

Dynamics of Family Building Process in the Context of Fertility Decline: A Study on a Poor State of India

Extended Abstract:

There is the evidence that fertility transition is in progress in India. The recent revolution in family life experienced in India in general and the southern states in particular is most spectacular and may not necessarily confirm to the classical theories on fertility. While admittedly, the decline in fertility in Kerala, Tamil Nadu, and Andhra Pradesh have been spectacular, the decline in fertility in Orissa has also been significant. Besides, given the low level of social development and poor economic setting with a large proportion of population live below the poverty line, low level of industrialization and urbanization, high rate of infant mortality, the expected TFR in Orissa should have 3.7 (obtained as the predicted value, see Table 1) but the actual TFR of 2.6 indicates that of about one child is lower than what is expected, which is much lower compared to other states of India. Clearly, lessons learnt from the fertility transition experience of Orissa may be more relevant to other parts of India than what has been experienced by Kerala or Tamil Nadu. Yet, little is known about the fertility transition in Orissa while the circumstances of the fertility decline in Kerala (e.g. Zachariah, 1984) have been extensively studied. Therefore, there is need to focus attention on fertility patterns, family building process and birth interval dynamics in Orissa.

The study is based on well known existing data sets: Census, Sample Registration System (SRS) and the National Family Health Surveys (NFHS). There have been three rounds of NFHS in 1992-93, 1998-99 and 2005-06. These rounds give enormous amount of information on the demographic, health and social indicators. The NFHS III, of which individual data are available, becomes the major source of data for most of the analysis.

Total Fertility Rate and Crude Birth Rate have been used for long by the planners and programme managers. However, such indicators do not provide an understanding of fertility trends in an effective manner. A more promising approach for the study of dynamics of human fertility is Period Parity Progression Ratio (PPPR). This approach

enables one to study trends in family building process and to understand how a society is progressing towards destabilization of high fertility (Feeney and Yu, 1987). The study of family building process is important not only for scientific reasons but also for evaluating the existing population policies and programmes, which tend to have goals formulated in terms of parity progression, e.g., stopping at two. (Gandotra *et al.*, 1998).

The number of children that married fecund woman would have, will depend on her speed with which she is bearing children and her parity progression ratios. As such, analysis of data on inter live birth interval along with open birth interval is of considerable importance to study the tempo as well as the quantum of fertility. Therefore it is focused on the measurement of family building process with the help of birth interval analysis. Two summary measures, median birth intervals (measuring the tempo of fertility) and the proportion of mothers had a birth by different birth orders in different time periods (indicating the quantum of fertility) were calculated based on the life table approach which takes into account both closed and open birth intervals. Finally, the technique of Cox's proportional hazards model, which is an extension of the life table technique has been used, in order to see the relative effect of a specific variable on the risk of subsequent births, controlling of other socio-economic and demographic variables.

The analysis of fertility transition in Orissa brings out several interesting dimensions of transition for the present and the future. The achievement of the state is commendable as far as fertility reduction is concerned. This reduction does not confirm to the classical theories which thought fertility reduction necessitates considerable improvement either in economic or social development. During the 1980's and 1990's the state has experienced a considerable reduction in fertility. SRS estimates indicate that the Crude Birth Rate (CBR) is 22.7 in 2004. The NFHS III estimated a Total Fertility Rate (TFR) of 2.37 per woman during 2003-05, only about 13 percent above the replacement level of 2.1 children per women. The urban TFR (1.89) is below the replacement level and the rural TFR (2.48) is 18 percent above the replacement level.

The trends in period parity progression ratios give strong evidence of rapid transition toward predominantly two child families in Orissa. The time series of PPPRs for progression from women's birth to first birth and first birth to second birth show marginal decline in the last decade, whereas the decline is steep for higher progressions. In other words, the progression to the first two parities is still high and very little decline is visible through the period under study 1990-2004. It is only at the third birth that the decline in PPPR is seen. We can infer that there are broadly two groups of people in Orissa, i.e., one group who stop at second birth and the other group who continues till fourth order births. Thus, over period, most women continue to have at least two births but increasingly avoid subsequent births. This has led to a rapid fertility decline in the state in the last decade.

The Life Table analysis of spacing between births clearly suggest that the median birth intervals were short for second birth than the subsequent births across different background characteristics of women. The fertility decline in Orissa seems to have set in from 1971 and the birth intervals have got longer since about then. The results from proportional hazards model are consistent with those obtained from the life table analysis. Among the explanatory variables, that are examined, educational level of women, age of women at previous birth, sex and survival status of the previous child and the period effect are found to be important determinants of birth interval. It is also found that, socio-economic differences do not show a large effect at lower order births. This highlights the fact that the most of the women in Orissa, regardless of their background characteristics, tend to go for the second birth. Women who marry at later ages tend to start family building earlier than others, presumably in an attempt to make up for lost time. Women with higher educational level are found to have lower risk of progressing to the next birth. The declining period effect on the subsequent birth intervals indicates that, women in recent years prefer to have fewer children. Thus the child spacing have been found to play an important role in fertility transition and this result also supports the view that fertility will continue to decline in the years to come.

Table 1: Key Socio-Economic indicators and Actual and Expected TFR in Major States of India

States	IMR ¹ 2005	Literacy Rate(%), 2001 ²	Percent Urban,2001 ²	Percent of Pop. BPL, 2004-05 ³	TFR		
					Actual ¹ 2005	Expected	Difference
India	58	64.8	27.8	21.8	2.9	-	-
Andhra Pr.	57	60.5	27.3	11.1	2.0	2.8	-0.8
Assam	68	63.3	12.9	15.0	2.9	3.1	-0.2
Bihar	61	47.0	10.5	32.5	4.3	3.8	0.5
Chhatisgarh	63	65.2	20.1	32.0	3.4	3.2	0.2
Delhi	35	81.1	37.4	10.2	2.1	1.8	0.3
Gujarat	54	69.1	37.4	12.5	2.8	2.4	0.4
Haryana	60	67.9	28.9	9.9	2.8	2.6	0.2
Himachal Pr.	49	77.1	9.8	6.7	2.2	2.3	-0.1
Jammu & K	50	54.5	24.9	4.2	2.4	2.7	-0.3
Jharkhand	50	54.1	22.3	34.8	3.5	3.4	0.1
Karnataka	50	66.6	34.0	17.4	2.2	2.6	-0.4
Kerala	14	90.9	26.0	11.4	1.7	1.4	0.3
Madhya Pr.	76	63.7	26.5	32.4	3.6	3.4	0.2
Maharashtra	36	76.9	42.4	25.2	2.2	2.1	0.1
Orissa	75	63.1	15.0	39.9	2.6	3.7	-1.1
Punjab	44	69.7	33.9	5.2	2.1	2.2	-0.1
Rajasthan	68	60.4	23.4	17.5	3.7	3.1	0.6
Tamil Nadu	37	73.5	44.0	17.8	1.7	2.1	-0.4
Uttar Pr.	73	56.3	20.8	25.5	4.2	3.5	0.7
West Bengal	38	68.6	28.0	20.6	2.1	2.5	-0.4

No. of Cases: 20, R: 0.823, R Square: 0.677, Adjusted R Square: 0.590, Std. Error of the Estimate: 0.513

Sources: ¹ India, Registrar General, (2006)

² India, Registrar General, (2004)

³ Government of India, (2007)

Note: Expected TFR is the predicted TFR computed from the multiple regression coefficients taking Infant Mortality Rate (IMR), literacy rate, percent urban and percent of population living Below Poverty Line (BPL) as independent variables.

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