Time varying and unvarying factors affecting ideal and actual family size in North India

Preeti[1] and Laishram Ladu Singh[2]

Introduction

Population researchers have increasingly turned to fertility intention and preference data to look for indication regarding future trends in fertility and to gain insight into the determinant of fertility behavior. If individual's fertility desires and intentions are quite stable over the life cycle then knowledge of women's total desired fertility when young provides useful information regarding their expected completed fertility. More often in rural society of India the family size norms have been at the higher side. In an agrarian family, children are considered as assets as they can be engage in farms and can provide economic support to the family. Though, the declining trends of fertility may be the result of changing fertility preferences. Theories suggest that demand for children influences the fertility behavior.

Existing studies in India using measures of childbearing intention and preferences have relied primarily on data from cross sectional retrospective surveys. Using panel data, it would be interesting to investigate how people changes their perception towards childbearing goals with time and who are stable on their stated ideal family size during inter-survey period. What are the time varying and in-varying factors playing role in childbearing intention? The reason why people prefer a given number of children have not yet been systematically investigated in the Indian context and particularly in case of Bihar and Jharkhand.

Many authors have explicitly examined the determinants in the gap between fertility outcomes and stated fertility (Coombs, 1979; Freedom et al., 1980). Heiland et al., (2007) estimated that an additional child may increase the total desired fertility of women with children by 0.14 children less than what conventional estimates from cross sectional data would have suggested. Becker (1960) reveals that children may provide their parents with a special type of pleasure. On the other hand, childbearing and rearing is associated with a number of costs including the parental time and economic resources required to raise the children. The value of these resources depends on what alternative uses are available to the parents. For example, having a child may be more costly to parents who are more educated. Moreover, Individuals fertility desires are expected to reflect a person's assessment of the (expected) benefits and cost of different family sizes.

Therefore in this paper, an attempt has been made to understand the correlates of childbearing intention in terms of ideal family size and the discrepancy with actual subsequent family size. The specific objectives of the present paper are to
1) Examine the stability of ideal family size. 2) Study the time varying and in-varying factors influencing ideal family size. 3) Assess the levels and determinants of gap between ideal and actual family size.

Data and Methods: The present study has used data from the National Family Health Survey-2 (NFHS-2, 1998-99) and a follow-up survey conducted in 2002-2003 in two northern states, Bihar and Jharkhand. This follow-up survey was conducted jointly by the International Institute for Population Sciences, Mumbai and Johns Hopkins Bloomberg School of Public Health, Baltimore, USA. There were 3756 currently married women at the time of NFHS-2 among them 3666 women remained currently married who were re-interviewed at the time of follow-up survey.

Panel analysis: Panel analysis is an appropriate statistical method for longitudinal data analysis. It provides regression analysis with both a spatial and temporal dimensions. The spatial dimension pertains to a set of cross-sectional units of observation and the temporal dimension pertains to periodic observations of a set of variables characterizing these cross-sectional units over a

particular time span. Therefore, to examine the time varying and unvarying factors, panel analysis is used.

Findings: Findings suggest that younger women's desired family sizes are more stable in comparison to older women who have crossed 25 years (table 1a). The possible reason for this instability in desired family size may be attributed to decline in desired family size during the inter-survey period and older women are more likely to report decline in their desired family size as they are having higher chance to report higher desired family size in comparison to younger women. Similarly, women having less number of surviving children are more stable at their previous stated desired family size because women having more surviving children are more likely to desired higher family size and therefore their chance of decline in desired family size is more finally it leads to instability in their desired family size.

While studying the determinants of desired family size, women's parity is positively associated with desired family size. A special covariate is the *actual number of children*, which is obviously a good predictor of the *desired* number of children. However, its inclusion in the models raises a severe problem of endogeneity: in fact, even though it is known that actual fertility influences ideal fertility, the stronger effect presumably works in the opposite direction, i.e., desired fertility affects actual fertility. Therefore the interpretation of the regression coefficient of actual fertility would be quite difficult. Moreover, since actual fertility is a very strong predictor, its inclusion in the models would drown the effects of the other covariates, as shown by our trials.

Women having more daughters or only daughters have more chance to desire larger family size in comparison to those who were having equal number of sons and daughters, further, women with more number of sons or only sons desired a small family size. That is, to say, sex composition of children surviving influences their desired family size. According to Lane, T.2004, in northern India, women's desired fertility is positively associated with their level of son preference, according to analyses based on data from two successive rounds of a nationally representative survey. This finding indicates that in reality, smaller families are made up of more sons than daughters.

Childbearing and rearing is associated with a number of costs including the parental time and economic resources required to raise the children. The value of these resources depends on what alternative uses are available to the parents (Becker, 1960; Becker and Lewis, 1973; Willis, 1973). For example, having a child may be more costly to parents who are highly educated (have a high earnings potential in the labor market) since they would have to forego a greater amount of income when allocating their time to childrearing. Our finding also suggest that education, exposure to mass media, RCH service utilization from public or private sources, visited by family planning health worker and living in high standard of households are negatively associated with desired family size. Further, women whose childhood place of residence was village expressed higher desired number of children in comparison to those who were brought up in town or city. This finding suggests that childhood experience affects their attitude towards desired family size.

Findings of unwanted childbearing on the basis of desired family size suggest that unwanted childbearing is increasing during inter-survey period. This trend results from desired family size falling faster than the rise in contraceptive use. Age, experienced of child death and working status are positively associated with having unwanted childbearing at both point of time. While studying the impact of region on unwanted, findings suggested that unwanted childbearing is increasing

more rapidly in Bihar than Jharkhand, it may be due to desired family size has decreased faster than increase in contraception use in Bihar whereas situation is differ in case of Jharkhand.

Table 2: Estimated effects of time varying and invariant correlates of ideal family size

Variables	Empty	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	3.197	3.547 (0.034)	3.409 (0.039)	3.016 (0.119)	3.334 (0.118)	3.265 (0.151)	3.342 (0.151)
Wave							
Baseline @							
Follow-up***		-0.236 (0.021)	-0.352 (.022)	-0.343 (0.022)	-0.270 (0.023)	-0.281 (0.025)	-0.289 (0.025)
Time varying demographic factors							
Children Survival							
0-2 @							
3-4***			0.427 (.036)	0.437(0.034)	0.412 (0.034)	0.416 (0.034)	0.415 (0.033)
4+***			0.859 (0.046)	0.811 (0.044)	0.733 (0.043)	0.739 (0.043)	0.735 (0043)
Child lost							
No@							
Yes***			0.166 (0.028)	0.154 (0.027)	0.110 (0.026)	0.111 (0.026)	0.098 (0.026)
Sex composition							
Sons=daughters @							
Sons>daughters***			-0.147 (0.041)	-0.138 (0.040)	-0.124 (0.039)	-0.123 (0.039)	-0.122 (0.039)
Sons<daughters**			-0.125 (0.043)	-0.125 (0.041)	-0.101 (0.040)	0.097 (0.040)	0.088 (0.040)
Only daughters			-0.002 (0.042)	0.008 (0.041)	-0.003 (0.040)	0.006 (0.040)	0.009 (0.040)
Only sons***			-0.156 (0.037)	-0.154 (0.036)	-0.150 (0.035)	-0.144 (0.035)	-0.145 (0.035)
Time invariant societal factors							
Religion-caste							
Hindu (SC/ST) @							
Hindu (Gen, OBCs)***				-0.285 (0.028)	-0.194 (0.028)	-0.195 (0.028)	-0.156 (0.029)
Non Hindu (Muslim others)***				0.384 (0.041)	0.399 (0.040)	0.398 (0.040)	0.419 (0.040)
Region							
Bihar @							
Jharkhand***				-0.116 (0.030)	-0.103 (0.029)	-0.099 (0.029)	-0.114 (0.029)
Childhood place							
Town/city @							
Village***				0.329 (0.053)	0.159 (0.053)	0.156 (0.053)	0.143 (0.053)
Time varying societal factors							
Education							
Illiterate @							
Literate, less than middle***					-0.192 (0.038)	-0.190 (0.038)	-0.143 (0.039)
Middle complete, less than HS***					-0.373 (0.067)	-0.370 (0.067)	-294 (0.068)
HS complete and above***					-0.479 (0.053)	-0.475 (0.053)	-0.381 (0.056)
Mass media exposure							
Not @							
Yes ***					-0.191 (0.028)	-0.188 (0.028)	-0.154 (0.028)
Time varying service level factors							
Service Utilization							
No service/ other @							
RCH from Public***						-0.136 (0.048)	-0.132 (0.048)
RCH from Private						-0.037 (0.037)	-0.034 (0.037)
RCH from Both						-0.059 (0.115)	-0.061 (0.115)
Visited by FP worker							
Yes@							
No						0.047 (0.041)	0.046 (0.041)
Time invariant economic factors							
SLI							
Low @							
Medium***							-0.136 (0.028)
High ***							-0.276 (0.057)
-2 log likelihood	**19749.08**	**19626.03**	**19044.1**	**18669.32**	**18437.15**	**18426.86**	**18392.16**

@ Reference category,   *** p<0.001, ** p<0.05, * p<0.10,

Table 4: Odds of having unwanted birth on the bases of desired family size (dependent variable: 0, Actual number of children<=ideal number of children; 1, Actual number of children>ideal number of children)

Variables	Empty	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	-0.81(0.03)	-2.27(0.091)	-6.12(0.209)	-5.48(0.386)	-5.49(0.37)	-5.03(0.458)	-
Wave							
Baseline @							
Follow-up***		2.61(0.054)	2.04(0.064)	2.04(0.064)	2.01(0.071)	2.06(0.076)	2.06 (0.077)
Time varying demographic factors							
Age*			1.13(0.006)	1.13(0.006)	1.13(0.006)	1.14(0.006)	1.14 (0.006)
Child Lost							
No child lost @							
Ever lost a child			0.92(0.074)	0.92(0.075)	0.93(0.075)	0.91(0.075)	0.91 (0.076)
Sex Composition							
Sons=daughters @							
Sons>daughters***			2.87(0.093)	2.89(0.093)	2.89(0.093)	2.86(0.093)	2.87 (0.093)
Sons<daughters***			4.83(0.095)	4.87(0.095)	4.87(0.095)	4.77(0.095)	4.78 (0.096)
Only daughters			0.69(0.146)	0.68(0.146)	0.68(0.046)	0.67(0.147)	0.67 (0.147)
Only sons***			0.53(0.123)	0.53(0.124)	0.53(0.124)	0.52(0.124)	0.52 (0124)
Time invariant societal factors							
Religion/Caste							
Hindu (SC, ST) @							
Hindu (Gene, OBCs)				1.10(0.081)	1.10(0.084)	1.10(0.084)	1.10 (0.086)
Non Hindu				1.17(0.116)	1.18(0.117)	1.19(0.117)	1.19 (0.118)
Region							
Bihar @							
Jharkhand				1.04(0.083)	1.03(0.084)	1.01(0.086)	1.01 (0.086)
Childhood place							
Town/city @							
Village***				0.68(0.146)	0.68(0.151)	0.69(0.150)	0.70 (0.151)
Time varying societal factors							
Education							
Illiterate @							
Literate, less than HS					0.98(0.104)	0.97(0.104)	0.95 (0.108)
HS complete and				1.01(0.153)	0.97(0.154)	0.95 (0.163)	
Exposed to mass							
No							
Yes					1.04(0.080)	1.02(0.080)	1.02 (0.082)
Working Status							
No							
Yes					1.02(0.073)	1.01(0.074)	1.02 (0.074)
Time varying service level factors							
Service Utilization							
No service@							
RCH from Public**						1.37(0.147)	1.37 (0.147)
RCH from Private**						1.42(0.115)	1.42 (0.115)
RCH from both*						1.77(0.315)	1.79 (0.315)
Visited by FP worker							
Yes@							
No **						0.71(0.113)	0.71 (0.113)
Time invariant economic factors							
Standard of living							
Low @							
Medium							0.98 (0.082)
High							1.13 (0.165)
-2 log likelihood	8717.71	8212.2	4493.71	4453.9	4451.45	4313.58	4309.58

@ Reference category,   *** p<0.001, ** p<0.05, * p<0.10,