D. Chakraborty and **H.** Khasnobis

Migration and Population Growth in Tamil Nadu During 1951-61

Introduction

THE Census findings revealed a decennial population increase of 11.85 percent for the Tamil Nadu state during 1951-61. For any Indian state this is decidedly a very low rate of population increase during the decade. This is indeed much lower than the corresponding all-India rate of 21.50 percent or any of the rates of 21.57 percent, 24.76 percent and 15.65 percent for the neighbouring states of Karnataka, Kerala and Andhra Pradesh respectively. This low rate of decennial increase is indeed something very remarkable and is natural to arouse considerable interest among Indian Demographers who have been at pains to explain this low rate of growth,

Systematic investigations so far have revealed that low rate of increase had primarily been due to emigration, rather than from any considerable fall in the rate of natural increase. At least one serious attempt has been made by K. E. Vaidyanathan and K. S. Gnanasekaran[1] to quantify the effect of migration.

Although the method followed is quite ingenious, the estimates of the crucial rates cannot always be immediately connected with (and therefore cannot be directly tested against) available figures. It requires the determination of such tricky and complicated variables as the birth and death rates which necessarily had to be arrived at on the basis of assumption; and neither the ultimate estimates nor the assumptions admit of accurate verification, or of any acceptable

1. K. E. Vaidyanathan and K. S. Gnanasekaran-—"An empirical analyst's of the factors contributing to a Lower Growth Rate of population in Madras State during 1951-61", *Indian Economic Journal,* IX, July 1961. No. I, pp. 107-115.

objective assessment as to the magnitude of the errors involved.

The object of the present paper, is, to.estimate the total effect of migration on the population growth of Tamil Nadu during 1951-61 by a different method. This method, has in our opinion, the merit of being much simpler and straightforward. Assumptions can be connected immediately to available facts and this makes it possible to obtain a sufficiently dependable and objective assessment of the accuracy of the results. All these, however, have been possible, no doubt, because we have the advantage of the detail results of the 1961 census counts. The paper has been organised as follows : Section I presents the direct estimate of rate of natural increase of the population of Tamil Nadu for the period 1951-61. In Section II estimation of birth and death rates will be dealt with. Section III concludes the paper along with the refinements of the estimation of the migration effect.

I

Direct Estimate of Bate of Natural Increase and the Total Effect of Migration

Our method is to estimate the rate of natural increase directly without going into the elaborate process of estimating the birth and death rates separately. Thereafter the total effect of migration is estimated as the difference between the rate of natural increase and observed rate of growth of population. The natural rate of increase has, however, been equated with the growth rale of different linguistic groups under some simplifying assumptions.

The population of Tamil Nadu can be classified into the following linguistic divisions : (1) Tamil, (2) Malayalam, (3) Telugu, (4) Kannada, (5) Marathi, (6) Hindi and (7) others, of which Tamil speaking-people constitute about 83 percent of total population of the state and about 90 percent of the whole Tamil-speaking population in India in 1961. The decennial all-India growth rates for the above linguistic groups can be computed for the period 1951-61 from Language Tables of India for 1951 and 1961. These rates are given in Table 1 below. All-India growth rate for each language group would give its rate of natural increase, since there is probably no migration into or from India at least for the important language groups concerned. It can thus, be seen that the true natural growth rate of Tamil-speaking population is 15.13 percent which is lower than the corresponding rate for Malayalam, Kannada but is close to Telugu speakers with whom they constituted the population of the former untruncated Madras (Tamil Nadu) state and with whom they probably have, therefore, stronger cultural affinities.

One particular aspect of migration, however, requires to be discussed if we want to equate the growth rate of any language group to the rate of natural

TABLE 1—DECENNIAL ALL INDIA GROWTH RATES OF DIFFERENT LINGUISTIC GROUPS, 1951-61

	Ail-India Growth Rate of Different Language groups during 1951-61	*Sex Ratio*			*Proportion of Total Population in Madras in 1961*
		Madras	*India*	*Rest of India*	
Tamil	15.13	998	989	900	83.17
"Malayalam	27.17	762	1000	670	1.19
Telugu	14.15	993	980	960	9.98
Kannada	20.34	986	959	940	2.53
Marathi	23.06	963	965	950	0.15
Hindi	22.15	784	900	900	1.94
Others	21.50[2]				

increase of that group. Migration often tends to be age and sex selective. In India it is not unusual to find males migrating in relatively greater numbers than females and to find also that males of the working age-group migrate relatively in greater numbers than the males to tender and very old ages. Therefore, if this happens to be the nature of the migratory movements of any particular language group, it would definitely vitiate the estimate of the natural rate. The actual magnitude of error would, of course, depend upon the numerical importance of the migrants among the entire language group. Even when the migrants form an insignificant portion of the total population in the language group, the rate of natural increase calculated through the above mentioned method would not be applicable to the migrants when they do not have the same age and sex distribution as the entire language group, even though, because of their numerical insignificance the estimate of the rale of natural increase for the entire language group is not numerically affected. Therefore, this aspect of the migratory movements needs to be specially borne in mind in connection with the growth of the language groups other than the Tamilians in Tamil Nadu, as they obviously form a very small proportion of their respective all-India totals.

The main reason for the bias towards the working age-group among the migrant males, seems to be the fact that migration is usually to seek job. The migrants do not usually bring their families along and this is reflected in the low female to male ratio of the migrant population. Therefore, if one finds the sex-ratio not unusually depressed (it is unusual for grown-up females to migrate

2. For category "others", all-India decennial growth rate of population during 1951-61 has been considered which is 21.50 p. c.

singly), then we might conclude that the migrants have brought their families along, and then, rate of natural increase is not likely to differ from that of the parent population. If, over and above this, we find that the migrants constitute *a* small proportion of the parent population we may feel quite safe in assuming the rate of natural increase of the total population to faithfully reflect the rate for nonmigrants.

For Tamil Nadu state, as shown in Table 1, the sex-ratios of populations of different linguistic groups and those of whole India and rest of India do not differ considerably except for the Malayalees to some extent. However, any slight error that could have otherwise arisen because of this would dwindle to negligible proportions because of the fact that (i) the Malayalees constitute only about 1.1 per cent of the total population of the state and (ii) the relative numeri cal superiority of the grown-ups among the males could to a considerable extent decrease the death rate for the immigrants among the Malayalees. So from this it may safely be assumed that for Tamil Nadu there had been less age-selective nature of migration, in or out. So it will not be unrealistic to say that the different linguistic groups of population of Tamil Nadu would grow at their respective all-India growth rates during the Same decade, 1951-61. If these groups could have experienced a growth pattern like all-India rates the total population (the sum of all the linguistic groups of population) of Tamil Nadu in 1961 should be 34,788,023. The decennial growth rate of population during 1951-61 then would be 15.50 percent. The actual increase during the same decade is 11.85 percent. The difference between the two rates would give a residual of the order —3.65 per cent. This may be accounted for mostly by migration.

The rate of natural increase of population in Tamil Nadu during 1951-61 works out to be 15.50 percent. This is borne out by the facts that (i) this rate of natural increase is very close to the rate of natural increase for Andhra Pradesh the major portion of which formed a part of the undivided Madras (Tamil Nadu) state upto 1953, (ii) census experts after detail investigations with mortality and fertility situation in the state during 1951-61 suggested a similar figure 15.0 p.c.[3] and (iii) also estimates of birth and death rates made by us and given (together with the methods of estimates) below point to a rate of natural increase very close to the above figure of 15.50 percent during 1951-61.

II

Estimation of Birth and Death Rates

It is very difficult to estimate the birth rate and death rate on the basis of registered figures. For, the registration of births and deaths in Tamil Nadu., as

3. Census of India, 1961, Vol. IX, Madras, Part I-A (i) General Report, p. *140*.

throughout India, is so inadequate and incomplete that no reliance can be placed on the registered figures. For Tamil Nadu, the recorded births, giving a rate of 27.1 per 1000 during 1951-61, appears to be under-registered to a considerable degree. The deficiency is glaring, especially in rural areas of Madras where many births are likely to have escaped registration. An examination of the Talukwise vital statistics shows that out of 103 taluks only 13 taluks can be considered to have adequate registration in 1961.

We have, therefore, attempted to estimate the birth rate for Tamil Nadu during 1951-61 in the following way.[4]

Let C_{0-4} – the children aged 0-4 in a given census.

F_{15-44} = the number of women in the child-bearing age enumerated in the same census.

Therefore, the child woman ratio *(CWR)*= C_{0-4}/F_{15-44}

Let *ISR* = Infant Survival Rate or the complement of the infant mortality rate.

/~ = Ratio of the child woman ratio to Infant Survival Rate expressed in terms of

$$1000 = \frac{CWR}{ISR} \times 1000$$

The Differential Fertility Index *(D.F.I.)* = /i//, where

Ai denotes *CWR/ISR* X 1000 for the ith region.

Now, if the birth rate of a country as a whole is known the birth rates of different regions can be computed on the basis of *D.F.I.*

That is, *Bi* = *B- (D.F.I.).*

Thus once the birth rate for the country as a whole is accepted and the concept of *DF1* as a relative measure of fertility is also agreed upon, it is possible to compute the birth rate for each- The merit of this method is that it mainly uses the census age data (unsmoothed) as well as registration data. Estimated birth rate for Tamil Nadu is given in Table 2.

By using a quasi-stable population model, S, P. Jain has estimated that the birth rate of Tamil Nadu State in 1951-60 should be of the order 35 per 1000. All the estimates point to the fact that the birth rate of Tamil Nadu during 1951-60 is lower in comparison to all India average of 41.7 per 1000. It may, therefore, be useful to compare this birth rate with that of previous decade. But

4. This method has been used to estimate birth of districts of Madras during 1951-61— Census of India, 1961, Vol. IX, Madras Part 1-B (i), "Demography and vital statistics*' (Report), P. 116.

TABLE 2—**ESTIMATE OP** BIRTH **RATE**

	Tamil Nadu	*India*
C. W. R. - O - 4/15 - 44	601	719
ISR	871	861
CWRIJSR X 1000	674	835
D. F. I.	8O.7	100.0
B.R.	34.0	41.7

the difficulty faced in making this comparison is that Tamil Nadu has undergone a considerable change in her territory after the States reorganisation, in 1953. There had been a considerable shrinkage of area in 1961 from that of 1951. However, we can endeavour to get at the true rate for Tamil Nadu as it stood in 1961, by making the following two adjustments : (1) the area of 1951 can be brought at par with that of 1961, The age composition of New Tamil Nadu State at 1951 could be prepared from the Age Table of 1951; (2) the area in 1961 can be made similar to that of 1951 and the age composition of Tamil Nadu for 1961 could be prepared from Age Table of 1961. Then by using Reverse survival method the birth rate can be estimated to be of the order 34.70 per 1000 during 1941-50, while the official estimate is 35.0 per 1000 during 1941-50 and 36.80 for 1000 for 1951-60.

From the different estimates it appears that there is hardly any indication of any significant change in the birth rate of Tamil Nadu during 1941-60. This is more likely for "our social structure has not changed to such an extent as to cause any serious change in fertility. Our towns are only magnified villages, exhibiting several superstitions, taboos etc. on even larger scale that hardly one can expect this to influence fertility changes". On the whole, then, it appears that a birth rate of around 35 per 1000 may be accepted to be the correct position. The birth rate calculated by Vaidyanathan and Gnanasekaran is 32.7 per 1000. This is quite low on all considerations.

We have estimated the death rate of Tamil Nadu by the "differencing method", used by the census actuaries to estimate the death rate of the different states during 1941-51. The annual death rate for the decade 1951-61 works out to be 25.49 per 1000, S. P. Jain by using quasi-stable population has given the estimate of death rate at 22 per 1000. His estimate is lower than our estimate. Moreover, in his estimate the migration factor has not been taken into account and, therefore, it appears that a death rate of 25 or 22 per 1000 for Tamil Nadu

5. Vide 3.

State is somewhat on the high side. The death rates for municipal areas and census towns and rural areas after weeding are found to be 19.5 and 18.0 respectively. Death rate is likely to be a little bit higher. Moreover, the accepted death rate for 1941-50 is 23 per 1000 as against the registered rate of 20. The mortality situation of Tamil Nadu has not undergone any significant change on the scale it has happened in the rest of India during fifties.* Taking all these considerations it may be argued that a death rate of 20 per 1000 for the decade 1951-60 may be accepted. The death rate is estimated by Vaidyanathan and Gnanasekaran at 17.3 per 1000. This is lower than the estimate given by us.

The decennial rate of natural increase, therefore, (= $b \cdot r - d \cdot r$) is 15 per cent. This more or less confirms the rate estimated by us in a more direct way-

Ill

Conclusion

Thus our study points out that the migration from Tamil Nadu to other areas during the fifties has contributed to a decrease of population by about 3.65 per cent which was more than compensated by a natural increase of 15.50 percent leading to a net growth of 11.85 percent.

Our estimate of migration is not the same as it would have been if we bad followed census definition of migration. Three factors explain this difference. First, it includes at least a part of surviving births of emigrants. Secondly, the total (direct and indirect) effect of probable loss of 1951 nonresident population during the intervening years has been included in our estimate. Thirdly, on the other hand, imimgrants Madras during 1951-61 have inflated the population growth (directly and indirectly) of the state, which might have vitiated the estimate of the true migration rate. It may so happen that effects (2) and (3) might neutralise each other.

However, we could try to estimate only the size of the surviving births among the emigrants during 1951-61. In order to estimate the size of the migrant births during 1951-61, that had survived up to 1961, an indirect method had to be adopted and restrictive assumption had to be made, At first the equal annual outflow of persons from Tamil Nadu is assumed.[7] Then applying a birth rate

6. Vide 3.

7. The justification of taking a uniform annual emigration each year is that two rates of retire-cum-death, d_1 and d_2 estimated from the following two complicated relations are fairly close.

$$X(1-d_1)^{9\cdot5} + X(1-d_1)^{8\cdot5} + X(1-d_1)^{7\cdot5} + X(1-d_1)^{6\cdot5} + X(1-d_1)^{5\cdot5} = X_2 \quad (1)$$

$$X(1-d_2)^{4\cdot5} + X(1-d_2)^{3\cdot5} + X(1-d_2)^{2\cdot5} + X(1-d_2)^{1\cdot5} + X(1-d_2)^{\cdot5} = X_1 \quad (2)$$

where, X = annual outflow.
X_1 = 6-10 years duration of residence of emigrants.
X_2 = 0-5 years duration of residence of emigrants.

of 35.0 per 1000, the birth rate for Tamil Nadu and also the age-specific survival ratios given in the Southern India life Tables for 1951-60 to be applicable to the births to migrant parents that took place outside Tamil Nadu during 1951-61, the number that would have survived up to 1961 has been estimated. The number thus estimated has been found to be 97,433. Then eliminating the natural increase due to emigration the computed growth rate will be 15.21 percent. This would show that the extent of natural increase due to emigration is 0.29. The migration factor, then, can be estimated of the order —3.36 per 1000. This is, however, based on the assumption that all the babies expected to be born to emigrant parents were actually born outside Tamil Nadu. But babies who are born before the migration of their parents, are actually to be treated as emigrants if they go outside with their mothers back home when they are with child. The extent of this, unfortunately cannot be quantified by us.

In fine, our estimate of migration rate would give the net effect (direct and indirect) of the movement of population to and from Madras.