Determinants of Fertility Preference in Bihar: An Analysis from National Family Health Survey

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Introduction

In order to obtain information on fertility preference, National Family Health Survey (NFHS) asked from non-sterilized, currently married, non-pregnant women: 'would you like to have (a/another) child or would you prefer not to have any (more) children? These questions hide a lot of complexities within it, because it is not the woman who replied to this question but the surrounding system and environments force them to take the decision. Surrounding system consists of components from social, economic, cultural and political and so on system. As it has been seen from the historical past of women's development , that as women body become liberated in the society, their preferences or reproduction of children declines.

The study of fertility preference is a complex phenomenon, which could not be understood through any linear theory. There are various components that play directly and indirectly in shaping the desired number of children a woman wants in her reproductive life course. The components may be emerging from social, economical, political, cultural, psychological, behavioral, and environmental etc. aspects.

 The commodifiaction of women which is the global phenomena act as a barrier which do not allow a woman to change herself into a personality who take their decision with their own mind and wisdom. Education not only increases women's income and utilization of health care and other social services, but also helps them to know their rights and gain confidence to claim them. Women's education is also hypothesized to delay age at marriage, reduce preference for children (**Cochrane** 1979).

Easterlin's theory postulates that demand for children is affected by three proximate factors; price, income and tastes. The price of children is composed of the direct expenditure on children and the opportunity cost of time spent on bearing and rearing children. The opportunity cost refers to both economic and psychological costs of alternatives forgone. The underlying assumption is that the higher the price, the lower the demand for children, given the household income and tastes. Household income is also hypothesized to affect demand for children. An increase in income is expected to lead to an increase in demand for children. The third component of **Easterlin**'s theory is taste for children. Taste refers to the subjective preferences for children compared to general goods.The greater this preference, the greater the

demand for children **(Caldwell and Caldwell,** 1987**)**. The findings of various studies suggest that only economic development and enhancing per capita income or gross domestic product cannot make a society empowered in terms of gender until and unless the mindset of people change towards the valuation of women to be equal to that of men. Information on fertility preference is an integral part of any demographic survey, and preference indicators have long been used to determine the demand for children in a population (**McClelland, Bulatao, Lee** 1983). Recently, the preference indicators have been used extensively to determine women's unmet need for family planning (**Westoff, Bankole** 1995; **Casterline, Sinding** 2000). Several indicators are also used to gauge the prevalence of unwanted births in the population (**Lightbourne, Cleland, Scott, and Whitelegge** 1987;**Westoff** 1991; **Koening et al**. 2006). For example , data on women's desire for additional children can be used to classify both wanted or unwanted births (or current pregnancies) (**Bongaarts** 1990).

A number of factors may influence the predictive value of the fertility preference indicators in India, site of the current study. Since women have low status in Indian society, their ability to take important family decisions is limited. The cultural preference for sons over daughters may be an obstacle to women's ability to adhere to their fertility decisions. In addition, it is possible that time constraints, high level of illiteracy and lack of understanding of the value of survey data may result in casual or inaccurate responses to survey questions by households. However, very little is known about the effectiveness of the two indicators in predicting fertility behaviour in India (**Vlassoff** 1990). Fertility behaviour is driven by fertility demand or motivation, both of which are reflected in preferences that, in turn, influence contraceptive use, which represents the most significant determinants of fertility (**Ajzen** and **Fishbein,**1980). Some studies on women's autonomy and fertility behaviour show an inverse relationship between autonomy and fertility and a positive relationship between autonomy and contraceptive use (**Balk**, 1997).

In case of India and particularly state like Bihar where women are least literate (33.57 percent; Census 2001 and 53.33 percent; Census 2011) which ultimately affects their awarness regarding the way they look and spent their life. The situation seems like these women have lost their own personality and what they are doing or cultivating are the outcome of situation and circumstances provided by the patriarchal system which modified every social, cultural, economic and political system for their own interest.

Importance of women's household decision-making autonomy has long been recognised as an important factor in influencing reproductive behaviour. Improvements in women's status are important factors to enable women to conrol their own fertility (**United Nation** 1995).

Bihar demographic attributes are much worse than other states of the country. The demographic attributes are the reflection of so many factors which directly and indirectly associated with their outcomes. The state which is now recognised as the one of the most backward state of India and even among EAG

(Empowered Action Group) states, where majority of population suffer due to lack of physical as well as social and health infrastructure of life sustanance. The reason behind the such kind of scenario could be seen through historical past and chronic negligence by the ruler/leader by this region of the country. Most people lives here within the vicious cycle of poverty where women and child situation are much more deteriorating and miserable. The mode of societal character are still feudal in general and patriarchal in particular.

This particular paper deals about Bihar because it is the state which has recorded highest TFR (4.0 in NFHS-3 (2005-06) and 3.4 in NFHS-4 (2015-16)) in our country, so it is obvious curiosity to know the fertility preference scenario in Bihar and how women perceive it. The socio-economic and health indicators shows that condition of women in Bihar are much more deprived and marginalised across the socio-cultural settings and mostly dependent on their male counterpart of their every needs and requirments of life and misery. Women body and mind are completaly grasped by the patriarchal society and they live as they think that it is the natural way of societal proceeding and considering all these phonomenon as a God grace. Cooking food and bearing children for their family and spouses are the prime job for them. If they bear 'son' then, they will praise by the family and society.

The present study searching out the factors which determine the fertility preference in this particular state, using NFHS-2 and 3 data for the analysis.

The Objective of the study are to analyze the socio-economic and demographic factors affecting fertility preference in Bihar. It also explore the extent of sex bias in fertility preference.

The data used for the analysis has been taken from National Family Health Survey (NFHS) - 2 (1998-99), and NFHS-3 (2005-06), IIPS Bombay. Two dependent and eleven independent variables have been chosen for the analysis of the study and these variables have been recoded in appropriate categories. The dependent variables used in the analysis are 'Fertility preference' which has several sub groups like have another, undecided, no more, sterilized, declared infecund, never had sex (NFHS-3), and up to God. To obtain better result, small sample sub groups are recoded rationally apart from the women who has declared infecund. The recoded categories are 'Have another' and 'No more'. The second dependent variable is 'Sex preference of next child'. This particular variable with similar name is given only in NFHS-2 and it has four categories as 'boy', 'girl', 'does not matter' and 'up to God'. For the purpose of running the multinomial logistic regression, these sub groups have been coded with different numeric values to find the appropriate reference category. The independent variables used in the analysis are 'Highest Educational Level', 'Household Standard of Living Index'(NFHS-2)/'Wealth Index' (NFHS-3), 'Ethnicity/Caste', 'Partner's Educational Level', 'Watches TV Every Week', 'Religion', 'Type of Place

of Residence', 'Respondent Occupation', 'Partners Occupation', 'Age at First Marriage', 'Number of Living Children'.

The individual data file of NFHS-2 and NFHS-3 have used for the Binary Logistic Regression and Multinomial Logistic Regression analysis purpose. Data were extracted from women file using SPSS (statistical package for social sciences) software and data has been also analysis through this software.

Discussion and Result

Fertility preference NFHS-2

The " educational revolution" affects fertility motivation in many possible ways, such as delay of marriage, increased economic cost of raising children, improved health and decline of traditional and religious values, improved access to family planning information, increased participation in non-familial activities, and increased knowledge of attractive alternatives to child raising. For these various reason, education has been widely regarded as a leading factor causing the decline of fertility motivation (**Choi and Chan** 1973).

Table 1.1 shows that, the women who belongs to low household standard of living index and medium household standard of living index have more likelihood (odds ratio 1.810 and 1.378 respectively) to preference for another children than women who belongs to high household standard of living index. The women belongs to scheduled caste and other backward caste have more likelihood (odds ratio 1.764 and 1.415 respectively) to preference for another children than women who belongs to higher strata of caste system category. The women who belong to Hindu religious group have less likelihood (odds ratio .517) to preference for another children than women who belongs to Non-Hindu group. The women who residing in urban areas have less likelihood (odds ratio .625) to preference for another children than women who residing in rural areas.

Women's decision making autonomy, such as women's freedom of movement, their participation in decision making, their ability to visit their relatives or friends, their communication about family planning with partner, and their access to and control over resources have often been overlooked. Studies that have used these direct measures of women's decision making autonomy argue that women's decision making autonomy influences reproductive preferences so strongly that they can not be ignored (**Qiaozhum and Chuzhu** 1997). The women who are not working i.e. not engaged in economic activities have more likelihood (odds ratio1.460) to preference for another children than women who are working. The partner who engaged in agricultural jobs have more likelihood (1.185) to preference for another children than those partners who are engaged in service sector jobs. The women whose age at first marriage is below 18 years have less likelihood (odds ratio .842) to prefer another children than women whose age at first marriage is 18 and above years. The women who have no living child and those who have one living child

have more likelihood (odds ratio 276.794 and 28.284 respectively) to prefer another children than women who have 2 and more living children.

Table1.1:- Factors influencing fertility preference in Bihar in NFHS-II: Result of binary logistic regression (odds ratio)

Background characteristics	B	Sig.	Exp (B)/Odds ratio
Highest educational level			
Higher®		.596	
No education	.084	.752	1.088
Primary	.151	.594	1.163
Secondary	.227	.366	1.255
Household standard of living index			
High®		.000	
Low	.593	.001	1.810***
Medium	.321	.044	1.378**
Ethnicity/Caste			
None of them®		.000	
Scheduled caste	.567	.000	1.764***
Other backward caste	.347	.001	1.415***
Partner educational level			
Higher®		.564	
No education	-.116	.419	.891
Primary	-.231	.160	.794
Secondary	-.099	.432	.905
Watches TV every week			
No	.205	.109	1.228
Yes®			
Religion			
Hindu	-.659	.000	.517***
Non Hindu®			
Type of place of residence			
Urban	-.470	.001	.625***
Rural®			
Respondent occupation			
Not working	.378	.000	1.460***
Working®			
Partner occupation			
Agric-employee	.169	.068	1.185*
Services®			
Age at first marriage			
Less than 18	-.165	.042	.848**
18 and above®			
Number of living children			
2 and above®		.000	
0	5.623	.000	276.794***
1	3.342	.000	28.284***
Constant	-1.815	.000	.163
Nagelkerke R Square			.530
N			7024

Note: ***P< 0.01; **P< 0.05; *P< 0.1

Categories of fertility preference are: - Have another and No more, ®- reference

NFHS-3

The study has also been conducted through the data of NFHS-3 for searching out the any variations that take place over the period of time considering the similar variables which are taken in NFHS-II survey. The result shows that there are very negligible variation emerged within this period of time and it may be due to the steady nature of the overall developmental scenario in the states in terms of socio-economic and other related activities and development.

On the basis of Table 1.2 it can be analyzed that the women who belongs to poorest and poorer wealth index category have more likelihood (odds ratio 2.833 and 2.031 respectively) to prefer another children than women who belongs to richest wealth index category. The scheduled caste women and other backward caste women have more likelihood (odds ratio 2.487 and 1.650 respectively) to prefer another children than women who belongs to general category, which represent the women from higher strata of caste system.

Table1.2:- Factors influencing fertility preference in Bihar in NFHS-III: Result of binary logistic regression (odds ratio)

Background characteristics	B	Sig.	Exp (B)/Odds ratio
Highest educational level			
Higher®		.308	
No education	-.645	.111	.524
Primary	-.438	.303	.645
Secondary	-.327	.364	.721
Wealth index			
Richest®		.003	
Poorest	1.041	.001	2.833***
Poorer	.708	.021	2.031**
Middle	.384	.192	1.469
Richer	.197	.438	1.218
Type of caste or tribe			
None of them®		.000	
Scheduled caste	.911	.000	2.487***
Other backward caste	.501	.003	1.650***
Partner educational level			
Higher®		.209	
No education	.667	.332	1.948
Primary	.848	.226	2.334
Secondary	.496	.470	1.643
Frequency of watching television			
Not at all	.051	.759	1.052
Watches®			
Religion			
Hindu	-1.069	.000	.343***
Non Hindu®			
Type of place of residence			
Urban	-.583	.000	.558***
Rural®			
Respondent occupation			
Working	-.669	.000	.512***
Not working®			
Partner occupation			
Agric-employee	.110	.446	1.116
Services®			
Age at first marriage			
Less than 18	-.297	.039	.743**
18 and above®			
Number of living children			
2 and above®		.000	
0	6.046	.000	422.472***
1	3.287	.000	26.773***
Constant	-1.623	.044	.197
Nagelkerke R Square			.623
N			3818

Note: ***P< 0.01; **P< 0.05; *P< 0.1
Categories of fertility preference are: - Have another and No more, ®- reference

The women who belongs to Hindu religious community have less likelihood (odds ratio .343) to prefer another children than women who belongs to Non-Hindu religious community. The place of residence also play considerable role and it has been observed that women who are residing in urban areas have less likelihood (odds ratio .558) to prefer another children than women who are residing in rural areas. The women who are working in economical job have less likelihood (odds ratio .512) to prefer another children than women who are not working. The women whose age at first marriage is below 18 years have less likelihood (odds ratio .743) to prefer to another children than women whose age at first marriage is 18 and above years. In case of women who have no living child and one living child have more likelihood (odds ratio 422.472 and 26.773 respectively) to prefer another children than women who have 2 and more living children. Another issue that claims considerable attention and acts as a serious problem especially in the context of developing countries is the 'rationalization effect'. In principle, rationalization could be either upward (for unwanted births) or downward (among the involuntary childless women) though the later has seldom been reported in literature (**Veevers** 1979); and is less likely to surface in developing countries. Theoretical considerations identify that actual family size and desired family size should develop through a combination of two mechanisms: one is implementation, where actual family size will be less than or equal to desired family size; and the other is rationalisation of actual family size; i.e. adjustment of desired family size in accordance with actual family size, which is also known as rationalisation bias (**Pullum** 1980). Related research and findings that have been accumulated during the past two decades in this field show that a large body of work has been undertaken to establish the ''meaningfulness'' or to examine the ''face validity'' in terms of the stability and predictive capacity of stated family size preferences. **Hanser** (1967) argues whether the concept of family size preference is a meaningful notion in society, where the number of children is determined by nature, spirits or God (**Lee** and **Bulatao** 1983). Thus, it is often argued that women in developing countries have an irrational tendency, which is not often found in Western society, to have children according to fate.

It has been observed that there is similar trend persisting from NFHS-2 to NFHS-3 in Bihar which indicates that societal development or overall development of the state is very slow and society is very much stagnant.

Sex preference of next child in NFHS-2
Calculus of preference for children of a particular sex can be understood by extending the conceptof the value of children to the two sexes seprately. If the net utility of having a son outweighs that of daughters, parents are likely to prefer sons to daughters. A complex interplay of economic and socio-cultural factors determines the benefits and costs of a child (**Arnold, Kim and Roy** 1998).

As result shows in appendix table that the partners who work as an agricultural employee have more likelihood (odds ratio 1.442) to prefer boy as a sex of next child in comparison to partners who are engaged in service sector jobs in Bihar. In case of those women who have no living child and one living child have less likelihood (odds ratio .143 and .409 respectively) to prefer boy as a sex of next child in comparison to women who have 2 and more living children.

Gender preference is due to a complex interplay of economic, social (including cultural and religious), and psychological factors. In many less developed countries of Asia, where women are economically and socially dependent on men, sons generally are prefered over daughters (**Rahman and Vanzo** 1993).

In case of preference for girl as a sex of next child, the result shows that the women who belongs to low household standard of living have less likelihood (odds ratio .429) to prefer girl as a sex of next child than women who belongs to high household standard of living index. Urban living women have more likelihood (odds ratio 2.394) to prefer girl as a sex of next child than women who are residing in rural areas in Bihar.

Women's work is widely seen as an important component of female agency, empowering women in society. It play a significant role in reducing gender inequality and affecting changes in levels of fertility and child mortality **(Nakkkeeran 2003)**. The women who are not working have less likelihood (odds ratio .592) to prefer girl as a sex of next child than women who are working. The partners who engaged in agricultural jobs have more likelihood (odds ratio 1.943) to prefer girl as a sex of next child in comparison to partners who are employed in service sector. Therefore, the partners who are agricultural employee have more preferences for both the sexes (boy and girl) in comparison to partners who are engaged in the service sector jobs. The women who have no living child have very less likelihood (odds ratio .006) to prefer girl as a sex of next child in comparison to women who have 2 and more living children.

In case of 'up to God' response category, the result shows that the women who are educated up to secondary level have more likelihood (2.463) to leave their preference for the selection of the sex of the next child on up to God in comparison to women who are educated till higher level. In case of partners education, the result shows that the partner who are uneducated, primary level educated, secondary level educated have more likelihood (odds ratio 2.316, 1.916 and 1.688 respectively) to leave their preferences on up to God in comparison to those partners who have attained education till higher level. Hindu women have comparatively less likelihood (odds ratio .474) to leave their preferences on up to God than women of Non-Hindu group. The women who have no living child and one living child have less likelihood (odds ratio .461 and .769 respectively) to leave their preferences on up to God than women who have 2 and more living children.

Conclusions

The multinomial and binary logistic regression results in the present study enables one to ascertain the findings regarding fertility preference. It has been found in this study that socioeconomic and demographic variables have a significant influence on fertility preference and sex preference of next child in Bihar.

Ethnicity (caste/tribe), standard of living (NFHS-2) or wealth index (NFHS-3), religion, place of residence, work status of women (respondent occupation), educational status, age at first marriage , partner's occupation and the number of living children are important determinants of fertility preference in both rounds of NFHS. In case of sex preference of next child in favour of boys, result reveals that, partner's occupation and number of living children emerged as major determinants of son preference in Bihar.

The results show that there is higher preference for boys among those women who have already 2 and more living children, in comparison to women who have no living child and one living child, which shows the proportionate relationship between more children and son preference.

The results provide good understanding regarding fertility preference and it is helpful for programme and policy makers. The results reflect that certain improvements should be made in raising the standard of living of households, enhancement in educational attainment of women and providing employment opportunities. There should also be substantial changes in the life style of women and their overall status. Apart from these, exposure to mass media and providing urban amenities in rural areas (decentralization of development), making women empowered would result in changes in their outlook towards fertility preference. The Government agencies that are responsible for making programmes and policies regarding fertility and other several developmental causes should consider social and gender issues in particular. The results reveal that women of the lower strata of the society are more vulnerable to higher fertility. Programmes and policies should not merely concentrate on economic and infrastructure development. Social and cultural issues are equally important in fertility preference and sex preference of the next child. Therefore these should receive adequate attention.

Finally, it may be said that, limitation of the study revolves around many psychological and behavioural factors that could not be explored due to handicaps of data and therefore, interventions should be made at national and at regional/local levels to address these factors.

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Appendix Table

Table 4.10: - Factors influencing sex preference of next child in Bihar in NFHS-II: Result of multinomial logistic regression (odds ratio)

Sex preference of next child	Background characteristics	EXP(B)/Odds ratio
Boy	**Intercept**	
	Highest educational level	
	No education	1.207
	Primary	.990
	Secondary	1.241
	Higher *R*	.
	Household standard of living index	
	Low	1.022
	Medium	1.615
	High *R*	.
	Ethnicity/caste	
	Scheduled caste	1.010
	Other backward caste	1.046
	None of them *R*	.
	Partner educational level	
	No education	1.606
	Primary	1.371
	Secondary	1.465
	Higher *R*	.
	Watches TV every week	
	No	1.169
	Yes *R*	.
	Religion	
	Hindu	.903
	Non Hindu *R*	.
	Type of place of residence	
	Urban	1.490
	Rural *R*	.
	Respondent occupation	
	Not working	.897
	Working *R*	.
	Partner occupation	
	Agric-employee	1.442*
	Services *R*	.
	Age at first marriage	
	Less than 18	.909
	18 and above *R*	.
	Number of living children	

	0	.143***
	1	.409***
	2 and above **R**	.
Girl	**Intercept**	
	Highest educational level	
	No education	.736
	Primary	.783
	Secondary	.936
	Higher **R**	.
	Household standard of living index	
	Low	.429*
	Medium	.807
	High **R**	.
	Ethnicity/caste	
	Scheduled caste	1.333
	Other backward caste	1.327
	None of them **R**	.
	Partner educational level	
	No education	1.594
	Primary	1.262
	Secondary	1.231
	Higher **R**	.
	Watches TV every week	
	No	1.500
	Yes **R**	.
	Religion	
	Hindu	1.245
	Non Hindu **R**	.
	Type of place of residence	
	Urban	2.394**
	Rural **R**	.
	Respondent occupation	
	Not working	.592*
	Working **R**	.
	Partner occupation	
	Agric-employee	1.943**
	Services **R**	.
	Age at first marriage	
	Less than 18	.696
	18 and above **R**	.
	Number of living children	
	0	.006***
	1	.492***
	2 and above **R**	.
Up to God	**Intercept**	
	Highest educational level	
	No education	2.004
	Primary	1.553
	Secondary	2.463*

Higher *R*	.
Household standard of living index	
Low	.877
Medium	1.254
High *R*	.
Ethnicity/caste	
Scheduled caste	1.219
Other backward caste	.835
None of them *R*	.
Partner educational level	
No education	2.316***
Primary	1.961**
Secondary	1.688**
Higher *R*	.
Watches TV every week	
No	1.099
Yes *R*	.
Religion	
Hindu	.474***
Non Hindu *R*	.
Type of place of residence	
Urban	1.370
Rural *R*	.
Respondent occupation	
Not working	.887
Working *R*	.
Partner occupation	
Agric-employee	1.120
Services *R*	.
Age at first marriage	
Less than 18	.796
18 and above *R*	.
Number of living children	
0	.461***
1	.769
2 and above	.
Nagelkerke R-Square	.172
N	7024

Note: ***P< 0.01; **P< 0.05; *P< 0.1
The reference category is 'Does not matter' and *R* indicates reference category.