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Title: Sex Composition of the Children and Future Fertility Intentions

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Background

Son preference is considerably high in India and also it has been emerged as one of the most important determining factor of Sex Ratio at Birth, last birth and among child population (Park and Cho, 1995; Arnold *et al.,* 1998; Hesketh and xing, 2006; Jha *et al.,* 2006; Almond and Edlund, 2008). Like India, many countries exhibit son preference over daughters and these countries mainly concentrated in East Asia, South Asia, Middle East and North Africa (Williamson, 1976; Cleland *et al.,* 1983; United Nations 1985; Arnold 1987; Rai *et al.,* 2014). In India, fertility declines from 3.6 in 1991 to 2.4 in 2011 in the last two decades (Office of RGI, 1991 and 2001). This fertility decline leads to limiting of family size but do not minimize the desire for son among couples (Das and Bhat, 1997). And the desire for son in a fertility controlled environment started sidelining girls by the means of technology which enables the couples to detect the sex of the fetus and eliminate them before birth. In the phase of declining fertility, it has emerged that people are adopting small family norm without compromising the number of the desired son and this is leading to the sacrifice of the unborn daughter (Shekher *et al.,* 2010).

The study by Das and Bhat (1997), Croll (2002) and Bhatt and Zavier (2003) also found that the decreasing fertility is leading to masculinisation of the population. In this study, the

attempt has been made to find out the relationship between the sex composition of the existing children and the further fertility intentions of women. In last two decades the fertility is declining very fast and in this period the sex ratio is also getting skewed at birth and among child of 0-6 year age group (Mayer, 1999; Das and Bhat, 1997; Jha *et al.*, 2011). So, it is important to look at the association between the son preference and the fertility decline in these two decades. The previous studies also supported the fact that the sex composition of existing child determines the further fertility intention. McClelland in 1979, given a hypothesis which is basically a risk hypothesis which demonstrates that despite the high preference for a son, if a couple has two daughters then they may terminate the next pregnancy just to avoid the risk of having one more daughter in the family. Here, the disadvantage attached to the additional girl child take precedence over the perceived value of another male child. This shows that how the strong desire of having a son is causing the undervaluing of girls as couples are not willing to have an additional girl child. That is the reason why daughter discrimination is called as "mirror image" of son preference (Sekher *et al.*, 2010). The declining fertility is not only affecting the sex ratio at initial ages but also distorting the sex composition of the family. The gendered compositions of the family have emerged as a consequence of declining sex ratio in the era of fertility transition. This has been analyzed through the future fertility intention of women in presence of given set of sex composition of the existing children.

It is well known that the fertility transition has taken place at a different pace and time in different parts of India. The Indian census and the sample survey data also reveal this fact. The north-south divide has been seen in the tempo of fertility transition in India (Guilmoto and Rajan, 2005). The different level of socio-economic development in different states causes variation in timing and pace of fertility transition among the Indian states (Bhat, 1994; Sekher *et al.*, 2001; Guilmoto and Rajan, 2002; Guilmoto and Rajan, 2005). From the latest data available, it is apparent that the fertility is already below replacement level in all south Indian states (Office of RGI, 2016). So, it is important to know that in these states of better socio-economic condition and lower fertility, is there any diversion in TFR due to son preference?

1.1 Context and Rationale

In the era of transition from high fertility to low fertility Indian population eventually misses many girls from its population (Das Gupta and Bhat, 1997; Jha *et al.*, 2011). Initially,

producing more children was the only way to get desired number of the son in a family in the absence of technology. So, the sex ratio was not much distorted when the fertility was high but when fertility started declining the sex ratio started skewing. The skewed sex ratio has emerged as an upshot of lowering fertility in presence of the son preference (Das Gupta, 1997; Croll, 2000). In this study the extent of desirability for son after having two or three daughters, has been seen through the future fertility intention of women. It is also important to know that is there any effect of sibling composition on the further fertility intention of women to determine the effect of skewed sex ratio on family demography. The effect of sibling composition on further fertility intention will reveal the extent of son preference in the society and also the level of daughter discrimination. As Shekhar, Hatti and Bhat in 2010 found that the son preference is leading to daughter discrimination at different stages of life.

The data of the Census of India reveals that there is the cultural preference for the son in Indian society which does not lower down with decreasing fertility. The aim of having a small size of the family by maintaining the desired number of son became easy in the presence of diagnostic techniques. Bhat (2002) and Hatti *et al.* (2004) also found that after 1981 the decline in the sex ratio mainly attributed to the availability and easy access to prenatal diagnostic techniques in those parts where patriarchal rigidities were prominent. So, here it is important to know the level of fertility in presence of son preference by states because the patriarchal rigidities are known to be more prevalent in some parts of India than the other part. Many scholars found that in recent times, a couple wants at least one son in their family and the analysis of this chapter will attempt to make it clear that is there any change in fertility level due to son preference in different regions of India?

1.2 Data and Methods

Data

National Family Health survey (1992-93, 1998-99, 2005-06 and 2015-16) data has been used for meeting the objective of this chapter. The National Family Health survey is also known as Indian DHS. The data for all rounds are available on the site of Demographic and Health Survey (https://www.dhsprogram.com/data/available-datasets.cfm). The Ministry of Health and Family welfare assign International Institute for Population Sciences (Mumbai) to conduct the Indian DHS and the different round of this survey have been funded by the Department for International Development (DFID), United State Agency for International

Development (USAID), The Bill and Melinda Gates Foundation, The United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA), The MacArthur Foundation and Ministry of Health and Family Welfare, GOI. The appropriate weight has been used to make the estimates representative and to account for multistage sampling design of National Family Health Survey. To analyze the effect of socio-economic background on future fertility intention the recent NFHS IV (2015-16) data has been used where the sample size of eligible women is 343,497.

Methods

The methodology in this paper involves analyzing the trend of future fertility intention by the given sex composition of the existing children of women. This trend has been assayed by using all four rounds of NFHS. The effect of socio-economic background and the sibling composition of children on future fertility intention are examined by using multinomial logistic regression. The effect is represented in the form of predicted probabilities which is simply known as the probability of an event. In this study, the dependent variable in regression analysis is future fertility intentions and outcome variables are Sex Preference, Place of Residents, Social Groups, Religious Groups, Regions, Wealth Quintile and Educational Attainment.

Statistical Model:

Multinomial logistic regression is used to model multinomial outcome variable Y which depends on a set of k explanatory variables$X = X_1, X_2, \ldots X_j$. The dependent variable should be a categorical variable with more than two categories and the explanatory variables can be continuous, discreet or both.

The multinomial logistic regression equation is given as (Patra et al., 2014):

$$Y_1 = \log\left(\frac{C_1}{C_2}\right) = \beta_1 + \sum_{1j}^{b} X_j$$

$$Z_2 = \log\left(\frac{C_2}{C_3}\right) = \beta_2 + \sum_{2j}^{b} X_j$$

and

$$C_1 + C_2 + C_3 = 1$$

where β_i's are the constants, b_i's are the multinomial regression coefficients, and C_1, C_2, and C_3 are the estimated probability for the three categories of Y_i respectively.

The multinomial logistic regression coefficient is converted to adjusted percentages as follows:

First, the probability C_i is calculated using the regression coefficient and mean values of outcome variables as:

$$C_i = \frac{\exp(Z_i)}{\{1 + \sum \exp(Z_i)\}}$$

where Z was the estimated value of response for all the categories of each variable.

Then, these predicted probabilities P_i's are multiplied by 100 to convert it into percentages.

For calculating the TFR by son preference the STATA software module (tfr2) has been used. Birth History data of NFHS of all round has been used for calculating TFR. STATA 13 have been used for the analysis of all the objectives of this chapter.

1.3 Findings

1.3.1 Sex composition of children and future fertility intention of women

Table 4.1 shows the future fertility intentions of women based on the sex of her existing children. In 1992-93, 76% of women want to have another child if they have only one existing female child. The analysis revealed that if the women have two male children then only 26% wants to have another child but if they have two female children then 57% of women want to have another child in 1992-93. From 1992-93 to 2015-16, the percentage2 of women with the aspiration to have another child in presence of one male child has been declined from 73.23% to 50.19%. The aspiration for having another child after two or three girl children has been declined in the last 20 years but still continue to be high throughout all the periods. Still, after two decades in 2015-16, where there are two female children there are four times more women (26%) who want to have another child in comparison to women with two male children (6%). In 2015-16, among women with three male children only 2.4% of them want to have another child and among women, with three female children, 14.27% of them have an aspiration for another child. In 1992-93, among those who have three male children, 57% of women are sterilized but those who have three female children only 30.84%

of women were sterilized. Among all women in 2015-16 with two male children, 54 % are sterilized but when there are two female children only 33% of women are sterilized. In 1992-93, 57 % of women got sterilized after having three male children whereas with three female children only 30% women opted for sterilization and in 2015-16 these figures was 59 % for further and 43% for later respectively. In 1992-93, the significant proportion of women left their fertility on God but after the period of 15 years very few or no women were leaving their number of children on God's wish which shows a level of awareness towards family planning among eligible women. Also, the proportion of infecund women has been increased in 2015-16 from 1992-93, which may be interpreted as the higher age at marriage or childbearing in the present time. The percentage of women with undecided status about their future fertility intention has been increased in these two decades. The percentage of women with the undecided status of future childbearing is highest among the mothers with one female child. In 2015-16, there are 4.08 % of women have the undecided status of future fertility intention whereas among women with two male children only 1.63% of women have the undecided status of future childbearing.

Table 4.1: Sibling compositions and future fertility intention of woman, 1992-93 to 2015-16

Years	sibling composition	Have another	95% Confidence Interval		undecided	95% Confidence Interval		no more	95% Confidence Interval		sterilize	95% Confidence Interval		Declared In fecund	95% Confidence Interval		Up to god	95% Confidence Interval	
			LL	UL		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL
1992-93																			
	M	73.23	71.88	74.53	2.11	1.73	2.57	15.17	14.13	16.27	2.68	2.23	3.21	2.64	2.19	3.17	4.19	3.62	4.84
	F	76.76	75.40	78.06	2.37	1.96	2.87	12.72	11.70	13.82	2.32	1.89	2.84	2.53	2.08	3.08	3.30	2.78	3.91
	MM	26.6	25.07	28.20	1.39	1.06	1.81	29.23	27.70	30.81	37.19	35.53	38.89	2.23	1.75	2.85	3.35	2.74	4.10
	FF	57.6	55.45	59.72	2.34	1.78	3.07	20.5	18.81	22.31	14.02	12.64	15.53	1.91	1.41	2.59	3.62	2.84	4.60
	MF	30.68	29.45	31.93	1.81	1.49	2.20	34.55	33.32	35.81	27.17	26.03	28.35	2.45	2.07	2.91	3.33	2.86	3.88
	MMM	12.57	11.39	13.87	0.98	0.70	1.38	24.06	22.58	25.60	57.32	55.54	59.09	2.01	1.54	2.62	3.05	2.47	3.77
	FFF	36.52	34.38	38.71	1.73	1.25	2.39	24.31	22.48	26.23	30.84	28.83	32.94	3.23	2.52	4.14	3.37	2.62	4.32
	MMF	16.89	15.47	18.41	1.4	1.03	1.89	26.4	24.77	28.09	50.79	48.88	52.70	1.95	1.48	2.56	2.58	2.03	3.28
	FFM	14.72	13.44	16.11	1.02	0.73	1.42	29.54	27.90	31.23	48.73	46.88	50.58	2.13	1.65	2.75	3.86	3.15	4.74
1998-99																			
	M	69.02	67.67	70.33	1.32	1.04	1.67	22.47	21.30	23.68	2.70	2.25	3.23	2.86	2.41	3.39	1.64	1.32	2.04
	F	74.19	72.82	75.52	1.59	1.27	2.00	17.46	16.32	18.67	2.72	2.24	3.30	2.16	1.76	2.64	1.88	1.51	2.34
	MM	17.62	16.47	18.83	0.55	0.38	0.81	29.05	27.69	30.45	50.04	48.47	51.60	1.71	1.35	2.17	1.03	0.76	1.40
	FF	48.72	46.62	50.83	1.72	1.28	2.33	24.51	22.76	26.35	21.59	19.86	23.42	2.34	1.78	3.09	1.11	0.76	1.63
	MF	21.78	20.81	22.77	1.10	0.88	1.39	35.45	34.33	36.59	38.08	36.91	39.26	2.55	2.20	2.96	1.03	0.82	1.30
	MMM	8.35	7.48	9.30	0.34	0.21	0.56	23.51	22.17	24.91	64.74	63.16	66.29	2.11	1.67	2.65	0.95	0.68	1.34
	FFF	29.54	27.64	31.51	1.04	0.69	1.56	25.38	23.60	27.25	39.85	37.75	41.97	2.72	2.10	3.51	1.48	1.05	2.08
	MMF	12.47	11.31	13.73	0.8	0.53	1.20	25.37	23.82	26.98	57.67	55.84	59.48	2.39	1.89	3.02	1.3	0.93	1.81
	FFM	10.65	9.65	11.74	0.74	0.49	1.10	31.28	29.74	32.87	54.08	52.37	55.77	2.07	1.63	2.61	1.19	0.87	1.62
2005-06																			

	M	55.43	54.01	56.85	2.42	2.02	2.91	34.29	32.96	35.64	4.16	3.61	4.78	3.7	3.19	4.28	0	0.00	0.00
	F	64.69	63.20	66.14	2.77	2.31	3.32	25.94	24.63	27.30	2.99	2.51	3.56	3.61	3.08	4.23	0	0.00	0.00
	MM	10.6	9.68	11.59	0.58	0.40	0.84	31.41	30.08	32.77	55.4	53.93	56.86	2.01	1.63	2.47	0	0.00	0.00
	FF	35.32	33.38	37.30	1.84	1.35	2.50	30.51	28.72	32.37	29.53	27.74	31.39	2.81	2.21	3.56	0	0.00	0.00
	MF	11.81	11.08	12.59	0.79	0.62	1.01	39.95	38.88	41.03	44.95	43.85	46.06	2.49	2.16	2.88	0	0.00	0.00
	MMM	3.94	3.32	4.66	0.67	0.42	1.06	26.02	24.56	27.53	66.91	65.29	68.49	2.46	1.96	3.09	0	0.00	0.00
	FFF	19.08	17.37	20.91	1.31	0.91	1.88	32.57	30.54	34.68	44.54	42.35	46.74	2.51	1.91	3.28	0	0.00	0.00
	MMF	6.56	5.63	7.62	0.71	0.44	1.15	28.93	27.26	30.67	61.59	59.73	63.43	2.2	1.70	2.85	0	0.00	0.00
	FFM	5.27	4.53	6.13	0.34	0.19	0.62	31.83	30.31	33.38	60.09	58.44	61.71	2.47	1.99	3.07	0	0.00	0.00
2015-16																			
	M	50.19	49.52	50.85	5.27	5.00	5.56	31.85	31.22	32.48	7.82	7.43	8.23	4.83	4.57	5.11	0.04	0.02	0.09
	F	60.98	60.22	61.74	5.54	5.20	5.90	24.09	23.42	24.78	4.77	4.40	5.18	4.56	4.25	4.88	0.05	0.03	0.11
	MM	6.13	5.86	6.41	1.63	1.49	1.78	32.67	32.07	33.27	54.87	54.22	55.52	4.68	4.44	4.94	0.02	0.01	0.03
	FF	26.78	26.01	27.56	4.08	3.73	4.46	31.42	30.52	32.34	33.39	32.41	34.37	4.33	3.94	4.75	0.01	0.00	0.02
	MF	6.89	6.67	7.11	1.98	1.87	2.11	37.81	37.33	38.29	48.73	48.22	49.23	4.56	4.36	4.77	0.03	0.02	0.06
	MMM	2.54	2.33	2.77	1.16	1.03	1.32	30.54	29.78	31.31	59.66	58.86	60.46	6.08	5.72	6.47	0.01	0.01	0.03
	FFF	14.27	13.63	14.94	2.69	2.39	3.03	33.9	32.91	34.89	43.56	42.46	44.67	5.57	5.13	6.05	0.01	0.00	0.05
	MMF	3.98	3.68	4.29	1.50	1.31	1.71	32.9	32.09	33.73	55.9	55.01	56.79	5.7	5.32	6.10	0.02	0.01	0.06
	FFM	3.04	2.83	3.27	1.43	1.23	1.67	36.34	35.60	37.09	53.84	53.06	54.62	5.33	5.03	5.64	0.01	0.00	0.03

Note: In above table, M= “Male” and F= “Female”

1.3.2 Effect of sex composition of children on future fertility intention

The fertility intentions of a couple are framed by the choices of the several bio-demographical variables and one such important is sibling composition. The present analysis in table 4.2 attempts to conceptualize the dynamics of sex composition of children and corresponding future intentions of fertility in a family. Sons are preferred sex in ideal sex composition in a family. The chances of having additional birth are higher (61.7 percent, p<0.00) in a family given the sex of the previous child is female. This chance of progression to additional child observes a sharp decline (6.54 percent, p<0.00) when women have two male children and similar magnitude (7.45 percent, p<0.00) of the desire of the additional child is seen among the couple with at least one son. The percentage probability of not having another child is lower (22.34 percent, p<0.00) when there is one female child but it is higher in presence of two male (31.76 percent, P<0.00) or one male and one female child (38.22 percent, p<0.00). The probability of sterilization is higher (55.00 percent, p<0.00) among women with two male children and three male children (61.08 percent, p<0.00) but there is a steep decline (4.12 percent, p<0.00) in sterilization when there is only one female child. The analysis also reveals that when there is son preference there are high chances of having another child (21.78 percent, p<0.00). In presence of son preference, there is less probability of getting sterilized (38.08 percent, p<0.00) in comparison to other preference (girl preference or no preference). In reference to urban women, rural women have high chances (21.69 percent, p<0.00) of producing another child. The rural women have a low probability (30.87 percent, p<0.00) of not having another child in reference to urban women. Among social groups, ST has high chances of having another child but the same declined in others (18.46 percent, p<0.00) groups. In reference to SC women, the probability of sterilization is higher among OBC women (41.24 percent, p<0.00) and less in ST women (36.92 percent, p<0.00). Among religious groups, Muslims have high (32.28 percent, p<0.00) and Sikh have less (15.49 percent, p<0.00) probability of having another child in reference to Hindu. All religious groups like Muslims (20.63 percent, p<0.00) Christian (39.05 percent, p<0.00) and Sikh (39.29 percent, p<0.00) have less chances of getting sterilized in reference to Hindu. Among Indian Regions, South and West India have less probability (15.47 percent, p<0.00) of having another child but Central (25.53 percent, p<0.00), East (26.51 percent, p<0.00) and North East (26.55 percent, p<0.00) have high chances of having another child in reference to North India. North-East (45.72 percent, p<0.00) and Central (38.79 percent, p<0.00) Indian women have a high probability of not having another child in reference to North India. The

probability of sterilization is highest in South (55.47 percent, p<0.00) and West (44.85 percent, p<0.00) but low in Central (28.97 percent, p<0.00), East (25.88 percent, p<0.00) and North-East (8.79 Percent, p<0.00) taking north as a reference in India. In reference to poorest, women in other income group have a high probability of getting sterilized and it is highest among middle (43.52 percent, p<0.00) income group and richer (42.81 percent, p<0.00) income group. In reference to uneducated women, highly educated (22.03 percent, p<0.00) and women with secondary level (36.32 percent, p<0.00) of education have low chances of getting sterilized.

Table 4.2: Multinomial regression estimates: Adjusted percentage showing the effect of sibling sex composition on future fertility intentions

Variables	Undecided®	95% Confidence Interval		Have Another	95% Confidence Interval		No More Child	95% Confidence Interval		Sterilized	95% Confidence Interval		Others	95% Confidence Interval	
		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL
Sibling Sex Composition															
M®	5.68	5.65	5.70	50.08	49.96	50.20	30.13	30.05	30.21	8.25	8.19	8.31	5.86	5.83	5.89
F	5.97	5.95	6.00	61.74***	61.62	61.86	22.65***	22.57	22.73	4.12***	4.09	4.16	5.52**	5.48	5.55
MM	1.78	1.77	1.80	6.54***	6.49	6.59	31.76***	31.64	31.88	55.00***	54.83	55.16	4.92***	4.90	4.93
FF	4.53	4.49	4.56	29.93***	29.74	30.12	31.89***	31.75	32.03	28.59***	28.36	28.81	5.07	5.04	5.09
MF	2.14	2.13	2.15	7.45***	7.41	7.49	38.22***	38.12	38.32	47.41***	47.28	47.54	4.77***	4.76	4.79
MMM	1.25	1.23	1.26	2.97***	2.93	3.00	29.04***	28.89	29.19	61.08***	60.88	61.27	5.68***	5.65	5.70
FFF	2.56	2.52	2.59	14.68***	14.53	14.83	34.05***	33.87	34.23	42.81***	42.52	43.10	5.90***	5.87	5.93
MMF	1.54	1.52	1.57	4.25***	4.20	4.30	31.94***	31.77	32.12	56.64***	56.41	56.87	5.62***	5.60	5.65
FFM	1.39	1.37	1.40	3.48***	3.45	3.51	35.49***	35.34	35.64	54.16***	53.98	54.35	5.48***	5.46	5.50
Sex Preference															
Others®	3.09	3.08	3.10	20.28	20.19	20.36	32.42	32.37	32.47	39.10	39.01	39.20	5.11	5.10	5.12
Son Preference	2.79	2.78	2.81	21.78***	21.60	21.96	32.21***	32.12	32.31	37.08***	36.90	37.26	6.13	6.12	6.15
Place of Residence															
Urban®	3.01	2.99	3.03	18.56	18.43	18.69	35.02	34.93	35.10	38.11	37.96	38.26	5.30	5.29	5.32
Rural	3.06	3.04	3.07	21.69***	21.60	21.79	30.87***	30.81	30.92	39.09	38.98	39.19	5.30	5.29	5.31
Social Groups															
SC®	2.79	2.77	2.81	21.57	21.38	21.76	30.67	30.57	30.77	39.92	39.71	40.12	5.06	5.04	5.08
ST	4.60	4.57	4.64	25.56***	25.35	25.77	27.45***	27.35	27.55	36.92***	36.70	37.13	5.47***	5.45	5.49
OBC	2.86	2.84	2.87	20.29	20.17	20.41	30.20	30.13	30.26	41.24***	41.10	41.38	5.42***	5.40	5.43
Others	3.01	2.99	3.03	18.46***	18.32	18.61	39.26***	39.17	39.36	34.04***	33.88	34.21	5.22***	5.21	5.24
Religious Groups															
Hindu®	2.77	2.76	2.78	19.19	19.11	19.28	31.97	31.92	32.02	40.78	40.69	40.88	5.28	5.27	5.29
Muslims	4.64	4.61	4.67	32.28***	31.97	32.58	37.24***	37.05	37.42	20.63***	20.42	20.84	5.21***	5.18	5.24
Christian	6.21	6.14	6.28	25.60***	25.27	25.92	21.15***	21.01	21.30	39.05***	38.69	39.42	7.99**	7.95	8.02
Sikh	1.77	1.74	1.79	15.49***	15.10	15.87	40.11***	39.92	40.29	39.29***	38.84	39.74	3.35**	3.33	3.38
Others	4.00	3.92	4.08	20.47***	20.01	20.93	33.03***	32.82	33.25	37.57***	37.07	38.07	4.93***	4.89	4.97
Regions															
North®	2.85	2.84	2.87	17.93	17.77	18.09	38.49	38.41	38.57	37.04	36.88	37.20	3.69	3.68	3.70
central	2.37	2.37	2.38	25.53***	25.35	25.71	38.79***	38.71	38.88	28.97**	28.84	29.10	4.33***	4.32	4.35
East	2.69	2.68	2.70	26.51***	26.31	26.71	38.95	38.86	39.04	25.88***	25.73	26.03	5.97***	5.95	5.98
North-east	13.17	13.13	13.22	26.55***	26.35	26.74	45.72***	45.56	45.89	8.79***	8.71	8.86	5.77***	5.74	5.80
South	3.15	3.12	3.17	15.47***	15.31	15.63	19.38***	19.32	19.43	55.47***	55.25	55.69	6.54***	6.52	6.56

West	2.35	2.33	2.37	16.87*	16.64	17.10	31.23***	31.13	31.33	44.85***	44.58	45.11	4.70***	4.68	4.72
Wealth Quintile															
Poorest®	3.27	3.25	3.29	28.03	27.81	28.26	33.75	33.65	33.86	29.58	29.41	29.75	5.36	5.35	5.38
Poorer	3.21	3.19	3.24	22.40	22.22	22.59	31.15	31.05	31.25	37.99***	37.79	38.18	5.25***	5.23	5.27
Middle	2.97	2.95	2.99	19.29	19.12	19.46	28.83	28.73	28.92	43.52***	43.33	43.72	5.39***	5.37	5.40
Richer	3.02	3.00	3.04	18.20	18.04	18.35	30.54	30.44	30.63	42.81***	42.61	43.00	5.44***	5.42	5.46
Richest	2.84	2.83	2.86	18.00	17.86	18.14	37.45	37.36	37.55	36.62***	36.44	36.80	5.08***	5.07	5.10
Educational Attainment															
No education®	2.44	2.43	2.46	15.63	15.50	15.77	28.78	28.70	28.86	46.01	45.85	46.17	7.14	7.12	7.15
Primary	2.49	2.47	2.51	17.05	16.86	17.24	29.56	29.45	29.67	45.62	45.40	45.84	5.28***	5.26	5.30
Secondary	3.22	3.21	3.24	22.36	22.25	22.48	33.62	33.55	33.68	36.32***	36.19	36.44	4.48***	4.47	4.49
Higher	4.45	4.42	4.48	29.57	29.32	29.82	39.68	39.53	39.83	22.03***	21.82	22.24	4.27***	4.25	4.29

Note: In above table, M= “Male” and F= “Female

1.3.3 TFR in presence and absence of the son preference in India

Table 4.3 shows the fertility trend in presence of son preference and no preference in Indian states from 1992-93 to 2015-16. In every state of India, there is high fertility in presence of son preference in comparison to no preference in all the periods. The total fertility was very high during the 1992-93 in comparison to 2015-16. But in India, the overall fertility declined. So, there is a decline in fertility in presence of son preference also but it is still high in comparison to no preference of son. The north Indian states like Himachal Pradesh (3.5), Jammu and Kashmir (3.7) Punjab (3.6) and Rajasthan (3.9) have more TFR in presence of son preference in comparison to no preference. In these two decades (1992-93 to 2015-16), in the states with highest TFR, the TFR in presence of son preference is declined from 4.5 to 4 in Bihar and 5.4 to 3.4 in Uttar Pradesh. In 2015-16, the top states in terms of TFR in presence of son preference are Bihar (4.0), Meghalaya (3.6), Rajasthan (3.3), Jharkhand (3.2), Madhya Pradesh (3.0) and Chhattisgarh (3.0).

In 1992-93, among all north and north-western states, the highest gap between TFR in presence of son preference and no preference found in Gujarat (+1.3) and other states with higher gap in TFR in presence and absence of sex ratio are Karnataka (+0.9), Assam (+0.8) Uttar Pradesh (+0.7) and West Bengal (+0.7) . In 2015-16, the highest gap in TFR in presence of son preference and in the absence of son preference found in Rajasthan (+1) Chattisgarh (+0.8), Jharkhand (+0.8), Uttarakhand (+0.8), Uttar Pradesh (+0.8), Madhya Pradesh (+0.7), Bihar (+0.7), Goa (+0.7), Jammu & Kashmir (+0.7). In 2015-16 the higher gap in TFR in presence of son preference and no preference among UTs found in Dadra and Nagar Haveli (+1.1). In 2015-16, among Union Territories except for Andaman and Nicobar (-0.1) all UTs like Lakshadweep (+0.6), Puducherry (+0.4), Daman & Diu (+0.7), Chandigarh (+0.7), Delhi (+0.9) have more TFR in presence of son preference than in absence of this son preference. A newly formed south Indian state, Telangana (+0.3) has also higher TFR in presence of son preference than no preference. In 2015-16, Tripura (-0.3) West Bengal (-0.2), Himachal Pradesh (-0.1) and Punjab (-0.1) are the states which have less TFR in presence of son preference than no preference. The results revealing a very surprising fact that northern state like Punjab and Himachal Pradesh have less TFR in presence of son preference than in its absence.

Table: 4.3 State wise TFR in presence and absence of son preference, 1992-93 to 2015-16

States	NFHS 1 (1992-93)		NFHS 2 (1998-99)		NFHS 3 (2005-06)		NFHS 4 (2015-16)	
	No Preference	son Preference	No Preference	son Preference	No Preference	son Preference	No Preference	son Preference
Andhra Pradesh	2.8	3.4	2.0	2.3	1.8	2.8	1.8	2.2
Assam	4.3	5.1	2.8	3.3	2.3	3.4	2.2	2.6
Bihar	4.1	4.5	3.5	3.5	3.8	4.7	3.3	4.0
Goa	2.9	3.3	2.6	3.2	1.8	1.8	1.7	2.4
Gujarat	2.7	4.0	2.6	3.3	2.4	3.2	2.0	2.6
Haryana	4.1	4.0	2.8	3.5	2.6	3.6	2.0	2.6
Himachal	3.1	3.5	2.6	3.1	2.0	2.1	1.9	1.8
Jammu & Kashmir	3.5	3.7	3.4	3.9	2.2	3.5	1.9	2.6
Karnataka	3.3	4.2	2.3	2.6	2.0	3.1	1.7	2.2
Kerala	2.8	2.7	2.3	2.6	1.9	2.4	1.5	1.7
Madhya Pradesh	3.7	4.2	3.2	3.5	3.1	4.1	2.3	3.0
Maharashtra	3.3	3.8	2.5	2.8	2.1	2.8	1.9	2.1
Manipur	3.9	3.8	4.1	4.7	2.8	2.7	2.5	2.9
Meghalaya	4.5	3.5	5.8	5.5	4.0	3.8	3.2	3.6
Mizoram	3.2	3.3	4.0	4.1	2.8	3.1	2.4	2.6
Nagaland	3.7	3.5	4.7	5.0	3.8	4.3	2.8	2.8
Orissa	3.5	3.8	2.7	3.1	2.3	3.1	2.0	2.5
Punjab	3.2	3.6	2.7	3.5	2.1	2.6	1.7	1.6
Rajasthan	3.4	3.9	3.4	4.0	3.0	4.1	2.3	3.3
Tamil Nadu	3.2	3.3	2.4	2.6	1.8	2.3	1.7	1.8
West Bengal	3.2	3.9	2.2	2.7	2.3	2.6	1.9	1.7
Uttar Pradesh	4.7	5.4	3.9	4.3	3.7	4.6	2.6	3.4
New Delhi	3.1	3.8	2.8	3.3	2.1	3.2	1.7	2.6
Arunachal Pradesh	4.8	5.0	3.3	3.5	3.3	3.3	2.2	2.4
Tripura	3.6	3.5	2.3	2.4	2.2	2.4	1.8	1.5
Sikkim	-	-	3.2	3.6	2.1	1.9	1.1	1.2
Uttarakhand	-	-	-	-	2.4	3.4	2.0	2.8
Jharkhand	-	-	-	-	3.3	4.2	2.4	3.2

Chhattisgarh	-	-	-	-	2.5	3.3	2.2	3.0
Andaman & Nicobar	-	-	-	-	-	-	1.4	1.5
Chandigarh	-	-	-	-	-	-	1.6	2.3
Dadra and Nagar Haveli	-	-	-	-	-	-	2.2	3.3
Daman and Diu	-	-	-	-	-	-	1.7	2.4
Lakshadweep	-	-	-	-	-	-	1.6	2.2
Puducherry	-	-	-	-	-	-	1.6	2.0
Telangana	-	-	-	-	-	-	1.8	2.1

Note: (-) Data not available.

1.4 Discussion and Conclusion

The above study reveals the fact that the future fertility intention of women is basically dependent on the number of son or daughter in their family. It is found that the aspiration for the next pregnancy is much higher among women with two or three girl child in comparison to women with two or three male children. This behavior of women's fertility preference based on the sex composition of siblings which is also called as "son targeting" fertility behavior, known to be prevalent in Indian society (Arnold *et al.*,1998; Larsen *et al*., 1998; Clark, 2000; Basu and Jong, 2010). Like India, son preference in a controlled fertility environment has been also found in China. Fertility Intention and Behaviour survey (2013) of China revealed that the women with son preference are less likely to have a second child as they ensure that their first child should be a male by the means of technological interference in the form sex determination and sex-selective abortions (Jiang *et al.,* 2016).

The sterilization or use of other contraception also depends on the sex composition of the existing children to a woman. Here, in the above study, it is found that the sterilization is highest among women having male children than female children. It shows that the use of contraception is highly depending upon the sex composition of children's in a family. A Study based on 416 sterilized women from Bangalore (India) found that the son preference influence sterilization at lower parities and at higher parities the sterilization is motivated by the concerns for small family size (Edmeades *et al.,* 2011). And the combination of these two reasons i.e, concern for small family size and the desire for son is mainly influenced by the elderly head of the household and the women have less or no say on their fertility decision (Dyson and Moore, 1983; Barua and Kurz, 2001; Barua *et al.,* 2004). The findings and the previous literature suggest that in the name of fertility control gender control is observed in many parts of India.

Unlike in Western countries, the fertility transition in India is not accompanied by socio-economic development. Basically, the fertility transition in many states has taken place through political interventions in the form of policies, norms, and incentives (Sekher and Hatti, 2005). People in India adopted the small family norms and it has been evident from recent census and sample surveys but not lower down the desire for son in the presence of lower socio-economic status and cultural and patriarchal rigidities. From the above findings it is clear that in almost every states of India, the fertility is high in presence of son preference and low in absence of son Preference. The more surprising finding is that, despite having

stalled fertility below replacement level (office of RGI, 2016) and better socio-economic condition in Southern states, there is a rise in fertility in presence of son preference. In States like Bihar and Uttar Pradesh the overall fertility is still high in comparison to other states (See SRS reports, Office of RGI, 2016). And the son Preference is also found to be prevalent in the northern and north-western part of the country. So, from the above result, it is clear that the sex preference or want for son is the major barrier in lowering down of fertility to replacement level in states like Bihar and Uttar Pradesh. If a couple has a higher preference for a particular sex over the other, the family size will definitely be large in comparison to nonexistence of any sex preference (Sheps, 1963).

In the present era, the nurturing cost of children is reaching the sky when it comes to education health and nutrition. So, the cruelty of daughter discrimination has been justified by many in patriarchal society. In India, nurturing of daughters is considered as the nurturing flowers of others garden (Pril, 2008). The findings of this chapter also support the fact that parents don't want more daughters in their house that is the reason why more boys are preferred over girls and parents produce more children in want of son in a family so, the fertility is higher in presence of the son preference.

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