

## *Unleashing the Potential of Women's Education in Shaping the Demography Construct in India*

**Janu Anushree, Research Scholar, Jawaharlal Nehru University, India**

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### **ABSTRACT**

Education matters greatly for almost every aspect of progress in human development. The empowering function of education, especially for women, is considered a major goal in its own right (Wolfgang Lutz and Samir KC). This article presents a recent decadal overview (2003-2013) of the relationship between women's education and changed demographic characteristics associated with lower fertility in India. Hence, population outlook depends greatly on further progress in education, particularly of young women. An attempt has been made to establish a relationship between TFR (Total Fertility Rate) and level of educational attainment among women in India. Considerable diversity exists in the magnitude of the gap between upper and lower education strata in the strength of association. Data has been procured from the Sample Registration System (SRS), Census of India with the time span from 2003, 2013 and 2015.

The line of research has helped to explain why the pattern of the association between fertility and education of women in India is not static over the course of Demographic transition. Theories show that economic development and the rise of women's status in India through education has a structural transformation in production modes and that it led to the change in attitude towards traditional values and change in family structure, which contributes to human development, including health and democracy. In the end, the paper concludes, by finding that, if India is to cope with its population dilemma, fertility control must be constructed broadly, and educational opportunities for women must be upgraded so as to empower them with better-informed choices

*Keywords:* Women's Education, Fertility, Demography transition, TFR, Empowerment

### **INTRODUCTION**

Education is a key part of strategies to improve individuals' well-being and societies' economic and social development. Education, especially for girls and women, is one of the most highly leveraged investments that a country can make in its future. Amartya Sen emphasized the importance of education as a means to expand an individual's capability to achieve 'functioning' that make up the well being (Sen, 1992). When a woman is educated she gains the agency and capabilities to achieve her well being. In addition, Millennium Development Goals (MDG), now Sustainable Development Goals (SDG) include a goal for improved education, Gender Equality and Women's Empowerment. The literature on the link between women's education and fertility indicates the rising level of education must have instrumental in lowering fertility. Parasuraman et al. concluded that among all socio-economic variables, education has the greatest net effects on

fertility. As a complement to qualitative studies, quantitative analysis based on women's education affecting intermediate factors that influence fertility will contribute to sharpening the picture of the process. The main objective of this paper is to find out the relationship between women's education and fertility.

## DATABASE AND METHODOLOGY

The first source is Census of India, SRS (Sample Registration System) data published in 2003, 2013 and 2015. This has been used to examine the level of fertility (TFR) during the last decade from 2003-2015. It is also being used to see Total Fertility rate by levels of education of women.

The next source for this study is the NFHS 3 (National Family Health Survey). Data for an intermediate indicator of fertility have been taken which has influence through a direct factor like educational attainment by women as proposed by Bongart.<sup>1</sup> The following simple diagram summarizes the relationship among determinants of fertility.

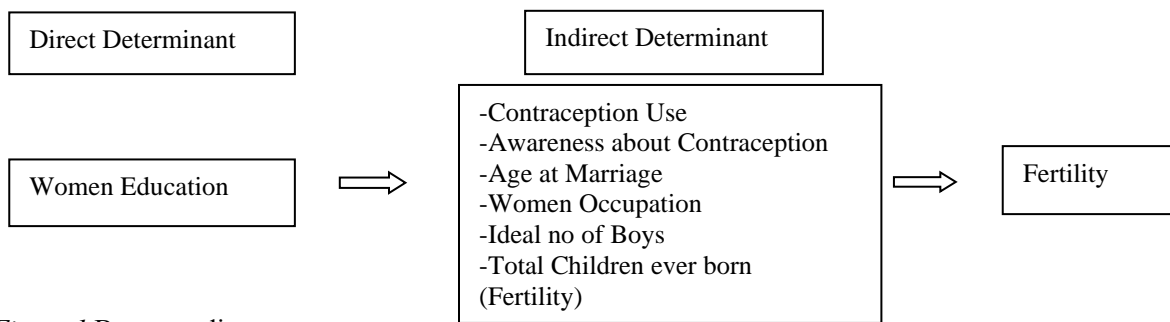


Figure 1 Bongarts diagram

The paper is within the confines of quantitative data collection, bringing in perspective from journals to explain the discrepancies. The complex relationship between education and women's development and their role in shaping the demographic construct (indirect determinant to fertility) in India is dealt through the Pearson Correlation method.

## TOTAL FERTILITY RATE (TFR)

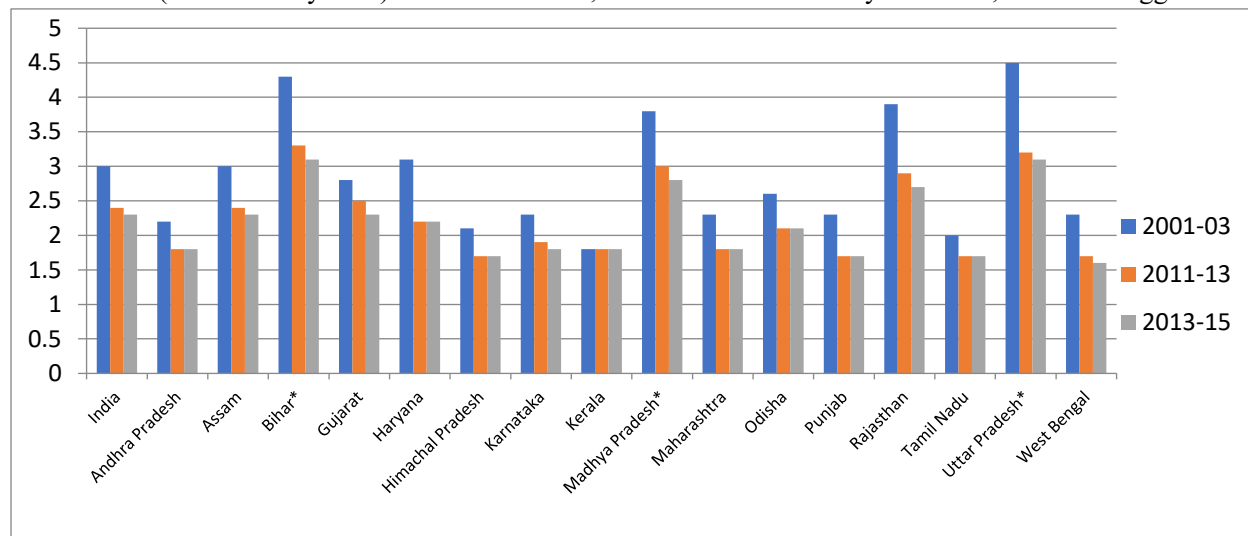
The cumulative value of the age-specific fertility rates at the end of the childbearing ages gives a measure of fertility known as Total Fertility Rate (TFR). The average number of live births a woman would have by age 50 if she were subject, throughout her life, to the age-specific fertility rates observed in a given year. Its calculation assumes that there is no mortality ([www.un.org](http://www.un.org)). The

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<sup>1</sup> Bongarts, John, "A framework for analyzing the proximate determinants of fertility", *Population and Development Review*, Vol. 4., No. 1(Mar.,1978), pp.105-132.

TFRs worked out on the basis of the ASFRs for the year 2015 are given for India and bigger States/Union Territories (UTs).

*Table 1* TFR (Total Fertility Rate) between 2001-03, 2011-13 and 2013-15 by residence, India and bigger states



The TFR for India in the year 2015 was 2.3 per woman and varies from 2.5 in rural areas to 1.8 in urban areas. Regional location exerts a strong influence on fertility even after controlling for other factors. In particular, fertility in south India is distinctly lower than the northern region by around 0.5 children per woman. States like Andhra Pradesh, Kerala, Karnataka report fertility below replacement level (2.1) whereas it accounts highest (3.1) in both Uttar Pradesh and Bihar. Fertility rates in the east (Orissa and West Bengal) and west (Maharashtra) are below the replacement level (2.1). The existence of these location-specific effects does not in any way compromise the effects of other explanatory variables reported earlier.

Among the bigger States/UTs, it varies from 1.6 in Tamil Nadu and 1.6 in West Bengal to 3.1 in Bihar. The chart presents levels of TFR by residence for India and bigger States/UTs, 2015. The percentage change in the average level of TFR between the periods 2003-05 and 2013-15 in India and bigger States/UTs. During the period TFR has declined by 20.7 percent at the National level. Among the bigger States/UTs, the decline varies from 27.9 percent in Bihar and Uttar Pradesh to nil in Kerala. All bigger States/UTs have shown decline except in the Kerala and Tamil Nadu urban areas. Among bigger States/UTs, Andhra Pradesh, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Punjab, Tamil Nadu and West Bengal has an average TFR below 2.0 during 2013-15. The highest decline can be seen in Uttar Pradesh from 4.5 in 2003 to 3.1 Owing to various reasons these overall fertility rates seem more related to the state’s development. For instance,

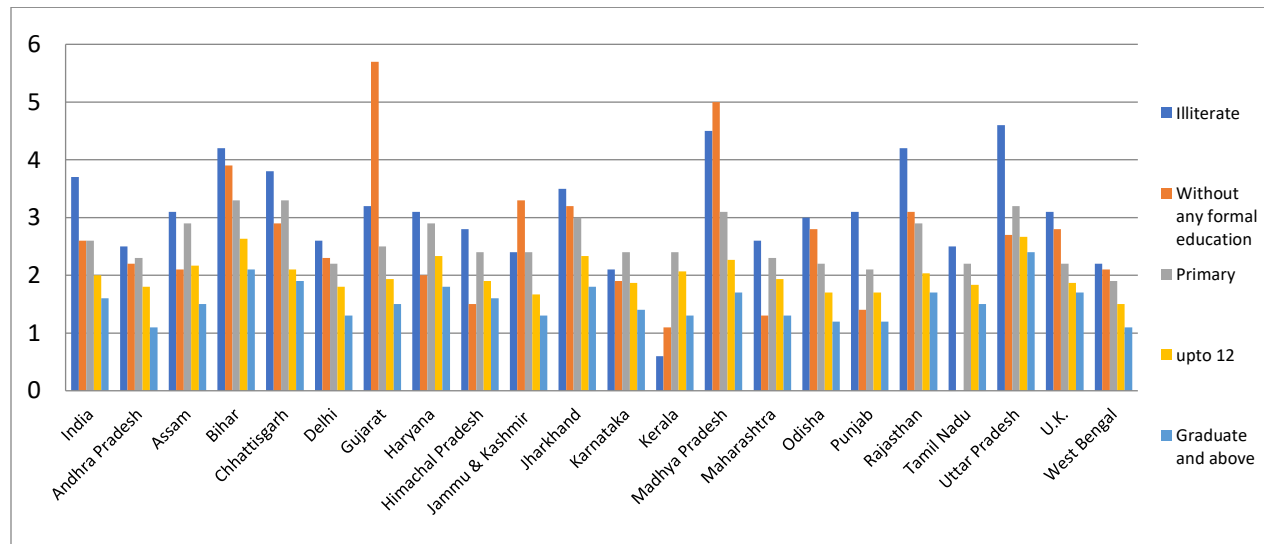
from the census of India, it can be seen that Kerala has a literacy rate of 93.9%, compared to 69.7% in Uttar Pradesh in 2011. In the same year, 99.7% of mothers in Kerala received medical attention at delivery compared to 48.4% of mothers in Uttar Pradesh. Seventy-four-point nine percent of women were above the age of 21 in Kerala at marriage, compared to only 47.6% in Uttar Pradesh.

Further socio-economic factors affect the fertility of religious groups in different ways. For instance, higher education for women, and secondary education for men lower the fertility of Muslims but not of Hindus or Christians, the study reported, suggesting that family planning programs might have to be designed keeping these differences in mind.<sup>2</sup>

Another way to interpret population growth rates is through the difference in poor and rich states. Empowered Action Group states, which include the poorest in India – Rajasthan, Uttar Pradesh, Uttarakhand, Bihar, Jharkhand, Madhya Pradesh, and Chhattisgarh – have higher population growth. Between 2001 and 2011, the population of Empowered Action Group states grew at a rate of 21%, compared to 15% for the rest of India. Still, decadal population growth rates even in these states have fallen when compared to the decadal growth rate of 24.99% between 1991 and 2001.

**TOTAL FERTILITY RATE BY LEVELS OF EDUCATION OF WOMEN**

Table 2 Total Fertility Rate by levels of education of women, India and bigger states/UT, 2015



Education, more precisely female education, has a direct impact on fertility. To ascertain

<sup>2</sup> Iyer, Sriya, “Understanding Religion and The Economics of Fertility in India”, Centre of South Asia Studies Occasional Paper 2, Centre of South Asia Studies, Cambridge, 2002.

levels of fertility by educational status of women indicator of total fertility rate by educational status of women have been worked out separately for major states of India. These are discussed in the subsequent paragraphs.

Total fertility rates by education levels of the women for India and bigger States/UTs are presented in table 2. At the national level, the total fertility rate for women having educational status 'Illiterate' for 2015 is 3.7. This is much higher than the 'Literate' group of women. Among the 'Literate' (2.1), there is a gradual decline of TFR with the increase in the level of education. As can be observed from the graph, TFR is mainly above 3 in the cohort of illiterate women population. It goes to below replacement level (2.1) in the composition of women where women's education level is up to 12 standards, except in the states of UP, Bihar, Jharkhand, Assam, Haryana, and M.P. Subsequently replacement level in these states has been achieved the composition of population who are graduates and above with the only exception of state U.P (2.4).

Kerala is the only state where the population of illiterate women has achieved TFR below one as compared to the population where women's education is up to 12<sup>th</sup> standard. This is due to the trickle-down effect from women with higher education cohort to an economically deprived population where education has not percolated down and has remained illiterate (P. Arokiasamy., et al., 2004).<sup>3</sup> States like Gujrat, M.P., Rajasthan, and U.P., have TFR glaring as high as 4 in cohort with any formal education.

Female literacy is the single most frequently cited indicator in explaining this achievement.<sup>4</sup> A few studies have also focused on the recent fertility experience of Tamil Nadu and of south India in general.<sup>5</sup> Tamil Nadu is notable for having achieved replacement-level fertility without reaching Kerala's high level of female literacy or its low level of infant mortality. Using the state-level indicators of fertility, some researchers have grouped Indian states into two demographic regimes: south with low fertility and north with high fertility.<sup>6</sup>

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<sup>3</sup> P. Arokiasamy et. al, "Female education & fertility decline: Recent development in the relationship", *Economic & Political Weekly*, Vol. 39, No. 41, (oct 9-15 2004), pp 4503-4507.

<sup>4</sup> Krishna, T.N., (1976), "The demographic transition in Kerala: facts and figure: CDS Working paper 36", Trivandrum: CDS.

<sup>5</sup> G. Christophe, R. Irudaya, "Fertility at district level in India: Lesson from 2011 Census", Working paper du CEPED, Paris, June 2013.

<sup>6</sup> Dyson, T. and Moore, M. (1983) On Kinship Structure, Female Autonomy, and Demographic Behaviour in India. *Population and Development Review*, 9, 35-60.

**EDUCATION AND INTERMEDIATE FERTILITY VARIABLES:**

The primary characteristic of an intermediate fertility variable is its direct influence on fertility. If an intermediate fertility variable, such as the prevalence of contraception, changes, then fertility necessarily changes also (assuming the other intermediate fertility variables remain constant), while this is not necessarily the case for an indirect determinant such as income or education. Consequently, differences among populations and trends in fertility over time can always be traced to variations in one or more of the intermediate fertility variables. So, education being an indirect determinant has its influence on fertility by influencing direct determinant, which is a potent source in impacting demography construct through fertility.

Table 3 Correlation Between Women’s Education and Proximate Determinants of Fertility

Table Showing Correlation Between Women’s Education and Proximate Determinants of Fertility						
Correlation	Women Education	Contraception Use	Knowledge about Contraception	Age at Marriage	Women Occupation	Ideal No of Boys
Women Education	1	-.108**	0.047**	0.414	-.257**	- 0.322* *
Contraception Use		1	.138**	-.055**	0.034	.030**
Knowledge about Contraception			1	-.002**	-.010**	- .056**
Age at Marriage				1	-.112**	- .179**
Women Occupation					1	.115**
Ideal No of Boys						1

Source: NFHS 3 \*\*Correlation is significant at 0.01 level, \* Correlation is significant at 0.05 level (1-tailed)

In this present study sterilization as method has also been incorporated in contraception usage. Since sterilization has been practiced by the poor masses in India, the correlation between women’s education and contraception use is not positive with an increase in education of women.

The next variable, “Awareness about Contraceptive,” has a positive and significant correlation (0.047\*\*) with the higher educational attainment of women. This can be explained as with the increase in higher education among women; awareness has increased. And the most popular method of contraception is sterilization among poor people as they cannot afford contraceptive methods like condom use due to economic constraints. “Educational aspiration,” (Ainsworth et al.,1996) believed when women received more education, they aspire to further their studies, in turn encouraging women to use contraception to refrain from having children or at least

choose to have fewer children than before.<sup>7</sup>

Higher bargaining power in fertility decisions for more educated women (Mason,1986) is the possible channel through which education would influence the age at marriage and first birth. As can be seen, women's education level and age at marriage have a positive correlation of .414.

The negative association between education and occupation, on the other hand, is postulated to arise through multiple causes. Education, for instance, in urban areas by increasing market productivity more than home productivity, creates incentives for women to shift more of their time from home to market production (Becker, 1981). But, in India, most of the women are engaged in agricultural activities, which comprises more than 3/4<sup>th</sup> of the women workforce. So, the value of correlation between education and fertility comes out to be negative and significant (-.257\*\*)

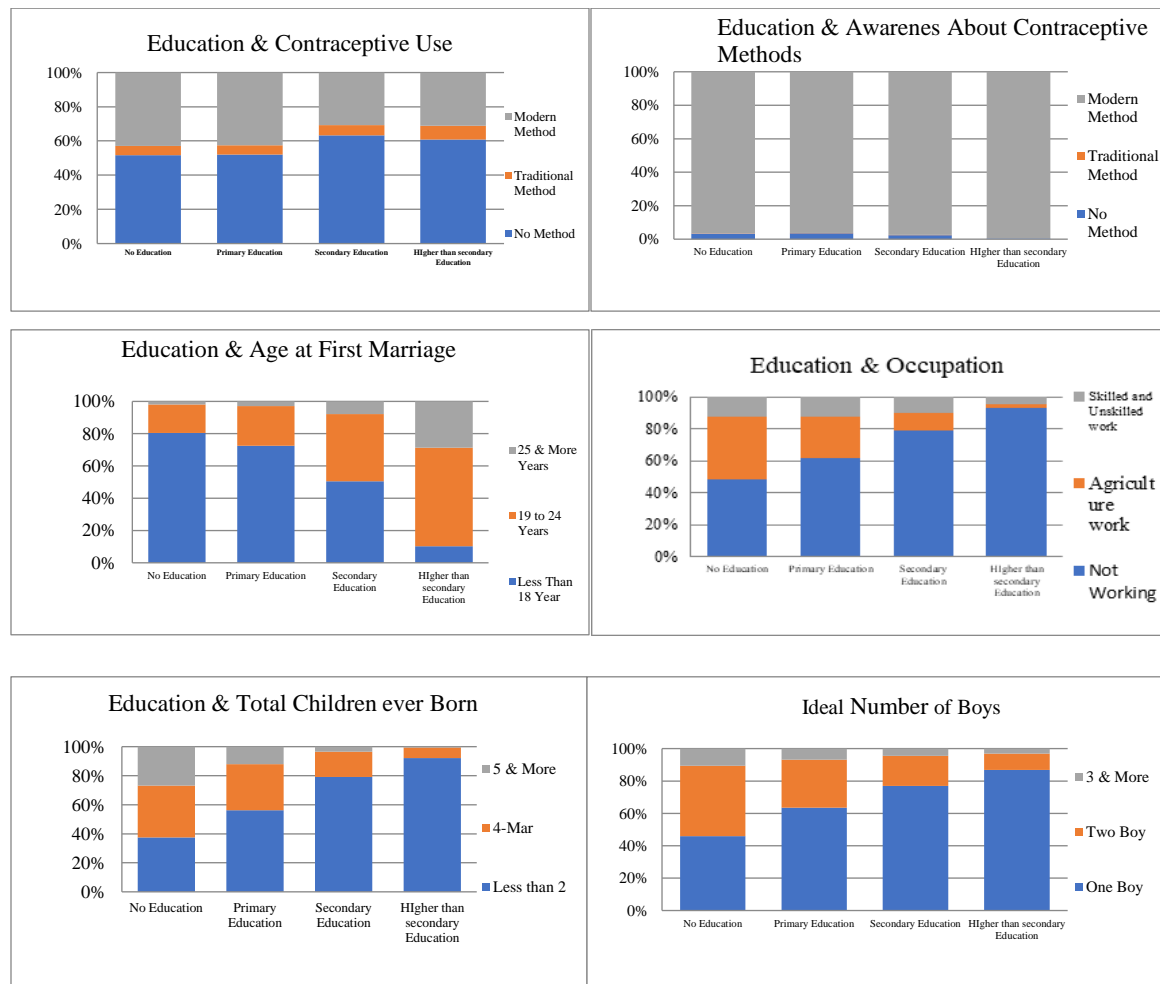
In addition to these familiar determinants of fertility, we examine the possible role of son preference in enhancing fertility. This concern arises from the common-sense observation that desire for a specified number of sons often interferes with the transition toward small-family norms, particularly in north India. But as can be observed from the table that with the advancement of marriage among women, it shows a negative and significant correlation (-.332\*\*) with the preference of son. This can be explained through the economic value of education or difference in direct or in opportunity cost associated with childbearing.

Lastly, the final outcome of the impact of women education on "Total children ever born" (TFR) has come out to be negative and significant with a correlation value of -.441. This can be explained as functional literacy and numeracy plays an important role in changing the status within and outside the immediate family. It increases the chance of being exposed to mass media especially through printed material. This helps to broaden their inner circle of contact beyond their immediate vicinity and helps to reduce their isolation from the communication network.

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<sup>7</sup> M. Ainsworth, K. Beegle, and A. Nyamete, "The Impact of Women's Schooling on Fertility and Contraceptive Use: A Study of Fourteen Sub-Saharan African Countries," *World Bank Economic Review* 10.1 (January 1996): 85-122.

**Table 4** Intermediate Determinants of fertility by levels of education of women In India



This present section is targeted to see the impact the level of education has on intermediate determinants of fertility. As can be inferred from the graphs in Table 4 and as well as from the previous discussion, modern methods usage of contraception like condoms has increased in the cohort of higher education population, but methods like sterilization are attributed as reason for deviation in explaining a reverse in this trend where less educated or illiterate show a greater usage of contraceptives. So, sterilization is included in the modern means of contraception, which is more popular among poor sections of society where the education level is not so high.

The second indicator can also be explained from the above explanation of as with higher education awareness and access about sterilization as a method of contraceptive is more popular among less economically section, which forms the illiterate and less educated section of society.

Moving on to an indicator of “Education and age at first marriage,” as can be seen from



the graph, 80% of the marriages had happened when the population was below 18 years of age in the illiterate group section. With the increase in the level of Education, women getting married below 18 years of age have significantly come down. And the share of the population who has married at 25 or more has increased to 25% when the level of education has risen to higher education and more. Yet another reason is the shortened exposure time due to delayed marriage with schooling. In social settings where contraceptive use and knowledge is limited, fertility will be a function of age at marriage. This output has been supported by many scholars like K. P. Singh<sup>8</sup> and Jerry S. Manekar and Robert P. Rankin.<sup>9</sup>

The “Relation of Education and occupation” is very interesting to note in India, as with attainment of higher education among the women the share of the non-working population among women has increased in leaps and bounds from around 45% in the illiterate cohort to about 90% when the education of women is at least as high and above. This can be explained as with more education women prefer not to take menial jobs, especially the higher caste and economically well-off families. The share of the female workforce in rural areas has decreased in India due to the availability of government schemes like Mahatma Gandhi National Rural Employment Guarantee Act (MGNERGA), which provides 100 days of guaranteed employment in a year.

Role of “Female education and total children born to them” has a substantial effect as from Indian experience more years of education women have, the lower is their fertility. There is also noticeable variation across the states in the extent to which fertility declines with education. Illiterate women in the south have lower fertility than educated women in northern states. At extreme, women in Kerala, have lower fertility than women in Bihar and Uttar Pradesh. At first glance, these trends seem to suggest that female education may no longer be a key prerequisite for fertility decline. This is too simplistic an interpretation. It may be more meaningful to argue that while women’s own education, and other socio-economic circumstance, are no longer accurate predictors of their fertility behavior, education is nevertheless influencing their behavior in less direct ways. As India’s fertility transition progresses, it may well be that these less direct ways become the mainstream through which education influences fertility.

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<sup>8</sup> K.P Singh, “Sociological Bulletin”, Vol. 23, No.2 (Sep 1974) pp. 236-244.

<sup>9</sup> Jerry S. Manekar & Robert P. Rankin, “Journal of Marriage & Family”, Vol.47, No. 3 (Aug. 1985) pp. 675-683.

The concept that increasing female education would reduce son preference and increase gender indifference is consistent with a large body of literature on rising female socio-economic status through female education and diminished traditional gender role attitudes. It is seen in the graph in table 4 that when females have more than a secondary education there is a preference for fewer than two sons. And, as the education level increase to a more than higher level among females, their preference has been limited to one son.

### CONCLUSION

The findings of this paper consolidate earlier evidence on the connection between female education and fertility that would shape the demographic construct in India. While many previous studies have noted a close bi-variate association between both, the present analysis takes us beyond that well-known observation in several aspects. The paper presents that TFR for India in 2015 has declined to 2.3 with the remarkable distant difference between northern and southern Indian states. Also, as can be seen from the tables, female education has a direct impact on fertility. With the increase in the level of educational attainment among women, TFR has declined.

The multivariate approach has helped to establish that a connection between female education and proximate determinant of fertility is significant, which determines fertility in India, especially positive and significant correlation found between female education and “Knowledge about Contraception,” “Age at marriage.” Second, the robustness of this coefficient suggests that it is driven by a direct link between female education and proximate determinant of fertility. The analysis also highlights the role of preference for sons in sustaining high fertility levels in India. And it has shown a negative correlation as with attainment of higher education among females, their preference for ‘Ideal no of boys’ has decreased.

Fertility decline is not just a byproduct of economic growth. It relies on the enhancement in the specific condition that is conducive to changed fertility goals and could help a couple to reduce their goal. So, finally the projection of future fertility trends, the paper can be used to estimate how much one or more combination of several of intermediate fertility variable would have to be modified to obtain a given reduction in fertility. So, in shaping the demographic construct female education is the bus that should not be missed.

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