

Birth Rate and Death Rate of Tripura (1971-1989) : A Study of Time Series

Dipak Kumar Adak¹ and Sarit Kumar Chaudhuri²

1. *Anthropological Survey of India, Upper Lachumiere, Shillong 793 001, Meghalaya, India*
2. *Department of Tribal Studies, Arunachal University, Doimukh 791 112, Arunachal Pradesh, India*

KEY WORDS Tripura. Birth and Death. Time Series Analysis.

ABSTRACT Time series analysis on birth and death rates (1971-1989) of Tripura has been performed to examine the trend in the successive intervals. The study reveals that in Tripura the death rates are less than half of the birth rates of total, rural and urban population. The imbalance between the birth and death rates emerge as one of the principal causes for population growth in the State. The other probable reason for rapid population growth is the high rate of immigration from the neighbouring country.

INTRODUCTION

The birth and death rates are two major demographic components related with population growth. According to the theory of demographic transition the significant fall in death rate but not immediately accompanied by such decline in birth rate is the main reason for population growth. In Indian though the birth rate has fallen slightly the death rate has come down drastically.

For a systematic study on birth and death rates, the complete, reliable and detailed time series data are very helpful. The time series analysis helps in understanding past behaviour, in planning future operations and in evaluating current accomplishments, and also it facilitates comparison (Gupta, 1981). The present study deals with the time series data (1971-1989) on birth and death rates of Tripura.

MATERIAL AND METHODS

Data on birth and death rates of Tripura were taken from the Basic Statistics of North-Eastern Region, North-Eastern Council Secretariat, Shillong (1992). Data include SRS figures from

the Years, 1971-1989.

It is understood that there are some under-registrations in the SRS data. Such defects of Vital Statistics are known to everyone. However, it is true that though these data may not be exact, they reflect near to the reality. Since we don't have any tool to rectify these defects we can't help but restrict ourselves on the available data. For the present study the method of least squares has been applied to analyse the time series data. It may be mentioned that data on physical variation like hills and plains, of Tripura are not available. So, We have had no opportunity to take into consideration this aspect in the present study.

RESULTS AND DISCUSSION

The estimated data on annual birth and death rates in Tripura are given in table I. It reveals that both the birth and death rates are undergoing changes with passage of time. It holds good for both rural and urban sectors. It is true that the rate of change in birth rate is slower than that in death rate. However, the declining trend in both birth and death rates, is very much perceptible.

For a visual representation the trend lines are fitted, alongwith the actual data separately for the birth and death rates of total, rural and urban populations (Figs. 1 to 6). It appears from the figures 1,2 and 3 that the total birth rate (*i.e.*, combined figures for urban and rural areas) as well as that in the rural area in Tripura exhibits a slightly faster declining trend over the period between 1971 and 1989 than the birth rate in the urban area. However, it may be noted that the initial birth rate in the urban area in

1971 was considerably much lower than that found either in the rural area or in Tripura as such. If this point is taken into consideration, it may be said that the decline in birth rate in the urban area is almost as much as in the rural area or in the total population of Tripura as such.

From table 1 it is further seen that in 1971 the total birth rate was 35.8 per 1000, but in 1989 it came down to 25.7 per 1000. Similarly, in 1971 the rural birth rate was 37.2 per 1000 in 1989 it came down to 26.6 per 1000. It is also observed that the rate of decline in birth rate in both cases is not uniform over the years, particularly in the 1976, 1981 and 1984 to 1986 the increase in birth rate is noticed. In these years comparatively a higher deviation of actual data are seen from the trend lines for both the total and rural birth rates (Figs. 1 and 2).

The trend lines for both total and rural death rates (Figs. 4 and 5) also exhibit, by and large, a similar trend. It is found that like the total and rural birth rates, the total and rural death rates also show a rapid declining trend over this period. From table 1 it is seen that in 1971 the total death rate in Tripura was 15.3 per 1000, which came down to 7.7 per 1000 in 1989. Similarly the rural death rate was 16.1 per 1000 in 1971, and it came down to 7.9 per 1000 in 1989. As found in case of the total and rural birth rates the declining trend in death rate is also not uniform. Some higher deviations are seen from the trend line for the years 1973, 1978 and 1986 for the total death rate (Fig. 4) and also for the rural death rate (Fig. 5).

The urban death rates exhibit a similar trend as seen in case of the total and rural death rates. In urban population the death rates show one third of the birth rates. The urban population exhibit considerably lower levels of birth and death rates than those found in case of the total and rural population in Tripura.

In 1971 the urban death rate in Tripura was 7.6 per 1000 which came down to 5.7 per 1000 in 1989. This indicates that the rate of decline in the urban death rate is very slow (Table 1).

Table 1 : Estimated annual birth and death rates in Tripura

Year	Birth rate			Death rate		
	Total	Rural	Urban	Total	Rural	Urban
1971	35.8	37.2	23.1	15.3	16.1	7.6
1972	32.9	34.0	23.1	10.3	10.5	8.6
1973	32.6	33.8	21.4	14.6	15.3	7.7
1974	32.2	33.6	18.4	12.0	12.5	7.1
1975	29.2	30.3	17.8	9.4	9.7	6.9
1976	34.7	36.4	17.7	10.2	10.6	5.6
1977	28.2	29.5	14.4	9.4	9.8	4.6
1978	28.8	29.9	17.1	11.6	12.0	6.5
1979	28.4	29.3	20.5	11.4	11.9	7.4
1980	25.9	26.3	21.2	7.8	8.7	4.9
1981	26.4	27.6	14.8	8.0	8.2	5.4
1982	24.4	25.1	18.5	7.7	8.0	5.7
1983	23.7	24.5	16.6	7.5	7.8	4.9
1984	26.6	27.4	19.7	9.6	9.7	7.9
1985	27.1	27.4	24.1	9.8	10.0	7.7
1986	28.5	29.1	22.4	10.3	10.5	9.2
1987	28.2	29.1	19.5	9.2	9.5	6.3
1988	26.6	27.5	17.8	8.7	8.5	4.6
1989	25.7	26.6	16.8	7.7	7.9	5.7

Source : Sample Registration Bulletins

The trend lines for the urban population (Figs. 3 and 6) exhibit considerably slower downward trend than those (Figs. 1, 2, 4 and 5) found for the total and rural population. It is seen that some higher deviations from the trend lines in urban birth and death rates (Figs. 3 and 6) are found than in case of the others (Figs. 1, 2, 4 and 5). However, although the birth and death rates in Tripura exhibit a declining trend over the years, the fluctuations in these rates have been noticed in each category in some particular years. It is known that the quality of reporting of vital statistics is not uniform over the years. This may be one of the reasons for unsmooth trend of birth and death rates in Tripura.

Natural Growth Rate

"Growth of population is a sum of natural growth rate and migration. The differences between the birth and death rate gives the estimate of natural growth rate" (Neog, 1994). Table 2 exhibits such data on rural and urban sectors for the years 1971-1989 in Tripura. It re-

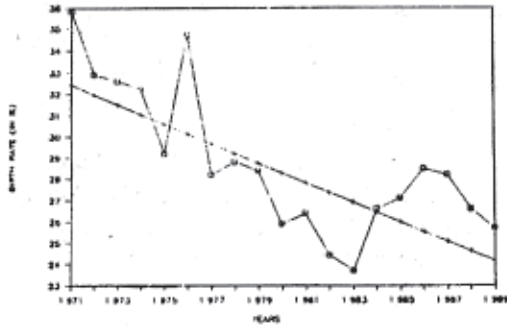


Fig. 1. Tripura : Total Birth Rate

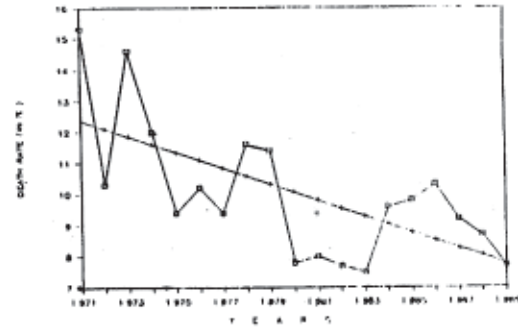


Fig. 4. Tripura : Total Death Rate

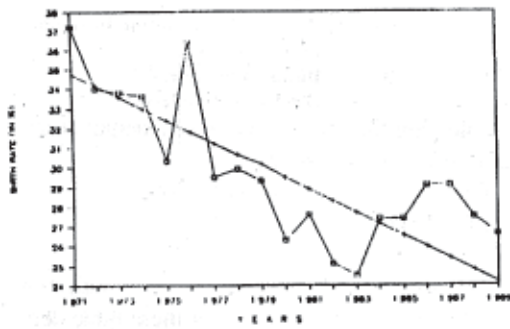


Fig. 2. Tripura : Rural Birth Rate

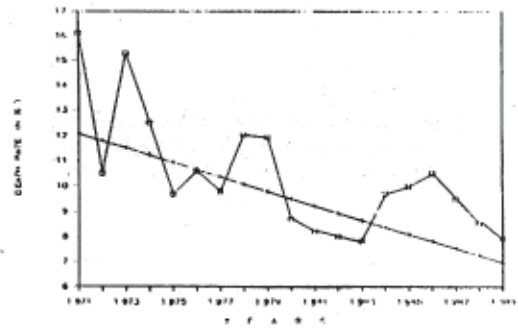


Fig. 5. Tripura : Rural Death Rate

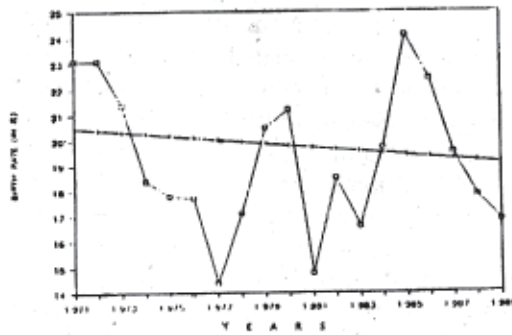


Fig. 3. Tripura : Urban Birth Rate

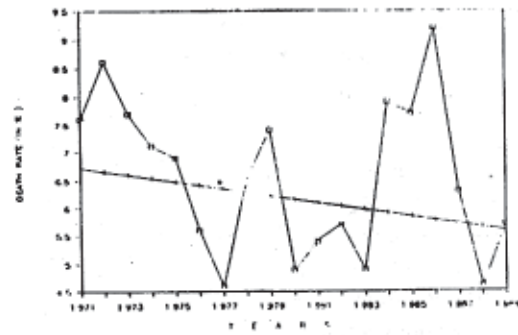


Fig. 6. Tripura : Urban Death Rate

Table 2 : Natural growth rates for the years 1971-1989

Year	Natural growth rate	
	Rural	Urban
1971	21.1	15.5
1972	23.5	14.5
1973	18.5	13.7
1974	21.1	11.3
1975	20.6	10.9
1976	25.8	12.1
1977	19.7	9.8
1978	17.9	10.6
1979	17.4	13.1
1980	17.6	16.3
1981	19.4	9.4
1982	17.1	12.8
1983	16.7	11.7
1984	17.7	11.8
1985	17.4	16.4
1986	18.6	13.2
1987	19.6	13.2
1988	19.0	13.2
1989	18.7	11.1

Table 3 : Percentage distribution of the population in North-Eastern Region by immigrants (after Sebastian, 1986 and Maitra, 1995)

State	Migration from outside India		
	1971		1981
	Male	Female	
Assam	6.8	6.4	-
Manipur	1.4	0.9	1.16
Meghalaya	6.6	5.7	6.08
Nagaland	3.3	1.2	2.29
Tripura	34.3	33.8	33.96
Arunachal Pradesh	7.3	3.4	5.45
Mizoram	-	-	1.73

Note : (1) Census could not be undertaken in Assam in 1981

(2) In 1971, Mizoram was included as part of Assam

veals that both the rural and urban sectors are undergoing changes over the years. It is true that the rate of natural growth in the rural sectors is much faster than that in the urban sector. However, the declining trend in both the sectors is very much preceptible.

Migration

"Population increase is not only due to ex-

cess of birth over death, but also due to excess of immigration over emigration" (Gan Chaudhuri, 1986). North-East region of India has been experiencing much higher population growth than the nation since 1901. On an average during the eighty year period, the maximum growth is observed in Tripura, while the minimum is observed in Meghalaya (Sebastian, 1986). For an overall view of migration in Tripura over three decadal intervals the net migration values have been calculated following the indirect method as given by Misra (1982), Which is as follows.

Net Migration i.e., N.M. = I-E = Pt-Po-B+D

where I = Immigration
 E = Emigration
 Pt = Population size at the end of an interval
 Po = Population size at the beginning of the interval
 B = Births in the interval
 D = Deaths in the interval

Following the method we have calculated the net migration rate during :

1961-1971 = 38,2432 (24.57)¹

1971-1981 = 45,8939 (22.35)¹

1981-1991 = 64,9225 (23.65)¹

The above results indicate a fairly high rate of net migration in Tripura over these three decadal intervals, and the rate of net migration remains by and large constant from one decade to the other. This is interesting to note that the migrant population share almost one fourth of the total population during these periods.

It is to be remembered that Tripura has more than three fourth of its boundaries common with Bangladesh. In this State the number of immigrants is twenty five times greater than that of immigrants (Sebastian, 1986). It is seen in table 3 that Tripura has registered the highest percentage of immigrants in the years 1971 and 1981, whereas the other North-Eastern States exhibit a very low percent in this regard. As a result, of all the seven states in North-Eastern Indian, Tripura has experienced the highest growth of population during the last decades.

1. Figures in the brackets indicate the percentage of total migrants as percentage of total population.

In fine, in Tripura the total, rural and urban population exhibit considerably lower level of death rates during the period between 1971 and 1989, and the death rates are found to be less than half of the birth rates. Though both the birth and death rates have considerably come down over the years, the differences between the two have not been narrowed to the extent as it is expected. This imbalance could be considered as one of the principal causes of population growth in the State.

The other probable reason for rapid population growth in this State is the high rate immigration, particularly from the neighbouring country. Lastly, we suggest that in order to bring down overall population growth rate in Tripura not only the family planning programmes should be strengthened more realistically, but also the Governments of these countries should take proper care of borders, failing which population in Tripura will perhaps keep on increasing unabated.

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