that would be applicable to all societies thus emerged. This encouraged empirical tests of the transition theory\(^4\); however, ‘the continued progression of fertility decline once it had commenced was considered to be a given and therefore how fertility stopped falling at the end of transition was not given due theoretical consideration’ [McDonald, 2001, p1]. As evidence from around the globe showed, the concept of ‘one size fits all’ was faulty. In addition, experience drawn from countries such as Germany, Italy, Spain, Portugal, Greece, England and Japan whose fertility rates were well below their replacement levels, showed that once started, fertility levels continued their decline. In India also, it is assumed that fertility rates will stop falling after reaching the target replacement level of fertility. That fertility rates have continued declining after reaching the target of replacement level of fertility is also manifest in India, as in the case of Goa, Kerala and Tamil Nadu.

Wilson [2001, pp1-2] uses the notion of demographic convergence that lies at the heart of demographic transition theory. He speaks on global convergence of fertility to below-replacement levels and the implications of this for theories explaining low fertility. Coleman [2007, p10] speaks of three explanatory components; one emphasising economic motivations, the other culture and ideational change and the third which forms a kind of bridge between these two, namely, the institutional context, ‘in the form of the often inadvertent effects of government measures and family policies to bridge conflicts between work and childbearing’.

A range of theoretical paradigms has been developed to explain the phenomenon of below-replacement level fertility. These perspectives include demand or rational choice theory, risk aversion theory, post-materialist values theory and gender equity

\(^4\) The most prominent and thorough of the tests being the European Fertility Project. At the beginning of the transition, Europe was characterized by late and non-universal marriage and relatively high fertility within marriage. Pre transition marital fertility, was deemed to be ‘natural’. Natural fertility was evidenced by the absence of parity-specific control of fertility. Hence, the European Fertility Project set out to examine the shift from natural to controlled fertility. The Project was designed to examine the social and economic conditions prevailing in sub-national regions of European countries at the time that fertility, precisely measured, fell from its initial level by an amount of 10 per cent. The Project produced some extraordinarily interesting and perceptive observations on fertility decline in various parts of the European world but it failed to produce a universal theory, other than the general observation that language may have been an important factor in the timing of the onset of decline’ [McDonald, 2001, p 2].
theory [McDonald, 2001, pp 4-12]. These theories along with their relevance in the Indian context are dealt with in the following paragraphs.

**Demand or rational choice theory** is based on the framework of maximisation of utility and states that, in deciding to have a child, people make the considered calculation that the benefits of an additional child outweigh the costs. Decline in fertility thus implies that the relative price of a child has increased, couple’s incomes have fallen or there has been a change in the shape of the couple’s utility function for children versus other goods. ‘Direct costs also include the costs of appropriate housing for families with children. Costly children are inherent to a capitalist market system’ [McDonald, 2001, p 4].

‘The debate about the relative importance of supply and demand factors in motivating couples to practice family planning has continued since the 1974 UN World Population Conference in Bucharest’ [Merrick, 1994, p 89]. Supply theory proponents attribute a significant proportion of fertility decline to effective service delivery by well-managed family planning programmes, while the demand proponents visualise a limited role for these. As stated by Merrick [*ibid*], neither of the theories by itself adequately explains fertility decline and thus the debate should not be a matter of an “either-or”. He asserts that supply and demand aspects play important, mutually reinforcing roles.

**Risk and opportunity** add another angle to the demand theory. Demand theory is based on the premise that people take decisions on having the next child based on a good knowledge or understanding of the costs and benefits of the same. Risk theory postulates that the costs and benefits are mainly future costs and benefits and, consequently, cannot be known with certainty. ‘Risk theory implies investment in economic security (education, attachment to the labour force, long hours of work, savings) rather than in the insecurity that accompanies having children (low income for a period, uncertainty of return to the labour force, higher consumption expenditure, and economic responsibility for dependents)’ [McDonald, 2001, p 7-8].

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As Robinson, while reviewing the economic theories of fertility succinctly comments that, ‘the economic model seems bogged down in a simplistic demand-oriented framework, with the unnecessary and confusing ‘quality of children’ notion clouding everyone’s thinking’\textsuperscript{6} [Coleman, 2007, p 10].

‘The idea that social mobility and fertility are related has a long history in demography. As far back as in 1890, Arsène Dumont\textsuperscript{7} proposed the concept of ‘social capillarity’ to explain why the upwardly mobile in nineteenth century France had few children’ [Wilson, 2001, p 11]. This interpretation has been used to explain the changes in reproductive behaviour that have occurred in post-modern societies. **Post-materialist values theory** is associated with Second Demographic Transition (SDT) theory and stipulates that changes in social and demographic behaviour have been driven by the growth of the values of individual self-realisation, satisfaction of personal preferences, liberalism and freedom from traditional forces of authority, particularly religion, leading to increases in cohabitation and divorce rates [McDonald, 2000b, p9]. However, empirically, the reverse is true: among the advanced countries, fertility is higher in the liberal societies than in the traditional societies. Those developed countries where births are confined within marriage, tend to have very low birth rates, like in Japan, Singapore etc. [Coleman, 2007, p11].

‘Neither the proponents of the traditional vision nor the SDT theorists explicitly take into account the desire for upward mobility and well-being of one’s own child as a possible force driving fertility decisions in the post-modern world’ [Zuanna, 2007, p 447]. Coleman [2007, p11] also adds that changes in social and demographic behaviour, as the postponement in marriage and child bearing that is found in both developed and developing countries of Asia could not have anything to do with the spread of values related to the ‘second demographic transition’.

McDonald [2000b, p9] avers that ‘the theory that post-materialist values encourage low fertility is a classic example of the “ecological fallacy”’. Within any one society, on average, individual women who are more highly educated, less


\textsuperscript{7} Arsène Dumont was a nineteenth-century French scholar.
religious, more urban or more liberal in their attitudes and values have lower fertility than the less educated, the more religious, the more rural and the more conservative. This finding is then used to draw the fallacious conclusion across societies that more liberal societies will have lower fertility than more conservative societies. Rather low fertility is a societal phenomenon related to the structure of social institutions’. Apart from factors such as the increased female participation in the workforce and the educational system, other societal factors are also likely to be contributing to the level of diversity in fertility rates. McDonald [2000a] suggests family arrangements in the different countries have bearing on this issue. He describes two broad approaches to family responsibilities—the ‘male breadwinner’ model and the ‘gender equity’ model—that interact with education and employment opportunities for women to play a significant part in a country’s fertility rate.

The thrust of gender equity theory is that very low levels of fertility in advanced countries today can be explained in terms of incoherence or asymmetry between the levels of gender equity applying in different social institutions. McDonald [2000b, p10] divides gender equity into two components: gender equity in family-oriented institutions and gender equity in individual oriented institutions. He argues that ‘fertility falls from high levels to moderate levels with a shift from low to moderate levels of gender equity within the family. The essential feature here is the extension of decision-making power within the family, especially power about fertility determination, to women’. It is further hypothesised that ‘fertility will only rise from very low levels if gender equity moves to high levels in family-oriented institutions, that is, if the male breadwinner model of the family ceases to be the assumption upon which family-oriented institutions are founded’. Thus, the levels of improvements in gender equity within the family becomes the cause for both fertility decline and increase.

According to this theory, while gender equity in individual-oriented institutions has progressed in all advanced countries, the male breadwinner model still underpins family-oriented social institutions, which reduces the opportunities available for women and therefore, the women restrict the number of children they have. ‘The more traditional the society about its family system, the greater is the level of incoherence between social institutions and lower is the fertility. This may explain
why it is that the lowest fertility rates in the world are found in the countries of southern Europe and in other societies with traditional, male-dominated family systems’ [McDonald, 2000b, pp 10-11]. Hence, from the policy perspective, reform of institutional arrangements that entrench the male breadwinner model of the family seems to be the thrust of the theory.

McDonald [2000b, p 11] concludes that, in general, countries characterised by the male breadwinner model (with traditional, male-dominated family systems) will have a lower fertility rate than those characterised by the gender equity model. Zuanna [2007, p 457] similarly states, ‘the idea – so widespread during the first half of the 20th century, and incorporated into numerous formulations of transitional fertility decline theories – that the waning of the “traditional” family and fertility decline are closely intertwined, is negated by what has happened in developed countries over the last 20 years’.

It is evident that ‘the theoretical frameworks used to explain low fertility have been almost exclusively oriented towards conditions in the rich world’ [Wilson, 2001, p 1]. The relevance of the above theories in the Indian context is now examined.

1. The demand theory postulates a causal link between couples’ incomes and demand for children, which implies that low fertility is due to lesser children among low-income people. The high fertility rates prevalent in low income countries in Africa and Asia, including India, does not corroborate this. ‘The neo-classical logic of Law of Demand and Supply does not apply to the complex social forces where patriarchy controls sexuality, fertility and labour of women without any respect to her bodily integrity’ [Patel, 2007, p 296].

2. The theory of risk aversion theory propounds that future children are associated with greater risk. In India, the reverse argument is used to explain the need for greater number of children, that is, people beget more children as they are by themselves perceived as a security (or risk and insurance cover) for their parents’ future. ‘Fertility decline is not just a by-product of unaimed development; it depends on improving the specific conditions that are conducive to changed fertility goals, and that help parents to realise these goals’ [Drèze et al, 2000, p 24]. Dasgupta [1994, pp 161-162] talks of three broad motives for procreation, namely, children as an end in themselves, where they are valued for themselves; as an old-age security; (sons are an absolute necessity
in these circumstances) and, in poor countries, as income-earning assets. This again strengthens the argument that the theories of rational choice and risk aversion are also not pertinent to India.

3. The SDT theory postulates that growth of values of individual self-realisation, satisfaction of personal preferences, liberalism and freedom from traditional forces of authority have led to changes in social and demographic behaviour. However, low levels of fertility reached in states like Kerala and Tamil Nadu is owing to other reasons than those propounded by the post-materialist values theory.

4. The gender equity theory also does not apply with respect to India, since the degree of incoherence between social institutions is considerable but has not led to low fertility. In other words, the traditional family system (‘male bread winner’ model) with high gender inequity has coexisted with high levels of fertility. A deeper study is required to determine whether the current decline in fertility being experienced in India is due to the shift from low to moderate levels of gender equity within the family, as propounded by McDonald, though in all likelihood it appears to be without, as the patriarchal mind set still underpins the family set up in India.

According to Ramachandran [1996], the answer to the question whether couples generally make a rational choice about family size, is in the negative. ‘Micro-studies and anecdotal evidence has shown that most couples (even educated ones) do not talk about it and do not make a conscious decision about the number and spacing of children’ [ibid]. The fact that can be logically deduced is that these theories clearly do not have explanatory value in the Indian context. As the UN Report [1999] records, more than half of the world’s population lives where total fertility is 2.3 or less, and therefore, this requires a fundamental reassessment of fertility theories. Wilson [2001, p 1] argues on the need to broaden the theoretical frame to encompass explanations for very low fertility in a wide range of economic and social circumstances.

However, these theories provide the necessary theoretical base for understanding fertility and, as pointed out by Coleman [2007, p10], ‘the limited success of conventional economic models of fertility has shifted attention to theories that emphasise the effects of cultural change and the spread of ideas upon fertility, although these changes are themselves influenced by prosperity and welfare. The development of equality between the sexes is of central importance’. What needs to
be recognized is that within this broad global trend there can be great diversity in the immediate institutional determinants of fertility.

**Multiple Low Fertility theories - One size does not fit all**

‘As fertility falls in even more diverse contexts, the search for a single, grand theory becomes more illusory’ [McDonald, 2001, p2]. It is now recognised that the theories that have been espoused to explain low fertility are not mutually exclusive and it is likely that multiple theories will explain low fertility in particular settings. ‘While huge economic gaps remain between rich and poor countries, we are moving into a world in which that distinction is of diminishing demographic relevance. In 2000, total fertility in the United States was 2.1, compared with a global median of 2.3. In contrast, GNP per head in 1998, calculated on a purchasing power parity basis, was $30,600 for the United States, while the global median was $3,030. The challenge for fertility theory is to explain why low fertility is now a feature of both rich and poor societies. It is likely that this will necessitate the adoption of different explanatory models from those with which demographers have addressed this issue to date’ [Wilson, 2001, p 14]. McDonald [2001, pp 3-4] similarly states that the enormous variety of contexts in which low fertility occurs clearly calls for differing theoretical frameworks. A grand theory of low fertility is not required. Broader theoretical frameworks are needed that account for the wide range of economic and social circumstances in which low fertility may occur.

Take the case of Kerala, which became the first state in India to bring down its TFR to 2.1 in 1989. Kerala's fertility transition of consistent declines in fertility began before the 1970s. Ratcliffe [1978] held that direct interventions designed to influence health and fertility levels were not responsible for Kerala's demographic trends and levels and attributed this decline to the structural changes in the political economy, land reforms, minimum wages in agriculture and large public investments by the state government in primary and secondary education. On the other hand, it was argued by others that primary developments in public health and universal education over a long period, increase in the number of surviving children together with parent's 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. Rise in female
literacy and educational level of girls and rise in age at marriage improved the health care of children within the family. Thus, the decline in fertility was attributed to the high level of human development achieved in Kerala in recent years [Nair, 2001, p4]. Consequently, the Kerala experience brings forth another theoretical formulation in the explanation of fertility transition in developing countries, namely, the human development model.

Coleman [2007, p13] succinctly sums up the difficulty in trying to single out one factor that impacts on fertility, ‘in attempting to explain all this, it is clear that economic theories and those stressing cultural factors and ideational trends must be considered together. The social, cultural, political and policy environments in NW Europe and in the US have emerged in their very different ways to be much more ‘family-friendly’ than that of Southern Europe, Eastern Europe and the Asian industrial countries. Teasing out which is the most important of these factors has proved to be very difficult’. This fact is also corroborated by the UNFPA Report [1999, p 19], ‘Hopes of finding a simple and consistent explanation for the demographic transition have been repeatedly dashed by the realities of data on local experiences’.

In view of the ‘modest’ empirical association found between the standard social and economic indicators and fertility decline, an alternative explanation that has gained strength is that, the process of fertility decline is better explained by theories of diffusion than by theories built around structural factors that affect the costs and benefits of childbearing. This is basically ‘an over arching model of social change in which attitudes and behaviours become more prevalent in a population through their spread from some individuals to others, through informal face-to-face social interaction or at a distance through mass media’ [Casterline, 2001, pp 2-3]. The crucial factor is that rather than bringing about societal structural changes, the spread of attitudes and behaviour has an independent dynamism of its own and can bring about variations in fertility.

‘The great range of conditions under which fertility has begun to fall all over the developing world, and the most potent correlates of such decline – education, exposure to the mass media, exposure to the ideologies (rather than the material
trappings) of modernization – strongly suggests that the urge to control fertility and to have fewer children than one’s parents comes largely from wanting to do what others do’ [Basu, 2003, p554]. Hornik et al [2001, p 208] in their study also found ‘evidence of a very substantial association between access to mass media and the level of fertility in a country, at the most aggregated level, when national levels of per capita television access are used to predict fertility rates’.

The diffusion theory is believed to explain the decline in fertility rate in India better than other theories, as is detailed in a later section. Bhat et al [1990, p 1979] in their analysis of the demographic transition in Kerala also found that Kerala’s fertility decline is more consistent with the proposition of the diffusion process. However, as found in the South India Fertility Project (SIFP) study of Karnataka⁸, though the diffusion mechanism and imitation factor are largely relevant, its impact varies considerably across communities and geographical locations. Thus, explanations of low fertility are extremely people centric and cannot be generalised or rationalised across peoples.

(B) Review of Literature on Determinants of Declining Fertility

Universal Determinants

The theories described in the previous section have led to a plethora of research on the determinants of low fertility. ‘Much research has been carried out over the past decades that tried to identify and study specific determinants of fertility and the individual level covariates of fertility and specific settings. But little has been achieved so far in terms of drawing a comprehensive picture of what will drive the overall birth rates in the future’ [Lutz, 2007, p16]. There have been varied explanations for low fertility, ranging from the individual to societal and environmental forces, as is expatiated in the following paragraphs.

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⁸ For details see, Sekher T V and K N M Raju (2003): Fertility Transition: The Case Of Rural Communities In Karnataka, India, Phase 2. Bangalore: Institute for Social and Economic Change. This paper is based on a study carried out in Karnataka under the South India Fertility Project, sponsored by the Wellcome Trust, UK and coordinated by the French Institute of Pondicherry.
Bongaarts [2005, p 296] opines that, the main driving force of fertility transitions in the developed countries is a decline in the demand for children as traditional agricultural societies are transformed into modern industrial ones, though a different process characterizes each of the transition phases. During onset of transition ‘fertility change is usually most rapid as diffusion and social interaction processes reduce the cost of contraception and facilitate the establishment of new reproductive attitudes and behaviors’. In the later stages, fertility levels are closely associated with development indicators and there exists an inverse relationship between them.

However, as Coleman [2007, p13] states, the economic theories must be considered in tandem with those stressing cultural factors and ideational trends. For instance, in the developed countries, postponement – or at least delay – and divergence are now the striking characteristics of birth rates. Again, ‘in some North Western European countries, about one child in two is born outside marriage. As cohabitation varies, so also does the proportion of births outside marriage’.

A common broad set of determinants is found in most accounts of recent fertility declines in western countries. These studies also dwell on the fact that decisions about whether or not to have a child and the timing of births, are not made in isolation, but in an institutional context and are influenced by many exogenous factors. These broad determinants (or causal factors), taken from studies on Canada [Beaujot et al, 2001], Australia [Kippen, 2003] and [Barnes, 2001], European Union [Bagavos et al, 2000] and OECD [Sleebos, 2003] countries, include the following:

i) Changing nature of relationships, namely, higher cohabitation, declining marriage rates, postponement of marriage and union dissolution;

ii) Shifting family size norms;

iii) Greater availability of effective fertility control methods or effective contraception;

iv) Delayed child-bearing, which reduces overall fertility by stretching out each generation;

v) Material and psychological benefits provided by children;

vi) Direct and opportunity costs of children incurred by their parents;
The broad economic environment in which reproductive decisions take place, as shaped by the labour market difficulties faced by youths, by changes in women’s economic roles and by increased valuation of women’s work;

Higher levels of education and women’s participation in the labour force

Individual lifestyle factors, such as greater values attached to autonomy and self-realisation, greater willingness by women to adjust family aspirations to pursue career goals, and the diffusion of alternative forms of relationships;

Societal and cultural norms, such as those determining the division of home responsibilities within families and those underpinning the functioning of the welfare and tax systems;

Pressure for higher standards of living, requiring a maximization of work time;

Significant (societal) norm against having children too soon in life, certainly not before age 20, and often not until the mid-20s, or until one is emotionally mature and financially secure. It was also largely seen as unacceptable to have children in an insecure relationship.

In addition, there are studies that proffer other explanations for decline in fertility rates. The biological behavioural factors through which social, economic and environmental variables directly affect fertility are defined as proximate determinants of fertility. The proximate determinants framework was the standard tool to study fertility in the seventies and eighties, but with time, our interest in these determinants had narrowed down to focus almost exclusively on contraceptive use, the assumption being that this is the primary variable capable of explaining fertility differentials’ [Basu, 2003, p555]. Basu looks at two of the proximate determinants of fertility, namely, non-marriage, and childlessness within and outside marriage, and suggests that some modified notion of ‘natural fertility’ can remain an important part of the explanation for below replacement fertility in many societies today. She states that the experience of the developed countries suggests that where marriage is concerned, what might eventually have a greater impact on TFRs is not late marriage as much as non-marriage as ceteris paribus, delayed marriage should merely push up the mean age at childbearing and change period fertility rates. Given that non-marriage does not

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necessarily debar women from childbearing and premarital fertility is not absent in
many of these societies with high and increasing levels of nonmarriage, Basu [2003,
p555] feels that analytically it is usually best to look at childlessness in general; not
by marital status.

It is to be seen if this explanation has merit in the current Indian context where
focus of policy is to increase the age of marriage and postpone fertility. In fact, in
those states where fertility rates have fallen to below replacement levels, like Goa,
Kerala and Tamil Nadu, it does not seem to be due to late or non-marriage or
childlessness. The NFHS 3 [IIPS, 2007, p 87] data also shows that only 2 per cent of
currently married women aged 45-49 have never given birth, which suggests that
primary infertility (that is, the proportion of couples who are unable to have any
children) is low in India.

Another determinant of low fertility that is found in some studies is the
weakening of ‘marriage’ as an institution, in many developed countries. ‘For
women as also for men, marriage in the sense of a formal lifetime commitment for the
having and rearing of children becomes much less important than it used to be. In
most developed countries, the levels of gender differentiation have tended to fall, and
measures of gender equality tend to be greatest in societies with low fertility’ [Dyson,
2005, p 393].

However, the significant point that is missed by studies such as those of Dyson is
that more and more individuals no longer consider marriage to be a necessary pre
condition for having children. In many countries, most couples cohabit before
marrying, if they marry at all. As stated by Coleman [2007, p13], in some North
Western European countries, about one child in two is born outside marriage. The UK
is exceptional in the high proportion (about one third) of births to women without
partners at all. Therefore, the impact of non-marriage on fertility levels would at best
be marginal.

This trend is also visible in Indian society today, where, economic development
coupled with concomitant social factors and the diffusion effect, is bringing about
some changes in the patriarchal mind set and is empowering women, albeit to a very
small extent. In this scenario, cohabitation becomes less of a taboo and marriage may eventually cease to be the norm. In addition, the idea of the ‘single’ woman is also gaining strength, as also the ‘single’ man. Instances of a single woman or man adopting children are no longer viewed as an aberration. However, this is a nascent phenomenon and therefore, its impact on fertility levels is not significant enough to warrant its consideration as an important determinant.

According to Dasgupta [1994, p159-160], the first and most obvious determinant of fertility is the nature of the available technology of fertility control. Surveys indicate that women themselves perceive an unmet need for access to methods for reducing their fertility 10. However, over time it is the net demand for children that would be expected to dominate household decisions. In a study on international cross-section data, Pritchett11 suggests that a society’s fertility rate is dependent mostly on household fertility desires, and not on the costs of modern contraceptives. An experiment conducted in Bangladesh from 1977 to 1985 also revealed a similar finding. Another finding from research conducted in Matlab, Bangladesh showed that use of contraceptives increased with education [Chowdhury, 1994]. It is perceived that access to public health services may have a role to play in reducing fertility, independently of education and income. Aside from direct effects through improved access to contraception, public health services may reduce fertility by enhancing child survival.

Merrick [1994, pp 86-87] also opines that fertility declines occurring in developing countries can be attributed to social and economic changes, such as, urbanisation, increased female education and labour force participation, that motivate increased use of contraceptives and also contribute to declines in the traditional fertility-limiting practices, namely, breast feeding and post-partum abstinence.

However, use of contraceptives per se is only a means to an end and cannot be mistaken for the end in itself. Once the household decides to take charge of their

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fertility decisions, contraceptives come in as a tool towards achieving the desired result. Hence, to consider this as a determinant of declining fertility does not seem pertinent. This is corroborated by Folbre [1998, p 123] who states that social scientists, who have argued that technical innovations in modern contraceptive technology are a major determinant of fertility decline, have been forced to substantially qualify their argument due to two reasons. One, fertility declines in US and France were occurring long before even the simplest of modern contraceptives was in place; second, surveys in developing countries show that ‘Family Planning services have a marginal impact in areas where levels of desired family size remain high’. She concludes that ‘birth control technology may be a contributing factor, but it is neither a necessary nor a sufficient condition for fertility decline’.

Dyson [2005, p392] states that ‘the remote force which has ultimately caused all sustained fertility declines since the late eighteenth century is persistent and massive mortality decline’. Sustained mortality decline leads to bigger and bigger cohorts entering the working ages and has a depressing effect upon relative wages, thus forcing people to choose between experiencing a fall (or significantly reduced rate of improvement) in their levels of living, or limiting fertility. Mortality decline is the ultimate cause of their behavioural change. Fertility decisions are ultimately decisions taken by the household. It is possible that with a decline in child mortality, households will change or limit the number of children they want to have. However, as Dasgupta [1994, p163] states, ‘even when mortality rates decline, it takes time for households to recognise this’ and hence there would necessarily be a lag in fertility declines. It is accepted that mortality and fertility tend to be positively related, that other things being equal, mortality is likely to have a positive affect on fertility and vice versa [Murthi et al, 1995, p749].

A study on the impact of HIV/AIDS on fertility levels in sub-Saharan Africa observed that, ‘it will take long durations of high HIV/AIDS prevalence to reduce fertility at a national scale’ [Ntozi, 2002, p 2]. The study also stated that ‘fertility may decline in the era of HIV/AIDS because of delayed onset of sexual relations and age at first union, reduced premarital sexual relations and remarriage and increased marital resolution. In contrast, the epidemic may increase fertility due to reduced extra marital relations, polygyny, breastfeeding, postpartum abstinence, STD prevalence
and spousal separation, increased infant mortality and switching to condom use from more effective contraceptives’ [Ntozi, 2002, p 2].

The role of urbanization has also been emphasized in the literature on fertility. Urbanization is believed to reduce fertility because children are less likely to contribute to household production and more difficult to supervise in an urban setting. Improvements in labour productivity are associated with urbanisation. Urbanisation tends to break households into nuclear units and thus raises costs of having children [Dasgupta, 1994, p164]. By contrast, some studies state that general indicators of modernisation and development such as urbanisation and poverty reduction have no significant relationship with fertility decline [Drèze et al, 2000, p3]. However, if one applies the theory that fertility decline is due to the ‘diffusion process’ then urbanisation will have a major role in accelerating the pace of diffusion by providing greater exposure to mass media as well as to the lifestyles of equal and higher social groups. Another trend of urbanisation is the growing proportion of working couples who want no children, often referred to ‘Double Income No Kids’ (DINK) family. The DINK couples are usually regarded as those who have higher educations and stable careers with higher incomes. Often, young couples leading such a lifestyle tend to put off having children, either for a while or altogether. The extent of impact of this trend on TFR requires deeper study.

In Maharashtra, migration plays a greater role in influencing the ‘cultural environment’ than in Tamil Nadu. The Tamil Nadu Human Development Report (TNHDR) [GoTN, 2003, p 41] states that both for Tamil Nadu and India, intra-state migrants account for the highest share of all migrants, followed by inter-state, with international migrants being the lowest. The share of female migrants is more than that of male migrants, for both Tamil Nadu and all India. Among intra-state migrants, rural to rural migration accounts for the largest share, followed by rural to urban, then urban to urban and finally urban to rural. Data show higher female migrants because of the families having moved or due to marriage. The only exception is Kerala where higher female migration is owing to employment. In respect of males, much of the migration is either due to the family having moved or for employment.

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The impact of migration on fertility is not clear. According to the Maharashtra Human Development Report (MHDR) [GoM, 2002, p13], inter-state and intra-state migration has led to ruralisation of the urban areas in Maharashtra thus weakening the effect of urbanized demographic trends; and has affected fertility, since those from backward regions bring their social norms with them, such as preference for sons, early marriages and even teenage motherhood. However, Kulkarni et al [1995] found that the net in-migrating component explained only a small part (about 10 per cent) of the total growth in population, while the natural increase component made the major contribution.

Dasgupta [1994, pp 154-156] argues that environmental degradation has a major role to play in changing fertility levels. According to him, the population-poverty-environment nexus in the Indian sub-continent and sub-Saharan Africa is harsh not only because credit and savings markets work badly there, but also because poor households cannot readily obtain potable water and fuel supplies. Rural households forge a link between their decisions in different spheres of life. High rate of fertility leads to environmental degradation, which in turn fosters private incentive to have more children, and so on until some countervailing set of factors stops the spiralling process.

This theory, however, does not seem to apply to Tamil Nadu and Maharashtra, the most urbanized states in the country with 46 and 48 percent, respectively, of the households in urban areas. In terms of access to amenities, NFHS 3 [IIPS, 2008(a) & (b), p2] reports that still 57 and 47 percent of households in Tamil Nadu and Maharashtra respectively, have no toilet facilities, the situation being worse in rural areas. Again, though majority households use an improved source of drinking water, only 25 per cent have water piped into their dwelling, yard, or plot in Tamil Nadu, the figure being higher in Maharashtra at 58 per cent. The lack of basic facilities has greater impact on women, as they have to fetch water for the family and have to trek longer distances than men for lack of toilet facilities.
In addition, in Maharashtra, where urbanisation as a trend is strong and the capacity to provide affordable housing stock limited, slums\textsuperscript{13} are a reality. As per the findings of the Census, 2001, Maharashtra has 10.6 million people in the slums, the largest among all States. Greater Mumbai has the most number of people living in slums. Nearly half of Greater Mumbai resides in them i.e., 49 per cent of the metropolis’ population of 11.9 million. The contrast is sharp when juxtaposed with other cities: while in Delhi, 19 per cent of its total population live in slums; in Kolkata, it is 33 per cent; Chennai, 26 per cent and Bangalore, only 8 per cent of the city’s population reside in slums [GoM, 2002, p 28].

The nexus theory of Dasgupta does not hold in both Tamil Nadu and Maharashtra, as despite the lack of access to amenities, TFR in both states has declined. The NFHS 3 [IIPS, 2008 (a) & (b)] finds the fertility rate in slums and non-slums to be below replacement level of 2.1 in both Tamil Nadu and Maharashtra. It is seen that the figures of Maharashtra relating to access to basic amenities are better than that of Tamil Nadu, despite the higher percentage of slum population in Maharashtra.

There are studies that have linked fertility to other exogenous factors. For instance, Shah\textsuperscript{14} found in her study of ‘Status and Fertility Behaviour of Rural and Urban Women in Himalayan Kumaun’, a very close relation between altitude and the fertility, as altitudinal variation significantly affected the fertility rate of the respondents. The survey result showed a gradual decrease of fertility with the increase in altitude.

Similarly, there are studies that chemicals and some drugs can have an effect on fertility. A new study has found that women exposed to high levels of certain kinds of pollutants are 33 per cent less likely to give birth to male children than women least exposed. The study, which the Science Daily reports is not isolated, reviewed data on

\textsuperscript{13} A slum is defined as a compact area of at least 300 population, or some 70 households of poorly built congested living quarters, often illegally on lands that do not belong to the owner/occupant of the tenements. The environment is unhygienic, the infrastructure to support the habitation is woefully inadequate or even non-existent -Maharashtra HDR [GoM, 2002, p28].

pregnant women in San Francisco who were exposed to high levels of polychlorinated biphenyls (PCBs) – a group of banned environmental pollutants – in the 1950s and 1960s.

Thus, many studies espouse a wide range of determinants of fertility decline. However, the difficulty in deciphering the causes for and nature of fertility declines across nations is acknowledged. ‘While development is still considered an important factor, it remains unclear why fertility transitions occur earlier in some places than others. The pace of development does not appear to affect the initiation or the rate of fertility transition. However, once a transition has begun, fertility declines more rapidly in countries with higher levels of development’ [UNFPA, 1999, p 19].

McDonald [2007, pp 23-24] describes low fertility as ‘an unintended consequence of two major waves of social and economic change: social liberalism and labour market deregulation. These waves of change have given rise to two important changes for individuals that relate to fertility: the provision of gender equity through an opening up of opportunities for women beyond the household and risk aversion among young people of both sexes in increasingly competitive and less secure labour markets’.

Bagavos et al [2000, p6] propose government support as a determinant of fertility and state that ‘low fertility must be interpreted as a sign of difficulties encountered by individuals in the implementation of plans at different levels: family, employment, improvement of the quality of life. On the other hand, where the social situation is better and both government support and social services meet people’s needs, it will become more likely that life plans are implemented and fertility rates reach the levels desired by couples’. However, this seems to be erroneously based on the premise that, given a ‘good and supportive environment’, people will have more children.

Underneath all these layers, the core fact that emerges is that ‘the changing structures and interweaving of the institutions of gender, family, the market and the state, give rise to the opportunities, constraints, risks and demands that affect fertility

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15 Times of India, 16 July 2008, ‘Pollution behind girl child births?’
decisions. This is where explanations of fertility change take on unique features in differing social contexts because these institutions differ widely across societies’ [McDonald, 2001, p 9]. Hence, in the context of developed countries, the multiple theories of demand, risk aversion and gender equity, as well as structural factors such as social institutions give rise to a set of determinants to explain low fertility.

The applicability of the theories and various determinants in the Indian scenario has been discussed above. In addition, some determinants require deeper study in the Indian context. For instance, given the patriarchal nature of society, the status of women’s empowerment and women’s autonomy and their relevance to fertility declines has to be examined. Again, the various channels of diffusion that could help in spreading the idea of a small family may be of relevance in India. These issues are discussed in the following paragraphs.

**India-specific Determinants**

The Indian setting differs from that of developed countries owing to the influence of completely different social and cultural environment. A study of fertility decisions is not about demand-supply equations; it is a study of the inter-play of myriad factors. The distinct pieces that make up the social fabric of India are highlighted in the following paragraphs.

There are two forms of societal systems prevailing in India, namely the matrilineal and the patrilineal systems, operating under the overarching patriarchy. The former is prevalent largely in Kerala and the northeast, and is not being discussed in this study. The patriarchal system that is patrilocal and patrilineal is of relevance to a large part of India, where the male breadwinner model predominates. Patriarchal control over women’s sexuality, fertility and labour is exercised through the value systems of male domination and subordination of women\(^\text{16}\).

\(^{16}\)Patriarchal domination is exercised through family, kinship network, media, religion and the state [Patel, 2002, p 77-78].
It is also important to realize that in India, the decision making body is the ‘family’ and not the couple. Fertility, therefore, is influenced by the attitudes and expectations of the ‘family’, which largely comprises relatives on the male side, given the patriarchal system. Though Basu [1999, p 278] suggests that the husband is an important intermediate variable in the relationship between female education and fertility, this study argues that it is the ‘family’ that is the most important variable determining fertility in the Indian context.

The extent of economic dependence of women on men now assumes a central role. The dependency is enormous in the Indian sub-continent and especially in patriarchal societies, where women perceive sons as having a high value as insurance against personal calamities, such as widowhood and abandonment. None of the theoretical paradigms and determinants discussed in the previous sections of this chapter can fully capture the reasons for the variations in fertility decline in India.

The issue of fertility in the Indian context, therefore, is complex and cannot be analysed in the way it has been done in the western developed countries. The determinants such as female literacy, income and employment of women, urbanization, etc could play a predominant role, as has been documented in several international studies, where the relevant decision-making body is the couple. In India, where the relevant decision-making body is the family, the impact of these factors in the Indian context are reviewed in the following paragraphs under three broad heads of women’s empowerment and women’s autonomy, relevance of marriage and channels of diffusion.

(i) Women’s Empowerment, Women’s Autonomy and Fertility

Education and employment are often taken as proxies for women’s empowerment. In addition, information on participation in decision-making, access to money and credit and gender-role attitudes is indicative of the actual empowerment of women. These are discussed in the following paragraphs.

The overall negative relation between female education and desired family size is borne out in a wide range of studies. Drèze et al [2001, p 35] find that women's
education and child mortality emerge as the most important factors explaining fertility differences across the country and over time. A study on inter-state variations in fertility by Chaudhury [1996, p 57] based on NFHS 1 (1992-93) data reveals that female education, at less than the primary level, is the third most important variable explaining inter-state variations in fertility. The higher the proportion of formally educated women in a state, at least with a first to fourth grade education, the lower is the fertility of that state. Dasgupta [1994] and Murthi et al [1995] also find that female education can be expected to reduce desired family size.

Murthi et al\textsuperscript{17} used district level data from the 1981 Census and showed that a 20-percentage point increase in female literacy would lower TFR by 0.62. Drèze et al [2000, p 23] also confirmed the association between female literacy and fertility in India in their analysis of 1981 and 1991 Censuses and found that ‘an increase in female literacy from its base level of 26 percent in 1981 to, say, 70 percent would reduce the total fertility rate by 1.0 children per woman’.

A study in Punjab by Das Gupta [1987, pp 307-309] has also shown that educated women prefer smaller families; however, while the desired number of daughters fell by 35 percent that of sons fell only by 20 percent. According to NFHS 3 [IIPS, 2007, p 79] data also, there seems to be some degree of correlation between education and fertility levels as, the TFR for India is 1.8 children higher for women with no education than for women with 12 or more years of education. In Tamil Nadu and Maharashtra also, the NFHS 3 [IIPS, 2008, (a) & (b)] reports that the greatest differentials in fertility are by wealth and education. It is reported that women with no education will have one child more than women with 10 or more years of schooling will have.

However, there is also marked variation across states in the extent of fertility declines with education. ‘Illiterate women in some southern states have lower fertility than educated women in northern states. The fact is that, especially in the south, there

\textsuperscript{17} For details, see Murthi, Mamta, Ann-Catherine Guio and Jean Drèze (1995): ‘Mortality, Fertility and Gender Bias in India: A District Level Analysis’, The Development Economics Research Programme, London School of Economics, June, No 61.
are now tens of millions of poor women, with two children, sterilised, and with no education at all. At the extreme, ‘illiterate women in Kerala have lower fertility than the most educated women in Bihar and Uttar Pradesh’ [Arokiasamy et al, 2004, p 4492]. Bhat argues that fertility is declining in India primarily due to its decline among illiterate women and shows that more than half of the recent fertility decline was the result of that. Bhat et al [1990, p 1979] also suggest that ‘with time it is possible to achieve a given level of fertility at progressively lower levels of female literacy’.

Parikh et al [2001, pp 3391, 3397] in their study of Andhra Pradesh and Uttar Pradesh found that ‘without overall development, literacy, although a critical precondition, affected fertility reduction in small percentage terms. It is not the magic bullet for population control that is often thought to be’. Drèze et al [2001, p 34] also state that several studies have found little evidence of a positive link between women’s education and “female autonomy”, casting doubt on one of the major pathways through which the former was supposed to reduce fertility. Other researchers question the presumptuousness of these studies, and state that “…the model of seeing schooling as the solution is based on the patronising, implicit assumption that the rural, illiterate poor are deluded and want large families. It also assumes that schooling is needed to remove ignorance and provide that ability to see things rationally – but there is little evidence to support these stereotypes”.

While recognising the general statistical association between female education and low fertility, some studies assert that the association is neither universal nor well established, and that the process through which female education influences fertility, if such a causal link exists at all, remains far from clear. For instance, as per Census 2001, literacy rates, both overall and female, are higher in Maharashtra than Tamil Nadu; however, fertility rate is also higher in Maharashtra. Tripathy et al [2004, p 29]

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18 For details, see McNay, K., P. Arokiasamy, and R. Cassen (2000). Fertility and use of contraception among uneducated women in India. Department of Social Policy, London School of Economics.
examined the important factors that influence fertility in India using NFHS 1 (1992-93) and NFHS 2 (1998-99) data and found, using regression analysis, age of woman at marriage to be one of the significant determinants of fertility. According to them, other factors such as female literacy, exposure to media, contraceptive use, ‘although not significant in the mathematical analysis of fertility, play a vital role making women conscious of their social roles and responsibilities’.

Improvements in male education may also lower fertility. However, the impact of male education on fertility is likely to be smaller than that of female education, because women bear the primary responsibility for child rearing. It is also possible, in principle, for male education to matter more than female education, e.g. if fertility decisions are dominated by men. However, most of the studies that have investigated both effects support the hypothesis that female education has a greater impact on fertility than male education [Drèze et al, 2000, p 6].

Though not clearly established, there are certain fallouts that are attributed to the increasing level of education of women. These points are highlighted below and are dealt in detail under this chapter as well as in Chapters 4 and 5:

1. **Fall in Sex Ratios.** Education raises the opportunity cost of women's time and may lead educated women to want fewer children- while this may be true, there is increasing alarm at the fall in sex ratios at birth (SRB), which many researchers opine is due to increase in sex selective abortions. In fact, the NFHS 3 reports that the use of ultra sound tests to determine the sex of the child has increased in both Tamil Nadu and Maharashtra among educated women.

2. **Higher Mortality of Girl Child.** In a country like India where there is marked son preference, the education of women may reduce their dependence on sons for social recognition or support in old age. This point has been countered by evidence from a study of rural Punjab. The subset of daughters born to families that already have one or more surviving daughters seems to be subjected to increasing concentration of excess mortality relative to other children if their mother is younger, and even more, if they are educated. Thus among young educated women, these girls experience 2.36 times higher child mortality than their siblings [Das Gupta, 1987, p 95].
3. **Effect of Women’s Empowerment.** The general perception world over is that education increases awareness among women thus empowering them to make choices and decisions related to their reproductive life. This is a debatable point in India as in a patriarchal set up a majority of women are influenced more by the family of the male. Basu [2002] explored possibilities to refine the hypotheses about the role of gender as a mediating factor in the education and fertility relationship. She found that sex differences in education were much higher in the families of the men who married less educated women. Hence, educated men reveal their preference for the educated women who share their fertility preferences. However, educated men need not be removed from their patriarchal moorings. Therefore, female education and a marriage to an educated man do not necessarily guarantee female empowerment.

4. **Effect on Women’s Autonomy.** From the conclusion that educated women have greater autonomy as well as lower fertility, an implicit conclusion is drawn that educated women have greater reproductive autonomy than uneducated women do [Basu, 1999, p 268]. This could be considered an erroneous conclusion, as ‘more than half of the recent fertility decline was the result of its decline among illiterate women, which was because of the diffusion of a new reproductive idea of having only a few children and investing more on their future’ [Bhat, 2005, p 378].

From the above review, it is clear that there are contrasting views regarding the impact of male and female education on fertility. However, what cannot be downplayed is the capacity of education to increase the knowledge of women as well as men and to improve the application of the same in their daily lives and influence others via the ‘diffusion’ effect. Positive educational externalities mean that educated members of a community pass on their knowledge and preferences about fertility to the uneducated. In addition, fertility regulation is increasingly seen as a route to achieving illiterate parents’ rising educational aspirations for their children. Therefore, although the key role of education in India’s fertility decline may now be masked by the nature of the contemporary transition, it has by no means disappeared [Arokiasamy et al, 2004, p 4494].

In addition, what is equally important is the nature of education imparted to them. Female literacy levels are rising, however, ‘gender gaps in levels, content and context of education remain entrenched’ [Sudha et al, 2003, p 4362]. ‘As discussed in several
anthropological accounts of schools for girls of all social strata, the dominant habits that schooling teaches girls are discipline, self-restraint, patience, routine, and obedience of authority’. These conservative attributes may particularly enable educated women to improve the survival chances of their children [Basu, 2002, pp 2, 8]. Thus, a major factor is the ‘ingredients’ that make up the educational curriculum in our nation. Men should be educated to value and support independent women. The content of education should promote social equality in every way [Sudha et al, 1999, p 5].

Against the backdrop of a patriarchal set up, where the family is the core decision making centre, just education alone will not suffice, what is needed is an attitudinal change in the mind-set of all the players. Exposure to varied opinions and higher lifestyles as well as peer pressure will lead to a gradual reduction in the gender bias that is inherent in a patriarchal set up. In such a situation, women will be heard and will have a say in the decision making of the family, including fertility decisions. Hence, education makes people more receptive to other ideas and can bring about change, albeit slowly. Thus, with an enabling environment to better quality of life, old age security and reduction in child mortality rate, women who are more educated may reduce their fertility earlier and faster, but after some time less educated women do almost as well, because of the diffusion effect.

The effect of **women’s employment and income** on fertility is harder to predict than that of education [Drèze et al, 2000, p 6]. Income effects are likely to depend on whether children are perceived as an economic burden or a productive asset. A decline in fertility rate with increasing incomes is not self-evident [Dasgupta, 1994, p 152]. In a study across 296 districts, Murthi et al [1995, p 771], found that female literacy and female labour force participation have a negative and statistically significant effect on TFR. Increased parental income, especially maternal income, in effect raises the cost of having children [Dasgupta, 1994, p 164].

In a study across states, Chaudhury [1996, p 66] found that employment status, measured by the proportion of women working outside the home for someone else, was the second most important variable affecting fertility and was negatively
associated with fertility, and was found to be statistically significant. However, the causality of this relationship could not be inferred.

As per NFHS 3 [IIPS, 2007, p 80] data, the all India TFR decreases steeply by the household’s wealth index, from 3.9 children for women living in households in the lowest wealth quintile to 1.8 children for women living in households in the highest wealth quintile. In both Tamil Nadu and Maharashtra, the NFHS 3 reported that women in the lowest wealth quintile would have one child more than women in the highest wealth quintile would.

The fact that fertility rates in Tamil Nadu and Maharashtra have declined with less than half of currently married women age 15-49 employed, compared to 99 percent of currently married men [IIPS, 2008, (a) p25 & (b) p23], may lead one to deduce that employment of women per se is not a major factor in fertility declines. The TNHDR’s [GoTN, 2003, p28] observation that as there was not much difference between the average daily earnings of women and children, it can be inferred that, other things remaining the same, women were not getting adult wages in non-agricultural occupations also seems to validate the conclusion that employment and earnings of women do not contribute to fertility declines.

The NFHS Reports record responses relating to participation in decision-making, access to money and credit and gender-role attitudes that throw better light on the actual empowerment of women. As per NFHS 3 [IIPS, 2007, p xli]v there is no decision for which a majority of currently married women alone are the main decision makers; only 37 percent of currently married women participate in making all four decisions\(^{21}\), while 21 per cent do not participate in any of the four. It is interesting that with a higher number of children a woman’s participation in decision-making improves significantly, from 23 per cent (for a woman who has no children) to above 40 per cent (for a woman with 3 or more children); while this factor does not influence men. On the other hand, half of currently married men say that, in a couple,\(^{21}\)

\(^{21}\) 4 decisions are: Decisions on own health care; making major household purchases; making purchases for daily household needs and visits to her family or relatives.
the wife should have at least an equal say in five decisions.\textsuperscript{22} There seems to be some difference in perception between men and women, given the wide variation in their responses. Again, while 45 percent of women say they have some money that they can use, only 15 percent have a bank or savings account they themselves use. As regards freedom of mobility, only one-third of women are allowed to go by themselves to the market, to a health facility, and to places outside their own community [IIPS, 2007, p 463-474]. Given that the all India TFR has halved from 6 to 3 in five decades, the above report consolidates the argument that women’s empowerment is not a necessary pre condition for fertility decline.

Another important indicator of women’s empowerment is the absence of gender related prejudices. Higher levels of literacy and increasing employment of women do not seem to have led to any significant societal change in that people are still deeply entrenched in their patriarchal moorings. For instance, wife beating seems to be widely prevalent, what is worse, with social approval. NFHS 3 [IIPS, 2007, p 474-489] has recorded that more than a third (35 percent) of women age 15-49 have experienced physical or sexual violence. More than half of women in India (54 percent) believe that it is justifiable for a husband to beat his wife, which is indicative of the low levels of self-esteem as well as their acceptance of their lower status vis-à-vis men. Men are only slightly less likely to agree: 51 percent say wife beating is justified. The gender role attitudes and perceptions are well entrenched. Significantly, the Report underscores the inherent tendency for underreporting of domestic violence – which implies that, the figures could be higher. Nevertheless, the NFHS estimates set a lower bound on the proportion of women experiencing domestic violence.

These results strengthen the theory that it is the patriarchal set up that limits the women’s autonomy and empowerment in the Indian society. NFHS 3 Reports [IIPS, 2008, (a) & (b)] on Tamil Nadu and Maharashtra also provides insights into the degree of women’s empowerment in both the states. This is dealt with in detail in Chapter 4. This study found that women’s empowerment does not seem highly correlated with women’s education nor with wealth, especially in Tamil Nadu; though

\textsuperscript{22} 5 decisions are: Decisions about major household purchases, purchases for daily household needs, visits to the wife’s family or relatives, what to do with the money the wife earns, and how many children to have.
the percentage improves with employment in Maharashtra. It can be inferred that their reproductive autonomy will be no different. The significant point is that fertility rates have declined in both Maharashtra and Tamil Nadu to replacement level and below; can it then be surmised that women’s empowerment is not an essential prerequisite for achieving fertility decline?

(ii) Channels of diffusion and Fertility

The power of the media, through its diffusion mechanism helps to hasten the fertility decline response. ‘The pace at which various forms of communication (such as, bus travel, public telephones, movies, internet cafes) are spreading in India - especially the south - is remarkable. Such developments will surely continue in the coming decades and will lead to further fertility decline’ [Dyson, 2005, p 398]. Interestingly, NFHS 3 [IIPS, 2007] data shows that while the ownership of household goods generally increased since the last survey, the percentage owing radios declined by more than 7 per cent to 30.9. Nationally, 35 percent of women and 18 percent of men are not regularly exposed to newspapers/magazines, television, radio, or cinema.

In Tamil Nadu and Maharashtra, where more than one third of the women are illiterate or have little formal education as per Census 2001, informal channels such as the mass media can play an important role in bringing about modernization. It was reported that among the different types of mass media\textsuperscript{23}, while television is being increasingly viewed, especially in Tamil Nadu where about 81 per cent of women are regularly exposed to television as compared to 69 percent in Maharashtra, the radio as a channel of mass media, is becoming less popular in both states. The reach of newspapers is also quite limited with only 27 percent of women in Tamil Nadu, and 39 per cent in Maharashtra reading a newspaper or magazine at least once a week, while the cinema or theatre is frequented by 7-8 per cent women in Tamil Nadu and Maharashtra at least once a month.

\textsuperscript{23} During NFHS 3, women respondents were asked questions about whether they read a newspaper or magazine, watch television, or listen to the radio at least once a week, and whether they visit the cinema or theatre at least once a month.
As per the NFHS 3 [IIPS, 2007, p 152] while 39 per cent of women in India (and 35 per cent in Maharashtra) have no exposure to family planning messages by state through radio, television, newspaper or magazine, wall paintings or hoardings, a majority of women in Tamil Nadu had some exposure (88 percent). Although Tamil Nadu has increased its coverage of mass media in NFHS 3 over NFHS 2 as compared to Maharashtra, and with about 33-35 per cent of the female population having no education in both the states, a 0.4 point decline in fertility rate have been recorded in both states over NFHS 2. It is therefore, difficult to draw any significant conclusion; however, it may be surmised that the diffusion mechanism through media seems to have limited impact in Tamil Nadu and Maharashtra. However, the percent of women not regularly exposed to any of these media is currently 11 per cent in Tamil Nadu and less than one-fourth in Maharashtra [IIPS, 2007, pp 68-69]. Since the per cent of women not exposed to media is declining over the NFHS rounds in both states, it may be deduced that mass media can be an important means of spreading health and family welfare messages, as well as exposing women to modern views in general.

Freedman suggested that for less developed countries today, motivation for fertility decline could arise from new ideas and aspirations arising from worldwide communications networks. In some of the least developed countries, especially in sub-Saharan Africa, education was found to have a positive impact on fertility at lower levels of education. Particularly, even educated women in these societies had very low access to the mass media that are a major source of knowledge of the consumption possibilities in the outside world. The aspirations hypothesis gets further support from the finding that fewer countries are exhibiting this curvilinear relationship between education and fertility [Basu, 2002, p 12].

Basu [ibid, pp 10-11] also puts forth an important view point, namely that mass media propagates ‘modern lifestyles – which include greater individualism, running a small and efficient home, having time for one’s self, bringing up children who are healthy, wealthy and wise’. However, there is a caveat: this knowledge does not hinge on female autonomy and equality (as it is easily acquired without stepping out of the

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home for example) and it does not threaten existing intra-household power relationships. Therefore, so long as it is done without raising issues of gender equality, women’s autonomy and women’s empowerment and consequently disturbing the social status quo, its impact will be limited. However, fertility rates have continued to decline, which again reinforces the point that women’s empowerment and women’s autonomy are not essential pre requisites for fertility decline.

The argument that fertility decline is in part a ‘diffusion process’ is found tenable. It is also likely to proceed at an accelerated pace in urban areas, where people have greater exposure to mass media as well as wider opportunities to observe and discuss the lifestyles of other social groups. In addition, there is a belief that the trappings of strong patriarchal values will be minimal in these areas and therefore will enable the populace to break the rigid social mould. However, this is a moot point. There is also another side to this argument. For instance, the TNHDR [GoTN, 2003, p 101] records that ‘portrayal of women in the media as sex objects and different forms of violence within films have also played a major role in perpetuating and increasing violence within and outside the family’. Consequently, diffusion mechanism is a double-edged weapon and has to be used as a means of social change with responsibility.

(C) Review of Literature on Effects of Fertility Decline

The changes in the population structure are occurring over very long timeframes. Over the next few decades, the steady rise in population combined with structural ageing will have implications in most policy areas. However, these changes will be gradual and at current levels, the fertility rates of Tamil Nadu and Maharashtra (and even of All India) do not represent a crisis. Evidences from other developed countries indicate that it is possible for fertility to fall far below current levels to points that would have serious ramifications for society and future policy direction.

According to Wattenberg\textsuperscript{25}, the implications of lower fertility rates are far-reaching. ‘One of the most profound is their potential, at the global level, to reduce

economic inequality around the world and alter the balance of power among nations’. Sleebos [2003, p 10] also believes that the society-wide consequences of the recent fertility decline will be pervasive, affecting demography, the economy, family links, inter-generational and international relationships and that these pervasive consequences justify the attention of policy makers to identify possible measures to reverse the ongoing decline in fertility rates to below-replacement levels.

Davis and van den Oever\textsuperscript{26} argued that ‘a major social-structural adaptation to conditions of persistent low fertility is a weakening of the institution of marriage. Marriage in the sense of a formal lifetime commitment for the having and rearing of children has become much less important than it used to be. Consequently, especially in the most developed countries (e.g. of Europe, North America, Japan) levels of gender differentiation have tended to fall. In addition, measures of gender equality tend to be greatest in societies with low fertility. In Europe and North America, for example, recent decades have seen women become more like men \textit{vis-à-vis} their levels of education, employment patterns, appearance, and even their names’ [Dyson, 2005, p 393]. However, this does not imply that all societies with low fertility will have the greatest gender equality, as it is governed by other socio-cultural factors. For instance, fertility rates have declined below replacement level in Tamil Nadu without the concomitant gender equality.

On the one hand, a smaller population might reduce human pressures on the environment and on natural resources. On the other hand, however, fertility rates below those needed to assure generational replacement might have a range of unfavourable social and economic effects. In general, these negative effects occur more because of changes in the \textit{structure} of population, than because of reductions in its \textit{size}. These changes in population structure are often described by an increase in the DR.

A UNFPA [2004] Report states that ‘this slow demographic change calls for policy choices: there will be implications for the structure of health care, pensions and social security, and for family relationships and inter-generational responsibility.

Low-fertility countries will look to active older people and immigrants to supply some needed services and contribute to the economy’.

However, Merrick [1994, pp 90-92] believes that the full effect of fertility declines on the size and age structure will take several decades to occur, because of demographic momentum. Some effects will however, be immediate in sectors such as education and child health: scarce educational resources can be applied to improve quality and access to education. According to him, the effect of population momentum is such that the absolute numbers of population increase remain high even after fertility rates have declined. In addition, it affects public services such as health and education.

The effects of fertility decline are far reaching. They can be broadly classified as follows:

*Effects on Family*

According to the UNFPA [2004, p 13] Report, fertility affects a family’s well being in several ways:

(i) Smaller families share income among fewer people, and average income per capita increases. A family of a certain size may be below the poverty line, but with one less member may rise above the poverty threshold.

(ii) Fewer pregnancies lead to lower maternal mortality and morbidity and often to more education and economic opportunities for women. A mother’s death or disability can drive a family into poverty while her ability to earn income can lead the family out of poverty.

(iii) High fertility undermines the education of children, especially girls. Larger families have less to invest in the education of each child. In addition, early pregnancy interrupts young women’s schooling, and in large families, mothers often remove daughters from school to help care for siblings. Less education typically implies increased poverty for the family as well as the inter-generational transmission of poverty.

(iv) Families with lower fertility are better able to invest in the health of each child, and to give their children proper nourishment. Malnourishment leads to
stunted growth, cerebral underdevelopment and subsequent inability to achieve high levels of productivity in the labour force.

**Economic and Social Effects**

The economic effects of the fertility decline for individuals, firms and governments are important. Some of these consequences include:

(i) Lower growth, in total population and, in particular, in the 0-14 population. This, in turn, should lead to improvements in access to education, and in quality of education.

(ii) Due to the increase for the population of working age, increased employment opportunities have to be provided, which will lead to the growth of Gross Domestic Product (GDP).

(iii) In the long term however, when the bulging working population starts to decline, fewer workers supporting a greater number of older retirees (in terms of pensions, caring, and health expenditures) will put greater pressures on government’s budgets.

The indirect, and less visible, consequences of these fertility declines for society as a whole will also be significant, and possibly even deeper and more complex to deal with [Sleebos, 2003, pp 11-12]. These include:

(i) Growing numbers of people who have no, or few, immediate family ties, which will increase demand for formal provision of services, by either governments or the private sector.

(ii) Changes in the nature of intergenerational ties, as the number of grandparents exceed that of grandchildren, and as more children grow up without siblings and other children of the same age.

(iii) Possible tensions and shifts in political clout of different generations, which may lead to political conflicts when larger and healthier groups of elderly persons at the top of hierarchical organisations (in firms, governments, and bureaucracies) resist the progression and career advancement of younger people.

(iv) Divergence in the population profile of developed and developing countries, with shrinking population in the former and expanding population in several of the latter, and with regions that traditionally had been a source of migration becoming
major destination of migration flows.

(D) Need for a Differentiated Approach in India

What makes it difficult to apply the parameters used for developed countries across the board, is the diversity in India. It is evident from the above analysis that the standard determinants of fertility do not fully explain the nature of fertility decline in different areas as well as across different social groups in the country. Dyson [2005, p 400] avers, ‘no contemplation of India’s future fertility can ignore the underlying regional dimension with its attendant social-structural correlates’.

Subsequent to the famous European Fertility Project and other related studies in that region, myriad studies have emerged. Ashagrea [2001] states that it is evident from such studies that the nation-state is not always the best unit of aggregation for understanding early fertility transition. This is particularly because fertility transition by nature is far from a unitary and unified national event. Thus the nature of reproductive change, among other issues, points toward the values of a more contextualised analysis of demographic phenomena; and the need for appreciation of the limits of aggregate level and nation-based approaches, particularly in societies still undergoing fertility transition. Certain features about the Indian social milieu stand out and demand differential treatment with respect to fertility levels.

(i) Differential pattern in fertility transition

Diverse regional and cultural factors affect fertility patterns in the Indian population. For instance, tribal populations have distinct kinship patterns and gender relations, including higher rates of female labour force participation, which may encourage lower fertility27. Although massive generalisations are involved, the main point is that northern and southern parts of the Indian subcontinent appear to have long been governed by rather different demographic regimes. The north India always seems to have experienced somewhat higher levels of fertility and mortality, an earlier

age at marriage for women and greater excess female mortality. Similarly, the higher status of women and weaker hold of patriarchy in the southern region of India are believed to contribute to relatively low fertility rates [Dyson, 2005, p 400].

By the 1980s, there was evidence of a pattern in the geographical spread of fertility decline. In India, regional disparities coexist with the rural-urban divide. There are large differences in fertility and mortality between States. At least nine states and union territories in India have already achieved replacement levels of fertility [MHFW, 2000, p 34]. While Goa, Kerala and Tamil Nadu have surged ahead in achieving radically reduced fertility rates, other states in India such as Uttar Pradesh, Bihar, Madhya Pradesh, and Rajasthan have higher fertility rates. As highlighted in the Box 2.1 below, fertility rates have declined differently across states; similarly, there prevail inter-district variations.

**B 2.1: No standard pathway: different states achieve different levels of fertility rates.**

- Goa with relatively high income, literacy and good health care infrastructure was the first UT (now a state) to achieve the replacement level of fertility (that is, TFR of 2.1)
- Kerala, the first State to achieve replacement level of fertility in 1988 did so in spite of relatively low per capita income (PCI) proving that in the Indian context economic development is not an essential pre-requisite for achieving small family norm
- Tamil Nadu which was the second state to achieve replacement level of fertility, did so in spite of low PCI, higher Infant Mortality Rate (IMR) and lower female literacy rate than Kerala
- Andhra Pradesh is likely to achieve replacement level of fertility in the next two years. The State has shown a steep decline in fertility in spite of relatively lower age at marriage, low literacy and poorer outreach of primary health care services
- North-eastern States of Tripura, Manipur, Mizoram have achieved not only low fertility rates but also low infant mortality, suggesting thereby that a literate population with awareness can successfully overcome difficulties in access to and availability of primary health care infrastructure

*Source: Ramachandran et al (2000), p27 7*

There are many studies on the regional disparities in fertility decline; a few are highlighted in the following paragraphs. Adlakha et al [1974, p 396] studied the 1961 and 1971 censuses and concluded that the level of fertility in the early 1960s did not significantly differ from that of the early 1950s. Jain et al [1982, p 589] also stated that fertility was high prior to 1961 and remained virtually constant. Rele [1987, p 519] extended the analysis to the 1981 census and found that the TFRs remained steady at around 6 from the 1950s to the first half of 1960s, after which there was a
distinct fall in TFR: from 5.8 during 1966-71, 5.3 during 1971-76 to 4.7 during 1976-81. Guilmoto et al [2001, p 719] also found that fertility increased across India after 1956 in the moderate fertility areas of south India and the mountainous districts, the rise being more discernible in western and northern India until the 1960s. Guilmoto, while examining the extent of disparity in fertility levels across Indian states in an earlier study, concluded that ‘fertility decline began in the periphery along the coasts and in the extreme south, and spread progressively to encircle the region around the Ganges Valley, where fertility has scarcely declined’.

Thus, fertility decline, which began in the 1960s, was more pronounced in the southern part of India. It spread to the coastal areas in both the west and the east. ‘The geographical logic of this decline is pronounced as all the affected regions are contiguous’ [Guilmoto et al, 2001, p 722]. During 1951-71, they found that the high-fertility areas of northern India formed a single block centred near the border between the three states of Rajasthan, Uttar Pradesh and Madhya Pradesh. The fertility trends for 14 major Indian states showed that the northern states generally had a higher fertility levels than the southern states. Rele’s estimates also showed geographical consistency, with the belt of northern states having higher fertility than southern States during 1961-66, and, with only slight modifications, during 1976-81.

Researchers, using state-level fertility indicators have grouped Indian States into two demographic regimes: the south with low fertility and the north with high fertility. Guilmoto et al [2001, p 724] have undertaken district level analysis of fertility differentials. They carried out a cluster analysis and divided Indian districts into three fertility groups. They further state that ‘a significant degree of heterogeneity remains within each fertility cluster’ and have shown that districts that are geographically closer to one another will exhibit similar fertility patterns [ibid, p 729]. This is in keeping with the ‘diffusion’ theory of fertility. What, however, needs to be emphasized here is that local fertility trends have to be explained by the unique local characteristics. Policy prescriptions, therefore, have to be formulated as suitable for the disparate districts.

Guilmoto et al [2005] bring out a detailed analysis of fertility decline in the districts of South India comprising four states namely Andhra Pradesh, Karnataka, Tamil Nadu and Kerala as part of the South India Fertility Project (SIFP). It is stated that although South India has had lower fertility levels historically, within south India there were two core areas namely the Travancore-Cochin region in Kerala and Kongu Nadu (Coimbatore Plateau) in Tamil Nadu where fertility declined first and diffused to other parts of south India. The discontinuous patches of low fertility in Andhra Pradesh, Karnataka and Tamil Nadu particularly demonstrate that endogenous factors specific to the pockets of low fertility are more important in causing the onset and speed of fertility decline in South India. The ecological condition, including topographical barriers, caste and religious composition of the population could have hindered the diffusion process initially started in the two of the most important core regions of low fertility in South India.

In the 1970s, there was a visible decline in fertility levels in South India. Again, the point to be noted is that the ‘excesses’ that were committed under the Emergency rule during 1975-76 were mainly confined to the North, the South remained ‘protected’ and thus were more receptive to the family planning programmes of later years. The historical advantage of the South continued. Thus, while Maharashtra suffered, Tamil Nadu did not. Broadly, it may be stated that, the patriarchal system prevalent in the states in Southern India was not so rigid. Historically, women in the Southern States were better placed than their northern counterparts, and girls were not shunned, however, this also differs from district to district. Consequently, the response mechanism has differed. The differential pattern in fertility decline is also evident across districts in Tamil Nadu and Maharashtra, as is discussed in Chapter 4.

(ii) Gender bias and the preference for sons

Another aspect peculiar to India (and a few Asian nations) is the preference for sons. Numerous studies have found that most Indian couples have a strong preference for sons over daughters. This has led to many couples continuing to have children in order to have sons. This could have retarded India’s fertility decline. Further, this factor, coupled with the ‘two-child’ norm, which is the basis of the Indian Family Planning programme, has also been found to result in female foeticide in states
reporting declining fertility. Thus, the indirect consequences of demographic transition seem to be a decline in the sex ratio of the child population (0-6 years) and intensification of gender discrimination.

There are a number of socio economic, religious and cultural factors at play here and they differ in their impact in different states. Using data from NFHS 2 (1992-93), a study by Mutharayappa et al [1997, p 1] have found that the effect of son preference on fertility varies substantially by region and state. In states where fertility is very high or very low, the effect is small, but it varies widely in states with intermediate levels of fertility (between 2.0 and 3.0 children). It was found to be highest in Himachal Pradesh, Punjab, Gujarat and Maharashtra and lowest in West Bengal and most of the southern states. The explanation for this demographic contrast is complex. ‘The real basis for strong son preference - and daughter neglect - lies in the fundamental arrangements of kinship, inheritance and marriage’ [Dyson 2005, p 401]. This social pattern is also true in Tamil Nadu and Maharashtra.

The all-India survey of the Operations Research Group29 revealed that only 1.5 per cent of educated women were indifferent to the sex composition of their children, and the minimum number of sons wanted was, at 1.6, only just lower than it was for illiterate women at 2.0. NFHS 3 [IIPS, 2007] data also show a consistent preference for sons over daughters among both women and men.

Some western scholars who are not in touch with the ground reality in the subcontinent feel that the current shortage of females will enhance in time, the social value of daughters, thus reversing the force of male dominance30. The adverse SR has not increased the value of women by decreasing the supply. India’s population SR worsened from 972 females per 1000 males in 1901 to 929 per 1000 in 1991, which was the lowest in the history of the Census. In 2001, the SR was 933 women per 1000 men. At the same time, women's status steadily eroded despite gains in some sectors


30 For example, Patel (2003) quotes Prof. Dickens, “Son preference has produced, but might also mitigate, the sex ratio imbalance...If sons wish, as adults, to have their own sons, they need wives. The dearth of prospective wives will, in perhaps short time, enhance the social value of daughters, reversing their vulnerability and the force of male dominance.”
by some groups. A ‘shortage’ of women does not lead to their increased value, but to
greater restrictions and controls placed over them. In China, practices such as
kidnapping and sale of women, organized import of wives from other countries, etc.,
have been noted because of the shortage of women there. The same might be
predicted for India [Sudha et al, 1999, p 4].

Rishyasringa31 opines that economic changes are occurring in the country in the
direction of empowering women relative to men. In addition, education, plus the mass
media, is raising women’s aspirations. Of course, these developments are most
apparent among the better-off sections of urban Indian society. Among the growing
urban elite, many couples are content to have just one child - even if it is a daughter
[Dyson, 2005, p 393]. NFHS 3 [IIPS, 2007, pp104-106] also reports that the
proportion of women with two daughters and no sons who want no additional children
increased rapidly from 37 per cent in NFHS 1 to 47 percent in NFHS 2 and 61 per
cent in NFHS 3. According to the measure of ideal family size, son preference has
dropped steadily from NFHS 1 to NFHS 3. Overall, the average ideal family size of
2.3 children reported by women age 15-49 consists of 1.1 sons, 0.8 daughters, and 0.4
children of either sex. Thus, as per NFHS 3 data, the mean ideal family size declines
as educational achievements increases, and while the preference for son is declining, the
percentage of women who want more daughters is increasing with higher education,
albeit in small measure.

Thus although there is a change in the son preference, John et al [2009, p 18]
forcefully argue, ‘daughter-aversion as an emotion and practice has become the
common sense with a life of its own, quite apart from son-preference’. Therefore,
‘along with son preference there is a growing unwantedness of daughters and the idea
that they can be dispensed with’. This study also found indications of son preference
in both of Tamil Nadu and Maharashtra, though the incidence was higher in
Maharashtra.

31 For details see Rishyasringa, Bhanwar. (2000). Social policy and reproductive health. In Women’s
Reproductive Health in India, R. Ramasubban and S. J. Jejeebhoy, eds. Jaipur and New Delhi: Rawat
Publications.
(iii) Child Mortality

The absence of gender equality is suggested by the frequent finding that while educated women have much better child survival rates, they continue to experience sex differentials in child survival, differentials that may sometimes even widen with maternal education [Basu, 2002, p 8]. Thus, though fertility rates may be declining, the adverse effect on the girl child is a factor that cannot be ignored in India. As analysed above, gender bias is unique to India and contributes to infant mortality, as is apparent in the survival ratios of boys to girls in several states.

Infant mortality in India is very high. As per NFHS 3 [IIPS, 2007, p179] the infant mortality rate (IMR) in India declined from 77 deaths per 1,000 live births in 1991-95 (10-14 years before the survey) to 57 deaths per 1,000 live births in 2001-05 (0-4 years before the survey), thus implying an average rate of decline of 2 infant deaths per 1,000 live births per year. All other measures of infant and child mortality also show declining trends during the years before the survey. In spite of these impressive declines, one out of every 14 children born during the five years before NFHS 3 will die before reaching age five.

Chaudhury’s [1996, pp 65-66] study shows a positive relationship between infant/child mortality and fertility, that is, the higher the level of infant and child mortality in a state, the higher is the fertility of the state, and this relationship is found to be strong and statistically significant, particularly the relationship between child mortality rate (CMR) and TFR. In fact, it emerges as the single most important factor explaining inter-state variations in fertility. The chances of survival of a child are strongly related to fertility: the lower the chances of survival of a child (in other words, the higher the CMR), the higher is the fertility rate. However, the analysis does not reflect on any causal relationship between higher child mortality and higher fertility.

Thus, the empirical data have not led to finding a simple and consistent explanation for the demographic transition. The UNFPA Report [1999, p 19] confirms that ‘there is no tight statistical link between development indicators and fertility
rates, and the reasons for fertility decline are widely debated by demographers, economists and policy makers’.

**Concluding Remarks**

It is thus evident that the general theories espoused for the decline in fertility do not hold well in the Indian context. In order to understand the occurrence of low fertility levels, McDonald [2001, p3] suggests that we ‘release ourselves from the hegemony of the paradigm of the demographic transition (even more from the paradigm of a second demographic transition)’. According to him, what is required are generalised theoretical frameworks, of course constrained by the particular social, economic and institutional setting, of how fertility changes. Studies on the fertility decline in different states show a different route in each state. Standardisation is, therefore, not an easy way out. A disaggregated analysis, though cumbersome, is the ideal way to arrive at meaningful conclusions.

It is also amplified that governments have a role in a declining fertility scenario. However, Caldwell et al [2002] observe that the demographic impact of low fertility has caused surprisingly little reaction outside academic circles, which have held a number of conferences on the subject, usually resulting in books. One reason for the slow government reactions is population momentum: age structures are still adjusting to the relatively new low fertility levels and in most cases will not fully adjust for decades. These are time horizons beyond most politicians and their electorates.

Research on the economic and social implications of fertility decline is a verdant field in India, since the country is still handling issues of ‘over population’ in many states. However, there are studies that focus on specific social or economic issues, such as ‘demographic dividend’, ageing etc. Irudayarajan et al [1997, pp 3-5] have undertaken the first comprehensive study in India. They have studied the impact of the reversal of the demographic trends with respect to Kerala, which has achieved below replacement level of fertility two decades ahead of the all-India target year of 2011. However, according to them, achievements in the demographic front have not brought any real solution to the economic problems in the state. They also hasten to clarify that it is ‘perhaps a little too early to expect major changes’. As the
demographic changes will have their repercussions on the social and economic conditions in the state, they have examined some of these implications: ‘the social and economic consequences of a below replacement level of fertility rate, a declining mortality trend at very low levels and a moderate rate of emigration from the State’.

Their study is a path breaker in that it is the first of its kind to examine the social and economic consequences of a below replacement level of fertility rate. The impact of declining fertility in Tamil Nadu and Maharashtra is discussed under Chapter 6.
References to Chapter 2


