Extended Abstract

An Examination of Women's Characteristics in Context of High Fertility:
A comparative Study between Tamil Nadu and Uttar Pradesh

By
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Although India has experienced considerable fertility decline in the recent past, this decline is not homogeneous spatially. While southern states like Tamil Nadu achieved replacement level fertility, northern states like Uttar Pradesh are far from achieving replacement level fertility. Why this spatial disparity in level of fertility and what was the factors that helped women in South India to take decisions on fertility reduction needs discussion. Socio-economic status of women must have important role to play in reducing fertility. It has been found that high status of women has often been found to be associated with relatively low fertility (Coale and Watkins 1986, Jejeebhoy 1995).

OBJECTIVES

In this paper we first examine the levels, patterns, and pace of fertility decline in India using data from three different time periods. An important question that needs to be addressed the reasons for lack of reductions in fertility level in North India in general and in Uttar Pradesh in particular. To understand the lack of decline, we also explored the differences socio-economic characteristics of women with high and low fertility in southern and northern state. Temporal comparisons of socio-economic status of these women have been examined separately for Tamil Nadu and Uttar Pradesh.

DATA

Data for Total Fertility Rate (TFR), Age-Specific Fertility Rate (ASFR) have been compiled from national and state reports of NFHS-1 (1992-93), NFHS-2 (1998-99) and NFHS-3 (2005-06). In order to examine the characteristics of women having high fertility in both states, individual level data have been used from the first and third round of National Family Health Survey.

METHODOLOGY

The pace of fertility decline has been analyzed by calculating overall fertility decline and later average annual overall fertility decline between two surveys. Following formula has been applied to calculate pace of fertility decline:

Overall Fertility Decline = $(ASFR_{t2} - ASFR_{t1}) / ASFR_{t1} * 100$ and

Average Annual Fertility Decline = OFD / Time Gap in Years between Two Surveys

Whereas, t2 = later time period and t1 = earlier time period;

OFD = overall fertility decline;

Time gap in years between two surveys = Mid-year of Survey $_{T2}$ – Mid Year of Survey $_{T1}$

The Mid-Year thus obtained for different NFHS surveys are given below:

NFHS 1 (April 1992 – June 1993): Mid-year of NFHS 1 = November 1992

NFHS 2 (Nov 1998 – March 1999): Mid-year of NFHS 2 = January 1999

NFHS 3 (Nov 2005 – August 2006): Mid-year of NFHS 3 = April 2006

Time gap in years between two surveys obtained as follows:

NFHS 2 – NFHS 1 = 6.17 years

NFHS 3 – NFHS 2 = 7.25 years

NFHS 3 – NFHS 1 = 13.42 years

For second objective, ever married women in the reproductive age-group (15-49 years) have been classified into two categories – those having less than or equal to three children at the time of the interview, and those with more than three children. To examine this, we consider three different settings for state, i.e., economic setting (standard of living or household having BPL card), social setting (women's education, son preference and caste) and service setting (child loss and utilization of ICDS). Bivariate and multivariate analyses have been carried out.

FINDINGS

For Objective One:

Levels and Trends of Fertility in Tamil Nadu and Uttar Pradesh

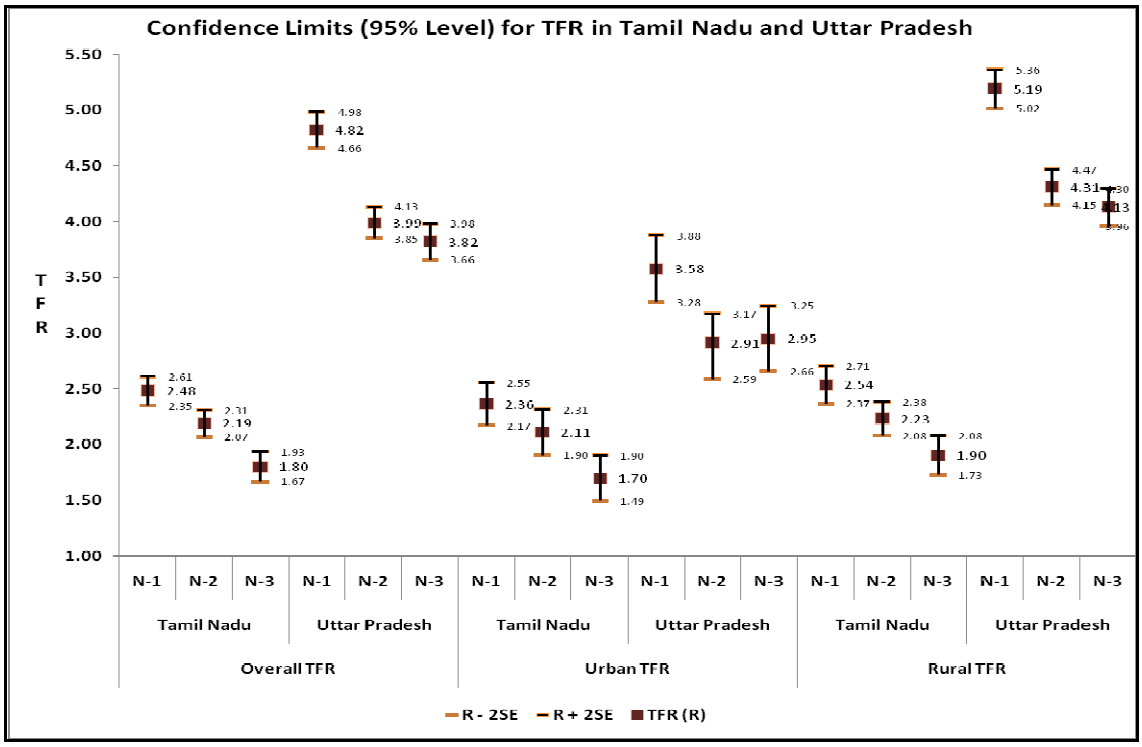
Table 1 showing comparison of TFR decline in Tamil Nadu with that in Uttar Pradesh at overall, urban and rural level. Three years average TFR from SRS have also been given for equivalent NFHS survey to validate the level and decline in TFR as estimated by different NFHS surveys. Interestingly, SRS gives an overestimates of TFR for Uttar Pradesh and gives underestimates of the same for Tamil Nadu. Regarding overall TFR both Tamil Nadu and Uttar Pradesh have more than replacement level fertility in NFHS-1. Whereas Tamil Nadu achieved below replacement level fertility in 1999 (as given by SRS), overall TFR of Uttar Pradesh was 4.0 in case of NFHS-2 or 4.7 if we consider three years average of TFR from SRS. On whatever estimates we believe, it is obvious that fertility is much higher in Uttar Pradesh in comparison to Tamil Nadu. Diagram-1 showing error bar for TFR in Uttar Pradesh and Tamil Nadu for different NFHS surveys. As clearly visible from the diagram, the overlaps between error bars of two different surveys may raise question against the amount of fertility decline we talked about in these two states.

Table 1 showing TFR from NFHS and SRS for Tamil Nadu and Uttar Pradesh

State	NFHS-1 (Mid Year Nov 1992)	SRS 1992 (3 Years Average)	NFHS-2 (Mid Year Jan 1999)	SRS 1999 (3 Years Average)	NFHS-3 (Mid Year Apr 2006)	SRS 2006 (3 Years Average)
			Overall TFR			
Tamil Nadu	2.5	2.2	2.2	2.0	1.8	1.7
Uttar Pradesh	4.8	5.2	4.0	4.7	3.8	4.1
India	**3.4**	**3.6**	**2.9**	**3.2**	**2.7**	**2.8**
			Urban TFR			
Tamil Nadu	2.4	2.0	2.1	1.8	1.7	1.6
Uttar Pradesh	3.6	4.0	2.9	3.6	3.0	3.2
India	**2.7**	**2.7**	**2.3**	**2.3**	**2.1**	**2.0**
			Rural TFR			
Tamil Nadu	2.5	2.3	2.2	2.1	1.9	1.8
Uttar Pradesh	5.2	5.5	4.3	4.9	4.1	4.4
India	**3.7**	3.9	**3.1**	**3.5**	**3.0**	**3.1**

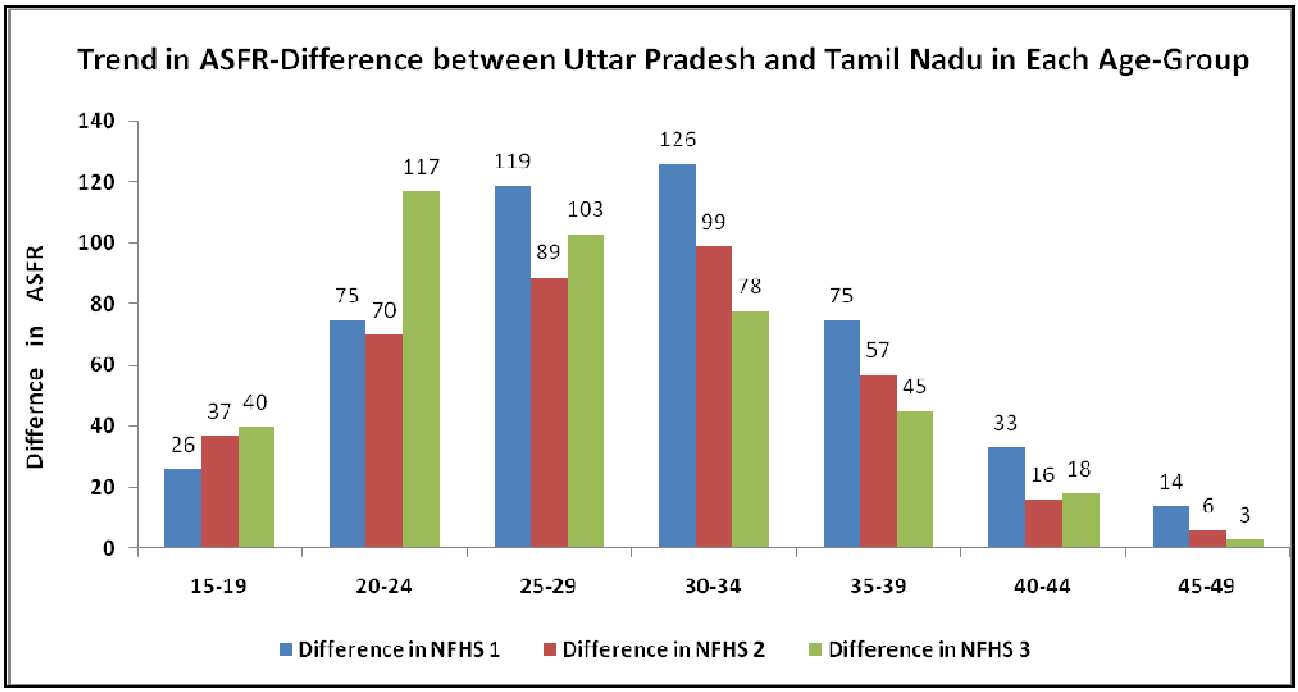
Source: NFHS-1, 2 and 3, IIPS, Mumbai and ORC-Macro; and SRS, Registrar General of India

Diagram 1 showing error bar plot for TFR for Uttar Pradesh and Tamil Nadu



Source: States Reports, NFHS-1, 2 and 3; IIPS, Mumbai and ORC Macro

Figure-2 Showing the Trend in ASFR-Difference between States



Source: States Reports, NFHS-1, 2 and 3; IIPS, Mumbai and ORC Macro

Pace of Fertility Decline

Table-2 represents pace of fertility decline in Tamil Nadu and Uttar Pradesh and hence a comparison of amount of decline between these states can be possible from this table. It is clear from the table that from NFHS-1 to NFHS-3, the pace of fertility decline is much higher in Tamil Nadu than in Uttar Pradesh. Although, the pace of fertility declines varies among different age-groups. But for the age-groups of 30-34 and 44-49, the pace of decline is higher among women from Uttar Pradesh. It is obvious at least in case of age-group 44-49, as ASFR is found zero among women of this age-group in Tamil Nadu as they may have adopted limiting methods of family planning. Another interesting point to be noted that pace of fertility decline is slower from NFHS-2 to NFHS-3 than pace from NFHS-1 to NFHS-2 and this is more prominent in UP. Only women of 15-19 years of age-group in UP has shown higher pace between NFHS-2 and NFHS-3 than pace achieved by this age-group between NFHS-1 and NFHS-2. Regarding more fertile age group, i.e., age-group of 20-29, pace of decline is positive from NFHS-2 to NFHS-3. It means fertility has been increased (3% in 20-24 and 1% in 25-29 years of age-groups) in this time period instead of decreasing; but in Tamil Nadu, the pace of decline is substantially higher in the same time period for age-groups 20-24 and 25-29 and the declines for these age-groups respectively are -20% and -10%.

Table-2 Showing Pace of Fertility Decline

Women's Age-Group	Tamil Nadu						Uttar Pradesh					
	Overall Fertility Decline in between			Average Annual Overall Fertility Decline in between			Overall Fertility Decline in between			Average Annual Overall Fertility Decline in between		
	N 1 – N 2	N 2 – N 3	N 1 – N 3	N 1 – N 2	N 2 – N 3	N 1 – N 3	N 1 – N 2	N 2 – N 3	N 1 – N 3	N 1 – N 2	N 2 – N 3	N 1 – N 3
15-19	-5%	-33%	-36%	-1%	-4%	-3%	6%	-20%	-15%	1%	-3%	-1%
20-24	-7%	-20%	-26%	-1%	-3%	-2%	-7%	3%	-4%	-1%	0%	0%
25-29	-8%	-10%	-17%	-1%	-1%	-1%	-16%	1%	-16%	-3%	0%	-1%
30-34	-37%	6%	-33%	-6%	1%	-2%	-26%	-15%	-37%	-4%	-2%	-3%
35-39	-47%	-20%	-58%	-8%	-3%	-4%	-29%	-21%	-44%	-5%	-3%	-3%
40-44	-25%	-67%	-75%	-4%	-9%	-6%	-49%	0%	-49%	-8%	0%	-4%
45-49	0%	0%	0%	0%	0%	0%	-57%	-50%	-79%	-9%	-7%	-6%

Source: Calculated from ASFRs given in States Reports, NFHS-1, 2 and 3; IIPS, Mumbai and ORC Macro

N 1 = NFHS 1, N 2 = NFHS 2 and N 3 = NFHS 3

For Objective Two

Table-3 shows that the percentage of women having more than 3 children in UP was 46% in NFHS-1 while it was 29% in Tamil Nadu. While this percentage reduced to almost 10% in Tamil Nadu after 13 years in NFHS-3, after the same time gap, UP has been found to have 34% women having high fertility.

Table-3 Showing Percentage of Women in States by Total Children Ever Born

Children Ever Born	NFHS -1		NFHS -3	
	UP	TN	UP	TN
Less than or equal to 3	54.0	71.4	65.97	89.68
More than 3	46.0	28.6	34.03	10.32
Total Women	**11,438**	**3,948**	**12,183**	**5,919**

The causes of high fertility in Uttar Pradesh lies in the socio-economic status of the women as there is marked difference in socio-economic status of women from Tamil Nadu with women from Uttar Pradesh. Education has greater impact in reducing fertility alongwith mass-media exposures. Women from southern states achieved this long time ago and hence as a result, their fertility declined to replacement level. Differentials between women in the two states have been found in

characteristics like standard of living index, women's education, son preference, mass-media exposure Experience of mortality at household. Our findings reveal that social and economic settings of the states have significant effects on fertility. But most significantly, the strong son preferences need to be minimized among women in Uttar Pradesh to accelerate pace of fertility in general and to reach replacement level of fertility in particular.

Table-4 Univariate Distribution of Women Having More than 3 Children by Different Setting Variables

Background Variables		**NFHS-1 (1992 – 93)**		**NFHS-3 (2005 – 06)**	
		UP	**TN**	**UP**	**TN**
Control Variables					
Age-group	15-29	17.5	10.8	15.05	6.71
	30-34	23.0	16.4	23.88	14.89
	35-39	22.2	22.5	23.42	21.11
	40-44	19.3	27.0	19.92	27.00
	45-49	17.9	23.4	14.25	29.62
Type of place of residence	Urban	18.1	27.7	33.98	43.37
	Rural	81.9	72.3	66.02	56.63
Religion	Hindu	83.3	87.0	75.30	86.42
	Non-Hindu	16.7	13.0	24.70	13.58
Mass-media Exposure	No	35.1	39.3	60.4	20.5
	Yes	64.9	60.7	39.6	79.5
Economic Setting					
Standard of living index	Low	33.9	52.0	28.1	27.2
	Medium	48.0	35.5	39.4	46.6
	High	18.0	12.5	32.5	26.2
Social Setting					
Caste	SC or ST	19.9	23.9	26.8	34.5
	Others	80.1	76.1	73.2	65.5
Education of the woman	Non-literate	84.1	57.7	71.1	44.5
	Primary	8.0	28.0	9.9	31.1
	Secondary / Higher	7.9	12.3	13.0	24.4
Son preference	No	30.2	82.6	57.8	87.1
	Yes	69.8	17.4	42.2	12.9
Service Setting					
Experience of Mortality	No	70.1	36.3	43.6	49.9
	Yes	29.9	63.7	56.4	50.1
Total		**5,258**	**1,131**	**4,146**	**611**

Table-5 Showing Odds Ratios from the Logistic Regression Analysis predicting Total Children Ever Born (>3)

Background Variables		NFHS-1 (1992 – 93)		NFHS-3 (2005 - 06)	
		UP	TN	UP	TN
Control Variables					
Type of place of residence	Urban	1.480***	0.845*	1.238***	0.859
	Rural (Ref)				
Religion	Hindu (Ref)				
	Non-Hindu	1.256***	1.639***	1.014	2.134***
Mass-media Exposure	No (Ref)				
	Yes	0.902*	0.837*	0.757***	0.718**
Economic Setting					
Standard of living index	Low (Ref)				
	Medium	0.936	1.675***	0.865**	1.462***
	High	1.053	1.661***	1.012	1.190
Social Setting					
Caste	SC or ST	0.873**	1.217*	0.997	1.391***
	Others (Ref)				
Education of the woman	Non-literate (Ref)				
	Primary	0.747***	0.781**	0.405***	0.692***
	Secondary / Higher	0.383***	0.373***	0.158***	0.246***
Gender preference	No (Ref)				
	Yes	1.294***	1.055	1.439***	1.236
Service Setting					
Experience of Mortality	No	0.099***	0.095***	0.076***	0.089***
	Yes (Ref)				
Total Women		**12,183**	**5,919**	**11,438**	**3,948**

Dependent variable: TCEB =0 (for less/equal to 3 children),
=1 (for more than 3 children)

(Ref): Reference category

*Level of significance: *** p ≤ 0.001, ** p ≤ 0.01, * p ≤ 0.05*

TN = Tamil Nadu and UP = Uttar Pradesh

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