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India's North-South Divide and Theories of Fertility Change

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Abstract

Economic condition and women's status have been considered as important elements in understanding fertility change. In this study, we examine their influence on North-South differences in parity-specific fertility intentions and births in India using the National Family Health Survey (NFHS-2) conducted in 1998-9. The results show the persistence of spatial variations in fertility intentions and births, net of economic and women's status factors. The influence of these factors is more pronounced in the high fertility region. This study argues that changes in fertility desires and their actualization may be better understood when situated within the broader socio-political context.

Keywords: India; fertility; spatial fertility variations; regional fertility;

Introduction

There has been a growing concern about the spatially uneven declines in population growth rates in India¹. It is expected that more than half of all population growth in the next two decades will occur in the four northern states² of Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh, and by 2021 forty-three percent of the nation's population will reside in these states (Registrar General, India 2006: Table 21). During the same period, the southern states³ of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu will account for about thirteen percent of population growth (Ibid.). The prime reason for these divergent demographic paths is the regional differences in the rate of fertility decline over the last five decades. While fertility declined rapidly in the south reaching near or below replacement levels by the turn of the century, fertility rates in the north were nearly double than in the south (see Table 1 for TFR by state).

In India, as in other contexts, non-physical conceptualization of regions can take varied forms. Categorization of regions, as Cohn (1987) has remarked, is a relative one that depends on the objectives of the study. This study with a focus on fertility employs a north-south categorization. Of course, fertility variation in India is neither limited nor clearly demarcated within this north-south

¹For articulation of these concerns, see Bose (2007). On the political front, the concern is that the states with high population growth rates would occupy large share of seats in the national assembly. The current allotment of seats in the parliament is based on the 1971 census, and a recent amendment has prorogated this arrangement until 2026.

²New states were carved out in late 2000 from the three northern states: Jharkhand from Bihar, Chhattisgarh from Madhya Pradesh, and Uttarakhand from Uttar Pradesh. In this paper north refers to the pre-2000 state boundaries.

³For the rest of the paper, north and south refer to the states mentioned, unless noted otherwise. In accordance with the Indian demographic literature only four of the northern states— Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh—are included in the northern category. These four states, sometimes known by the acronym “BIMARU”, are different from other northern states (Punjab, Himachal Pradesh, Jammu & Kashmir and Haryana) in both cultural and demographic aspects.

dichotomy⁴. The present classification though a crude aggregation is a meaningful one for the purposes of this study. This classification represents two ends of the Indian fertility spectrum, which have drifted further apart in the last three decades. From Figure 1, it is clear that the variation between the regions has increased and there appears to be little overlap in the fertility patterns between the regions. The district-level fertility rates charted in the figure show a pattern of greater homogeneity within a region (more so in the south) than between them. This regional classification not only demarcates fertility patterns, but also linguistic boundaries (Indo-European and Dravidian), certain cultural traits and behavior (especially in marriage systems), and structural divisions. The magnitude of these divisions and their possible influence on fertility are the subjects of the following sections.

[FIGURE 1 ABOUT HERE]

Sub-national fertility variations are not unique to India. Such variations have been profitably exploited to understand and articulate theories of fertility change. Spatial variations in fertility have been seen as arising out of spatial distribution of individual characteristics ranging from economic status to ethnicity. These explanations are as such an extension of the prevalent theories of fertility change applied to the spatial context. Besides the conventional approach, spatial fertility variation could be examined through the lens of geographical perspective that, as Boyle (2003: 618) has noted, places “understanding of local cultures and social leanings” at the center of the explanations of sub-regional fertility. Sub-national variations, whatever explanatory framework one uses, given the national commonalities underscoring them, provide an ideal ground for understanding fertility change; especially in understanding the role of individual characteristics and local contexts or as

⁴Bhat's (1996) analysis of spatial morphology of fertility change in India identifies eight fertility zones, based on the time and pace of fertility decline.

Boyle (2003: 623) has observed “spatial variations (or the lack of them) can be a useful test of the comprehensiveness of grand theories of population change”.

The Indian situation provides an ideal opportunity to understand the theories of fertility change. The commonalities across the states—the seamless web of shared history and religion, political and institutional structures—and the differences among the states—linguistic boundaries and divergent economic and social conditions—provides a unique opportunity to study fertility dynamics. In this study, we review and test two of the main explanations advanced for the divergent fertility paths of the Indian states. We will establish that neither gender– nor economic–based explanations account for the regional differences. In the process, we will present and comment on the relative influence of these factors in the two regions. In the final section, we argue for a contextualized analysis that situates fertility change within a society’s unique historical and political context.

Explanations for fertility variations

1.1. Explanations based on women’s status

Southern women, with some qualifications, are in a favorable position compared to northern women. Southern women enjoy an advantage on variety of indicators from education, labor force participation, sex bias to some aspects of autonomy (see Table 1). These regional disparities in women’s position⁵ have been suggested as contributing to the distinct regional demographic patterns. Nearly a quarter century ago, Dyson and More (1983) in their influential paper put forth

⁵What constitutes women’s position is debatable, and so are the distinction among the concepts of women’s autonomy, status and position. In this introductory section, we use the term women’s position without defining it or differentiating it from other concepts; but in our analyses, we use specific measures related to women’s autonomy.

the idea that regional demographic patterns and women's positions are related to the kinship structure. It has been argued that the southern pattern of higher autonomy and lower fertility may be associated with endogamy and close-kin marriages in the south. The debate about the magnitude of the regional differences in the kinship structure and its relation to women's position need not concern us here⁶. What is important for the present purposes is whether the differences in women's position between the regions are related to the fertility differences, irrespective of how women's status came to be established.

[TABLE 1 ABOUT HERE]

There are strong a priori reasons to postulate linkages between women's position and fertility. The arguments could be handled better under the framework proposed by Coale (1973: 65), which specifies three preconditions that are necessary for declines in marital fertility. They are readiness (R): fertility must be within the "conscious choice of the individual", willingness (W): "perceived social and economic circumstances must make reduced fertility seem an advantage to individual couples", and ability (A): "effective techniques of fertility reduction must be available"⁷. It should be noted that the above preconditions are bottleneck conditions—i.e. the slowest will have the most influence. Women's position could be conceived as acting on all of the three preconditions. Women with low status in the society may not be ready, may not be willing and may not be able to have smaller families. Let us consider readiness first. Low status women may not be ready for smaller families for the following reasons: women's dependence on men (husbands, sons) makes it highly likely that there is a strong preference for sons which may increase fertility (Cain, Khanam,

⁶For this debate see Rahman and Rao (2004).

⁷When generalized to any behavior, this framework as Lesthaeghe and Neels (2002: 327) note could denote the following, Readiness: "new form of behaviour must yield benefits that outweigh the costs or disadvantages"; Willingness: "the new form must be legitimized"; Ability: "there must be adequate means to ... implement the new forms".

and Nahar 1979; Cain 1993). In settings where maternal role is more valued than other roles played by women, women may desire large families (Mason 1993). And lower opportunity costs, as result of low job participation among women, of raising children may act as a barrier for lower fertility (Rodriguez and Cleland 1980). Moving on to the willingness component, it could be conceived that low status women may be less willing to have smaller families, even if they are ready for a smaller family. In a high fertility setting, where smaller family norm has not yet gained cultural acceptance, the perceived or actual risk (or negative consequences) involved in having a small family may deter low status women more than other women. Finally, low status women may be less able to use contraceptives⁸ even when they are ready and willing to limit fertility. This may be due to either lack of knowledge about contraceptives or lack of easy access to contraceptives (Mason and Smith 2000; Morgan and Niraula 1995). These are strong arguments buttressed by evidence. Studies at both the individual and aggregate level in India support the argument that women's status (varyingly measured) has an important influence on fertility (Arokiasamy 2002; Dreze and Murthi 2001; Jejeebhoy 1991; Malhotra, Vanneman and Kishor 1995).

However, like other demographic explanations, given the contingent nature of fertility decline, establishing a causal link between women's status and demographic outcomes is difficult. As Mason (1997: 175) has remarked, "claims that women's empowerment is universally necessary or sufficient for fertility or mortality decline are as yet unsupported empirically." Both cross-national and individual level evidence provide support to the argument that women in low status settings are ready, willing and able to use fertility control methods. In Bangladesh and Egypt, impressive declines

⁸Here the contraceptives generally refer to modern contraceptives. Of course, women may still gather information about traditional contraceptives and their use from their social networks. See Basu (2005) discussion on the use of traditional contraceptive methods among educated women in India.

in fertility have occurred under conditions where women's lives are constrained (Amin and Lloyd 2002). Research from India has also questioned the power of gender system. Recently, Bhattacharya (2006) has argued that women's agency has played a much smaller role in fertility decline in India. In fact, much of the fertility decline and the increase in contraceptive use in India have been not due to changes in literacy levels of women but due to changes in reproductive behavior of illiterate women (Bhat 2002). Further as Moursund and Kravdal (2003), using community-level measures, have shown the influence of women's autonomy on contraceptive use may be limited, as was found earlier by Basu (1996) and Dharmalingam and Morgan (1996).

1.2. Economic and development factors

Some economic and development indicators are presented in Table 1. Regional poverty estimates present a mixed picture of regional contrast: two northern states had rural poverty levels lower than southern states excluding Kerala, though urban poverty levels in the north were far higher. Infant mortality rate was higher than national average in three of the four northern states reaching a high of 91 in Madhya Pradesh. In terms of economic development of the last two decades of the twentieth century, two of the four southern states and one of the four northern states were above the national average.

Economic explanations for fertility change have a long tradition⁹, better addressed for the present purpose under the following two headings: quality–quantity framework and wealth transfer theory. The first of these perspectives explains fertility declines as shifts in preference from quantity of children to quality of children. Given that high quality of children require, as Robinson (1997: 64)

⁹We present the economic argument in broad strokes. There are various versions of the economic argument, the three prominent being the Pennsylvania school, Chicago school and Easterlin's framework. For review of these arguments, see Pollak and Watkins (1993), Kirk (1996), Robinson (1997).

puts it, “more purchased external inputs (particularly resources for education and health) and are more time-intensive within the household”, the demand for children decreases. This shift can also occur when there are broader changes, like a shift from agricultural to industrial system or changes in cost of child services or increases in the cost of childrearing. A second perspective championed by Caldwell (1976; 2005) though economic in nature does not directly utilize the quantity-quality framework. Instead, it focuses on wealth transfers between generations—fertility will be high in societies where wealth flows from children to parents (i.e. children contribute more than they consume) and the obverse. The direction of wealth flows from children to parents is typically observed in agricultural societies and the direction is reversed when societies shift to market or industrial mode of production.

The role of economic factors in fertility changes in India and other regions of the world has been highly contested. Evidence for the influence of economic/development factors on fertility variation is weakened by impressive reductions in fertility seen in countries with low economic development¹⁰. What emerges from the synthesis of these studies is that economic improvement is neither a necessary nor a sufficient condition for fertility transition to occur¹¹. Indian evidence too presents a mixed picture at the aggregate level. What is clear though is that the influence of economic factors has not been fully established and that it is clearly dependent on the level of aggregation used in the study. Even the wealth transfer perspective seems to have a weaker influence on fertility decline: for instance in the state of Punjab, as Das Gupta (1995) relates, fertility declined at a time when it was primarily agrarian and illiterate.

¹⁰For the case of Bangladesh, which has received much attention, see Cleland et al. (1994) and Caldwell et al. (1999).

¹¹It should be noted that the influence of development on fertility change could be on either the timing of fertility decline or its pace or both; see Bryant (2007) for a recent exposition of this argument.

Approach of this study

Changes in fertility behavior have spurred diverse explanations. However, majority of explanations have relied on broader ahistorical approaches. This paper argues for a historical understanding of fertility change that is situated within the local context. Using the regional fertility differences in India, we show that fertility variation in general and in India specifically can only be fully understood when it is situated within broader historical and political context.

The first step is to test the relative influence of economic and gender-related factors on fertility variation in India and to establish that these factors ultimately fall short of providing an adequate understanding of the regional variation. We empirically examine it by analyzing both fertility intentions (at parity two and three) and actual fertility (at parity two and three). Use of both fertility intentions and actual fertility will help clarify whether the fertility variations are due to variations in ability (in the sense of Coale's framework described above) or due to readiness/willingness of women to limit childbearing. It has been suggested that in India and in other contexts fertility variations may be due to the differing ability of individuals to attain their reproductive goals (Campbell, Sahin-Hodoglugil and Potts 2006). Indeed, nearly two-thirds of the regional variation in fertility rates can be explained by differences in contraceptive use¹². However, this should not be automatically interpreted as suggesting that differences in fertility rates are mainly due to limited knowledge of or lack of access to contraceptives or both. As Pritchett (1994) has argued, variations in actual fertility could indeed be explained by desired fertility (i.e. once the desire for children declines, people find ways to achieve their goals). The current approach of examining the relative influence of gender and economic/structural factors on both intentions and actual

¹² Marriage age explains another 18 percent. Calculated based on Bongaarts's (1978) proximate determinants framework. Detailed results and model assumptions not presented here, but available from the first author upon request.

fertility will clarify the nature of the regional variation. If the regional variations in actual fertility are not explained by gender and economic factors but fertility desires are, it would be safe to infer that the regional variations are better understood in terms of ability of women to attain their fertility goal. And that the ability of women to achieve their reproductive goals is constrained by gender and economic factors¹³.

The second step is to investigate whether the influence of gender and economic factors is contingent upon the existing patterns of childbearing in the region (i.e. interactive or joint effects of the two factors and region). It is conceivable that the influence of economic and gender-related factors does not vary by region. For instance, low status women may prefer larger families irrespective of the region of residence. However, as Guilmoto and Rajan (2001) have pointed out, in regions of India where fertility began to decline early vertical diffusion of small family norm was more rapid. Thus, the differences in fertility desires among various economic groups in the early declining regions would be less than those seen in the late declining regions. In such a case, economic or gender-related factors may have a differing influence based on the region. Therefore, for instance, women in poor households in the south may be less likely to prefer larger families than their northern counterparts.

Finally, in an extended discussion section the study's findings are situated within the wider debate on the theories of fertility transition. There we draw on the existing literature on the role of diffusion, mass media, political changes and social mobility to understand the regional variation. We

¹³ Two points should be noted: first, such evidence should be construed as a weaker form of *abscissio infiniti*. Second, no claim is made about the translation of intentions into actual fertility. It is equally likely that those desiring no more children or more children at the time of the survey may fail to meet their desires as time goes by. The translation of fertility intentions to actual fertility could be better understood as an indeterminate process contingent upon the lived experience of woman in a particular setting (see Agadjanian 2005 and Johnson-Hanks 2007).

suggest that the history of fertility change is better characterized by, what Popper (1957: 143) wrote about history in general, “its interest in actual, singular, or specific events, rather than in laws or generalizations.” Such a historical reading of fertility changes has been proposed by Szreter (1993: 692), who calls for the “emancipation” of fertility studies “from the dominance of the abstract idea of ‘demographic’ or ‘fertility’ transition and the associated, too exclusive deference to the covering laws methodology”. We conclude by arguing that for a proper understanding of fertility change it must be situated within a specific context and take into account the influence of broader socio-political changes that make smaller families desirable.

Data and methods

Data for this study come from the National Family Health Survey conducted in 1998-9 (NFHS-2). NFHS-2 is part of Demographic Health Surveys (DHS) conducted in many developing countries. About 90000 ever-married women were interviewed on wide range of issues. The survey comes with weights to make it representative both at the state and at the national level (for more information on the NFHS-2 survey see IIPS and ORC Macro 2000). Data from the eight states—Tamil Nadu, Andhra Pradesh, Karnataka, Kerala, Bihar, Uttar Pradesh, Madhya Pradesh and Rajasthan—are used for the analyses.

Fertility intention is measured from the response to whether the respondent wanted another child. Fertility intentions are considered for two categories of women: those at parity two and parity three at the time of the survey. Only women who had their second or third child within the last five years preceding the survey and were not pregnant at the time of the survey are considered. Among these women those who said they wanted no more children or already sterilized are considered as not wanting a third/fourth child; and those who said they wanted to have another child are

considered as wanting a third/fourth child. A small percent of women who gave responses such as “Up to God” and “Undecided” were excluded¹⁴. Analyzing transitions at parity allows us to take into account the effect past experience of pregnancy and child birth. Logistic regression is used in the analysis of this outcome.

Actual fertility is measured as transition to third/fourth birth for women who had second/third birth in the five years preceding the survey. This outcome is modeled using discrete-time logistic regression (see Allison 1982; 1995: Chapter 7). The event modeled is whether the respondent has a birth or not. Women are considered to be at risk of experiencing the event beginning from the 12th month after the birth of the previous child¹⁵ till the birth of a next child. If a woman does not progress to a next birth by the time of the survey, she is censored and her risk period ends at the time of the survey. Time is measured in months, and assumed to have linear effect. Each woman contributes one observation for each month she is at risk.

Women’s autonomy is measured using three different variables: physical, economic and decision making autonomy. An index for physical autonomy is created based on whether the respondent needs permission to go to the market or visit friends and relatives. This index ranges from zero to two, with zero representing no physical autonomy. Economic autonomy is measured as a binary variable representing whether the respondent is allowed to have money set aside. Finally, decision making autonomy is measured as an index created based on whether the respondent takes a decision on her own or jointly with her husband or jointly with others in household on the following four matters: cooking, health care, purchase of jewelry, and visiting or staying with her parents or

¹⁴ For women at parity two, the number excluded for this reason was 1 and 4 percent for south and north Indian women respectively. For women at parity three, these percents were 1 and 3.

¹⁵ This 11 month gap is to account for a minimum of 2 months of post partum amenorrhea and 9 months of gestation for a next birth.

siblings. This index ranges from zero to four, with zero representing no decision making autonomy. The measure for education and employment are self-explanatory. In actual fertility models, number of living sons is a time-varying measure. Table 2 presents basic descriptive statistics for all the variables used in the analyses.

Economic and development factors are measured using the following variables. Standard of living is measured using an index that comes with the dataset. The index was created using household ownership of possessions/consumer durables and land/livestock (for details about the index see IIPS and ORC Macro 2000). Standard of living index has three categories: low, medium and high. Exposure to mass media is measured using an index created based on whether the respondent listened to radio at least once a week or watched TV at least once a week or watched movie at least once a month. This index ranges from zero to three, with zero representing no exposure to any media. Residence is measured as whether living in rural or urban areas. In addition to these factors, religion, caste and women's age at second/third birth are used as controls. All these indicators are measured at the time of the survey, as are the indicators of women's autonomy, and not when women reached parity two or three. Since we restrict the analysis to five years preceding the survey and given the context of slow social change, it is reasonable to assume that major changes in women status or economic conditions did not occur between the time of the survey and the time at which women reached parity two or three in the five years preceding the survey. A limitation of the autonomy indicator is that for some women, especially in the north, birth of a son may grant them greater autonomy (Jejeebhoy and Sathar 2001). As the autonomy indicators are measured at the time of the survey such changes in the autonomy level cannot be adequately captured.

Results

Table 2 presents the descriptive statistics of the variables used in the analyses. Among the four outcomes of interest in this study, there is a clear regional difference. Southern women desired and

had fewer children than their northern counterparts. The difference in intentions was far more pronounced compared to the difference in actual fertility. On range of indicators from educational achievement to work to autonomy, northern women appear to be constrained. Regardless of the type of indicator used for autonomy, southern women appear to have more autonomy. Southern women also have higher levels of education, higher rates of working for pay and greater exposure to mass media. But the difference between the regions in standard of living is minimal, though southern women are concentrated more in urban areas.

[TABLE 2 ABOUT HERE]

Table 3 presents two panels—the first for women at parity two and the second for women at parity three—and three models in each panel. Each model incrementally incorporates more variables: starting with a model that shows the regional variation with limited controls, followed by a second model that incorporates gender related factors, and a third model that incorporates economic factors. The estimates from the logistic models are presented in the form of odds ratios, along with the confidence intervals.

[TABLE 3 ABOUT HERE]

From the odds ratios of region in the first panel, it is clear that region has a significant (both statistical and substantial) influence on intentions of wanting a third child, adjusting for other factors. In Model 1 with limited controls odds of southern women wanting a third child is .21 times that of northern women (stated differently: odds of northern women wanting a third child are about five times ($1/.21$) that of southern women). This difference between the regions decreases only modestly with the introduction of gender and economic factors. In the final model, Model 3, with all the relevant variables added the odds of northern women wanting a third child are about four times that of southern women. A similar pattern is repeated for intentions of having a fourth child as seen

in estimates presented in the second panel. The magnitude of the difference between the regions is again significant and is about .26 in all the models.

Gender-related factors present a mixed picture. While education and number of living sons seem to influence fertility intentions, employment and various measures of autonomy seem to have a limited influence. Looking across all the models in both panels, women with primary or secondary education wanted fewer children than women with no education. Number of living sons also plays an important role: even having one son compared with no son decreases the odds of wanting a third child by about .26 times and a fourth child by .22 times. The influence of decision making autonomy on intention to have a third/fourth child appears to be consistently significant. For instance, a unit increase in the decision-making index decreased the chances of wanting a third child by 11 percent and a fourth child by 13 percent in the most complex models. Though these estimates are non-trivial and statistically significant, they should be interpreted in conjunction with the confidence intervals. For instance the influence of decision making autonomy on intentions to have a third child ranges between 5 and 16 percent, and for fourth child between 7 and 9 percent. The other autonomy related factors appear, according to the model estimates, to play a smaller role in influencing fertility intentions at parity two and parity three. Finally, work status of women has no significant effect, in almost all the models, on fertility intentions.

In examining economic and development related factors, it is clear that the standard of living index, rural/urban residence and exposure to media influence fertility intentions. Women in high economic index households are about 45 and 49 percent less likely to want another child at parity two and parity three compared to women in low economic index households. But the difference between the low and medium groups is only marginally significant. Living in a urban area also reduces the chances of wanting another child by 42 percent at parity two and 47 percent at parity three. Exposure to mass media decreases the odds of wanting another child both at parity two and

parity three, but a closer look at the confidence intervals suggests the effect to range between 7 and 37 percent.

Table 4 presents the estimates from discrete-time models for transition to third and fourth birth. The order of presentation is the same as that of the previous table. The estimates indicate that the odds of southern women progressing to a third birth is 51 percent lower than northern women in the simpler model (Model 1, first panel) and this difference declines to 36 percent in the model with all the relevant variables adjusted for (Model 3, first panel). A similar difference could be seen in transition to a fourth birth, with southern women less likely—ranging from 49 percent to 42 percent—to have a fourth child than northern women. Among gender-related factors, we again find that most of the indicators of autonomy are either statistically non-significant or the magnitude of influence is small. Among the indicators, only physical autonomy seems to have a comparatively substantial influence on transition to a third birth. Number of living sons and educational level have a significant influence on progression to a next birth, as was the case with intentions. It is also puzzling to note that, in contrast with the intention models, none of the economic or development related factors have a significant influence on transition to a next birth. It appears that other variables, mainly education and work are more important than the economic factors.

[TABLE 4 ABOUT HERE]

Finally, we test whether the influence of gender and economic factors depends on the region (i.e. are there any interactions). The interactive models for intentions are tested by introducing one interactive term at a time in a model with all other variables included. For ease of interpretation, predicted probabilities from statistically significant interaction terms are charted in Figure 2. For women at parity two and three, the influence of number of living sons is greater in the north than in the south: for instance, the probability that women at parity two with one living son want an additional child is .25 in the south compared to .57 in the north. Additionally we find an indicator of

autonomy, physical autonomy in the case of women at parity two and decision autonomy for women at parity three, to have a different influence based on region of residence, with women in the south irrespective of the autonomy level desiring fewer children. For women at parity three there are additional factors whose influence varies by region. Irrespective of the standard of living southern women indicate preference for a fourth child at a lower rate than their northern counterparts. In the case of women with low standard of living index the probability of wanting a fourth child is .12 in the south compared to about .43 in the north.

[FIGURE 2 ABOUT HERE]

Discussion

Two points emerge from the foregoing analyses. The first point is the weakness of existing theoretical frameworks that rely on gender or economic factors to address regional fertility variations¹⁶. As could be seen from the Indian situation, fertility variation appears to be only loosely associated with these factors. One such factor that proved to have a limited influence on both intentions and births is women's autonomy. As can be recalled, Dyson and Moore (1981) argued that kinship structure in the south grants greater autonomy to women which may translate to lower fertility. But the limited influence of women's autonomy on fertility detected in these analyses should not be construed as suggesting that kinship structure does not influence fertility. Women's autonomy is but one pathway through which kinship structure could influence fertility behavior. The kinship structure in the south, characterized by territorial endogamy and close-kin marriages, may

¹⁶It is possible that our models underestimate the influence gender and economic factors for the following reason. The present examination is comparing two regions at different stages of fertility transition and the influence of the gender and economic factors may have been more pronounced in the early stages of transition than in the later stages.

provide other markers of social status and support besides children thus making it more likely that southern women will accept the small family norm and will have fewer children.

The persistence of regional differences in fertility intentions, net of other factors, suggests that fertility behavior is influenced as much by fertility intentions as it is by access to and knowledge of contraceptive technologies. The second major point to emerge is that the influence of certain factors on fertility intentions is conditioned by the prevailing patterns of fertility in that region. One such factor was the number of living sons, which had a significantly different influence between the regions. Number of factors whose influence differs by region increases dramatically for intention to have a fourth child, indicating a widespread preference for smaller families irrespective of economic or social status in the south compared to the north. Overall, the findings presented in this paper contribute to explanations that have emphasized the diversity of socio-economic and cultural conditions under which fertility change can occur (Hirschman 1994; Mason 1997). As Guilmoto (2005: 431) has observed, “the plurality of local experiences could be, for a long time to come, an obstacle to a decontextualized analysis [of fertility change in India].”

It is quite remarkable that fertility transitions in India have occurred in places, as Das Gupta (1999: 20) has noted in a wider context, “where established socio-economic and political hierarchies have been shaken up, increasing the scope for individual mobility, security and control over life.” Beginning in the mid-60s southern states witnessed the ascendancy of political parties with broad support among the backward castes. In Tamil Nadu, for instance, the Dravidian parties effectively used mass media to attack both the religious and the social status quo (Dickey 1993), and were elected to power in the late 1960s. In Andhra Pradesh, TDP, a political party headed by a movie star

and with broad support among a wide network of backward castes¹⁷, came to power in the early 1980s (Kohli 1988). The TDP government introduced many populist measures including heavy subsidization of rice and electricity, and in the early 1990s introduced prohibition of arrack (distilled liquor). In Karnataka, the politics has been more inclusive and beginning in the mid-1980s, under the Janata government, power was decentralized to village institutions known as Panchayats (Manor 2007). In contrast, political power in the northern states went largely unchallenged and was exclusionary until the late 1990s¹⁸. This paper does not directly investigate the degree to which these socio-political changes witnessed in the south transformed individual and group trajectories and shaped their desires, aspirations and outlook; thus, the explanations offered are merely suggestive. Nevertheless, it is reasonable to suggest that the political and social transformations that gave voice to a large section of the population was also bound to have influenced their aspirations and hopes, irrespective of the degree to which it made real changes in their lives.

Changes in fertility desires and their actualization should be situated within the broader socio-political changes. Socio-political transformations in the south shook the old foundations, enhanced individual and group security and created new sense of optimism for the future. This may have kindled the aspirations for smaller families. This compared with lack of socio-political transformations in the north, and the attendant stagnation in fertility desires. Increased security and changing opportunity structure that opens new paths of mobility or feeds the subjective aspirations

¹⁷ In Andhra Pradesh and Tamil Nadu, as in the rest of the country, backward castes do not include the Dalits (ex-untouchables) and Tribes. And political and social advancement of the backward castes in the two states should not be equated with Dalit and Tribal advancement. Their trajectories of political mobilization and advancement are varied and divergent.

¹⁸ In Uttar Pradesh and Bihar, it was not until the 1990s that parties with strong following among the backward castes came to power. While no such change has occurred in Madhya Pradesh, percent of backward castes Members of Parliament (MPs) from the state increased from 7.5 to 20.5 percent between 1984 and 1998. During the same period in Rajasthan, the percent of backward castes MPs remained stable at 12 percent (Jaffrelot 2000).

of mobility, has long been seen as an incentive for fertility limitation (see Bryant 1998). As Greenhalgh (1988: 637-8) has observed:

“[B]asic goal of people everywhere is to secure and improve their social status and economic and political position in society. Fertility is a subset of behaviors, or strategies, designed to achieve this basic goal. Thus, the core assumption about fertility is simple: fertility as mobility. Security, another basic goal, is only the first step on the ladder of social advancement. Security and mobility form a goal hierarchy, or aspiration ladder, such that once security goals are satisfied, actors move on to pursue mobility goals.”

Ethnographic evidence from Andhra Pradesh supports the view that increased aspirations for children’s future, even among those whose immediate circumstances are constrained, was a prime reason for fertility limitation (Säävälä 2001)¹⁹. An explanation on similar lines has been proposed by Nagaraj (1999) for Tamil Nadu. Thus, it appears that smaller families and higher investment in children were seen as a strategy for social mobility. Further, the realization of smaller family goals may have been facilitated by effective family planning programs in these states²⁰.

Changes in fertility behavior in India could be examined through the “innovation diffusion” framework. In this framework fertility decline is seen as resulting from the spread of attitudes and behaviors that promote smaller families and, importantly, that this diffusion “is not bound tightly to societal structural changes, rather, it has an independent dynamic of its own” (Casterline 2001: 3). Though diffusion typically occurs within a social or cultural or linguistic group, even those separated by national boundaries as seen in Bengal and Bangladesh (Amin, Basu and Stephenson 2002) or within religious groups but not across them in the same village (Munshi and Myaux 2006), it could also occur across social groups within a region. Successful diffusion of a new behavior involves a

¹⁹ For a spatial perspective of fertility decline in Andhra Pradesh see James (1999). Generally, Bhat (2002) has noted that the reduction in family size was accompanied by greater investment in child schooling.

²⁰ For the effectiveness of family planning programs in the south, see Srinivasan et al. (1991) and Ramasundaram (1995).

shift from one equilibrium to another, say from low to high contraceptive use. Such shifts between equilibria occur as Kohler (2000) and others have argued due to social interactions. While this framework helps in understanding how changes in norms/attitudes occur, it seems inadequate to capture why (i.e. under what conditions) such changes occur²¹. Notwithstanding this shortcoming, the diffusion framework provides a way of looking at how transitions occur.

The diffusion framework has been applied to the Indian context, especially to the analysis of the south Indian fertility decline. For India as whole, it is clear that in the areas of early decline diffusion across social and cultural groups was more rapid than seen in the areas of late decline (Guilmoto and Rajan 2001). Putting it in the context of the present study, pace of diffusion was faster in the southern states than in the northern states where it has been slow or non-existent. For instance, while the disparities in the adoption of the small family norm across educational categories narrowed rapidly in the south, they persist in the north (ibid.). We also know that that fertility decline in the south started in core areas: Coimbatore, southern Kerala, around Chennai, and northern-Telangana; and that it spread endogenously within local communities depending on local social dynamics (Guilmoto 2005). Within south India, Appel et al. (2002) note that the diffusion of low fertility was non-social (i.e. diffusion occurred across social groups--religious, caste, economic). The field of contending explanations for how such non-social diffusion occurred in south India is crowded, with the prominent explanations focusing on the role of mass media (mainly cinemas)²² and government policies.

²¹ The “narrowness and insufficiency of diffusionist approaches” have been catalogued by Kreager (1998: 311). In addition to the already mentioned lack of explanatory framework, diffusionist approaches have been criticized for not considering non-linearity, multiple outcomes, and cultural symbolism in the diffusion process.

²² The homogenization of preferences within a region may also have been facilitated by the division of northern (Hindi) film industry based in Mumbai (formerly Bombay) and the southern film

The evidence presented in this article questioned some of the generalizations that have been used to explain fertility transitions. Using intra-country differences in fertility in India and focusing on both fertility intentions and births, it was argued that neither socio-economic factors nor those related to women's status are adequate to capture the varieties of pathways leading to fertility decline. It was suggested that fuller understanding of fertility change could be gained by situating them within the broader historical, social and political context of the societies. Such studies, though focused on fertility change in a particular place and time, should contribute to the understanding of the general process of the formation of fertility attitudes and behaviors.

industry based in Chennai (formerly Madras). It should be noted that film industry in the south is further divided along linguistic lines (Tamil, Telugu, Kannada and Malayalam).

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Table 1: Characteristics of the states under consideration, circa 1995-2000

	TFR			Gender			Poverty		Development		
	1974-80	1984-90	1996-8	Literacy rate	Labor force participation	Sex ratio	Rural poverty	Urban poverty	IMR	Urbanization	Economic growth, 1980-2004
Andhra Pradesh	4.3	3.2	2.5	43	54	1.041	26	11	66	27	5.1
Karnataka	4.3	3.4	2.5	50	45	1.057	31	11	58	34	6.3
Kerala	2.9	2.0	1.8	90	35	1.042	10	10	14	26	5.2
Tamil Nadu	3.5	2.3	2.0	60	48	1.062	24	11	52	44	6.0
Bihar	5.3	5.1	4.4	34	26	1.055	41	25	66	13	4.6
Madhya Pradesh	5.3	5.0	4.0	41	51	1.061	31	14	91	25	4.9
Rajasthan	6.0	5.2	4.2	35	50	1.100	17	11	81	23	6.3
Uttar Pradesh	6.3	5.4	4.8	41	29	1.093	22	17	84	21	4.6
India	4.9	4.1	3.3	50	39	1.078	26	12	70	28	5.8

Notes and sources:

TFR: 1974-80 and 1984-90 estimates from Bhat (1996); 1996-8: SRS estimates as reported in Retherford and Mishra (2001: Table 11)

Literacy rate, 1997: Government of India (2002: Table 4.4). Proportion of literates to the population in the age group 7+.

Labor force participation, 1999-2000: Government of India (2002: Table 2.10). "Proportion of persons in the age group 15 years and above who were either working (i.e. employed) on the usual principal and subsidiary status or seeking or available for work (i.e. presently unemployed)."

Sex ratio, 2001: Registrar General, India (2001). Ratio of boys/girls, 0-6 years old.

IMR, 1999: Registrar General, India (2000).

Rural and urban poverty, 1999-2000: Deaton and Dreze (2002: Table 2a)

Urbanization, 2001: Government of India (2002: Table 5.47).

Economic growth, 1980-2004: Kohli (2006).

Table 2: Summary statistics for all ever-married women, weighted

Variable	India	South	North
Wants a third child, % ¹	42.1	26.5	63.2
Wants a fourth child, % ²	29.9	16.3	42.2
Transition to third birth, % ¹	29.5	19.6	35.4
Transition to fourth birth, % ²	25.9	20.5	30.9
Education, %			
No education	53.4	40.1	69.5
Primary	16.9	19.7	12.4
Secondary plus	29.7	40.2	18.2
Decision making autonomy, mean	2.4	2.6	2.1
(SD)	(1.4)	(1.3)	(1.4)
Economic autonomy, %	59.7	68.1	52.4
Physical autonomy, mean	0.56	0.85	0.37
(SD)	(0.84)	(0.90)	(0.73)
Living sons, mean	1.4	1.2	1.5
(SD)	(1.2)	(1.1)	(1.3)
Employment, %			
Not working	60.9	50.7	63.6
Unpaid work	12.3	10.2	17.3
Self-employed	5	5.1	4.2
Paid work	21.8	34	14.9
Standard of living index (SLI), %			
Low	32.9	31.5	33.4
Medium	46.9	48.9	49.4
High	20.2	19.6	17.5
Urban, %	26.2	30.1	19.9
Exposure to mass media, mean	0.64	0.90	0.43
(SD)	(0.58)	(0.56)	(0.55)
Religion, %			
Hindu	81.8	80.7	86.5
Muslim	12.5	12.4	11.8
Other	5.8	6.9	1.7
Caste, %			
Scheduled caste	18.5	17.9	18.6
Scheduled tribe	8.8	3.3	10.8
Other backward	33.2	52.2	35.9
Other	39.5	26.7	34.7
Women's age, mean	31.0	31.9	30.2
(SD)	(8.8)	(8.9)	(8.9)
Number of cases	90303	15966	30070

¹ Among those who had a second birth in the previous five years

² Among those who had a third birth in the previous five years

SD – standard deviation

Table 3: Fertility intentions of women at parity two and parity three, odds ratio and confidence intervals

	Wants another child at parity two			Wants another child at parity three		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Region						
South (North)	0.21 [0.18 0.24] **	0.26 [0.22 0.31] **	0.26 [0.22 0.31] **	0.26 [0.21 0.32] **	0.25 [0.20 0.32] **	0.26 [0.20 0.34] **
Education						
Primary		0.45 [0.37 0.56] **	0.53 [0.42 0.66] **		0.54 [0.42 0.70] **	0.66 [0.50 0.87] **
Secondary plus (No education)		0.3 [0.25 0.37] **	0.45 [0.37 0.55] **		0.24 [0.18 0.32] **	0.38 [0.28 0.52] **
Autonomy						
Decision making		0.90 [0.85 0.96] **	0.89 [0.84 0.95] **		0.88 [0.82 0.94] **	0.87 [0.81 0.93] **
Physical		0.91 [0.82 0.99] *	0.92 [0.83 1.02]		0.93 [0.82 1.06]	0.93 [0.81 1.06]
Economic: no as ref.		0.82 [0.71 0.96] **	0.87 [0.75 1.02] +		0.84 [0.70 1.01] +	0.90 [0.75 1.09]
Living sons						
One		0.26 [0.22 0.32] **	0.26 [0.21 0.31] **		0.21 [0.16 0.28] **	0.22 [0.16 0.29] **
More than one (Zero)		0.12 [0.10 0.15] **	0.12 [0.09 0.15] **		0.04 [0.03 0.06] **	0.04 [0.03 0.06] **
Employment						
Paid work		0.91 [0.74 1.13]	0.86 [0.69 1.07]		0.74 [0.58 0.96] *	0.70 [0.54 0.90] **
Self-employed		0.71 [0.46 1.11]	0.70 [0.44 1.09]		1.07 [0.64 1.78]	1.00 [0.59 1.70]
Unpaid work (Not working)		1.12 [0.88 1.42]	1.01 [0.79 1.28]		0.83 [0.64 1.08]	0.80 [0.61 1.04] +
Standard of living index						
Medium			0.9 [0.74 1.08]			0.84 [0.68 1.03] +
High (Low)			0.55 [0.42 0.71] **			0.51 [0.35 0.73] **
Current residence						
Urban (Rural)			0.58 [0.48 0.70] **			0.53 [0.40 0.70] **
Exposure to mass media			0.79 [0.68 0.92] **			0.76 [0.63 0.93] **
Religion						
Muslim	3.43 [2.74 4.31] **	3.60 [2.80 4.61] **	3.76 [2.91 4.85] **	2.18 [1.70 2.79] **	2.87 [2.15 3.85] **	3.24 [2.39 4.38] **
Other (Hindu)	0.82 [0.56 1.21]	0.97 [0.64 1.48]	0.97 [0.63 1.50]	0.83 [0.47 1.45]	0.97 [0.52 1.81]	0.93 [0.50 1.75]
Caste						
Scheduled caste	3.53 [2.87 4.35] **	2.87 [2.28 3.62] **	2.46 [1.94 3.13] **	1.65 [1.31 2.07] **	1.49 [1.13 1.96] **	1.30 [0.98 1.73] +
Scheduled tribe	3.6 [2.71 4.78] **	2.61 [1.91 3.55] **	2.31 [1.68 3.17] **	2.74 [2.05 3.65] **	2.75 [1.94 3.89] **	2.30 [1.61 3.27] **
Other backward (Other: Forward)	1.61 [1.37 1.89] **	1.44 [1.21 1.72] **	1.32 [1.10 1.58] **	1.16 [0.95 1.40]	1.07 [0.86 1.35]	0.99 [0.79 1.25]
Women's age at second/third birth	0.91 [0.89 0.93] **	0.93 [0.91 0.95] **	0.95 [0.93 0.97] **	0.94 [0.92 0.96] **	0.95 [0.93 0.98] **	0.96 [0.93 0.98] **
N	4366	4366	4366	3110	3110	3110

Significance level ** p<.01, *p<.05, + p<.10; () - reference category

Table 4: Progression to third and fourth births, odds ratio and confidence intervals

	Has a third birth			Has a fourth birth		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Region						
South (North)	0.49 [0.44 0.55]**	0.63 [0.56 0.71]**	0.64 [0.57 0.72]**	0.51 [0.45 0.59]**	0.57 [0.49 0.67]**	0.58 [0.49 0.68]**
Education						
Primary		0.96 [0.85 1.09]	1.00 [0.88 1.14]		0.92 [0.78 1.09]	0.97 [0.82 1.15]
Secondary plus (No education)		0.62 [0.54 0.70]**	0.67 [0.58 0.77]**		0.62 [0.52 0.74]**	0.70 [0.58 0.85]**
Autonomy						
Decision making		0.97 [0.94 1.01]	0.97 [0.94 1.01]		0.94 [0.90 0.99]**	0.94 [0.90 0.99]**
Physical		0.86 [0.80 0.92]**	0.86 [0.80 0.92]**		0.97 [0.90 1.05]	0.97 [0.90 1.05]
Economic: no as ref.		0.93 [0.85 1.02]	0.94 [0.86 1.04]		0.99 [0.89 1.11]	0.99 [0.89 1.11]
Living sons						
One		0.81 [0.73 0.89]**	0.81 [0.73 0.89]**		0.83 [0.72 0.95]**	0.83 [0.72 0.95]**
More than one (Zero)		0.55 [0.48 0.63]**	0.55 [0.48 0.63]**		0.48 [0.41 0.55]**	0.48 [0.41 0.56]**
Employment						
Paid work		0.88 [0.77 0.99]*	0.88 [0.78 1.01]+		0.82 [0.71 0.95]**	0.79 [0.68 0.92]**
Self-employed		0.70 [0.53 0.91]**	0.72 [0.55 0.94]*		0.93 [0.71 1.21]	0.91 [0.70 1.20]
Unpaid work (Not working)		0.93 [0.81 1.05]	0.90 [0.79 1.03]		1.02 [0.88 1.18]	1.01 [0.87 1.18]
Standard of living index						
Medium			1.04 [0.94 1.16]			0.94 [0.83 1.06]
High (Low)			1.01 [0.85 1.19]			0.75 [0.60 0.94]**
Current residence						
Urban (Rural)			0.88 [0.77 1.00]*			1.07 [0.90 1.26]
Exposure to mass media						
			0.91 [0.83 1.01]+			0.89 [0.79 1.00]*
Religion						
Muslim	1.32 [1.16 1.51]**	1.28 [1.12 1.47]**	1.29 [1.13 1.48]**	1.58 [1.35 1.85]**	1.60 [1.36 1.87]**	1.55 [1.32 1.83]**
Other (Hindu)	0.91 [0.68 1.21]	0.97 [0.73 1.30]	1.00 [0.75 1.34]	0.94 [0.60 1.47]	1.05 [0.67 1.65]	1.05 [0.67 1.65]
Caste						
Scheduled caste	1.37 [1.21 1.56]**	1.24 [1.09 1.42]**	1.23 [1.08 1.41]**	1.40 [1.19 1.64]**	1.34 [1.14 1.57]**	1.26 [1.06 1.49]**
Scheduled tribe	1.03 [0.86 1.23]	0.93 [0.77 1.11]	0.91 [0.76 1.09]	1.33 [1.10 1.61]**	1.25 [1.03 1.52]*	1.19 [0.97 1.45]+
Other backward (Other: Forward)	1.11 [1.01 1.24]*	1.05 [0.95 1.17]	1.05 [0.94 1.17]	1.11 [0.97 1.27]	1.07 [0.94 1.23]	1.04 [0.90 1.20]
Women's age at second/third birth	0.94 [0.92 0.95]**	0.96 [0.94 0.97]**	0.96 [0.94 0.97]**	0.93 [0.91 0.94]**	0.94 [0.92 0.95]**	0.94 [0.92 0.95]**
Time (in months)	1.04 [1.03 1.04]**	1.04 [1.03 1.04]**	1.04 [1.03 1.04]**	1.03 [1.03 1.04]**	1.04 [1.03 1.04]**	1.04 [1.03 1.04]**
N (person months)	108668	108668	108668	79116	79116	79116

Significance level ** p<.01, *p<.05, + p<.10; () - reference category

Figure 1: District-level fertility estimates, by region and year

Panel A: 1981

Panel B: 2001

Sources: 1981 estimates from Vanneman and Barnes (2000); TFR for two districts, Madras and Hyderabad, are from Bhat (1996). 2001 estimates from Guilmoto and Rajan (2002).

Figure 2: Interactions of region and statistically significant variables, predicted probabilities

Panel A: Wants a third child

Panel B: Wants a fourth child

Notes: 0-low autonomy/low standard of living/low exposure to mass media. In panel B, two living sons represent two or more living sons. See text for detailed variable definitions.