PROBLEMS IN THE CONSTRUCTION OF STATE LEVEL LIFE TABLES: APPLICATION OF ALTERNATIVE TECHNIQUES

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DECLARATION

It is certified that the dissertation entitled, "PROBLEMS IN THE CONSTRUCTION OF STATE LEVEL LIFE TABLES - APPLICATION OF ALTERNATIVE TECHNIQUES", submitted by Mr. SUDHAKER SHUKLA in fulfilment of six credits out of the total requirements of 24 credits for the Degree of Master of Philosophy of the University, is his original work according to the best of our knowledge & may be placed before the examiners for evaluation.

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CHAPTER I

INTRODUCTION

Civil Registration system in India is incomplete and data provided by it is unreliable. Hence indirect methods have been developed to obtain the 'vital' statistics. Alternative techniques have been used and results so obtained differ depending on the assumptions which are made about the age distribution of the population, Age specific survivalship rates over period of decade and Infant and childhood mortality.

In this paper attempts are made to examine the issues involved in the construction of the life tables at the state level. Considering that infant and childhood mortality plays an important role in the survival ship ratios, in this paper alternative methods are discussed for the construction of life table by using different infant mortality assumptions.

Life tables: A historical perspective

Generalisations about life are almost always misleading for the simple reason that life means different things to different people and every man's response to its call is determined by his own perception. Some persons are haunted by the fear of death, sickness and

old age, and they bemoan the transient nature of beauty, youth and joy, while others gracefully reconcile to whatever life brings them. Such variations are inevitable due to involvement of value judgement in it. Demography is, however, not concerned with value judgement. The ultimate aim of the science of demography is not different from other sciences viz. to understand and unravel the mystry of natural processes and to bring them under conscious social control. One may say, "what constitutes quality of life is a matter of extensive debate".[1] But it is an undebatable preposition that span of life as a function of death is one of the most important indicator to reveal the socio-economic conditions prevailing in the country in general and health conditions in particular.

Right from the introduction of science of demography, analysis of mortality occupied an important place. Death is considered principal "vital event" and its scientific analysis is necessitated by the fact that it is useful in establishing the present demographic status and future growth potentials on the one hand and helps in evaluating and defining the specific role of public health programme

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1. Asok Mitra, India's Population - Aspects of Quality & Control, "Introduction", Abhinav Publications, New Delhi, p.xix.

on the other. In a welfare state, where planning based on population projections and programmes directly linked with public utilities constitute the backbone of the public policy, such a scientific analysis becomes unavoidable.

The death rate which is defined as number of deaths in a year, per 1000 of population of a given area is a consolidated index of mortality and eclipses the differentials arising due to differences in sex and age structure of various populations. As such, for tracing the age and sex pattern of mortality decline it is of limited use.

Typical age pattern of mortality is a matter of scientific quest right from the inception of demography itself. In mid 17th century John Graunt in his observations on mortality tried to quantify the age patterns of death in London. He observed, "whereas we have found that of 100 quick conceptions about 36 of them die before they be six years old and that perhaps but one survivth 76, we having seven decades between 6 & 76, we sought six mean proportional numbers following are practically near enough to the truth for men do not die in exact proportions nor in fractions; from whence arises this table following".[2]

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2. Quoted in Regional Model life tables and stable population: Coale & Demeney.

The table which be arrived at was later ~~came to~~ known as Life table and "its form set the precdent for death-and-survivors-columns of all future life tables".[3] Since then life tables are treditionally regarded as useful method of measuring mortality. Following the remarkable work of John Graunt, Edmund Halley[4] constructed the first modern life table. Next to follow were Kresseboom (1738) and Deparcieux (1746). After 1750, series of attempt were made to construct life tables for different countries. As far as, demographic information is concerned, contribution of early life tables is unrefutable but one important thing they all lack in common is the non use of advanced or appropriate statistical tools which are essential for any type of scientific analysis.

With the advancement of scientific tools for mortality analysis, basic inputs required for such analysis have also changed. Earlier life tables were derived from the data supplied by births and deaths register, hospital records and burcial and baptism records etc. Gradually along with these records Census taken at two points of time

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3. Coale & Demeney: Regional Model Life tables and stable populations. Princeton University Press, New Jersy, 1966.

4. Edmund Halley, An Estimate of the Degrees of the mortality of mankind (originally in philosophical transaction of the royal society, vol.17, 1693).

started supplying inputs in the form of survival ratios. Owing to the fact that reliable statistics is available in few advanced countries, while other countries were unable to bring out reliable life tables - need was felt to construct model life tables which can be used tentatively to analyse the death experience in these countries where data inputs are incomplete, inadequate and unreliable.

To devise a mathematical model to depict population trends for all countries and for all times is rather impossible task, mainly due to demographic transition from one stage to another to which mortality (and fertility) differentials are directly linked. Attempts in this regard were made by Gompertz (1825), and Makeham (1860). These researchers were interested in deriving a general formula applicable to the whole life span. Since then repeated attempts, to generalize human mortality trends in a concise scientific manner, employing various levels of force of mortality, were made. United Nations was first to bring out Model life tables in a coherent form covering all possible variations which were present in various individual life tables. Examining the trends in several developing countries, United Nations came to the conclusion, "Evidence of a firm trend of falling death risks can be established with certainty for the great majority of world regions. Because of cheap and effective means

of disease control, mortality may decline rapidly even if it is initially high. An annual gain of half year in the expectation of life at birth is now normal at least for expectation of life ranging from 30 to 55 years".[5] Though two fold checks were adopted to test its reliability viz. (1) comparing the shape of selected observed life tables with the model ones and (2) plotting the actual observations and the trends of the childhood mortality and expectation of life at birth, yet UN study admitted, that "the rather simple formulae and broad generalisations which were used for the presentation of these life tables permits only the description of an average and more or less general pattern of observations over the whole range of variation represented. Finer variations in the pattern as well as peculiarities that may occur in individual population, are necessarily glossed over".[6]

Gabriel and Ronan[7] attempted to check the reliability of UN model life tables using the same data, instead of fitting paraboles as done in the UN study, they derived

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5. United Nations, "The future Growth of World Population", Population Studies No.28, New York, 1958.

6. United Nations, "Age & Sex patterns of Mortality, Model life tables for Underdeveloped Countries," 1955, p.2082.

7. Gabriel K.R. & Ronan Ilena, "Estimates of mortality from Infant mortality rates", Population Studies No.12, New York, 1958.

least square estimates of ${}_nq_x$ by means of linear regressions on ${}_nq_0$ and arrived at lower values of e_0^0 for ${}_nq_0$ ranging between 0.04 and 0.20.

Kurup[8] tried to look into the problem from different angle and tried to stratify countries with different exposure to the technological improvements, into five groups, by constructing composite index. An index of socio-economic and health conditions was built by first forming the component indices of level of living, literacy standards, level of urbanization, level of industrialization and availability of medical and public health facilities.

Finally Coale & Demeney presented significant work in this field. They attempted to cover widest possible area and time span. Applying different methodology they constructed no less than 4992 stable populations at various rates of population increase. Owing to the fact that, "no single parameter could fit all reliable documented mortality experience",[9] they arrived at four different families of life tables depicting different

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8. Kurup K.S., "Recent Trends in World Mortality and their implication for a Revised system of Model life Tables", Chicago, unpublished dissertation, 1964.

9. A Coale & P. Demeney, Regional Model Life tables and Stable Population, Princeton University Press, New Jersey 1966.

mortality patterns. Twenty four life tables were constructed for each family (North, South, East & West). Methodology adopted was very simple - Linear regressions by least squares of ${}_nq_x$ and log ${}_nq_x$ on e^o_{10} were run.

In real experience although these four families may match with individual country's mortality patterns even then expected uniformity may not always be present due to uniqueness in the patterns existing in the individual countries. Samuel Preston[10] later demonstrated that above said four patterns of mortality are associated with different patterns of causes of death within each geographical region and identified a fifth "Non Western" pattern, consisting almost entirely of Latin American Countries with a different cause of death structure and resultant pattern of mortality. In a study done by United Nations, above point was further reinforced, "Recent evidence indicates that age patterns of mortality in many developing countries differ systematically from those of historical European experience, and the Coale & Demeney tables are therefore not fully suitable to demographic research in Developing Countries".[11]

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10. Preston S.H., "Mortality patterns in National Populations", New York, Academic Press, 1976.

11. United Nations, "Model life tables for Developing Countries", United Nations Publication Sales No. E81.XIII.7.

In the recent study UN suggested some modifications in model life tables. On a country-by-country basis mortality rates by age and sex were constructed for all time periods possible, data were carefully evaluated and life tables constructed wherever the data appeared of high quality. In this way 72 input tables were constructed for 22 less developed countries and as an output envisaged following five patterns: (1) the Latin American pattern, (2) The Chilean pattern, (3) The South Asian pattern (4) The Far Eastern pattern & (5) General pattern. The philosophy underlying the construction of the model life tables was that "the models could only be trustworthy as the input set of country tables".[12] And this very fact necessitates the availability of reliable death statistics in individual countries, which have no substitute as such.

Mortality Studies in India

India is one of those developing countries which are making continuous efforts to improve its vital statistics. The vital source of Indian population data is the series of the Census reports. But it is often alleged that standard of data is quite low and erroneous

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12. Ibid., p.2.

and any scientific analysis based on such data is wastage of time. Investigating into the mortality of the Indian population by analysing the census data is not a new phenomenon. Various reports[13] on life expectancy were presented from time to time. First three such reports were presented by Sir George Hardy (1891) using the differencing method. In his reports he represented death approximately equal to difference between total population of one census to the population above 10 years in the next census and inflating it by raising factor viz. ratio of total deaths to deaths in ages 5 and over. Fourth report was presented by Ackland who also adopted almost similar procedure, choosing different raising factors for different states. M.G. Meikle presented Vth paper with reference to 1921 census followed by L.S. Vaidyanathan (1931), S.P. Jain[14] (1951) and Natarajan[15] (1971).

Actuarial report of 1951 marked a departure from earlier reports, in so far as Jain prepared zonal life

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13. S.P. Jain, Acturial report - 1951. Census of India Paper No.2 of 1954. Also see S.C. Srivastava: History of Population. Census in India. Registrar General of India.

14. S.P. Jain, Acturial Report - 1951, op. cit.

15. M.S. Natrajan, Acturial report - 1971, Registrar General & R.B. Chari, India.

tables by grouping the states into five zones instead of following the past practice of preparing life tables for each state. Since then officially, only zonal life table have been constructed. This change was introduced owing to the fact that "most of the internal migration between states is on a regional basis and therefore, the effect of migration on the growth of zonal population is smaller compared to that in the case of state units".[16]

Official life tables are based on tracing the Cohorts living at one point of time to their survivors at another point of time from age returns. To work out such estimates from data which themselves are distorted, is objected by several researchers from time to time. Anyhow, such results presented for all India level may be inaccurate but one can not term them absurd. They can at least be used in tracing the trends.

Expectation of life at birth in 1901 were 23.6 and 24.0 for male and female respectively. These figures increased to 47.1 and 45.6 in 1971, which implies expectancy of life increased by 99 per cent for males and 90 per cent for females in last seven decades. This increase is not gradual, in some decades the increase is steep for other it is comparatively low as depicted

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16. S.P. Jain, op. cit., p.1.

in Table 1.

Apart from official life tables several attempts have been made from time to time to estimate life expectancy. Some of the results are summarized below:

Estimates of expectation of Life at Birth (India) (1951-60)

Auther	e_0^0 Male	e_0^0 Female
Visaria	37.80	36.98
Coale & Hoover	37.1	38.5
Lahiri	38.75	38.49
Chenna	36.2	34.5
Immerwahr & Sinha	38.99	38.57

For 1966-67 Brijesh B. Lal calculated life expectancy 49.20 & 48.30 for Male and Female respectively. For year 1961-70 Toni Dyson calculated e_0^0 for India as 53.7 and 45.5 for males and females respectively and Asok Mitra gave the figure of 47.72 as life expectancy at birth for males females combined together.

Despite the fact that knowledge of such vital information is very important, not only for evaluating health and welfare programmes but also for planning purposes, limited efforts are being made to estimate life table at state levels. Soon after the publication of 1961 Census results to stress the need for comprehensive study on inter state variations, Rao said, "it is clear

TABLE 1

EXPECTATION OF LIFE AND PERCENTAGE INCREASE IN EACH DECADE INDIA 1901-1971

		Male	Female
1901	e_x	23.6	24.0
	% Change	-4.1	-5.9
1911	e_x	22.6	23.3
	% Change over 1901	-4.2	-2.9
1931	e_x	26.9	26.6
	% Change over 1901	14.0	10.8
1951	e_x	32.5	31.7
	% Change over 1931	20.8	19.2
1961	e_x	41.9	40.6
	% Change over 1951	28.9	28.1
1971	e_x	47.1	45.6
	% Change over 1961	12.41	12.3

that when talking of our increasing population policy, it is not correct to look at the problem in over all national terms... We must look at the different states individually and frame our national population policy in the light of Inter-state differences revealed by such a study... Indian Demography badly needs research on regional and state lines".[17] Expressing similar views Mitra says, "...we remind ourselves that India is such a vast and populous country with such a wide range of non-developments as well as developments that a general average rate is apt to conceal real and wide differences often between contiguous not to speak of geographically remote territories.[18]

To capture the Inter-state variations in life expectancy many efforts have been made. Panchal[19] constructed life table for Assam and along with Gupta he constructed life table for West Bengal for the period 1941-50. Sinha & Lahiri[20] worked out state wise life

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17. V.K.R.V. Rao, "The problem of India's increasing numbers: A plea for Inter-state Approach", Bombay Convocation address, 1961.

18. Asok Mitra, "Pattern of occupation change in India, 1951-61" in Ashish Bose (ed.), Patterns of Population Change in India 1951-61.

19. Sankhya, 1970, vol.32.

20. Sinha U.P. & S. Lahiri, "Life tables for the states of India 1951-61", International Institute for Population Studies Bombay - Publication.

tables using stable population techniques for the decade 1951-60 followed by comprehensive work done by Kohli[21] using Jain's formulation.

For the decade 1961-70 Tim Dyson[22] and Registrar General[23] published state wise expectancy of life separately. Both the studies are partial in the sense that they are restricted to getting the values of e_o^o and e_{10}^o, comprehensive work should study detailed age pattern for the reason "a life table might have too high qx values at age 20-29, for example and to offset this, too low qx values at older ages, but a mere check on e_o^o or e^o10 would not pick up errors of this nature".[23]

This research paper therefore examines the issues involved in the construction of state level life tables.

Selection of States

To make the research paper more meaningful states were not choosen on random basis three specific criterion

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21. K.L. Kohli, Mortality in India.

22. Tim Dyson, "A working paper on fertility and mortality - Estimates for the States of India", Presented in "Panel on India's demography" held at National Academy of Sciences in Washington in March 1979.

23. P. Padmanabha, "Estimation of the expectation of life at birth and the vital rates, An analysis of the 1971 Census data", Presented in "Panel on India", 1979.

were adopted in the selection of states. Firstly it was taken care of to give representation to each zone secondly importance was attached to different level of development hence on the one hand Maharashtra is representing the advanced unit while U.P. and Orissa are backward states. Thirdly movement of population outside/inside the state boundaries was also given due importance. Some states like Maharashtra are immigrating while states like Utter Pradesh is out migrating. Keeping these three critician in mind, Andhra Pradesh, Maharashtra, Orissa, Rajesthan and Uttar Pradesh were selected for the present study.

Research Design & Methodology

The scope of the present study is to apply various available techniques for the state level life table construction. Since age specific death rates for the period 1961-70 is not available, it was not possible to construct life tables based on Reed and Merrell[24] method.

The method of construction of life tables is based on a comparison of the age distribution at two censuses. In principle this method traces a cohert living at one

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24. Lowell J. Reed & Margaret Merrell, "A short Method for constructing an Abridged Life table", American Journal of Hygiene 30(2):52-61 Sept. 1939.

point of time to the survivors at the other point of time. Smoothing procedure adopted in 1971 Census is quite different from that of 1961. To obtain survival ratios from two consecutive censuses adjustments for making the two smoothed age return comparable were made by resmoothing the 1961 age returns by using the 1971 techniques. Apart from it adjustment for migration was also made to make the 1971 population comparable with that of 1961.

For below five year age group one has to use Infant mortality rate. Since for the period under consideration no reliable statistics was available four different infant mortality levels were applied. This way with two smoothing procedures and four infant mortality assumption 16 life tables (8 each for male & female respectively) were constructed.

As an alternative method Coale and Demeney procedure was adopted. To construct state wise life tables model "west" is selected. To construct the life table through this method, we take adjusted population of one census in five year age groups. Then we project that for succeeding census with various levels model survival ratios.

Hence this we get 16 life tables for each state and one of the objective of this study is to see how much difference is there when we shift from one technique to another on the one hand and observe the difference in

expectancy of life by applying different levels of infant mortality, on the other.

Data Base: Since both the methods use decadal population and survival ratios constitutes the beginning point, only census data of 1961 and 1971 is utilized. Migration Data is also based on 1% sample provided by Registrar General office.

Data on Infant mortality rate is not available for the period under consideration. Four different Infant mortality rate revolve round the figure provided by the Tim Dyson.

Chapterisation:

In using indirect methods lot of assumptions regarding age distribution are needed. Comprehensive study in this regard is done in chapter II (Evaluation of age distribution).

To construct a life table at the state level, apart from methodology information regarding smoothing process migration and infant mortality should be accurate. Chapter III - Adjustment of Age returns and methodology for construction of life Table deals with the problem of smoothing and other above said adjustment.

Results and conclusion are provided in the fourth chapter - A Trends and Variations in levels and pattern

of longevity.

Appendix (A) provides the tables based on census survival method and Appendix (B) contains the tables based on Coale & Demeney method.

CHAPTER II

EVALUATION OF AGE DISTRIBUTION

A population's age sex composition, commonly defined as number of males and females in each of its age groups, is determined by two factors. First refers to the sex ratio at birth while second refers to past history of births, deaths and migration. Indepth study of past history becomes necessary because if we want to "speculate with some confidence on the future we shall have to look into the past. We should look for those attributes of the population which can be depended upon for their predictive value, and will arm us with a set of firm facts, and what is more, trends. If we happen to have firm facts and yet no trends, that too, is important for that gives us a measure of the uncertainties and their range to which our population has been subject in the past and will be in the future. The corner stone of the edifice on which past and future trends of the population can be constructed is mainly composed of three elements; the birth rate, the death rate and the age sex composition of the population, all three at different ages".[1]

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1. Asok Mitra, India's Populations Aspects of Quality & Control, Abhinav Publications, New Delhi.

To get information on Age-Sex distribution at the first instance looks quite simple. But close evaluation of such an information obtained through census has different story to tell. The following observation of the Acturial Report of 1881 is still largely valid today in spite of the great strides made in the last hundred years. "the information is so extremely defective that it would be impossible to deduce any results which could be of the slightest value. Should the present census turn out to have been fairly complete through out India, even as regards the male population only, it may then be hoped that on the occasion of the next enumeration sufficient data will exist not only to enable us to correct and improve the estimates arrived at on the present occasion, but also to undertake similar inquiries for the remainder of India, with a very fair chance of success. Until then, however, except in the event of an extraordinary development in the registration of vital statistics, it will be practically impossible to arrive even at approximate results for the remaining provinces".[2] In general, census in backward countries suffer from much greater degree of under-enumeration than those in more advanced countries.

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2. G.F. Hardy, Acturial report of 1881, para 212.

The reasons are many, including extensive illiteracy, difficulties of communication, the general apathy and absence of co-operation. In addition, the inferior position women generally occupy in society like ours leads to a greater degree of under-enumeration of females as compared to males. Moreover, the need for precision and accurate measurement is rarely felt and age for instance, tend to be reported in an approximate form.

The inaccuracy of the census age returns in India is an established fact and has been a subject of special interest in every census report. Census age returns even in the most advanced countries are defective in some way or the other, but the degree of error is not of such a magnitude as to effect their usability, seriously, unlike the case in many developing countries. The Indian age data suffer from errors of several types but broadly two types are most important, (a) those caused by omission or double counting and (b) those due to mis-statement of age.

It is important, therefore, before using them in constructing life table, to adjust the tabulated results of these census errors of enumeration. Construction of life table from two consecutive censuses is impossible without correction and smoothing of data and hence

age distribution involves considerable manipulation and adjustment of basic data.

There is ample evidence to show that Indian Census data suffer from both under enumeration particularly in 0-4 age group and misstatement of age. But it is very difficult to locate the extent at which both operate separately. There is a marked difference between mis-statement of age and under-enumeration in the sense that in the former an over-estimate in one age group necessarily results in underestimate in another, in latter, as it is outside the domain of the enumerated population it becomes difficult to locate the extent of under enumeration due to absence of chain effect. Hence analysis of such errors mostly confined to age mis-statement.

Certain effects of inaccuracy in age return may be studied from the single year of age count but others are best followed from grouped data. The first kind of effects can be studied with reference to (a) each age (b) all ages which have the same unit digit and (c) all ages taken together. The second type of effects refer to discussing the age ratios and sex ratios of the unadjusted and the adjusted age distribution as defined in U.N. Manual II "methods of appraisal of quality of Basic Data for population Estimates".

The important tests related to single year age returns are Whipple's index of concentration at ages ending in multiples of 5 and 0 and Myre's Index of digital preference. Utilizing grouped data, main tests are age ratios, sex ratios and joint score.

(1) Single year age data

Indices of concentration and preferences: Whipple suggested an index of concentration which is applied to ages 23-62 years. It is obtained by telling the percentage of persons counted at ages multiple of 5 to one fifth of the total enumerated population in the range. If there is no concentration the index would be 100, but if every body returned his age only in multiples of 5 or 0, the index would be 500. The observed index would thus lie between 100-500. The method assumes approximately uniform decrement with age in the number of persons in the true population.

Myres has developed a more comprehensive index to reflect the preference or dislike for each of the ten units digits 0 to 9. Steps followed in the computation of the Myres Index are as follows: (a) Sum the populations ending in each digit over the whole range, starting with the lower limit of the range (e.g., 10, 10,...11, 21...61).

(b) Sum the population excluding the first population combined in step (a).

(c) The two series thus obtained were blended into one by giving weights 1,2,3,...10 for the first series and 9,8,7...1,0 for the second series.

(d) Convert figures obtained in step (c) into percentages.

(e) Take the deviations of step (d) from 10 the expected value of each percentage.

Deviations from percent irrespective of sign, when added up give Myre's index of digital preference. The reasoning behind this blending as enunciated Myres is, "Since beginning at a given digit over states the preference for that digit and progressively over states it (relatively) for subsequent one's 'complete justice' to each digit may be achieved, if start is made at each one in turn".[3]

The Indices for 1961-and 1971

Index of concentration and Index of preference in general more together, Table 2 shows the indices of preference and concentration for 1961 and 1971. The

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3. R.J. Myres, "Errors and bias in the reporting of Ages in Census date", Transaction of the Acturial Society of America, vol.41, Oct. 1940.

TABLE 2

INDEX OF CONCENTRATION AND PREFERENCE

	1961				1971			
	Index of Concentration		Index of Preference		Index of Concentration		Index of Preference	
	M	F	M	F	M	F	M	F
All India	282	294	70.7	75.1	294	300	61.4	63.8
Andhra Pradesh	327	343	89.0	93.5	332	346	71.8	79.4
Maharashtra	245	259	58.4	62.1	279	299	57.0	63.0
Orissa	261	276	62.5	67.7	272	286	55.7	60.9
Rajasthan	336	359	92.0	101.0	341	359	76.6	83.8
Uttar Pradesh	324	314	86.8	82.7	333	364	74.6	72.6

index of concentration was 282 for males and 294 for females in 1961 which increased to 294 and 300 for the respective sex in 1971. Value of index varies from state to state. The over all picture as depicted by concentration index reveals that age reporting is very poor in all the states under consideration and bias in the age return of females is slightly greater than that in the case of male. State-wise and all India figure show that compared to 1961 bias in age returns increased considerably in 1971. For example, 1971 census Age Tables report mentions, "State wise comparison of Whipple's index of concentration with the previous years indicates that the concentration at digits 0 and 5 has increased as compared to 1951 and 1961 in most of the states".[4] There is lack of comparability in preference index for the two consecutive census due to adoption of different age ranges still one can safely conclude that index is high enough to suggest that high preference exists for some particular digits. Comparing the five states under consideration except for Maharashtra and Orissa other three lie above the all India average.

Myre's Index shows the preference for each digit. Table 3 gives the ratios of the blended population at the

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4. Age Tables: Census of India 1971, Paper 2 of 1977.

TABLE 3A

PERCENTAGE RATIO OF DIGITAL PREFERENCE

(MALE)

	0	1	2	3	4	5	6	7	8	9
1961										
Andhra Pradesh	37.0	2.0	7.2	3.2	3.9	27.4	5.7	2.5	8.7	2.4
Maharashtra	24.0	5.2	11.1	4.4	5.2	24.1	7.7	5.4	8.5	4.4
Orissa	27.9	3.8	9.7	4.5	5.4	23.3	6.9	4.9	9.7	3.9
Rajasthan	36.8	2.7	7.5	3.3	3.4	29.4	4.6	3.6	6.2	2.5
Uttar Pradesh	34.6	2.5	8.6	2.9	3.9	28.8	5.9	3.2	7.4	2.2
India	29.7	3.6	9.4	3.9	4.6	25.7	6.6	4.5	8.6	3.4
1971										
India	29.3	4.2	9.9	4.8	5.5	23.4	6.9	4.7	9.6	3.7
Andhra Pradesh	32.7	3.1	8.4	4.2	4.7	24.7	6.5	3.1	9.6	3.0
Maharashtra	24.6	5.2	10.7	5.0	5.7	24.1	5.6	5.4	9.2	4.5
Orissa	25.2	4.6	10.2	5.2	5.9	22.4	6.9	5.3	10	4.3
Rajasthan	32.4	3.3	9.2	4.6	4.1	25.9	5.8	4.0	8.2	2.5
Uttar Pradesh	32.0	3.1	8.8	4.0	5.0	25.3	6.4	3.6	8.8	3.0

TABLE 3B

PERCENTAGE RATIO OF DIGITAL PREFERENCE
(FEMALE)

	0	1	2	3	4	5	6	7	8	9
					1961					
Andhra Pradesh	39.0	1.6	6.5	3.9	3.5	27.8	5.2	1.9	8.4	2.2
Maharashtra	26.1	4.9	10.4	3.8	5.1	24.5	7.3	5.1	8.3	4.5
Orissa	30.0	3.4	9.2	4.3	5.4	23.9	6.4	4.6	9.2	3.6
Rajasthan	40.0	2.0	6.3	2.7	3.2	30.6	3.8	2.8	6.4	2.2
Uttar Pradesh	34.1	2.1	8.4	3.1	4.6	27.3	5.4	2.8	9.9	2.3
India	31.6	3.1	8.8	3.6	4.6	25.9	6.0	4.0	9.2	3.2
					1971					
India	28.7	4.1	9.5	4.6	5.5	23.2	6.5	4.4	10.0	3.5
Andhra Pradesh	34.7	2.5	7.3	4.5	4.3	25.0	6.1	2.6	10	2.6
Maharashtra	27.4	4.6	10	4.3	5.3	24.2	6.4	5.0	8.7	4.1
Orissa	27.3	4.2	9.7	5.0	5.6	23.0	6.4	5.4	9.4	4.0
Rajasthan	35.5	2.6	8.3	4.1	4.0	26.4	5.2	3.3	8.5	2.1
Uttar Pradesh	31.6	2.7	8.8	4.3	5.5	24.2	6.1	3.4	10.5	2.9

selected age to that at digit 9. Table 3 clearly indicates that 9 is the least preferred digit followed by digit 1. These tables prominently show that among both male and females there is strong tendency to return age in numbers ending 0 and 5 the next preferred digits are 2 and 8.

Grouped Age Data: Application of age ratios and sex ratios

As examined in the earlier paragraphs, there is little doubt about serious distortions in the single year age counts. Distortions in individual ages may not bear the influence on group totals if the errors at individual ages balance out within each age group. Hence to examine the business in quinquennial age group totals United Nations Secretariat have recommended two indices[5] which are known as (a) Sex ratio score and (b) Age ratio score.

(a) Sex ratio score

In the statistically advanced countries misreporting of sex is negligible but in the developing countries "the principal problem relating to the quality of the data on sex collected in census concerns the differential

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5. "Accuracy tests for census Age Distributions tabulated in five year and ten year groups", United Nations Population Bulletin No.2, 1952.

completeness of the coverage of the two sexes".[6]

To measure the sex composition three simple numerical tools are devised i.e. (1) Masculinity proportion, (2) Sex ratio, (3) the ratio of the excess on deficit of males. It is interesting to note that various measures of sex composition convey essentially more or less same information and interchangeable through simple exercise.[7]

But in general analysis sex ratio is heavily utilized, "because the sex ratio may vary widely from one population subgroup to another, it is presently desirable to consider separately the sex ratios of the important component subgroups in any detailed analysis of the sex composition of a population".[8]

Sex ratio is defined as the ratio of number of males enumerated per 100 females. "If the age distribution of the two sexes be accurate or both suffer from the same

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6. H.S. Shryock & J.S. Siegel, The Methods & Materials of Demography, vol.I, Department of Commerce, USA, 1971.

7. (a) Masculinity Proportion: $\frac{\text{Sex ratio}}{1 + \text{sex rtio}} \times 100$

   (b) Sex ratio: $\frac{\text{Masculinity proportion}}{1 - \text{Masculinity proportion}} \times 100$

   (c) Percent excess or deficit of male:
   Masculinity Proportion - (1-Masculinity Proportion)x100

8. Shryock & Seigel, op. cit.

kind of error and to the same extent, sex ration will change very gradually from one group to another as a result of sex differentials in age specific mortality and migration".[9]

Sex ratio score (SRS) is the mean difference between the sex ratios of all the pairs of successive age groups.

$$SR_i = \frac{M_i}{F_i} \times 100$$

$$SRS = \frac{1}{n-1} \sum_{i=2}^{n} \left| SR_i - SR_{i-1} \right|$$

Where SR_i is sex ratio of the ith subgroup and M_i and F_i are the total enumerated males and females in that age group. SRS is the sex ratio score for the entire sex age distribution. Thus the average mean difference between the sex ratios of the successive age groups taken irrespective of sign, defines the sex ratio test.

(B) Age Ratio Score (ARS)

Errors concerning age misreporting, probably have been examined more intensively than the reporting errors of any other kind in the census. Shryock and Seigel examined the causes of misreporting through intensive analysis of age data and asserted that this kind of evaluation is necessary because, "Many of these errors

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9. Age tables Census of India 1961, Paper No.2 of 1963.

are readily apparent, measurement techniques can be more easily developed for age data and the actuarries have had a special practical need to identify errors and to refine the reported data for the construction of life tables".[10]

Such kind of errors can arise due to many reasons, it can be due to error of enumeration, coverage error, failures to record age and misreporting of age. Extent of such defects can be roughly if not specifically for each kind of error can be determined by the age ratio score.

Age ratio is defined "as the number reported in one age group per 100 of the mean of numbers reported in the two adjacent groups".[11] Normally the age ratio for any quinquennial group should be 100. Only "irregularities resulting from disturbance of population trend due to factors like war casualties, temporary birth deficits or migratory movements involving mainly certain sex-age group or from chance fluctuations in small population affect the ratio".[12]

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10. Shryock & Seigal, Op. cit.

11. UN: Manual II, op. cit.

12. Age tables 1961, op. cit.

Age ratio at ith subgroup is given as

$$HR_i = \frac{200\ P_i}{P_{i-1}+P_{i+1}}$$

Where P_i is the population (it can be of either sex) enumerated in the ith age group and denominator is the summation of the preceding and succeeding age groups to ith age group

$$ARS = \frac{1}{n-3} \sum_{i=2}^{n-2} \left| AR_i - 100 \right|$$

Age ratio score is obtained as the mean deviation of the age ratios from 100, taken irrespective of sign.

(c) Joint Ratio Score (JRS)

As a outcome of large number of calculations carried out by United Nations it is concluded that more reliance should be placed on the sex ratio score than on the age ratio score of the two sexes, because latter are more severely affected by irregular population changes. Instead of ignoring completely the age ratio they devised a joint score[13] by summing up the age ratio scores for the two sexes and three times the sex ratio.

$$JS = ARS_m + ARS_f + 3\ SRS$$

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13. United Nations - Accuracy Tests, op. cit.

where M and F is for males and females repsectively.

After putting lots of labour and carrying out number of exercises based on Swedish population United Nations suggested for evaluation, a standard of age ratio score of 2.6 for males and 2.4 for females, with a sex ratio score of 1.5 giving a joint score of 9.5 should be considered as a yardstick. Sex ratio score, age ratio score and joint score for various groups for 1961 are worked out based population returns of 1961 Census together with results for 1971 as presented by paper 3 of 1977 are presented in table 4. Table 4 clearly shows that age ratio score, sex ratio and joint ratio score show wild deviations from the standard values as already mentioned above. Erratic fluctuation in the sex ratios and the deviation of the age ratios from 100 are indicative of the error in the five year age distributions.

Comparison of the states (1) age ratio score, (2) sex ratio score and (3) joint score with Sweden brings out relative inaccuracies in the Indian data. In 1961 joint score was minimum 45.1 for Maharashtra and in 1971 also in Maherashtra it was 41.9 which was nearly four times the standard joint score of 9.4. On the other extreme is Rajasthan where deviation is nearly eight times from the standard other states lie in between.

TABLE 4

AGE RATIO SCORE AND JOINT SCORE BY STATES AND DEVIATION OF MYER'S INDEX FROM 50 (1961)

		0 - 4		1 - 5		2 - 6		3 - 7		4 - 8	
		M	F	M	F	M	F	M	F	M	F
Andhra Pradesh	MI	3.3	4.5	6.3	6.7	2.7	3.1	7.3	7.6	1.9	3.2
	ARS	26.2	30.4	32.2	47.1	27.2	34.2	40.0	54.3	29.7	35.2
	SRS	7.7		11.3		11.8		9.9		8.3	
	JS	79.3		113.2		96.8		12.4		89.8	
Maharashtra	MI	0.1	0.3	0.1	1.3	2.4	1.0	3.3	4.3	0.8	0.3
	ARS	9.3	14.2	7.1	11.0	9.9	10.3	17.8	25.8	10.2	14.3
	SRS	7.2		10.3		11.3		10.3		68.7	
	JS	45.1		49		54.1		74.5		50.6	
Orissa	MI	2.7	2.3	3.2	3.8	0.1	0.8	5.0	5.4	0.2	0.5
	ARS	16.9	24.4	19.6	19.4	10.3	12.4	27.3	33.5	17.2	23.1
	SRS	7.9		13.8		10.1		7.8		8.7	
	JS	65		80.4		60		84.2		66.4	
Rajasthan	MI	3.7	4.2	3.7	5.1	1.8	3.4	5.7	6.9	2.8	3.2
	ARS	26.6	31.3	26.0	34.8	25.2	32.9	35.3	45.9	29.8	35.4
	SRS	8.7		13.3		12.7		10.3		9.2	
	JS	84		100.7		96.2		112.1		92.8	
Uttar Pradesh	MI	2.5	2.3	3.2	4.5	0.2	1.2	5.2	6.7	0.8	0
	ARS	18.9	19.2	20.9	26.7	16.6	20.0	29.9	35.6	19.1	20.8
	SRS	6.7		8.4		8.1		7.6		6.6	
	JS	58.2		72.3		60.9		88.3		59.7	

Source: Based on the age returns (1961 Census)

table..contd...

table 4..contd...

AGE RATIO SCORE AND JOINT SCORE BY STATES
AND DEVIATION OF MYER'S INDEX FROM 50
(1971)

		0 - 4		1 - 5		2 - 6		3 - 7		4 - 8	
		M	F	M	F	M	F	M	F	M	F
Andhra Pradesh	MI	3.1	3.7	4.9	6.0	1.5	2.4	6.8	7.5	1.4	2.0
	ARS	19.4	27.1	32.8	41.4	25.1	31.3	40.0	47.8	28.1	35.8
	JS	63.9		100		83.7		112.2		83.6	
Maharashtra	MI	3.5	1.6	2.9	1.6	3.3	0.3	2.2	4.8	2.2	0.4
	ARS	7.4	11.1	9.7	15.2	14.1	12.9	19.5	25.2	11.6	15.8
	JS	41.9		48.8		51.3		65.4		48.4	
Orissa	MI	1.1	1.8	1.7	2.6	0.5	0.4	4.4	4.6	0.5	0.2
	ARS	15.9	16.7	18.3	22.8	15.8	18.6	26.9	27.0	19.3	21.8
	JS	43.3		63.3		61.1		76.4		64.8	
Rajasthan	MI	3.6	4.5	2.9	4.6	0.4	2.0	5.6	7.0	2.0	2.6
	ARS	22.1	24.0	26.1	34.3	26.1	26.7	35.4	39.8	26.6	35.5
	JS	65.3		92.5		80.1		97.4		80.4	
Uttar Pradesh	MI	2.9	2.9	3.8	4.5	0.5	1.1	5.7	6.5	0.9	0.3
	ARS	19.0	15.1	26.2	29.4	25.8	27.3	32.5	35.3	23.1	22.0
	JS	61.1		75.7		74.6		86.4		65.5	

Source: Age Tables, Census of India, Paper 3 of 1977.

Considering these joint scores which is at least four time, as high as one get in the comparatively more developed countries, it becomes necessary to make use of smoothing techniques for the data of five selected states for 1961 as well as 1971. It is note worthy that the census organisation has already smoothed the age data of each sex for 1961 & 1971 censuses but the organisation has used some what different techniques in the later census compare to the one used in 1961 census. In constructing any life table one requires smoothed age data for two time points, where in smoothing is based upon exactly the same technique. In view of this the following chapter describes the methods of adjusting age returns for the 1961, 1971 censuses.

CHAPTER III

ADJUSTMENT OF AGE RETURNS AND METHODOLOGY FOR CONSTRUCTION OF LIFE TABLE

It is generally believed that under the normal circumstances, except at the childhood and very old ages where mortality changes rapidly, population should normally change from age to age in a regular manner along a smooth curve. There should be slightly fewer persons at a given age compared to those at the preceding year of age but a few more persons than the proceeding year of age. If age returns are perfect or close to reality, the more usual types of variations in mortality and fertility, excluding voluntary limitation of family, do not disturb the smooth progression of population by age. This smooth trend can be disturbed in certain age sectors due to past variations in births, deaths or migration. The abberation caused by these disturbing factors will be passed on the next 10 years older group from census to census. Peaks or troughs due to births and deaths usually occur, when a certain population sector is selectively depleted by war, epidemic or famine. But case becomes complicated if types of distortions in the single year age distribution is different from the abnormalities

in age distribution as discussed above and instead are caused due to (i) ignorance of age, (ii) deliberate mis-statement, (iii) omission in enumeration. In India where there is mass illiteracy, people are ignorant of their own age. The point is that by and large, age recorded by the census and any field survey represents, at best, an estimate of the informant within the limitation of mass illiteracy and general ignorance of precise age. In this process, certain age digits came to have a heavy concentration at the expense of others as already discussed in detail in chapter II.

Once it is established that basic age/sex data suffer from certain types of errors, it becomes essential to eliminate these before utilizing data for getting the survival ship ratio which constitute the starting point in the construction of life tables. This chapter deals with the adjustment of the basic data to make it viable for the further sophisticated treatment. For the convenience this chapter is divided into three heads, viz. (A) Smoothing, (B) Migration, (C) Methodology for construction of life table.

(A) Smoothing:

In construction of meaningful life table through Census survival rates, the first problem to confront with

is quality of data. For countries where data is poor, "the demographers and actuaries using census survival rates have been forced to adjust the original census age distributions before calculating survival, or to adjust the rates after calculation, because of the several effects of age misreporting combined with differential omissions by age. Unadjusted survival rates that over one or that are absurdly low are common. The methods of adjusting the age distribution (or the raw survival rates) to remove the effects of age misreporting are essentially arbitrary, and when the reported age distributions are seriously distorted, the age pattern of mortality embodied in the estimated life table contains a strange component of the smoothing procedure used as well as of the actual age schedule of mortality".[1]

A variety of methods are available for smoothing or graduation of age data. The more important ones are: (i) Graphic method, (ii) Curve fitting or mathematical Method, and (iii) Summation method. Any of these is good enough in the case of population which do not exhibit any wide discrepancy in the age returns. But in the

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1. UN: "Methods of Estimating Basic Demographic Measures from incomplete data", Manual IV New York, 1967.

populations, where the age returns are seriously distorted, as in the case of India, direct treatment of unadjusted age data by any of these methods may not give better results. These statistical methods are designed to deal with random fluctuations, they may fail to remove large systematic irregularities. It is therefore, necessary to adjust the population for omission or excess in ages or age groups to the extent feasible. It is not practicable to remove biases in individual year of age data completely. It is, therefore, desirable to group the single year age data into suitable quinquennial group tables. Irregularities in the group tables, may first be removed as far as possible and only then may a suitable smoothing technique be applied. Because "unless these group totals themselves lie on a smooth curve, use of any formula which reproduce the group totals, will produce a set of values which show many undulations, though may free from discontinuities".[2]

Smoothing process as adopted in 1971 census was slightly different from that of 1961 census i.e. approach to deal with 0-7 age group was substantially different from procedure adopted in 1971. Therefore, to make the

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2. Age tables: Paper 3 of 1977, p.27.

series comparable 1961 data is smoothed again, adopting 1971 procedure. That is why it is necessary to give brief note on the procedure adopted in both the censuses.

1961 Smoothing Process

The various steps adopted in 1961 smoothing method are as follows: (i) the enumerated population count by single year of age was first smoothed by the 11 term moving average. It largely removed the wide fluctuations and gave a first approximation to the true distribution but contained some systematic biases. This process not applied to age above 72 as the census age record above this was considered to be of very poor quality.

(ii) The adjusted individual age population as obtained by moving average were grouped in quinquennial ages starting with 3-7.

(iii) The quinquennial age group totals thus received were further smoothed by the formula $N_0 = \frac{1}{4}(N_{-1} + 2N_0 + N_1)$, where N_0 is the corrected quinquennial groups total and $N_{-1} + N_1$ preceding and succeeding group respectively.

(iv) These adjusted totals were distributed into single year of age population by the Kozakeicz's osculatory Interpolation formulae. This yielded population between 8-67.

(v) Special methods were adopted to obtain corrected populations at age 0-7 and 68, 69 and 70+.

Osculatory interpolation gave the single year of age population upto age 67. Population at the two ages 68 & 69 were obtained by taking the second difference constant and equal to the average for the ages 63-67. The estimated populations at age 68 and 69 were subtracted from the population enumerated aged 68 and above. This gave the population aged 70 and above.

Mortality varies so sharply at the first few ages that the more common graduation curves are not very appropriate for the purpose. After a good deal of experimentation with various alternatives it was finally decided to redistribute the enumerated population at ages 0-7 together with half the estimated excess at age 8 in accordance with the equation

$$Px = A + Hx + BC^{x}$$

where C is given. "In view of the improvement in mortality, a change from C=.45 to C=.65 seemed to be in order, particularly when it fitted quite satisfactorily with the census enumeration data for several states. It will be recalled that Hardy and later on Ackland took C=.65 for graduating values of l_x for ages 0-12 in his life table".[3]

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3. Age Tables: Census of India 1961, Paper No.2 of 1963, p.34.

P_x represents the population at age x, A, H & B are constant to be determined from the census data.

From the nature of the problem H must be negative so that $A+Hi_x$ would represent a population decreasing linearly with age. The role of the component corresponding to BC^x is to regulate largely the element of extra mortality in childhood. The multiplication of the component C (a positive fraction above .5), for every unit increase in age makes for a rapid fall in P_x in childhood ages.

1971 Smoothing Process

There were four important steps adopted in the smoothing of the age returns of 1971.

(i) The census count at each age was grouped into a set of five quinquennial age groups and a suitable group was determined through study of Joint Score.

(ii) From the five years total, single year age of population were estimated by using the Grabill's weighted average of sprague's coefficients.

(iii) No change was made in the population of the first and the last group. Those of the second and last but one quinquennial groups were smoothed by the formula

$$W_0 = \tfrac{1}{4} (W_{-1} + 2 W_0 + W_1).$$

(iv) Population of younger age group i.e. 0 age 0 and 1 were obtained by special methods by making use of the results of the census evaluation studies (CES).

Grabill's coefficients were used to estimate values upto age 71 (2-6 grouping), 73 (4-8 grouping), 74 (0-4 grouping). The case may be depending on the group chosen. Unadjusted age data above these ages were added to the values estimated for 70, 71 etc. These have been presented as 70 and over.

Use of Grabill's coefficient gave estimates by single year of age above age 12 in case of grouping 2-6 grouping. The age group 7-11 was smoothed by formula $P_x = \frac{1}{4}(W_{-1} + 2W_0 + W_1)$. The number of persons at individual ages from 2-11 were then estimated by using Sprague's coefficients.

Results obtained from graduating the 1961 population according to 1971 procedure are given in table 6 and in curves 1 to 10. Analysis of the curves clearly indicates that 1971 procedure returned more population at the younger age groups, for 1961 as compared to the returns obtain by adopting 1961 smoothing method. Except for the Orissa (female) and Maharashtra (Female) 1971 procedure has returned more population in younger age groups and less in the older age groups for 1961 population.

TABLE-5

1961 SMOOTHED POPULATION (1961 PROCEDURE)

Age Group	Andhra Pradesh		Maharashtra		Orissa		Rajasthan		Uttar pradesh	
	M	F	M	F	M	F	M	F	M	F
0-4	2754700	2779900	3101700	3156000	1356400	1395100	1791700	1690500	6307800	5859200
5-9	2233200	2229700	2695200	2581900	1116000	1160600	1450600	1364500	4829500	4568000
10-14	2020900	2015500	2345000	2140500	981900	992100	1238300	1149300	4307200	3962100
15-19	1817100	1825200	2011700	1852200	853500	836200	1067700	956000	3827900	3368200
20-24	1608000	1612900	1757400	1728200	743500	723200	926800	809300	3353600	2916800
25-29	1431500	1422200	1632000	1596900	683000	667900	807800	722800	2962400	2676900
30-34	1273500	1231900	1482200	1348600	635800	616900	704300	642000	2630500	2443200
35-39	115600	1031200	1249500	1092500	554600	525200	594600	529300	2305100	2062900
40-44	964800	874300	1063900	896700	468200	443700	499700	436200	1988800	1735400
45-49	816400	741000	866200	73700	397600	378200	425900	358300	1699000	1459200
50-54	663200	610200	694700	593400	326600	314000	347200	285100	1401300	1195800
55-59	516000	484400	534000	468200	249300	248800	263800	220900	1107000	953300
60-64	379100	365100	384600	356800	173100	184600	185900	164100	827600	725800
65-69	252100	249000	246600	245100	108500	124100	119700	108600	559000	494700

contd...

TABLE : 6

1961 SMOOTHED POPULATION (1971 PROCEDURE)

Age Group	Andhra Pradesh		Maharashtra		Orissa		Rajasthan		Uttar Pradesh	
	M	F	M	F	M	F	M	F	M	F
0-4	2846135	2805070	3178098	3184712	1387794	1405513	1948253	1776354	6468083	6327577
5-9	2391939	2422757	2835261	2892235	1158197	117747	1524634	1395551	5302352	4624967
10-14	2039698	2054644	2410258	2203211	981098	1052926	1255325	1119845	4410294	3766379
15-19	1800757	1841024	2004601	1965696	893859	936691	1096084	978812	3805148	3392198
20-24	1600610	1533237	1799994	1752644	808235	820452	964903	870347	3421143	3103757
25-29	1624737	1455734	1622524	1550837	722597	704151	838651	759544	3035244	2817035
30-34	1260918	1255243	1450158	1340060	636337	589762	710934	643350	2651147	2509429
35-39	1078554	1023802	1287421	1087975	542919	492467	584518	523573	2292605	2103472
40-44	930900	859752	1079515	883294	453717	412975	489280	430229	1949909	1751807
45-49	785499	730881	897056	728823	386148	352316	416574	349594	1664970	1454632
50-54	629493	592067	716165	583583	314537	289821	335052	273833	1347958	1178086
55-59	486166	467302	554886	461168	236786	228278	250852	213137	1059987	950128
60-64	355381	351499	408938	348580	162470	165601	176335	156976	791677	716651
65-69	234060	235531	261395	236291	101467	114026	111217	101699	516444	475954

ANDHRA PRADESH

SMOOTHED(MALE) POPULATION

1961

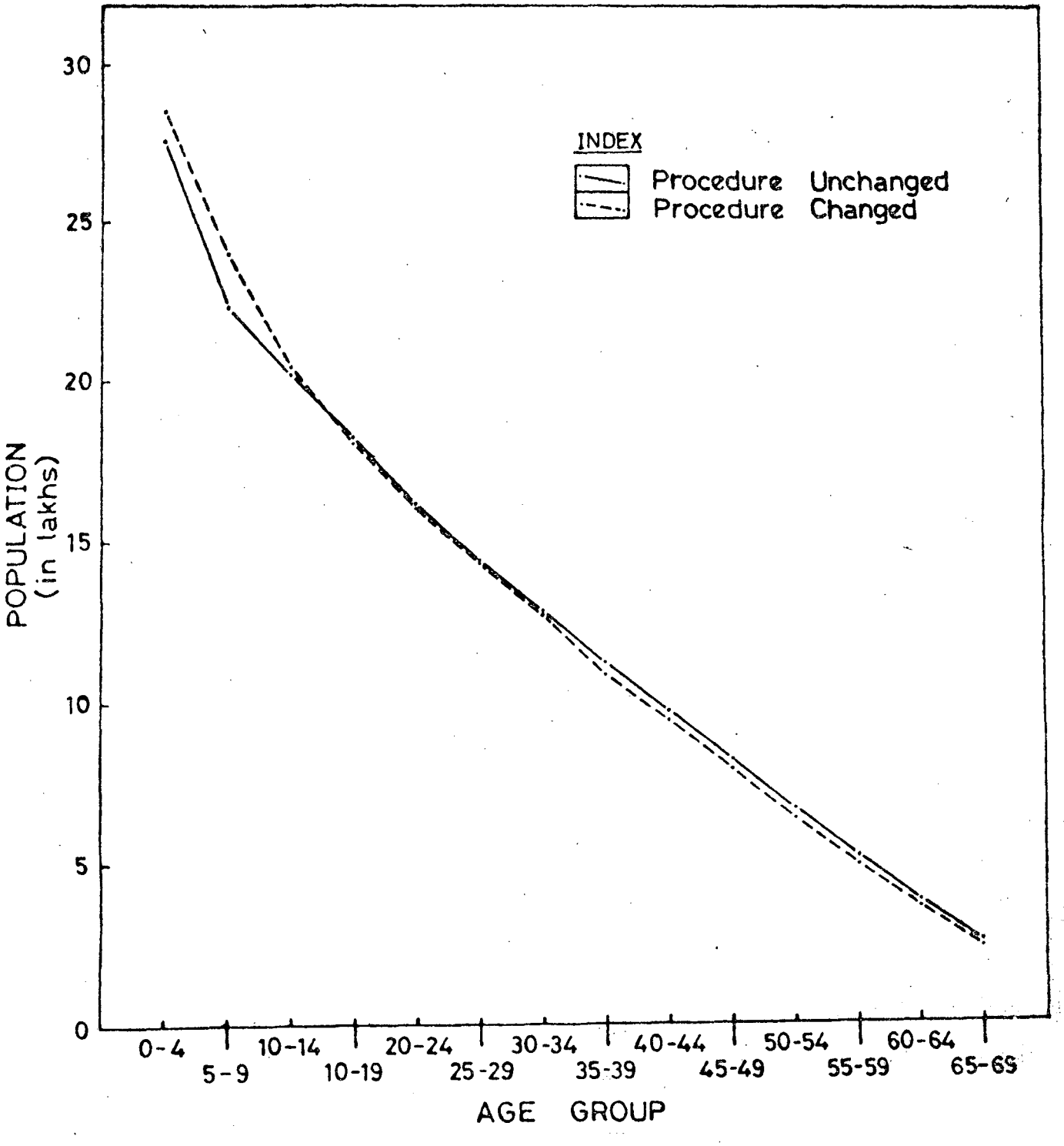

Fig : 1

ANDHRA PRADESH

SMOOTHED(FEMALE) POPULATION

1961

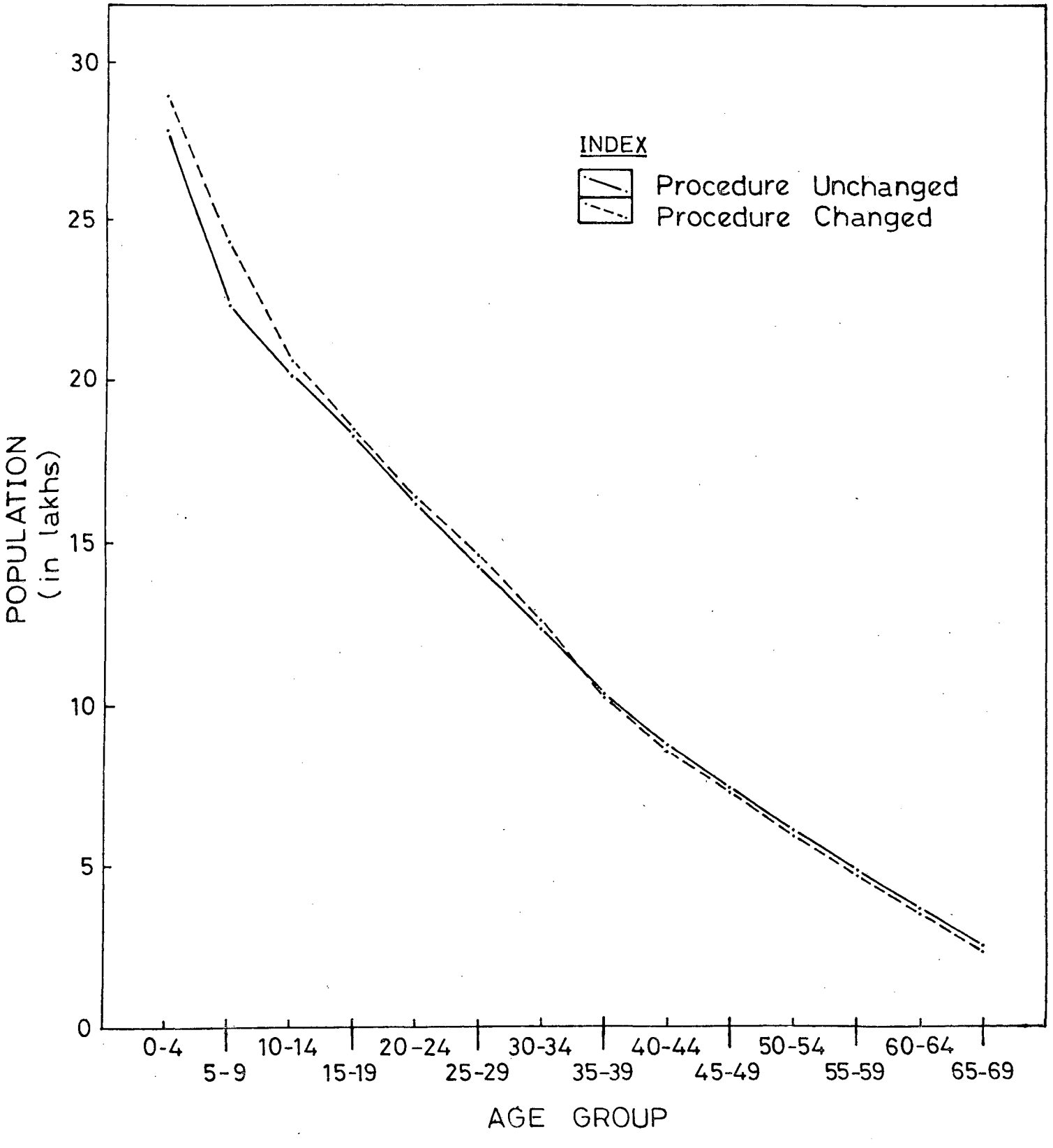

Fig: 2

MAHARASTRA

SMOOTHED(MALE) POPULATION

1961

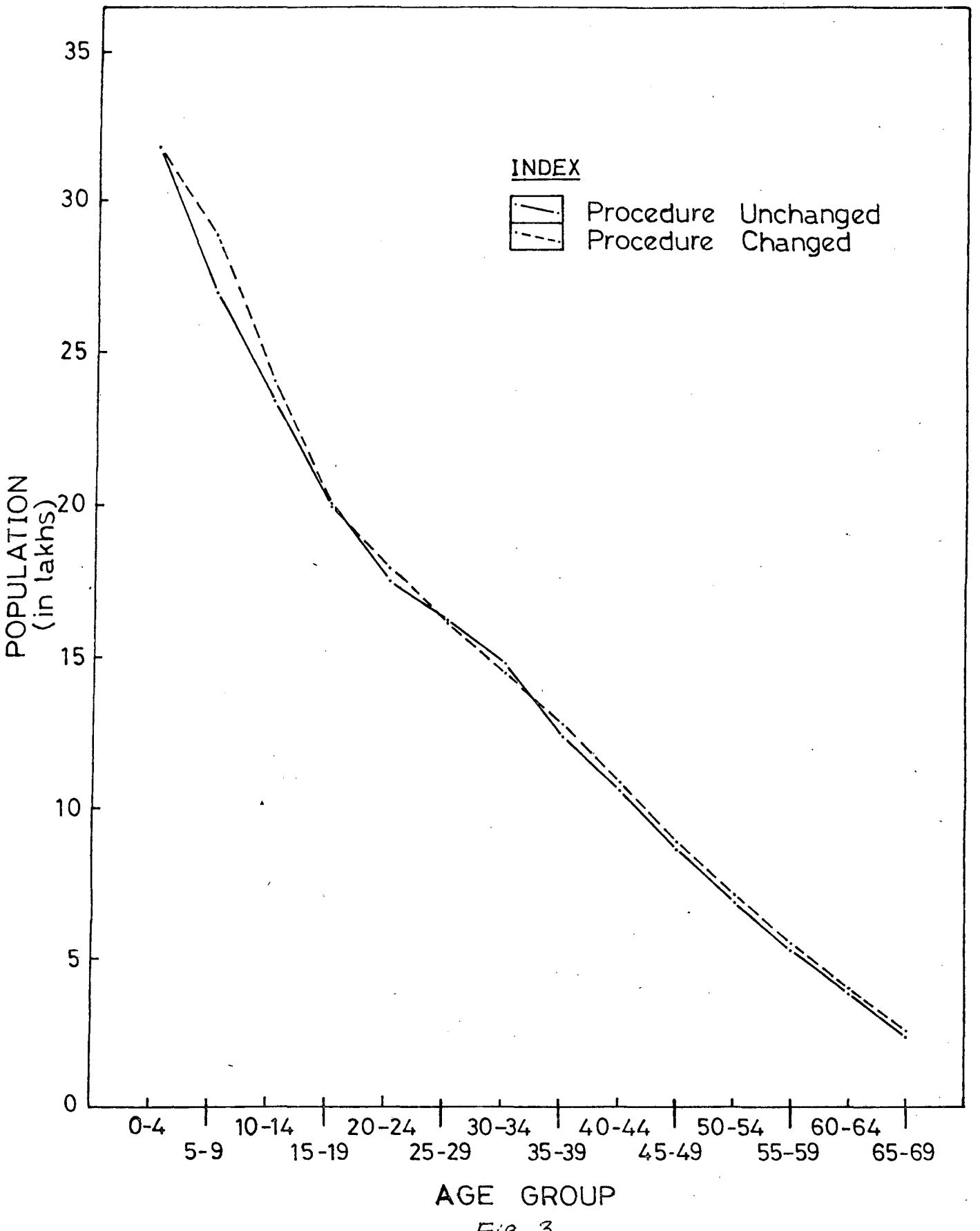

Fig -3

MAHARASTRA

SMOOTHED(FEMALE) POPULATION

1961

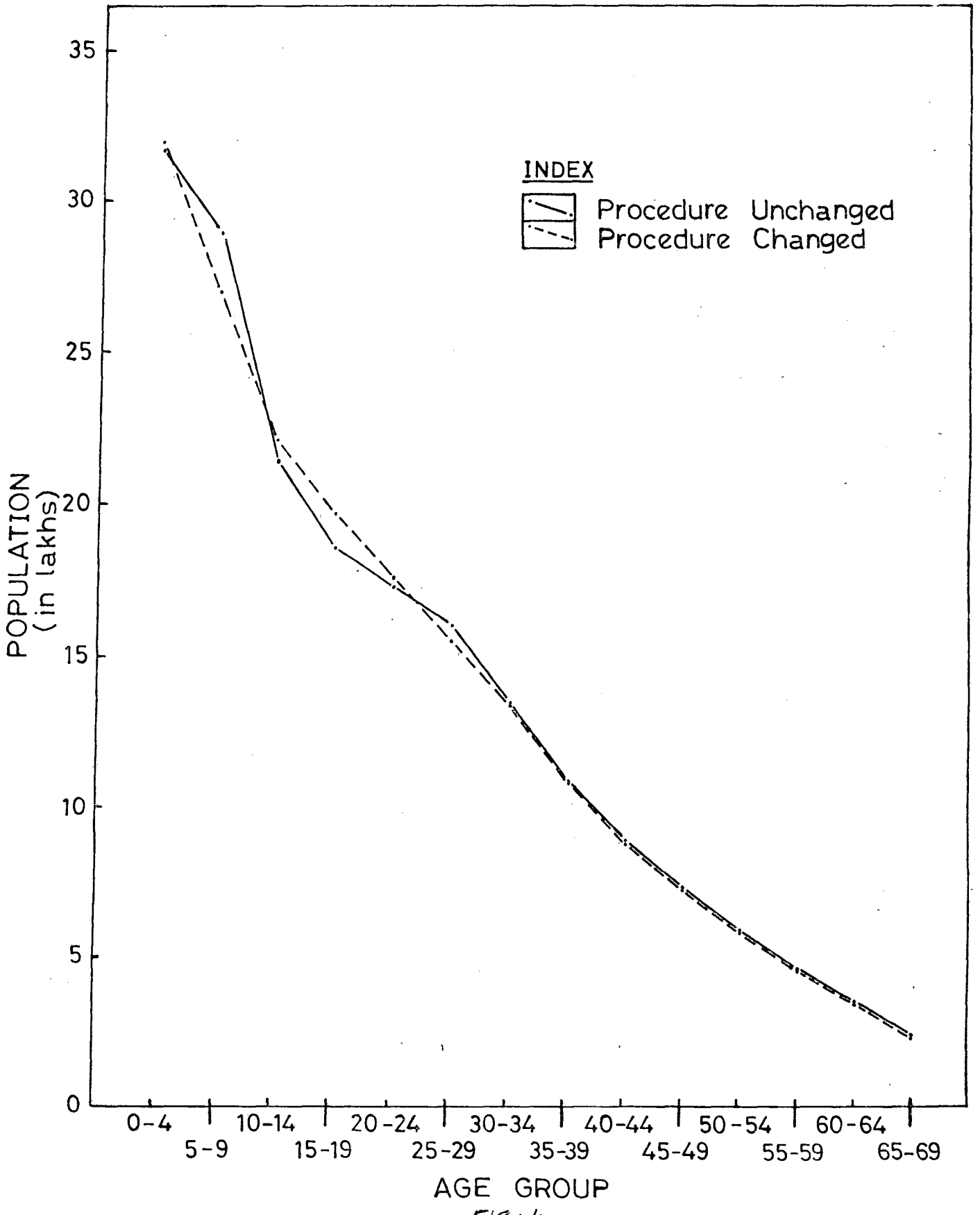

Fig: 4

ORISSA

SMOOTHED(MALE) POPULATION

1961

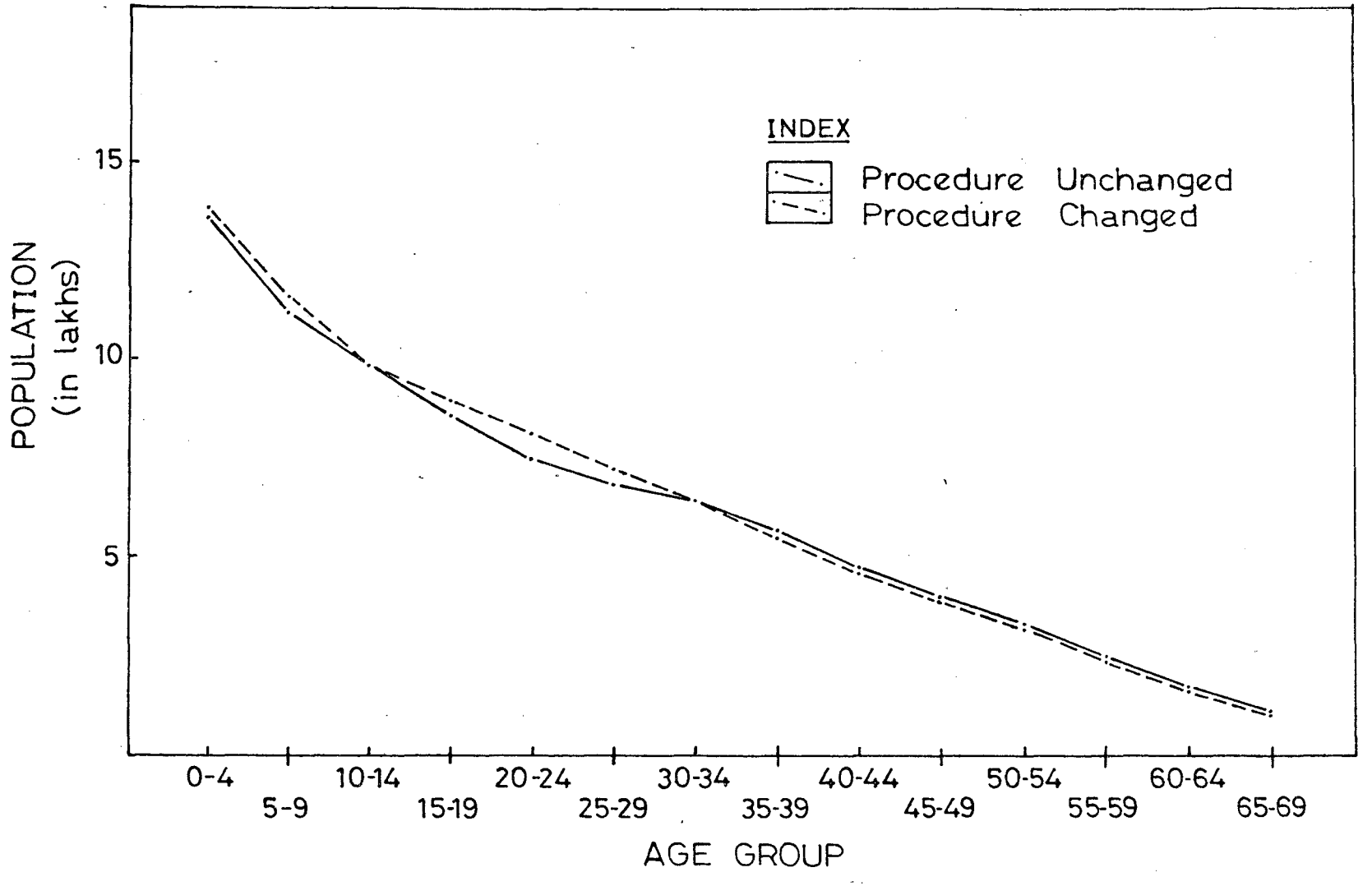

Fig 5

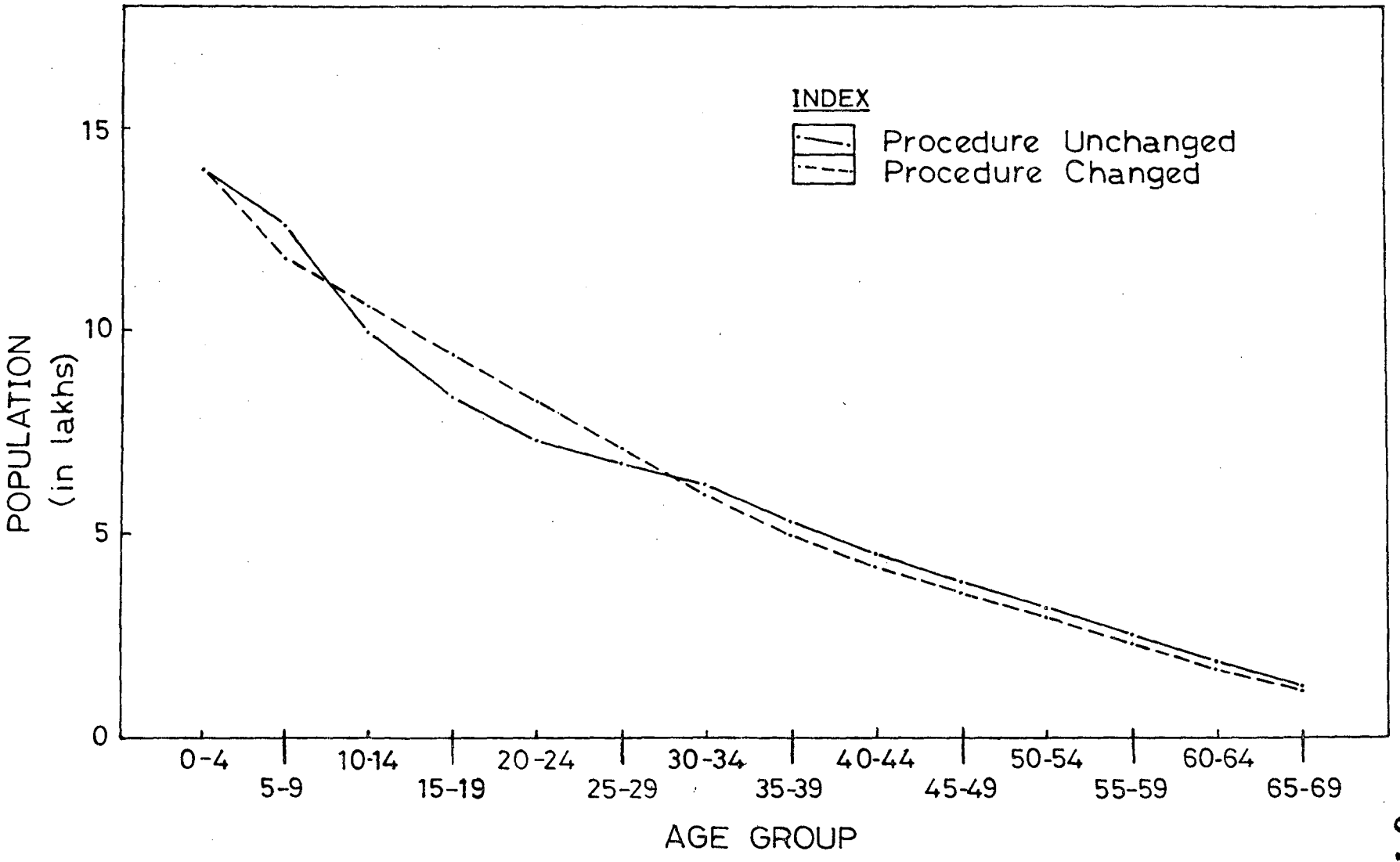
ORISSA
SMOOTHED(FEMALE) POPULATION
1961
INDEX
Procedure Unchanged
Procedure Changed
POPULATION
(in lakhs)
15
10
5
0
0-4
5-9
10-14
15-19
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
AGE GROUP

Fig : 6

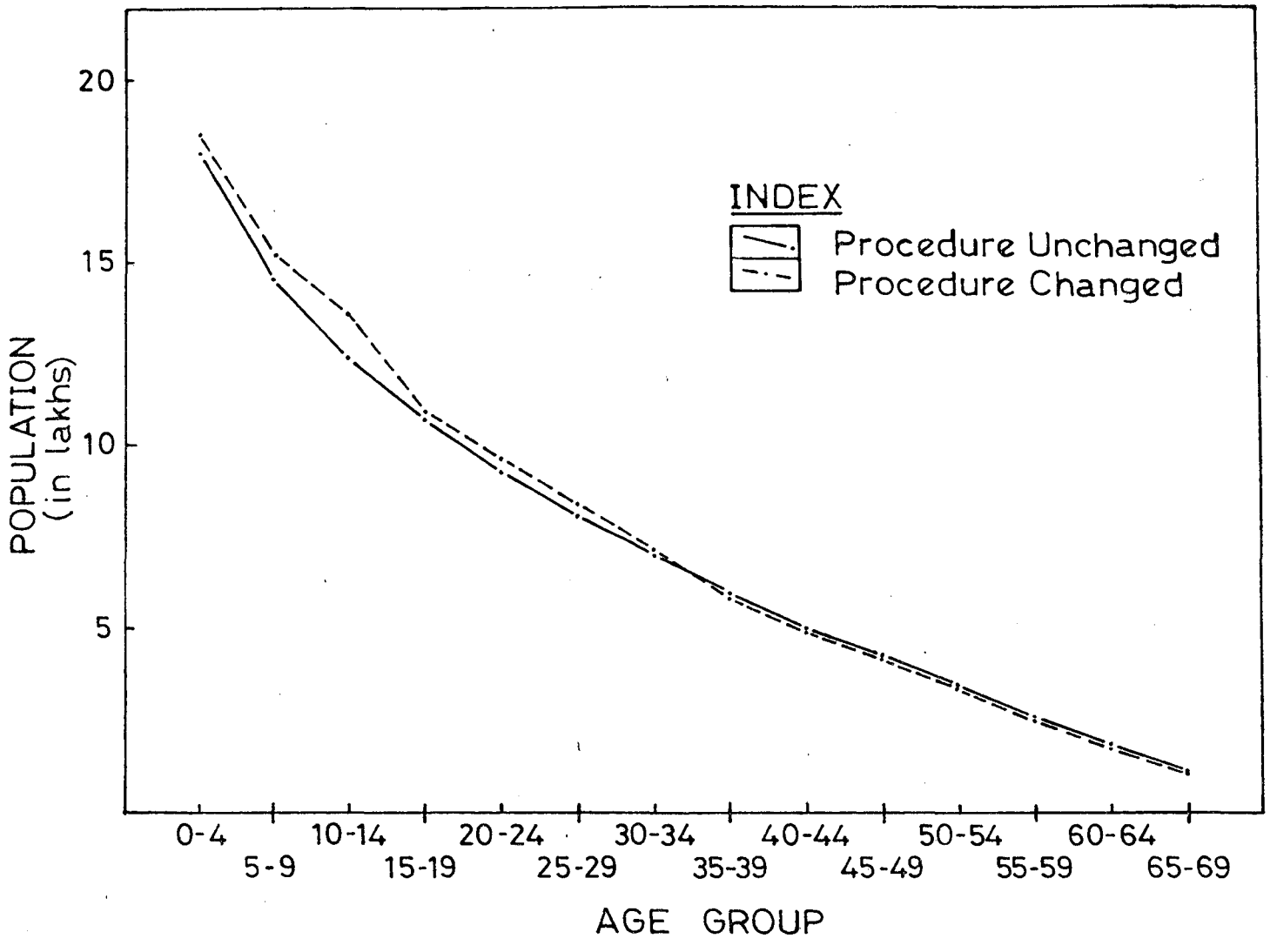
RAJASTHAN
SMOOTHED(MALE) POPULATION
1961
INDEX
Procedure Unchanged
Procedure Changed
POPULATION (in lakhs)
20
15
10
5
0-4
5-9
10-14
15-19
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
AGE GROUP

Fig: 7

RAJASTHAN

SMOOTHED(FEMALE) POPULATION

1961

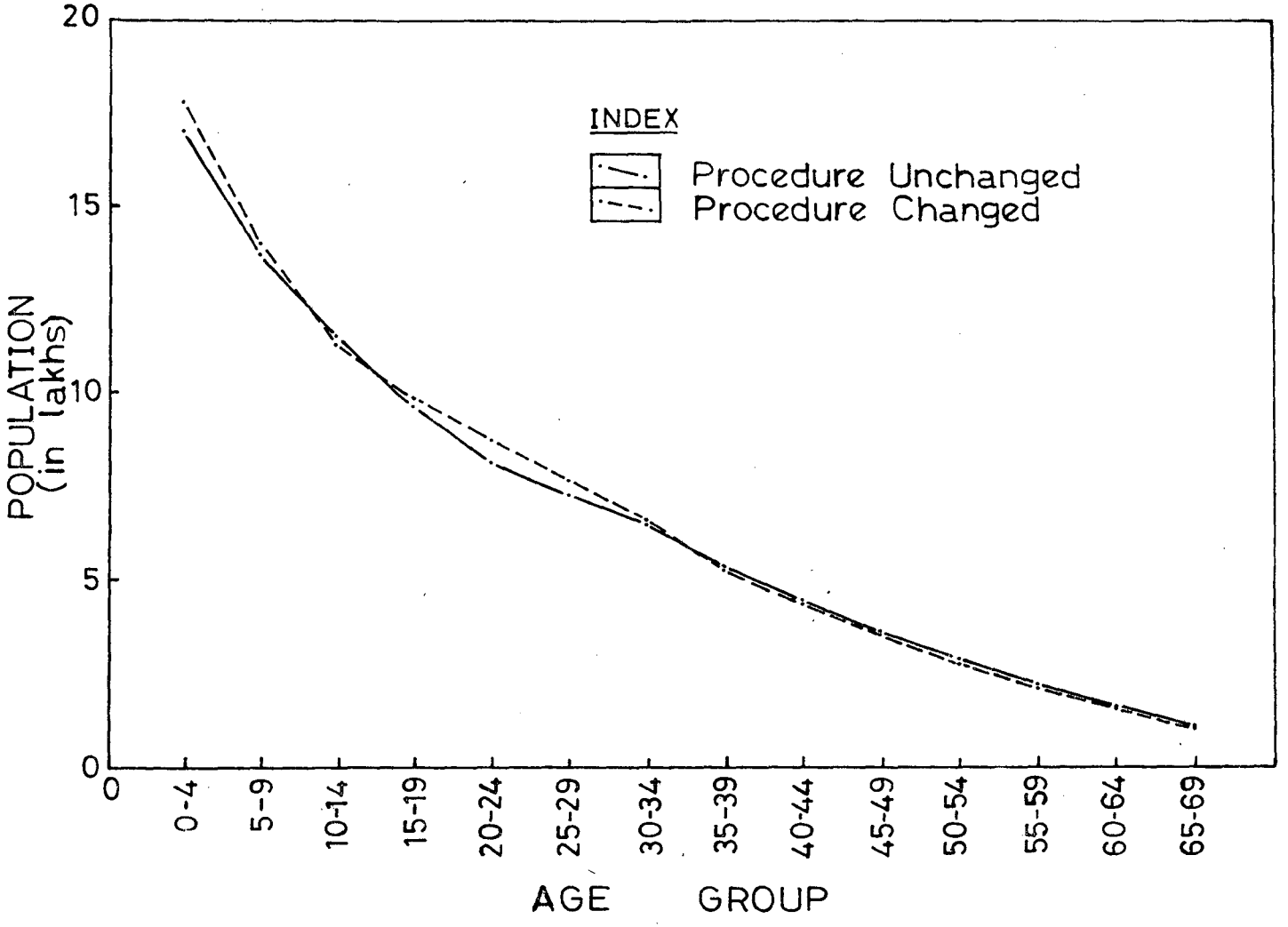

Fig: 8

UTTAR PRADESH

SMOOTHED(MALE) POPULATION

1961

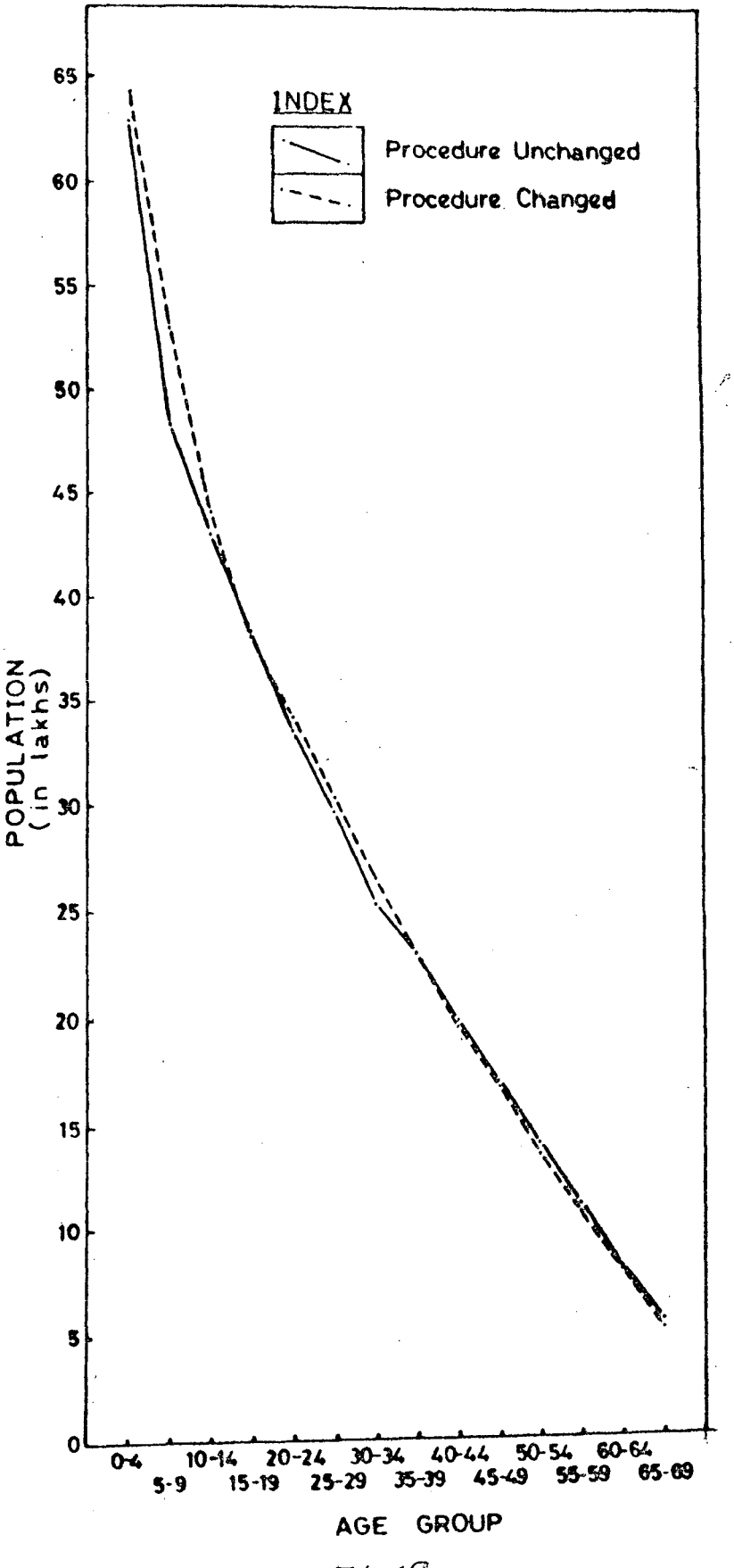

Fig. 9

UTTER PRADESH
SMOOTHED (FEMALE) POPULATION
1961

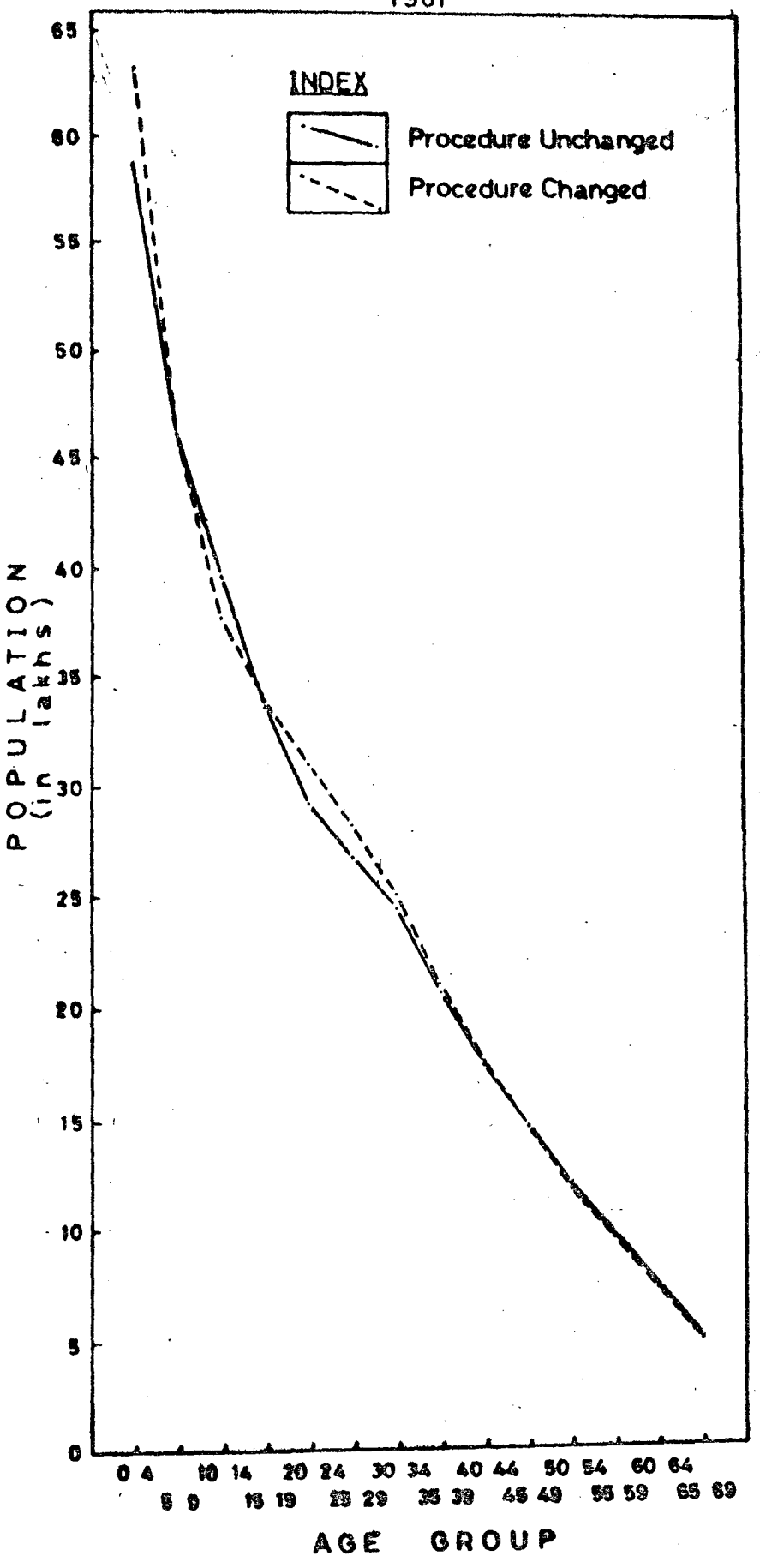

Fig: 10

(B) Adjustment for migration

Migration is an important element in the growth of population and the labour force of an area. The study of migration occupies an important place in population studies, because in combination with fertility and mortality it determines the size and the rate of population growth, as well as its structure & characteristics.

In construction of life table age wise information about the migration is of crucial importance, because migration may increase or decrease the size and change the structure of any population quite drastically when large numbers move into a particular area or move out of another.

Migration is generally sex and age selective. Its effect on age distribution depends on the age and sex composition of migrants which in turn depends on the factors prompting migration. If the reason for migration be unemployment in any industry, migrants will include more adults. Employment in business, trade or profession or agriculture may lean towards migration on a family basis. If so, children may be well represented in the migrants. If the reason may be social factors like marriage, education etc. the sex age pattern of migrants would be quite different.

At the all India level migration is almost negligible. At the state level it is not so trivial but still not large enough. In the 1971 census 167.9 million persons constituting 30.6 per cent of the total population of the country were found to have changed their last residence. But large chunk of the migration was either of short distance (intradistrict migration) or medium distance migration (intrastate), long distance migration (interstate) which is of prime importance for the present study constituted only 19.13 per cent for males and 8.22 per cent for females respectively of the total migrants.

Not only number of migrants fall as distance increases. A study done by Premi indicates, "as the distance moved by the migrants increases the sex ratio falls down very sharply and in the long distance stream it falls below 1000 indicating higher male migration".[4] Reasons are quite obvious. "There are three key variables, namely employment, income, and rapid population growth, which determine the extent and pattern of migration flows. Migrants move out from areas where employment opportunities are stagnant, where income is low and where the rate

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4. M.K. Premi, "Pattern of Internal Migration of femeles in India", Occasional Paper, p.17.

of the population is high. Conversely, they are attracted to areas of new industrial development and regions of higher per capita income. In India, the continuous dependence of most of the people on agriculture, the caste system and strong community ties, diversity of languages and culture, lack of education and low level of industrialisation have largely been responsible for low migratory flows of people from one region to another".[5]

Though various studies clearly indicate that the importance of migration decreases as the distance increases, still it will be unscientific to leave the smooth age distribution curve unadjusted to migration at the state level "since migrants are often concentrated in certain age and sex groups it is obvious that a substantial volume of migration may strongly bias the mortality estimates obtained from census survival rates".[6]

Normally Registrar General publish migration table by age/sex distribution based on broad age groups. They can not be utilized for adjusting unsmoothed age data for the migration component. The Office of the Registrar

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5. M.K. Premi, A Ramanamma, Usha Bambawale, "An introduction to social demography", Vikas Publishing House Pvt. Ltd., p.111.

6. UN: Manual IV, op. cit., p.58.

TABLE: 7

AGE WISE MIGRATION (BASED ON SAMPLE)

Age Group	Andhra Pradesh		Maharashtra		Orissa		Rajasthan		U.P.	
	M	F	M	F	M	F	M	F	M	F
0-2	-200	+200	+8800	+8700	+3300	+4100	-7900	-4400	-15100	-12600
3-7	-2500	-1300	+26700	+22900	+7400	+4200	-13600	-12700	-39600	-35300
8-12	-6300	-3600	-31500	23600	+7000	+8900	-15700	-14900	-52100	-30900
13-17	-5400	-3000	+39800	+10400	+2300	+6900	-15900	-4500	-57600	-19300
18-22	-8400	-6400	+120000	+49300	+2500	+13100	-33100	-33600	-148800	-75100
23-27	-10100	-8600	+106100	+50400	+4900	+14600	-25800	-16600	-143400	-65000
28-32	-5400	-1800	+69500	+22400	+7200	+7100	-19400	-8400	-120500	-42500
33-37	-8100	-3800	+26600	+11300	+6600	+2600	-8500	-4000	-55200	-15600
38-42	-2500	+400	+18400	+5100	+5300	+3200	-9900	-4700	-34900	-11700
43-47	-1900	+500	+7700	+2100	+3000	+1200	-2500	-3100	-19000	-5100
48-52	+800	-1100	+4400	+5600	+1600	+900	-4000	-500	-14200	-6300
53-57	+2000	-800	+2100	+2700	+2100	+1100	-1000	-400	-6100	-2600
58-62	-1000	-1100	-200	+3400	+2800	+2000	-1500	-1700	-4800	-1800
63-67	-900	-1900	-1600	+1700	+200	+100	+300	-400	-1100	-1400
68+	-900	-200	+1000	+600	+700	+1600	-700	-1100	-2800	-1800

Source: D-II Tables - Migrants classified by Place at last resident and duration of residence in place of Enumeration.

General of India for the first time, generated age distribution of migration in quinquennial age groups for each major states for their own use. For correcting the unsmoothed age data for migration these tables relating to intercensal migrants were obtained from the Registrar General's office.

Age distribution of population under normal circumstances does not deviate from smooth curve - any discrepancy of the data causing such deviations can be mitigated through careful mathematical treatment but there is no such established assumption for age wise migration pattern. Curves 11 to 20 clearly differentiate between the age returns and age wise migration flows. Age returns have downward sloping tendency (with ups & downs in between) but migration pattern shows distinct result. Migration gradually increases with the age and achieves the peak around 25-29 age group and then has tendency to fall. The smoothed age data of the five states have been next adjusted for migration component on the basis of available age distribution.

The migration age are in the age grouping 3-7, in construction of life tables other groupings are required. For this a change of the migration group is required. In using the migration tables it was assumed that migrants are distributed uniformly within each group.

ANDHRA PRADESH

UNSMOOTHED AGE PATTERNS AND MIGRATION (MALES)

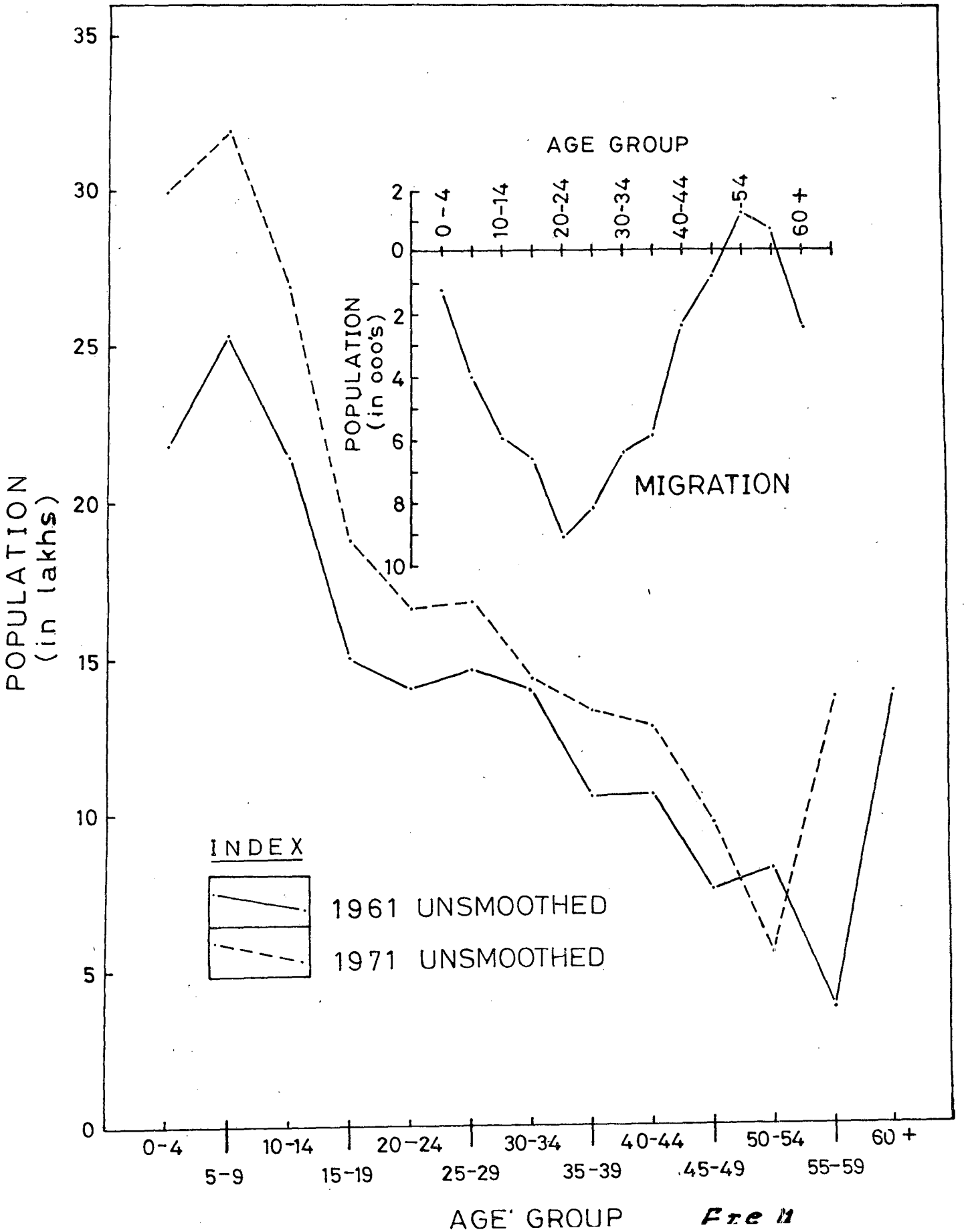

Fig 11

ANDHRA PRADESH

UNSMOOTHED AGE PATTERNS AND MIGRATION (FEMALES)

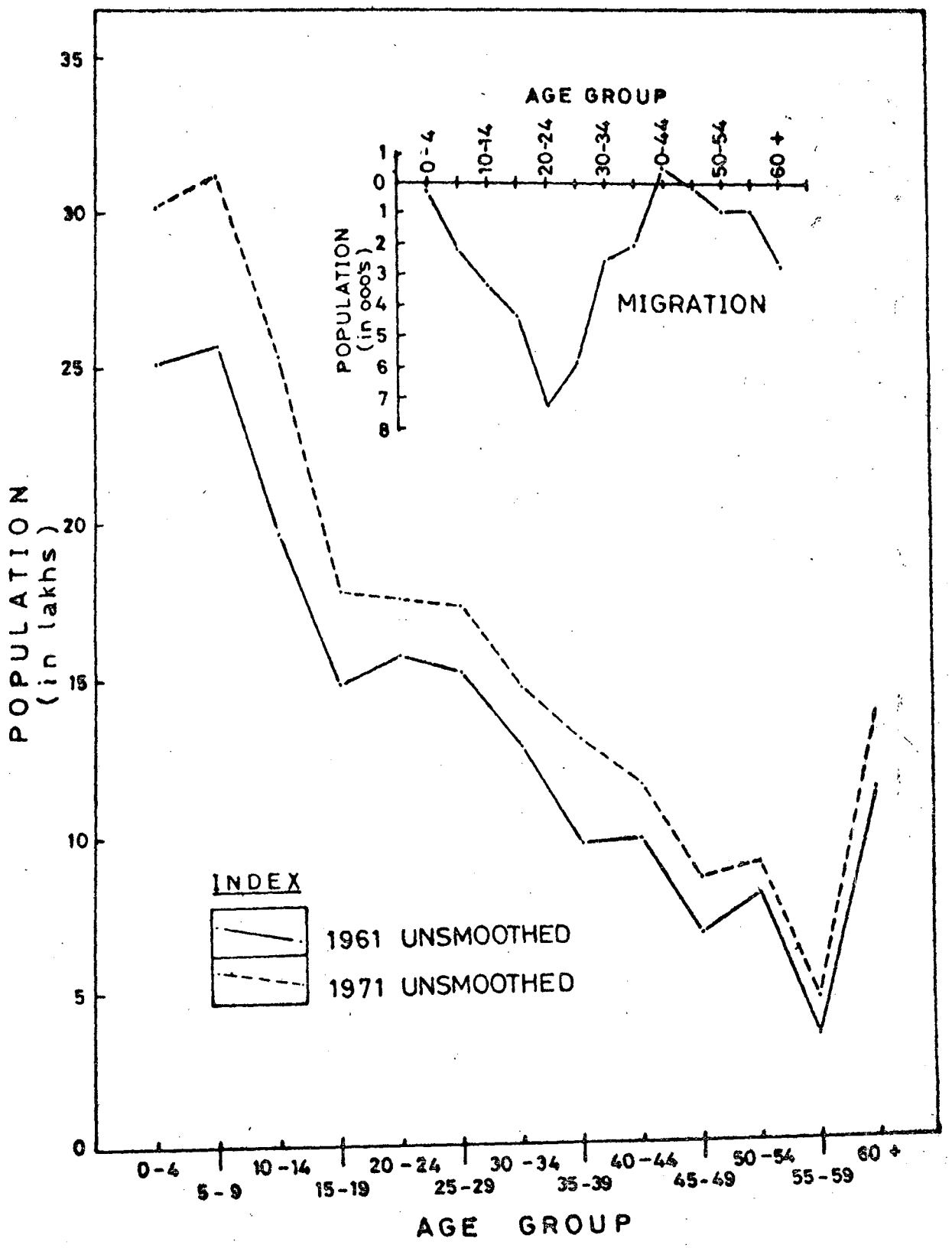

Fig 12

MAHARASTRA
UNSMOOTHED AGE PATTERNS AND MIGRATION (MALES)

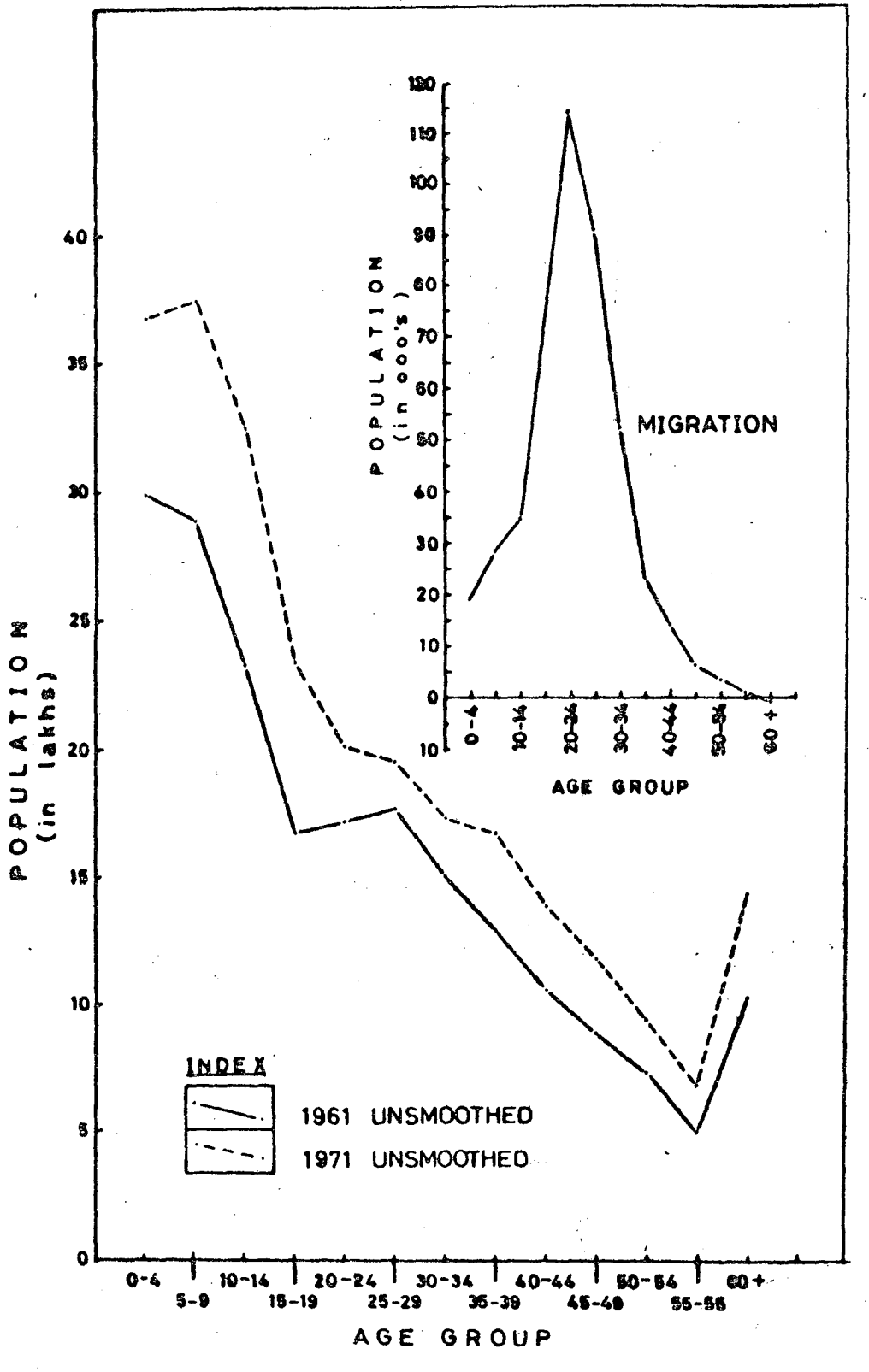

Fig : 13

MAHARASTRA

UNSMOOTHED AGE PATTERNS AND MIGRATION

(FEMALES)

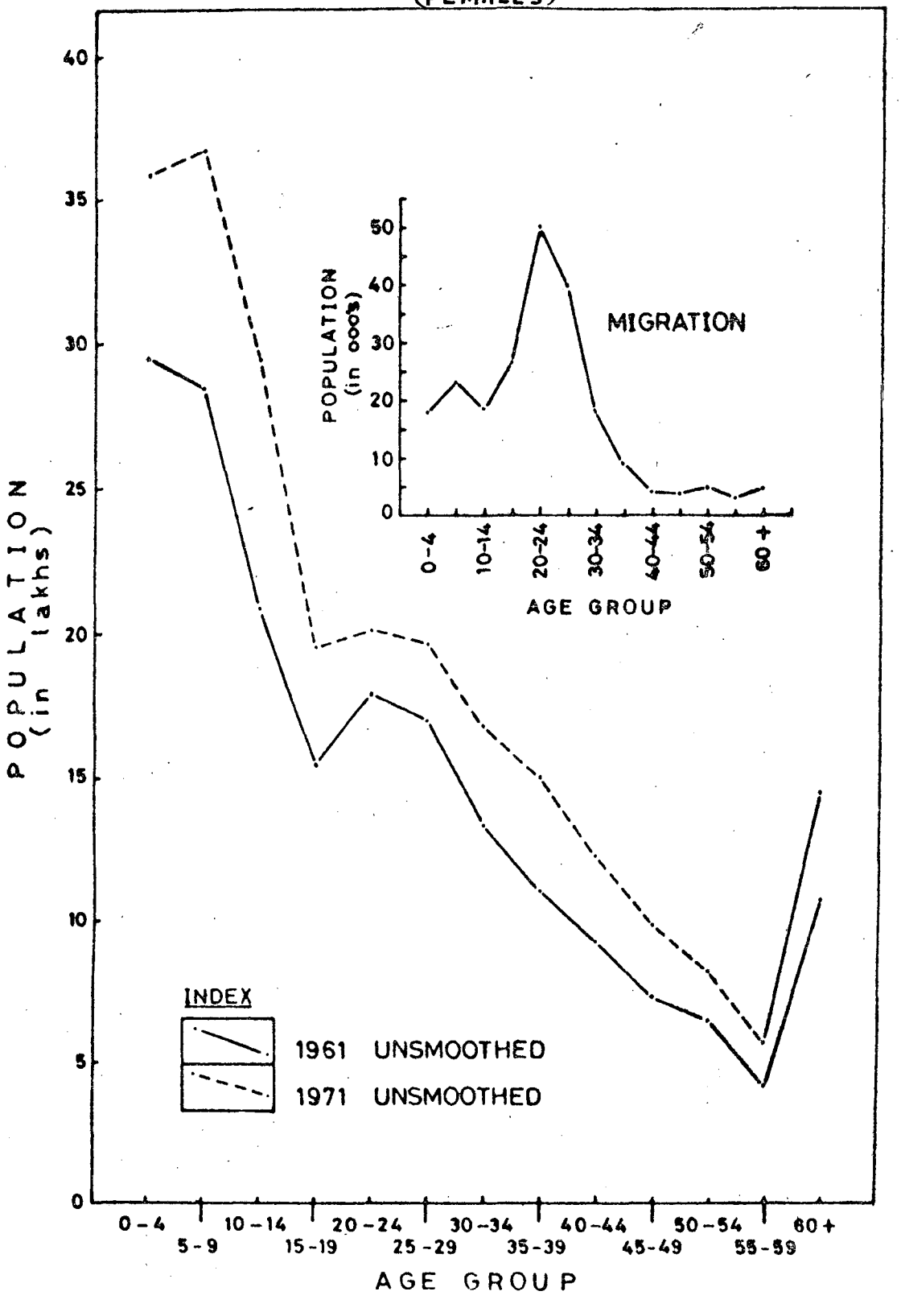

FIG : 14

ORISSA
UNSMOOTHED AGE PATTERNS AND MIGRATION (MALES)

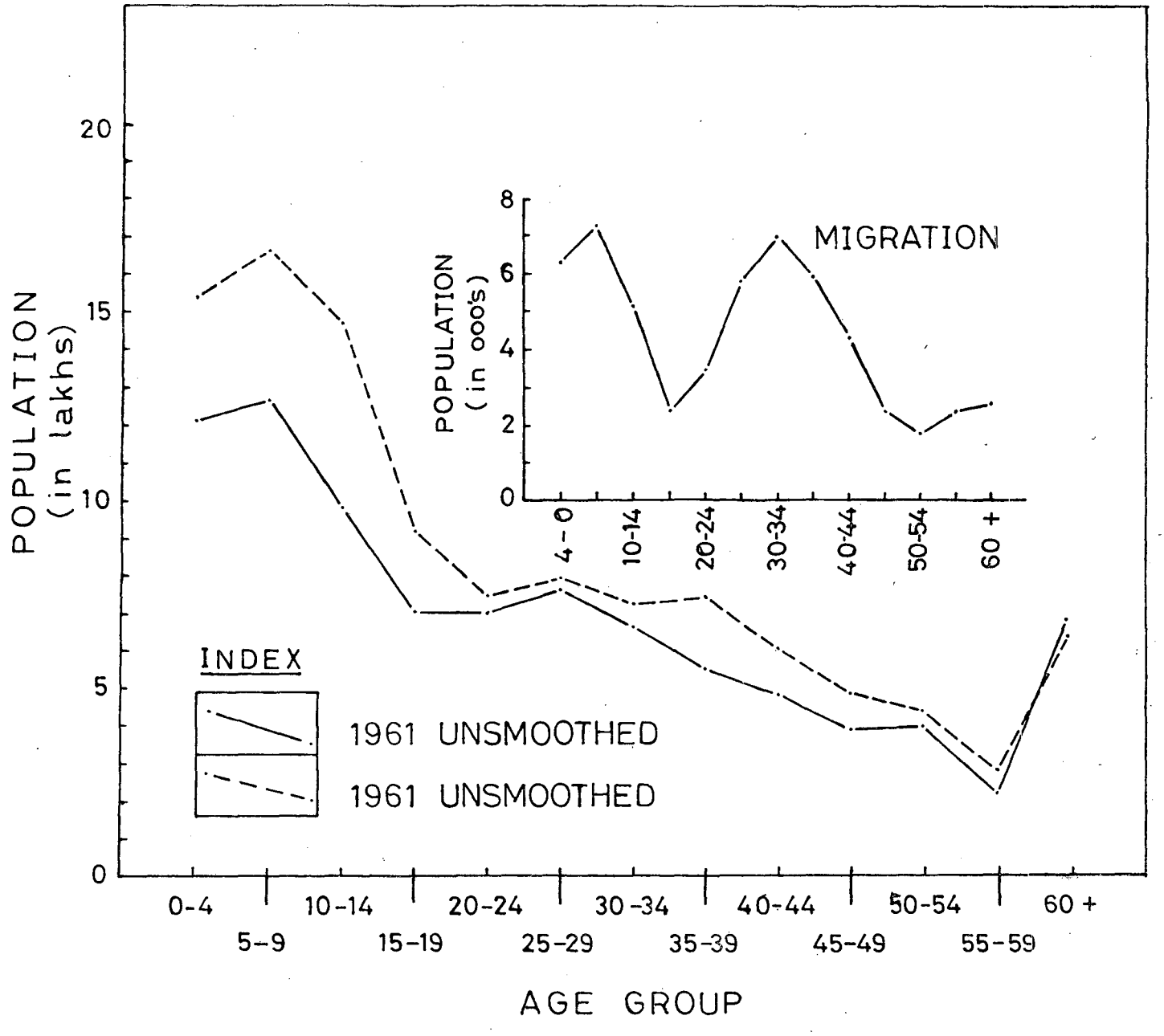

Fig 15

ORISSA

UNSMOOTHED AGE PATTERNS AND MIGRATION (FEMALES)

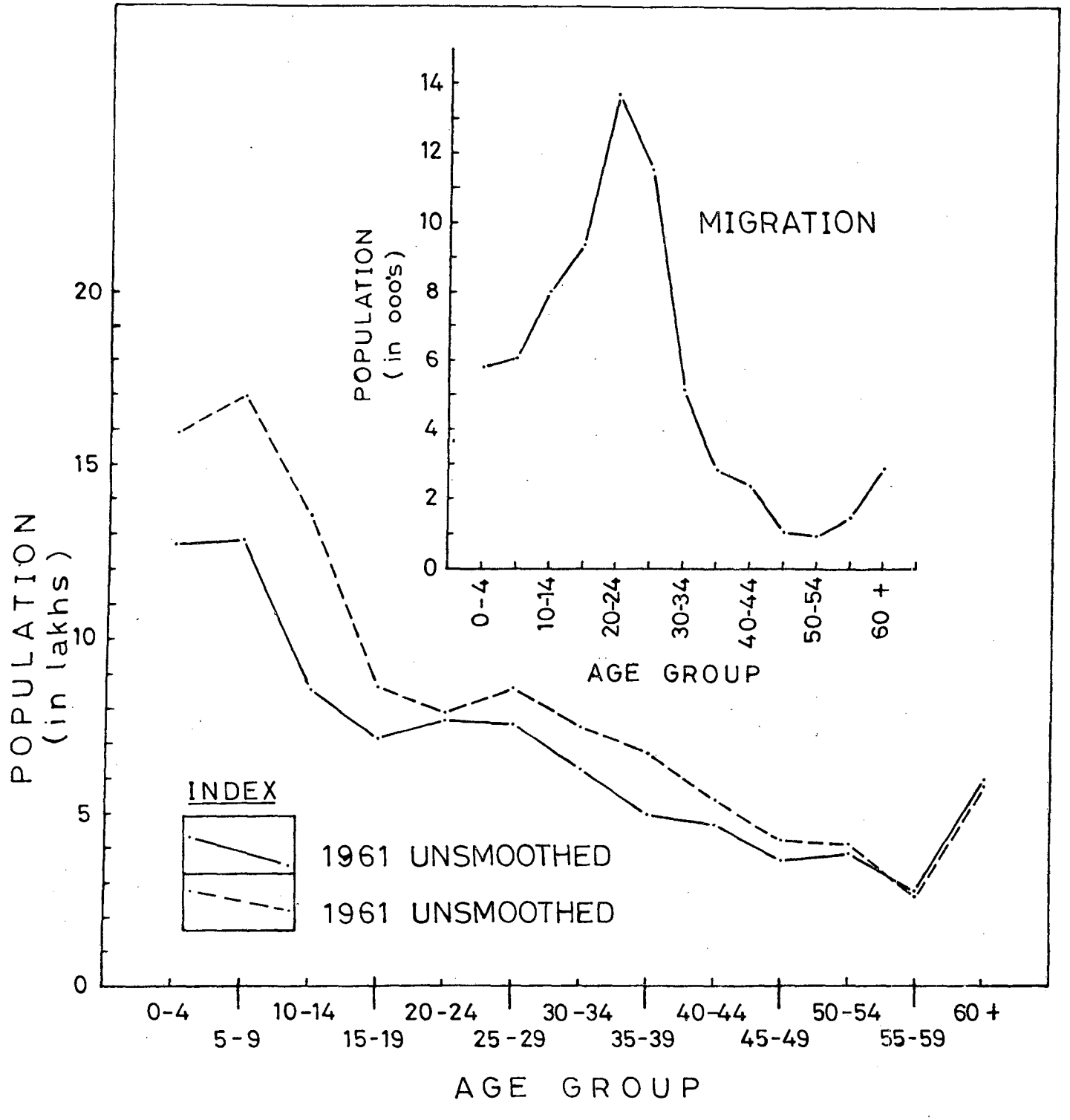

Fig 16

RAJASTHAN

UNSMOOTHED AGE PATTERNS AND MIGRATION (MALES)

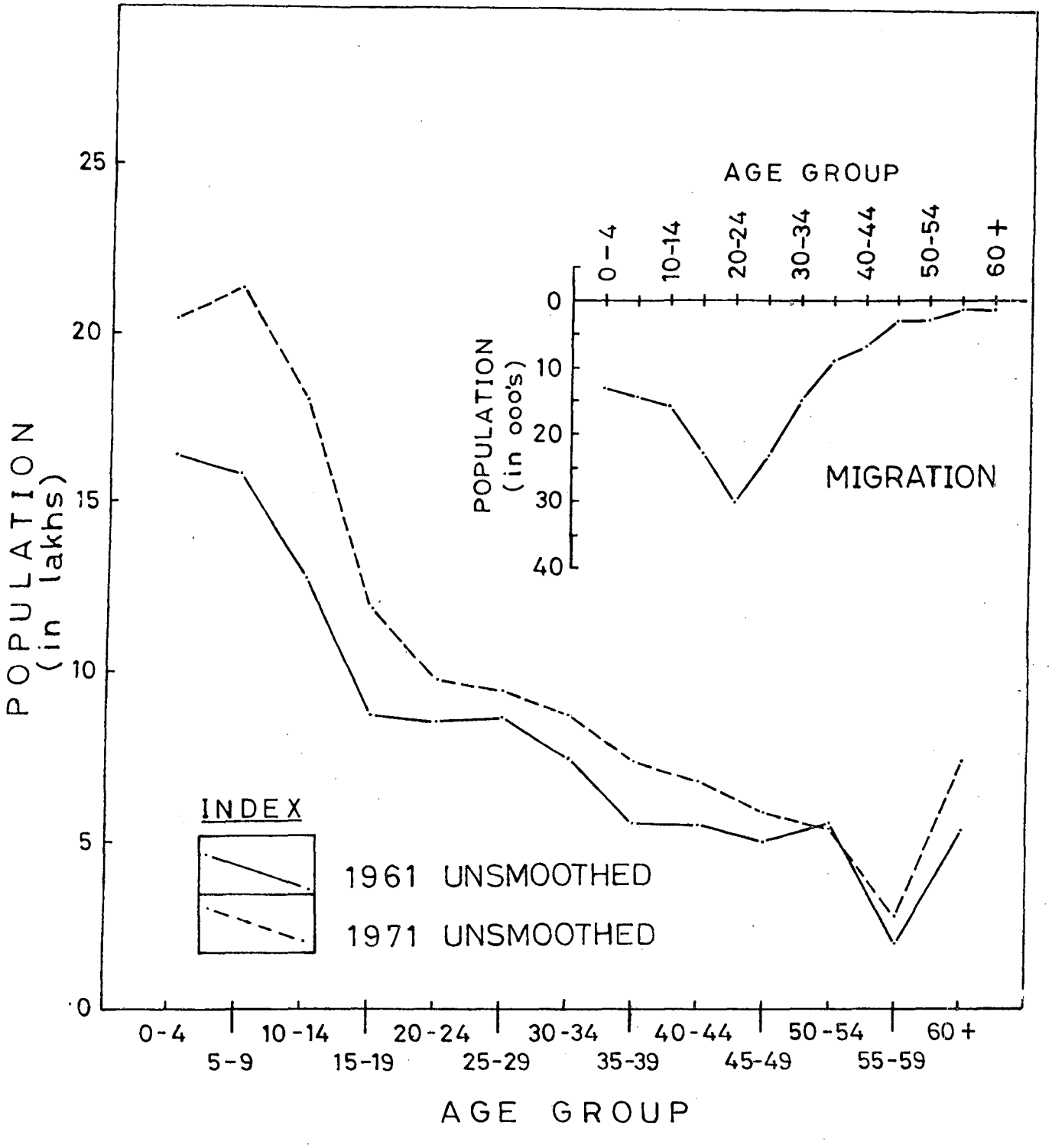

Fig : 17

RAJASTHAN
UNSMOOTHED AGE PATTERNS AND MIGRATION (FEMALES)

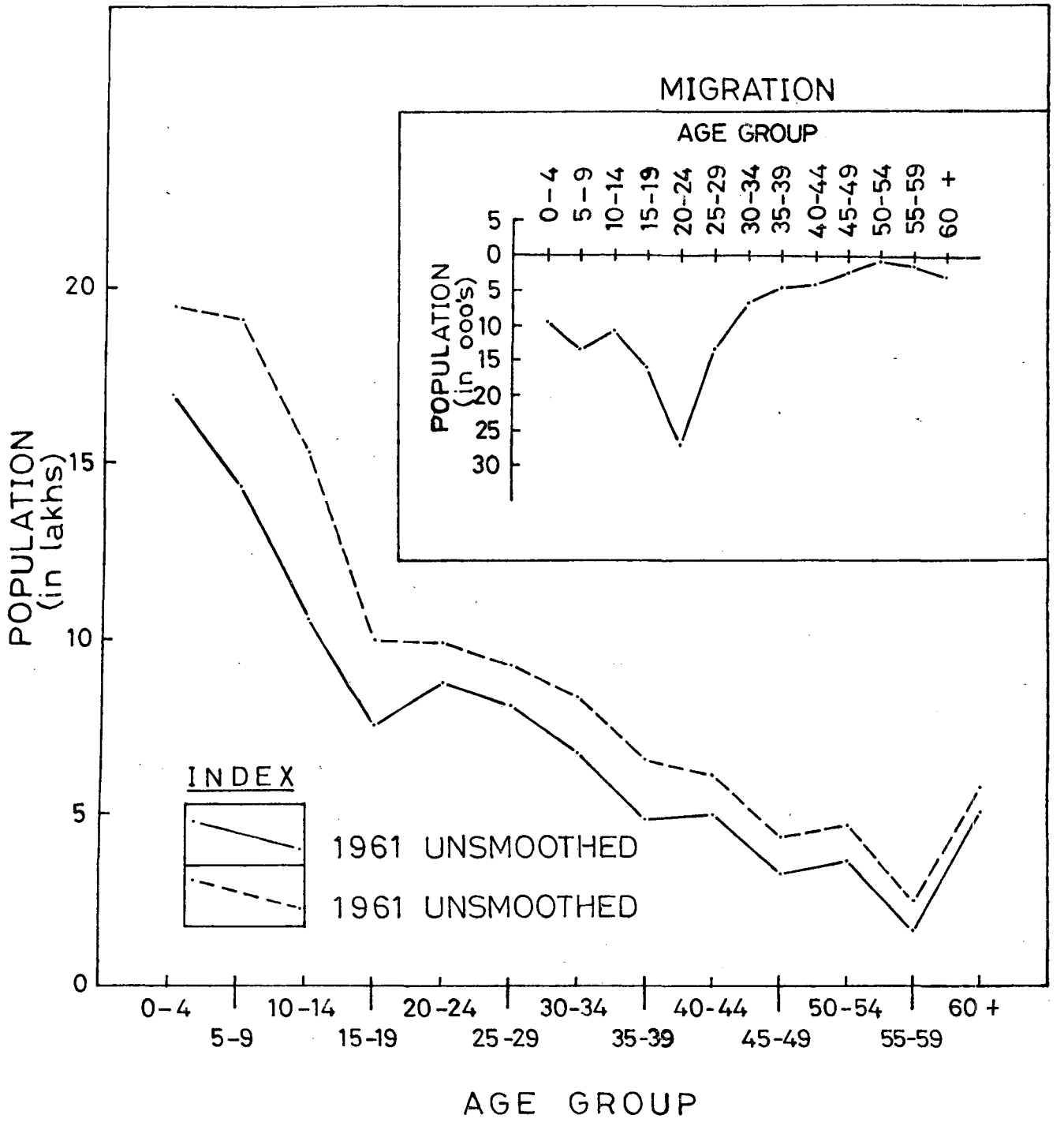

Fig: 18

UTTAR PRADESH

UNSMOOTHED AGE PATTERNS AND MIGRATION (MALES)

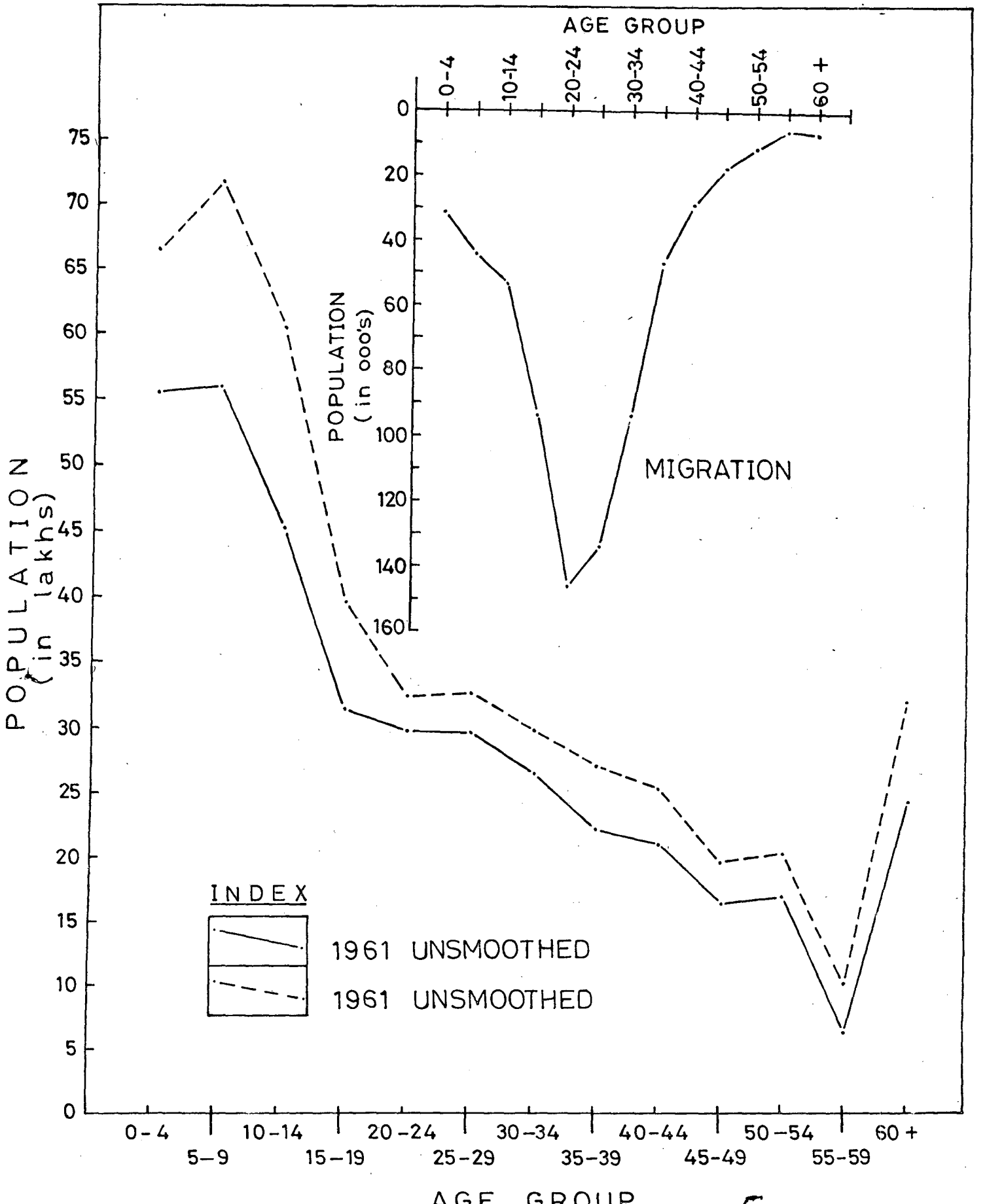

FIG. 19

UTTAR PRADESH

UNSMOOTHED AGE PATTERNS AND MIGRATION (FEMALES)

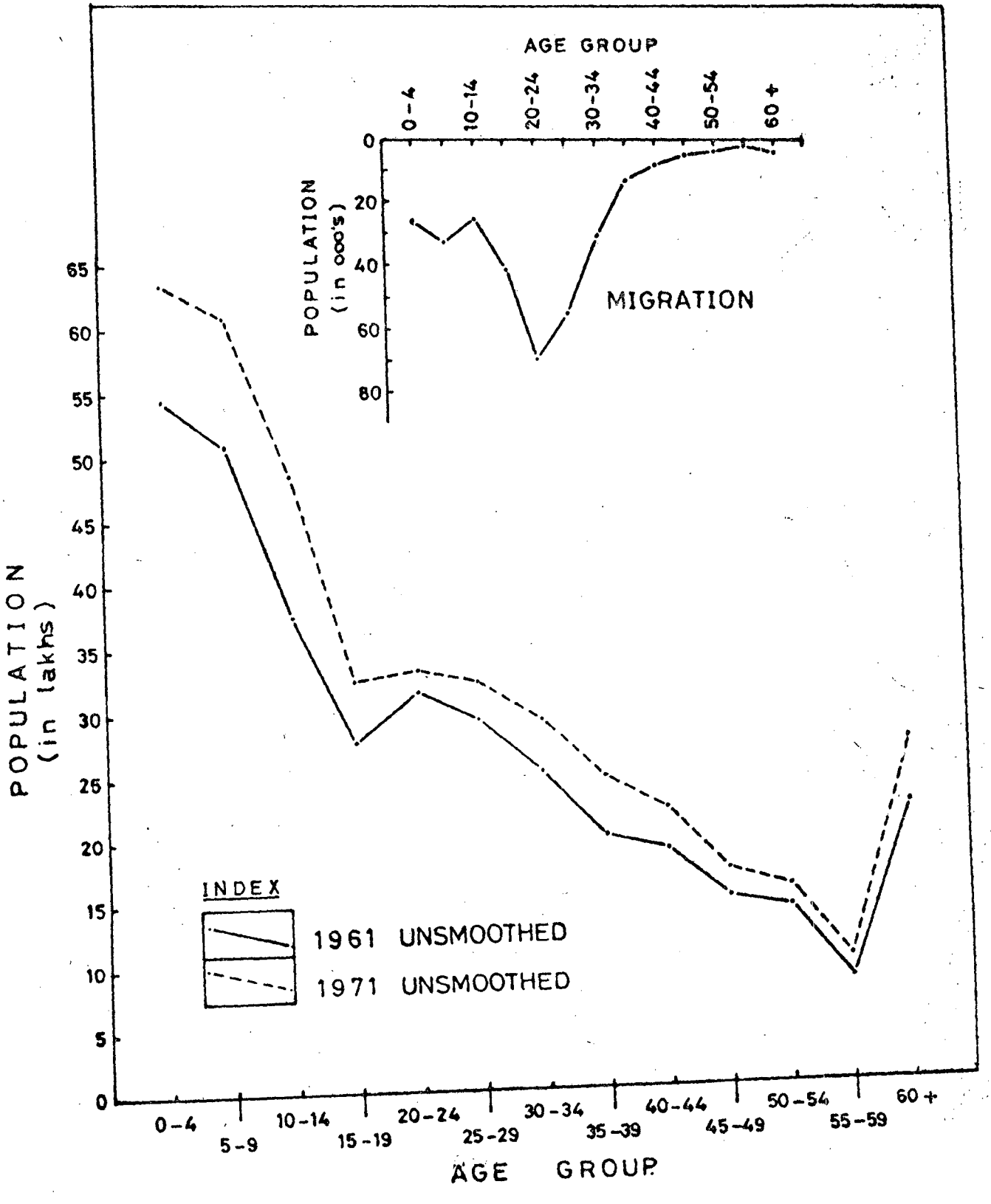

Fig: 20

(C) Methodology for construction of life table

The methods of construction of life table adopted in the present study is based on a comparison of the age distribution at two censuses. Two different methods were adopted to examine the feasibility of construction of the life tables at the state level. Both the methods are discussed in following paragraphs in detail.

(i) Census Survival method:

In principle this method traces a cohort living at one point of time to the survivors at the other point of time. The underlying theory behind the method is that if P_x^t is the population aged x at time t and if after an interval of length Z, P_{x+z}^{t+z} is the population aged x+z that if migration is adjusted and assuming that P_x^t and P_{x+z}^{t+z} are accurate or are subjected to the same degree of error, P_{x+z}^{t+z} represents the survivors of P_x^t after the interval Z. Consequently zPx, the probability of surviving z years for an individual aged x, would simply be the quotient P_{x+z}^{t+z} / P_x^t. In actual practice probabilities of survival so calculated from the observed age distributions are often found to vary rather erratically when plotted on a graph, they show marked irregularities instead of the expected smooth progression from age to age. This possibility is greatly minimised by the smoothing

of the age distribution for the two censuses.

Computation of Survival rate can be divided into three sections namely (a) age below 5, (b) for ages 5 to 60 and (c) ages 60 and above. Survival rates in infancy and old ages were not obtained from the smooth age distributions. They have to be derived by other indirect method.

(a) Calculation of Px for ages (5-60):

The smoothed census population for 1961 and smoothed population adjusted for migration were used for obtaining mortality rates, the assumption being that there is a common mortality scale, which is applicable to all cohorts moving in the intercensal period from one age to the next with passage of time. Reason is who may be living at one cohort in one census is transferred to another cohort in another census and in the process is subjected to qx, the rate of mortality of age x in the common mortality scale. In this way, 1961 Population moves on to 1971 population by survival under the operation of this common scale. If Lx represents the number of persons living between age x_0 and x_{+1} at any time in the life table population which is built up by these rates of mortality. P_x the observed population aged x at 1961 census and P_{x+10} the observed

population aged x+10 at 1971 census, should be taken as the observed values of l_x and l_{x+10}. Thus:

$$P^1_{x+10} / P_x = l_{x+10} / l_x$$

Having obtained the value of 10 P_x where x stands for 5, 10, 15 etc. at quinquennial intervals $5P_x$ can be directly obtained from $10P_x$. This procedure usually gives smooth rates of mortality. Log $10P_x$ can be reduced to log $5P_x$ by following relationship:[7]

$$\begin{aligned} & \tfrac{1}{2} (\log 10P_x + \log 10P_{x+5}) \\ &= \tfrac{1}{2}\left(\sum_{x=0}^{4} \log P_{x+x} + \sum_{t=5}^{9} \log P_{x+t} + \sum_{x=10}^{14} \log P_{x+t}\right) \\ &= \sum_{t=5}^{9} \log P_{x+t} \text{ approximately} \\ &= \log 5P_x \end{aligned}$$

The method described above gives firm estimates of P_x for the age 5 to 60.

(b) Ages over 60:

This part of the life table is generally derived by extrapolating observed trends in the ages adjacent to the last one. Another alternative course is to estimate a single death rate for "age 60 and above". But this

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7. S.P. Jain, Census of India, 1951. Paper No.2 of 1954, p.17.

death rate for a big age span is crude and it makes a poor basis comparing different populations, and population groups, if they differ in composition, for this reason it is advisable to obtain the age specific mortality for old ages by fitting an appropriate curve.

It is well accepted fact that most mortality tables follow Gomperts's curve fairly closely in old ages. Accordingly, to obtain P_x for ages beyond 60, a Gomperts curve was fitted at ages 40, 45, 50 and 55 by the method of least squares, using the relationship:

$$\text{Colog } P_x = Bc^x$$

Hence, $\log (\text{Colog } P_x) = \log B + x \log c$.

It was found that the original values between 40 & 55, fitted well with those obtained from the Gomperts curve. The values for ages 60 and over were, therefore adopted as given by the curve. The same technique used by the census actuary for obtaining probability beyond ages 60 in the construction of 1951 official life tables for All India.

(c) Age Below 5:

There is no simple way, by which the life table can be extended below age 5, as in this age span mortality changes rapidly with age, and the change is not uniform,

There are a number of ways in which the mortality rates for this period of life are estimated. One of the methods, which has been frequently used in similar situations, is to fit an appropriate curve based on the relationship between child hood mortality and infant mortality observed for countries passing through demographic transition. Accordingly Kohli[8] decided first to examine the relationship between the childhood mortality and infant mortality, if there be any. For this purpose, the life table based on observed data for different countries and for different time periods, having infant mortality above 100, were selected. Values of $_0q_5$ were plotted against, q_0 on a graph. It was found that countries which have a higher infant mortality have a higher childhood mortality too. From the scatter diagram it was seen that second degree polynomial would be suitable. Such a relationship was also found by the United Nations in preparing model life tables.[9] Accordingly, a record degree polynomial linking mortality for the period 0-5 years with infant mortality rate was fitted separately for each sex.

The fitted equations[10] were as follows:

---

8. Kohli, Mortality in India, op. cit.

9. United Nations, Age & Sex Pattern of Mortality, op. cit.

10. United Nations, Ibid.

For males

$$5q_0 = -34.08031 + 1.78330\,q_0 - 0.0005908\,(3q_0)^2$$

For females

$$5q_0 = -37.38633 + 1.93462\,q_0 - 0.000888462\,(q_0)^2$$

From the equations, the value of $4q_1$ was derived from the relationship:

$$4q_1 = \frac{5q_0 - q_0}{1 - q_0}$$

Derivation of the other Functions of the life table:

From the values of Px and qx so obtained, the values of the functions lx, dx, Lx, Tx & e_x as defined below were obtained by their mathematical relationships.

1. n is the age interval from one exact age x to another (x+n).

2. nqx is the probability of dying between age x and x+n. It represents the proportion of those who die during the interval to the number alive at the beginning of the interval.

3. npx is the probability of surviving from age x to x+n. It gives the proportion of those who survive to the end of the interval to the number alive at the beginning of the interval.

4. (lx) is the number of survivors to the exact age x. It gives the number of persons who survives to the exact

age x out of an initial cohort of 100,000 live births.

5. ${}_nd_x$ is the number of deaths in the interval. It gives the number of deaths in the age interval in the original cohort of 100,000 live births.

6. ${}_nL_x$ is the person years lived during the interval. It gives the number of persons present between ages x and x+n in the hypothetical life table stationary population.

7. T_x is the person years lived after obtaining age x till death. It gives the aggregate remaining life time of the life table cohort aged x.

8. e_x is the average remaining life time. It gives the average number of years by survivors at any given age x after the attainment of this age.

These functions are interrelated. Some of the simple relationships are as follows:

$$nPx = 1 - {}_nq_x$$

$$L_{x+t} = l_x \cdot {}_tP_x = l_x - \sum_{n=0}^{t-1} d_{x+n}$$

The relation of L_x to l_x varies with age sector. In this study, the following relationships were used for x below 5

$$L_0 = 0.276\, l_0 + 0.724\, l_1$$

$${}_4L_1 = 0.034\, l_0 + 1.184\, l_1 + 2.782\, {}_1L_5$$

for ages beyond 5, the relationship used is:

$$_nL_x = \int l_{x+z}\,dt.$$

which means, in practice, an approximation integration formula is $_nL_x = n/2\ (l_x + l_{n+x}) + n/24\,(_nd_x - {}_nd_{x-n})$

This approximation generally produces superior results in actual practice. The relationships used for determining the value of L_x for the last two age groups are:

$$_5L_{80} = \tfrac{1}{2}(l_{80} + l_{85})$$

$$_WL_{85+} = l_{85}\ (\log_{10}\log_{85})$$ where W is the terminal age.

$$T_x = \sum_{t=x}^{W} L_t$$

and

$$e_x = Tx/lx.$$

(ii) Coale & Demeney Method:

Owing to the fact that mortality experienced by different population S is not in fact so perfectly uniform. Coale & Demeney have observed four distinct patterns of mortality schedules and based on their observations, have produced 4 different sets of model life tables known as "East", "West", "North" and "South". Each subject includes 24 life tables separately for males and females with expectancy of life at birth ranging from 20 years to 77.5 years in the interval of 2.5 years. Each of the life table is given a "Level" (love) corresponds to the expecation of life at birth of 20 years and level 24 to

that of 77.5 years. These tables are based on the observation of 300 life tables (each for both sexes separately) that presented the mortality experience of various populations.

Though the differences among the four families is not much, West model life tables have been suggested for general use, until there is an evidence of a specific pattern of mortality reflecting that of any of the other three families. In the present study also model "West" has been chosen.

It is common problem that a large number of underdeveloped countries share that accurate data for construction of life tables are not available. The degree of deficiency of registration system varies among the countries and regions within a country as is case of India. Also surveys giving enough dependable informations are lacking. Abridged life table for such countries can be calculated from census data if available with the two principal assumptions: (a) the population is closed to migration or migration is duely adjusted and (b) the mortality experience of the population confirms to the pattern of particular family of model life tables.

As already pointed out that in construction of life tables by census survival method it is necessary to smooth the

age returns. But "the methods of adjusting the age distributions (or raw survival rates) to remove the effects of age misreporting are essentially arbitrary and when the reported age distributions are seriously distorted the age pattern of mortality embodied in the estimated life table contains a strong component of the smoothing procedure used".[11]

The recorded survival rates are highly erratic in the indicating the mortality level because of the effect of age-misreporting. Hence as a first step it is better to take advantage of the dampening effect that cumulation has on age misreporting and then attempts are made to determine the level of mortality from the proportions surviving from the entire earlier population to age 10 and over in the later Census, five and over that survives to age fifteen and over and so on. Hence reported population of 1961 divided into five year age group was first of all projected for 1971. With the help of different level of survival rates lying between level 5 to level 19 in the model "west with different e_o^o levels.

As a second step enumerated population for 1971 adjusted for migration is cumulated from below for getting

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11. UN Manual IV, op. cit.

figures 10 and above, 15 and so on. And then comparisons are made with projected population for 1971 as obtained by step one.

In the third step pairs were made of two levels of projected population, between which the actual 1971 population lies and e_o^o values for the 1971 actual population were obtained by linearly interpolating those period groups e_o^o.

In the final step, e_o^o values were arranged in an ascending order of the first nine age groups and then medium value was taken as final value of e_o^o on the basis of which other components of the life table were derived with simple linear interpolation method.

CHAPTER IV

TRENDS AND VARIATIONS IN LEVELS AND PATTERN OF LONGEVITY

The abridged life tables obtained for five selected states for the both sexes are given in Appendix A & Appendix B. In all 90 life tables were constructed, 80 by utilising the census survival method (Appendix A) and 10 by Coale and Demeney method (Appendix B). A summary of life expectancy at birth by sex is presented in the summary table.

A. Application of Infant Mortality Rate

The infant mortality rate used in the construction of the life tables needs some remarks, as it has an important influence on the derived values of expectancy of life at birth. In the life table analysis infant mortality occupies very important place due to two very important factors: (a) It measures the mortality in that segment of the population, where it is extremely high and to which the expectation of life at birth is very sensitive; (b) Any reduction in mortality in general affects, first and to a greater extent, the IMR and it is through this that it influences the age distribution.

The infant mortality rate calls for special comment both in the view of its importance as an indication

of social well being and also because it is an area where the Indian demographic data is very poor. "What was the fate of infant and child mortality during the period 1881-1911? The life tables for all India put infant mortality for males at age 0 at 284 per thousand for 1881, 273 for 1891, 285 for 1901 and 290 for 1911. The rates for certain provinces went up as high as 299 and 298 for males for Bengal and Bombay respectively in 1901 and 298 for Punjab male infants in 1911 ... female infant and child mortality was calculated at a distinctly lower figure than for males in all these years, first for inaccuracy of the female count and secondly perhaps, because of the disinclination to depart from the normal European experience".[1] In the past, the census actuaries were very well aware of the fact that Infant mortality data is underenumerated and unreliable. This prompted to project the value of ages below five by the equation:

$$l_x = A + H_x + Bc^x + \frac{m}{nx+1}$$

In the above equation Hardy took c = .65 and n = 20. Ackland adopted the equation keeping the values of c and n to be the same but varying the value of other constants

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1. Asok Mitra, India's Population, op. cit., vol.I, p.27.

as necessary. Meikle did not consider it desirable to attempt estimation of rates of mortality below age 5, owing to lack of any data. Vaidyanathan found the value c = .65 is too high and took it as .45 raising n to 29.8125 as the most suitable value. S.P. Jain calculated c for ♂ male and female separately which comes to be .45 & .474 respectively, he reduced n to 20 again. Above equation "has been used for the very early ages, in the absence of any direct data which may yield reliable mortality rates at these ages. The recorded population at these ages are not reliable and can not be used for deducing rates of mortality".[2]

No reliable data for infant mortality is available for the period under study. In the 60s whatever data are available through national sample survey (19th round) and sample registration system are summarised in table II. Commenting on such data J.R. Rele observes, "Apart from the census it has been possible to estimate the rate from the two national surveys, that is, the National sample survey and Sample Registration system. The data obtained from these sources can not still be regarded as complete, though there is every hope of their

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2. S.P. Jain, Acturial Report 1951, Paper 2 of 1954, p.18.

improvement".[3] Data provided by civil registration system is even verse and its authenticity is challenged every now and then. Chandra Shekhar rightly asserts, "As to the reliability of the entire record, there are three possibilities; some births are not registered, some infant deaths are not registered; when deaths are registered the recorded age of the dec=eased infant may be inaccurate".[4]

In order to correct the number of infant deaths classified according to age segments, several approaches were explored by various researchers. In the first approach, "international data on infant deaths classified according to age were examined... While the data did reveal clear positive relationships between infant death rates and those for the different age segments, there were several countries which deviated from the fitted relationship. Part of explanation for this may be the differing degrees of accuracy of the data for the different countries, but partly there may be different regional and national patterns in infant mortality".[5] Therefore

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3. J.R. Rele, "Some observations of the Status of data on mortality, morbidity, fertility & family planning in India" in Ashish Bose etc. (ed.), Population Statistics in India, Vikas Publication.

4. S. Chandra Shekhar, Infant Mortality, population growth & family planning in India, The University of North Caroline Press, p.131.

5. K.E. Vaidyanathan, "Testing in the death Registration statistics and Estimation of mortality in India 1965-66" in Vaidyanathan (ed.), Studies in Mortality in India, p.23.

until regional differentials are not vividly captured international pattern could not be utilized to correct the data.

The second approach adopted is to project the infant mortality rate on the basis of data provided by good registration area. This top is of limited scope for the present study because sample registration system started only in late 60s.

Third approach as adopted in paper 1 of 1977 (Census of India 1971), rely on the backward projection of the data based on present available statistics. Rationale was, "the sample registration system provides a set of values of IMR for recent years sex wise. For rural areas the values were available for the years 1968, 1969 and 1970 and for urban areas for the year 1970. The average number of births and infant deaths for the three years were combined with those of the urban and a set of values for the years worked out. Assuming a linear trend in IMR for 1951 onwards a rough estimate of the mortality age 0 was worked out".[6] Such an approach is not free from criticism, firstly it is not proper to assume that

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6. Life table - Series I - India, Paper I of 1977 Census of India 1971.

mortality decline is linear over period of time under consideration and secondly data utilized for such a calculation is itself questionable because in its initial stages data provided by SRS is questioned by several researchers from time to time.

In the absence of single representative value of Infant mortality, in the present study range of values of Infant mortality has been taken. Four different levels of infant mortality has been taken. These four levels are based on figure provided by Tim Dyson.[7] He arrived at the figures for males and females Infant mortality separately making use of all available techniques. He utilized Brass Method, Trussell's Regression coefficients, on the assumption of "West" and "South" mortality pattern separately, Sullivan's coefficients and Feaney's method and then arrived at single representative rate of Infant mortality.

Even if probable value of infant mortality are within range of 20 points on either side of Dyson's rates side of Dyson's rates, it does not make much difference in the expectation of life at birth as is seen from the table below:

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7. Tim Dyson, "A working paper on fertility & mortality Estimated for India", presented at Session of panel on India, held at National Academy of Sciences, Washington, March 1979.

Andhra Pradesh				Maharashtra			
Male		Female		Male		Female	
IMR	e_0^0	IMR	e_0^0	IMR	e_0^0	IMR	e_0^0
110	40.90	90	4.83	95	46.14	95	44.94
115	40.44	100	40.99	100	45.71	100	44.51
125	39.67	110	40.16	105	45.29	105	44.16
135	38.92	120	39.69	110	44.86	110	43.71

Orissa				Rajasthan			
Male		Female		Male		Female	
IMR	e_0^0	IMR	e_0^0	IMR	e_0^0	IMR	e_0^0
180	37.92	170	38.15	115	43.16	125	42.29
185	37.56	175	37.74	120	42.75	130	41.85
190	37.18	180	37.31	125	42.34	135	41.74
195	36.80	185	36.90	130	41.94	140	41.30

Uttar Pradesh			
Male		Female	
IMR	e_0^0	IMR	e_0^0
165	39.30	175	34.70
170	38.91	180	34.32
175	38.52	185	33.24
180	38.14	190	33.56

As shown in the above table the expectation of life at birth for each state though inversely related with infant mortality assumptions, yet it could be seen that range of variation is not much ranging from around 1 year to 2 years expectancy gain.

Further table clearly shows that Infant mortality rate is different for the two sexes. In Andhra Pradesh

and Orissa female infant mortality is less than their male counterparts. In Maharashtra it is equal for both Males and Females. On the contrary in Rajasthan and Uttar Pradesh Female infant mortality rate exceeds the male infant mortality rate. In the present, as already pointed out IMR was taken directly from Tim Dyson's paper, interestingly the same pattern can be observed from the Chart II showing infant mortality rate. Whatever data are available through sample registration system and national sample survey confirms the same phenomenon. Infant mortality rate for females is less than of males in the cases of both Andhra Pradesh and Orissa, almost equal in case of Maharashtra and more in the case of Rajasthan and Uttar Pradesh.

B. Life expectancy trends

For establishing trend one needs data over a period of time. At the state level it becomes very difficult to establish any firm trend in longevity due to lack of concerned statistics. Before independence life tables based on the mortality investigation were prepared mainly for each state unit. In 1931 Report life tables are given for every British province. It is rather impossible to compare the state level life tables presented in this paper with early provincial level life tables as

TABLE II

CHART SHOWING INFANT MORTALITY

NSS 1964-65

States	1968 Rural		1968 Urban		1969 Rural		1969 Urban		1970 Rural		Combined			Rural		
	M	F	M	F	M	F	M	F	M	F	68	69	70	M	F	C
Andhra Pradesh	117.0	100.7	-	-	131.7	126.0	-	-	122.2	107.3	109.0	128.9	122.7	121.76	93.28	107.96
Assam	151.9	146.2	-	-	154.2	104.4	110.7	92.4	138.4	134.3	146.3	129.5	142.4	81.32	82.04	81.67
Bihar	-	-	-	-	-	-	-	-	106.1	110.9	-	-	-	124.63	113.31	119.02
Gujrat	132.7	124.0	-	-	153.2	177.8	-	-	159.2	157.5	128.5	165.2	159.7	96.87	68.02	83.06
Haryana	-	-	-	-	82.9	76.1	-	-	82.1	92.0	-	79.7	78.8	250	237.4	243.38
Himachal Pradesh	-	-	-	-	-	-	-	-	151.3	120.2	-	-	138.2	68.75	64.51	66.67
Jammu & Kashmir	125.2	129.2	-	-	106.3	98.9	79.1	40.5	93.0	84.5	127.1	102.9	85.2	130.81	104.35	117.56
Karnataka	98.9	93.4	-	-	114.5	104.4	60.1	54.4	101.0	96.9	96.3	109.6	96.5	63.46	46.38	55.26
Kerala	72.0	59.7	-	-	64.8	48.5	-	-	55.9	52.5	66.0	58.8	55.8	114.90	120.24	117.50
Madhya Pradesh	-	-	-	-	-	-	-	-	151.7	141.8	-	-	141.5	80.92	73.42	77.53
Maharashtra	88.2	103.9	-	-	101.0	113.4	-	-	102.5	97.1	95.5	106.9	99.6	93.44	87.14	90.35
Orissa	-	-	-	-	-	-	-	-	139.8	134.9	-	-	134.6	101.99	68.12	85.83
Punjab	97.3	10.4	-	-	80.9	115.9	70.3	86.7	103.7	110.0	100.7	97.6	106.6	107.78	136.13	120.79
Rajasthan	145.5	168.8	-	-	167.6	170.2	97.0	84.2	148.5	153.2	156.5	160.8	144.0	93.11	78.35	86.03
Tamil Nadu	-	-	-	-	115.0	109.8	-	-	133.9	131.4	-	112.5	126.7	160.79	163.15	160.49
Uttar Pradesh	176.6	182.6	-	-	153.9	205.9	119.2	99.7	165.4	172.4	179.4	178.7	162.0	84.67	77.67	81.03
West Bengal	-	-	-	-	-	-	-	-	113.4	111.2	-	-	-	118.61	110.13	114.56
India	-	-	-	-	-	-	-	-	136.4	134.5	-	-	-			

boundaries have substantially changed after the reorganisation of the states in 1956.

After independence various Acturial Reports presented the life tables at the zone level to overcome the effects of migration and further it was believed that "the formation of zones solved the problem created by the absence of data on age distribution in certain areas".[8] This again hinders the process of establishing any trend at state level. This turns us towards different studies done by various researcher in this field. Results obtained from the study done by Kohli and Sinha & Lahiri, for the period 1951-60, is given below.

States Period 1951-60	Kohli		Sinha & Lahiri	
	Male e_0^0	Female e_0^0	Male e_0^0	Female e_0^0
Andhra Pradesh	37.9	36.57	37.8	38.4
Maharashtra	45.0	44.03	40.7	42.4
Orissa	41.4	39.99	37.1	35.3
Rajasthan	48.32	44.05	42.1	40.5
Uttar Pradesh	39.48	37.77	37.1	34.8

Above table clearly indicates that even tables prepared for the same period show substantial differences in e_0^0 what to talk over period of time. Comparing such figures with the results presented in the summary table indicate that if we take the survival method as the basis of comparison then e_0^0 shows slight increase

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8. S.P. Jain, Paper 2 of 1954, op. cit., p.1.

over figures provided by the Sinha & Lahiri but if we compare it with the figures of Kohli then there is slight decrease in the life expectancy. However results obtained from Coale & Demeney method shows substantial increase over both the figures. It is clear that figures for longevity vary with the change in methodology. Kohli's figures differ from Sinha & Lahiri who adopted stable population techniques and Coale & Demeney method adopted in this paper show huge increase over both the results mentioned above. Hence it is very difficult to ascertain any trend as such without having information of life expectancy over period of time derived from comparable technique.

C. Variations in the Expectancy of life at the selected ages

One of the best indicators which reflects mortality by age is expectation of life at age x. It gives a measure of the cumulative effect of mortality over the remaining life span after the attainment of age x. Table I shows the expectation of life at selected ages by sex for the states. Highest life expectancy at birth was recorded by Maharashtra (46.14) and lowest by Orissa for males and females again Maharashtra (44.94) topped the table while Uttar Pradesh 34.70 occupied lowest place. It is apparent that it is comparatively a narrower range

SUMMARY TABLE I
(MALE)

1961 Procedure Unchanged	Andhra Pradesh					Maharashtra					Orissa				
	e^o_o	e^o_5	e^o_{10}	q_o	$_1q_4$	e^o_o	e^o_5	e^o_{10}	q_o	$_1q_4$	e^o_o	e^o_5	e^o_{10}	q_o	$_1q_4$
$AIMR_1$	40.90	44.55	43.19	.1027	.0576	46.14	49.72	47.98	.0908	.0446	37.92	43.93	46.32	.1565	.1304
$BIMR_2$	40.44	44.29	43.19	.1077	.0633	45.71	49.49	47.98	.0951	.0492	37.56	43.65	46.32	.1598	.1360
$CIMR_3$	39.67	43.84	43.19	.1159	.0729	45.29	49.25	47.98	.0993	.0538	37.18	43.37	46.32	.1631	.1416
$DIMR_4$	38.92	43.38	43.18	.1238	.0828	44.86	49.01	47.98	.1036	.0585	36.80	43.09	46.32	.1663	.1474
1961 Procedure Changed															
$AIMR_1$	41.14	44.86	43.57	.1036	.0585	46.19	49.78	48.04	.0908	.0446	36.58	42.31	44.47	.1505	.1304
$BIMR_2$	40.75	44.64	43.57	.1077	.0633	45.76	49.54	48.04	.0951	.0492	36.21	42.05	44.46	.1598	.1360
$CIMR_3$	39.98	44.19	43.56	.1159	.0729	45.34	49.31	48.04	.0993	.0538	35.85	41.78	44.46	.1631	.1416
$DIMR_4$	39.22	43.73	43.56	.1238	.0828	44.92	49.07	48.04	.1036	.0585	35.48	41.50	44.46	.1663	.1474
						(FEMALE)									
1961 Procedure Unchanged															
$AIMR_1$	41.83	44.71	43.06	.0854	.0513	44.94	48.37	47.20	.0896	.0568	38.15	43.58	46.84	.1451	.1464
$BIMR_2$	40.99	44.20	43.06	.0938	.0623	44.51	48.09	47.20	.0938	.0623	37.74	43.26	46.84	.1482	.1529
$CIMR_3$	40.16	43.69	43.05	.1019	.0735	44.16	47.92	47.31	.0979	.0679	37.31	42.91	46.82	.1513	.1595
$DIMR_4$	39.64	43.16	43.05	.1098	.0849	43.71	47.63	47.31	.1019	.0735	36.90	42.58	46.82	.1542	.1662
1961 Procedure Changed															
$AIMR_1$	40.45	43.20	41.47	.0854	.0513	44.06	47.36	46.14	.0896	.0568	37.11	42.36	45.41	.1451	.1464
$BIMR_2$	39.64	42.71	41.46	.0938	.0623	43.61	47.10	46.14	.0938	.0623	36.71	42.05	45.41	.1482	.1529
$CIMR_3$	38.84	42.21	41.46	.1019	.0735	43.17	46.82	46.13	.0979	.0679	36.30	41.73	45.41	.1513	.1595
$DIMR_4$	38.05	41.70	41.46	.1098	.0849	42.72	46.54	46.13	.1019	.0735	35.90	41.40	45.41	.1542	.1662
Coale & M	49.9	55.8	55.2	.1222	.0587	52.0	57.4	56.4	.1105	.0505	46.2	53.0	53.2	.1448	.0747
Demeney F	41.9	49.1	50.9	.1653	.1084	55.1	59.7	58.7	.0929	.0496	42.4	49.6	51.4	.1634	.1070

table...contd..

Summary table I...contd..

1961 Procedure Unchanged	Rajasthan					Uttar Pradesh				
	e^o_o	e^o_5	e^o_{10}	q_o	$_1q_4$	e^o_o	e^o_5	e^o_{10}	q_o	$_1q_4$
(MALE)										
$AIMR_1$	43.16	47.33	46.44	.1077	.0633	39.30	44.98	46.60	.1462	.1139
$BIMR_2$	42.75	47.10	46.44	.1118	.0681	38.91	44.71	46.60	.1497	.1194
$CIMR_3$	42.34	44.85	46.44	.1159	.0729	38.52	44.44	46.60	.1532	.1248
$DIMR_4$	41.94	46.61	46.44	.1119	.0779	38.14	44.17	46.60	.1565	.1304
1961 Procedure Changed										
$AIMR_1$	41.49	45.46	44.45	.1077	.0633	38.43	43.97	45.56	.1462	.1139
$BIMR_2$	41.10	45.23	44.45	.1118	.0681	38.05	43.71	45.56	.1497	.1194
$CIMR_3$	40.32	44.77	44.44	.1199	.0779	37.68	43.44	45.45	.1532	.1248
$DIMR_4$	37.68	43.44	45.45	.1159	.0729	37.30	43.17	45.45	.1565	.1304
(FEMALE)										
1961 Procedure Unchanged										
$AIMR_1$	42.29	46.68	47.22	.1137	.0908	34.70	39.69	42.63	.1482	.1529
$BIMR_2$	41.85	46.39	47.21	.1174	.0967	34.32	39.39	42.63	.1513	.1595
$CIMR_3$	41.74	46.45	47.62	.1211	.1026	33.94	39.08	42.62	.1542	.1662
$DIMR_4$	41.30	46.15	47.62	.1248	.1087	33.56	38.77	42.61	.1571	.1730
1961 Procedure Changed										
$AIMR_1$	41.28	45.54	45.96	.1137	.0908	33.43	38.20	40.87	.1482	.1529
$BIMR_2$	40.86	45.25	45.96	.1174	.0967	33.07	37.91	40.87	.1513	.1595
$CIMR_3$	40.43	44.96	45.96	.1211	.1026	32.70	37.62	40.87	.1542	.1662
$DIMR_4$	40.00	44.67	45.96	.1248	.1087	32.34	37.32	40.87	.1571	.1730
Coale & M	50.6	57.5	54.3	.1392	.0706	52.5	57.8	56.7	.1074	.0485
Demeney F	52.8	57.9	57.5	.1039	.0592	40.9	47.5	49.7	.1777	.1179

than is found between regions in other less developed countries of the world.

As mentioned earlier, there was difference between the two censuses as far as adoption of smoothing techniques are concerned. In this paper attempt is made to make the two smoothed population returns comparable by resmoothing the 1961 population returns by 1971 smoothing procedure and then see the variation in life expectancy due to differences in survival ratios. Results for this are also shown in the Table I. Except for Andhra Pradesh (Male) and Maharashtra (Male) expectancy for all the other sub heads, expectancy of life slightly declined. But difference between the two is not much.

If we study the life tables presided in the Appendix A following points emerge:

(1) States which have higher infant mortality have maximum expectancy at e°_{10} while states with lower mortality attained maximum value at e°_{5} and then showed slight decline. This fact can be observed from the summary table II. Another significant feature which follows from the table is that states with higher infant mortality rate are also the states which have very high child hood mortality. This makes the considerable difference in the expectancy of life.

(2) Another feature which follows from the above point is that for each sex, expectation of life at age 10 is greater than at birth. The difference between e^{o}_{10} and e^{o}_{o} depends upon the level of infant mortality.

(3) Females have lower expectancy of life in early age group but in later ages their expectancy of life is higher than males - out of 10 cases (5 stateex2 procedures) only in three cases (Orissa in both the cases & Andhra in the case 1961 procedure as it is) female life expectancy at birth exceeded the male counterpart. It is in sharp contrast to the trend of pre independence period. "The female death rate for unpartitioned India upto 1931 ruled lower than the male death rate in the age group 0 to 11 but for ages beyond 11 the former exceeded the latter and the margin of excess increased with the advance of years".[9] The greater expectancy of life at birth of females upto 1931 may be the effect of construction of the life table on the basis of greater longevity of females observed in other parts of the world for which data was available. This is not observed for the censuses in India from 1931 on. One may consider two possible hypotheses. One is that the Indian female

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9. Asok Mitra, India's Population, op. cit., p.47.

did have an advantage over the male before 1931. But the conditions deteriorated later in favour of males. Such a hypothesis upsets our impressions regarding the status of females vis-a-vis males. The other hypothesis is that earlier life tables may have to be revised for the proper sex-differentials observed in later censuses on the basis of assumed differential under enumeration in the two sexes. It is not proposed to apply any criteriawas such to come out with estimates of relative under enumeration in the censuses in the present study. The idea in mentioning the above possibilities is to bear in mind the factor of differential under-enumeration, so important in the construction of life table.

Due to regional peculiarities, estimates of the exact gap between male and female mortality level in India tend to vary. Padmanabha presented average age and sex specific death rates from the sample Registration system,[10] and main point made by him which deserves attention, is that for all age groups higher than 30-34 years, male death rates are actually substantially greater than death rates for females. Above phenomenon is found in both

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10. P. Padmanabha, "Mortality in India: A note on trends and implications", Economic & Political Weekly, Aug. 7, 1982, p.1286.

rural and urban areas. Also the indications are that this basic all India pattern of sex differentials in mortality exists in all the states of the country".[11] Though above study relates to much later period yet the life tables presented in Appendix A and B confirm the high expectancy for male in early ages in most of the cases and female life expectancy exceed it in the later span of life. But there is no set age group after which female expectancy of life exceeds the male's as suggested in the above studies, through observation of age specific mortality pattern.

Comparison of Results obtained from Coale & Demeney Method with Census Survival Method

(1) Figures obtained for the life expectancy at birth through census survival method do not show much gap between male and female life expectancy at birth and confirms what "most analysts agree that, on average, life expectation at birth is probably around one or two years longer for men than for women".[12] Uttar Pradesh is the only exception where gap is of more then 4 years.

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11. Tim Dyson, "Excess male Mortality in India", Economic & Political Weekly, March 10, 1984, p.422.

12. Tim Dyson, op. cit.

On the other hand, in the Coale & Demeney method gap is remarkably large. In the procedure adopted for unsmoothed cumulative population it is 8 years for Andhra Pradesh and 12.5 year for Utter Pradesh. One of the possible reasons for this unusual phenomenon may be the inaccuracy of the age distribution. What are the exact reasons for the above said phenomenon and to what extent they affect life expectancy is matter of further investigation.

(2) Results obtained through Coale & Demeney method are also presented in summary table. Table shows the position life expectancy between e_0^0 and e_{10}^0, for both the sexes and for all the five states. As shown by the pattern of census survival method, peak of the expectancy is determined by the childhood mortality. In other tables with lesser e_0^0 attain the peak at e_{10}^0 and with larger e_0^0 peak is achieved at e_5^0 but gap between e_0^0 and e_5^0 or e_{10}^0 is much large in the model life table.

(3) In the census survival method Andhra Pradesh & Orissa show slightly more e_0^0 for female while in the case of Coale & Demeney method, Maharashtra and Rajasthan are showing higher expectancy of life for females.

Fourthly Coale & Demeney method which was utilised to supplement the census survival method gives higher

expectancy for each state for both the sexes. Highest life expectancy is shown by Uttar Pradesh (52.5) and Maharashtra (52) for males, while Orissa (46.2) returned lowest in the same category while for females Maharashtra (55.1) leads the table while Uttar Pradesh with (40) is lowest in the table.

Comparison of observed life expectancy with zonal life tables

Life expectancy at birth based on census life tables[13] is summarized in the following table:

Zone	Life expectancy at Birth	
	Male	Female
Northern	50.6	48.3
Southern	47.5	46.4
Eastern	46.0	42.8
Western	48.6	49.0
Central	42.2	40.7

It is rather difficult to draw the conclusions by comparing the state level life table with zonal level. Zonal level life tables have quite different considerations. Firstly migration is assumed to be negligible and infant mortality experienced by the states within the zone are pooled together to arrive at one figure.

Observed life expectancy based on census on census survival ratios for the states seems to be depressed in

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13. Life tables: Series 1 - India, Census of India 1971 Paper 1 of 1977.

comparison to the zonal life tables. One of the reasons could be different in methodology i.e. in the treatment of younger age group. "Since it is difficult to put forth a convincing explanation for the relatively low child mortality levels seen in the census life tables. We have to view with suspicion the mortality rates at younger ages in the census life tables. When censuses are taken at ten year interval, it is hard to deduce mortality rates at very young ages as interpolation does not provide efficient estimates at this age group".[14] On the other hand, model life tables have slightly higher values again reason is low child hood mortality experienced by the advanced countries.

Conclusion

In the present study, both methodological and substantive aspects for construction of life tables at the state level have been studied. The method used for the construction of the life tables is based on two censuses age distribution. Assessment of mortality conditions based on such an age distribution has many limitations.

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14. P.N. Mari Bhat, "Age Pattern of Mortality and estimates of Birth and Death Rates in India", Paper was presented in Panel on India, op. cit.

Firstly life tables are based on the census age distributions which are highly distorted due to errors in age reporting and preference for certain digits. This calls for a careful adjustment of the age data.

Secondly, age distribution of the population had to be corrected for the distribution of migration. Since information on age of the migrants during 1961-70 was only available through census count based on sample. Migration data were used with certain assumptions. These assumptions may or may not be in respect of the age distribution of migrants in the whole decade. Further, it was not possible to correct the deficiencies in the age reporting of migrants due to lack of any adjustment mechanism.

Thirdly, there is difference in the smoothing procedure adopted in the two census reports. To make the series comparable itself, 1961 procedure has to be changed using 1971 procedure and it was tried to see if it makes any difference in the expectancy of life. In most of the cases it reduced the expectancy of life but degree of variation was very small.

Fourthly, even after resmoothing the data in more than one case survival rates come more than 1. This necessitated further resmoothing of survival ratios (P_x)

using the formula: $\frac{1}{4}(W_{-1}+2W_0+W_1)$ and adjusting the values accordingly. In other words, smoothing or resmoothing was sufficient to give the survival ratios which can be used without any further adjustment. Hence adjustment is required in survivalship ratios before using as the input for the life tables.

Fifthly, owing to the inadequacies in the registration data, the registered infant mortality rates do not reflect the true rates for the states. Neither National Sample survey nor sample registration system have brought out the vital rates for the period under consideration. Hence ultimately this paper tried to use the range of infant mortality divided into four subgroups to see the variations.

Finally, the survival rates for the group 1-4 were not obtained from the census returns. They were derived from the relationship between childhood mortality and infant mortality as shown by the experience of other countries. Further, old age mortality was extrapolated by Gomperts Curve.

Thus for the construction of life table, the number age x+n at a census is regarded as survivors of those aged x years at the previous census, usually conducted decade ago. Such procedure determines the death rates

for various age groups during a decade between the two censuses. Life table based on census returns command faith more from n additional information for construction rather than for their reliability. Though highly technical, the construction part is based on many assumptions. The completeness of enumeration is doubled. The uncertainty due to this is often alleviated by the assumption of the level of under enumeration in the two consecutive censuses. The differential coverage from census to census if any could rarely be assessed or corrected for.

Despite its limitations, census survival method occupies important place due to

(1) Vital registration in India is not dependable.

(2) For any empirical observation regarding mortality the size of the sample needed for a given level of precision is large. Good results can be achieved from the data obtained through sample registration system if the data available over period of time is pooled together and representative average is obtained through moving averages. Though such data has some limitations, nonetheless this is the avenue where more care is needed to make it more reliable.

(3) There is faith in near completeness of enumeration of the census. This is partly due to the vastness of the

whole census affair.

(4) Assumption of the same level of under or over enumeration at the two consecutive censuses leaves the census life tables comparatively undisturbed.

Use of model life table is also not less dangerous at the microlevel. The aim of model life tables is to make available the age specific mortality rates or the number of survivors to each age that may be expected varying mortality conditions. Differentials in mortality as they are observed today, may be taken as biological reactions to the stimuli of technological and public health advances. They are not stable or permanent and their introduction to mathematical methods, needs perhaps continuous refinement. All that is needed in this enterprise is to approximate to the best of our knowledge the average course of mortality applicable to all major contemporary population.

For analysing the population data of India, it is often suggested to use model "west" (utilized in this study also), which is based on mortality experiences recorded in population known to have relatively good vital statistics and not showing a persistent systematic pattern of deviations from the preliminary standard values.

Careful examination of the inputs of the model life tables, especially those prepared by Coale and Demeney, brings out that most of the tables depict the mortality experience of the European population. The records show that prior to mid nineteenth century the European population experienced high death rate which they could reduce largely due to improvement in economic conditions, medical and public health facilities. The reduction in the death rate in these countries was slow, it took long time for them to achieve the present level. On the basis of the experience of the European population it was once argued that reduction in death rate in the developing countries will also take the same course though countries like Ceylon have shown deviation by exhibiting sharp decline in mortality. The experience of Ceylon was unique and none of the developing countries experienced such a sharp decline. In India the death rate which was about 48.6 in 1911-21 dropped to 15 in 1971 and since then it is fluctuating around the same level. Again in India mortality among females is observed to be higher than that of males. Lower status of women in the society is attributed as the main cause of higher mortality among females. The above stated facts regarding the trend of mortality and reverse picture of mortality by sex brings

out that the European population fails to depict the mortality experience of the developing countries, i.e. that of the Indian sub-continent. Recent study done by United Nations maintains, "A third pattern delineated is the South Asian pattern of mortality. This pattern shows, relative to West region tables very high rates under age 15 and very high rates again at the oldest ages, with correspondingly lower mortality for the prime age groups. Life tables for India, Iran, the Mahtab area of Bangladesh and Tunisia all show this pattern".[15] Deviation of South Asian pattern from Coale & Demeney West region is depicted in figure2I.

Hence applicability of any one set of model in the unique circumstances is doubtful. As study done by Sinha and Gupta asserts, "that for given level of life expectations the infant mortality in India is close to 'North' model, whereas childhood mortality does not show any specific trend. In some ages it is closer to the 'North' model and in other it is closer to the 'West' model. This indicates that neither the 'West' model nor the 'North' model is able to depict the childhood mortality in India".[16]

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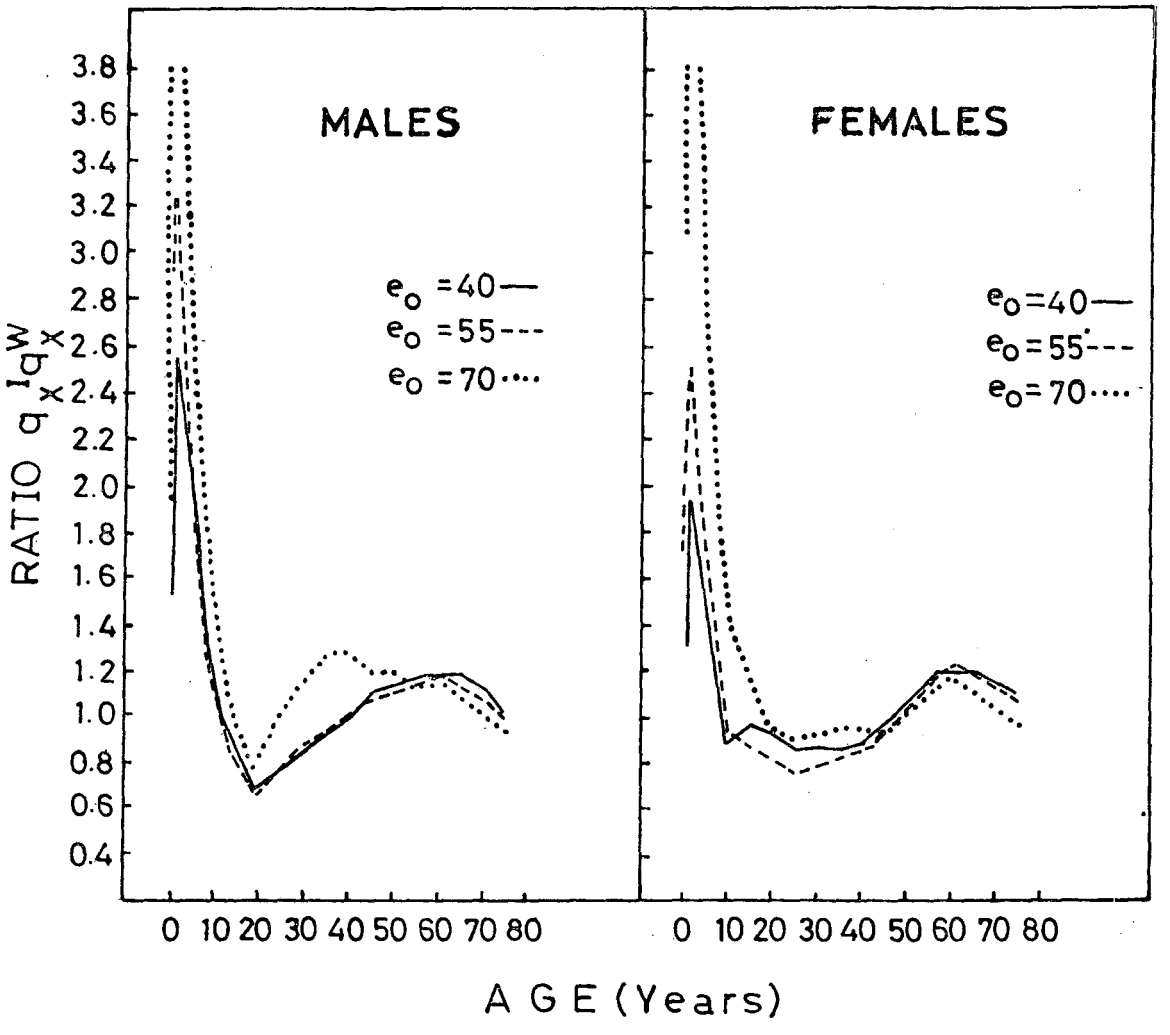
15. United Nations: Model Life tables for Developing Countries", United Nations Publication, 1981, p.13.

16. U.P. Sinha & R.D. Gupta, Model life tables for India - Mimeographed, p.5.

DEVIATION
OF SOUTH-ASIAN PATTERNS
FROM COALE AND DEMENY WEST REGION



SOURCE : U.N. MODEL LIFE TABLES FOR DEVELOPING COUNTRIES; pp. 11-12 .

Applicability of such a model becomes more questionable when applied at the state level. Results obtained from the Coale & Demeney method procedure as summarized in Table I indicate that difference between e_0^o and e_5^o is much larger compared to the values obtained from the census survival method. Comparatively larger e_5^o and even larger e_{10}^o indicates extent of childhood mortality is not captured by the Coale & Demeney method.

Limitations of these kinds of life tables based on census age returns at the state level poses the question of alternative. The ideal situation is the one in which daily registration of births, marriages and deaths is so accurate and complete that exact decennial census figure can be foretold, and the actual census count can serve as a more check up. But as this seldom happens in practice and as the actual situation in India is far from this ideals, sampling techniques have been pressed into use. But here again, no matter what sampling technique is used, it can never take place of complete vital registration and accurate census counts. The sampling process, despite its numerous advantages such as economy in both time and money, is not the desirable ideal but only an unavoidable alternative.

APPENDIX-A

ABRIDGED MALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Unchanged
IMR = 135

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1238	100000	12382	91036	3892077	38.92
1 - 5	.0828	87618	7258	330702	3801041	43.38
5 - 10	.0300	80360	2408	395039	3470339	43.18
10 - 15	.0474	77952	3697	380852	3075300	39.45
15 - 20	.0542	74255	4022	361263	2694448	36.29
20 - 25	.0558	70233	3916	341316	2333185	33.22
25 - 30	.0565	66317	3750	322155	1991869	30.04
30 - 35	.0586	62567	3664	303720	1669714	26.69
35 - 40	.0676	58903	3984	284822	1365994	23.19
40 - 45	.0905	54919	4970	262713	1081172	19.69
45 - 50	.1326	49947	6624	233842	818459	16.39
50 - 55	.1885	43325	8165	196576	584617	13.49
55 - 60	.2391	35160	8408	154930	388041	11.04
60 - 65	.3334	26752	8918	111340	233111	8.71
65 - 70	.4394	17834	7837	68888	121771	6.83
70 - 75	.5623	9997	5621	34931	52883	5.29
75 - 80	.6925	4376	3030	13362	17952	4.10
80 - 85	.8142	1346	1096	3990	4580	3.41
85 +	1.0000	250	250	600	600	2.40

ABRIDGED MALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Unchanged
IMR = 125

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	$\mathring{e}_x$
0 - 1	.1159	100000	11588	91610	3967464	39.67
1 - 5	.0729	88412	6449	336100	3875854	43.84
5 - 10	.0300	81963	2457	403116	3539754	43.19
10 - 15	.0474	79506	3771	388449	3136638	39.45
15 - 20	.0542	75735	4102	368468	2748189	36.29
20 - 25	.0558	71633	3994	348123	2379721	33.22
25 - 30	.0565	67639	3825	328581	2031598	30.04
30 - 35	.0586	63814	3738	209778	1703017	26.69
35 - 40	.0676	60076	4063	290502	1393239	23.19
40 - 45	.0905	56013	5069	267953	1102737	19.69
45 - 50	.1326	50943	6756	238506	834784	16.39
50 - 55	.1885	44187	8327	200496	596278	13.49
55 - 60	.2391	35860	8576	158020	395782	11.04
60 - 65	.3334	27284	9095	113561	237762	8.71
65 - 70	.4394	18189	7993	70262	124201	6.83
70 - 75	.5623	10196	5733	35627	53939	5.29
75 - 80	.6925	4463	3091	13628	18312	4.10
80 - 85	.8142	1372	1117	4069	4683	3.41
85 +	1.0000	255	255	614	614	2.41

ABRIDGED MALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Unchanged
IMR = 115

$n^{AGE}x$	nq_x	l_x	nd_x	nL_x	T_x	$^{o}e_x$
0 - 1	.1077	100000	10772	92201	4043662	40.44
1 - 4	.0633	89228	5645	341572	3951461	44.29
5 - 10	.0300	83583	2505	411275	3609889	43.19
10 - 15	.0474	81078	3846	396123	3198614	39.45
15 - 20	.0542	77232	4184	375748	2802491	36.29
20 - 25	.0558	73048	4073	355001	2426742	33.22
25 - 30	.0565	68975	3901	335072	2071741	30.04
30 - 35	.0586	65074	3811	315898	1736668	26.69
35 - 40	.0676	61263	4144	296242	1420770	23.19
40 - 45	.0905	57119	5169	273247	1124528	19.69
45 - 50	.1326	51950	6890	243218	851281	16.39
50 - 55	.1885	45060	8492	204457	608063	13.49
55 - 60	.2391	36568	8745	161143	403605	11.04
60 - 65	.3334	27823	9275	115804	242462	8.71
65 - 70	.4394	18548	8150	71650	126658	6.83
70 - 75	.5623	10398	5846	36331	56008	5.29
75 -80	.6925	4552	3152	13897	18677	4.10
80 - 85	.8142	1400	1140	4132	4780	3.41
85 +	1.0000	260	260	628	628	2.42

ABRIDGED MALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Unchanged
IMR = 110

$n^{AGE}x$	$n^{q}x$	l_x	$n^{d}x$	$n^{L}x$	T_x	$^{o}e_x$
0 - 1	.1027	100000	10273	92563	4089770	40.90
1 - 4	.0576	89727	5165	344889	3997208	44.55
5 - 10	.0300	84562	2534	416209	3652318	43.19
10 - 15	.0474	82028	3891	400767	3236109	39.45
15 - 20	.0542	78137	4232	380153	2835342	36.29
20 - 25	.0558	73905	4121	359163	2455189	33.22
25 - 30	.0565	69784	3946	339000	2096026	30.04
30 - 35	.0586	65838	3856	319601	1757026	26.69
35 - 40	.0676	61982	4193	299715	1437425	23.19
40 - 45	.0905	57789	5230	276450	1137710	19.69
45 - 50	.1326	52559	6971	246069	861260	16.39
50 - 55	.1885	45588	8591	206855	615191	13.49
55 - 60	.2391	36997	8848	163031	408337	11.04
60 - 65	.3334	28149	9383	117162	245306	8.71
65 - 70	.4394	18766	8246	72490	126144	6.83
70 - 75	.5623	10520	5915	36758	55653	5.29
75 - 80	.6925	4605	3189	14061	18896	4.10
80 - 85	.8142	1416	1153	498	4835	3.41
85 +	1.0000	263	263	637	637	2.42

ABRIDGED MALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Unchanged
IMR = 110

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1036	100000	10356	92502	4486101	44.86
1 - 5	.0585	89644	5245	344334	4393599	49.01
5 - 10	.0315	84399	2662	414899	4049265	47.98
10 - 15	.0384	81737	3138	400988	3634366	44.46
15 - 20	.0430	78599	3380	384592	3233378	41.14
20 - 25	.0449	75219	3376	367635	2848786	37.87
25 - 30	.0459	71842	3296	350957	2481151	34.54
30 - 35	.0482	68546	3301	334518	2130194	31.08
35 - 40	.0533	65245	3480	317705	1795676	27.52
40 - 45	.0673	61765	4158	298732	1477971	23.93
45 - 50	.0855	57607	4926	276039	1179239	20.47
50 - 55	.1081	52681	5695	249963	903200	17.14
55 - 60	.1864	46986	8759	213693	653237	13.90
60 - 65	.2323	38227	8879	169025	439544	11.50
65 - 70	.3128	29348	9181	123673	270519	9.22
70 - 75	.4129	20167	8326	79417	146846	7.28
75 - 80	.5304	11841	6280	42533	67429	5.69
80 - 85	.6579	5561	3659	18658	24896	4.48
85 - 90	1.0000	1902	1902	6238	6238	3.28

ABRIDGED MALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Unchanged
IMR = 105

$n^{AGE}x$	nq_x	l_x	nd_x	nL_x	T_x	$^{o}e_x$
0 - 1	.0993	100000	9935	92807	4528640	45.29
1 - 5	.0538	90065	4846	347115	4435833	49.25
5 - 10	.0315	85219	2688	419025	4088718	47.98
10 - 15	.0384	82531	3169	404885	3669693	44.46
15 - 20	.0430	79362	3413	388329	3264808	41.14
20 - 25	.0449	75949	3409	371208	2876479	37.87
25 - 30	.0459	72540	3328	354368	2505271	34.54
30 - 35	.0482	69212	3333	337769	2150903	31.08
35 - 40	.0533	65879	3514	320792	1813134	27.52
40 - 45	.0673	62365	4199	301635	1492342	23.93
45 - 50	.0855	58166	4974	278722	1190707	20.47
50 - 55	.1081	53192	5751	252392	911985	17.14
55 - 60	.1864	47441	8843	215769	659593	13.90
60 - 65	.2323	38598	8965	170667	443824	11.50
65 - 70	.3128	29633	9270	124075	273157	9.22
70 - 75	.4129	20363	8407	80189	148282	7.28
75 - 80	.5304	11956	6341	42947	68093	5.70
80 - 85	.6579	5615	3694	18839	25146	4.48
85 +	1.0000	1921	1921	6307	6307	3.28

ABRIDGED MALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Unchanged
IMR = 100

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.0951	100000	9508	93116	457404	45.71
1 - 5	.0492	90492	4448	349914	4478288	49.49
5 - 10	.0315	86044	2714	423171	4128374	47.98
10 - 15	.0384	83330	31200	408802	3785203	44.46
15 - 20	.0430	80130	3445	392086	3296401	41.14
20 - 25	.0449	76685	3442	374799	2904315	37.87
25 - 30	.0459	73243	3360	357796	2529516	34.54
30 - 35	.0482	69883	3366	341036	2171720	31.08
35 - 40	.0533	66517	3548	323896	1830684	27.52
40 - 45	.0673	62969	4239	304554	1506788	23.93
45 - 50	.0855	58730	5022	281418	1202234	20.47
50 - 55	.1081	53708	5807	254834	920816	17.15
55 - 60	.1864	47901	8930	217857	665982	13.90
60 - 65	.2323	38971	9051	172318	448125	11.50
65 - 70	.3128	29920	9359	126083	255807	9.22
70 - 75	.4129	20561	8489	80965	149724	7.28
75 - 80	.5304	12072	6402	43362	68759	5.70
80 - 85	.6579	5670	3731	19022	25397	4.48
85 +	1.0000	1939	1939	6376	6375	3.29

ABRIDGED MALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Unchanged
IMR = 95

$n^{AGE}x$	nq_x	l_x	nd_x	nL_x	T_x	$^{o}e_x$
0 - 1	.0908	100000	9077	93428	4614390	46.14
1 - 4	.0446	90923	4052	352730	4520962	49.72
5 - 10	.0315	86871	2739	427338	4168232	47.98
10 - 15	.0384	84132	3230	412738	3740894	44.46
15 - 20	.0430	80902	3479	395863	3328156	41.14
20 - 25	.0449	77423	3476	378409	293223	37.87
25 - 30	.0459	73947	3392	361242	2553884	34.54
30 - 35	.0482	70555	3398	344321	2192642	31.08
35 - 40	.0533	67157	3582	327015	1848321	27.52
40 - 45	.0673	63575	4280	307486	1521306	23.93
45 - 50	.0855	59295	5071	284129	1213820	20.47
50 - 55	.1081	54224	5862	257288	929692	17.15
55 - 60	.1864	48362	9015	219955	672404	13.90
60 - 65	.2323	39347	9139	173977	452469	11.50
65 - 70	.3128	30208	9450	127297	278472	9.22
70 - 75	.4129	20758	8570	81745	151175	7.28
75 - 80	.5304	12188	6464	43780	69430	5.70
80 - 85	.6579	5724	3766	19205	25650	4.48
85 +	1.0000	1958	1958	6445	6445	3.29

ABRIDGED MALE LIFE TABLE FOR ORISSA

1961 Procedure Unchanged
IMR = 195

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1663	100000	16626	87963	3680242	36.50
1 - 5	.1474	83374	12288	299877	3592279	43.09
5 - 10	.0271	71086	1924	348485	3292402	46.32
10 - 15	.0294	69162	2036	340739	2943917	42.57
15 - 20	.0300	67126	2012	330587	2603178	38.78
20 - 25	.0302	65114	1969	320724	2272591	34.90
25 - 30	.0375	63145	2366	309994	1951867	30.91
30 - 35	.0467	60779	2841	297038	1641873	27.01
35 - 40	.0612	57938	3545	281350	1344835	23.21
40 - 45	.0985	54393	5359	259279	1063485	19.55
45 - 50	.1423	49034	6977	228247	804205	16.40
50 - 55	.1869	42057	7861	190907	575958	13.69
55 - 60	.2427	34196	8300	150343	385051	11.26
60 - 65	.3247	25896	8410	108255	234708	9.06
65 - 70	.4195	17486	7335	68461	126453	7.23
70 - 75	.5291	10151	5371	36445	57992	5.71
75 - 80	.6476	4780	3096	15310	21547	4.51
80 - 85	.7642	1684	1287	5205	6237	3.70
85 +	1.0000	397	397	1032	1032	2.60

ABRIDGED MALE LIFE TABLE FOR ORISSA

1961 Procedure Unchanged
IMR = 190

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1631	100000	16308	88192	3717844	37.18
1 - 5	.1416	83692	11854	302342	3629652	43.37
5 - 10	.0271	71838	1946	352284	3327310	46.32
10 - 15	.0290	69892	2057	344339	2975026	42.57
15 - 20	.0300	67835	2033	334080	2630687	38.78
20 - 25	.0302	65802	1989	324113	2296607	34.90
25 - 30	.0375	63813	2392	313270	1992494	30.91
30 - 35	.0467	61421	2871	300177	1659224	27.01
35 - 40	.0612	58550	3583	284323	1359047	23.21
40 - 45	.0985	54967	5416	262019	1074724	19.55
45 - 50	.1423	49551	7050	230659	812705	16.40
50 - 55	.1869	42501	7944	192924	582046	13.69
55 - 60	.2427	34557	8387	151932	389122	11.26
60 - 65	.3247	26190	8498	109399	237190	9.06
65 - 70	.4195	17672	7413	69165	127791	7.23
70 - 75	.5291	10259	5429	36830	58606	5.71
75 - 80	.6476	4830	3128	15472	21776	4.51
80 - 85	.7642	1702	1301	5259	6304	3.70
85 +	1.0000	401	401	1045	1045	2.60

ABRIDGED MALE LIFE TABLE FOR ORISSA

1961 Procedure Unchanged
IMR = 185

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1598	100000	15985	88427	3755647	37.56
1 - 5	.1360	84015	11422	304826	3667220	43.65
5 - 10	.0271	72593	1965	356102	3362394	46.32
10 - 15	.0294	70628	2079	347958	3006292	42.57
15 - 20	.0300	68549	2055	337591	2658334	38.78
20 - 25	.0302	66494	2010	327519	2320743	34.90
25 - 30	.0375	64484	2417	316562	1993224	30.91
30 - 35	.0467	62067	2901	303332	1677662	27.01
35 - 40	.0612	59166	3621	287311	1373330	23.21
40 - 45	.0985	55545	5473	264772	1086019	19.55
45 - 50	.01423	50072	7124	233083	821247	16.40
50 - 55	.1869	42948	8028	194951	588164	13.69
55 - 60	.2427	34920	8475	153528	393213	11.26
60 - 65	.3247	26445	8588	110549	239685	9.06
65 - 70	.4195	17857	7491	69912	129136	7.23
70 - 75	.5291	10366	5485	37217	59224	5.71
75 - 80	.6476	4881	3161	15635	22007	4.51
80 - 85	.7642	1720	1315	5314	6372	3.70
85 +	1.0000	405	405	1058	1058	2.61

ABRIDGED MALE LIFE TABLE FOR ORISSA

1961 Procedure Unchanged
IMR = 180

AGE x	$_nd_x$	l_x	$_nd_x$	$_nL_x$	T_x	$\mathring{e}_x$
0 - 1	.1565	100000	15654	88667	3793652	37.94
1 - 5	.1304	84346	10995	307329	3704985	43.93
5 - 10	.0271	73351	1986	359938	3397656	46.32
10 - 15	.0294	71365	2101	351595	3037718	42.57
15 - 20	.0300	69264	2076	341120	2686123	38.78
20 - 25	.0302	67188	2031	330942	2345003	34.90
25 - 30	.0375	65157	2442	319871	2014061	30.91
30 - 35	.0467	62715	2932	306502	1694190	27.01
35 - 40	.0612	59783	3658	290314	1387688	23.21
40 - 45	.0985	56125	5530	267541	1097374	19.55
45 - 50	.1423	50595	7199	235519	829833	16.40
50 - 55	.1869	43396	8111	196989	594314	13.69
55 - 60	.2427	35285	8564	155134	397325	11.26
60 - 65	.3247	26721	8678	111704	242191	9.06
65 - 70	.4195	18043	7569	70642	130487	7.23
70 - 75	.5291	10474	5542	37606	59845	5.71
75 - 80	.6476	4932	3194	15798	22239	4.51
80 - 85	.7642	1738	1329	5370	6441	3.71
85 +	1.0000	409	409	1071	1071	2.61

ABRIDGED MALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Unchanged
IMR = 130

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1119	100000	11988	91321	4193711	41.94
1 - 5	.0779	88012	6853	333392	4102390	46.61
5 - 10	.0285	81159	2314	399098	3768998	46.44
10 - 15	.0312	78845	2459	388163	3369800	42.74
15 - 20	.0354	76386	2706	375241	2981737	39.03
20 - 25	.0382	73680	2813	361442	2606496	35.38
25 - 30	.0432	70867	3162	346867	2245054	31.68
30 - 35	.0547	67805	3707	329991	1998187	27.99
35 - 40	.0650	64098	4168	310312	1568196	24.47
40 - 45	.0810	59930	4857	287909	1257884	20.99
45 - 50	.1104	55073	6080	260821	969975	17.61
50 - 55	.1631	48993	7991	225596	709154	14.47
55 - 60	.2192	41002	8989	192887	483558	11.79
60 - 65	.3018	32013	9660	135924	300671	9.39
65 - 70	.4037	22353	9025	88548	164947	7.37
70 - 75	.5250	13328	6997	48136	76099	5.71
75 - 80	.6575	6331	4163	20147	27963	4.42
80 - 85	.7862	2168	1705	6580	7816	3.50
85 +	1.0000	463	463	1236	1236	2.67

ABRIDGED MALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Unchanged
IMR = 125

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1159	100000	11588	91610	4234120	42.34
1 - 5	.0729	88412	6449	336100	4142510	44.85
5 - 10	.0285	81963	2337	403147	3806410	46.44
10 - 15	.0312	79626	2489	392007	3403263	42.74
15 - 20	.0354	77142	2733	378955	3011256	39.03
20 - 25	.0382	74409	2841	365020	2632301	35.38
25 - 30	.0432	71568	3092	350302	2267281	31.68
30 - 35	.0547	68476	3743	333257	1916979	27.99
35 - 40	.0650	64733	4209	313384	1583722	24.47
40 - 45	.0810	60524	4905	290759	1270338	20.99
45 - 50	.1104	55619	6140	263403	979579	17.61
50 - 55	.1631	49479	8070	227829	716176	14.47
55 - 60	.2192	41409	9078	184698	488347	11.79
60 - 65	.3018	32331	9757	137269	203649	9.39
65 - 70	.4037	22574	9114	89525	166380	7.37
70 - 75	.5250	13460	7066	48613	76855	5.71
75 - 80	.6575	6394	4204	20346	28242	4.42
80 - 85	.7862	2190	1722	6645	7896	3.61
85 +	1.0000	468	468	1251	1251	2.67

ABRIDGED MALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Unchanged
IMR = 120

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1118	100000	11183	91903	4274746	42.75
1 - 5	.0681	88817	6046	388827	4182843	47.10
5 - 10	.0285	82771	2360	407217	3844016	46.44
10 - 15	.0312	80411	2508	395869	3436799	42.74
15 - 20	.0354	77903	2760	382689	340930	39.03
20 - 25	.0382	75143	2869	368617	2658241	35.38
25 - 30	.0432	72274	3123	353753	2289624	31.68
30 - 35	.0547	69151	3780	336541	1935871	27.99
35 - 40	.0650	65371	4251	316472	1599330	24.47
40 - 45	.0810	61120	4953	293624	1282858	20.99
45 - 50	.1104	56167	6200	265999	989234	17.61
50 - 55	.1631	49967	8149	230074	723235	14.47
55 - 60	.2192	41816	9167	186518	491361	11.79
60 - 65	.3018	32649	9852	138622	306643	9.39
65 - 70	.4037	22797	9204	90407	168021	7.37
70 - 75	.5250	13593	7135	49091	77614	5.71
75 - 80	.6575	6457	4246	20547	28523	5.42
80 - 85	.7862	2211	1738	6711	7976	3.61
85 +	1.0000	473	473	1265	1265	2.67

ABRIDGED MALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Unchanged
IMR = 115

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1077	100000	10772	92201	4315508	43.16
1 - 5	.0633	89228	5645	341572	4223387	47.33
5 - 10	.0285	83583	2383	411307	3881815	46.44
10 - 15	.0312	81200	2533	399751	3470508	42.74
15 - 20	.0354	78667	2788	386443	3070757	39.03
20 - 25	.0382	75879	2897	372232	2684314	35.38
25 - 30	.0432	72982	3153	357223	2312082	31.68
30 - 35	.0547	69829	3817	339841	1954859	27.99
35 - 40	.0650	66012	4293	319576	1615018	24.47
40 - 45	.0810	61719	5002	296504	1295442	20.99
45 - 50	.1104	56717	6261	268607	998938	17.61
50 - 55	.1631	50456	8230	232331	730331	14.47
55 - 60	.2192	42226	9257	188347	498000	11.79
60 - 65	.3018	32969	9949	139982	309653	9.39
65 - 70	.4037	23020	9294	91294	169671	7.37
70 - 75	.5250	13726	7206	49573	78377	5.71
75 - 80	.6575	6520	4287	20748	28804	4.42
80 - 85	.7862	2233	1756	6777	8056	3.61
85 +	1.0000	477	477	1279	1279	2.68

ABRIDGED MALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Unchanged
IMR = 180

$n^{AGE}x$	$n^{q}x$	l_x	$n^{d}x$	$n^{L}x$	T_x	$^{o}e_x$
0 - 1	.1565	100000	15654	88667	3814030	38.14
1 - 5	.1304	84346	10995	307329	3725363	44.17
5 - 10	.0465	73351	3408	356669	3418034	46.60
10 - 15	.0497	69943	3479	341006	3061365	43.77
15 - 20	.0504	66464	3348	323903	2720359	40.93
20 - 25	.0514	63116	3242	307435	2396456	37.97
25 - 30	.0526	59874	3148	291472	2089021	34.89
30 - 35	.0548	56726	3107	275896	1797549	31.69
35 - 40	.0618	53619	3316	259976	1521653	28.38
40 - 45	.0783	50303	3937	241931	1261677	25.08
45 - 50	.0983	46366	4556	220657	1019746	21.99
50 - 55	.1190	41810	4974	196893	799089	19.11
55 - 60	.1597	36836	5881	169699	602196	16.35
60 - 65	.1950	30955	6035	139721	432497	13.97
65 - 70	.2426	24920	6045	109407	292776	11.75
70 - 75	.2995	18875	5652	79992	183368	9.71
75 - 80	.3662	13223	4842	53600	103376	7.82
80 - 85	.4425	8380	3708	32631	49776	5.94
85 +	1.0000	4672	4672	17145	17145	3.67

ABRIDGED MALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Unchanged
IMR = 175

$n^{AGE}x$	$n^{q}x$	l_x	$n^{d}x$	$n^{L}x$	T_x	$\mathring{e}_x$
0 - 1	.1532	100000	15316	88912	5852471	38.52
1 - 5	.1248	84684	10571	309851	3763559	44.44
5 - 10	.0465	74113	3443	360490	3453708	46.60
10 - 15	.0497	70670	3515	344551	3093218	43.77
15 - 20	.0504	67155	3383	327270	2748666	40.93
20 - 25	.0514	63772	3276	310633	2421396	37.97
25 - 30	.0526	60496	3181	294503	2110763	34.89
30 - 35	.0548	57315	3139	278764	1816260	31.69
35 - 40	.0618	54176	3351	262680	1537496	28.38
40 - 45	.0783	50825	3977	244446	1274816	25.08
45 - 50	.0983	46848	4603	222951	1030370	21.99
50 - 55	.1190	42245	5026	198940	807419	19.11
55 - 60	.1597	37219	5943	171464	608479	16.35
60 - 65	.1950	31276	6097	141174	437015	13.97
65 - 70	.2426	27179	6108	110545	295841	11.75
70 - 75	.2995	19071	5712	80823	185296	9.72
75 - 80	.3662	13359	4892	54158	104473	7.82
80 - 85	.4425	8467	3746	32970	50315	5.94
85 +	1.0000	4721	4721	17345	17345	3.67

ABRIDGED MALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Unchanged
IMR = 170

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1497	100000	14971	89161	3891120	38.91
1 - 5	.1194	85029	10148	312392	3801959	44.71
5 - 10	.0465	74881	3479	364330	3489567	46.60
10 - 15	.0497	71402	3551	348116	3125237	43.77
15 - 20	.0504	67851	3418	330656	2777121	40.93
20 - 25	.0514	64433	3310	313845	2446465	37.97
25 - 30	.0526	61123	3214	297549	2132620	34.89
30 - 35	.0548	57909	3172	281648	1835071	31.69
35 - 40	.0618	54737	3385	265397	1553423	28.38
40 - 45	.0783	51352	4019	246975	1288026	25.08
45 - 50	.0983	47332	4650	225258	1041051	21.99
50 - 55	.1190	42682	5077	200998	815793	19.11
55 - 60	.1597	37605	6004	173238	614795	16.35
60 - 65	.1950	31601	6161	142634	441557	13.97
65 - 70	.2426	25440	6171	111688	298923	11.75
70 - 75	.2995	19269	5771	81659	187235	9.72
75 - 80	.3662	13498	4943	54718	105574	7.82
80 - 85	.4425	8555	3785	33311	50856	5.94
85 +	1.0000	4770	4770	17545	17545	3.68

ABRIDGED MALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Unchanged
IMR = 165

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1462	100000	14620	894153	3929976	39.30
1 - 5	.1139	85380	9729	314952	3840561	44.98
5 - 10	.0465	75651	3515	368188	3525609	46.60
10 - 15	.0497	72136	3585	351698	3157421	43.77
15 - 20	.0504	68548	3453	334059	2805723	40.93
20 - 25	.0514	65095	3344	317075	2471664	37.97
25 - 30	.0526	61751	3247	300612	2154589	34.89
30 - 35	.0548	58504	3205	284547	1853977	31.69
35 - 40	.0618	55299	3419	268128	1569430	28.38
40 - 45	.0783	51880	4060	249516	1301302	25.08
45 - 50	.0983	47820	4699	227576	1051786	21.99
50 - 55	.1190	43121	5130	203067	824210	19.11
55 - 60	.1597	37991	6066	175021	621143	16.35
60 - 65	.1950	31925	6224	144102	446122	13.97
65 - 70	.2426	25701	6235	112038	302020	11.75
70 - 75	.2995	19466	5830	82499	189982	9.72
75 - 80	.3662	13636	4994	55282	106683	7.82
80 - 85	.4425	8642	3824	33554	51401	5.95
85 +	1.0000	4818	4818	17747	17747	3.68

ABRIDGED FEMALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Unchanged
IMR = 120

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1098	100000	10981	92050	3834244	39.34
1 - 5	.0849	89019	7562	335413	3842194	43.16
5 - 10	.0337	81457	2747	399580	3506781	43.05
10 - 15	.0449	78710	3537	384975	3107201	39.48
15 - 20	.0536	75173	4026	365861	2722226	36.21
20 - 25	.0537	71147	3818	346229	2353665	33.12
25 - 30	.0625	67329	4207	326302	2010137	29.86
30 - 35	.0736	63122	4648	304150	1683835	26.68
35 - 40	.0850	58474	4970	280130	1379685	23.59
40 - 45	.1035	53504	5536	253930	1099555	20.55
45 - 50	.1286	47968	6168	224755	845625	17.63
50 - 55	.1708	41800	7169	191510	620870	14.85
55 - 60	.2271	34661	7871	153740	429360	12.39
60 - 65	.2863	26790	7670	114578	275620	10.29
65 - 70	.3624	19120	6928	77826	161042	8.42
70 - 75	.4513	12192	5503	46525	83216	6.83
75 - 80	.5510	6689	3686	23494	36691	5.49
80 - 85	.6564	3003	1971	10087	13197	4.39
85 +	1.0000	1032	1032	3109	3109	3.01

ABRIDGED FEMALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Unchanged
IMR = 110

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1019	100000	10192	92621	4016230	40.16
1 - 5	.0735	89808	6601	341218	3923609	43.69
5 - 10	.0337	83207	2806	408401	3582391	43.05
10 - 15	.0449	80401	3613	393249	3173990	39.48
15 - 20	.0536	76788	4112	373723	2780741	36.21
20 - 25	.0537	72676	3900	353670	2407017	33.12
25 - 30	.0625	68776	4297	333315	2053348	29.86
30 - 35	.0736	64479	4748	310686	1720033	26.68
35 - 40	.0850	59731	5077	286150	1409347	23.60
40 - 45	.1035	54654	5655	259388	1123196	20.55
45 - 50	.1286	48999	6300	229585	863809	17.63
50 - 55	.1708	42699	7292	195626	634223	14.85
55 - 60	.2271	35407	8041	157044	438598	12.39
60 - 65	.2863	27366	7835	117040	281554	10.29
65 - 70	.3624	19531	7077	79499	164513	8.42
70 - 75	.4513	12454	5621	47525	85014	6.83
75 - 80	.5510	6833	3765	23999	37489	5.49
80 - 85	.6564	3068	2014	10304	13490	4.40
85 +	1.0000	1054	1054	3186	3186	3.02

ABRIDGED FEMALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Unchanged
IMR = 100

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.0938	100000	9377	93211	4099131	40.99
1 - 5	.0623	90623	5646	347105	4005920	44.20
5 - 10	.0337	84977	2866	417315	3658815	43.06
10 - 15	.0449	82111	3689	401612	3241500	39.48
15 - 20	.0536	78422	4200	381671	2839888	36.21
20 - 25	.0537	74222	3983	361191	2458216	33.12
25 - 30	.0625	70239	4389	340403	2097025	29.86
30 - 35	.0736	65850	4849	317294	1756622	26.68
35 - 40	.0850	61001	5185	292236	1439329	23.60
40 - 45	.1035	55816	5775	264904	1147093	20.55
45 - 50	.1286	50041	6434	234468	882189	17.63
50 - 55	.1708	43607	7447	199786	647721	14.85
55 - 60	.2271	36160	8212	160384	447935	12.39
60 - 65	.2863	27948	8002	119529	287551	10.29
65 - 70	.3624	19946	7228	81190	168022	8.42
70 - 75	.4513	12718	5740	48536	85832	6.83
75 - 80	.5510	6978	3845	24509	38296	5.49
80 - 85	.6564	3133	2057	10523	13787	4.40
85 +	1.0000	1076	1076	3264	3264	3.03

ABRIDGED FEMALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Unchanged
IMR = 90

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.0854	100000	8538	93819	4182953	41.83
1 - 5	.0513	91462	4696	353074	4089135	44.71
5 - 10	.0337	86766	2926	426321	3736060	43.06
10 - 15	.0449	83840	3767	410066	3309739	39.48
15 - 20	.0536	80073	4289	389705	2899673	36.21
20 - 25	.0537	75784	4067	368794	2509968	33.12
25 - 30	.0625	71717	4481	347568	2141175	29.86
30 - 35	.0736	67236	4951	323972	1793607	26.68
35 - 40	.0850	62285	5294	298387	1469634	23.60
40 - 45	.1035	56991	5897	270480	1171247	20.55
45 - 50	.1286	51094	6570	239403	900768	17.63
50 - 55	.1708	44524	7604	203991	661365	14.85
55 - 60	.2271	36920	8384	163760	457373	12.39
60 - 65	.2863	2836	8170	122045	293614	10.29
65 - 70	.3624	20366	7380	82899	171568	8.42
70 - 75	.4513	12986	5861	49558	88670	6.83
75 - 80	.5510	7125	3926	25025	39112	5.49
80 - 85	.6564	3199	2100	10745	14087	4.40
85 +	1.0000	1099	1099	3342	3342	3.04

ABRIDGED FEMALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Unchanged
IMR = 110

AGE n x	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1019	100000	10192	92621	4370584	43.71
1 - 5	.0735	89808	6600	341218	4277962	47.63
5 - 10	.0354	83208	2946	407938	3936745	47.31
10 - 15	.0382	80262	3063	393690	3528807	43.97
15 - 20	.0404	77199	3116	378198	3135117	40.61
20 - 25	.0407	74083	3015	362879	2756919	37.21
25 - 30	.0438	71068	3116	347719	2394040	33.69
30 - 35	.0563	67952	3827	330562	2046321	30.11
35 - 40	.0763	64125	4895	308730	1715758	26.76
40 - 45	.0924	59230	5471	282593	1407028	23.76
45 - 50	.1017	53759	5466	255279	1124435	20.92
50 - 55	.1281	48293	6188	226460	869156	18.00
55 - 60	.1838	42105	7741	191421	642688	15.26
60 - 65	.2147	34364	7376	153263	451267	13.13
65 - 70	.2660	26988	7178	116805	298005	11.04
70 - 75	.3266	19810	6474	82473	181199	9.15
75 - 80	.3973	13336	5298	52885	98726	7.40
80 - 85	.4769	8038	3833	30605	45842	5.70
85 +	1.0000	4205	4205	15236	15236	3.62

ABRIDGED FEMALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Unchanged
IMR = 105

AGE n x	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.0979	100000	9787	92913	4415691	44.16
1 - 5	.0679	90213	6122	344151	4322778	47.92
5 - 10	.0354	84091	2977	412378	3978627	47.31
10 - 15	.0382	81113	3095	397865	3566248	43.97
15 - 20	.0404	78018	3149	382209	3168383	40.61
20 - 25	.0407	74869	3047	366727	2786175	37.21
25 - 30	.0438	71822	3149	341407	2419447	33.69
30 - 35	.0563	68672	3868	334068	2068041	30.11
35 - 40	.0763	64804	4946	312004	1733973	26.76
40 - 45	.0924	58858	5529	285590	1421969	23.76
45 - 50	.1017	54329	5525	257986	1136379	20.92
50 - 55	.1281	48804	6253	228870	878393	18.00
55 - 60	.1838	42551	7823	193451	649523	15.26
60 - 65	.2147	34728	7455	154888	456072	13.13
65 - 70	.2660	27273	7254	118044	301185	11.04
70 - 75	.3268	20019	6542	83347	183140	9.15
75 - 80	.2973	13477	5355	53445	99793	7.40
80 - 85	.4769	8122	3873	30930	46347	5.71
85 +	1.0000	4249	4249	15417	15417	3.63

ABRIDGED FEMALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Unchanged
IMR = 100

AGE n x	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.0938	100000	9377	93211	4451303	44.51
1 - 4	.0623	90623	5646	347105	4358092	48.09
5 - 10	.0367	94977	3119	416587	4010987	47.20
10 - 15	.0395	81858	3230	401230	3594401	43.91
15 - 20	.0404	78628	3173	385177	3193171	40.61
20 - 25	.0407	75455	3071	369597	2807994	37.21
25 - 30	.0438	72384	3174	354157	2433397	33.69
30 - 35	.0563	69210	3898	336682	2084240	30.11
35 - 40	.0763	65312	4985	314446	1747557	26.76
40 - 45	.0924	60327	5572	287825	1433112	23.76
45 - 50	.1017	54755	5568	260005	1145287	20.92
50 - 55	.1281	49187	6302	23661	885282	18.00
55 - 60	.1838	42885	7884	194965	654621	15.26
60 - 65	.2147	35001	7513	156100	459656	13.13
65 - 70	.2660	27488	7311	118968	303556	11.04
70 - 75	.3268	20177	6594	84000	184588	9.15
75 - 80	.3973	13583	5397	53864	100588	7.41
80 - 85	.4769	8186	3904	31172	46724	5.71
85 +	1.0000	4282	4282	15552	15552	3.63

ABRIDGED FEMALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Unchanged
IMR = 95

AGE x	n	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0	1	.0896	100000	8961	93513	4496810	44.97
1	5	.0968	91039	5170	350079	4403297	48.37
5	10	.0367	85869	3152	421071	4053218	47.20
10	15	.0395	82717	3263	405441	3632147	43.91
15	20	.0404	79454	3207	389220	3226706	40.61
20	25	.0407	76247	3104	373476	2837486	37.21
25	30	.0438	73143	3207	357874	2464010	33.69
30	35	.0563	69936	3939	340216	2106136	30.11
35	40	.0763	65997	5037	317746	1765920	26.76
40	45	.0924	60960	5631	290846	1448173	23.76
45	50	.1017	55329	5626	262734	1157238	20.92
50	55	.12181	49703	6368	233082	894894	18.00
55	60	.1838	43335	7967	197011	661512	15.27
60	65	.2147	35368	7592	157738	464500	13.13
65	70	.2660	27776	7388	120217	306762	11.04
70	75	.3268	20388	6663	84882	186545	9.15
75	80	.3973	13725	5453	54429	101663	7.41
80	85	.4769	8272	3945	31499	47234	5.71
85	+	1.0000	4327	4327	15735	15735	3.64

ABRIDGED FEMALE LIFE TABLE FOR ORISSA

1961 Procedure Unchanged
IMR = 185

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1542	100000	15425	88833	3690029	36.90
1 - 5	.1662	84575	14060	299711	3601196	42.58
5 - 10	.0249	70515	1756	345692	3301485	46.82
10 - 15	.0303	68759	2084	338693	2955793	42.99
15 - 20	.0340	66675	2268	327770	2667100	39.25
20 - 25	.0371	64407	2387	316133	2289329	35.54
25 - 30	.0414	62020	2566	303885	1973197	31.82
30 - 35	.0560	59454	3330	289329	1669312	28.08
35 - 40	.0782	56124	4390	270005	1379984	24.59
40 - 45	.0974	51734	5041	246327	1109978	21.46
45 - 50	.1201	46693	5607	219772	863652	18.50
50 - 55	.1597	41086	6564	189372	643880	15.67
55 - 60	.2101	34522	7255	154619	454508	13.17
60 - 65	.2646	27267	7216	118192	299890	11.00
65 - 70	.3344	20051	6705	83159	181698	9.06
70 - 75	.4167	13346	5562	52260	98538	7.38
75 - 80	.5102	7784	3973	28329	46271	5.94
80 - 85	.6114	3811	2332	13241	17942	4.70
85 +	1.0000	1479	1482	4700	4700	3.17

ABRIDGED FEMALE LIFE TABLE FOR ORISSA

1961 Procedure Unchanged
IMR = 180

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1513	100000	15128	49047	3731238	37.31
1 - 5	.1585	84872	13540	302333	3642191	42.91
5 - 10	.0249	71332	1776	349837	3339858	46.82
10 - 15	.0303	69556	2108	342614	2990021	42.99
15 - 20	.0340	67448	2294	331565	2647407	39.25
20 - 25	.0371	65154	2415	319793	2315842	35.54
25 - 30	.0414	62739	2596	307403	1996049	31.82
30 - 35	.0560	60143	3369	292678	1688646	28.08
35 - 40	.0782	56774	4440	273131	1395968	24.59
40 - 45	.0974	52334	5099	249179	1122837	21.46
45 - 50	.1201	47235	5672	222316	873658	18.50
50 - 55	.1597	41563	6640	191564	651342	15.67
55 - 60	.2101	34923	7338	156409	459778	13.17
60 - 65	.2646	27585	7300	119560	303369	11.00
65 - 70	.3344	20285	6785	84122	183809	9.06
70 - 75	.4167	13502	5626	52873	99687	7.38
75 - 80	.5102	7876	4019	28657	46814	5.94
80 - 85	.6114	3857	2358	13394	18157	4.71
85 +	1.0000	1499	1499	4762	4762	3.18

ABRIDGED FEMALE LIFE TABLE FOR ORISSA

1961 Procedure Unchanged
IMR = 175

$_nAGR_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1482	100000	14824	89267	3773800	37.74
1 - 4	.1529	85176	13024	304975	3684533	43.26
5 - 10	.0249	72152	1797	353997	3379558	46.84
10 - 15	.0301	70355	2118	346588	3025561	43.00
15 - 20	.0338	68237	2307	335488	2678973	39.26
20 - 25	.0371	65930	2443	323611	2343485	35.54
25 - 30	.0414	63487	2626	311071	2019873	31.82
30 - 35	.0560	60861	3409	296170	1708803	28.08
35 - 40	.0782	57452	4494	276390	1412632	24.59
40 - 45	.0974	52958	5160	252152	1136242	21.46
45 - 50	.1201	47798	5739	224969	884090	18.50
50 - 55	.1597	42059	6719	193850	659121	15.67
55 - 60	.2101	35340	7426	158275	465272	13.17
60 - 65	.2646	27914	7378	120987	306997	11.00
65 - 70	.3344	20527	6864	85126	186010	9.06
70 - 75	.4167	13663	5693	53504	100884	7.38
75 - 80	.5102	7970	4066	28999	47380	5.94
80 - 85	.6114	3904	2387	13554	18381	4.71
85 +	1.0000	1517	1517	4827	4827	3.18

ABRIDGED FEMALE LIFE TABLE FOR ORISSA

1961 Procedure Unchanged
IMR = 170

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1451	100000	14512	89493	3815448	38.15
1 - 5	.1464	85488	12511	307639	3725954	43.58
5 - 10	.0249	72977	1818	358179	3418316	46.84
10 - 15	.0301	71159	2142	350548	3060137	43.00
15 - 20	.0338	69017	2333	339321	2709589	39.26
20 - 25	.0371	66684	2471	327309	2370268	35.54
25 - 30	.0414	64213	2657	314625	2042959	31.82
30 - 35	.0560	61556	3448	299554	1728334	28.08
35 - 40	.0782	58108	4545	279548	1423780	24.59
40 - 45	.0974	53563	5219	255033	1149231	21.46
45 - 50	.1201	48344	5805	227539	894199	18.50
50 - 55	.1597	42539	6795	196065	666660	15.67
55 - 60	.2101	35744	7511	160083	470595	13.17
60 - 65	.2646	28233	7471	122369	310512	11.00
65 - 70	.3344	20762	6942	86090	188142	9.06
70 - 75	.4167	13820	5758	54115	102044	7.38
75 - 80	.5102	8062	4113	29330	47929	5.95
80 - 85	.6114	3949	2414	13709	18599	4.71
85 +	1.0000	1535	1535	4890	4890	3.19

ABRIDGED FEMALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Unchanged
IMR = 140

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1248	100000	12479	90965	4129790	41.30
1 - 4	.1087	87521	9510	324053	4038825	46.15
5 - 10	.0273	78011	2128	383244	3714771	47.62
10 - 15	.0308	75883	2339	373664	3331527	43.90
15 - 20	.0350	73544	2577	361407	2957863	40.22
20 - 25	.0417	70967	2958	347559	2596455	36.59
25 - 30	.0463	68009	3152	332230	2248896	33.07
30 - 35	.0505	64857	3278	316187	1916667	29.55
35 - 40	.0589	61579	3624	299042	1600480	25.99
40 - 45	.0739	57955	4282	279348	1301438	22.46
45 - 50	.0926	53673	4969	256447	1022089	19.04
50 - 55	.1379	48704	6716	227436	765642	15.72
55 - 60	.1991	41988	8360	189504	538206	12.82
60 - 65	.2656	33628	8931	135915	348702	10.37
65 - 70	.3578	24697	8837	101090	202787	8.21
70 - 75	.4703	15860	7459	59864	101697	6.41
75 - 80	.5981	8402	5025	28406	41834	4.98
80 - 85	.7296	3377	2464	10724	13427	3.98
85 +	1.0000	913	913	2703	2703	2.96

ABRIDGED FEMALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Unchanged
IMR = 135

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1211	100000	12115	91229	4173684	41.74
1 - 5	.1026	87885	9019	326862	4082455	46.45
5 - 10	.0273	78866	2151	387567	3755593	47.62
10 - 15	.0308	76715	2365	377757	3368026	43.90
15 - 20	.0350	74350	2606	365366	2990269	40.22
20 - 25	.0417	71744	2991	351366	2624902	36.59
25 - 30	.0463	68753	3186	335861	2273536	33.07
30 - 35	.0505	65567	3314	319650	1937667	29.55
35 - 40	.0589	62253	3664	302318	1618017	25.99
40 - 45	.0739	58589	4329	282408	1315698	22.46
45 - 50	.0926	54260	5024	259257	1033290	19.04
50 - 55	.1379	49236	6789	229927	7744033	15.72
55 - 60	.1991	42447	8451	191580	544106	12.82
60 - 65	.2656	33996	9028	147513	352526	10.37
65 - 70	.3576	24968	8933	102197	205013	8.21
70 - 75	.4703	16035	7541	60519	102816	6.41
75 - 80	.5981	8494	5080	28718	42296	4.98
80 - 85	.7296	3414	2491	10842	13579	3.98
85 +	1.0000	923	923	2737	2737	2.97

ABRIDGED FEMALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Unchanged
IMR = 130

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1174	100000	11743	91498	4185383	41.85
1 - 4	.0967	88257	8532	329692	4093885	46.39
5 - 10	.0306	79725	2441	391295	3764194	47.21
10 - 15	.0341	77284	2633	379914	3372899	43.64
15 - 20	.0375	74651	2800	366333	2992985	40.09
20 - 25	.0417	71851	2995	351860	2626652	36.56
25 - 30	.0469	68856	3228	336208	2274792	33.04
30 - 35	.0511	65628	3351	319858	1938504	29.54
35 - 40	.0589	62277	3665	202430	1618646	25.99
40 - 45	.0739	58612	4330	282519	1316216	22.46
45 - 50	.0926	54282	5026	259359	1033696	19.04
50 - 55	.1379	49256	6791	230018	774338	15.72
55 - 60	.1991	42465	8455	191655	544320	12.82
60 - 65	.2656	34010	9032	147571	352665	10.37
65 - 70	.3578	24978	8937	102237	205093	8.21
70 - 75	.4703	16041	7543	60543	102856	6.41
75 - 80	.5981	8498	5083	28729	42313	4.98
80 - 85	.7296	3415	2492	10846	13584	3.98
85 +	1.0000	923	923	2738	2738	2.97

ABRIDGED FEMALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Unchanged
IMR = 125

$n^{AGE}x$	$n^{q}x$	l_x	$n^{d}x$	$n^{L}x$	T_x	e_x
0 - 1	.1137	100000	11365	91772	4229411	42.29
1 - 5	.0908	88635	8046	332542	4137639	46.68
5 - 10	.0306	80589	2468	395654	3805098	47.22
10 - 15	.0341	78121	2661	384029	3409433	43.64
15 - 20	.0375	75460	2830	370302	3025414	40.09
20 - 25	.0417	72630	3027	355672	2655112	36.56
25 - 30	.0469	69603	3263	339931	2299440	33.04
30 - 35	.0511	66340	3387	223323	1959509	29.54
35 - 40	.0589	62953	3705	305706	1636185	25.99
40 - 45	.0739	59248	4377	285580	1330479	22.46
45 - 50	.0926	54870	5080	262168	1044899	19.04
50 - 55	.1379	49790	6865	232510	782731	15.72
55 - 60	.1991	42925	8546	193732	550221	12.82
60 - 65	.2656	34379	9130	149170	356490	10.37
65 - 70	.3578	25248	9034	103345	207320	8.21
70 - 75	.4703	16214	7625	61198	103975	6.41
75 - 80	.5981	8589	5137	2940	42776	4.98
80 - 85	.7296	3452	2519	10964	13736	3.98
85 +	1.0000	933	933	1772	2722	2.97

ABRIDGED FEMALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Unchanged
IMR = 190

AGE x	n	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0	1	.1571	100000	15712	88624	3356062	33.56
1	5	.1730	84288	14585	297110	3267438	38.77
5	10	.0462	69702	3224	338083	2970328	42.61
10	15	.0481	66478	3196	324406	2632245	39.59
15	20	.0510	63282	3226	308418	2307839	36.47
20	25	.0588	60056	3531	291668	1999421	33.29
25	30	.0753	56525	4256	272267	1707753	30.21
30	35	.0935	52269	4885	249254	1435486	27.46
35	40	.1021	47384	4840	224830	1186232	25.03
40	45	.1161	42543	4938	200393	961402	22.60
45	50	.1312	37605	4934	175678	761009	20.24
50	55	.1488	32671	4862	151290	585331	17.92
55	60	.1923	27809	5349	125677	434040	15.61
60	65	.2166	22460	4865	99954	308364	13.73
65	70	.2530	17595	4453	76640	208410	11.84
70	75	.2944	13142	3869	55774	131770	10.03
75	80	.3408	9273	3161	38162	75996	8.19
80	85	.3923	6112	2398	24571	37814	6.19
85	+	1.0000	3715	3715	13263	13263	3.57

ABRIDGED FEMALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Unchanged
IMR = 185

AGE x	n	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0	1	.1542	100000	15425	88833	3393662	33.94
1	5	.1662	84575	14060	299711	3304829	39.08
5	10	.0462	70515	3261	342169	3005118	42.62
10	15	.0481	67254	3234	328188	2662949	39.60
15	20	.0510	64020	3264	312013	2334762	36.47
20	25	.0588	60756	3572	295068	2022748	33.29
25	30	.0753	57184	4306	275441	1727680	30.21
30	35	.0935	52878	4942	252160	1452239	27.46
35	40	.1021	47936	4897	227451	12700079	25.03
40	45	.1161	43039	4996	202729	972628	22.60
45	50	.1312	38043	4991	177726	769899	20.24
50	55	.1488	33052	4919	153054	592173	17.92
55	60	.1923	28133	5411	127142	439119	15.61
60	65	.2166	22722	4922	101119	311978	13.73
65	70	.2530	17800	4504	77533	210858	11.85
70	75	.2944	13296	3914	56424	133325	10.03
75	80	.3408	9382	3198	38607	76901	8.20
80	85	.3923	6184	2426	24858	38294	6.19
85	+	1.0000	3758	3758	13437	13437	3.58

ABRIDGED FEMALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Unchanged
IMR = 180

AGE x	n	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x
0	1	.1513	100000	15128	89047	3432112
1	5	.1595	84872	13540	302333	3343065
5	10	.0462	71332	3293	346286	3040732
10	15	.0480	68039	3268	332024	2694446
15	20	.0509	64771	3299	315678	2362422
20	25	.0587	61472	3610	298555	2046744
25	30	.0753	57862	4357	278709	1748189
30	35	.0935	53505	5001	255150	1469480
35	40	.1021	48504	4954	230149	1214330
40	45	.1161	43550	5055	205133	984182
45	50	.1312	38495	5050	179833	779049
50	55	.1488	33445	4977	154869	599215
55	60	.1923	28468	5476	128649	444346
60	65	.2166	22992	4980	102319	315697
65	70	.2530	18012	4558	78453	213378
70	75	.2944	13454	3961	57093	134925
75	80	.2408	9493	3235	39065	77833
80	85	.3923	6258	2455	25153	38768
85	+	1.0000	3803	3803	13615	13615

ABRIDGED FEMALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Unchanged
IMR = 175

AGE x	n	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0	1	.1482	100000	14824	89267	3470104	34.70
1	5	.1529	85176	13024	304975	3380836	39.69
5	10	.0462	72152	3331	350408	3075861	42.63
10	15	.0480	68821	3305	335843	2725453	39.60
15	20	.0509	65516	3337	319308	2389610	36.47
20	25	.0587	62179	3651	301989	2070302	33.30
25	30	.0753	58528	4407	281914	1768813	30.21
30	35	.0935	54121	5058	258084	1486399	27.46
35	40	.1021	49063	5012	232795	1228315	25.04
40	45	.1161	44051	5113	207492	995519	22.60
45	50	.1312	38938	5108	181902	788027	20.24
50	55	.1488	33830	5035	156650	606126	17.92
55	60	.1923	28795	5538	130129	449475	15.61
60	65	.2166	23257	5037	103495	319347	13.73
65	70	.2530	18220	4610	79355	215851	11.85
70	75	.2944	13610	4007	57750	136496	10.03
75	80	.3408	9603	3273	39514	78747	8.20
80	85	.3923	6330	2483	25442	39233	6.20
80	+	1.0000	3847	3847	13791	13791	3.59

ABRIDGED MALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Changed
IMR = 135

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1236	100000	12382	91036	3922366	39.22
1 - 5	.0828	87618	7258	33702	3831330	43.73
5 - 10	.0467	80360	3753	391697	3500628	43.56
10 - 15	.0494	76607	3786	373570	3108931	40.58
15 - 20	.0513	72821	3735	354753	2735361	37.56
20 - 25	.0536	69086	3704	336138	2380608	34.46
25 - 30	.0546	65382	3571	317931	2044470	31.27
30 - 35	.0558	61811	3446	300464	1726539	27.93
35 - 40	.0630	58365	3675	282831	1426075	24.43
40 - 45	.0800	54690	4375	262946	1143244	20.90
45 - 50	.1144	50315	5756	237028	880298	17.50
50 - 55	.1672	44559	7450	204647	642470	14.42
55 - 60	.2166	37109	8037	165739	437823	11.80
60 - 65	.3034	29072	8821	123345	272084	9.36
65 - 70	.4054	20251	8210	80212	148739	7.34
70 - 75	.5265	12041	6339	43726	68527	5.69
75 - 80	.6587	5702	3755	18115	25101	4.40
80 - 85	.7869	1947	1532	5900	6986	3.59
85 +	1.0000	415	415	1086	1086	2.62

ABRIDGED MALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Changed
IMR = 125

$n^{AGE}x$	nq_x	l_x	nd_x	nL_x	T_x	$^{o}e_x$
0 - 1	.1159	100000	11588	91610	3998358	39.98
1 - 5	.0729	88412	6449	336100	3906748	44.19
5 - 10	.0467	81962	3827	399708	3570648	43.56
10 - 15	.0494	78135	3861	381021	3170940	40.58
15 - 20	.0513	74274	3810	361828	2789919	37.56
20 - 25	.0536	70464	3778	342842	2428091	34.46
25 - 30	.0546	66686	3642	324272	2085249	31.25
30 - 35	.0558	63044	3515	306456	1760977	27.93
35 - 40	.0630	59529	3749	288472	1454521	24.43
40 - 45	.0800	53789	4462	268191	1166049	20.90
45 - 50	.1144	51318	5870	242572	897858	17.50
50 - 55	.1672	45448	7599	208728	655286	14.42
55 - 60	.2166	37849	8197	169045	446558	11.80
60 - 65	.3034	29652	8997	125804	277513	9.36
65 - 70	.4054	20655	8374	81812	151709	7.34
70 - 75	.5265	12281	6466	44292	69897	5.69
75 - 80	.6587	5815	3831	18476	25605	4.40
80 - 85	.7869	1984	1562	6018	7129	3.59
85 +	1.0000	422	422	1111	1111	2.63

ABRIDGED MALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Changed
IMR = 115

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1077	100000	10772	92201	4075168	40.75
1 - 5	.0633	89228	5645	341572	3982967	44.64
5 - 10	.0467	83583	3903	407799	3641395	43.57
10 - 15	.0494	79680	3938	388549	3233596	40.58
15 - 20	.0513	75742	3885	368978	2845047	37.56
20 - 25	.0536	71857	3852	349616	2476069	34.46
25 - 30	.0546	68005	3715	330679	2126453	31.27
30 - 35	.0558	64290	3584	312511	1795774	27.93
35 - 40	.0630	60706	3823	294172	1483263	24.43
40 - 45	.0800	56883	4550	273490	1189091	20.90
45 - 50	.1144	52333	5987	247364	915601	17.50
50 - 55	.1672	46346	7749	212852	668237	14.42
55 - 60	.2166	38597	8359	172385	455385	11.80
60 - 65	.3034	30238	9175	128290	283000	9.36
65 - 70	.4054	21063	8540	83428	154710	7.35
70 - 75	.5625	12523	6594	45167	71282	5.69
75 - 80	.6587	5929	3906	18841	26115	4.40
80 - 85	.7869	2023	1592	6138	7274	3.59
85 +	1.0000	431	431	1136	1136	2.63

ABRIDGED MALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Changed
IMR = 110

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1036	100000	10356	92502	4113879	41.14
1 - 5	.0585	89644	5245	344334	4021377	44.86
5 - 10	.0467	84399	3942	411875	3677043	43.57
10 - 15	.0494	80457	3976	392342	3265168	40.58
15 - 20	.0513	76481	3923	372580	2872826	37.56
20 - 25	.0536	72558	3890	353029	2500246	34.46
25 - 30	.0546	68668	3750	333909	2147217	31.27
30 - 35	.0558	64918	3619	315563	1813308	27.93
35 - 40	.0630	61299	3860	297043	1497745	24.43
40 - 45	.0800	57439	4595	276160	1200702	20.90
45 - 50	.1144	52844	6046	249779	924542	17.50
50 - 55	.1672	46798	7825	214930	674763	14.42
55 - 60	.2166	38973	8440	174068	459833	11.80
60 - 65	.3034	30533	9265	129542	285765	9.36
65 - 70	.4054	21268	8623	84243	156223	7.35
70 - 75	.5265	12645	6658	45608	71980	5.69
75 - 80	.6587	5987	3944	19026	26372	4.40
80 - 85	.7869	2043	1608	6197	7346	3.60
85 +	1.0000	435	435	1149	1149	2.64

ABRIDGED MALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Changed
IMR = 110

$n^{AGE}x$	$n^{q}x$	l_x	$n^{d}x$	$n^{L}x$	T_x	$^{o}e_x$
0 - 1	.1036	100000	10356	92502	4491603	44.92
1 - 5	.0585	89644	5245	344334	4399101	49.07
5 - 10	.0359	84399	3032	413945	4054767	48.04
10 - 15	.0368	81367	2997	399324	3640822	44.75
15 - 20	.0376	78370	2945	384471	3241498	41.36
20 - 25	.0387	75425	2917	369826	3057027	37.88
25 - 30	.0402	72508	2915	355292	2687201	34.30
30 - 35	.0447	69593	3114	340281	2131909	30.63
35 - 40	.0512	66479	3403	324086	1791628	26.95
40 - 45	.0645	63076	4070	305573	146752	23.27
45 - 50	.0877	59006	5173	282525	1161969	19.69
50 - 55	.1138	53833	6124	254707	879443	16.34
55 - 60	.1942	47709	9266	216125	624736	13.09
60 - 65	.2522	38443	9694	168125	408611	10.63
65 - 70	.3461	28749	9951	118662	240485	8.36
70 - 75	.4627	18798	8698	71429	121823	6.48
75 - 80	.5968	10100	6028	34243	50394	4.99
80 - 85	.7350	4072	2993	12879	16151	3.97
85 +	1.0000	1079	1079	3272	3272	3.03

ABRIDGED MALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Changed
IMR = 105

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	$^o e_x$
0 - 1	.0993	100000	9935	92807	4534193	45.34
1 - 5	.0538	90065	4846	347115	4441386	49.31
5 - 10	.0359	85219	3061	418061	4094271	48.04
10 - 15	.0368	82157	3026	403206	3676210	44.95
15 - 20	.0376	79131	2974	388207	3273004	41.36
20 - 25	.0387	26157	2945	373421	2884997	37.88
25 - 30	.0402	73212	2944	356745	2511376	34.30
30 - 35	.0447	70268	3143	243587	2152631	30.63
35 - 40	.0512	67125	3436	327235	1809044	26.95
40 - 45	.0645	63689	4109	308543	1481809	23.21
45 - 50	.0877	59580	5224	285271	1173266	19.69
50 - 55	.1138	54356	6183	257183	887995	16.34
55 - 60	.1942	48173	9356	218225	630812	13.09
60 - 65	.2522	38817	9788	169759	412587	10.63
65 - 70	.3461	29029	10048	119815	242828	8.37
70 - 75	.4627	18981	8783	72124	123013	6.48
75 - 80	.5968	10198	6086	34576	50889	4.99
80 - 85	.7350	4112	3022	13004	16313	3.97
85 +	1.0000	1090	1090	3309	3309	3.04

ABRIDGED MALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Changed
IMR = 100

$n^{AGE}x$	$n^{q}x$	l_x	$n^{d}x$	$n^{L}x$	T_x	$^{o}e_x$
0 - 1	.0951	100000	9508	93116	4576273	45.76
1 - 5	.0492	90492	4449	349914	4483157	49.54
5 - 10	.0359	86043	3091	422198	4133243	48.04
10 - 15	.0368	82952	3055	407106	3711045	44.74
15 - 20	.0376	79897	3003	391963	3303939	41.35
20 - 25	.0387	76894	2974	377033	2911976	37.87
25 - 30	.0402	73920	2972	362216	2534943	34.29
30 - 35	.0447	70948	3174	346911	2172727	30.62
35 - 40	.0512	67774	3470	330401	1825816	26.94
40 - 45	.0645	64304	4149	311531	1495415	23.26
45 - 50	.0879	60155	5286	288003	1183884	19.68
50 - 55	.1140	54869	6253	259581	895881	16.33
55 - 60	.1942	48616	9443	220230	636300	13.09
60 - 65	.2524	39173	9887	171292	416070	10.62
65 - 70	.3465	29286	10146	120846	244778	8.36
70 - 75	.4631	19140	8863	72700	123932	6.48
75 - 80	.5972	10277	6137	34822	51232	4.99
80 - 85	.7355	4140	3045	13083	16410	3.97
85 +	1.0000	1095	1095	3327	3327	3.04

ABRIDGED MALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Changed
IMR = 95

$n^{AGE}x$	$n^{q}x$	^{l}x	$n^{d}x$	$n^{L}x$	T_x	$^{o}e_x$
0 - 1	.0908	100000	9077	93428	4619303	46.19
1 - 5	.0446	90923	4052	352730	4525875	49.78
5 - 10	.0359	86871	3120	426356	4173145	48.04
10 - 15	.0368	83751	3084	411027	3746789	44.74
15 - 20	.0376	80667	3032	395738	3335762	41.35
20 - 25	.0387	77635	3002	380664	2940024	37.87
25 - 30	.0402	74633	3001	365704	2559360	34.29
30 - 35	.0447	71632	3205	350252	2193656	30.62
35 - 40	.0512	68427	3503	333583	1843404	26.94
40 - 45	.0645	64924	4189	314530	1509821	23.26
45 - 50	.0879	60735	5337	290777	1195291	19.68
50 - 55	.1140	55398	6314	262081	904514	16.33
55 - 60	.1942	49084	9534	222351	642433	13.09
60 - 65	.2524	39550	9983	172942	420082	10.62
65 - 70	.3465	29567	10244	122010	247140	8.36
70 - 75	.4631	19323	8949	73400	125130	6.48
75 - 80	.5972	10374	6196	35158	51730	4.99
80 - 85	.7355	4178	3073	13209	16572	3.97
85 +	1.0000	1105	1105	3363	3363	3.04

ABRIDGED MALE LIFE TABLE FOR ORISSA

1961 Procedure Changed
IMR = 195

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1663	100000	16626	87963	3548290	35.48
1 - 5	.1474	83374	12288	299877	3460327	41.50
5 - 10	.0230	71086	1638	349348	3160450	44.46
10 - 15	.0395	69448	2746	340775	2811102	40.48
15 - 20	.0533	66702	3553	324810	2470327	37.04
20 - 25	.0573	63149	3616	306690	2145517	33.98
25 - 30	.0585	59533	3480	288922	1838827	30.89
30 - 35	.0609	56053	3412	271794	1549905	27.65
35 - 40	.0718	52641	3779	254018	1278111	24.28
40 - 45	.0957	48862	4677	233007	1024093	20.96
45 - 50	.1281	44185	5659	207173	791086	17.90
50 - 55	.1708	38526	6580	176415	583913	15.16
55 - 60	.2123	31946	6783	142860	407498	12.76
60 - 65	.2779	25163	6994	108254	264638	10.52
65 - 70	.3530	18169	6413	74439	156384	8.61
70 - 75	.4412	11756	5187	45218	81945	6.97
75 - 80	.5407	6569	3552	23291	36727	5.59
80 - 85	.6466	3017	1951	10208	13436	4.45
85 +	1.0000	1066	1066	3228	3228	3.03

ABRIDGED MALE LIFE TABLE FOR ORISSA

1961 Procedure Changed
IMR = 190

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1631	100000	16309	88192	3584501	35.85
1 - 5	.1416	83691	11854	282342	3496309	41.78
5 - 10	.0230	71837	1655	353157	3193967	44.46
10 - 15	.0395	70182	2775	344375	2840810	40.48
15 - 20	.0533	67407	3590	328242	249643	37.04
20 - 25	.0573	63817	3655	309931	2168193	33.98
25 - 30	.0585	60162	3518	291974	1858262	30.89
30 - 35	.0609	56644	3448	274666	1566288	27.65
35 - 40	.0718	53196	3819	256702	1291622	24.28
40 - 45	.0957	49377	4726	235470	1034920	20.96
45 - 50	.1281	44651	5719	209352	799450	17.90
50 - 55	.1708	38932	6649	178279	590088	15.16
55 - 60	.2123	32283	6855	144369	411809	12.76
60 - 65	.2779	25428	7067	109399	267440	10.52
65 - 70	.3520	18361	6481	75226	158041	8.61
70 - 75	.4412	11880	5242	45696	82815	6.97
75 - 80	.5407	6638	3590	23537	37119	5.59
80 - 85	.6466	3098	1971	10315	13582	4.45
85 +	1.0000	1077	1077	3267	3267	3.03

ABRIDGED MALE LIFE TABLE FOR ORISSA

1961 Procedure Changed
IMR = 185

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1598	100000	15985	88427	3610S9	36.21
1 - 5	.1360	84015	11423	304826	3532632	42.05
5 - 10	.0230	72592	1671	356988	3227806	44.46
10 - 15	.0395	70921	2802	348009	2870818	40.48
15 - 20	.0533	68119	3628	331709	2522809	37.04
20 - 25	.0573	64491	3693	313205	2191100	33.98
25 - 30	.0585	60798	3554	295058	1877895	30.89
30 - 35	.0609	57244	3485	277567	1582837	27.65
35 - 40	.0718	53759	3859	259413	1305270	24.28
40 - 45	.0957	49900	4776	237957	1045857	20.96
45 - 50	.1281	45124	5779	211573	807900	17.90
50 - 55	.1708	39345	6719	180162	596327	15.16
55 - 60	.2123	32626	6927	145894	416165	12.76
60 - 65	.2779	25699	7142	110554	270271	10.52
65 - 70	.3530	18557	6549	76020	159716	8.61
70 - 75	.4412	12008	5298	46179	83696	6.97
75 - 80	.5407	6710	3628	23786	37517	5.59
80 - 85	.6466	3082	1992	10425	13731	4.46
85 +	1.0000	1090	1090	3306	3306	3.04

ABRIDGED MALE LIFE TABLE FOR ORISSA

1961 Procedure Changed
IMR = 180

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1565	100000	15654	88667	3657660	36.58
1 - 5	.1304	84346	10995	307329	3568993	42.31
5 - 10	.0230	73351	1688	360834	3261664	44.47
10 - 15	.0395	71663	2832	351646	2900830	40.48
15 - 20	.0533	68831	3666	335176	2549184	37.04
20 - 25	.0573	65165	3732	316478	2214008	33.98
25 - 30	.0585	61433	3592	298143	1897530	30.89
30 - 35	.0609	57841	3521	280468	1599387	27.65
35 - 40	.0718	54320	3899	262125	1318919	24.28
40 - 45	.0957	50421	4826	240445	1056794	20.96
45 - 50	.1281	45595	5840	213785	816349	17.90
50 - 55	.1708	39755	6790	182045	602564	15.16
55 - 60	.2123	32965	6999	147419	420519	12.76
60 - 65	.2779	25966	7217	111710	273100	10.52
65 - 70	.3530	18749	6618	76815	161390	8.61
70 - 75	.4412	12131	5353	46661	84575	6.97
75 - 80	.5407	6778	3665	24035	37914	5.59
80 - 85	.6466	3113	2013	10533	13979	4.49
85 +	1.0000	1100	1100	3346	3346	3.04

ABRIDGED MALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Changed
IMR = 130

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1159	100000	11588	88912	3767592	37.68
1 - 5	.0729	88412	6449	309851	3678680	43.44
5 - 10	.0448	81963	3673	359213	3368829	45.45
10 - 15	.0455	78290	3561	339869	3009616	42.93
15 - 20	.0505	74729	3771	318816	2669747	40.55
20 - 25	.0548	70958	3889	298797	2350931	38.09
25 - 30	.0567	67069	3803	280005	2052134	35.48
30 - 35	.0596	63266	3768	262134	1772129	32.70
35 - 40	.0598	59498	3556	244565	1509995	29.80
40 - 45	.0721	55942	4033	226732	1265430	26.84
45 - 50	.1003	51909	5208	208318	1038698	23.86
50 - 55	.1484	46701	6929	188906	830380	20.88
55 - 60	.2001	39772	7958	165636	641474	17.98
60 - 65	.2790	31814	8876	139665	475838	15.61
65 - 70	.3771	22938	8651	113910	336173	13.25
70 - 75	.4960	14287	7087	88286	222263	11.01
75 - 80	.6291	7200	4530	64261	133977	8.83
80 - 85	.7620	2670	2035	43601	69716	6.56
85 +	1.0000	635	635	26115	26115	3.83

ABRIDGED MALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Changed
IMR = 125

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1199	100000	11988	91321	4031696	40.32
1 - 5	.0779	88012	6853	333392	3940374	44.77
5 - 10	.0448	81159	3636	396013	3606982	44.44
10 - 15	.0455	77523	3526	378820	3210969	41.42
15 - 20	.0505	73997	3734	360717	2832149	38.27
20 - 25	.0548	70263	3851	341696	2471432	35.17
25 - 30	.0567	66412	3766	322622	2129736	32.07
30 - 35	.0596	62646	3731	303854	1807114	28.85
35 - 40	.0598	58915	3521	285830	1503260	25.52
40 - 45	.0721	55394	3994	267330	1217430	21.98
45 - 50	.1003	51400	5157	244708	950100	18.48
50 - 55	.1484	46243	6861	214633	705392	15.25
55 - 60	.2001	39382	7880	177614	490759	12.46
60 - 65	.2790	31501	8789	135682	313145	9.46
65 - 70	.3771	22713	8566	91783	177463	7.81
70 - 75	.4960	14147	7018	52342	85680	6.06
75 - 80	.6291	7129	4485	23393	33338	4.68
80 - 85	.7620	2644	2015	8184	9945	3.76
85 +	1.0000	629	629	1761	1761	2.80

ABRIDGED MALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Changed
IMR = 120

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1118	100000	11183	91903	4109516	41.10
1 - 5	.0681	88817	6046[illegible]	339827	4017613	45.23
5 - 10	.0448	82771	3708	404071	3678786	44.45
10 - 15	.0455	79062	3596	386340	3274715	41.42
15 - 20	.0505	75466	3808	367878	2888375	38.27
20 - 25	.0548	71658	3927	348478	2520497	35.17
25 - 30	.0567	67731	3841	329026	2172019	32.07
30 - 35	.0596	63890	3805	309885	1842992	28.85
35 - 40	.0598	60085	3591	291504	1533107	25.52
40 - 45	.0721	56494	4073	272636	1241603	21.98
45 - 50	.1003	52421	5260	249566	968967	18.48
50 - 55	.1484	47161	6997	218894	719400	15.25
55 - 60	.2001	40164	8037	181140	500506	12.46
60 - 65	.2790	32127	8963	138375	319366	9.94
65 - 70	.3771	23164	8736	93605	180991	7.81
70 - 75	.4960	14428	7157	53381	87386	6.06
75 - 80	.6291	7271	4574	23857	34005	4.68
80 - 85	.7620	2697	2056	8346	10148	3.76
85 +	1.0000	641	641	1802	1802	2.81

ABRIDGED MALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Changed
IMR = 115

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1077	100000	10772	92201	4148738	41.49
1 - 5	.0633	89228	5646	341571	4056537	45.46
5 - 10	.0448	83582	3745	408130	3714966	44.45
10 - 15	.0455	79837	3632	390130	3306836	41.42
15 - 20	.0505	76205	3845	371486	2916705	38.27
20 - 25	.0548	72360	3965	351896	2545220	35.17
25 - 30	.0567	68395	3879	332253	2193324	32.07
30 - 35	.0596	64516	3842	312925	1861071	28.85
35 - 40	.0598	60674	3626	294363	1548146	25.52
40 - 45	.0721	57048	4113	275310	1253783	21.98
45 - 50	.1003	52935	5311	252014	978473	18.48
50 - 55	.1484	47624	7066	221041	726459	15.25
55 - 60	.2001	40558	8116	182918	505418	12.46
60 - 65	.2790	32442	9051	139732	322500	9.94
65 - 70	.3771	23391	8822	94523	182768	7.81
70 - 75	.4960	14569	7227	53904	88245	6.06
75 - 80	.6291	7342	4619	24091	34341	4.68
80 - 85	.7620	2723	2075	8428	10250	3.76
85 +	1.0000	648	648	1822	1822	2.81

ABRIDGED MALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Changed
IMR = 180

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1565	100000	15654	88667	3730016	37.30
1 - 5	.1304	84346	10995	307329	3641349	43.17
5 - 10	.0542	73351	3975	355405	3334020	45.45
10 - 15	.0607	69376	4213	336371	2978615	42.93
15 - 20	.0626	65163	4082	315535	2642244	40.55
20 - 25	.0628	61081	3835	295723	2326709	38.09
25 - 30	.0631	57246	3613	277124	2030986	35.48
30 - 35	.0649	53633	3481	259436	1753862	32.70
35 - 40	.0696	50152	3492	242048	1494426	29.80
40 - 45	.0767	46660	3579	224399	1252378	26.84
45 - 50	.0866	43081	3729	206174	1027979	23.86
50 - 55	.1026	39352	4036	186962	821805	20.88
55 - 60	.1456	35316	5143	163931	634843	17.98
60 - 65	.1675	30173	5053	138228	470912	15.61
65 - 70	.2045	25120	5136	112738	332684	13.24
70 - 75	.2483	19984	4963	87378	219946	11.01
75 - 80	.2997	15020	4502	63600	132568	8.83
80 - 85	.3590	10518	3776	43152	68968	6.56
85 +	1.0000	6742	6742	25816	25816	3.83

ABRIDGED MALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Changed
IMR = 175

$n^{AGE}x$	nq_x	l_x	nd_x	nL_x	T_x	$^{o}e_x$
0 - 1	.1532	100000	15316	88912	5767592	37.68
1 - 5	.1248	84684	10571	309851	3678680	43.44
5 - 10	.0542	74113	4016	359213	3368829	45.45
10 - 15	.0607	70097	4256	339869	3009616	42.93
15 - 20	.0626	65841	4124	318816	2669747	40.55
20 - 25	.0528	61717	3876	298797	2350931	38.09
25 - 30	.0631	57841	3651	280705	2052134	35.48
30 - 35	.0649	54190	3517	262134	1772129	32.70
35 - 40	.0696	50673	3529	244565	1509995	29.80
40 - 45	.0767	47144	3616	226732	1265430	26.84
45 - 50	.0866	43528	3768	208318	1038698	23.86
50 - 55	.1026	39760	4078	188906	830380	20.88
55 - 60	.1456	35682	5197	165636	641474	17.98
60 - 65	.1675	30485	5105	139669	475838	15.61
65 - 70	.2045	25380	5189	113910	336173	13.25
70 - 75	.2483	20191	5015	88286	222263	11.01
75 - 80	.2997	15176	4549	64261	133977	8.83
80 - 85	.3590	10627	3815	43601	69716	6.56
85 +	1.0000	6812	6812	26115	26115	3.83

ABRIDGED MALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Changed
IMR = 170

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1497	100000	14971	89161	3805372	38.05
1 - 5	.1194	85029	10149	312392	3716211	43.71
5 - 10	.0542	74880	4056	363039	3403819	45.46
10 - 15	.0607	70822	4300	343385	3040780	42.94
15 - 20	.0626	66522	4167	322114	2697395	40.45
20 - 25	.0628	62355	3916	301888	2375281	38.09
25 - 30	.0631	58439	3688	282902	2073393	35.48
30 - 35	.0649	54751	3554	264846	1790491	32.70
35 - 40	.0696	51197	3565	247095	1525645	29.80
40 - 45	.0767	47632	3654	229077	1278550	26.84
45 - 50	.0866	43978	3807	210473	1049473	23.86
50 - 55	.1026	40171	4120	190860	839000	20.89
55 - 60	.1456	36051	5250	167349	648140	17.98
60 - 65	.1675	30801	5158	141110	480791	15.61
65 - 70	.2045	25643	5243	115089	339681	13.25
70 - 75	.2483	20400	5066	89199	224592	11.01
75 - 80	.2997	15334	4596	64926	135393	8.83
80 - 85	.3590	10738	3854	44052	70467	6.56
85 +	1.0000	6884	6884	26416	26415	3.84

ABRIDGED MALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Changed
IMR = 165

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	^oe_x
0 - 1	.1462	100000	14620	89415	3843356	38.43
1 - 5	.1139	85380	9729	314952	3753941	43.97
5 - 10	.0542	75651	4100	366884	3438989	45.46
10 - 15	.0607	71551	4345	346019	3072105	42.94
15 - 20	.0626	67206	4209	325429	2725186	40.55
20 -25	.0628	62997	3956	304995	2399751	38.09
25 - 30	.0631	59041	3727	285813	2094762	35.48
30 - 35	.0649	55314	3590	267571	1808949	32.70
35 - 40	.0696	51724	3602	249638	1541378	29.80
40 - 45	.0767	48122	3691	231435	1291740	26.84
45 - 50	.0866	44431	3846	212639	1060305	23.86
50 - 55	.1026	40585	4163	192824	847666	20.89
55 - 60	.1455	36422	5304	169072	654842	17.98
60 - 65	.1675	31118	5211	142562	485770	15.61
65 - 70	.2045	25907	5298	116273	343208	13.25
70 - 75	.2483	20609	5118	90117	226935	11.01
75 - 80	.2997	15491	4643	65594	136818	8.83
80 - 85	.3590	10848	3894	44505	71224	6.57
85 +	1.0000	6954	6954	26719	26719	3.84

ABRIDGED FEMALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Changed
IMR = 120

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1098	100000	10981	92050	3804594	38.05
1 - 5	.0849	89019	7562	335413	3712544	41.70
5 - 10	.0576	81457	4690	394914	3377131	41.46
10 - 15	.0581	76767	4459	372597	2982217	38.85
15 - 20	.0590	72308	4264	350818	2609621	36.09
20 - 25	.0613	68044	4168	329833	2258802	33.20
25 - 30	.0692	63876	4421	308438	1928969	30.20
30 - 35	.0789	59455	4692	285574	1620532	27.26
35 - 40	.0833	54763	4560	262445	1334957	24.38
40 - 45	.0965	50203	4844	239092	1072512	21.36
45 - 50	.1204	45359	5460	213453	833421	18.37
50 - 55	.1585	39899	6324	184037	619968	15.54
55 - 60	.2132	33575	7158	150138	435930	12.98
60 - 65	.2685	26417	7094	114228	285792	10.82
65 - 70	.3410	19323	6589	79795	171564	8.88
70 - 75	.4265	12734	5431	49518	91769	7.21
75 - 80	.5235	7303	3823	26282	42281	5.79
80 - 85	.6278	3480	2185	11938	15969	4.59
85 +	1.0000	1295	1295	4031	4031	3.11

ABRIDGED FEMALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Changed
IMR = 110

$_nAGR_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1019	100000	10192	92621	3883797	38.84
1 - 5	.0735	89808	6601	341218	3791175	42.21
5 - 10	.0576	83207	4791	403635	3449958	41.46
10 - 15	.0581	78416	4555	380604	3046323	38.85
15 - 20	.0590	73861	4355	358358	2665718	36.09
20 - 25	.0613	69506	4258	396922	237360	33.20
25 - 30	.0692	65248	4515	315067	1970439	30.20
30 - 35	.0769	60733	4794	291712	1655372	27.26
35 - 40	.0833	55939	4658	268085	1363660	24.38
40 - 45	.0965	51281	4948	244230	1095575	21.36
45 - 50	.1204	46333	5577	218040	851344	18.37
50 - 55	.1585	40756	6460	187993	633304	15.54
55 - 60	.2132	34296	7312	153365	445311	12.98
60 - 65	.2685	26984	7247	116683	291946	10.82
65 - 70	.3410	19737	6730	81510	175263	8.88
70 - 75	.4265	13007	5547	50582	93753	7.21
75 - 80	.5235	7460	3905	26847	43171	5.79
80 - 85	.6278	3555	2232	12194	16324	4.59
85 +	1.0000	1323	1323	4130	4130	3.12

ABRIDGED FEMALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Changed
IMR = 100

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.0938	100000	9377	93211	3963883	39.64
1 - 4	.0623	90623	5646	347105	3870672	42.71
5 - 10	.0576	84977	4893	412447	3523567	41.46
10 - 15	.0581	80084	4652	388699	3111120	38.85
15 - 20	.0590	75432	4448	365979	2722421	36.09
20 - 25	.0613	70984	4348	344087	2356442	33.20
25 - 30	.0692	66636	4612	321767	2021356	30.20
30 - 35	.0789	62024	4895	297915	1690588	27.26
35 - 40	.0833	57129	4757	273787	1392673	24.38
40 - 45	.0965	52372	5053	249424	1118886	21.36
45 - 50	.1204	47319	5696	222577	869462	18.37
50 - 55	.1585	41623	6597	191991	646785	15.54
55 - 60	.2132	35026	7468	156627	454794	12.98
60 - 65	.2685	27558	7401	119165	298167	10.82
65 - 70	.3410	20157	6873	83243	179003	8.88
70 - 75	.4265	13284	5666	51658	95759	7.21
75 - 80	.5235	7618	3988	27418	44101	5.79
80 - 85	.6278	3630	2279	12454	16684	4.60
85 +	1.0000	1351	1351	4230	4230	3.13

ABRIDGED FEMALE LIFE TABLE FOR ANDHRA PRADESH

1961 Procedure Changes
IMR = 90

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.0854	100000	8538	93819	4044862	40.45
1 - 5	.0513	91462	4696	353075	3951043	43.20
5 - 10	.0576	86766	4996	421351	3597969	41.47
10 - 15	.0581	81770	4750	396880	3176617	38.85
15 - 20	.0590	77020	4541	373682	2779737	36.09
20 - 25	.0613	72479	4440	351329	2406055	33.20
25 - 30	.0692	68039	4709	328540	2054725	30.20
30 - 35	.0789	63330	4999	304186	1726185	27.26
35 - 40	.0833	58331	4857	279550	1421999	24.38
40 - 45	.0965	53474	5159	254674	1142450	21.36
45 - 50	.1204	48315	5816	227364	887775	18.37
50 - 55	.1585	42499	6736	196032	660411	15.54
55 - 60	.2132	35763	7625	159923	464379	12.98
60 - 65	.2685	28138	7556	121673	304456	10.82
65 - 70	.3410	20582	7018	84996	182783	8.88
70 - 75	.4265	13564	5785	52745	97787	7.21
75 - 80	.5235	7779	4073	27995	45042	5.79
80 - 85	.6278	3706	2327	12716	17047	4.60
85 +	1.0000	1379	1379	4331	4331	3.14

ABRIDGED FEMALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Changed
IMR = 110

AGE n x	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1019	100000	10192	92621	4272460	42.72
1 - 5	.0735	89808	6600	341218	4179839	46.54
5 - 10	.0371	83208	3086	407634	3838621	46.13
10 - 15	.0410	80122	3289	392450	3430987	42.82
15 - 20	.0442	76833	3392	375738	3038537	39.55
20 - 25	.0483	73441	3548	358500	2662799	36.26
25 - 30	.0599	69893	4184	339286	2304299	32.97
30 - 35	.0744	65709	4886	316524	1965013	29.90
35 - 40	.0838	60823	5098	291393	1648489	27.10
40 - 45	.0894	55725	4983	266115	1357096	24.35
45 - 50	.0954	50742	4843	241727	1090981	21.50
50 - 55	.1217	45899	5585	216012	849254	18.50
55 - 60	.1792	40314	7144	183965	633242	15.71
60 - 65	.2051	33170	6803	148753	449277	13.54
65 - 70	.2543	26367	6706	114936	300524	11.40
70 - 75	.3129	19661	6151	82605	185588	9.44
75 - 80	.3810	13510	5148	54199	102983	7.62
80 - 85	.4585	8362	3862	32227	48784	5.83
85 +	1.0000	4528	4528	16556	16556	3.66

ABRIDGED FEMALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Changed
IMR = 105

AGE n x	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.0979	100000	9787	92914	4316529	43.17
1 - 5	.0679	90213	6123	344151	4223615	46.82
5 - 10	.0371	84090	3119	412071	3879464	46.13
10 - 15	.0410	80971	3324	396612	3467393	42.82
15 - 20	.0442	77647	3428	379722	3070781	39.55
20 - 25	.0483	74219	3585	362302	2691058	36.26
25 - 30	.0599	70634	6228	342884	2328757	32.97
30 - 35	.0744	66406	4938	319881	1985873	29.90
35 - 40	.0838	61468	5152	294483	1665992	27.10
40 - 45	.0894	56316	5036	268937	1371508	24.35
45 - 50	.0954	51280	4894	244291	1102572	21.50
50 - 55	.1217	46386	5644	218303	858281	18.50
55 - 60	.1772	40742	7220	185916	639978	15.71
60 - 65	.2051	33522	6875	150330	454063	13.15
65 - 70	.2543	26647	6777	116155	303732	11.40
70 - 75	.3129	19870	6216	83481	187577	9.44
75 - 80	.3810	13654	5203	54774	104096	7.62
80 - 85	.4585	8451	3874	32569	49322	5.84
85 +	1.0000	4577	4577	16753	16753	3.66

ABRIDGED FEMALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Changed
IMR = 100

AGE n x	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.0938	100000	9377	(93211)	4361143	43.61
1 - 4	.0623	90623	5646	347105	4267931	47.10
5 - 10	.0370	84977	3145	416548	3920827	46.14
10 - 15	.0410	81832	3359	400830	3504279	42.82
15 - 20	.0442	78473	3465	383759	3103449	39.55
20 - 25	.0483	75008	3623	366154	2719689	36.26
25 - 30	.0599	71385	4273	346529	2353536	32.97
30 - 35	.0744	67112	4990	323281	2007006	29.91
35 - 40	.0838	62122	5207	297614	1683725	27.10
40 - 45	.0894	56915	5090	271796	1386111	24.35
45 - 50	.0954	51825	4946	246888	1114315	21.50
50 - 55	.1217	46879	5704	220523	867427	18.50
55 - 60	.1772	41175	7296	187892	646804	15.71
60 - 65	.2051	33879	6949	151929	458911	13.55
65 - 70	.2543	26930	6849	117390	306983	11.40
70 - 75	.3129	20081	6282	84369	189593	9.44
75 - 80	.3810	13799	5258	55356	105224	7.63
80 - 85	.4585	8541	3916	32915	49868	5.84
85 +	1.0000	4625	4625	16952	16952	3.67

ABRIDGED FEMALE LIFE TABLE FOR MAHARASHTRA

1961 Procedure Changed
IMR = 95

AGE n x	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.0896	100000	8960	93513	4405705	44.06
1 - 5	.0568	91040	5170	350079	4312192	47.37
5 - 10	.0370	85870	3178	421031	3962112	46.14
10 - 15	.0410	82692	3375	405037	3541081	42.82
15 - 20	.0442	79297	3501	387787	3136044	39.55
20 - 25	.0483	75796	3661	369997	2748257	36.26
25 - 30	.0599	72135	4318	350167	2378260	32.97
30 - 35	.0744	67817	5042	326675	2028093	29.91
35 - 40	.0838	62775	5262	300738	1701419	27.10
40 - 45	.0894	57513	5144	274649	1400681	24.35
45 - 50	.0954	52369	4998	249479	1126032	21.50
50 - 55	.1217	47371	5764	222939	876553	18.50
55 - 60	.1772	41607	7373	189864	653614	15.71
60 - 65	.2051	34234	7021	153523	463749	13.55
65 - 70	.2543	27213	6921	118622	310226	11.40
70 - 75	.3129	20292	6384	85254	191604	9.44
75 - 80	.3810	13944	5313	55937	106350	7.63
80 - 85	.4585	8631	3957	33261	50412	5.84
85 +	1.0000	4674	4674	17151	17151	3.67

ABRIDGED FEMALE LIFE TABLE FOR ORISSA

1961 Procedure Changed
IMR = 185

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1542	100000	15425	88833	3590377	35.90
1 - 5	.1662	84575	14060	299711	3501545	41.40
5 - 10	.0435	70515	3065	342728	3201833	45.41
10 - 15	.0530	67450	3573	328437	2859105	42.35
15 - 20	.0571	63877	3644	310250	2530668	39.62
20 - 25	.0574	60233	3457	292446	2220418	36.86
25 - 30	.0579	56776	3288	275610	1927972	33.96
30 - 35	.0603	53488	3224	259382	1652362	30.89
35 - 40	.0655	50264	3291	243145	1392980	27.71
40 - 45	.0739	46973	3470	226316	1149835	24.48
45 - 50	.0897	43503	3902	207951	923519	21.23
50 - 55	.1108	39601	4387	187519	715568	18.07
55 - 60	.1762	35214	6203	160938	528049	15.00
60 - 65	.2131	29011	6183	129620	367111	12.65
65 - 70	.2764	22828	6310	98295	237491	10.40
70 - 75	.3539	16518	5846	67650	139196	8.43
75 - 80	.4455	10672	4755	40933	71545	6.70
80 - 85	.5489	5917	3248	21466	30613	5.17
85 +	1.0000	2669	2669	9146	1946	3.43

ABRIDGED FEMALE LIFE TABLE FOR ORISSA

1961 Procedure Changed
IMR = 180

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1513	100000	15128	89047	3630439	36.30
1 - 5	.1595	84872	13540	302333	3541392	41.73
5 - 10	.0435	71332	3101	346838	3239059	45.41
10 - 15	.0530	68231	3614	332240	2892221	42.39
15 - 20	.0571	64617	3687	313842	2559981	39.62
20 - 25	.0574	60930	3497	295832	2246139	36.86
25 - 30	.0079	57433	3326	278801	1950307	33.96
30 - 35	.0603	54107	3261	262385	1671506	30.89
35 - 40	.0655	50846	3329	245960	1409121	27.71
40 - 45	.0739	47517	3511	228937	1163161	24.48
45 - 50	.0897	44006	3947	210358	934224	21.23
50 - 55	.1108	40059	4437	189690	723866	18.07
55 - 60	.1762	35622	6275	162801	534176	15.00
60 - 65	.2131	29347	6254	131121	371375	12.65
65 - 70	.2764	23093	6384	99433	240254	10.40
70 - 75	.3539	16709	5913	68434	140821	8.43
75 - 80	.4456	10796	4810	41407	72387	6.71
80 - 85	.5489	5986	3286	21715	30981	5.18
85 +	1.0000	2700	2700	9265	9262	3.43

ABRIDGED FEMALE LIFE TABLE FOR ORISSA

1961 Procedure Changed
IMR = 175

$n^{AGE}x$	nq_x	l_x	nd_x	nL_x	T_x	e_x
0 - 1	.1482	100000	14824	89267	3670706	36.71
1 - 4	.1529	85176	13024	304975	3581438	42.05
5 - 10	.0435	72152	3137	35967	3276463	45.41
10 - 15	.0530	69015	3656	336061	2925496	42.39
15 - 20	.0571	65359	3729	317451	2589435	39.62
20 - 25	.0574	61630	3537	299234	2271984	36.86
25 - 30	.0579	58093	3364	282007	1972750	33.96
30 - 35	.0603	54729	3298	265402	1690742	30.89
35 - 40	.0655	51431	3368	248789	1425340	27.71
40 - 45	.0739	48063	3551	231570	1176551	24.84
45 - 50	.0897	44512	3992	212777	944982	21.23
50 - 55	.1108	40520	4488	191872	732204	18.07
55 - 60	.1762	36032	6348	164673	540333	15.00
60 - 65	.2131	29684	6326	132629	375660	12.66
65 - 70	.2764	23358	6457	100577	243031	10.40
70 - 75	.3539	16901	5982	68221	142454	8.43
75 - 80	.4455	10919	4864	41883	73233	6.71
80 - 85	.5489	6055	3324	21965	31351	5.81
85 +	1.0000	2731	2731	9385	9385	3.44

ABRIDGED FEMALE LIFE TABLE FOR ORISSA

1961 Procedure Changed
IMR = 170

AGE n x	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1451	100000	14512	89493	3711181	37.11
1 - 5	.1464	85488	12512	307639	3621688	42.36
5 - 10	.0435	72976	3172	355115	3314049	45.41
10 - 15	.0530	69804	3697	339900	2958935	42.39
15 - 20	.0571	66107	3772	321078	2619034	39.62
20 - 25	.0574	62335	3578	302653	2297956	36.86
25 - 30	.0579	58757	3402	285230	1995303	33.96
30 - 35	.0603	55355	3336	268435	1710074	30.89
35 - 40	.0655	52019	3406	251631	1441639	27.71
40 - 45	.0739	48613	3592	234215	1190008	24.48
45 - 50	.0897	45021	4038	215208	955792	21.23
50 - 55	.1108	40983	4540	194064	740584	18.07
55 - 60	.1762	35443	6420	166555	546520	15.00
60 - 65	.2131	30023	6398	134144	379965	12.66
65 - 70	.2764	23625	6531	101726	245821	10.41
70 - 75	.3539	17094	6050	70012	144095	8.43
75 - 80	.4455	11044	4920	42361	74084	6.71
80 - 85	.5489	6124	3162	22216	31722	5.18
85 +	1.0000	2762	2762	9506	9506	3.44

ABRIDGED FEMALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Changed
IMR = 140

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1248	100000	12479	90965	4000334	40.00
1 - 5	.1087	87521	9510	324053	3909368	44.67
5 - 10	.0403	78011	3145	380861	3585315	45.96
10 - 15	.0415	74866	3104	366555	3204454	42.80
15 - 20	.0426	71762	3056	351184	2837899	39.55
20 - 25	.0458	68706	3149	335838	2486715	36.19
25 - 30	.0595	65557	3900	318282	2150877	32.81
30 - 35	.0699	61657	4312	297545	1832595	29.72
35 - 40	.0712	57345	4081	276471	1535049	26.77
40 - 45	.0762	53264	4048	256164	1258578	23.63
45 - 50	.0816	49206	4017	236296	1002414	20.37
50 - 55	.1224	45189	5530	212936	766118	16.95
55 - 60	.1877	39659	7443	180108	553282	13.95
60 - 65	.2342	32216	7544	142266	373174	11.58
65 - 70	.3105	24662	7661	104070	230908	9.36
70 - 75	.4044	17011	5880	67345	126838	7.46
75 - 80	.5144	10131	5211	36846	59493	5.87
80 - 85	.6346	4920	3122	16795	22647	4.60
85 +	1.0000	1798	1798	5852	5852	3.25

ABRIDGED FEMALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Changed
IMR = 135

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1211	100000	12115	91229	4042813	40.43
1 - 5	.1026	87885	9019	326862	3951584	44.96
5 - 10	.0403	78866	3179	385157	3624722	45.96
10 - 15	.0415	75687	3138	370570	3239565	42.80
15 - 20	.0426	72549	3089	355031	2868995	39.55
20 - 25	.0458	69460	3183	339517	2513964	36.19
25 - 30	.0595	66277	3943	321769	2174446	32.81
30 - 35	.0699	66334	4360	300805	1852678	29.72
35 - 40	.0712	57974	4126	279500	1551874	26.77
40 - 45	.0762	53848	4103	258970	1272374	23.63
45 - 50	.0816	49745	4061	238884	1013404	20.37
50 - 55	.1224	45684	5590	215167	774519	16.95
55 - 60	.1877	40094	7225	182081	559352	13.95
60 - 65	.2342	32569	7626	143825	377270	11.58
65 - 70	.3105	24943	7745	105210	233446	9.36
70 - 75	.4044	17198	6955	68083	128236	7.46
75 - 80	.5144	10243	5269	37249	60153	5.87
80 - 85	.6346	4974	3156	16979	22904	4.60
85 +	1.0000	1818	1818	5925	5925	3.26

ABRIDGED FEMALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Changed
IMR = 130

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1174	100000	11743	91498	4085528	40.86
1 - 5	.0967	88257	8532	329692	3994030	45.25
5 - 10	.0403	79725	3214	389475	3664338	45.96
10 - 15	.0415	76511	3172	374607	3274873	42.80
15 - 20	.0426	73339	3123	356898	2900256	39.55
20 - 25	.0458	70216	3218	343215	2541358	36.19
25 - 30	.0595	66998	3986	325274	2198143	32.81
30 - 35	.0699	63012	4407	304082	1872869	29.72
35 - 40	.0712	58605	4170	282545	1568787	26.77
40 - 45	.0762	54435	4148	261791	1286243	23.63
45 - 50	.0816	50287	4105	241487	1024451	20.37
50 - 55	.1224	46182	5651	217511	782965	16.95
55 - 60	.1877	40530	7607	184065	565454	13.95
60 - 65	.2342	32923	7709	145391	381389	11.58
65 - 70	.3105	25214	7829	106356	235997	9.36
70 - 75	.4044	17385	7031	68824	129641	7.46
75 - 80	.5144	10354	5326	37655	60817	5.87
80 - 85	.6346	5028	3191	17164	23162	4.61
85 +	1.0000	1837	1837	5997	5997	3.26

ABRIDGED FEMALE LIFE TABLE FOR RAJASTHAN

1961 Procedure Changed
IMR = 125

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1137	100000	11365	91772	4128478	41.28
1 - 5	.0908	88635	8046	332542	4036706	45.54
5 - 10	.0403	80589	3249	393815	3704164	45.96
10 - 15	.0415	77340	3206	378665	3310350	42.80
15 - 20	.0426	74134	3157	362786	2931684	39.55
20 - 25	.0458	70977	3253	346934	2568898	36.19
25 - 30	.0595	67724	4029	328798	2221965	32.81
30 - 35	.0699	63695	4455	307376	1893167	29.72
35 - 40	.0712	59240	4215	285605	1585791	26.77
40 - 45	.0762	55025	4193	264527	1300186	23.63
45 - 50	.0816	50832	4150	244103	1035558	20.37
50 - 55	.1224	46682	5713	219868	791456	16.95
55 - 60	.1877	40969	7689	186059	571588	13.95
60 - 65	.2342	33280	7793	146966	385529	11.58
65 - 70	.3105	25487	7914	107508	238563	9.36
70 - 75	.4044	17573	7107	69570	131054	7.46
75 - 80	.5144	10466	5383	38063	61484	5.87
80 - 85	.6346	5083	3226	17350	23421	4.61
85 +	1.0000	1857	1857	6071	6071	3.27

ABRIDGED FEMALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Changed
IMR = 190

AGE x	n	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0	1	.1571	100000	15712	88624	3234227	32.34
1	5	.1730	84288	14585	297110	3145603	37.32
5	10	.0500	69703	3482	337500	2848493	40.87
10	15	.0529	66221	3501	322468	2510992	37.92
15	20	.0645	62720	4043	303721	2188524	34.89
20	25	.0784	58677	4602	282060	1884803	32.12
25	30	.0907	54075	4906	258232	1602742	29.64
30	35	.1056	49169	5193	232853	1344510	27.34
35	40	.1105	43976	4860	207626	1111658	25.28
40	45	.1197	39116	4682	183785	904032	23.11
45	50	.1285	34434	4423	161036	720247	20.92
50	55	.1439	30011	4318	139335	559211	18.63
55	60	.1865	25693	4792	116471	419876	16.34
60	65	.2037	20901	4258	93672	303405	14.52
65	70	.2339	16643	3894	73303	209733	12.60
70	75	.2676	12749	3414	54993	136430	10.70
75	80	.3055	9335	2852	39302	81437	8.72
80	85	.3472	6483	2251	26707	42135	6.50
85	+	1.0000	4232	4232	15348	15347	3.63

ABRIDGED FEMALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Changed
IMR = 185

AGE x	n	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	$\mathring{e}_x$
0	1	.1542	100000	15425	88833	3270409	32.70
1	5	.1662	84575	14060	299711	3181576	37.62
5	10	.0500	70515	3523	341579	2881865	40.87
10	15	.0529	66992	3542	326227	2540286	37.92
15	20	.0645	63450	4089	307262	2214058	34.89
20	25	.0784	59361	4656	285348	1906796	32.12
25	30	.0907	54705	4963	261242	1621448	29.64
30	35	.1056	49742	5253	235567	1360205	27.35
35	40	.1105	44489	4916	210046	1124638	25.28
40	45	.1197	39573	4737	185928	914592	23.11
45	50	.1285	34836	4475	162913	728665	20.92
50	55	.1439	30361	4369	140959	565751	18.63
55	60	.1865	25992	4847	117829	424792	16.34
60	65	.2037	21145	4308	94764	306963	14.52
65	70	.2339	16837	3939	74158	212199	12.60
70	75	.2678	12898	3454	55634	138042	10.70
75	80	.3055	9443	2885	79760	42407	8.73
80	85	.3472	6558	2277	27099	42647	6.50
85	+	1.0000	4281	4281	15548	15548	3.63

ABRIDGED FEMALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Changed
IMR = 180

AGE x	n	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0	1	.1513	100000	15128	89047	3306774	33.07
1	5	.1595	84872	13540	302333	3217727	37.91
5	10	.0500	71332	3563	345676	2915394	40.87
10	15	.0529	67769	3583	330004	2569718	37.92
15	20	.0645	64186	4137	310819	2239714	34.89
20	25	.0784	60049	4710	288652	1928894	32.12
25	30	.0907	55339	5021	264267	1640242	29.64
30	35	.1056	50318	5314	238295	1375975	27.35
35	40	.1105	45004	4973	212478	1137681	25.28
40	45	.1197	40031	4792	188080	925203	23.11
45	50	.1285	35239	4527	164799	737122	20.92
50	55	.1439	30712	4419	142591	572323	18.64
55	60	.1865	26293	4904	119193	429732	16.34
60	65	.2037	21389	4358	95861	310539	14.32
65	70	.2339	17031	3984	75016	214678	12.60
70	75	.2678	13047	3494	56278	139661	10.70
75	80	.3055	9553	2919	40220	83383	8.73
80	85	.3472	6634	2303	27413	43163	6.51
85	+	1.0000	4331	4331	15750	15750	3.64

ABRIDGED FEMALE LIFE TABLE FOR UTTAR PRADESH

1961 Procedure Changed
IMR = 175

AGE x	n	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0	1	.1482	100000	14824	89267	3343327	33.43
1	5	.1529	85176	13024	304975	3254060	38.20
5	10	.0500	72152	3604	349792	2949084	40.87
10	15	.0529	68548	3624	333799	2599292	37.92
15	20	.0645	64924	4185	314394	2265493	34.89
20	25	.0784	60739	4764	291972	1951099	32.12
25	30	.0907	55975	5079	267306	1659127	29.64
30	35	.1056	50896	5375	241035	1391821	27.35
35	40	.1105	45521	5030	214921	1150786	25.28
40	45	.1197	40491	4847	190243	935865	23.11
45	50	.1285	35644	4578	166695	745621	20.92
50	55	.1439	31066	4470	144231	578927	18.64
55	60	.1865	26596	4960	120564	434696	16.34
60	65	.2037	21636	4408	96963	314132	14.52
65	70	.2339	17228	4030	75879	217169	12.61
70	75	.2678	13198	3535	56926	141289	10.71
75	80	.3055	9663	2952	40683	84364	8.73
80	85	.3472	6711	2330	27728	43681	6.51
85	+	1.0000	4381	4381	15953	15953	3.64

APPENDIX-B

ABRIDGED MALE LIFE TABLE FOR ANDHRA PRADESH

COALE & DEMENEY METHOD

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1222	100000	12220	91813	4993711	49.9
1 - 5	.0587	87780	5153	337200	4901898	55.8
5 - 10	.0177	82627	1462	409480	4564698	55.2
10 - 15	.0129	81165	1047	403207	4155218	51.2
15 - 20	.0193	80118	1546	396725	3752011	46.8
20 - 25	.0274	78572	2153	387477	3355286	42.7
25 - 30	.0299	76419	2285	376382	2967809	38.8
30 - 35	.0341	74134	2528	364350	2591427	34.9
35 - 40	.0408	71606	2922	350725	2227077	31.1
40 - 45	.0511	68684	3510	334645	1876352	27.3
45 - 50	.0646	65174	4210	315345	1541707	23.6
50 - 55	.0869	60964	5298	291575	1226362	20.1
55 - 60	.1169	55666	6507	262062	934787	16.8
60 - 65	.1654	49159	8131	225467	672725	13.7
65 - 70	.2304	41028	9453	181507	447258	10.9
70 - 75	.3242	31575	10237	132282	265751	8.4
75 - 80	.4519	21338	9642	82585	133469	6.2
80 +		11696		50884	50884	4.3

ABRIDGED MALE LIFE TABLE FOR MAHARASHTRA

COALE & DEMENEY METHOD

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1105	100000	11050	92597	5200899	52.0
1 - 5	.0505	88950	4492	343679	5108302	57.4
5 - 10	.0157	84458	1326	418975	4764623	56.4
10 - 15	.0116	83132	964	413250	4345648	52.3
15 - 20	.0175	82168	1438	407245	3932398	47.8
20 - 25	.0248	80730	2002	398645	3525153	43.7
25 - 30	.0269	78728	2118	388345	3126508	39.7
30 - 35	.0299	76610	2290	377325	2738163	35.7
35 - 40	.0370	74320	2750	364725	2360838	31.8
40 - 45	.0467	71570	3342	349495	1996113	27.9
45 - 50	.0600	68228	4094	330905	1646618	24.1
50 - 55	.0818	64134	5246	307555	1315713	20.5
55 - 60	.1115	58888	6566	278025	1008158	17.1
60 - 65	.1589	52322	8314	240825	730133	13.9
65 - 70	.2232	44008	9823	195482	489308	11.1
70 - 75	.3163	34185	10812	143895	293826	8.6
75 - 80	.4432	23373	10359	90967	149931	6.4
80 +		13014		58964	58964	4.5

ABRIDGED MALE LIFE TABLE FOR ORISSA

COALE & DEMENEY METHOD

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1448	100000	14480	90298	4623511	46.2
1 - 5	.0747	85520	6388	324801	4533213	53.0
5 - 10	.0215	79132	1701	391407	4208412	53.2
10 - 15	.0156	77431	1208	384135	3817005	49.3
15 - 20	.0227	76223	1730	376790	3432870	45.0
20 - 25	.0322	74493	2399	366467	3056080	41.0
25 - 30	.0354	72094	2552	354090	2689613	37.3
30 - 35	.0406	69542	2823	340652	2335523	33.6
35 - 40	.0481	66719	3209	325572	1994871	29.9
40 - 45	.0595	63510	3779	308103	1669299	26.3
45 - 50	.0734	59731	4384	287695	1361197	22.8
50 - 55	.0970	55347	5369	263313	1073502	19.4
55 - 60	.1275	49978	6372	233960	81089	16.2
60 - 65	.1782	43606	7771	198602	576229	13.2
65 - 70	.2446	35835	8765	157263	377627	10.5
70 - 75	.3399	27070	9201	112347	220364	8.1
75 - 80	.4690	17869	8381	68393	108017	6.0
80 +		9488		39624	39624	4.2

ABRIDGED MALE LIFE TABLE FOR RAJASTHAN

COALE & DEMENEY METHOD

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1392	100000	13920	90678	5062091	50.6
1 - 5	.0706	86080	6077	327887	4971413	57.5
5 - 10	.0204	80003	1632	415208	4643526	54.3
10 - 15	.0148	78371	1160	395935	4228318	53.9
15 - 20	.0218	77211	1683	388955	3832383	49.6
20 - 25	.0310	75528	2341	381848	3443428	45.6
25 - 30	.0340	73187	2488	371788	3061580	41.8
30 - 35	.0390	70699	2757	359715	2689792	38.0
35 - 40	.0463	67942	3146	346602	233077	34.3
40 - 45	.0574	64796	3719	331845	1983415	30.6
45 - 50	.0711	61077	4343	314682	1651630	27.0
50 - 55	.0943	56734	5350	294527	1336948	23.6
55 - 60	.1247	51384	6408	270295	1042421	20.3
60 - 65	.1747	44976	7857	240900	772126	17.2
65 - 70	.2407	37119	8934	205237	531221	14.3
70 - 75	.3356	28185	9459	163260	325939	11.6
75 - 80	.4643	18726	8694	117277	162679	8.7
80 +		10032		45452	45452	4.5

ABRIDGED MALE LIFE TABLE FOR UTTAR PRADESH

COALE & DEMENEY METHOD

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1074	100000	10740	92804	5253695	52.5
1 - 5	.0485	89260	4329	345362	5160891	57.8
5 - 10	.0152	84931	1291	421427	4815529	56.7
10 - 15	.0112	83640	937	415856	4394102	52.5
15 - 20	.0170	82703	1406	410000	3978246	48.1
20 - 25	.0241	81297	1959	401588	3568246	43.9
25 - 30	.0262	79338	2079	391492	3166658	39.9
30 - 35	.0298	77259	2302	380545	2775166	35.9
35 - 40	.0360	74959	2698	368050	2394621	31.9
40 - 45	.0456	72261	3295	353068	2026572	28.0
45 - 50	.0587	68966	4048	334710	1673503	24.3
50 - 55	.0803	64918	5213	311558	1338793	20.6
55 - 60	.1100	59705	6568	282105	1027235	17.2
60 - 65	.1570	53137	8342	244830	745130	14.0
65 - 70	.2210	44795	9900	199225	500300	11.2
70 - 75	.3139	34895	10953	147093	301075	8.6
75 - 80	.4407	23942	10551	93333	153982	6.4
80 +		13391		60649	60649	4.8

ABRIDGED FEMALE LIFE TABLE FOR ANDHRA PRADESH

COALE AND DEMENEY METHOD

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1653	100000	16530	88925	4188110	41.9
1 - 5	.1084	83470	9048	309270	4099185	49.1
5 - 10	.0312	74422	2322	366305	3789915	50.9
10 - 15	.0244	72100	1759	356103	3423610	47.5
15 - 20	.0324	70341	2279	346008	3067507	43.6
20 - 25	.0409	68062	2784	333350	2721499	40.0
25 - 30	.0460	65278	3003	318882	2388149	36.6
30 - 35	.0520	62275	3238	303280	2069267	33.2
35 - 40	.0576	59037	3400	286685	1765987	29.9
40 - 45	.0629	55637	3500	269435	1479302	26.6
45 - 50	.0703	52137	3665	251522	1209867	23.2
50 - 55	.0920	48472	4459	231212	958345	19.8
55 - 60	.1193	44013	5251	206937	727133	16.5
60 - 65	.1731	38762	6710	177035	520196	13.4
65 - 70	.2357	32052	7555	141380	343161	10.7
70 - 75	.3369	24500	8254	101865	201781	8.2
75 - 80	.4645	16246	7546	62365	99916	6.1
80 +		8700		37551	37551	4.3

ABRIDGED FEMALE LIFE TABLE FOR MAHARASHTRA

BASED ON UNSMOOTHED POPULATION

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.0929	100000	9290	93776	5510583	55.1
1 - 5	.0496	90710	4499	350848	5416807	59.7
5 - 10	.0156	86211	1345	427693	5065959	58.7
10 - 15	.0121	84866	1027	421763	4638266	54.6
15 - 20	.0173	83839	1450	415570	4216503	50.2
20 - 25	.0226	82389	1862	407290	3800933	46.1
25 - 30	.0257	80527	2070	397460	3393643	42.1
30 - 35	.0292	78457	2291	386558	2996188	38.1
35 - 40	.0332	76166	2529	374507	2609625	34.2
40 - 45	.0380	73637	2798	361190	2235118	30.3
45 - 50	.0456	70839	3230	346120	1873928	26.4
50 - 55	.0617	67609	4171	327618	1527808	22.6
55 - 60	.0838	63438	5316	303900	1200190	18.9
60 - 65	.1242	58122	7219	272562	896290	15.4
65 - 70	.1804	50903	9183	231550	623728	12.2
70 - 75	.2711	41720	11310	180325	392170	9.4
75 - 80	.3940	30410	11981	122095	211845	6.9
80 +		18428	18428	89750	89750	4.8

ABRIDGED FEMALE LIFE TABLE FOR ORISSA

BASED ON UNSMOOTHED POPULATION

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1634	100000	16340	89052	4240732	42.4
1 - 5	.1070	83660	8952	310291	4151680	49.6
5 - 10	.0308	74708	2301	367788	3841389	51.4
10 - 15	.0240	72407	1738	357690	3473601	47.9
15 - 20	.0320	70669	2261	347692	3115911	44.1
20 - 25	.0404	68408	2148	336670	2768219	40.5
25 - 30	.0454	66260	3008	323780	2431549	36.7
30 - 35	.0514	63252	3251	308132	2107769	33.3
35 - 40	.0569	60001	3414	291470	1799637	30.0
40 - 45	.0623	56587	3525	274123	1508167	26.6
45 - 50	.0697	53062	3698	256065	1234044	23.2
50 - 55	.0913	49364	4507	235552	977979	19.8
55 - 60	.1184	44857	5311	211007	742427	16.5
60 - 65	.1718	39546	6794	180745	531420	13.4
65 - 70	.2342	32752	7671	144583	350675	10.7
70 - 75	.3351	25081	8405	104392	206093	8.2
75 - 80	.4626	16676	7714	64095	101701	6.1
80 +		8962		37606	37606	4.2

ABRIDGED FEMALE LIFE TABLE FOR RAJASTHAN

BASED ON UNSMOOTHED POPULATION

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1039	100000	10390	93039	5284123	52.8
1 - 5	.0592	89610	5305	344035	5191084	57.9
5 - 10	.0181	84305	1526	417710	4847049	57.5
10 - 15	.0141	82779	1167	410977	4429339	53.5
15 - 20	.0196	81612	1600	404060	4018362	49.2
20 - 25	.0253	80012	2024	395000	3614302	45.1
25 - 30	.0288	77988	2246	384325	3219302	41.3
30 - 35	.0326	75742	2469	372537	2834977	37.4
35 - 40	.0368	73273	2696	359625	2462440	33.6
40 - 45	.0417	70577	2943	345628	2102815	29.8
45 - 50	.0492	67674	3328	330050	1757187	25.9
50 - 55	.0661	64346	4253	318847	1427137	22.2
55 - 60	.0888	60093	5336	287125	1108290	18.4
60 - 65	.1312	54757	7184	255825	821165	15.0
65 - 70	.1881	47573	8948	215495	565340	11.9
70 - 75	.2802	38625	10823	166067	349845	9.0
75 - 80	.4039	27802	11229	119037	183778	6.6
80 +		16573		72841	72841	4.4

ABRIDGED FEMALE LIFE TABLE FOR UTTAR PRADESH

BASED ON UNSMOOTHED POPULATION

$_nAGE_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0 - 1	.1777	100000	17770	88447	4000000	40.0
1 - 5	.1179	82226	9694	303316	3911533	47.5
5 - 10	.0339	72530	2452	356520	3608237	49.7
10 - 15	.0264	70078	1850	345762	3257718	46.4
15 - 20	.0350	68227	2388	335172	2905956	42.6
20 - 25	.0440	65842	2897	321964	2570784	39.0
25 - 30	.0495	62944	3116	306933	2248820	35.7
30 - 35	.05595	59829	3344	290781	1941886	32.4
35 - 40	.0618	56483	3491	273690	1651105	29.2
40 - 45	.0673	52993	3566	256093	1377415	26.0
45 - 50	.0747	49429	3692	237894	1121372	22.7
50 - 55	.0975	45733	4459	217525	883478	19.3
55 - 60	.1257	41277	5189	193410	665953	16.1
60 - 65	.1818	36087	6561	164037	472543	13.1
65 - 70	.2457	29527	7255	129500	308507	10.4
70 - 75	.3488	22272	7768	91943	179007	8.0
75 - 80	.4772	14505	6922	55221	87064	6.0
80 +		7583		31843	31843	4.2

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