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IIPS RESEARCH BRIEF

Research Brief Series

Every year, IIPS undertakes many research studies on a number of themes related to population and health at the state and national levels using its own resources. The 'Research Brief Series' is a new initiative by the Institute to provide an opportunity to the Institute's faculty, Ph.D. students and visiting fellows to quickly disseminate the important findings of their research studies before they are published as a research report or in a scientific journal. The authors of the Research Brief look forward to receive feedback from readers that could be helpful in revising the larger study report.

- Editor

Prof. P. N. Mari Bhat as Director of IIPS initiated the 'Research Brief Series' and finalized this first issue two weeks before his untimely demise. It is very unfortunate that he is not here with us to see this in print.

RETURNS OF FERTILITY DECLINE AMONG UNEDUCATED WOMEN IN INDIA

P. Arokiasamy

Introduction

Fertility transition in the Indian states is apace since the 1990s. Data from India's *S*ample Registration System (SRS) indicates that the crude birth rate and the total fertility rate declined respectively from 31 and 4.0 in 1991 to 24 and 2.6 in 2004. This emerging evidence points to the fact that bulk of fertility decline is now occurring among uneducated women. This transition is being driven mainly by the increasing contraceptive prevalence rate among uneducated women (Bhat, 2002; McNay *et al*, 2003).

Based on the framework of fertility determinants, a major body of past literature demonstrated evidence of early and significant fertility reduction among educated and socioeconomically advanced women (Caldwell *et al*, 1982; Coale and Watkins, 1986). However, recent literature recognizes that the fertility reduction among uneducated women is a complimentary phenomenon to the early phase of fertility decline among educated women (McNay *et al*, 2003; Arokiasamy *et al*, 2004). The emergence of such a trend is consistent with the diffusion school perspective that diffusion of fertility decline progress faster than socioeconomic development, although the two processes are complementary to each other. Such momentum in fertility transition is critical to move forward with the transition process.

In the context of emerging evidence of rising contraceptive prevalence accompanied by major fertility decline among uneducated women, the common emphasis of fertility research on development indicators as determinants of fertility decline is shifting towards the dynamics of fertility decline among uneducated women and the reciprocally initiated positive contributions of fertility decline. Such contributions include major health improvements for women and children, educational development of children and progress in economic condition of families. This is a major departure from the main focus of previous studies that dealt with the assessment of the contributions of increasing female education and socioeconomic conditions on fertility reduction.

Merrick (2002) points out that some recent studies of effects of demographic change on economic growth are useful to explain the past experience of different countries and regions; slow growth in Africa versus the burst of growth in East Asia, 1960-1995. The demographic experience of several East Asian countries in the 1980s and 1990s is now seen to be closely replicating in several Indian states. The current demographic change in the Indian states has concordance with the long-term policy rationale of fertility control:

- promoting health of women and children.
- accelerating the reduction in poverty levels.
- achieving faster improvement in the overall socioeconomic conditions.

Evidence in India further points to a reverse causation effect of fertility reduction among uneducated women adopting contraception. A study was undertaken to assess the macro and micro level evidences of the impact of fertility decline. At the macro level, evidence of impact of fertility decline was examined for health and development indicators such as female literacy, economic growth, poverty, infant mortality, women's work participation and human development. The micro level examination of evidences dealt with infant and child mortality, antenatal care and child immunization, school attendance of children and women's work participation.

In this brief, the results of decomposition analysis of fertility decline between National Family Health Survey-1 (1992-93) and National Family Health Survey-2 (1998-99) by educational status of women and macro level impact of fertility reduction on poverty and infant mortality are presented. Data from Sample Registration System and Center for Monitoring Indian Economy (CMIE) are used for the macro (state) level trend analysis. The micro (household) level evidences are also briefly discussed with comparative results of antenatal care and child immunization coverage between educated and uneducated women and by parity based on National Family Health Survey-2 (1998-99) data .

Decomposition of fertility decline

The state-wise total fertility rate (TFR) by levels of women's education between NFHS-1 (1992-93) & 2 (1998-99) reveals greater fertility reduction among the illiterate women compared with women having high school education and above (Table 1). The magnitude of overall TFR reduction vis-à-vis TFR reduction among illiterate women between the two periods shows a major contribution of illiterate women to the overall fertility decline in a majority of states. These include Bihar, Haryana, Himachal Pradesh, Punjab, Jammu & Kashmir, Uttar Pradesh, Assam, West Bengal and Andhra Pradesh.

Table 1: Decomposition of fertility change by education of women in India, between NFHS-1(1992-93) & NFHS-2(1998-99)

States	Total fertility rate		Change in TFR between NFHS-1 & 2	Percentage contribution of the change in overall TFR [1] between NFHS-1 & 2 by		
	NFHS-1 1992-93	NFHS-2 1998-99		Illiterate women	Literate women	Change in educational composition of women
North						
Bihar	4.00	3.49	0.51	41	10	49
Haryana	3.99	2.88	0.88	64	24	12
Himachal Pradesh	2.97	2.14	0.83	43	40	17
Jammu & Kashmir	3.13	2.71	0.42	24	18	58
Madhya Pradesh	3.90	3.31	0.59	47	12	41
Punjab	2.92	2.21	0.71	37	34	29
Rajasthan	3.63	3.78	0.42	21	21	58
Uttar Pradesh	4.82	3.99	0.83	68	23	17
East						
Orissa	2.92	2.46	0.46	23	16	54
West Bengal	2.92	2.29	0.63	47	13	37
West						
Gujarat	2.99	2.72	0.27	14	13	73
Maharashtra	2.86	2.52	0.34	21	13	66
South						
Andhra Pradesh	2.59	2.25	0.34	34	-	66
Karnataka	2.85	2.13	0.72	56	16	28
Kerala	2.00	1.96	0.04	-	4	96
Tamil Nadu	2.48	2.19	0.29	22	7	71
INDIA	**3.39**	**2.85**	**0.54**	**41**	**13**	**46**

[1] results based on decomposition analysis.

Trends in fertility (TFR) decline and gains in development in terms of poverty and infant mortality reduction, 1971-2001

Fig 1a

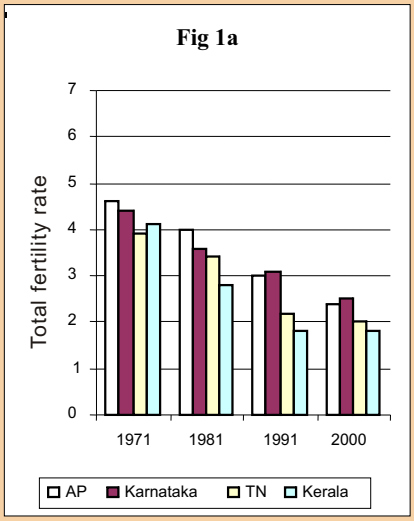


Fig 1b

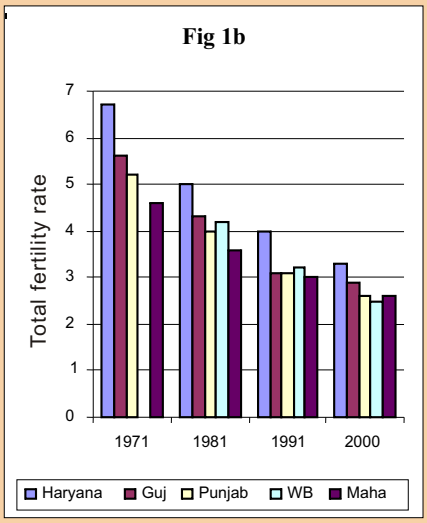


Fig 1c

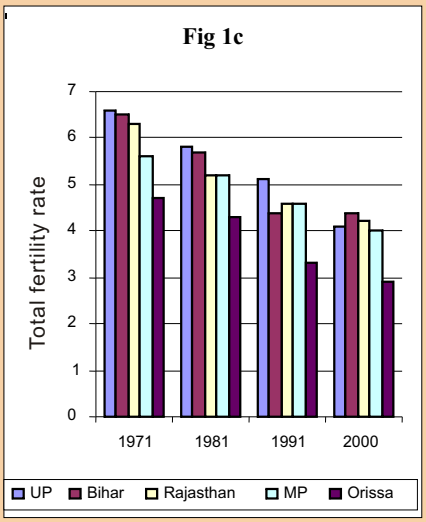


Fig 2a

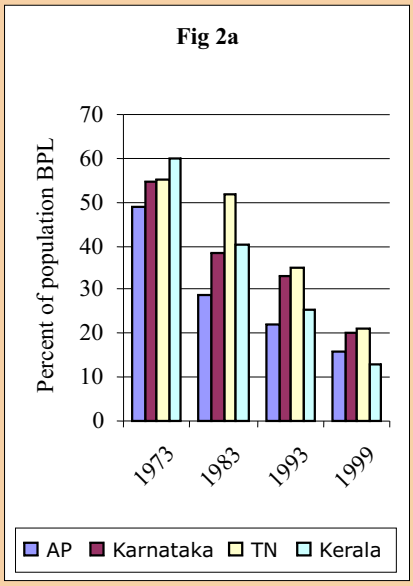


Fig 2b

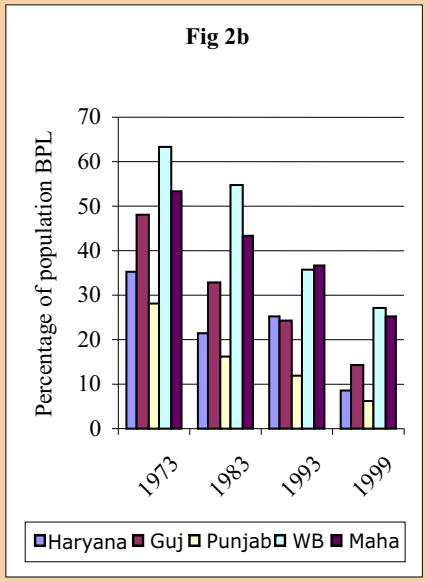


Fig 2c

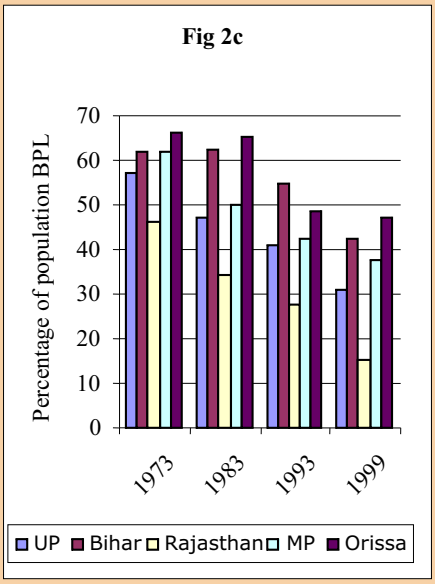


Fig 3a

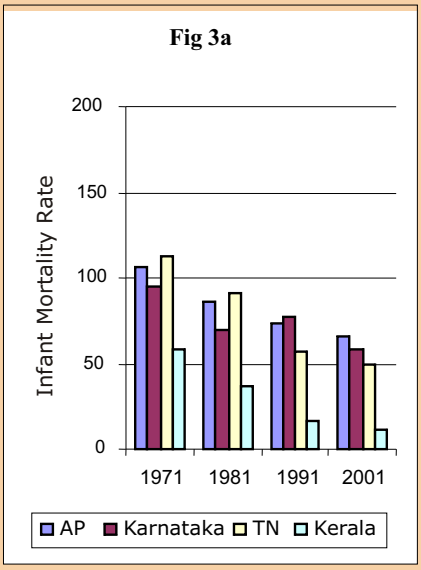


Fig 3b

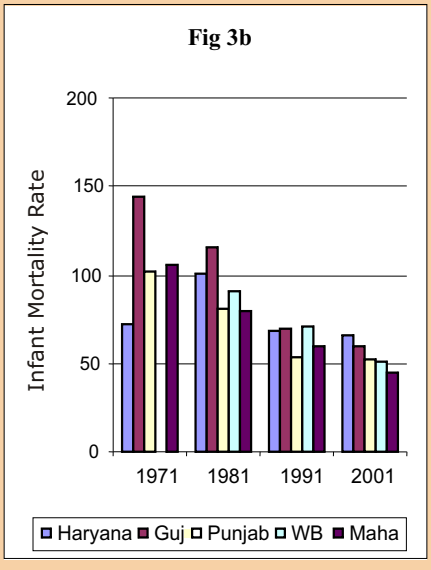
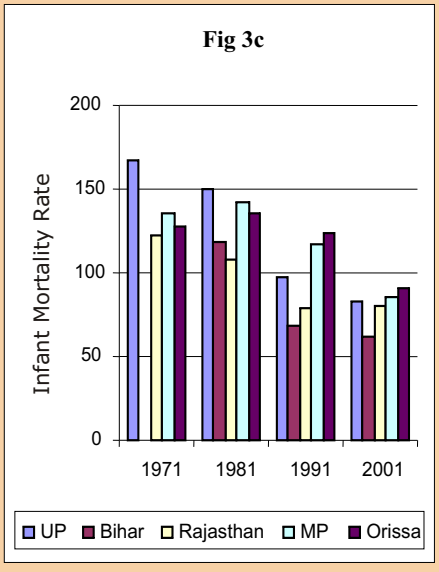


Fig 3c



BPL: Below Poverty Line

Decomposition of TFR reduction by women's education demonstrates further evidence that 41 percent of the decline in TFR between NFHS-1 and NFHS-2 is contributed by illiterate women and just 13 percent is contributed by literate women. Between 40-68 percent of fertility reduction in Bihar, Haryana, Himachal Pradesh, Madhya Pradesh, Uttar Pradesh, West Bengal and Karnataka is contributed by illiterate women. The corresponding contribution of fertility reduction by educated women varies from a low of 10 percent in Bihar to a high of 40 percent in Himachal Pradesh. Changes in educational composition of women account for the remainder of the changes in TFR. In Kerala, Tamil Nadu, Maharashtra, Gujarat and Orissa, the difference in TFR by education has narrowed down due to sustained decline in TFR contributed by uneducated women. Bhat's (2002) analysis of Census data shows that 65 percent of India's fertility decline during the 1990s was due to the fall among illiterate women.

The reduction in TFR in the Indian states is mainly because of emerging behavioural change among the uneducated women. For instance, the percent of women currently using contraction rose from 41 percent in NFHS-1 (1992-93) to 48 percent in NFHS-2 (1998-99) but the corresponding rise in contraceptive use among currently married illiterate women is from 34 percent in 1992-92, to 43 percent in 1998-99.

Impact of fertility decline

Major positive health and development contributions are found both at the macro and micro level. Macro level comparison of trends and changes in total fertility rates vis-à-vis health and development indicators across major states suggests that states with significant fertility reduction during each decade of 1970s, 1980s and 1990s have also correspondingly experienced remarkable progress in literacy, SDP growth, improvement in maternal and child health i.e., antenatal care and child immunization coverage, poverty and infant mortality reduction. For instance, rapid decline of fertility in the south Indian states in the last three decades is seen associated with pronounced reduction in poverty and infant mortality (Fig. 1a, 2a and 3a). Maharashtra, Gujarat, Punjab, Haryana and West Bengal with relatively faster pace of fertility decline also have achieved greater gains in the above health and development indicators (Fig. 1b, 2b and 3b). In contrast, Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh and Orissa, the states with higher fertility and slower pace of fertility decline in the last three decades show meagre improvements in poverty and infant mortality reduction (Fig. 1c, 2c and 3c) .

Micro (household level) analysis of National Family Health Survey-2(1998-99) revealed that low fertility among uneducated women has resulted in major improvements in the health of women and children. The adjusted percentage of women receiving antenatal care and their children receiving full immunization is significantly higher for uneducated sterilized women with 2 and less number of children compared with uneducated sterilized women with three and higher number of children. Similar differences emerged in children attending school, infant and child mortality and economic condition of women. The differences are steeper among uneducated women than among educated women in most of the states with moderate to low health services coverage. Child mortality reduction for women with lower parities is steeply higher for uneducated women compared with educated women. These evidences suggest that fertility decline among uneducated women in addition to health benefits to them and their children have also been making major contribution to the overall progress in health and development of the states.

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