AGING AND THE DEMOGRAPHIC TRANSITION IN INDIA AND ITS STATES: A COMPARATIVE PERSPECTIVE

Ramani Ponnapalli

Department of Population Studies, Annamalai University, India

Krishna Murthy Ponnapalli

Department of Fertility Studies, International Institute for Population Sciences, India

A. Subbiah

Department of Population Studies, Annamalai, University, India

ABSTRACT

In the present paper an attempt has been made to give a comparative perspective about the ageing of the population and the demographic transition taking place in India and its15 major states. Data required for the present study on the indicators namely the life expectancy at birth, the total fertility rate, the age distribution of the population of the broad ages 0-14,15-59 and 60+ has been collected mainly from various publications of the 'Sample Registration System' (SRS) of the Registrar General of India for the forty years starting from 1970s to the year latest period 2010. Information for the projected periods of 2011-16 to 2096-2101 about the above same indicators are collected from the single source PRB's 2007 publication entitled "The future POPULATION of India: A Long-range Demographic View". Results of the present analysis indicates that India and its major states are well in progress in their demographic transition and are at different stages of their demographic transition based on the progress made in their fertility and mortality transitions as a result of different progress made in their health and socio-economic development. Consequently it is seen while some of the states are at very advanced stage of the ageing process; others are seen lagging behind them. States in south of India namely Kerala, Tamil Nadu, Andhra Pradesh and Karnataka in the same sequence are always seen in the advanced stage of their mortality, fertility and demographic transitions when compared to their counterparts the northern states namely, the states of Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan. Ageing process thus seen to be well in advance in the southern states of India, however, it is not seen well reflected when we look at the India as a whole. It is realised to be mainly due to the slow progress in the ageing process taking place in the northern states which are most populous and mainly as a consequence of slow progress in their fertility transition when compared to their mortality transition. The state of Kerala is said to be always exceptional when compared to all other states in

India in terms of its ageing and demographic transition process due to obvious reasons. Results of the present analysis further indicate for an in-depth study of factors responsible for the ageing and the demographic transition process taking place presently in the selected states and India.   [393 words]

INTRODUCTION

"Population ageing refers to shifts in the age distribution of the population such that the relative share of persons at older ages increases and the share at younger ages decreases. This is distinct from absolute increases in the number of older persons, which can occur even if their share does not increase." Knodel (1999)

Knodel (1999) further states that "the decline in fertility and the consequent population ageing that follows, are likely to be seen as the most significant demographic developments in Asia during the past half century and the next half century to come." It seems India is not exceptional to the above statement. India is projected to overtake China in its population growth and become the world's first country in population growth within 10 years or so from now. "Today's Research on Aging" report of the (Population Reference Bureau., 2012) states that "India's older population will increase dramatically over the next four decades."(United Nations Population Division (UN). 2011) reports that "the share of India's population ages 60 and older is projected to climb from 8 percent in 2010 to 19 percent in 2050."(Population Reference Bureau., 2012) states the reason behind the continuing population growth and continuous increase in the aging of the population is due to "the combined impact of increasing life expectancy and declining fertility." As stated by Carl and Sharma (2006), India is often described by many "as a collection of many countries held together by a common destiny and a successful democracy." India by 2001 census year comprises 28 states and seven union territories. States and union territories are again seen to be split into 593 districts and 5,564 sub-districts, at the time of the 2001 census. In India new states are created periodically in order to "ease the burden of governing as their populations grow or to provide separate states for ethnic and tribal groups." Jharkhand, Chhattisgarh and Uttarakhand are three such states recently carved out of Bihar, Madhya Pradesh and Uttar Pradesh respectively and are existing from the year 2000.(Carl and Sharma, 2006). Several studies indicate that all the states in India and India as a whole are well in progress in their ageing and the demographic transitions. Recent results of the 2011 census bring out the fact that as a fast progress in their demographic transition the southern states (namely Andhra Pradesh, Karnataka, Kerala and Tamil Nadu) have experienced a decline in their population from 26 per cent of India's total population in 1951 to a figure of 21 per cent in 2011. Projected figures indicate this figure may again decline to 16 per cent by the year 2051. This may also indicate the reality that ageing is fast taking place in the Southern States when compared

to other states in India. Given below is a selected review of literature on the ageing of the transition as a consequence of the progress made in the demographic transition in India and its states over time.

REVIEW OF LITERATURE

Way back in 1992 Mari Bhat in an interesting article entitled *"Changing demography of elderly in India"* concluded that "Owing to the declines in mortality and fertility levels, India's old-age population is growing rapidly. The population in ages 80 and over is expected to increase by over four per cent per annum in the next three decades, with a doubling time of only 16 years." It is also well said by Mari Bhat that "although there would only be a modest increase in the proportion of population in older ages in India as a whole, states such as Kerala, Goa, Tamil Nadu and Punjab, where fertility has declined substantially, would witness rapid population ageing in the next few decades."Knodel (1999)

Regarding ageing of the population in India and its states Usha (2010) states that "ageing, as a consequence of fertility decline, has been slow in India but is going to accelerate in the near future. All the states having low fertility also have higher proportions of the aged in their total populations." About ageing of the population in India as a whole James (2011) expressed the opinion that "undoubtedly, beyond the 2030s, India's demographic structure is likely to alter from a young to an ageing population. The 60-year-and older population is expected to triple in the next four decades from 92 million to 316 million, constituting - 20% of the population by the middle of the century."(Ravishankar, 2010) in his article on *'population ageing process in India'* concludes that "the aging of India's population will pose problems in the future unless they are addressed now with sound policy initiatives." In their recent contribution on *"Demographics of Population Ageing in India"*(Subaiya and Dhananjay, 2011) come to the conclusion that "the transition away from a young age structure is not uniform across the country. Some states, particularly those in the southern region which are more economically and socially developed, are at the forefront of this transition." Thus, all the evidence clearly indicates that different states in India are at different stages of the demographic transition, as a consequence experiencing the ageing transition also at different levels. It is also realised that so far no comprehensive attempt is made by any researcher to look at both the ageing of the population and the demographic transition taking place in India and its States over time together due to obvious reasons. Keeping the above points in view an attempt is made here to study both the ageing process and the demographic transition in India and its states in a comparative perspective.

Objectives of the Study

The objective of the present paper is threefold: (1) to provide a comparative perspective of the mortality, fertility and the demographic transitions taking place in India and its major states during 1970s to the latest period of 2010, (2) to provide a comparative perspective of the ageing transition

taking place in India and its major states during 1970s to the latest period of 2010. And also (3)to study the future perspective of the aging and the demographic transitions that may take place in India and its states using the projected figures relevant to the time periods 2011 to 2100.

A brief description of the data, its data source and the methodology used in the present study are provided in the next section.

MATERIALS AND METHODS

Materials

The unique feature of the present study may be said that it utilizes the estimates on fertility, mortality and also the age distribution of the population from the only source 'the Sample Registration System' of the Registrar General of India, unlike the other studies that look for census information on the age distribution in understanding the ageing process. In explaining the main data source namely the "Sample Registration System" of the Registrar General of India" we prefer to borrow the comprehensive statement earlier made by (Carl and Sharma, 2006) which is as follows:

*"**The Sample Registration System (SRS) Monitors Change:** India is one of the few developing countries that publish annual birth and death rates. Since the 1970s, its Sample Registration System (SRS) has collected data on births and deaths from sample villages and from sample census blocks in urban areas. India publishes annual estimates of birth, death, and infant mortality rates; life expectancy; and other key measures for the nation and most states. Less detail is provided for smaller states because of insufficient sample sizes. The quality of SRS estimates has improved over the years and the SRS provides valuable data for officials and planners who rely on population data." Office of Registrar General of India (7th July 2011) in one of its documents states that SRS is the "largest demographic survey in the country covering about 1.4 million households and 7.01 million population in 797 sample units across 35 States/UTs."*

For the present study we have collected information, for India and its 15 Major States, for each of the single year from 1971 to 2010 on the following few indicators from various publications of the SRS of Registrar General of India: The total fertility rate, the Infant Mortality Rate (both sexes combined), Age distribution of population of the age groups (both sexes combined): 0-14, 15-59, 60+. To understand the future prospects of the ageing of the population and the demographic transition in India and its States, information on the age distribution of the population for the time period 2001-2101 (of Scenario A), fertility and mortality figures for the time period 2011-2006 to 2096-2101 (of Scenario A) have been collected from the source entitled *"The future POPULATION of India: A Long-range Demographic View"* of the Population Reference Bureau and the data refers to Scenario A (Population Foundation of India, and Population Reference Bureau 2007). As stated by Population Foundation of India, and Population Reference Bureau (2007) it is realized that "Population projections are not true forecasts of the future population, but

scenarios that result from the assumptions made when they are prepared. Assumptions must be made about declines in the future birth rate (fertility), improvements in mortality (life expectancy at birth and infant mortality), and migration into or out of an area."Population Foundation of India, and Population Reference Bureau (2007) Justifies its long range projections by stating that "while long-range projections necessarily require long-range assumptions, their value is that they can quantify the consequences of future demographic trends that could not otherwise be foreseen" All the input data thus collected and used in the present study has been provided at the end of the paper in Tables 1.1 to Table 1.9 for convenience of the reader. However, a look at different figures prepared and presented in various sections below may help to realize the importance of the data sets provided in the above tables.

Description of Selected Indicators

In the following paragraphs a brief explanation of the main indicators used in the present study namely, the total fertility rate (TFR), the infant mortality rate(IMR), the life expectancy at birth (LEB) and the age distribution of population by broad ages of 0-14, 15-59 and 60+ has been made.

Haupt et al. (2011) describe that 'life expectancy is a hypothetical measure' and is "an estimate of the average number of additional years a person could expect to live if the age-specific death rates for a given year prevailed for the rest of his or her life." Life expectancy at Birth (LEB), is a summary measure and is traditionally derived from 'one of the most powerful tools in demography' namely the 'Life Table' as an ultimate outcome. In the absence of (reliable) input data on age-specific death rates (ASDRs) it is derived indirectly generally using the regression models developed using reliable estimates of such indicators as the 'Infant Mortality Rate (IMR).Haupt et al. (2011) define Infant mortality rate (IMR) as 'the number of deaths of infants under age 1 in a given year per 1,000 total live births in the same year.' IMR is considered as 'a good indicator of the health status of a population.' Haupt et al. (2011) describe the 'summary' fertility indicator 'the Total fertility rate (TFR)' as "the average number of children that would be born to a woman by the time she ended childbearing if she were to pass through all her childbearing years conforming to the age-specific fertility rates of a given year'. It is also described as 'the most useful indicators of fertility because it gives the best picture of how many children women are currently having.' Like LEB it is also realised to be a 'synthetic or hypothetical' measure derived traditionally from the age-specific fertility rates (ASFRs). It may also be derived from regression models in the absence of reliable data on ASFRs from the simple indicator such as the 'Child-Woman Ratio (CWR)' for instance. Age structure of the population is described by (Haupt et al., 2011) as "the demographic 'engine' that drives or retards population growth." Ageing of the population may be better understood by means of observing time trends over time in the proportion of population of the broad age groups namely 0-14, 15-59 and 60 and over, and also several ageing indices developed using the above age groups. Age-sex pyramid is especially an important tool frequently used by the demographers and other scientists. A description about the importance of studying the indicators of

'proportion of population in the ages 0-14 (P0-14)' and 'proportion of population in the ages 60 and over (P60+)' is provided below for convenience.

Proportion of population in age group 0-14: Regarding this indicator,(India Registrar General & Census Commissioner., 2004) states that "the increasing proportion of aged persons has been accompanied in most populations by a steady decline in the proportion of young persons. The impact of low fertility is most immediately evident in the younger age cohorts of a population whose size shrinks in comparison to the other age-groups. The trends in the change in the population of age group 0-14 years is important as it would determine the future course of population growth in the medium term up to about next 20 years or so. This age group is the one that would require the provisioning of various educational services. Similarly this age group indicates the likely numbers that would reach the employment market in the future."

Proportion of population in age group 60 and over: Regarding this indicator, India Registrar General. (2011) states that "it is conventional to identify the elderly with those aged 60 years or more because of their relationship with social security and retirement. It is around these ages that working capacity begins to be affected by biological, physical and mental stability."

Units of analysis: 15 major (or most populous) states and India as a whole are considered for the present study. Major states consist of the following: Andhra Pradesh(AP), Assam(ASS), Bihar(BIH), Gujarat(GUJ), Haryana(HAR), Karnataka(KAR), Kerala(KER), Madhya Pradesh(MADP), Maharashtra(MAH), Orissa(ORI) (presently Odisha), Punjab(PUN), Rajasthan(RAJ), Tamil Nadu(TN), Uttar Pradesh(UP) and West Bengal(WB). It is realised that SRS does not provide any information on various demographic variables for the two states of Bihar and West Bengal prior to 1980. It is also noticed that the information collected for the demographic indicators in the respective states of Bihar, Madhya Pradesh and Uttar Pradesh for the recent periods slightly differs from the earlier due to recent carving of Jharkhand (JHAR), Chhattisgarh (CHHATIS) and Uttarakhand (UTTARAK) respectively from the above three. It is realised that (or assume for convenience that) exclusion of the above newly carved states information from the above three major states information does not hamper the comparison with the previous periods in a strict sense due to their large size.

METHODS

The methodology followed in the present study is very simple and straight forward. As a first step the information on the essential indicator the Life expectancy at birth (LEB) for each of the year from 1971 to 2010 for each of the major state and India, in the absence of information for single years, is derived indigenously using the reported IMR estimates and a regression model that which has been developed by (Ponnapalli, 2011), given below:

LEB = (75.09173372885)-(0.1869784530704)*(IMR)+(0.0001993570914935)*(IMR)*(IMR)

Progress in the fertility, mortality and the demographic transition is traditionally studied by means of observing time trends in the indicators such as Crude birth rate (CBR), Crude death rate (CDR), Infant mortality rate (IMR), the Total fertility rate (TFR) and the Life expectancy at birth (LEB). However, in the recent past few attempts have been made by few researchers (For instance, see (Dronacharya, 2011), (Cho and Togashi, 1984; Pandey and Faujdar, 2011) to suggest indicators that move between 0.0 to 1.0 (or when converted into per cent that move between 0 per cent to 100 per cent) with time with a progress in the transition from high fertility and mortality to lower levels of fertility and mortality. Following the recent tradition an attempt is also made here to develop the following three indicators to monitor the progress in the fertility, mortality and the demographic transitions. The present indicators are observed to move between 0 to 100 per cent as the indicators are defined in per cent terms, for convenience in interpretation. The construction procedure and the logic followed are realised to be very similar to the construction procedure of the well known Human Development Index of the UNDP. Thus no attempt is made to explain them further. It is also realised that DTI is developed here by simply averaging MTI and FTI, assuming there is no much discrepancy in the ultimate outcome unlike the HDI.

Thus said, the MTI, FTI and DTI indices are defined as follows:

Mortality Transition Index (MTI) = ((LEB-25)/(85-25)) x 100

Fertility Transition Index (FTI) = ((8.5-TFR)/(8.5-1.0)) x 100

Demographic Transition Index (DTI) = (MTI+FTI)/2

In the MTI, the numeral 25 and 85 refer to the assumed values of minimum and maximum LEB; Similarly in FTI, 1.0 and 8.5 refer to the assumed values of minimum and maximum TFR. The numeral of upper and lower values of the LEB and TFR are hypothetical and assumed by the author that may happen in extreme situations and are decided based on the time trends in the values of LEB and TFR observed in the real situations based on the experience of different countries in the world.

Results of the Analysis on the Mortality, Fertility and Demographic Transitions

Input data used in the study are provided at the end of the text in Table 1.1 to Table 1.6. A comparative perspective of the mortality, fertility and the demographic transition taking place in India and its states is considered by means of accompanying figures and main findings are provided below by sub sections.

Mortality Transition in India and Its States: A Comparative Perspective

Fig.1a to Fig.1c given below are intended to show the progress in the mortality transition from 1971 to 2010 and from 2011 to2101respectively. Figure 1a gives a comprehensive picture of the mortality transition. Figure 1b reflects the progress in mortality transition that has already taken place in the last about forty years. Figure 1b reflects expected progress in the mortality transition if Scenario A of projections by Population Foundation of India, and Population Reference Bureau (2007) happens in the coming future and are thus to be realised as speculative. It is seen that all the

three figures given here are self explanatory and do not need much explanation. Thus said, a few important points that can be drawn are as follows:

After a thorough examination of Fig.1a to Fig.1c and related tables given at the end of the text, we may conclude that: 1) all the states have almost completed 40 per cent of their mortality transition in the beginning of 1970s, and also all have crossed the percentage point of about 64 by the year 2010. And it seems all the states will reach the percentage point of 93 by the year 2098 (i.e., mid 2096-2101) if we assume India and its states experience the predicted level indicated in Scenario A. Kerala and Tamil Nadu are the only two states that may complete 100 per cent of their mortality transition by the year 2101. (2) While, all the southern states (AP,KAR,KER,TN) are well in progress in their mortality transition, the northern states (BIH,MADP,RAJ, and UP) are observed to be below the India level over the complete transition period considered here, that is starting from 1970s to the year 2101. (3) Overall, mortality transition is said to be fast in progress, however the progress may be varying from state to state, in the study period of all the states and India as a whole, and one may say convergence has almost taken place in mortality of India by the year 2010 itself. Kerala is seen to be exceptional in its transition comparatively.

Fig.1a: Progress in mortality transition index(MTI), India and States, 1971, 2010 and 2096-2101

Figure 1b: Mortality Transition In India and its States, 1971-2010

Fig.1c: Mortality transition in India and its States, 2011-16 to 2096-2101
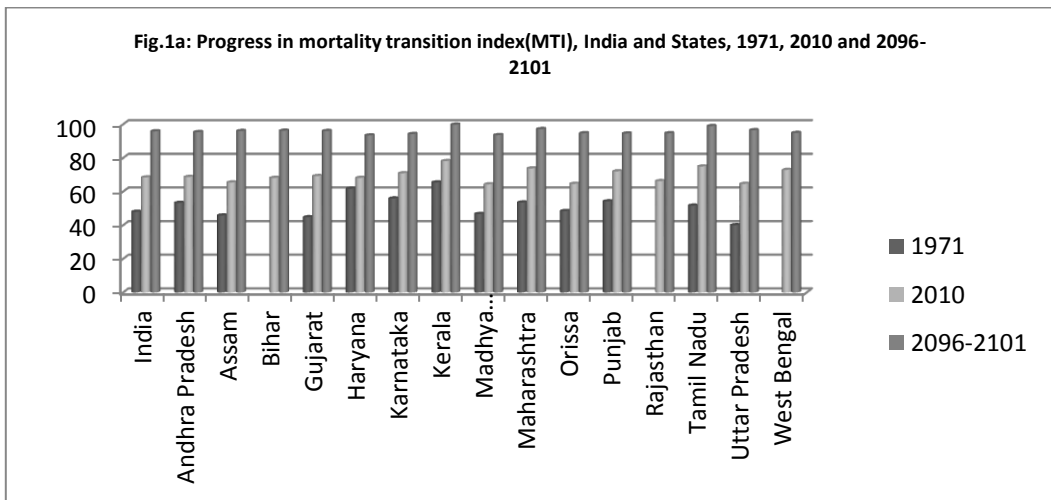
Fertility Transition in India and Its States: A Comparative Perspective

Fig.2a to Fig.2c given below are intended to show the progress in the fertility transition from 1971 to 2010 and from 2011 to2101respectively. Figure 2a gives a comprehensive picture of the fertility transition. Figure 2b reflects the progress in fertility transition that has already taken place in the last about forty years, Figure 2b reflects expected progress in the fertility transition if Scenario A of projections by Population Foundation of India, and Population Reference Bureau. (2007) happens in the coming future and are thus to be realised as speculative. It is observed that Fig.2a to Fig.2c given here are self explanatory and do not need much explanation. Thus a few important conclusions are provided below for convenience.

After a thorough examination of Fig.2a to Fig.2c and related tables given at the end of the text, we may conclude that: 1) only 85 per cent of the fertility transition is predicted to be completed by the

year 2101 in all the major states of India. However, Kerala and Tamil Nadu which are ahead of other states in their fertility transition over the study period are observed to be the only two states expected to reach about 90 per cent by the year 2101. All the southern states and also states like Maharashtra, Punjab, West Bengal which are in their advanced stage of fertility transition by the year 2010 are predicted to experience slight fertility decline by the year 2101; (2) As in case of mortality transition, all the southern states when compared to the northern states are seen to be well in progress in their fertility transition. The northern states are observed to be below the all India level over the complete transition period considered here, that is starting from 1970s to the year 210, obviously due to low health and socio-economic development. (3) Fertility transition is said to be slow in its progress in the study period, in all the states and India as a whole, and one may say it may take much longer time to achieve convergence in fertility when compared to mortality in India as a result of very slow progress of fertility transition taking place in some states, especially in the northern states of India.

Fig.2a: Progress in fetility transition index (FTI), India and States, 1971,2010 and 2096-2101

Fig. 2b: Fertiltiy transition in India and its states, 1971-2010

Fig.2c: Fertility transition in India and its states, 2011-16 to 2096-01

Demographic Transition in India and Its States: A Comparative Perspective
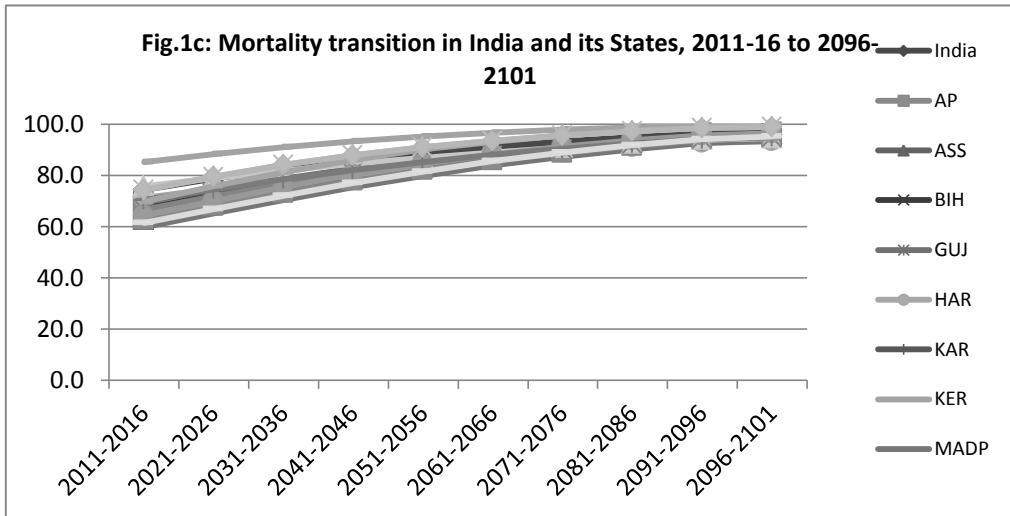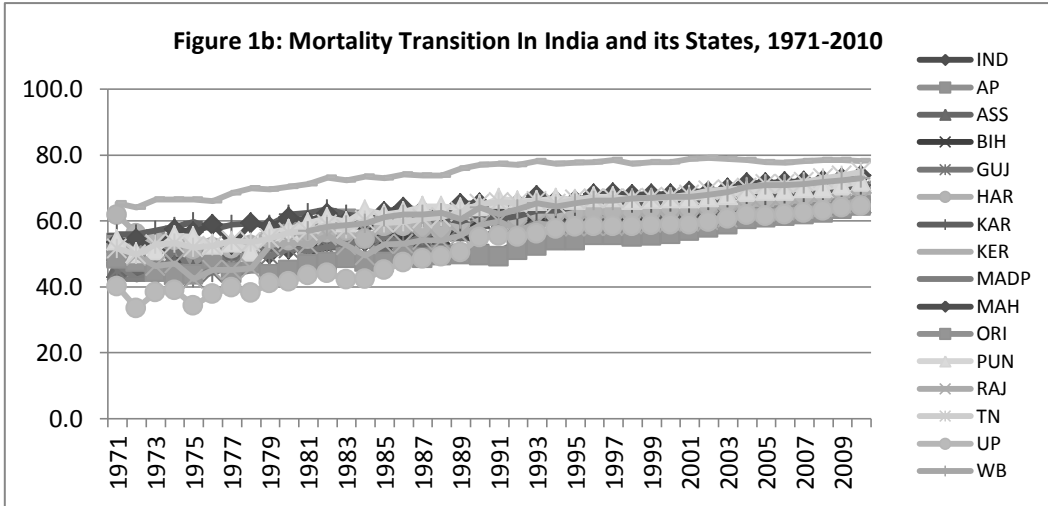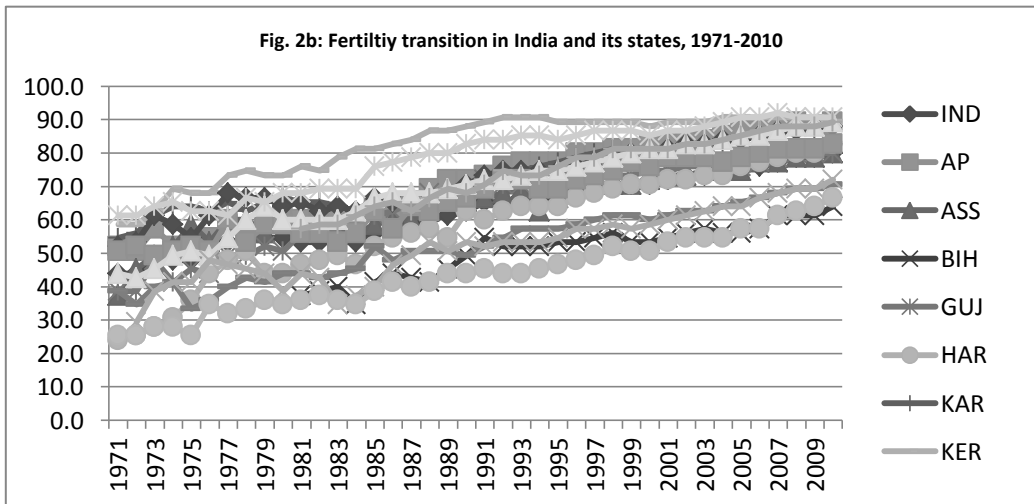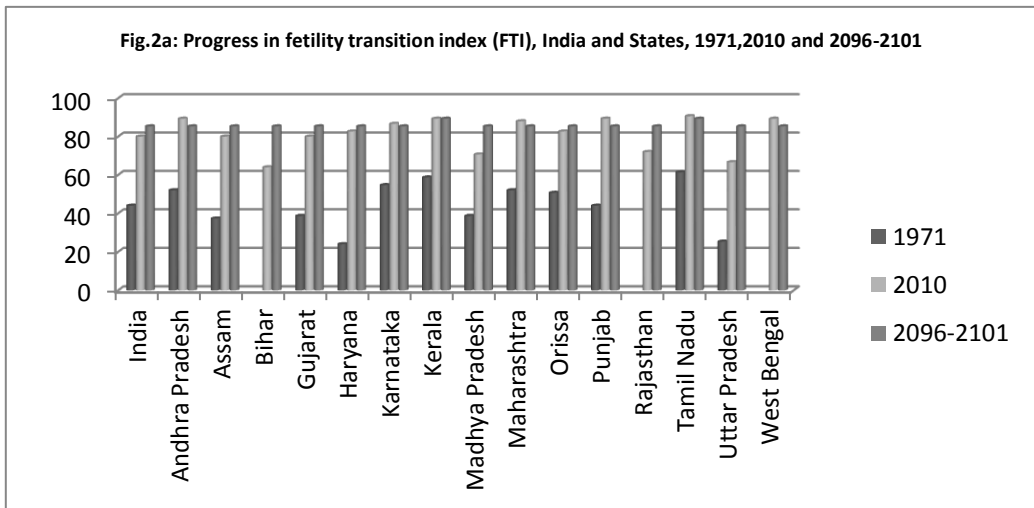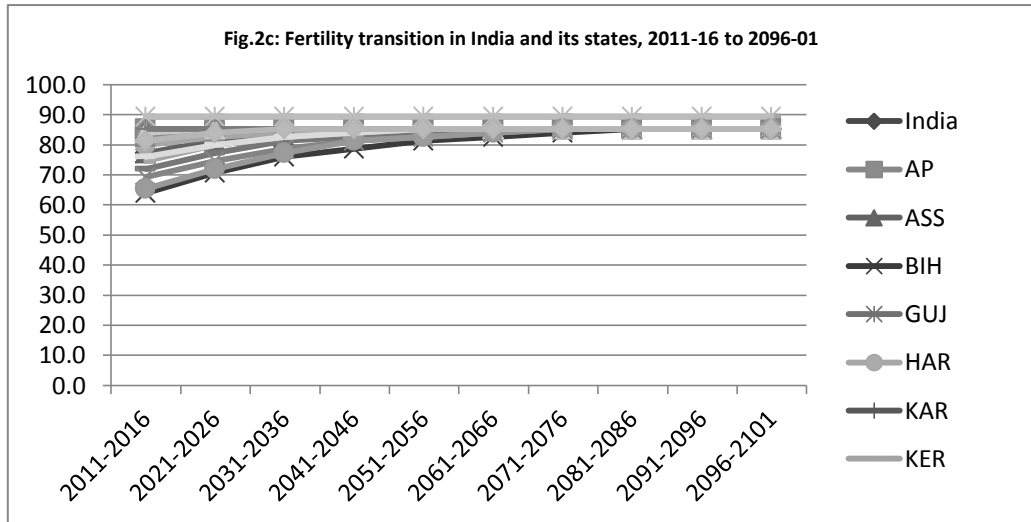
Fig.3a to Fig.3c given below are intended to show the progress in the demographic transition from 1971 to 2010 and from 2011 to2101respectively. Figure 3a gives a comprehensive picture of the demographic transition. Figure 3b reflects the progress in demographic transition that has already taken place in the last forty years, Figure 3b reflects expected progress in the demographic transition if Scenario A of projections by Population Foundation of India, and Population Reference Bureau (2007) happens in the coming future and are thus to be realised as speculative. The figures of DTI depicted here have been obtained as said earlier by simply averaging the MTI and FTI indices. As stated in case of mortality transition and fertility transition, it is realised that all the three figures given below are also self explanatory and do not need much explanation. However, we prefer to provide here a few important conclusions as follows, for convenience.

After a thorough examination of Fig.3a to Fig.3c it may be concluded that: (1) The four northern states of Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh are observed to be the only states which have not achieved 70 percent of the demographic transition, when compared to all major states of India and India as a whole, by the year of 2010. All the states under consideration are expected to complete about 90 per cent of their demographic transition by the year 2101, obviously lead by Kerala and Tamil Nadu respectively. (2) While, all the southern states, lead by Kerala, are seen always well in progress in their demographic transition; the northern states, lagging behind by Uttar Pradesh are observed to be always below India as a whole over the complete transition period considered here, that is starting from 1970s to the year 2101. (3) Overall, while demographic transition is said to be fast in progress in all the southern states, and also in the states of Maharashtra, Punjab and West Bengal, it is said to be progressing slowly in the remaining states of India. India as a whole may be predicted to complete only 90 per cent of its demographic transition by the year 2101, until and unless some drastic changes take place in the fertility transition of the northern states of India in the near future.

Fig.3a: Progress in the demographic transition index (DTI), India and States, 1971, 2010 and 2096-2101
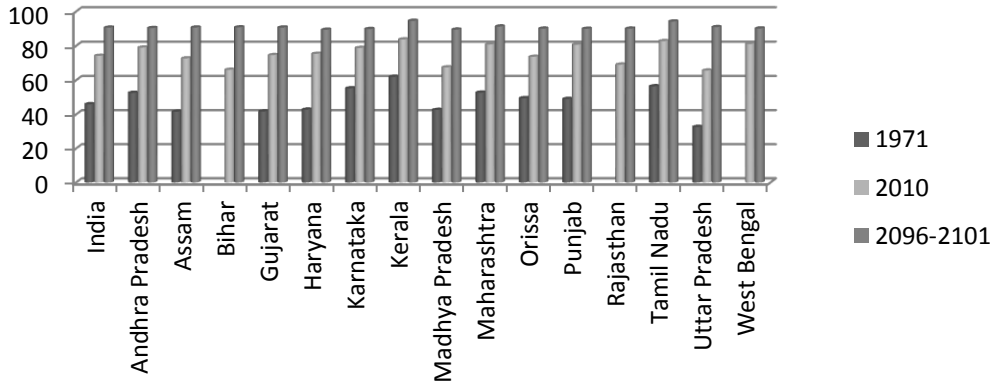
Fig.3b: Demographic transition in India and its states,1971-2010

Fig.3c: Demographic transition in India and its states, 2011-2016 to 2096-2101
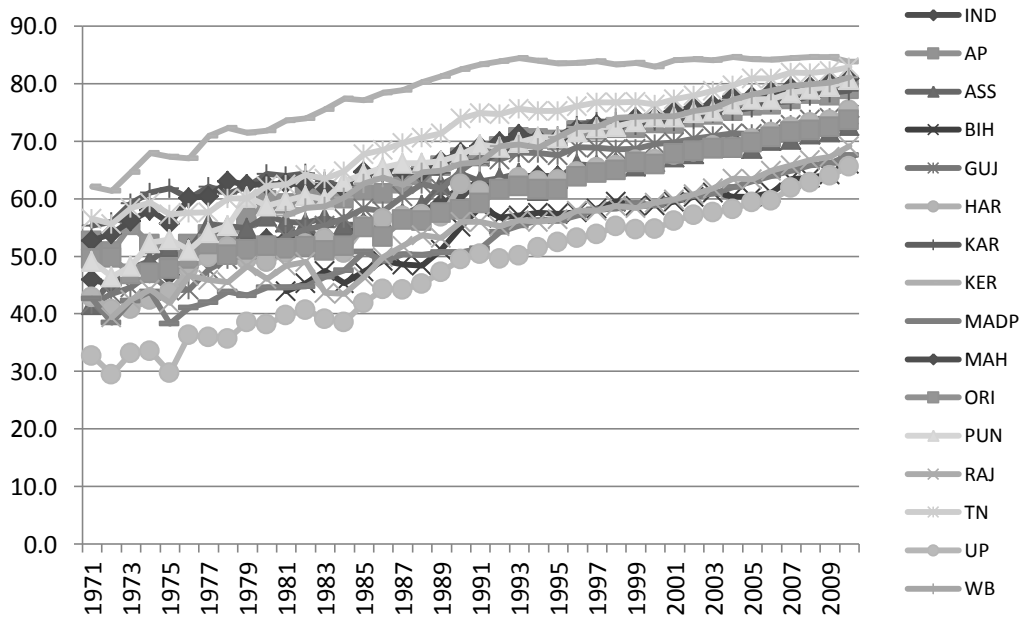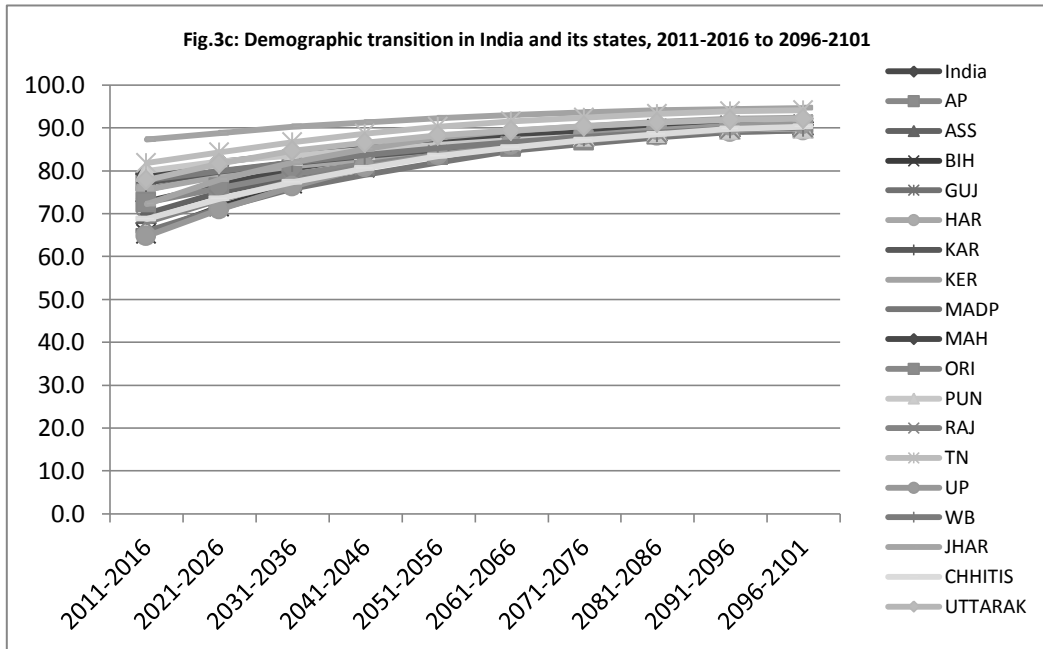
Results of the Analysis on the Ageing of the Population in India and Its States

It is emphasized that ageing is the ultimate outcome of the completion of the demographic transition. As observed before, excepting for the four northern states, all other states in India are seen to be well in advance of their demographic transition. It may be interesting to observe now how the progress is made in the ageing transition during the same study period by means of selected ageing indicators. Here for simplicity it is preferred to see the time trends in the simple indicators of proportion of population aged 0-14 and 60+ for the past as well as future periods. The indicator proportion of population 65+ is selected to see the future progress in the aged population due to the reason, no predicted data is readily available for P60+ for the future period in Scenario A of Population Foundation of India, and Population Reference Bureau. (2007). However, it is realised considering P65+ in place of P60+ may not hamper the major conclusions drawn on selected states and India. About growing of the aged population in India over time and highlighting the need to have a better understanding about the problem, India Registrar General (2011) states that "the age structure composition in India is changing due to the fertility decline and improvements in the life expectancy. Given the trend of elderly population in India, a National Policy for Older Persons was announced by the government in January 1999. The ageing of population has social, medical and financial implications at the macro as well as at the household level. The larger number of elderly persons in this country will invite the need for providing social services and other related facilities for this segment of the population. An analysis of the demographic, social and economic aspects of ageing only can provide a firm foundation for further analysis and intervention policies." Thus said, in the following sections an attempt will be made to understand the ageing process taking place in India and its major states during past forty decades and its future course by analyzing time trends in the indicators of proportion of populations in the

age groups 0-14 (P0-14) and proportion of populations in the age group 60 and over (P60+). Input data used in the study are provided at the end of the text in the Tables numbered 1.7 to 1.9. A comparative perspective of the ageing of the population taking place in India and its states is analyzed by means of accompanying Figures.

Transition in Childhood Population in the Ages 0-14, P (0-14) in India and Its States

Fig.4a to Fig.4c given below are intended to show the progress in the aging transition in terms of changes from 1971 to 2010 and from 2011 to2101respectively in the indicator P(0-14). Figure 4a gives a comprehensive picture of the ageing transition. Figure 4b reflects the progress in ageing transition that has already taken place in the last about forty years, Figure 4b reflects expected progress in the ageing transition if Scenario A of projections by Population Foundation of India, and Population Reference Bureau. (2007) happens in the coming future and is thus to be realised as speculative. It is observed that Fig.4a to Fig.4c given here are self explanatory and do not need much explanation. Thus said, we may draw a few important conclusions as follows: After a thorough examination of Fig.4a to Fig.4c and accompanying relevant tables at the end of the text, it may be said that: (1) Kerala and Tamil Nadu are the only states that may achieve below 15 percent of the P0-14 by the year 2101. (2) There seems a great divergence has already taken place in the proportion P0-14 population from a high value of 40-45 per cent or so in 1971 to a low value of 20-25 per cent or so by the year 2010 in all the states in India. It is assumed they converge at a value as low as 13 per cent or so by the year 2101. (3) Due to obvious reasons, from Figure 4b and Figure 4c, one may observe that Bihar and Uttar Pradesh are above the top of all other states in their ageing transition over the study period of 1971 to 2101. Fig.4c indicates that Kerala and Tamil Nadu differ from others.

Fig.4a: Progress in proportion population 0-14 (P0-14), india and States, 1971,2010 and 2101

Fig.4b: Proportion of population in age group 0-14, India and its states, 1971-2010

Fig.4c: Proportion of population in age group 014, India and its States, 2001-2101
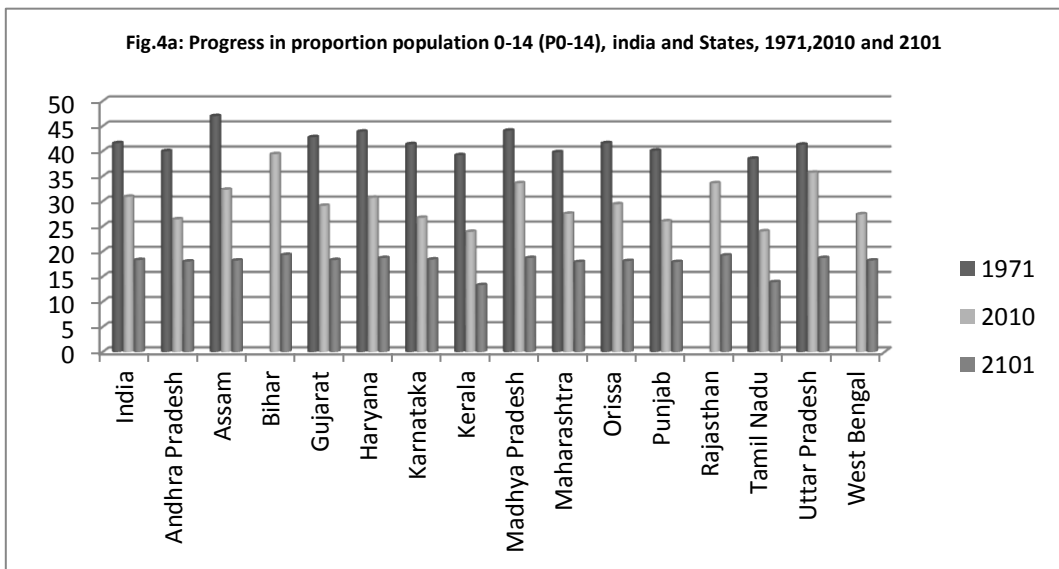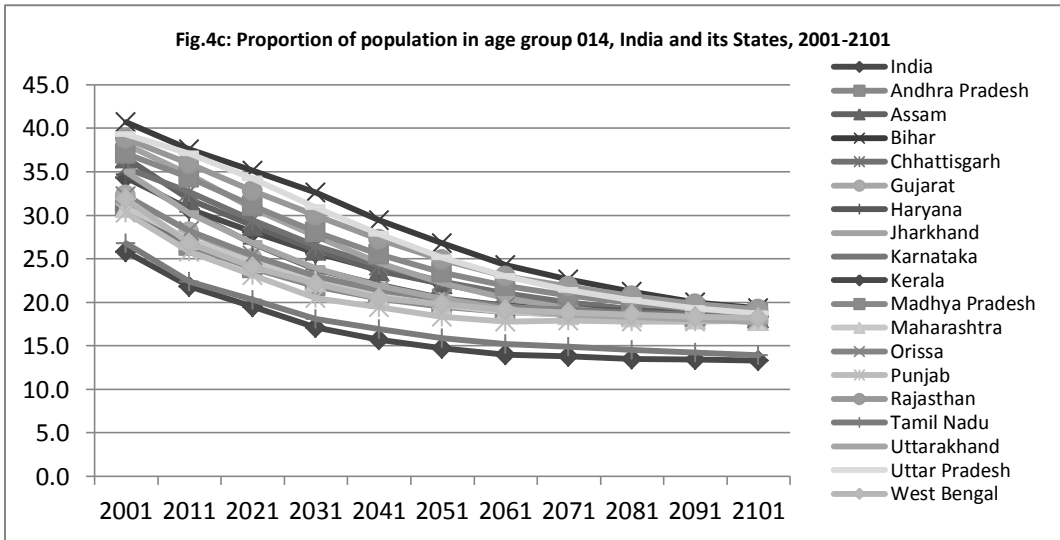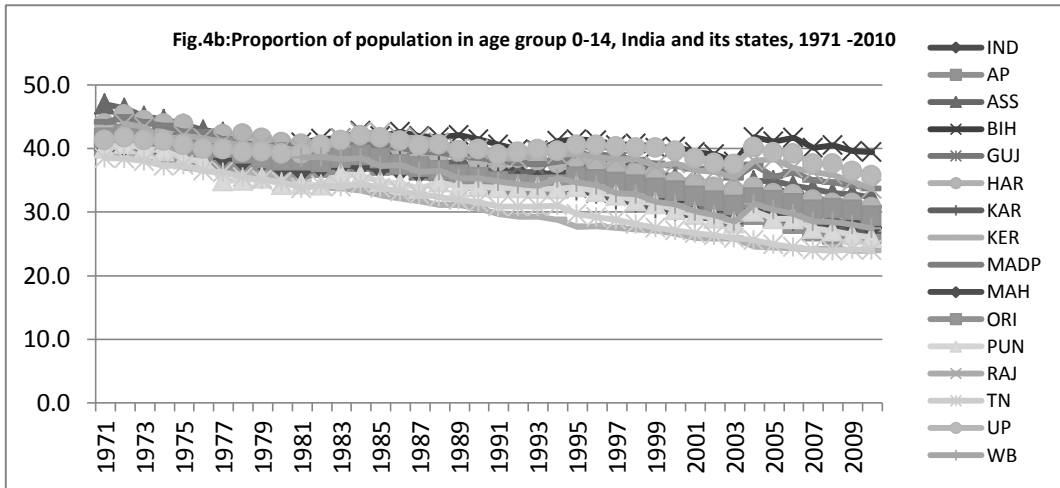
Transition in the Aged Population in the Ages (60 and Over) In India and Its States:

(Ladusingh and Narayana, 2012) state that "during the demographic transition from high fertility and high mortality to low fertility and low mortality, the age structure of the population undergoes unprecedented changes from a broad-based pyramid tapering at the top, to a shrinking base with an enlarged middle and a gradually expanding top. The age structure of a population has economic ramifications --." As stated above, the consequences of the demographic transition on the age structure of the different states and India as a whole are well observed by a study of changes taking place in the proportion of population in the age group 0-14. In the present section it is intended to study the impact of the demographic transition on the proportion of population in the ages 60 and over that reflects the ageing of the population in any population. Accompanying Figure 4d and Figure 4e depict the aged populations by means of proportion in the ages 60+ in the period 1971 to 2010, by means of proportion in the ages 65+ in the future period of 2011 to 2101. However, census has been taken in 2011 in India and its states, it is observed that the age structural data has not yet been released and thus the figures given for 2011 refer to the projected values. An

observation of Figure 4d and Figure 4e clearly indicates that the ageing of the population is at full swing and the states that have already completed the demographic transition especially the Kerala and Tamil Nadu have already been experiencing a fast progress in their aging process compared to other states in India and are said to be the states that need a special focus from the government to tackle the ageing transition.

Fig.4d: Proportion of population in age group 60+, India and its States, 1971-2010

Fig.4e: Proportion of population in age group 65+, India and its States, 2001-2101
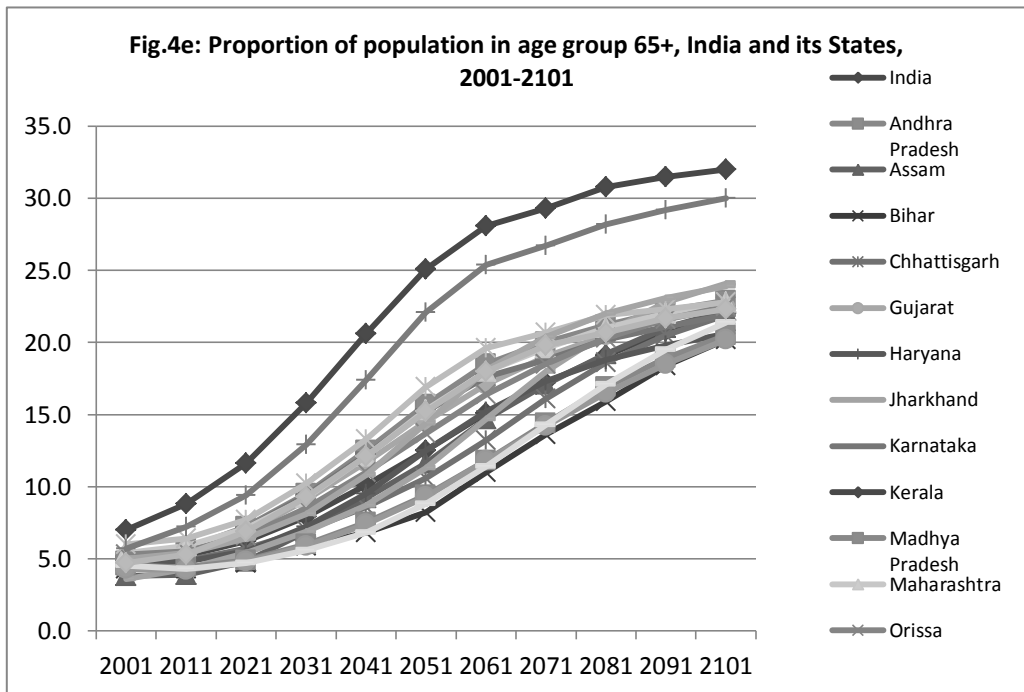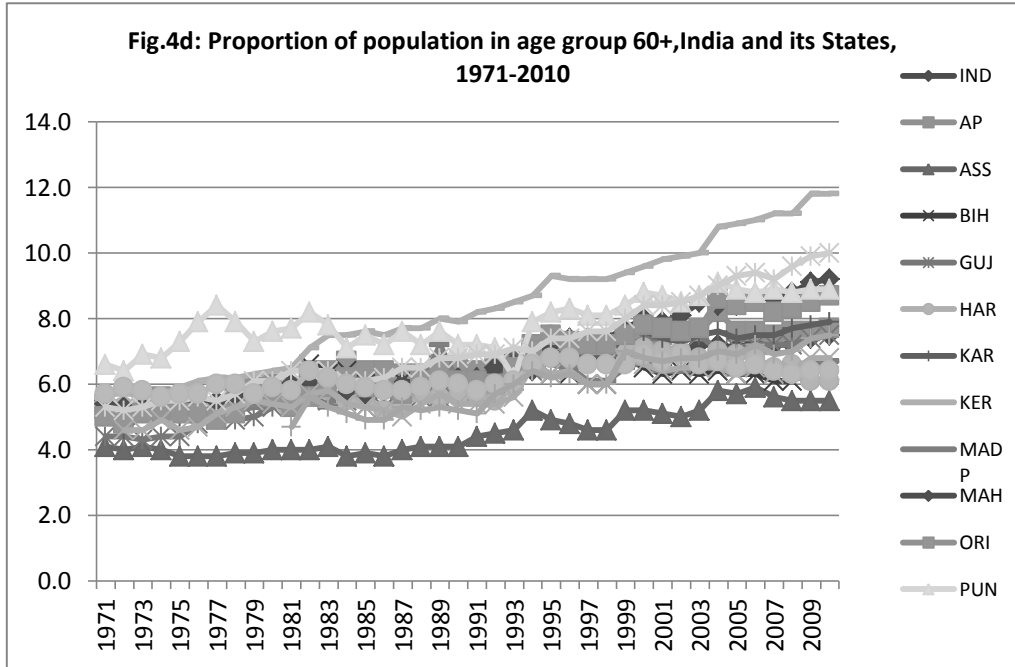
SUMMARY AND CONCLUSIONS

In the present paper a thorough analysis of the ageing and the demographic transition presently taking place and expected direction of the above transitions has been carried out using reliable data provided by the Registrar General of India and also by the Population Reference Bureau (for the future years).The results of the analysis corroborate the evidence once again that all the southern states especially those of Kerala and Tamil Nadu are well in advance of their ageing process and may need special attention from all angles. Other states are also observed experiencing the same process without further saying. But it is to be said finally that a further progress in the demographic transition of India solely depends on the progress made in the mortality and fertility transitions of the following selected states namely, Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh, and the states that have been carved out of them namely Jharkhand, Chhattisgarh, Uttarakhand, and also of the states of Assam and Orissa (presently Odisha).

REFERENCES

Carl, H. and O.P. Sharma, 2006. India's population reality: Reconciling change and tradition. Washington DC: Population Reference Bureau.

Cho, L.j. and J.Y. Togashi, 1984. Industrial transition and demographic dynamics of asian-pacific region, in: Proceedings of the international symposium on the role of the asia-pacific region in world economic development. Tokyo: College of Economics, Nihon University.

Dronacharya, W., 2011. Understanding demographic transition in india: A study using nsso natural divisions,. Mumbai: International Institute for Population Sciences.

Haupt, A., T.T. Kane and C. Haub, 2011. Population reference bureau's population handbook., Washington DC PRB.

India Registrar General & Census Commissioner., 2004. Report and tables on age, c-14, c-14sc, c-14st, series-1,india, new delhi: Registrar general & census commissioner, india.

India Registrar General., 2011. Maternal & child mortality and total fertility rates, sample registration system, 7th july 2011 (ppt presentation), down loaded from web:.

James, K.S., 2011. "India's demographic change: Opportunities and challenges.". Science 333, 576

Knodel, J., 1999. The demography of asian ageing: Past accomplishments and future challenges for asia, population ageing lies almost entirely ahead. Asia-Pacific Population Journal,. Available from www.unescap.org/appj.asp.

Ladusingh, L. and M.R. Narayana, 2012. Demographic dividends for india: Evidence and implications based on national transfer accounts., USA: Edward Elgar Publishing Inc.

Pandey, N. and R. Faujdar, 2011. Perspective on age structural transition and economic growth in india: Consequences on demographic dividend. New Delhi Academic Foundation.

Ponnapalli, K.M., 2011. Indian model life tables based on srs life tables of india,mimeographed,, . Mumbai: International Institute for Population Sciences.

Population Foundation of India. and Population Reference Bureau., 2007. The future population of india: A long-range demographic view,. Washington DC: Population Reference Bureau, e-mail: popref@prb.org.

Population Reference Bureau., 2012. India's aging population. Today's research on aging. Program and Policy Implications, 25: 1-6.

Ravishankar, A.K., 2010. Population ageing progress in india, ageing & society,. The Indian Journal of Gerontology,, 20(3-4): 17-32.

Subaiya, L. and W.B. Dhananjay, 2011. "Demographics of population ageing in india", . New Delhi: United Nations Population Fund (UNFPA).

United Nations Population Division (UN). 2011. World population prospects: The 2010 revision. New York: United Nations.

Usha, R., 2010. Emerging issues from declining fertility in india. New Delhi: Rawat Publications

Table-1.1. Total fertility rate (TFR), India and Major States, 1971 to 2010

	IND	AP	ASS	BIH	GUJ	HAR	KAR	KER	MADP	MAH	ORI	PUN	RAJ	TN	UP	WB
1971	5.2	4.6	5.7		5.6	6.7	4.4	4.1	5.6	4.6	4.7	5.2		3.9	6.6	
1972	5.2	4.7	5.1		5.6	6.6	4.3	4.1	5.9	4.5	4.6	5.3	6.3	3.9	6.6	
1973	4.9	4.2	4.8		4.9	6.4	3.9	3.8	5.5	3.9	4.8	5.1	5.6	3.7	6.4	
1974	4.9	4.6	4.6		5.4	6.2	3.7	3.3	5.4	4.1	4.7	4.8	5.4	3.6	6.4	
1975	4.9	4.6	4.1		5.1	5.8	3.7	3.4	6	4.4	4.6	4.7	5.4	3.8	6.6	
1976	4.7	4.4	4.5		5.2	5.2	3.8	3.4	5.8	3.9	4.7	4.8	4.9	3.8	5.9	
1977	4.5	4.1	4		4.8	4.9	3.6	3	5.5	3.4	4	4.4	5	3.9	6.1	
1978	4.5	4.4	4		4.8	4.7	3.8	2.9	5.3	3.5	4.5	4	5.1	3.5	6	
1979	4.4	4	4.3		4.6	5.2	3.6	3	5.4	3.5	4.1	3.7	5.2	3.6	5.8	
1980	4.4	3.8	4		4.7	5.2	3.5	3	5.2	3.7	4.1	4	5.6	3.4	5.9	
1981	4.5	4	4.1	5.7	4.3	5	3.6	2.8	5.2	3.6	4.3	4	5.2	3.4	5.8	4.2
1982	4.5	3.9	4.2	5.6	4.2	4.9	3.6	2.9	5.3	3.8	4.3	4	5.3	3.3	5.7	4.1
1983	4.5	3.9	4.2	5.5	4.2	4.8	3.7	2.6	5.2	3.7	4.5	4	5.9	3.3	5.8	4.1
1984	4.5	4	4.3	5.9	4	5	3.8	2.4	5.1	3.8	4.3	3.8	5.7	3.3	5.9	3.9
1985	4.3	3.7	4.1	5.4	3.9	4.6	3.6	2.4	4.6	3.5	3.8	3.5	5.5	2.8	5.6	3.7
1986	4.2	3.8	4	5.2	3.8	4.4	3.5	2.3	4.9	3.6	4.2	3.4	5	2.7	5.4	3.6
1987	4.1	3.6	4	5.3	3.6	4.3	3.4	2.2	4.7	3.5	3.7	3.4	4.8	2.6	5.5	3.8
1988	4.0	3.3	3.8	5.4	3.4	4.2	3.4	2	4.7	3.5	3.8	3.4	4.5	2.5	5.4	3.5
1989	3.9	3.1	3.4	5.1	3.6	4.4	3.3	2	4.7	3.4	3.6	3.3	4.7	2.5	5.2	3.3
1990	3.8	3.1	3.4	4.8	3.4	3.8	3.2	1.9	4.8	3.2	3.5	3.2	4.5	2.3	5.2	3.4
1991	3.6	3	3.5	4.4	3.1	4	3.1	1.8	4.6	3	3.3	3.1	4.6	2.2	5.1	3.2
1992	3.6	2.8	3.4	4.6	3.2	3.8	2.9	1.7	4.4	2.9	3.1	3.1	4.5	2.2	5.2	2.9
1993	3.5	2.7	3.3	4.6	3.2	3.7	2.9	1.7	4.2	2.9	3.1	3	4.5	2.1	5.2	3
1994	3.5	2.7	3.8	4.6	3.1	3.7	2.8	1.7	4.2	2.9	3.3	2.9	4.5	2.1	5.1	3
1995	3.5	2.7	3.5	4.5	3.2	3.7	2.7	1.8	4.2	2.9	3.3	2.9	4.4	2.2	5	2.8
1996	3.4	2.5	3.2	4.5	3	3.5	2.6	1.8	4.1	2.8	3.1	2.8	4.2	2.1	4.9	2.6
1997	3.3	2.5	3.2	4.4	3	3.4	2.5	1.8	4	2.7	3	2.7	4.2	2	4.8	2.6
1998	3.2	2.4	3.2	4.3	3	3.3	2.4	1.8	3.9	2.7	2.9	2.6	4.1	2	4.6	2.4
1999	3.2	2.4	3.2	4.5	3	3.2	2.5	1.8	3.9	2.5	2.7	2.5	4.2	2	4.7	2.4
2000	3.2	2.3	3.1	4.5	2.9	3.2	2.4	1.9	4	2.5	2.8	2.4	4.1	2.1	4.7	2.4
2001	3.1	2.3	3	4.4	2.9	3.1	2.4	1.8	3.9	2.4	2.6	2.4	4	2	4.5	2.4
2002	3.0	2.2	3	4.3	2.8	3.1	2.4	1.8	3.8	2.3	2.6	2.3	3.9	2	4.4	2.3
2003	3.0	2.2	2.9	4.2	2.8	3	2.3	1.8	3.8	2.3	2.6	2.3	3.8	1.9	4.4	2.3
2004	2.9	2.1	2.9	4.3	2.8	3	2.3	1.7	3.7	2.2	2.7	2.2	3.7	1.8	4.4	2.2
2005	2.9	2	2.9	4.3	2.8	2.8	2.2	1.7	3.6	2.2	2.6	2.1	3.7	1.7	4.2	2.1
2006	2.8	2	2.7	4.2	2.7	2.7	2.1	1.7	3.5	2.1	2.5	2.1	3.5	1.7	4.2	2
2007	2.7	1.9	2.7	3.9	2.6	2.6	2.1	1.7	3.4	2	2.4	2	3.4	1.6	3.9	1.9
2008	2.6	1.8	2.6	3.9	2.5	2.5	2	1.7	3.3	2	2.4	1.9	3.3	1.7	3.8	1.9
2009	2.6	1.9	2.6	3.9	2.5	2.5	2	1.7	3.3	1.9	2.4	1.9	3.3	1.7	3.7	1.9
2010	2.5	1.8	2.5	3.7	2.5	2.3	2	1.8	3.2	1.9	2.3	1.8	3.1	1.7	3.5	1.8

Note: IND: India; AP: Andhra Pradesh, ASS: Assam, BIH: Bihar, GUJ: Gujarat, HAR: Haryana, KAR: Karnataka, KER: Kerala, MADP: Madhya Pradesh, MAH: Maharashtra, ORI: Orissa, PUN: Punjab, RAJ: Rajasthan, TN: Tamil Nadu, UP: Uttar Pradesh, WB : West Bengal
Source: India, Registrar General (various publications)

Table-1.2. Infant mortality rate (IMR), India and Major States, 1971 to 2010

	IND	AP	ASS	BIH	GUJ	HAR	KAR	KER	MADP	MAH	ORI	PUN	RAJ	TN	UP	WB
1971	129	106	139		144	72	95	58	135	105	127	102		113	167	
1972	139	116	136		128	94	95	63	156	101	131	119	123	121	202	
1973	134	105	136		161	104	90	54	145	116	145	115	137	108	176	
1974	126	111	136		109	102	86	54	137	89	150	97	133	106	172	
1975	140	123	144		154	114	80	54	151	92	149	98	155	112	198	
1976	129	122	124		146	112	89	56	138	83	127	108	142	110	178	
1977	130	125	115		138	113	83	47	148	108	147	105	142	103	168	
1978	127	117	118		122	109	82	42	143	81	133	117	140	105	177	
1979	120	106	104		123	100	83	43	143	86	149	92	109	100	162	
1980	114	92	103		113	103	71	40	142	75	143	89	105	93	159	
1981	110	86	106	118	116	101	69	37	142	79	135	81	108	91	150	91
1982	105	79	102	112	111	93	65	30	134	70	132	75	97	83	147	86
1983	105	77	94	99	106	91	71	33	125	79	126	80	109	88	156	84
1984	104	78	99	95	106	101	74	29	121	76	131	66	122	78	155	82
1985	97	83	111	106	98	85	69	31	122	68	132	71	108	81	142	74
1986	96	82	109	101	107	85	73	27	118	63	123	68	107	80	132	71
1987	95	79	102	101	97	87	75	28	120	66	126	62	102	76	127	71
1988	94	83	99	97	90	90	74	28	121	68	122	62	103	74	124	69
1989	91	81	91	91	86	82	80	21	117	59	121	64	96	68	118	77
1990	80	70	76	75	72	69	70	17	111	58	122	61	84	59	99	63
1991	80	73	81	69	69	68	77	16	117	60	124	53	79	57	97	71
1992	79	71	82	73	67	75	73	17	104	59	115	56	90	58	98	65
1993	74	64	81	70	58	66	67	13	106	50	110	55	82	56	94	58
1994	74	65	78	67	64	70	67	16	98	55	103	53	84	59	88	62
1995	74	67	77	73	62	69	62	15	99	55	103	54	86	54	86	58
1996	72	65	74	71	61	68	53	14	97	48	96	51	85	53	85	55
1997	71	63	76	71	62	68	53	12	94	47	96	51	85	53	85	55
1998	72	66	76	67	64	70	58	16	98	49	98	54	83	53	85	53
1999	70	66	76	63	63	68	58	14	90	48	97	53	81	52	84	52
2000	68	65	75	62	62	67	57	14	88	48	95	52	79	51	83	51
2001	66	66	74	62	60	66	58	11	86	45	91	52	80	49	83	51
2002	63	62	70	61	60	62	55	10	85	45	87	51	78	44	80	49
2003	60	59	67	60	57	59	52	11	82	42	83	49	75	43	76	46
2004	58	59	66	61	53	61	49	12	79	36	77	45	67	41	72	40
2005	58	57	68	61	54	60	50	14	76	36	75	44	68	37	73	38
2006	57	56	67	60	53	57	48	15	74	35	73	44	67	37	71	38
2007	55	54	66	58	52	55	47	13	72	34	71	41	65	35	69	37
2008	53	52	64	56	50	54	45	12	70	33	69	41	63	31	67	35
2009	50	49	61	52	48	51	41	12	67	31	65	38	59	28	63	33
2010	47	46	58	48	44	48	38	13	62	28	61	34	55	24	61	31

Source: India, Registrar General (various publications)

Table-1.3. Life expectancy at birth (LEB), India and Major States, 1971 to 2010

	IND	AP	ASS	BIH	GUJ	HAR	KAR	KER	MADP	MAH	ORI	PUN	RAJ	TN	UP	WB
1971	54	58	53		52	63	59	65	53	58	55	58		57	49	
1972	53	56	53		54	59	59	64	51	58	54	56	55	55	45	
1973	54	58	53		50	58	60	66	52	56	52	56	53	57	48	
1974	55	57	53		57	58	60	66	53	60	52	59	54	58	49	
1975	53	55	52		51	56	61	66	51	60	52	59	51	57	46	
1976	54	55	55		52	57	60	65	53	61	55	57	53	57	48	
1977	54	55	56		53	57	61	67	52	57	52	58	53	58	49	
1978	55	56	56		55	57	61	68	52	61	54	56	53	58	48	
1979	56	58	58		55	58	61	67	52	60	52	60	57	58	50	
1980	56	60	58		57	58	63	68	53	62	52	60	58	59	50	
1981	57	60	58	56	56	58	63	68	53	62	53	61	57	60	52	60
1982	58	62	58	57	57	59	64	70	54	63	54	62	59	61	52	60
1983	58	62	59	59	58	60	63	69	55	62	55	61	57	60	51	61
1984	58	62	59	59	58	58	62	70	55	62	54	64	55	62	51	61
1985	59	61	57	58	59	61	63	69	55	63	54	63	57	61	53	62
1986	59	61	57	58	57	61	63	70	56	64	55	63	57	61	54	63
1987	59	62	58	58	59	60	62	70	56	64	55	64	58	62	55	63
1988	59	61	59	59	60	60	62	70	55	63	55	64	58	62	55	63
1989	60	60	60	60	60	61	61	71	56	65	55	64	59	63	56	62
1990	61	63	62	62	63	63	63	72	57	65	55	64	61	65	59	64
1991	61	63	61	63	63	63	62	72	56	65	55	66	62	65	59	63
1992	62	63	61	63	63	63	63	72	58	65	56	65	60	65	59	64
1993	62	64	61	63	65	64	63	73	58	66	57	65	61	65	59	65
1994	62	64	62	63	64	63	63	72	59	65	58	66	61	65	60	64
1995	62	63	62	63	64	63	64	72	59	65	58	66	60	66	60	65
1996	63	64	62	63	64	63	66	73	59	67	59	66	61	66	61	65
1997	63	64	62	63	64	63	66	73	59	67	59	66	61	66	61	65
1998	63	64	62	63	64	63	65	72	59	66	59	66	61	66	61	66
1999	63	64	62	64	64	63	65	73	60	67	59	66	61	66	61	66
2000	63	64	62	64	64	63	65	73	60	67	59	66	62	66	61	66
2001	64	64	62	64	65	64	65	73	60	67	60	66	61	66	61	66
2002	64	64	63	64	65	64	65	73	61	67	60	66	62	67	61	66
2003	65	65	63	65	65	65	66	73	61	68	61	66	62	67	62	67
2004	65	65	64	64	66	64	66	73	62	69	62	67	63	68	63	68
2005	65	65	63	64	66	65	66	73	62	69	62	67	63	68	63	68
2006	65	65	63	65	66	65	67	72	62	69	63	67	63	68	63	68
2007	65	66	64	65	66	65	67	73	63	69	63	68	64	69	63	68
2008	66	66	64	65	66	66	67	73	63	69	63	68	64	69	63	69
2009	66	66	64	66	67	66	68	73	63	69	64	68	65	70	64	69
2010	67	67	65	67	67	67	68	73	64	70	64	69	65	71	64	69

Source: Computed by the author

Table-1.4. Total fertility rate (TFR), India and Selected States, 2011-2016 to 2096-2101

	2011-2016	2021-2026	2031-2036	2041-2046	2051-2056	2061-2066	2071-2076	2081-2086	2091-2096	2096-2101
India	**2.7**	**2.5**	**2.3**	**2.2**	**2.2**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**
Andhra Pradesh	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Assam	2.7	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1
Bihar	3.7	3.2	2.8	2.6	2.4	2.3	2.2	2.1	2.1	2.1
Gujarat	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Haryana	2.5	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Karnataka	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Kerala	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Madhya Pradesh	3.1	2.7	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1
Maharashtra	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Orissa	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Punjab	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Rajasthan	3.3	2.9	2.6	2.4	2.3	2.2	2.1	2.1	2.1	2.1
Tamil Nadu	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Uttar Pradesh	3.6	3.1	2.7	2.4	2.3	2.2	2.1	2.1	2.1	2.1
West Bengal	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Jharkhand	2.9	2.5	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1
Chhattisgarh	2.8	2.5	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1
Uttarakhand	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1

Source: Population Foundation of India and population Reference Bureau (August, 2007)

Table-1.5. Life expectancy at birth (LEB), India and Selected States, 2011-2016 to 2096-2101

	2011-2016	2021-2026	2031-2036	2041-2046	2051-2056	2061-2066	2071-2076	2081-2086	2091-2096	2096-2101
India	**66.8**	**69.8**	**72.7**	**75.2**	**77.4**	**79.2**	**80.7**	**82**	**83.1**	**83.5**
Andhra Pradesh	67.4	70.2	72.7	75	77	78.8	80.3	81.6	82.7	83.2
Assam	63.3	66.9	70.3	73.4	76.1	78.4	80.3	81.8	83.1	83.6
Bihar	65.6	69.3	72.6	75.5	77.9	79.8	81.3	82.5	83.4	83.7
Gujarat	67.6	70.4	73	75.4	77.5	79.3	80.8	82.1	83.1	83.6
Haryana	68.4	70.6	72.7	73.7	76.3	78.8	79.3	80.5	81.5	82
Karnataka	68	70.4	72.7	74.7	76.6	78.2	79.7	80.9	82	82.5
Kerala	77	78.9	80.6	81.9	83.1	84	84.7	85.3	85.7	85.9
Madhya Pradesh	61.5	64.8	68	71	73.7	76.2	78.3	80	81.5	82.1
Maharashtra	70.4	73	75.3	77.4	79.2	80.7	82	83	83.9	84.3
Orissa	63.2	66.5	69.6	72.5	75.1	77.3	79.2	80.8	82.2	82.8
Punjab	71.3	73.2	74.9	76.6	78	79.3	80.4	81.4	82.3	82.7
Rajasthan	65.7	68.8	71.7	74.4	76.6	78.5	80	81.3	82.4	82.8
Tamil Nadu	70.4	73.4	76.3	78.6	80.6	82.1	83.3	84.3	85.1	85.4
Uttar Pradesh	64.2	67.7	71	74	76.6	78.8	80.7	82.2	83.4	83.9
West Bengal	67.9	70.5	72.9	75.1	77	78.7	80.2	81.4	82.5	82.9
Jharkhand	67.6	71.3	74.6	77.5	80	81.8	83.3	84.5	85.4	85.7
Chhattisgarh	62.5	65.8	69	72	74.7	77.2	79.3	81	82.5	83.1
Uttarakhand	70.4	73.5	76.3	78.6	80.6	82.1	83.3	84.3	85.1	85.4

Source: Population Foundation of India and population Reference Bureau (August, 2007)

Table-1.6. Proportion of population aged 0-14 (P0-14), India and Major States, 1971 to 2010

	IND	AP	ASS	BIH	GUJ	HAR	KAR	KER	MADP	MAH	ORI	PUN	RAJ	TN	UP	WB
1971	41.6	40	47		42.8	43.9	41.4	39.2	44.1	39.8	41.6	40.1		38.5	41.3	
1972	41.2	40.5	46.3		42.5	45.3	40.1	39.3	44.9	40.3	42.2	40.8	43.9	38.4	41.7	
1973	41.8	39.9	45		41.8	44.4	41.5	38.8	44.1	40.2	41.4	39.9	43.4	38	41.3	
1974	41.2	38.9	44.5		41.3	43.9	41	38.2	43.5	39.5	40.9	39.7	41.2	37.2	41.2	
1975	40.5	38.6	43.8		41.4	43.8	41.4	37	42.6	39.3	40	38.3	42	37.4	40.5	
1976	40.2	38.4	42.9		40.5	41.2	41.1	36.6	42.5	38.7	39.6	38	41.6	36.5	39.9	
1977	39.6	38	42.5		39.9	42.2	39.9	36.1	41.4	38.7	40.1	34.9	41	36.2	39.8	
1978	40.0	37.5	41.1		39.7	42.3	38.6	36	40.5	38	39.2	35	40.5	35.5	39.4	
1979	38.7	37.3	40.2		38.9	41.6	38.4	35.9	40.3	37.8	38.4	35.3	40.5	35.1	39.5	
1980	38.4	36.7	39.2		38.3	40.9	38.2	35.6	40.4	36.9	38.1	34.3	39.9	34.7	39.2	
1981	38.0	36.4	38.5	40.9	37.7	40.7	37.8	34.6	39.8	36.4	38.1	34.4	39.9	33.7	39.2	38.6
1982	38.1	36.9	39.2	41.5	38.1	39.2	38	33.9	40.1	36.9	37.8	34.2	39.9	34.2	40.5	38.7
1983	38.5	37.3	38.4	41.6	38.3	40.8	38.3	33.7	40.4	37.3	38.5	36	41.6	34	41.3	38.3
1984	38.9	37.8	38.3	42.8	38	41.7	38.5	33.4	40.5	37.2	38.9	35.7	42.5	34.5	42	38.5
1985	39.3	37.2	38	41.9	38	41.1	38.8	32.6	40.4	36.8	38.4	34.8	42.4	33.8	41.7	37.2
1986	38.8	37.3	37.8	42.6	37.4	40.2	38.3	32.1	40.1	36.4	37.4	34.5	41.7	33.2	41.2	37.4
1987	38.5	36.5	37.9	41.9	36.5	39.6	37.7	31.7	39.5	36.1	37.1	33.7	41.7	32.8	40.4	36.3
1988	37.9	36.5	37.5	41.8	36.3	38.9	37.2	31.1	39.3	35.5	36.5	34.7	40.9	32.4	40.6	36.5
1989	37.7	36.1	38	42.1	35.6	39.4	36.4	31.1	38.8	35.3	35.8	33.9	40	31.9	39.7	35.3
1990	37.2	35.2	36.8	41.4	34.9	38	35.9	30.5	38.5	35.2	35.4	34	39.8	31.5	39.8	35.3
1991	36.9	34.2	36.1	40.6	34.5	37.9	35.5	29.7	38.1	35	34.7	33.8	38.5	30.9	39	34.8
1992	36.3	34	36.1	39.8	34.2	38.5	34.8	29.3	37.7	34.9	34.3	33.8	38.3	30.9	39.4	34.4
1993	36.1	34	36.5	39.7	34.4	38.1	34.1	29.3	37.5	34.9	34.1	33.7	39.5	30.9	39.8	34.1
1994	36.1	33.8	39.6	41.2	33.8	37.7	34	28.8	37.9	34.4	34.2	33.6	39.1	31	39.6	35.3
1995	36.5	34.9	38.6	41.4	33.7	38.3	33.3	27.7	39.2	34.8	35.5	34	39.1	29.7	40.5	34.6
1996	36.7	34.5	38.3	41.3	33	37.6	32.8	27.8	38.9	34.3	35.1	33.2	38.7	29.2	40.5	34.2
1997	36.4	33.8	37.1	40.5	32.5	37	31.9	27.5	38.8	33.8	34.6	32.6	38.3	28.8	40.3	33
1998	35.9	33.1	37.6	40.8	32.7	36.2	31.4	27.3	38.2	33.3	34.2	31.8	38.3	28.1	40.1	32.8
1999	35.6	32.5	36.3	40.1	31.7	35.8	30.5	27.1	37.6	32.7	33.7	31.3	37.2	27.5	40.1	31.6
2000	34.8	31.4	35.4	40.3	31.1	34.7	30	26.6	37.2	31.8	33.3	30.4	37.7	27.1	39.6	31.2
2001	34.4	31.1	34.4	39.4	30.6	34.3	29.2	25.9	36.7	31.8	32.5	29.6	36.6	26.7	38.4	30.1
2002	33.6	30.1	33.7	39.1	30.3	33.9	29	25.8	36.9	30.8	31.7	29	36.3	26.3	37.7	29.5
2003	33.1	29.2	32.7	37.9	30	33.4	28.2	25.8	35.3	29.9	31	28.3	35.4	25.9	37.5	28.5
2004	32.3	29.5	34.9	41.8	31.6	33.9	30	24.6	37.4	30.3	32.2	30.1	38.1	25.6	40.2	31.3
2005	33.5	28.9	34.9	41.1	31.1	32.9	29.1	24.4	35.6	30	31.8	28.9	38.3	24.9	39.3	30.4
2006	33.1	28.1	34.1	41.7	30.9	32.7	28.5	24.3	36.2	29.1	31.3	28.9	36.9	24.5	39.2	29.7
2007	32.0	26.9	33.6	40.1	30.3	31.9	27.9	24.1	35	28.4	30.3	27.4	36.3	24.1	37.6	28.5
2008	31.9	26.4	33	40.5	30	31.4	27.3	24.4	34.6	28.2	30.5	27	35.8	23.9	37.6	28.4
2009	31.4	26.8	32.8	39.6	29.9	31.4	27.2	23.9	34.2	28	30.3	26.4	34.8	24.2	36.4	28
2010	30.9	26.4	32.3	39.4	29.1	30.7	26.7	23.9	33.6	27.5	29.4	26	33.6	24	35.7	27.4

Source: India, Registrar General (various SRS publications)

Table-1.7. Proportion of population aged 60 and older (P60+), India and Major States, 1971 to 2010

	IND	AP	ASS	BIH	GUJ	HAR	KAR	KER	MADP	MAH	ORI	PUN	RAJ	TN	UP	WB
1971	5.5	5.4	4.1		4.4	5.6	5.3	5.7	5	5.4	5	6.6		5.3	5.7	
1972	5.3	5.2	4		4.4	5.3	4.6	5.7	4.9	5.3	4.8	6.4	4.6	5.2	5.9	
1973	5.2	5.5	4.1		4.3	5.5	5.1	5.7	4.9	5.3	5.1	6.9	4.6	5.3	5.8	
1974	5.3	5.6	4		4.4	5.3	5.1	5.7	4.9	5.4	5.2	6.8	4.9	5.5	5.6	
1975	5.2	5.3	3.8		4.4	5.1	5	5.9	5.2	5.4	5.1	7.3	4.6	5.5	5.7	
1976	5.3	5.3	3.8		4.8	5	5.2	6.1	5.1	5.5	5.1	7.9	4.7	5.6	5.7	
1977	5.2	5.2	3.8		4.9	5	5.4	6.2	5	5.5	4.9	8.4	5.1	5.5	6	
1978	5.4	5.9	3.9		4.9	5.3	5.6	6.2	5.2	5.6	5.1	7.9	5.3	5.7	6	
1979	5.6	5.9	3.9		5	5.7	5.7	6.3	5.3	5.7	5.7	7.3	5.5	6.1	5.7	
1980	5.6	6	4		5.3	5.7	5.6	6.4	5.3	5.8	5.6	7.6	5.4	6.1	5.9	
1981	5.8	5.9	4	5.5	5.4	5.6	5.9	6.5	5.4	6	5.3	7.7	5.3	6.4	5.8	4.7
1982	5.7	6.4	4	6.6	5.6	6	5.9	7.1	5.6	6.1	5.6	8.2	5.7	6.4	6.4	5.6
1983	6.1	6.4	4.1	6.3	5.5	5.8	6.1	7.5	5.3	6.1	5.9	7.8	5.8	6.4	6.2	5.3
1984	6.0	6.7	3.8	6.4	5.5	5.5	6	7.5	6.3	5.8	6.2	7.1	5.4	6.1	6	5.1
1985	6.0	6.4	3.9	6.0	5.3	5.5	6	7.6	5.9	5.7	5.9	7.5	5.3	6.1	5.9	4.9
1986	5.8	6.4	3.8	5.8	5.3	5.2	5.8	7.5	5.8	5.8	5.9	7.2	5.2	6.2	5.8	4.9
1987	5.7	6.3	4	6.1	5.6	5.3	5.9	7.7	5.5	6	5.7	7.6	5	6.5	5.8	5.3
1988	5.9	6.3	4.1	6.0	5.6	5.7	6.2	7.7	5.9	6.1	6.1	7.2	5.4	6.5	5.9	5.2
1989	6.0	6.6	4.1	5.7	5.6	5.6	6.1	8	7.2	6.4	6.4	7.6	5.7	6.8	6.1	5.3
1990	6.1	6.6	4.1	6.1	5.8	5.6	6	7.9	6	6.2	6.1	7.2	5.4	6.8	6	5.2
1991	6.1	6.4	4.4	5.8	5.7	5.7	5.9	8.2	5.9	6.2	6.1	7.2	5.4	6.9	5.8	5.1
1992	6.0	6.6	4.5	6.1	6.1	5.5	6.2	8.3	5.8	6.5	6	7.1	5.4	6.9	6	5.7
1993	6.2	6.7	4.6	6.1	6.1	5.9	6.9	8.5	6.1	6.6	6.5	6.2	5.6	7.1	6.1	6
1994	6.4	7.2	5.2	6.5	6.4	6.8	7	8.7	6.7	6.8	7	7.9	6.6	7	6.6	6.4
1995	6.8	7	4.9	6.3	6.9	7.5	6.9	9.3	6.6	7.2	7.5	8.2	6.3	7.4	6.8	6.2
1996	7.0	7	4.8	6.3	6.8	7.3	7	9.2	6.5	7.4	7.3	8.3	6.4	7.4	6.8	6.3
1997	6.9	6.9	4.6	6.0	6.8	7	6.8	9.2	6.1	7.4	7.2	8.1	6	7.6	6.6	6
1998	6.7	6.9	4.6	6.0	6.8	7	6.8	9.2	6.1	7.4	7.2	8.1	6	7.6	6.6	6
1999	6.7	7.3	5.2	6.8	7.1	7.1	7.6	9.4	6.5	7.7	7.5	8.4	6.8	8	6.6	7
2000	7.0	7.5	5.2	6.5	7.4	7.1	7.6	9.6	6.7	8	7.8	8.8	6.6	8.4	6.9	6.8
2001	7.1	7.5	5.1	6.3	7.4	7	7.4	9.8	6.4	7.9	7.7	8.7	6.4	8.4	6.7	6.7
2002	7.0	7.6	5	6.4	7.3	7	7.3	9.9	6.4	8.1	7.6	8.5	6.5	8.5	6.9	6.8
2003	7.2	7.6	5.2	6.3	7.5	6.8	7.5	10	6.6	8.5	7.7	8.7	6.5	8.7	6.6	6.8
2004	7.2	8.2	5.8	6.4	7	7	7.6	10.8	6.7	8.4	8.6	9.1	6.5	9	6.7	7
2005	7.1	7.6	5.7	6.3	7.1	6.9	7.4	10.9	6.3	8.4	8.4	8.9	6.3	9.3	6.5	6.9
2006	7.3	7.6	5.9	6.3	7.2	6.8	7.5	11	6.5	8.7	8.5	8.8	6.5	9.4	6.6	7.2
2007	7.2	7.5	5.6	6.1	7.2	6.5	7.5	11.2	6.4	8.6	8.2	8.9	6.3	9.2	6.4	6.9
2008	7.2	7.6	5.5	6.1	7.2	6.6	7.7	11.2	6.4	8.8	8.3	8.8	6.4	9.6	6.3	7
2009	7.4	7.6	5.5	6.4	7.4	6.1	7.8	11.8	6.6	9.1	8.5	8.9	6.8	9.9	6.4	7.4
2010	7.5	7.7	5.5	6.4	7.5	6.1	7.9	11.8	6.7	9.2	8.7	8.9	6.8	10	6.4	7.5

Source: India, Registrar General (various SRS publications)

Table-1.8. Proportion of population aged 0-14 (P0-14), India and Selected States, 2001 to 2101

	2001	2011	2021	2031	2041	2051	2061	2071	2081	2091	2101
India	**34.3**	**30.7**	**28.1**	**25.7**	**23.7**	**22.1**	**20.8**	**19.9**	**19.2**	**18.7**	**18.3**
Andhra Pradesh	31.1	26.5	23.9	21.8	20.4	19.5	18.9	18.6	18.4	18.2	18.0
Assam	36.6	31.8	28.8	26.0	23.6	22.1	20.7	19.8	19.1	18.6	18.2
Bihar	40.7	37.6	35.1	32.6	29.4	26.8	24.3	22.6	21.2	20.0	19.3
Chhattisgarh	35.4	32.7	29.4	26.5	24.2	22.4	21.0	20.0	19.2	18.7	18.2
Gujarat	32.3	28.1	25.0	22.7	21.1	20.0	19.2	18.9	18.6	18.4	18.3
Haryana	34.7	30.4	26.7	23.8	22.0	20.5	19.6	19.3	19.0	18.8	18.7
Jharkhand	38.1	34.7	30.8	27.6	24.5	22.2	20.5	19.3	18.6	18.0	17.7
Karnataka	30.7	26.8	24.3	22.1	20.9	19.9	19.4	19.1	18.8	18.6	18.4
Kerala	25.8	21.8	19.5	17.1	15.7	14.7	14.0	13.8	13.5	13.4	13.3
Madhya Pradesh	37.1	34.3	31.1	28.1	25.5	23.4	21.9	20.8	19.9	19.2	18.7
Maharashtra	30.9	27.2	24.6	22.4	20.8	19.7	18.9	18.6	18.3	18.1	17.9
Orissa	32.2	28.2	25.4	23.0	21.4	20.4	19.5	19.0	18.6	18.3	18.1
Punjab	30.3	25.8	23.1	20.5	19.4	18.3	17.8	17.9	17.8	17.8	17.9
Rajasthan	38.8	35.9	32.8	30.0	27.2	24.9	23.0	21.8	20.7	19.8	19.2
Tamil Nadu	26.8	22.4	20.3	18.1	16.9	15.9	15.2	14.9	14.5	14.2	13.9
Uttarakhand	35.0	30.2	26.8	23.9	21.9	20.4	19.2	18.6	18.3	18.0	17.8
Uttar Pradesh	39.3	37.1	34.2	30.9	27.8	25.1	23.0	21.4	20.2	19.3	18.7
West Bengal	31.9	26.8	24.0	22.1	20.5	19.8	19.1	18.8	18.6	18.3	18.2

Source: Population Foundation of India and Population Reference Bureau (August, 2007)

Table-1.9. Proportion of population aged 65 and older (P65+), India and Selected States, 2001 to 2101

	2001	2011	2021	2031	2041	2051	2061	2071	2081	2091	2101
India	**4.8**	**5.2**	**6.2**	**7.9**	**10.1**	**12.5**	**15.1**	**17.2**	**19.1**	**20.8**	**22.0**
Andhra Pradesh	4.8	5.7	7.2	9.5	12.5	15.7	18.5	20.0	21.2	22.2	22.9
Assam	3.8	3.9	4.8	6.9	9.2	11.6	14.7	17.1	19.2	21.0	22.2
Bihar	4.3	4.3	4.7	5.9	6.8	8.2	11.0	13.6	15.9	18.4	20.2
Chhattisgarh	4.5	4.9	5.7	7.0	8.6	10.6	13.2	16.1	18.6	20.5	21.9
Gujarat	4.4	5.3	6.8	9.1	11.7	14.5	17.1	19.0	20.5	21.6	22.4
Haryana	4.9	4.8	5.5	7.2	9.5	12.5	15.2	17.3	18.8	19.8	20.6
Jharkhand	3.6	4.3	5.4	6.9	8.7	11.3	14.7	18.0	20.7	22.8	24.1
Karnataka	5.0	5.6	7.1	9.4	12.2	15.2	17.6	18.8	20.2	21.1	21.9
Kerala	7.0	8.8	11.6	15.8	20.6	25.1	28.1	29.3	30.8	31.5	32.0
Madhya Pradesh	4.5	4.4	4.9	6.0	7.5	9.4	11.8	14.4	16.9	18.9	20.5
Maharashtra	5.4	5.9	7.1	9.2	12.1	15.3	18.0	19.6	21.0	22.0	22.8
Orissa	5.3	5.5	6.6	8.5	11.0	13.7	16.4	18.5	20.3	21.6	22.5
Punjab	6.0	6.4	7.7	10.2	13.3	16.9	19.6	20.7	21.9	22.3	22.8
Rajasthan	4.3	4.2	4.8	5.9	7.4	9.3	11.8	14.2	16.5	18.5	20.2
Tamil Nadu	5.7	7.2	9.4	12.9	17.4	22.1	25.4	26.7	28.2	29.2	30.0
Uttarakhand	5.0	5.4	6.4	8.1	10.8	14.4	18.1	20.4	22.0	23.1	23.9
Uttar Pradesh	4.5	4.3	4.7	5.6	6.8	8.8	11.4	14.3	17.1	19.5	21.4
West Bengal	4.7	5.3	6.9	9.3	12.1	15.2	18.0	19.8	20.7	21.7	22.3

Source: Population Foundation of India and Population Reference Bureau (August, 2007)