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Analysis of Population Growth in Mizoram**

Introduction

ON the sunrise of 1 st March, 1991, the population of Mizoram stood at 6,89,756 thereby recording an increase of 39.70 percent from the time when the sun rose exactly 10 years ago. The decadal rate of growth of population of the State which had fallen drastically from 35.61 percent during 1951-61 to a mere 24.93 during 1961-71 percent again took a quantum leap between 1971 and 1981 when it registered a growth of 48.55 percent. In fact, the decadal rates of growth starting from the first decade have shown fluctuations for every decade except for the decades between 1931 and 1961 (see Table 1). The fluctuations in these rates in the decades upto 1941 may have been because of the population being in its first.stage of demographic transition, which is gernerally characterised by high birth rates and high death rates, the latter fluctuating in response to conditions of prosperity, famines, epidemics and other disasters and fertility in its natural state. The population, perhaps, had entered the 2nd stage of demographic transition after 1941 and this makes it difficult to explain the abnormal fluctuations after 1961 upto 1991, since in this phase of transition one would expect the growth rate of a decade to be higher than the previous one because of fertility still being in its natural state and mortality declining faster because of improved living conditions as a result of decline in infectious diseases like cholera, influenza and other epidemics.

This paper seeks to find plausible reasons for such unusual fluctuations in the rates of growth of population of Mizoram during the last three decades and thereby put the whole aspect of growth of population in the state in its proper perspective. It first examines in detail the real growth in population separately for the decades 1961-71 and 1971-81. The approach is to find the number of survivors of the 1961 Census population at the time of 1971 Census (for both sexes) after properly accounting for the factor of net migration during the ten year period. The survival ratios are also worked out. This exercise is repeated for the period 1971-81.

Clear examination of the real scenario based on such analysis of the real growth of population during these two decades does help in identifying the root cause of the problem and firmly establishes the fact that the growth rates and their apparent fluctuations are unreal. The paper then attempts to find the likely rates of growth of population for the decades between 1961 and 1981. The 1981-91 growth of population of Mizoram is also briefly

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discussed in light of the changed values of the decadal growth as estimated for the previous two decades.

Growth of Population 1901-1991

The decennial rates of growth of population starting from 1901 are is given in Table 1.

TABLE 1 : POPULATION AND DECADAL GROWTH RATE, MIZORAM, 1901-1991

Year	*Population*	*Decadal growth rate*	*Percentage point difference*
1901	82,434	-	-
1911	91,204	+ 10.64	-
1921	98,406	+ 7.90	- 2.74
1931	124,404	+ 26.42	+ 19.21
1941	152,786	+ 22.81	- 3.61
1951	196,202	+ 28.42	+ 5.61
1961	266,063	+ 35.61	+ 7.19
1971	332,390	+ 24.93	- 9.32
1981	493,757	+ 48.55	+ 23.62
1991	689,756	+ 39.70	- 8.85

*SOURCE: 1. Potrait of Population, Mizoram, 1981
2. Census of India, 1991, Series 17, Final Population Totals, Mizoram.

As emphasised in the beginning, the population growth in Mizoram as given in Table 1 has set the premises for discussion. It will be seen from Table 1 that the population of Mizoram, which was only about 82 thousand at the beginning of the century, has grown by more than eight times in a time span of nine decades. The magnitude and direction of the fluctuation in growth rates are given in Column 4 of the table. For two decades starting from 1941, the growth rate seems to have been expanding and then something went wrong seriously during 1961-71 when the growth rate fell by 9.32 percentage points and also in 1971-81 when the trend dramatically reversed to disclose an increase of 23.62 percentage points. Such abnormal fluctuations in decadal growth rates are not expected to occur in any population which is in the early expanding stages of demographic transition.

The time series data on birth rate and death rate are badly lacking for the State and this makes it difficult to determine the path of demographic transition and its different milestones. Even now one has to depend on rates generated through the Civil Registration System and the deficiencies of the data generated through this system do not permit any meaningful analysis. However, it would be worthwhile to look at the choronological data on percentage of widow in the population from 1921 onwards.

Though the percentage of widows in a population for a year does not give us any idea of the mortality rate for that year, the dramatic drop in this ratio in 1951 from the level in

1941 will at least establish that there had been a rapid decline in mortality between 1941 and 1951. Thereafter from 1951 onwards the mortality appears to have declined at a slower pace. The family planning programme in the state was introduced only in the late seventies. Therefore, till then there was virtually no external control on fertility. This only reaffirms the author's belief that the population of Mizorarn had entered the second stage of demographic transition after 1941.

TABLE 2 : PERCENTAGE OF WIDOWS, MIZORAM, 1921-1981

Year	1921	1931	1941	1951	1961	1971	1981
Percentage Widowed	17.6	13.9	11.8	6.9	6.2	6.3	5.2

SOURCES: 1. Census of India, Assam, *General Report,* Part-I.
2. Table C-H, *Social and Cultural Tables, Assam,* 1961, 1971
3. Table I, *Social and Cultural Tables,* Series-31, Mizoram. 1981

Population Growth 1961-71

Let us examine Table 3. Smoothing of population for age-groups 0-4 and 5-9 has been done by using the percentage variation between unsmoothed and smoothed data worked out in Table 3 (Annexure-I) for the State for 1981 in Unni *et al.* (1987). The same percentage variation was applied to smooth out the population for males and females. However, it is clear that the percentage variation for all the north-eastern states is positive for age group 0-4 and negative for 5-9 years and the magnitude of variation in the age group 0-4 years is generally higher than in the age group 5-9 years. This is true for most of the states of India. Therefore, generally the smoothing of population for age group 0-9 would result in a higher population than the unsmoothed one. The smoothed population for age group 0-9 for 1971 is adjusted for the population in the same age group which migrated in the intervening period. The population of age group 0-9 migrating in the State between 1961 to 1971 has been estimated from D-VI of Series 3 Part Il-D, Migration Tables 1971, Assam by assuming that the population in the age group 0-14 is uniformly distributed over all ages in the age-group. This simplistic estimation method will tend to overestimate, but the magnitude of the population being very small, an overestimate of this nature will not have much effect at the aggregate level.

The migation referred to in *H* of Table 3 relates to those persons who were born outside the State. The data for out-migration from the state to the other states for 1971 Census is not available. Any adjustment for outmigration would inflate the figures given in *J.* However, one has to consider that there had been cases of physical migration where people born in the state had migrated outside the state prior to 1961 and returned between 1961 and 1971. Therefore, one would expect the real addition to population between 1961 and 1971 to be higher than what has been recorded in H.

It is also expedient to note that the combatants and non-combatants who are almost cent per cent males, enumerated during a census are always treated as non-migrants, though

majority of them are likely to have physically migrated from outside the State during the intervening period. Such population being highly migratory in nature, it is likely that a large chunk of combatant and non-combatant population enumerated in 1961 would have moved out of the State before 1971. However.amuch larger presence of combatant/non-combatant population in the State during 1971 than in 1961 can safely be assumed, since it was in 1966 that the insurgency broke out in the State. Though, it would not be possible to estimate the magnitude of net increase in such population during 1971, any adjustment of this nature in Table 3 will deflate the figures for males in / and /and therefore inflate the number of males during or outmigrating during last 10 years as given in *K.* The survival ratio for males also would go down further, perhaps, below 0.80. No attempt is being made in this paper to incorporate such adjustments in Table 3 for reasons stated above.

TABLE 3 : ESTIMATION OF POPULATION OF 1971 DYING OR OUTMIGRATING IN 10 YEARS AND DECADAL SURVIVAL RATIO

		Persons	*Males*	*Females*
A	Total Population, 1961	266,063	132,465	133,598
B	Population for ages 0-4, 1971	47,262	23,542	23,720
C	Population for ages 5-9, 1971	49,051	24,767	24,284
B_1	Population for ages 0-4, 1971 (smoothed)	52,475	26,273	26,472
C_1	Population for ages 5-9, 1971 (smoothed)	46,500	23,479	23,021
D (= B_1 +• C_1)	Population for ages 0-9, 1971 (smoothed)	99,245	49,752	49,493
E	Population 0-9 (estimated), 1971 in-migrated in intervening period	717	530	187
F	Population for age group (0—9), 1971 (smoothed) [net of population for age group (0-9) estimated, 1971 immigrated in the intervening period]	98,528	49,222	49,306
G	Total Population, 1971	332,390	170,824	161,566
H	Inmigration in the intervening period	15,885	14,245	1,640
1	Population for 1971 (net of intervening inmigration)	316,505	156,579	159,926
J (=/ - *F)*	Population for ages 10+ (net of intervening inmigration)	217,977	107,357	110.620
K (= A - J)	Population of 1961 dying or outmigrating in 10 year period	48.086	25,108	22.978
L(=J)	Survival ratio			
A		0.819	0.810	0.828

SOURCE: 1. *District Census Handbook,* Mizo hills. Assam, 1961
2. Census of India, Series-3, Part II D, *Migration Tables.* Assam

The magnitude of reduction of the cohort population of 1961 is phenomenal being 18.81 per cent. The percentage reduction in case of males is 17.46 per cent and 20.14 in case of females. The reasons apparent for such a depletion may be the following.

(a) Natural decrease, i.e. due to death;
(b) Large scale migration of people to other States and adjoining foreign countries in wake of disturbance breaking out in 1966;
(c) A large number of people going underground as MNF activists; and
(d) Gross under-enumeration in 1971 Census.

The other possibility which can only be mathematically true is the over-enumeration in 1961 Census, which can be ruled out straightaway for obvious reasons.

In absence of any SRS data for the State from 1961 to 1971, it is difficult to have any clear idea of the mortality rate prevailing in the State during that period. The survival ratio of 0.819 (which is likely to be even less as clarified in the foregoing), however, appears to be absurd by any standard and in no way can be attributed only to natural decrease of the population and out-migration. A survival ratio of 0.92 for the ten year period from 1961 to 1971 would explain only 44% of the reduction in the cohort population of 1961. The assumption of survival ratio of 0.92 will not be on the higher side considering the fact that /infant mortality rate (which so heavily influences the overall mortality) in the State during the period 1961-71 would have been much less and comparable to other ME states, namely, Nagaland, Manipur and Meghalaya, which perhaps traditionally had lower levels of infant mortality than other bigger states of India and the country as a whole, as well. The survival ratio for males and females for India in 1981 was 0.9165 "and 0.9122 respectively.

The earlier discussion at the least confirms that a large depletion of 1961 population in the 10 year period upto 1971 was not as a result of the natural process of death. The second possibility listed out by us is the large scale migration of the residents of the State to adjoining states and countries due to political disturbance. This argument does not appear to hold good for if this had been true, a large scale return migration into the State between 1971 and 1981 would have taken place when peace returned. The highly male selective migration into the State between 1971 and 1981 as seen from Table 4 only confirms that the large scale migration outside the State between 1961 and 1971 can be ruled out as a possibility.

The possibility listed in (c), i.e. a large number of people going underground as MNF activist, is somewhat similar in nature to the last possibility, namely gross underenumeration in that those remaining underground during the 1971 census operations would not have been enumerated. The only difference being that in the former case one would expect larger underenumeration of male population than females because it would have been the stronger **sex** which would have gone underground. Item *K* of Table 3 indicates that there had been a reduction of 2,053 more males than females during the decade and this may be taken only as an indicator of possibility of underenumeration of males because of their remaining underground and not as a conclusive evidence in support of possibility (c).

Under-Enumertion in 1971 Census—A Possibilty

The preceding discussion, therefore, leaves us with the last possibility, i.e., a larger scale under-enumeration of population in the State in 1971 Census as one of the most plausible reasons explaining the abnormal fall in the 1961 cohort population. In 1971, the State was passing through explosive situation and nothing was normal. The number of inhabited villages in 1961 was 730—this number got reduced to only 229 in 1971. This was because the villages in the State were reorganized and grouped into bigger villages during the latter half of sixties, to tackle the problem of insurgency. These regrouped villages were known as "Protected and Progressive Villages". The State was virtually under the control of Army and the Civil administration was almost non-functional. Dr. Animesh Ray, IAS, who was the DC from 1970 to 1972 in the erstwhile Mizo District of Assam writes in his book entitled *Mizoram Dynamos of Change* that

> "Grouping affected about 80% of the rural population and about 65% of the total population of the district. It was, therefore, a major event in the history of the district. Most of the people bemoaned their fate in leaving the ancestral hearth and home and the village. Singers would sing pathetic songs of their loss of habitat where they were born and brought up. Although the Mizos were migratory in their habits till the early ' years of this century and the British got them settled in permanent villages with difficulty, they took to their habitations with a lot of attachment and the current shifting hurt their sentiments.
>
> This antipathy continued irrespective of the facilities available in the group centres vis-a-vis the ungrouped villages. Each of the interior group centres had an air dropping zone; food and other civil supplies were carried and dropped by the Indian Air Force at the centres at government cost and most of the time distributed free to the people. The villagers of the ungrouped villages had to trek a long distance to draw their rations from the group centres. In fact, most of the people of the ungrouped villages were not being given ration by the Government, as they were presumed to be continuing with their jhums undisturbed. Being the focal points in the development efforts, the group centres also provided more scope for employment Medical, educational and other welfare measures were concentrated in the group centres".

Population Growth 1971-81

Therefore, in a situation as described above in the State, the Census which was carried out through the normal civil administration of the district had most certainly taken the backseat and perhaps was conducted in a perfunctory manner thereby leading to huge under-enumeration. This argument will be further strengthened by the discussion that follows.

Let us look at Table 4.

TABLE 4 : ESTIMATION OF POPULATION OF 1981 DYING OR OUTMIGRATING IN 10 YEARS AND DECADAL SURVIVAL RATIO

		Persons	*Males*	*Females*
A	Total Population, 1971	332,390	170,824	161,566
B	Population for ages 0-4, 1981	70,746	35,486	35,260
C	Population for ages 5-9, 1981	67,407	33,809	33,598
B_1	Population for ages 0-4, 1981 (smoothed)	78,958	39,602	39,356
C_1	Population for ages 5-9, 1981 (smoothed)	63,902	32,051	31,851
D (= $B_1 + C_1$)	Population for ages 0-9, 1981 (smoothed)	142,860	71,653	71,207
E	Population for age group 0-9, 1981 in-migrated in intervening period (estimated)	1,878	977	901
F	Population for age group (0-9), 1981 (smoothed) [net of population for age group (0-9) estimated, 1981 inmigrated in the intervening period]	140,982	70,676	70,306
G	Total Population, 1981	493,982	257,239	236,518
H	Inmigration in the intervening period	17,725	12,248	5,477
1	Population for 1981 (net of intervening Emigration)	476,032	244,991	231,041
J(=1-F)	Population for ages 10+ (net of intervening inmigration)	335,050	174,315	160,735
K (= A - J)	Population of 1971 dying or outmigrating in 10 year period	-2,660	-3,491	831
L (=J)	Survival ratio	1.008	1.020	0.995
A				

SOURCE: 1. District Census Handbook, Mizo District, 1971
2. Census of India, series 31, Part V A and B, Mizoram, 1981.

The smoothing of population for the age groups 0-4 years and 5-9 years is done in the same manner as in Table 3 using the percentage deviations worked out for the two age groups in Table 3 of Unni *et al.* (1987). The population in the group 0-9 for 1981 census which migrated between 1971 and 1981 has been estimated from Tables D-15 Part A and Part B of the Migration Tables, Part V A and B; Series 31, Mizoram of 1981 by assuming that the population in the age group 8-12 is uniformly distributed over all ages in the age group. The migration shown against *'H'* in Table 4 is the migration from last place of residence and unlike '//' in Table 3 includes return migration of persons who had outmigrated prior to 1971.

The absurdity of the values in *'K'* and *'L'* of Table 5 is worth noting. In fact a negative value for *K, i* .e. number of people dying or outm igrating out of the cohort population of 1971

in a ten year period, cannot be explained demographically. The survival ratio of more than unity also is inexplicable. If one were to make adjustments for outmigration which cannot be negative, the values derived in *J* would be inflated which would result in higher negative value of population of 1971 dying withing a ten year period and push the survival ratio further away from unity in the positive direction.

The general situation in the State having fairly improved in 1981 than what it was in 1971, one would expect a net loss in the combatant end non-combatant population in 1981 as compared to 1971. However, working on such an assumption without having any idea of the magnitude of combatant and non-combatant population during 1971 and 1981 censuses would not be proper, though adjustments in Table 4 based on such assumption would only increase the value of survival ratio, thereby helping the author to strengthen his argument.

Under-Enumeration in 1971 Census — A Certainty

This absurdity of situation leads us to two possibilities — (a) huge over-enumeration in 1981, and (b) gross under-enumeration in 1971. The possibility of over-enumeration can be immediately ruled out as we have done earlier while discussing the 1961-71 scenario. The only explanation for such uncomfortable mathematical truth is under-enumeration in 1971 census. In the earlier discussion we tried to search for plausible reasons for the dramatic drop in the number of survivors of 1961 population, gross under-enumeration in 1971 census was indicated as one of the strongest 'possibilities' but the later discussion has transformed me 'possibility' into a 'certainty'.

The questions posed in the opening paragraphs of this paper with regard to abnormal and unusual fluctuations in the decadal rate of growth of population of the State, after 1961, can now be satisfactorily answered. The gross under-enumeration in 1971 census had led to a very low decadal growth rate during 1961-71 and this also on the other hand resulted in a very high rate of growth during the decade 1971-81 because the growth has been calculated from an underestimated population in 1971. Therefore, both the 1961-71 and 1971-81 growth rates of 24.93 and 48.55 respectively can be considered to be unreal.

1971 Census Population — Estimated

Let us now try to estimate the 1 97 1 population under the assumption that poplation grew at an exponential annual rate *(r)* during the 20 year period from 1961 to 1981. The assumption of an exponential rate of growth of population for the period when it is passing through the second phase of demographic transition is perfectly valid. Therefore, we have

$$r = \frac{\log \frac{P'81}{P61}}{n \log e}$$

where $e = 2.71828$, p'81 is the population of 1981 adjusted for net migration, and p'81 = *p81* -I61-81 + 061-81. Here

p_{81} = Census Population of 1981;

I61 - 81 = Inmigrants from outside the State and country among the 1981 population enumerated in 1981;

O_{61-81} = Outmigrants from the 1961 population during the 20 year period.

I_{61-81} can be easily calculated from Table D-2 of Migration Tables Series-31, Part V A and B, Mizoram. We find, I_{61-81} = 20,586.

It has to be understood that many of these inmigrants may be return migrants. The change in stock from 1961 to 1981 of combatants and non-combatants who are treated as non-migrants is also to be taken into account.

Similarly, O_{61-81} can be calculated from Table D-2 of Migration Tables, Series-I, Part V A and B (i) for each of the states. We find 0_{61-81} = 6,002. This excludes migration from the state to Assam (which is adjacent to Mizoram) which is likely to have been high. It, however, should be noted with caution that the outmigration to other states may be out of the population which in-migrated after 1961 and therefore the value of O_{61-81} will have to be adjusted downward. On the other hand, again, there had been people who were enumerated in 1961 in Mizoram, migrated to some place outside the state and then changed their residence, in some cases more than once to arrive where they have been enumerated in 1981. This would push the value of 0_{61-81} on the upper side. Therefore, we may consider the last two errors to cancel each other. The outmigration 0_{61-81} is offset against the change in stock of the combatant/non-combatant population, the latter would have certainly outweighed the former, thereby adding to the value of in-migration. However, for simplicity of the discussion, let us assume $0_{61-81} - C_{61-81}$ is the change in stock of combatant/ non-combatant population equal to zero. Then, we have $p1/81$ = 473171.

The value of r works out to be equal to .02878, which means that exponential annual rate of growth during the twenty year period from 1961 to 1981 is calculated to be 2.791%.

Applying this rate of growth to P_{61} we can calculate the value of P_{71} as 354,792. Adding the outmigrants, i.e., P_{61-71} to P_{71} will give an estimated value of population of 1971 as 370,677. Here also we assume that $O_{61-71} - C_{61-71}$ is equal to zero, which actually may not be true and as explained earlier may have a negative value. However, a reduction in value of $P\ 1/81$ on this count would lower the value of r, which in turn would bring down the value of P_{71} further. Therefore, the assumptions made twice in the course of the calculation in arriving at the estimated value of population of 1971 will not alter it to great extent and to say the least would not alter the course of the discussion.

Another simple way of estimating the population of 1971 is to divide the figures of males and females against 'J' in Table 4 by the survival ratio for India during 1981. This would put the population figure of males and females for 1971 as 190,196 and 176,206 respectively which totals to 366,402. If we add the intervening outmigration, we may arrive at a figure not very different from what we have calculated in preceding para.

Population Growth of Mizoram in Proper Prespective

The corrected decadal growth rate for 1961-71 and 1971-81 for Mizoram works out to 39.32 and 33.20 respectively, thus reversing the trend observed (see Table 1). With adjusted Crude Birth Rate and Total Marital Fertility rate being 40.57 and 9.2 respectively in 1981,

the drop in rate of natural increase during 1971-81 from 1961-71 level can be ruled out as a possible explanation of the fall in the rate of growth. In fact, it has been estimated by Unni *et al.* (1987) that there has been a marginal decrease in the fertility rate in 1981 from 1971. Assuming that the mortality rate fell by same percentage points also during the same period, which by all means is a reasonable assumption, it can be safely concluded that the decadal rate of natural increase has not decreased during 1971-81 from the 1961-71 level. Let us now look at Table 5.

TABLE 5 : DECADAL RATE OF GROWTH OF TRIBAL, NON-TRIBAL AND TOTAL POPULATION IN MIZORAM, 1951 TO 1991

Year	*Non-tribal population*	*Net decadal addition of non-tribal population*	*Percentage decadal increase of non-tribal population*	*Impact of decadal increase of non-tribal population on decadal population growth*	*Tribal population*	*Net decadal addition of tribal population*	*Decadal rale of growth of tribal population*	*Decadal rate of growth for total population*
(1)	*(2)*	*(3)*	(4)	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
1951	4,974				191,228			
1961	5,049	+ 79	1.51	0.04%	261,014	+ 69,786	36.49	35.61
1971	19,019	+ 14,042	278.11	5.28%	351,658	+ 90,644	34.73	39.32
1981	31.847	+ 12,756	66.82	3.44%	461,910	+ 110,252	31.35	33.20
1991	36,191	+ 4.344	13.64	0.88%	653.565	+ 191,655	41.49	39.70

SORUCE: 1. District Census Handbook, Mizo District, 1951
2. Portarait of Population, Mizoram, 1981
3. Census of India, 1991, Series 17, Final Population Tables-Mizoram. *Note:* The 1971 population has been taken as 370,677 as estimated in the foregoing.

Table 5 shows that the non-tribal population increased from 5,049 in 1961 to 19,091 in 1971 meaning thereby a percentage increase of 278%. The increase is no doubt because of migration from outside state. The table clearly brings out that there has been a stronger impact of migration on decadal rate of growth during 1961-71 than during 1971-81, which is quite contrary to popular belief. Though one should not undermine the fact that the international migration into the state as well as the inmigration of tribal population may also have had impact on decadal rate of growth, the magnitude of increase of non-tribal population through migration during the decade 1961-71, without any doubt, had the strongest impact in spurt in the decadal rate of growth of 39.32% during the decade 1961 -71.

Population Growth 1981-91

The 1981-91 rate of growth shows an increase of 6.50 percentage points from the rates estimated for the decade 1971-81. Table 5 shows that the scheduled tribe population in the

state during 1981-91 has grown by over 10 percentage points, which is indeed baffling. The impact of migration from other states appears to be totally absent. A proper explanation of the 1981-91 situation can be given when the tabulated results on migration and fertility for 1991 census are available for the state. Prima facie the reasons may be the following:

(i) Large scale international migration of tribal population after peace returned to the state in 1986;
(ii) Sharper fall in mortality rate as compared to fertility rate; (iii) Undercoverage in 1981 since the state was still a disturbed area and a large number of MNF activists were lying underground.

An important factor listed above is the international migration of tribal population whose impact on the rate of growth can be worked out when data on scheduled tribe-wise population are available. However, this may not have been a major factor in effecting a growth rate as large as 39.70%. All the factors listed above may have contributed in varying degrees in bringing about such phenomenal growth. One really has to wait for the final tables of 1991 Census in order to find a suitable explanation of the 1981-91 situation.

Conclusion

The discussion uptil now, notwithstanding all the limitations of analysis due to lack of data, has at least put the aspect of growth of population in Mizoram over last few decades in proper perspective by way of proving beyond doubt that the 1971 census count was grossly incomplete and thus providing an explanation of the unusal and unreal fluctuations after 1961. This will definitely set to rest all the speculations that the state has shown a complete turn-around during the ten year period between 1981 and 1991 and is now sailing down the curve of population growth. On the contrary, it is now firmly established that the Mizoram is still in its second phase of demographic transition.

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