Impact of contextual factors on the relationship between fertility intention and behavior: an Indian case study, 2005-2012

Esha Chatterjee and Joan R. Kahn

1.Introduction

Economic and sociological theories of fertility posit that social and economic factors play a major role in determining fertility. Sociologists are often of the view that fertility decisions are mental decisions taken within the family. Greenhalgh (1995) takes a more macro view by identifying two paths to fertility reduction based on the basic assumptions of modernization theory. One approach focuses on socio- economic development and the consequent increase in income, urbanization and industrialization as the key drivers of a move from high to lower fertility rates. The second view highlights the norms and values of traditional societies as the major impediment to change. It is perceived that some combination of the shift to urbanization, higher levels of education of parents and of educational aspirations for children along with the spread of new ideas through education and media are influential in changing the costs associated with child bearing for parents (Simmons, 1985).

The Indian sub-continent is marked by substantial regional diversity in culture, social systems and reproductive behavior (Dyson and Moore, 1983). While India has seen a marked decline in fertility over the decades, there is considerable variation in fertility rates across different states and regions.The northern states of India have traditionally been characterized by very high fertility rates that ranged between 6.19 and 6.85, in the early 1970s, but have declined to levels of 3 to 4.4 in 2004. However in the four southern states, fertility rates were considerably lower, and declined from a range of between 4.88 and 5.68 (1970) to 1.7 to 2.3 in 2004 (Current level statisical report, RGI 2004). Thus recent fertility declines continue to replicate earlier regional patterns (Dreze and Sen, 1995).

This paper will attempt to better understand regional variation in fertility by examining the fertility intentions of women throughout the country. Intentions are important because they are forward-looking (giving us a clue about future trends) and they are a better indication of women's personal preferences than is fertility behavior which is often subject to chance and unintended outomes. Specifically we will examine whether women in different regions of India exert the same ability to turn their fertility intentions into reality. If not, why not?

In the Indian context studies relating fertility intention to fertility behavior are limited (Vlassoff, 1990, 2011; Speizer et al, 2013; MacQuarrie et al 2011) and the role of contextual differences on the translation of fertility intention into fertility behavior has not been examined so far. The present study would be unique because the panel data from IHDS would allow tracking women between 2005 and 2012 to examine whether their baseline fertility intentions get realized in the future.

2. Review of literature

An individual's fertility intentions are important predictors of future fertility behavior (Bumpass, 1987; Rindfuss, Morgan, & Swicegood, 1988; Thomson, 1997; Westoff & Ryder, 1977; Schoen, 1999). Some researchers argue that fertility intentions are a temporary period phenomena that reflect the level of "unintended" fertility (Brown & Eisenberg, 1995; Westoff & Ryder, 1977) or a method that reflects a couple's decision making (Miller & Pasta, 1995; Thomson, 1997; Thomson, McDonald, & Bumpass, 1990). Factors such as entry and exits from education and employment have deep impacts on the translation of fertility intentions into fertility behavior, though they have not received a lot of attention from researchers on fertility decision-making (e.g., Beckman, 1978; McClelland, 1983; Miller & Pasta, 1995; Thomson, 1997). Miller and Pasta suggest that three types of variables namely spouse's intention (whether spouses agree or disagree), life cycle variables (such as age, duration of the

marriage, parity etc.) and changes attributable to reproduction (such as marital dissolution, unplanned pregnancy) mediate the relationship between fertility intention and behavior.

Policies that look to bring about changes in fertility levels would depend on having a better understanding of the determinants of an individual's fertility intentions as these have been identified as one of the important determinants of fertility behavior (Hagewen and Morgan, 2005; Quesnel-Vallée and Morgan 2003; Schoen et al. 1997; Schoen et al. 1999).

Determinants of Fertility Intention

Some of the important determinants of fertility intention elaborated in the literature are briefly explained below.

a) Role of Education

An increase in women's education can cause a decline in the demand for children because increased levels of education increases the wage that a woman can obtain in the job market. This increases the value of a woman's time and thus the opportunity cost associated with a child (Cochrane, 1979; Jejeebhoy, 1995; Murthi et al 1995). There is overwhelming evidence on the inverse relationship between female education and fertility, particularly at the individual level (Jejeebhoy, 1995). However, in rural areas where there are limited chances of a woman working in paid work, the inverse relationship between women's education level and fertility doesn't reflect educational variation in opportunity cost.
Female education leads to declines in desired family size. A variety of factors such as greater control on household resources and reproductive decisions and other sources through which women can derive fulfillment and prestige besides reproductive performance may have contributed to this. (Dyson and Moore 1983; Cain 1984) Educated women also would be less likely to depend on their sons and use them as old age support and thus would have lower fertility intentions. (United Nations 1993).

b) Role of Women's Employment

Women's reproductive and productive roles are often seen as conflicting with one another (e.g. Mason and Kulthai; McDonald 2000, Joshi, 2002, Morgan 2003, Rindfuss et al 2007, Rendall et al, 2009). With the advent of industrialization and the growing entry of women into the labor force, the associated work/life balance conflict they experienced, led to the move to smaller family sizes.

The basic choice-theoretic model of neo-classical economics assumes that the decision to have children is comparable to other economic choices: children contribute to utility and they involve the use of scarce resources. One of the central ideas here, is that a women's entry into the labor market reduces the demand for children by increasing the opportunity costs associated with them (Willis 1973; Lindert 1978; Turchi 1975;Folbre 1983; Mason 2001).

Empirical evidence at the individual level indicates that the relationship between women's employment and fertility varies across different contexts. While several studies have found an inverse relationship between women's labor force participation and fertility (Blake 1965; Rindfuss et al. 2007), others find that an increase in women's labor force participation doesn't necessarily lead to declines in the demand for children (Cleland, 1985).

While women caught up with men in individual-oriented instittions like market employment, they were still disadvantaged in family institutions (Hochschild, 1989; McDonald, 2000). While examining the relationship between women's work and fertility, it has become increasingly important to focus on the family sphere (Torr and Short, 2004). The stronger the conflict between motherhood and being in the formal labor force, the lower will be the expected level of fertility (Rindfuss et al 1996, Torr and Short, 2004). Female labor force participation rate in India has been seen to have a negative impact on fertility (Murthi et al 1995).

c**) Regional Differences**

Contextual factors have been seen to play an important role determining fertility intentions. Neyer et al. (PAA 2011) find differences in fertility intentions amongst those who are childless and also those who have children, by variations in culture, and social and regional differences across eight European countries. Childbearing norms in regions were seen to have a strong impact on fertility intentions. Using data from fifty six communities in five Asian countries, Mason (2003) finds that gender relations and women's empowerment are more strongly impacted by community level factors than by individual characteristics.

In South Asia the culture is gender stratified and is marked by patrilineal descent, and patrilocal residence. In decision making the patriarch of the household has power over the other members of the household. There exists widespread variation in the extent and levels of female autonomy in India. In the Southern part of India women have more exposure to the outside world, more say in family related decisions and higher mobility compared to their counterparts in the North. (Dyson and Moore, 1983; Basu, 1992; Jejeebhoy, 2000; Jejeebhoy and Sathar, 2001).

A possible explanation for the differences between the northern and southern States is the differences in the kinship systems and gender relations in the north and south of India (Dyson and Moore, 1983). The relatively greater economic autonomy enjoyed by women in the South, and their higher levels of market participation, may have led to different reproductive preferences compared to the North. Empirical data on overall son preference confirm that it is much more striking in the Northern States than in the South (Dyson and Moore, 1983; Dreze and Sen,1995) and this also influences desired family size.

Further, in North India there exists a culture where exogamous marriages are preferred whereas in the South, in many places endogamous marriages (marriage between close relatives) are preferred. Endogamous marriages allow women to keep in touch with the kinship network of their birth, which ensures higher levels of autonomy and mobility for women in the South (Dyson and Moore 1983).

Additionally economists suggest that the regional differences in gender equality occur because of a larger number of labor-intensive crops in South compared to the North which provide a bigger market for women's labor (Bardhan, 1974; Rahman and Rao 2004). Jeffery 1993 emphasizes that Southern States have been more proactive in designing and promoting policies that promote gender equality compared to the Northern States; this in turn could cause differences in fertility intentions in the different regions.

d) Role of gender norms

Gender norms in a society can mediate the relationship between a woman's education, employment and her fertility intention. Gender norms are largely dependent on the region of residence. As discussed in the previous section, the Northern and North-Central and Central States have more patriarchal norms, while the Southern States are less patriarchal.

The neo-classical economic theories ignore the fact that within a household there may be differences in the bargaining power between various family members (McElroy and Horney, 1978; Manser and Brown, 1978; Folbre, 1983). However a second set of mechanisms or cultural and social pathways, affect the relationship between women's status and fertility. It is possible that changes in bargaining power within families increases a woman's status and impacts fertility decisions. A woman's freedom of reproductive choice, could be restricted by various types of patriarchal oppression that are forcefully pro-natal (Folbre, 1983; McDonald, 2000).

Couples who are more traditional are more likely to intend having children soon after marriage (Goldscheider & Waite, 1991; Rindfuss et al., 1988; White & Kim, 1987; Kaufman 2000). However, amongst couples with more equal relationships, fertility intentions are lower compared to those who have more traditional values (Chapman, 1989; Scanzoni, 1976;

Kaufman, 2000). In USA, Kaufman (2000) reports that women with egalitarian attitude were likely to have lower fertility intentions compared to those with more traditional values.
In Indian society having children is seen as a way through which tradition can be perpetrated and ancestral lineage can be maintained. They are also seen as agents who will care for their parents in their old age. Due to the patrilineal nature of society, sons are expected to look after parents at their old age (Das 1986).

Gender norms are an important consideration while examining the resources available to Indian women, both in terms of educational and job opportunities. They are also a significant determinant of their autonomy (Dyson and Moore, 1983; Mason, 1984, 1993; Basu, 1992; Mason et al., 1995; Visaria, 1996). Not unexpectedly, these norms are largely a reflection of the caste, region and religion a woman belongs to (Kemp, 1986; Desai and Jain, 1994; Kapadia, 1995). Indian society has traditionally been patriarchal in nature and this has negatively affected the employment opportunities of women (Presser and Sen, 2000). For instance, it has been seen that in the absence of patriarchal controls, women are always a part of the labor force (Brinton, Lee and Parish, 1995).

In most parts of India however, families follow the female homemaker, male breadwinner model, even when the women in the family are educated (Khanna & Varghese, 1978; Standing, 1991). With time, a higher percentage of women are being educated in India, however gender equality within household institutions is not high. Much of the childcare work, is done by women. In many of the Northern States of India, gender inequality is also high in external institutions (such as education and employment). As women achieve higher levels of education and employment, they will achieve higher levels of gender equality in institutions outside the household. However, this incompatibility between the gender equality in household level institutions and institutions outside the household might lead to a lower desire for number of children. In cases where inequality in both individual institutions and household remain high, fertility levels will remain high (McDonald, 2000).

3. The Present Study

The first part of the present paper looks at women's fertility intention rather than actual completed fertility. It looks at both the individual level (women's education and employment status) and contextual determinants (the State in which the woman resides and the district level gender norms (women's decision making power and mobility)) of fertility intention in India using the India Human Development Survey 2005. It also examines the differences in the impact of women's education and employment on fertility intention across regions. Only currently married women aged 18-40 are considered for this part of the analysis. For this part of the study, the dependent variables are two different variables used to measure fertility intention. The first variable is the ideal number of children a woman would want to have (assuming that she begins her reproductive life all over again). The second variable measures how many more children a woman wants to have given the number of children she already has.This part of the study controls for demographic characteristics and other factors such as parity, age, caste, religion, number of married women in the household, area of residence (urban versus rural), other family income.
The next part of the study examines whether for a sub-sample of women aged 25-40, who do not intend to have any more children, fertility intentions determine fertility behavior. It is expected that controlling for regional variations, women's employment, education, other socio-demographic traits and contraceptive use would weaken the impact of fertility intentions on behavior. For this part of the study, the dependent variable will be the number of children born to a woman after 2005. The key independent variables in the analysis will be regional markers which allow us to examine regional variation in both the level of unintended fertility as well as variation in its determinants. The control variables used in the first part of the model will be included. In addition there will be controls for whether or not the couple uses contraception.
Baseline fertility intentions are more likely to get translated into future fertility behavior for

women who reside in the Southern states compared to the North-Central and Central States. Also in areas where society is more liberal and less patriarchal, fertility intentions are more likely to get realized in the future, compared to areas with stronger gender norms.
Thus, the study examines if fertility intention only mediates the relationship between other variables and fertility behavior or whether it impacts fertility behavior even after accounting for regional differences and differences in socio-demographic variables.

4. Data

The present study uses data from IHDS 2005 and 2012. IHDS is a nationally representative survey of 41,554 households (includes 215,754 individuals) that are spread across all the States and Union Territories of India (except for Andaman Nicobar and Lakshadweep), covering 384 districts, 1503 villages and 971 urban blocks. This survey was first conducted in 2005 and in 2011-12 there was a second wave, where these households were re-interviewed with an 83% re-contact rate and the sample was augmented to make up for the attrition to urban areas. Other than modules on the household that were answered by the head of the household, who had sufficient knowledge about the income, expenditure etc of the household (often a man), there were modules on health and education, which were answered by women. Women also answered questions on gender relations, fertility history and number of ideal children . The IHDS has collected data on income, consumption, employment, caste, religion, etc.

The IHDS has better measures of women's workforce participation compared to other surveys in India. The estimates for women's work participation obtained by the IHDS might be greater than both the Census and the National Sample Survey because special effort was made in the survey to obtain information on women's work particularly in household enterprises such as farming, caring for livestock and small household businesses. The IHDS also has nationally representative data on an extensive set of questions that cover gender relations within the household.

The first part of the present study includes only currently married women aged 18-40. For the first part of the analysis that uses cross-sectional data, the sample includes 25,201 women from 2005. The second part of the analysis considers fertility intention of 1,978 currently married women aged 25-40, who do not want to have any more children in the future and determines whether their baseline intentions translate into future fertility behavior in 2012.

5. Preliminary Bivariate Results

This section looks at the bivariate relationship between the ideal number of children that a woman wants to have with her education level, employment status and the region where she resides. Figure 1 depicts the percentage of women (in each category of education) by fertility intention in the years 2005.
-Figure 1 about here-

It can be seen that the largest percentage of women in each category of education, desire two children. In India almost no one wants to be childless. Percentage of women desiring one child increases as levels of education increases. For e.g. for women with primary and post-primary school education around 4.45 % of women in 2005 want one child whereas for women with a college or higher degree 14.5 % women desire one child. The proportion of women desiring two children increases as level of education increases. Percentage of women desiring three children or four or more children declines as education levels increase from illiterate to college graduate or higher. For e.g. for illiterate women, the percentage of women desiring three children is around 27.23% in; whereas amongst those with a college degree or higher only 4.29 % esire three children. Figure 2 shows the percentage of women (in each category of employment status) by fertility intention in the year 2005.

-Figure 2 about here-

The results in the figure are contrary to our expectations. The figure shows that a larger percentage of working women (compared to those who are not working) desire three children and four or more children; whereas a larger percentage of women who don't work desire two or fewer children. This could be because of the definition of the work variable. Women who are working might not be earning high enough returns, and they may rather spend their time raising children. Also, the relationship between education and employment in India is J-shaped, women's labor force participation declines with an increase in education with slight increases post high-secondary education. Illiterate women are more likely to be a part of the workforce compared to college graduates (or higher degrees).

Finally, figure 3 shows the percentage of women (in each region) by fertility intention in the 2005.

-Figure 3 about here-

This figures shows that in almost every region the largest proportion of women would ideally want to have two children. Referring to figure 3 it is seen that the proportion of women desiring one child is the highest in the Eastern part of the country and the lowest in the North-Central and Central parts. Proportion of women desiring two children is the highest in the South and the lowest in the North Central, with the second lowest being in Central parts of India. Proportion of women desiring three children and four or more children is the highest in the North Central and Central parts of India. Proportion of women desiring three children is the lowest in the Southern parts.

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Figure 1: Fertility intentions of married women ages 18-40 by educational level, IHDS 2005

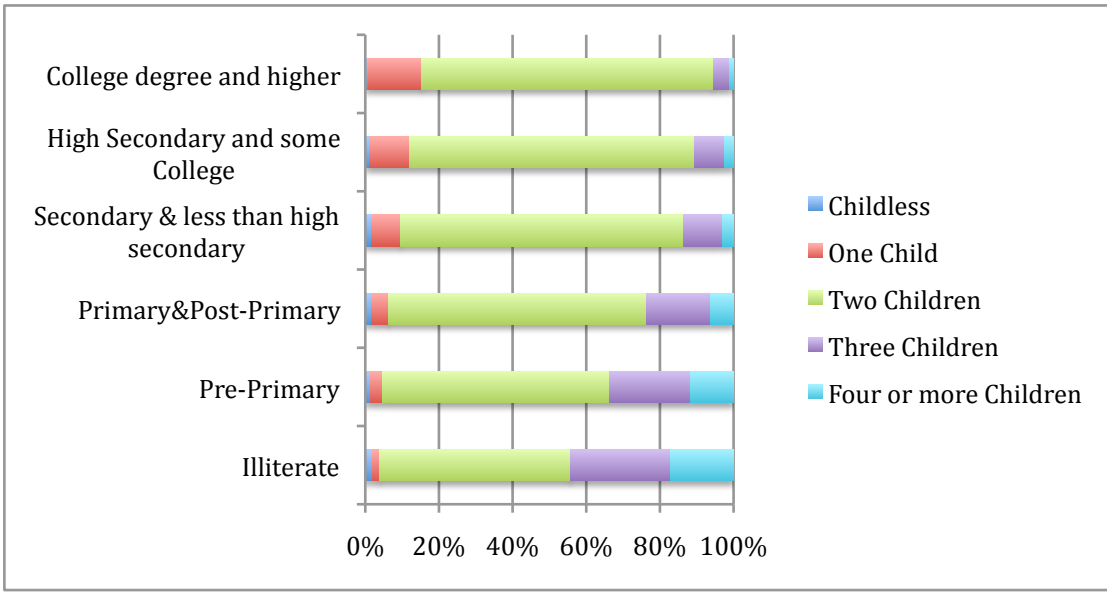


Figure 2: Fertility intentions of married women ages 18-40 by employment status, IHDS 2005

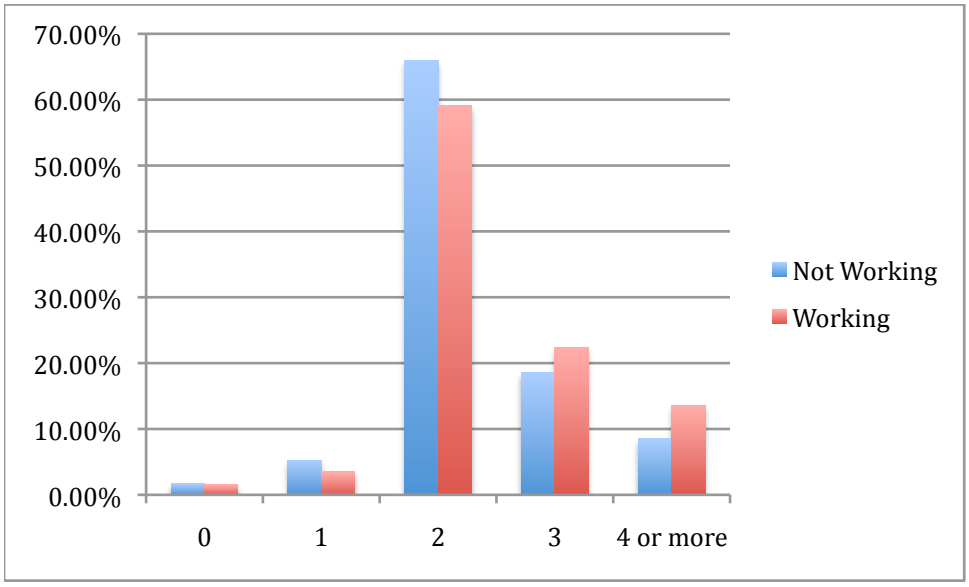
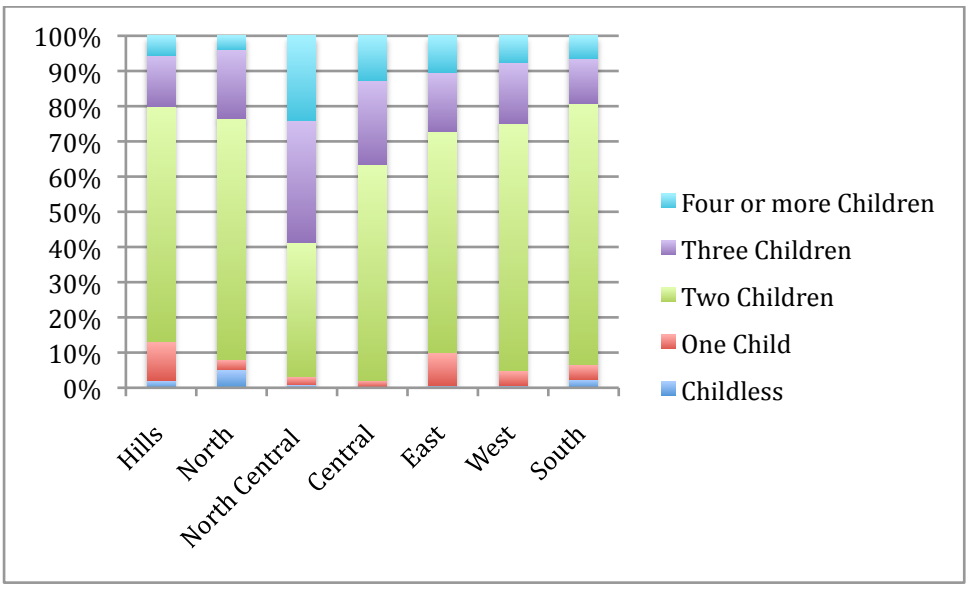


Figure 3: Fertility intentions of married women ages 18-40 by region, IHDS 2005



References:

1. Basu, A.M. *Culture, the status of women and demographic behavior; illustrated with the case of India*, Clarendon Press, Oxford (1992).

2. Beckman, L. J. (1978). Couples' decision-making processes regarding fertility.*Social demography*, 57-81.
3. Brinton, Mary C. Yean-Ju Lee, William L. Parish. "Married Women's Employment in Rapidly Industrializing Societies: Examples from East Asia", *American Journal of Sociology*, 100 (1995) :1099-1130.
4. Brown, S. S., & Eisenberg, L. (Eds.). (1995). *The best intentions: Unintended pregnancy and the well-being of children and families*. National Academies Press.
5. Bumpass, L. L. (1987). The risk of an unwanted birth: The changing context of contraceptive sterilization in the U.S. *Population Studies*, 41, 347-363.
6. Cain, M. T. (1984). Women's status and fertility in developing countries: Son preference and economic security. *Working Paper of the Center for Policy Studies,* no. 110. New York: The Population Council.
7. Cleland, J. (1985). "Marital fertility decline in developing countries: theories and the evidence." Reproductive change in developing countries: insights from the World Fertility Survey, edited by John Cleland and John Hobcraft, in collaboration with Betzy Dinesen. London, England, Oxford University Press, 223-52.
8. Cochrane, S.H. (1979). *Fertility and education,* Johns Hopkins University Press, Baltimore, MD
9. Desai, Sonalde and Devaki Jain. "Maternal Employment and Changes in Family Dynamics: The Social Context of Women's Work in Rural South India", Population and Development Review 20 (1994) :115-136.
10. Drèze, J. and A.K. Sen. (1995). *India: Economic Development and Social Opportunity,* Oxford University Press, Oxford.
11. Dyson, Tim, and Mick Moore. "On kinship structure, female autonomy, and demographic behavior in India." *Population and development review* (1983): 35-60.
12. Folbre, Nancy. "Of patriarchy born: The political economy of fertility decisions." *Feminist Studies* (1983): 261-284.
13. Greenhalgh, Susan (Ed.). (1995). *Situating fertility: Anthropology and demographic inquiry*. Cambridge University Press.
14. Goldscheider, Frances K., and Linda J. Waite. *New families, no families?: the transformation of the American home*. Vol. 6. Univ of California Press, 1991.
15. Hagewen, Kellie J. and Philip S. Morgan. "Intended and ideal family size in the United States, 1970-2002". *Population and Development Review* 31 (2005) : 507-527
16. Hochschild, A. (1989). *The second shift: Working parents and the revolution at home*. New York: Viking.
17. Jejeebhoy, Shireen J. (1995). *Women's education, autonomy and reproductive behavior: experience from developing countries*, Clarendon Press, Oxford.
18. Jejeebhoy, Shireen J., and Zeba A. Sathar. "Women's autonomy in India and Pakistan: the influence of religion and region." *Population and development review* 27.4 (2001): 687-712.
19. Jeffery, P. and R. Jeffery (1993). "Killing my heart's desire: Education and female autonomy in rural North India" in N. Kumar (Ed.), "*Woman as subject"*, Bhatkal and Sen, Calcutta.
20. Kemp, Sharon F. (1986). "How Women's Work is Perceived: Hunger or Humiliation" in James Warner Bjorkman (ed) The Changing Division of Labor in South Asia. Riverdale, Maryland, USA: The Riverdale Company Publishers, pp84-99.
21. Khanna, Girija, and Mariamma A. Varghese. *Indian women today*. Vikas, 1978.
22. Lindert, Peter H. (1978). *Fertility and scarcity in America*. Princeton University Press, Princeton, New Jersey, USA.
23. MacQuarrie, K., Edmeades, J., MacAulay, C., Nyblade, L., & Malhotra, A. (2011). The Path Less Taken: Use of Contraception and Abortion over the Life Course in Madhya Pradesh, India.
24. Mari Bhat, P. N. "Returning a favor: Reciprocity between female education and fertility in India." *World Development* 30.10 (2002): 1791-1803.

25. Mason, Karen Oppenheim, and Herbert L. Smith. "Women's empowerment and social context: results from five Asian Countries." *Gender and Development Group, World Bank, Washington, DC* (2003).
26. Mason, Karen Oppenheim (1984). *The status of women: A review of its relationships to fertility and mortality*. Rockefeller Foundation.
27. Mason, Karen Oppenheim (1993). "The impact of women's position on demographic change during the course of development," in Nora Federici, Karen Oppenheim Mason, and Sølvi Sogner (eds.), *Women's Position and Demographic Change*. Oxford: Clarendon Press.
28. Mason, Karen Oppenheim et al. (1995). "Determinants of women's power and autonomy in five Asian countries," paper presented at the *Annual Meeting of the Population Association of America, San Francisco.*
29. McClelland, G. H. (1983). Family-size desires as measures of demand.*Determinants of Fertility in Developing Countries: A Summary of Knowledge*, (15), 234.
30. McElroy, Marjorie B., and Mary Jean Horney. "Nash-bargained household decisions: Toward a generalization of the theory of demand." *International Economic Review* 22.2 (1981): 333-349.
31. Miller, W. B., & Pasta, D. J. (1995). Behavioral Intentions: Which Ones Predict Fertility Behavior in Married Couples? 1. *Journal of Applied Social Psychology*, *25*(6), 530-555.
32. McDonald, Peter. "Gender equity, social institutions and the future of fertility."*Journal of population research* 17, no. 1 (2000): 1-16.
33. Murthi Mamta, Anne-Catherine Guio, Jean Dreze.1996. "Mortality, fertility and gender Bias in India: A District- level Analysis" in Jean Dreze and Amartya Sen (eds) *Indian Development: Selected Regional Perspectives.* New Delhi, Oxford University Press. pp 357-406
34. Quesnel-Vallée, Amélie and Philip S. Morgan. "Missing the target? Correspondence of fertility intentions and behavior in the United States," *Population Research and Policy Review* 22 (2003): 497-525.
35. Rendall, Michael S., Olivia Ekert-Jaffé, Heather Joshi, Kevin Lynch, and Rémi Mougin "Universal versus economically polarized change in age at first birth: A French-British comparison". *Population and Development Review* 35(1) (2009):89-116.
36. Rindfuss, R.R., S.P. Morgan, and G. Swicegood. (1988). *First Births in America*. Berkeley: University of California Press.
37. Rindfuss, R., D. Guilkey, S. P. Morgan, 0. Kravdal, and K. B. Guzzo. 2007. "Child careavailability and first birth timing in Norway." Demography 44(2): 345-372.
38. Scanzoni, J. (1976). Gender roles and the process of fertility control. Journal of Marriage and the Family, 38, 677-691.
39. Schoen, Robert, Nan Marie Astone, Young J. Kim, Constance A. Nathanson, and Jason M. Fields.. "Do fertility intentions affect fertility behavior?" *Journal of Marriage and the Family*, 61(3) (1999), 790- 799.
40. Schoen, Robert, Young J. Kim, Constance A. Nathanson, Jason Fields, and Nan Marie Astone. "Why do Americans want children? *Population and Development Review* 23 (1997): 333-358.
41. Speizer, I. S., Calhoun, L. M., Hoke, T., & Sengupta, R. (2013). Measurement of unmet need for family planning: longitudinal analysis of the impact of fertility desires on subsequent childbearing behaviors among urban women from Uttar Pradesh, India. *Contraception*, *88*(4), 553-560.
42. Thomson, E. (1997). Couple childbearing desires, intentions, and births. *Demography*, *34*(3), 343-354.
43. Thomson, E., McDonald, E., & Bumpass, L. L. (1990). Fertility desires and fertility: Hers, his, and theirs. *Demography*, *27*(4), 579-588.

44. Torr, Berna Miller, and Susan E. Short. "Second births and the second shift: A research note on gender equity and fertility." *Population and development Review* 30.1 (2004): 109-130.
45. Turchi, Boone A. "Microeconomic theories of fertility: A critique." *Social Forces* 54.1 (1975): 107-125.
46. Visaria, L. (1996). “Regional variation in female autonomy and fertility and contraception in India.” In *Girls' Schooling. Women's Autonomy and Fertility Change in South Asia*. Eds. Roger Jeffery and Alaka M.Basu. New Delhi : Sage Publications.
47. Vlassoff, C. (1990). Fertility intentions and subsequent behavior: a longitudinal study in rural India. *Studies in Family Planning*, 216-225.
48. Vlassoff, C. (2012). Desire for sons and subsequent fertility in rural india. A 20-year longitudinal study. *Journal of biosocial science*, *44*(03), 345-356.
49. Westoff, C. F., & Ryder, N. B. (1977). The predictive validity of reproductive intentions. *Demography*, 14, 431-453