

Fertility Trends in North-East India

P. Thongkhanthang

Fertility has been declining in all the states with the pace of decline varying according to their level of fertility. It is evident from the data sources that the fertility rate in the region, on an average, has declined faster during NFHS-1 to NFHS-2, but slower during NFHS-2 to NFHS-3, and the TFR in rural areas has declined at slower pace than the urban counterparts over the same period. Given the variations in fertility levels and slow pace in declining trend within the North-East, this study suggests that there are large pockets of the population where people have little motivation towards small family and/or have poor access to quality family planning services and modern contraceptives. This demographic problem cannot be addressed in isolation without paying equal attention to general improvement in social and economic conditions along with increasing affordable access to good quality reproductive health services for all. This article uses published data from Census of India, Sample Registration System and National Family Health Survey (NFHS), several time series are compiled: crude birth rates from 1970s and fertility rates from the 1990s.

Keywords: Total fertility rate, crude birth rate, place of residence, North-East India.

In recent decades, fertility has declined throughout the North-Eastern states, albeit at varying pace and largely conforms to the all-India fertility trends. The rate of decline has been pretty steady with some fluctuations over the years, as is evident from the data available from the Sample Registration System (SRS) of India (see the appendix table). The Indian SRS indicates the birth rate in the region declining from 35.86 to 20.00 per 1,000 between 1960 and 2001; based on Census of India's North East birth rate fell from 34.6 in 1971 to 26.2 in 2001. Estimates based on the India's National Family Health Survey (NFHS), in the North-Eastern region, the crude birth rate (CBR) has dropped on an average to 23.6 in 2005-06 from 28.2 per 1000 populations in 1992-93.

There is a marked difference in fertility by place of residence among the North-Eastern states. According to the latest NFHS-3 record the rural fertility of Manipur,

P. Thongkhanthang is Senior Research Fellow at the Centre for the Study of Regional Development, Scholar of Social Sciences, Jawaharlal Nehru University, New Delhi - 110067.

Meghalaya, Sikkim, and Mizoram displayed a declining trend, but the growth rates may well have increased in Arunachal Pradesh, Nagaland and Tripura. The urban fertility on the other hand, with the exceptions of Arunachal Pradesh, Nagaland and Tripura which appear to move up, have appeared to move down in the rest of the states including Assam, Manipur, Sikkim and Mizoram - presumably in association with increased female literacy. By 1981, the average total fertility rate for the North-East region (NER) was 5.1 children, which ranged between a low of 5.2 children in urban Manipur, and a high of 6.0 in rural Meghalaya. Nevertheless, in 2005-06, the average total fertility rate has plummeted to 2.9 children, with a high of 4.3 in rural Meghalaya and a low of 1.3 in urban Sikkim. This relatively low level of fertility is largely attributable to the region's high average age at first marriage. Increased use of contraception also may have played a role in the decline of the fertility rate in the region. It is to be noted that the population policies adopted by the government is successful mainly in the urban areas, and at the same time a constant ethnic rivalry among the scheduled tribes in Manipur, Mizoram, Nagaland, and Assam is a major factor that caused variations in fertility patterns in the region. Moreover, acceptances of contraceptive methods still vary within and between societies and also among different castes, tribes and religious groups in these states.

Fertility trends in North India equally apply to the Northeastern region. It is supposed that some states are likely to sustain its present fertility levels or even would increase by seeing their trends in the past. Without doubt that the reason for steady decline in fertility in the region is not far to seek. Decline in fertility has usually been associated with high income per capita, rapid economic growth, a high proportion of the population living in urban areas, high female literacy and employment, and low mortality. The fact that the region is inhabited by hundreds of indigenous peoples whose fertility rates are, on average, among the highest leagues in the country. Typically, they are characterised by economic deprivation and the practice of subsistence jhum cultivation. Massive unemployment and a weak industrial sector are conspired to have grounded the regional economy. Here children are considered as a handsome source of income or a divine gift from the womb. In such austere circumstances, tribal women – especially in Meghalaya – make no purchase on the idea of family planning methods such as contraceptive use. In relation to fertility issues, this makes North East India so strikingly comparable to North India. Indeed, it is pertinent to review the fertility levels and trends in order to specify the degree of success of the government's family planning programme, especially in the North East context of the country. Bearing all this in mind, the present study attempts to give a thorough picture of the fertility levels and trends and examine the percentage decline over 37 years time period. Furthermore, suggestions have been made for future planners and policy-makers to resolve the pressure demographic concerns.

The data used in the present analysis is based on the report of the three rounds of Indian National Family Health Surveys NFHS-1(1992-93), NFHS-2 (1998-99) and NFHS-3 (2005-06), Census 1971, 1981, 1991 and 2001 and Sample Registration bulletins, 1971-2009. The sample design adopted in the NFHS is a systematic multistage random sample of the households which gives information for state-level and national level estimates of fertility, infant mortality and child mortality, the practice of family plan-

ning, maternal and child health care and the utilisation of services provided for mothers and children. The SRS is one of the most reliable sources on demographic indicator of fertility and mortality; it provides annual estimates of birth rates and death rates. A comparative analysis of data and findings from these major surveys will provide sufficient information to understand the changes in fertility patterns during the last five decades in the North-Eastern states of India. The rate of reduction (in percentage) in fertility has been shown in terms of the Total Fertility Rate (TFR) (i.e., the average number of children a woman bears in her lifetime) and Crude Birth Rate (CBR).

Trends in Fertility

A considerable variation in levels and trends in fertility have been observed among states of the North-East region in the recent past. The birth rate (see Table 1) in the region as a whole has shown a declining tendency since the 1970s. Yet, the pace of decline has not been uniform, and on average the birth rates in the NER revealed lower than the national level over 1971-2009 (see SRS Bulletins). In fact, the declines in birth rate were slow in the 1970s and early 1980s but since the mid-1980s there has been acceleration in the pace of decline. On average, the CBR was relatively stable at a higher level of about 40 in the 1950s and 1960s, and reached a level of about 22 in 2000, and progressively move down to 19.9 by 2007. As shown in Table 1, the fertility levels recorded in Census are after all same in the corresponding SRS figures, yet showing slightly lower than the Census report by SRS overtime. Both sources (Census and SRS) confirmed that the crude birth rate has dropped during the mentioned time period. The latest figures shows the difference in the estimates of Census and SRS reports were pronounced in Arunachal Pradesh, Mizoram, Meghalaya and Tripura. The time series (yearly reports) of the birth rates in the NER gives a better picture of the trends that has been given below in the appendix table.

Both the Census and SRS have documented that the rate of reduction in birth rates differs among the states. While only Manipur has registered the birth rate lower than the average of India as a whole in 1971-73 (SRS); the Census estimated that Nagaland, Manipur, Tripura and Arunachal Pradesh recorded lower CBR as against the national average (36.9) during the same period. Hence, throughout the selected periods (1971-2007), there is difficulty in comparing the estimates of birth rates from both the sources. As per the SRS the birth rate in Arunachal Pradesh reaches its peak during 1986-1988, and then crossing over the national level during 1989 -1992 and dropping thereafter; Assam, however, the birth rate reaches its peak (1983 and 1987) and dropped lower than the average of India after 1987; the peak period for Manipur was during 1978-1980 and significant decline - which is much lower than the national average - has occurred thereafter; during 1979-1981 Meghalaya's birth rate peaked and fell lower than the national average, especially from 1986 onwards; Mizoram's birth rate ran parallel to the national level over the whole period; The peak period for Nagaland occurred during 1984-1986 and later dropped lower than the national figure; Sikkim reached the peak (between 1987 and 1989) and rose higher than the all-India average and later fell lower than the national average and for the case of Tripura the CBR showed a continuous decline which is lower than the national level over period.

Table 1: Trends in Crude Birth Rate in North-East India and India

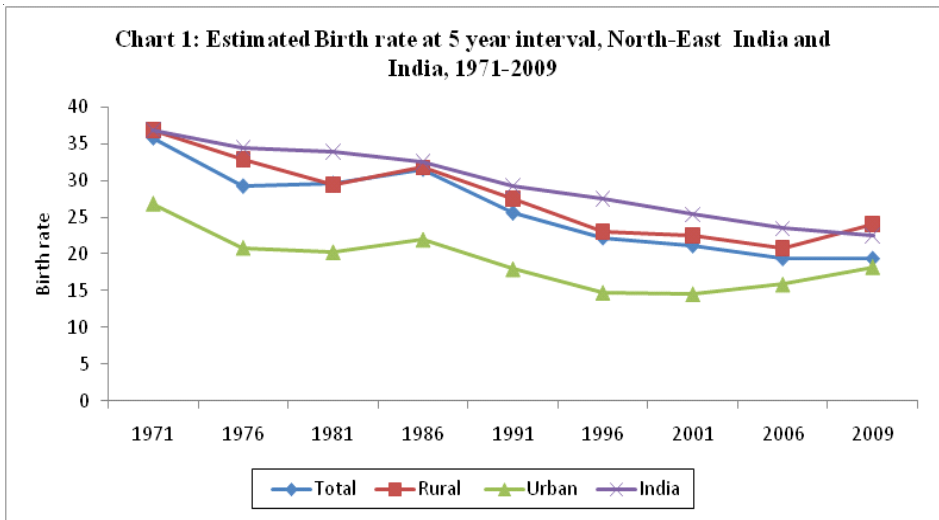
Year	Arunachal	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura	India
Sample Registration System									
1971-73	NA	36.0	31.0	NA	NA	NA	NA	33.8	36.3
1972-74	NA	34.2	28.2	NA	NA	NA	NA	32.6	35.3
1973-75	NA	32.0	26.2	NA	NA	NA	NA	31.3	34.8
1974-76	NA	31.9	25.0	NA	NA	NA	NA	32.0	34.4
1975-77	NA	31.1	25.6	NA	NA	NA	NA	30.7	34.2
1976-78	NA	31.3	28.1	32.6	NA	NA	NA	30.5	33.3
1977-79	NA	31.1	29.6	32.6	NA	NA	NA	29.7	33.1
1978-80	NA	32.2	30.6	32.1	NA	NA	NA	27.7	33.3
1979-81	NA	32.9	28.7	32.3	NA	NA	NA	26.9	33.8
1980-82	NA	33.0	28.8	31.6	NA	NA	NA	25.6	33.8
1981-83	NA	34.0	27.7	31.2	NA	NA	32.4	24.8	33.8
1982-84	34.7	34.7	29.0	33.1	NA	NA	32.6	24.9	33.8
1983-85	35.2	34.7	28.8	35.8	NA	23	33.1	25.9	33.6
1984-86	36.7	34.7	27.8	37.5	NA	23.7	32.3	27.5	32.2
1985-87	37.3	34.4	26.7	36.4	NA	24.1	32.8	28.0	32.6
1986-88	38.8	33.9	25.8	35.5	NA	23.1	33.1	27.8	32.1
1987-89	37.3	32.1	24.8	35.1	NA	21.2	32.8	26.8	31.5
1988-90	35.2	30.6	23.2	34.0	NA	19.3	30.4	25.7	30.8
1989-91	32.2	30.0	21.3	32.7	NA	18.1	26.6	25.0	30.1
1990-92	29.2	30.5	20.2	31.3	NA	18.0	23.6	24.1	29.6
1991-93	28.5	30.4	20.1	30.2	NA	19.2	22.8	23.6	29.1
1992-94	27.9	30.4	20.7	29.3	NA	19.7	23.5	22.8	28.8
1993-95	26.2	29.9	21.0	28.2	NA	19.4	23.8	21.3	28.5
1994-96	24.4	29.3	20.5	28.9	NA	NA	22.3	19.7	28.1
1995-97	22.4	28.4	20.0	29.9	NA	NA	20.8	18.5	27.7
1996-98	21.9	27.9	19.4	29.9	15.3	NA	20.2	18.1	27.1
1997-98	21.1	27.7	19.1	29.4	15.9	NA	20.8	17.6	26.6
1998-99	22.4	27.3	18.6	28.8	16.3	NA	21.4	17.0	26.1
1999-00	22.3	27.0	18.4	28.5	16.2	NA	21.7	16.5	25.7

contd.

2000-01	21.6	26.8	17.8	27.5	16.2	NA	21.8	15.8	25.4
2001-02	20.4	26.6	16.9	26.3	16.2	NA	21.8	15.2	25.1
2002-03	20.1	26.0	15.4	25.2	17.3	NA	21.1	14.8	24.6
2003-04	21.1	25.5	14.7	25.0	18.0	10.1	20.4	15.2	24.2
2004-05	22.3	24.9	14.0	25.0	18.6	15.9	19.5	15.9	23.8
2005-07	22.7	24.6	14.2	24.7	18.3	17.0	19.1	16.6	23.5
Population Census									
1971	36.8	38.5	33.3	37.2	N.A.	24.0	-	35.8	36.9
1981	32.1	33.0	26.6	32.6	N.A.	21.4	-	26.4	33.9
1991	30.9	30.4	20.1	32.4	20.8	18.5	-	23.1	29.5
2001	29.9	27.0	21.0	33.6	27.3	24.1	-	21.2	25.4
National Family Health Survey									
1992-93	34.6	30.4	24.4	31.9	20.8	31.3	-	23.1	28.7
1998-99	22.6	21.8	25.8	35.7	25.7	30.4	24.5	17.8	24.8
2005-06	24.1	22.1	25.0	28.7	24.8	28.5	18.2	17.8	23.1
Percent Decline from SRS									
1971-73 to 1979-81	-	8.6	7.5	-	-	-	-	20.4	6.9
1980-82 to 1989-91	-	9.0	26.0	3.5	-	-	-	2.4	10.9
1990-92 to 2000-01	26.0	12.1	11.9	12.1	-	-	7.7	34.5	15.2
2001-02 to 2005-07	-11.3	7.5	16.0	6.1	13.0	-	12.4	9.2	4.5
1971-73 to 2005-07	-	31.7	54.2	-	-	-	-	50.9	34.8
Percent Decline from Census									
1971-1981	12.8	14.3	20.1	12.4	-	10.8	-	26.3	8.1
1981-1991	3.7	7.9	24.4	0.6	-	13.6	-	12.5	13.0
1991-2001	3.2	11.2	-4.5	-3.7	-31.3	-30.3	-	8.2	13.9
1971-2001	-18.8	-29.9	-36.9	-9.7	-	0.4	-	-40.8	31.2
Percent Decline from NFHS									
1992-93 to 1998-99	34.7	28.3	-5.7	-11.9	-23.6	2.9	-	22.9	15.9
1998-99 to 2005-06	-6.6	-1.4	3.1	19.6	3.5	6.3	25.7	0.0	6.0
1992-93 to 2005-06	-30.3	-27.3	2.5	-10.0	19.2	-8.9	-	-22.9	20.9

NA-Not available, Source: 1)SRS, 1971-2007, 2)Census of India, 1971, 1981, 1991, 2001, 3)NFHS, 1992-93, 1998-99 and 2005-06

Between 1971 and 1981, the speed of decline (in percentage) in CBR ranged between a high of 26.3 percent in Tripura and a low of 10.8 percent in Nagaland. Similarly, of all the states, Tripura registered the highest reduction followed by Manipur during the same period. Assam experienced a significant decline of 20.1 percent during 1971-1981. Estimates based on SRS indicate that during 1981-1991 the pace of reduction in birth rate is highest in Manipur followed by Assam and Meghalaya that almost similar in the corresponding Census estimates. While the percentage decline of CBR at the national level accounted for 13.9 percent during 1991-2001(Census), Assam and Tripura recorded slight decline and the rest including Mizoram, Nagaland, and Meghalaya registered an increasing trend during the same decade. On the other hand, SRS revealed that the highest percentage reduction was noticed in Tripura, followed by Arunachal Pradesh and Assam. During the period 1971 -2001, the overall percentage decline as per the census record was highest in Tripura, Manipur, Assam Arunachal Pradesh.



After 2001 census, analysis of the birth rate has been calculated based on reliable surveys like SRS and NFHS. As per the SRS, between 2001-02 and 2005-07, the crude birth rate has dropped the highest in Manipur (16 percent), whereas Arunachal Pradesh’s CBR increase at 11.3 percent during the same period. Also, table 1 revealed that Mizoram, Sikkim, Tripura, Assam and Meghalaya showed a slow pace of decline during same period. For the NFHS-based estimates showed that during NFHS-1 to NFHS-2 the most significant reduction in birth rate has occurred in Arunachal Pradesh which was 34.6 in 1992-93 declined to 22.6 in 1998-99; 34.7 percent decline, followed by Assam (28.3 percent), Tripura (22.9 percent) and Nagaland (2.9 percent). By contrast Mizoram, Meghalaya and Manipur revealed an increasing trend at 23.6, 11.9 and 5.7 percent respectively in the corresponding period. While the country as a whole showed a decline in birth rate during 1992-93 to 1998-99 which was accounted for 15.9 percent decline; Mizoram, Meghalaya and Manipur registered a slight increase during the five years period. From NFHS-2 to NFHS-3, slight changes have occurred in the patterns of the

fertility trend in the NER. During this period in spite of declining, the crude birth rate in Arunachal Pradesh has increased from 22.6 in 1998-99 to 24.1 by 2005-06 and at the same time Assam which showed a significant decline during the previous period exhibited a slight increase from 21.8 to 22.1 during the corresponding period. Although a decline in CBR during NFHS-1 to NFHS-2 has been recorded by all the states; Sikkim and Meghalaya preceded others with respect to declining in birth rates. Further, the NFHS-3 revealed that CBR ranged between a low of 17.8 in Tripura to a high of 28.7 per 1000

Table 2: Trends in Total Fertility Rate in North-East India and India

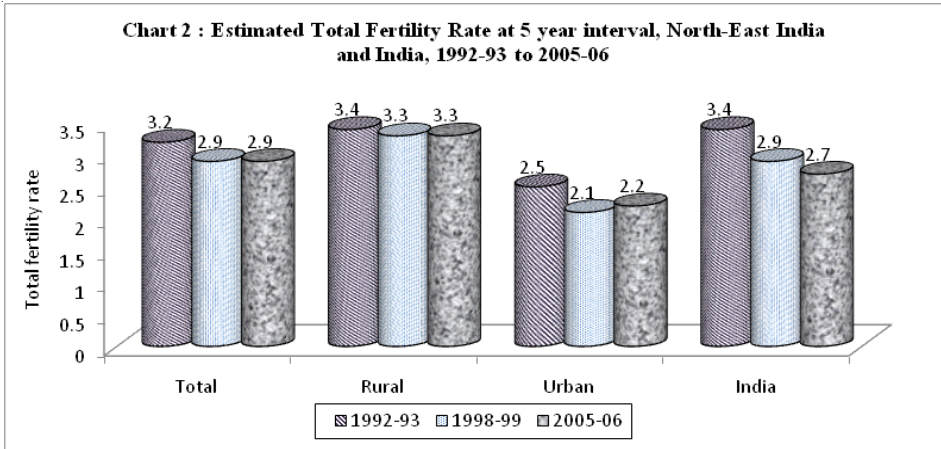
Year	Arunachal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura	India
Sample Registration System									
1990-92	4.1	3.4	2.5	4.1	-	2.3	3.0	2.7	3.7
1996-98	2.8	3.2	2.3	4.0	1.7	NA	2.3	2.0	3.3
2000-02	2.6	3.0	2.0	3.6	1.7	NA	2.4	1.7	3.1
2005-07	2.7	2.8	1.6	3.1	2.0	2.0	2.0	1.7	2.8
National Family Health Survey									
1992-93	4.25	3.53	2.76	3.73	2.3	3.26	-	2.67	3.4
1998-99	2.52	2.31	3.04	4.57	2.89	3.77	2.75	1.87	2.9
2005-06	3.03	2.42	2.83	3.8	2.86	3.74	2.02	2.22	2.7
Percent Decline from SRS									
1990-92 to 1996-98	31.7	5.8	8.0	2.5	-	-	23.4	26.0	10.8
2000-01 to 2005-07	3.9	6.7	20.0	13.9	17.7	-	16.7	0.0	9.7
1990-92 to 2005-07	34.1	17.6	36.0	24.4	-	13.0	33.3	37.0	24.3
Percent Decline from NFHS									
1992-93 to 1998-99	-40.71	-34.56	10.14	22.52	25.65	15.64	-	-30	-14.7
1998-99 to 2005-06	20.2	4.8	-6.9	-16.8	-1	-0.8	26.55	18.7	-6.9
1992-93 to 2005-06	-28.7	-31.4	2.5	1.9	24.3	14.7	-	-16.9	-20.5
Annual Rate of Decline from NFHS (in percentages)									
1992-93 to 1998-99	6.8	5.8	1.7	3.8	4.3	2.6	-	5.0	2.5
1998-99 to 2005-06	3.4	0.8	1.2	2.8	0.2	0.1	-	3.1	1.2
NA-Not available									

Source: 1) Sample Registration System 1990-2007

2) National Family Health Survey, 1992-93, 1998-99 and 2005-06

in Meghalaya. Therefore, it is to be noted that, between NFHS-1 to NFHS-3, the most significant decline in CBR has occurred in Arunachal Pradesh (30.3 percent). All other states, except Mizoram and Manipur, showed a slight decline which was lower than the national average (20.9 percent) over period.

Table 2 gives the TFR trend for the past one decade. It is observed from the above table (Table 2) that there is a slight difference appeared between the two surveys. As such we determine to analysis separately for each survey so as to make clearer picture of the fertility trend. According to SRS, total fertility rates in all the states except Arunachal Pradesh and Meghalaya (both recorded 4.1 children each) have recorded lower than the national average (3.7 children) including Nagaland and Manipur were nearing to the replacement level fertility in 1990-92. Further, in 1996-98, steep declines in TFR has occurred in two states, namely, Mizoram and Tripura and even their fertility rates plummeted to below replacement. Furthermore, while the average of India's fertility remained above 3 by 2000-02, Mizoram, Tripura and Manipur registered sharp decline which



reached below replacement level fertility. As per the SRS estimates between 1990-92 and 2005-07, the overall decline in TFR in the NER was the highest in Tripura; 37 percent, followed by Manipur; 36 percent, Arunachal Pradesh; 34 percent and Sikkim; 33.3 percent as against the national average (24.3 percent). However, Nagaland recorded the slowest pace of decline in TFR during the analysis period.

On the other hand, the NFHS indicates that between NFHS-1 and NFHS-2 the total fertility rate has shown a highest decline in Arunachal Pradesh; from 4.25 in NFHS-1, to 2.52 in NFHS-2; 40 percent or 6.8 percent per year respectively. Apart from Arunachal Pradesh, significant drop in fertility rate has been recorded in Assam; 34.56 percent, or 5.8 percent per year and Tripura; 30 percent, or 5 percent per year. In contrary, TFR has increased in more than half of the total states in the NER including Mizoram, Meghalaya, Nagaland and Manipur, reflecting that the speed of fertility decline was slow over period. Similarly, during NFHS-2 to NFHS-3, the rate of fertility decline was much slower than the previous period (from NFHS-1 to NFHS-2), and the states the experienced

decline in TFR are Meghalaya (16.8 or, 2.8 percent per year), Manipur (6.9, or 1.2 percent per year), however, Mizoram and Nagaland recorded marginal decline. By contrast, Arunachal Pradesh, Tripura and Assam showed larger percentages of increase in TFR during the same period. It is noticeable from table 2 that the pace of decline in TFR from NFHS-1 to NFHS-3 is the highest in Assam (31.4 percent) followed by Arunachal Pradesh (28.7 percent) and Tripura (16.9 percent), yet Mizoram, Nagaland, Manipur and Meghalaya showed an increase in fertility during the thirteen years period.

Fertility Trends: Urban-Rural

Table 3 presents urban-rural differentials in fertility levels and trends of the North-Eastern region. Estimates based on the Sample Registration System indicate that the birth rate in urban areas were generally lower than the rural counterparts over period, from 1990-92 to 2005-07, about fourteen years period. The SRS data reveals that there is almost a smooth declining trend in the crude birth rate in urban areas during 1990-92 to 2000-02 in Manipur, Assam, Arunachal Pradesh, and Tripura; a retarded decline (in percentages) as against the national figure, has been registered in Tripura, Mizoram and Meghalaya, on the other hand. While urban Tripura and Manipur have experienced a progressive decline in birth rate from 2000-02 to 2005-07, an irregular trend that has been increased by slight points has been noticed in urban areas of Arunachal Pradesh, Sikkim, Meghalaya. Thus, the overall decline in CBR during 1990-02 to 2005-07 in urban areas of the states in NER was recorded the highest in Assam; 6.2 points, or 28.7 percent. The corresponding decline has been recorded for Arunachal Pradesh and Manipur at 15.7 and 15.6 percent respectively as well. However, almost half of the states show a slight increase over period. Of all the states, it is interesting to note that Tripura registered very slow decline in the birth which was 14.9 in 1990-92 declined to 13.6 in 2000-02 and sustained the same level; 13.6 by 2005-07 in urban areas. However, the NFHS has no much information with respect to birth rates in urban areas and only the trend in Assam can be studied. As shown in table 3 urban Assam has experience significant decline in CBR during NFHS-1 to NFHS-2; 7.4 points that decline to 2.2 points between NFHS-2 to NFHS-3.

Further, figures of both SRS and NFHS in respect to birth rates in rural areas of the NER varied significantly especially in Manipur, Tripura and Mizoram. However, SRS registered a progressive declined in from 1990-02 to 2005-07, whereas the corresponding figures estimated in NFHS show irregular declining trend. During 1990-02 to 1996-98, for 8 years period, significant decline has been registered in Arunachal Pradesh (7.1 points), followed by Tripura (6.3 points) and Sikkim (5 points). Of all the rural areas of these states, Nagaland recorded the lowest birth rate in two periods, that is, in 1990-92 (19.3), and in 2005-07 (17.0). In fact, the speed of decline in CBR was very slow especially in Manipur, Meghalaya and Sikkim during 1990-02 to 2000-02. Nevertheless, the rate of decline in CBR has improved since 2000-02.

During the same period the rate of decline in birth rate at the national level was 6 points, the highest percentage of decline was registered in Meghalaya (8 points), followed by Tripura (7.9 points), Manipur (7 points) and Arunachal Pradesh (6.1 points) in the corresponding period. It is apparent that in rural areas birth rates declined faster than

Table 3: Crude birth rate for North-East India and India by Residence, 1992-93, 1998-99 and 2005-06

	Arunachal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura	India
Urban									
Sample Registration System									
1990-92	21.1	21.6	17.3	16.4	NA	11.8	14.5	14.9	24.0
1996-98	12.1	20.5	17.1	16.2	13.3	NA	12.5	14.8	21.4
2000-02	13.1	18.5	15.9	15.0	12.5	NA	15.0	13.6	20.3
2005-07	17.8	15.4	14.6	16.4	14.0	17.1	17.7	13.6	18.8
National Family Health Survey									
1992-93	NC	23.2	NC	NC	NC	NC	NC	NC	23.2
1998-99	NC	15.8	21.4	NC	22.4	NC	NC	NC	15.8
2005-06	26.3	13.6	21.6	21.1	23.3	23.8	13.5	17.8	13.6
Rural									
Sample Registration System									
1990-92	30.0	31.2	21.1	34.6	-	19.3	25.5	25.1	31.2
1996-98	22.9	28.9	20.3	32.6	17.0	NA	20.5	18.8	28.7
2000-02	22.4	27.8	18.5	29.8	19.2	NA	22.0	16.3	27.1
2005-07	23.9	26.1	14.1	26.6	22.4	17.0	19.3	17.2	25.2
National Family Health Survey									
1992-93	34.6	31.4	25.5	31.9	19.6	34.2	NC	24.5	31.4
1998-99	23.2	22.3	27.8	38.4	28.4	31.7	24.7	NC	22.3
2005-06	23.4	23.9	26.8	31.0	26.6	30.1	19.2	22.8	23.9

NA-Not available, NC-Not counted,

Source: 1) Sample Registration System, 1971-2007, 2) Census of India, 1971, 1981, 1991, 2001, 2001 (13) National Family Health Survey, 1992-93, 1998-99 and 2005-06

in urban areas in the North-eastern states, that has been confirmed by the NFSH as well. Further, the NFHS indicates that the overall decline in total fertility rate during 1990-92 to 2005-06, in rural areas was recorded in three states, viz., Assam (28 percent), Arunachal Pradesh (26.7 percent), and Tripura (19.6 percent); but the other states (Mizoram, Meghalaya, Nagaland and Manipur) exhibited an increasing trend in TFR over period.

Hence, it is evident from both of the surveys –SRS and NFHS- that the decline in the TFR and CBR, on an average, is faster to some extent in rural areas than in the urban areas under the study region.

Table 4: Total Fertility Rate for North-East India and India by Residence

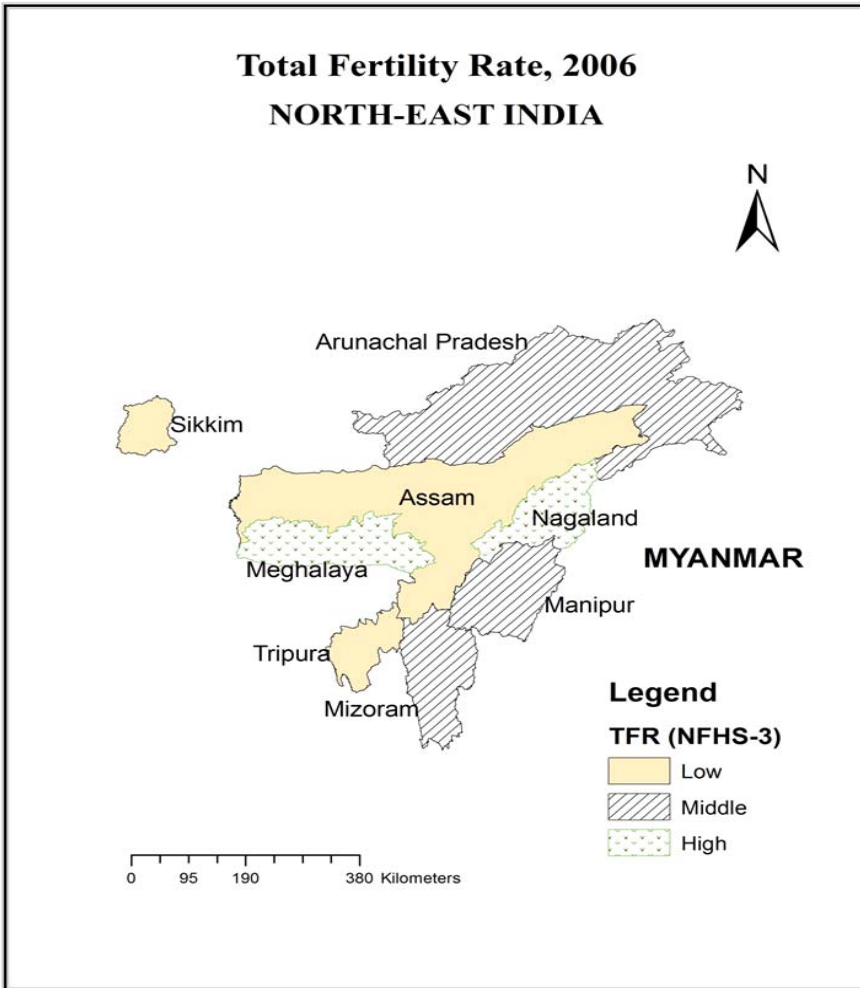
	Arunachal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura	India
Urban									
Sample Registration System									
1990-92	2.8	2.1	1.9	1.7	-	1.7	2.1	1.4	2.7
1996-98	1.1	2.1	2.0	1.7	1.4	1.4	1.2	1.4	2.4
2000-02	1.3	1.8	1.7	1.5	1.3	1.3	1.5	1.3	2.3
2005-07	1.9	1.6	1.5	1.7	1.4	1.8	1.7	1.3	2.0
National Family Health Survey									
1992-93	NA	2.53	NA	NA	NA	NA	NA	NA	2.7
1998-99	1.77	1.5	2.36	2.75	2.37	2.66	NA	1.36	2.27
2005-06	2.51	1.43	2.35	2.28	2.5	2.68	1.29	1.66	2.06
Rural									
Sample Registration System									
1990-92	4.2	3.6	2.6	4.8	-	2.4	3.2	2.9	4.0
1996-98	2.9	3.4	2.5	4.5	2.0	NA	2.4	2.1	3.6
2000-02	2.7	3.2	2.2	4.0	2.1	-	2.4	1.8	3.4
2005-07	2.9	3.0	1.6	3.5	2.7	2.0	2.0	1.8	3.1
National Family Health Survey									
1992-93	4.38	3.68	3.03	3.8	2.3	3.6	NA	2.91	3.67
1998-99	2.68	2.39	3.41	5.16	3.47	4.06	2.87	1.99	3.07
2005-06	3.21	2.65	3.07	4.38	3.33	4.15	2.22	2.34	2.98

NA-Not available

Source: 1) Sample Registration System, 1990-2007

3) National Family Health Survey, 1992-93, 1998-99 and 2005-06

Figure 1. Total fertility rate in Northeastern States, 2006



Conclusions

The analysis indicates that, for all the northeastern states, CBR has declined but the rate of decline varies from one state to another. The latest NFHS (2005-06) estimate that the crude birth rate in Meghalaya, Nagaland, Manipur, Mizoram, Arunachal Pradesh, Assam, and Tripura were higher than the SRS estimate. As per the SRS estimates, from 1971-73 to 1979-81 the CBR in North-Eastern states has dropped the highest in Tripura (20.4 percent) against the national average (6.9 percent). Between 1980-82 and 1989-91, the crude birth rate declined significantly by about 26 percent in Manipuras against the national level (10.9 percent) and the rest of the states registered less than India’s average. Moreover, between 1990-92 and 2000-01, there was a significant decline in CBR in Tripura (34.5 percent) and Arunachal Pradesh (26 percent) while other states experienced a slight decline during the same period. However, over the three decades (1971-

2001), considering 1971 as a base year, the highest decline has been recorded in Tripura (14.6 points) followed by Manipur (12.3 points), Assam (11.5 points), Arunachal Pradesh (6.9 points), Meghalaya (3.6 points) and Nagaland had a minimal declined of 0.4 per cent.

After 2001 the rate of decline in CBR in the North-Eastern region is slower, especially in Arunachal Pradesh, Assam, Meghalaya, and Tripura (among the states where information is available). Between 2001-02 and 2005-07, a significant decline has been noticed in Manipur by 16 percent as against the national average at 4.5 percent, and with exceptions of Arunachal Pradesh and Mizoram, the rest of the states showed a decline in CBR of lesser percentage. Furthermore, it is observed from Table 1 in the appendix that the CBR in most of the states showed a slight decline till 2009. Of all the states, Tripura has experienced the highest decline from 2007 to 2009. While Manipur showed a slight increasing trend, Meghalaya maintained the same level over period.

SRS estimates by place of residence indicate that CBR in urban areas has declined slower than the rural counterparts. Between 1990-92 and 2005-07, the CBR in urban areas declined the highest in Assam (6.2 points), followed by Arunachal Pradesh (3.3 points), Manipur (2.7 points) and Tripura (1.3 points) while Mizoram, Nagaland and Sikkim showed an increasing trend in CBR. However, it is surprising that Meghalaya has recorded same level (16.4) during 1990-92 to 2005-07, over the period of 14 year. On the other hand, in rural areas, as per SRS estimate, the highest decline has been recorded in Meghalaya (8 points), and closely followed by Tripura (7.9 points) and Manipur (7 points) as against the national average (6 points). The other states experienced a slight declining trend in rural birth rate during the same period.

The NER as a whole has experienced decline in TFR, of course at varying speeds. NFHS reveals that the TFR fell most significantly in Arunachal Pradesh (40 per cent), followed by Assam and Tripura during NFHS-1 to NFHS-2. Similarly, between NFHS-2 and NFHS-3 it is observed that Meghalaya and Manipur registered a declining trend in TFR while Tripura, Arunachal Pradesh and Assam showed opposite trends during the same period. With respect to residence the urban fertility appears lower than rural fertility during 1992-93 to 2005-06. Between NFHS-1 and NFHS-2, a significant decline in the total fertility rate (38.8 percent) has been recorded in urban Arunachal Pradesh (38.8 percent), a part from both urban Assam and Tripura experienced declining trend a little lower than in Arunachal Pradesh. Moreover, between NFHS-2 and NFHS-3, a slight declining trend has been noticed in TFR in urban areas especially in Meghalaya, Manipur and Mizoram.

On the other hand, rural Arunachal Pradesh registered the highest percentage decline in total fertility rate (38.8 percent) during NFHS-1 to NFHS-2, whereas rural Mizoram showed a significant increasing trend, as high as 50.9 percent during the same period. Considering the overall period, that is, from NFHS-1 to NFHS-3, the TFR in rural areas declined only in half of the states in the region including Assam (28 percent), Arunachal Pradesh (26.7 percent), and Tripura (19.6 percent). It is evident from the data sources that the fertility rate in the region, on an average, has faster decline during NFHS-1 to NFHS-2, but slower during NFHS-2 to NFHS-3, and the TFR in rural areas has declined at slower pace than the urban counterparts over the same period. Given the

variations in fertility levels and slow pace in declining trend within the Northeast, this study suggests that there are large pockets of the population where people have little motivation towards small family and/or have poor access to quality family planning services and modern contraceptives. This demographic problem cannot be addressed in isolation without paying equal attention to general improvement in social and economic conditions along with increasing affordable access to good quality reproductive health services for all. In order to better serve less-advantaged women, it is important to determine the categories of women who still need government-subsidized family planning services and women who can afford to purchase contraceptives from commercial sources.

References

- Arokiasamy, P. (2009): "Fertility Decline in India: Contributions by Uneducated Women Using Contraception". *Economic and Political Weekly*, Vol. XLIV, No. 30 (July 25-31), pp.55-64.
- Bhasin, V. and Bhasin, M.K. (2000): "A Cross-cultural Fertility Differential in Sikkim". *Journal of Human Ecology*, 11(6): 429- 444.
- Bhat, P N M (1994): "Levels and Trends in Indian Fertility: A Reassessment". *Economic and Political Weekly*, 29, No. 51/52(Dec. 17-24), pp.3273-3280.
- Bhat, P.N. Mari, (1996): "Contours of Fertility Decline in India: A District Level Study Based on the 1991 Census", in K. Srinivasan (ed.), Population Policy and Reproductive Health, Hindustan Publishing Corporation, New Delhi, pp. 96-179.
- Bulatao, R.A. and J.B. Casterline (2001): "Global Fertility Transition". *Population and Development Review* (27), 17-52.
- Caldwell, J.C. (1982): "Theory of Fertility Decline", Academic Press, London.
- Choudhuri, B. and Devi, M.(1997): "Fertility Differentials in Manipur: A Study on the Meitei's and the Muslims". *Journal of Human Ecology*, 8(1): 51-59.
- Dey, Sanku and SankarGoswami (2009): "Fertility Pattern and Its Correlates in North East India". *Journal of Human Ecology*, 26(2): 145-152.
- Goswami, H. (2000): "Declining Fertility in the Northeast States: An Analysis of Roles plays by Social, Economic and Demographic Factors", in B. Datta Ray et al. (eds.), *Population, Poverty and Environment in North-East India*, New Delhi, Ashok Kumar Mittal, Concept Publishing Company, pp.51-57.
- IIPS (International Institute for Population Sciences) (1995): National Family Health Survey (MCH and Family Planning), India 1992-93, Mumbai.
- IIPS (International Institute for Population Sciences), (2000): National Family Health Survey (NFHS-2), India 1998-99, Mumbai.
- IIPS (International Institute for Population Sciences), (2007): National Family Health Survey (NFHS-3), India 2005-06, Mumbai.
- James, K.S. (1999): "Fertility Decline in Andhra Pradesh: A Search for Alternative Hypotheses". *Economic and Political Weekly*, 34 (8): 491-499.
- Kulkarni, P.M. (2011): "Towards an Explanation of India's Fertility Transition". *Demography India*, Vol. 40, No. 2, pp.1-21.
- Mason, Karen Oppenheim (1997): "Explaining Fertility Transitions". *Demography*, Vol. 34, No. 4 (Nov.), pp. 443-454.

Rele, J.R. (1987):"Fertility levels and trends in India, 1951-81".*Population and Development Review*, 13, No. 3.pp.513-528.

Sekher, T.V., K.N.M. Raju, M.N. Sivakumar (2001):"Fertility Transition in Karnataka: Levels, Trends and Implications".*Economic and Political Weekly*, Vol. 36, No. 51 (Dec. 22-28), pp. 2742-4752.

Appendix

Table 1: Birth Rate in North-East India and India, 1971-2009

Year	Arunachal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Tripura	India
1971	-	38.5	33.3	-	-	NA	35.8	36.9
1972	-	36.4	31.2	-	-	NA	32.9	36.6
1973	-	33.3	28.7	-	-	NA	32.6	34.6
1974	-	32.8	25.0	-	-	24.6	32.2	34.5
1975	-	31.1	24.5	-	-	19.5	29.2	35.2
1976	-	32.8	25.3	33.5	-	20.3	34.7	34.4
1977	-	30.1	26.6	32.5	-	20.9	28.2	33.0
1978	-	30.8	32.2	32	-	22.9	28.8	33.3
1979	-	33.8	28.6	33.2	-	24.9	28.4	33.7
1980	-	31.9	30.9	31.2	-	-	25.9	33.7
1981	-	33.0	26.6	32.6	-	-	26.4	33.9
1982	34.4	34.2	NA	31.1	-	-	24.4	33.8
1983	35.4	34.7	28.0	30.0	-	23.1	23.7	33.7
1984	34.5	35.3	29.1	38.3	-	20.7	26.6	33.9
1985	34.1	34.3	27.5	39.1	-	24.8	27.1	32.9
1986	40.2	34.7	25.3	35.2	-	25.2	28.2	32.6
1987	36.3	32.9	25.9	34.9	-	21.7	28.2	32.2
1988	40.0	29.4	25.8	36.4	-	22.3	26.6	31.5
1989	35.6	29.7	22.8	31.9	-	19.7	25.7	30.6
1990	30.1	30.9	21.1	31.8	-	16.2	24.9	30.2
1991	30.9	30.8	20.1	32.4	-	18.5	24.4	29.5*
1992	26.6	29.5	19.5	29.8	-	19.2	23.1	29.2*
1993	28.0	30.8	20.5	28.5	-	20.0	23.3	28.7*
1994	23.5	29.3	21.7	29.5	-	20.1	21.9	28.7*

contd.

1995	23.8	27.6	20.6	29.0	-	NA	18.9	28.3*
1996	21.9	28.2	19.6	30.4	15.1	NA	18.4	27.5*
1997	21.4	27.8	19.7	30.2	15.1	NA	18.3	27.2*
1998	22.5	27.9	19.0	29.2	15.8	NA	17.6	26.5*
1999	22.3	27	18.6	28.7	17.0	NA	17.0	26.1*
2000	22.3	26.9	18.3	28.5	16.0	NA	16.5	25.8
2001	22.0	26.8	18.2	28.3	15.7	NA	16.1	25.4
2003	18.9	26.3	15.5	24.7	16.0	NA	14.5	24.8
2004	21.2	25.1	13.9	25.2	19.1	13.9	15.0	24.1
2005	23.3	25.0	14.7	25.1	18.8	16.4	19.9	23.8
2006	22.5	24.6	13.4	24.7	17.8	17.3	19.2	23.5
2007	22.2	24.3	14.6	24.4	18.2	17.4	18.1	23.1
2008	21.8	23.9	15.8	25.2	17.8	17.5	15.4	22.8
2009	21.1	23.6	15.4	24.4	17.6	17.2	14.8	22.5

*Excludes Jammu and Kashmir due to non-receipt of returns.

Source: Registrar General, India (various years).