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Role of Fertility in Changing Age Structure in India: Evidence and Implications

C M Lakshmana

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ROLE OF FERTILITY IN CHANGING AGE STRUCTURE IN INDIA: EVIDENCE AND IMPLICATIONS

C M Lakshmana*

Abstract

This paper examines the role of fertility-decline in changing the age structure of population in southern states of India in recent decades, particularly of children, youth, adults and elderly. In recent decades, there has been a continues decline in fertility and mortality rates in India in general, and south Indian states in particular. However, fertility remains relatively high among the less educated and poorer segments of society as well as rural population mainly due to their poor socio-economic development status. This finds reflection in the changing age structure of population in India in general and markedly in south India. On one hand, declining fertility in the last three decades has brought about remarkable decline in the number children in Andhra Pradesh and Karnataka, on the other, a mere reduction of TFR in Kerala and Tamil Nadu has resulted in significant increase in the size of elderly population in the state. However, the increase in the share of youth population attributed to fertility change was comparatively high in Andhra Pradesh during the decades under review.

Introduction

During the recent decades, the significant demographic changes and the rapid strides in social and economic development have resulted in substantial decline in total fertility rate (NFHS-1 and NFHS-3) in the country. Though, mortality and health scenario in India have improved in recent decades, the pace of progress has been rather slow (James 2011) and the staggering regional disparity evident in socio-economic development in the country is attributed to this slow progress. The United Nations World Population Conference, held in Bucharest in 1974 identified development as the primary cause of decline in both fertility and death rates. This transition from high to low levels of fertility in the country is attributed to the augmentation of urbanization, industrialization, education and improved health and living standards brought about by economic development. (Malgavkar & Pandiker, 1982). Social change through education and urban development has proved its efficiency in reducing both fertility and mortality which further has a strong positive association with social development and child survival (Pathak & Pandey, 1993). Similarly it is found that reduction in in-equality in income distribution has had considerable impact on the birth rate, family planning performance, etc. Further, it is evident that these have significant correlation with death rate, means of communication, health and education, and therefore levels of these indicators are more pertinent to fertility rate than the levels of other indicators (World Bank, 1974).

The age structure change is an important indicator of comprehensive demographic transition which includes fertility and mortality transitions (Navaneetham, 2002). Fertility and mortality were constant in the early stages of demographic transition which resulted in the country having a more or less constant age structure. However, when mortality declines and fertility remains constant in the later stages of a demographic transition, a large share of a country's population would be young, as a result of which the dependency ratio would also be high. Further, in the subsequent stage when fertility also

* Associate Professor, Population Research Centre, Institute for Social and Economic Change, Bangalore – 560 072. E-mail: lakshmana@isec.ac.in.

starts declining, the cohorts of the high fertility regime in the previous stage of demographic transition would metamorphose into working-age population and bring about a reduction in the dependency ratio. And in the final stage of the demographic transition, when both fertility and mortality reach the lowest level, the share of old aged population increases.

According to available literature, fertility is the potent force behind population- aging and the tempo with which it occurs (Kinsella & Phillips, 2005). In view of the above postulation, four southern states (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu) were considered to study the role of fertility in changing age structure during the recent decades of development in India due easy access to relevant data as well as analytical ease. Despite, the above constraints, these states have high scores in respect of socio-economic development indicators as compared to other states in the country. However, there were considerable gaps across these states in demographic, social and economic development parameters during the decades under study (Table 1). The demographic change and its impact on age structure change were not similar across southern states (Sekher, Raju & Sivakumar, 2005). In view of this, the main objective of the study is to examine the role of fertility in changing the age structure of population in the southern states of India in general, and to trace the major shifts in population groups, especially children (0-14 age), youth (15-29) and elderly (age 60 and above). The data for the study was obtained mainly from Census, Sample Registration System (SRS) and indiastat.com website.

Fertility Change in South India

South India, consisting of the states of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu, and the littoral state of Pondicherry is bounded on three sides by sea and has a vast coastline. As per 2011 census, this region has 21 per cent of the country's geographical area as well as an equal share of the country's total population. South India has a higher proportion of women in its population than the national average. In fertility transition, Kerala is at the top position in the country (early 1990s), followed by Tamil Nadu (2000), Andhra Pradesh (2002) and Karnataka (2006). The reasons for low fertility in Kerala were low infant mortality rate, very high literacy and better status of women, which were not true of Andhra Pradesh (Ramachndran and P.Ramesh, 2005). Andhra Pradesh has poor human development scores like that of Orissa; in terms of social development however, Andhra Pradesh score is lower than in the other southern states. Certain undefined socio-economic, cultural and historical factors seem to have played a major role in shaping fertility decline in Andhra Pradesh (Bhat, 1996), where the total fertility decline was comparatively slow during 1978-87, but fast thereafter.

Table1: Select Population, Social and Economic Indicators in Southern States of India

Sates		Andhra Pradesh	Karnataka	Kerala	Tamil Nadu	India
(1) % of Urban Population		33.5	38.6	47.7	48.4	31.2
(2) Birth Rate Total (2011) SRS		17.5	18.8	15.2	15.9	21.8
(3) Death Rate Total (2011) SRS		7.5	7.1	7	7.4	7.6
(4) % of Population below Poverty Line (2011) Total		9.2	20.9	7.1	11.3	21.9
(5) Share in employments (in percentage) in Total	Manufacturing	11	9.9	12.4	17.2	18.4
	Service Sector	24.3	25.1	39.2	27	30.3
Share of GDP*(2004-2005)						
(6) Agriculture & Allied		19.2	14.7	9.8	7.7	-
(7) Industry		25.6	27.7	20.5	26.5	-
(8) Services		55.1	57.6	69.7	65.8	-
(9) Adult Women Literacy (%)(2011)		60	68	92	74	65.5
(10) Women Employment (%) **		20	30	39	29	17
(11) Contraception Prevalence Rate (%) $		67.6	63.6	68.6	61.4	56.3

During the 1980s and 1990s the state of Karnataka experienced considerable reduction in fertility, though lower in scale and slower in pace in comparison with its neighboring states of Kerala, Tamil Nadu and Andhra Pradesh. Economic backwardness and the poor health infrastructure in northern Karnataka, and the resultant poor socio-economic and demographic variables seem to have come in the way of achieving overall decline in fertility on par with Andhra Pradesh (T.V.Sekher, K.N.M.Raju and M.N.Sivakumar, 2000). It needs to be pointed out here that there had been no remarkable change in socio-economic development, or serious government interventions or significant social and political movements in Karnataka which could have influenced the fertility behavior and attitudes of the people. During the 1970s and 1980s, the major contribution of fertility reduction in Kerala was brought about through late marriage and greater use of contraception (Irudaya Rajan and Sabu Aliyar, 2005). However, fertility in Tamil Nadu was never very high throughout the twentieth century. The decline has slow during the 1970s gained rapid pace in the mid 1980s. Both a rise in age at marriage and a fall in marital fertility are found to be responsible for the fertility decline in Tamil Nadu (S. Irudaya Rajan, 1999).

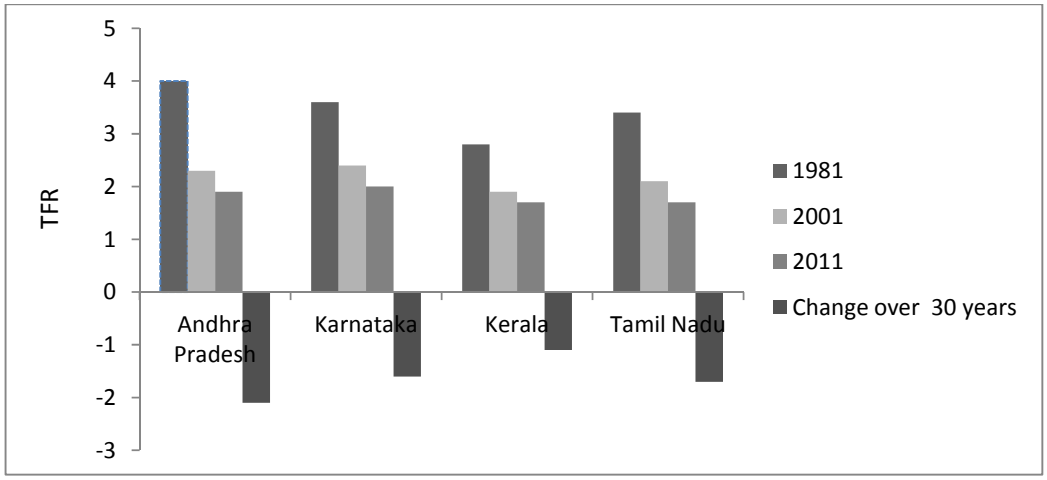
Role of Fertility in Changing Age Structure in South India

The total fertility rate in India in the year 1981 was 4.5; it decreased to 2.68 by 2001 and declined further to 2.3 by 2011 (SRS). However, the TFR level in southern states of India has been always below the national average (see Fig.1 for graphic details). In India, the correlation between the size of working population and the level of economic development is well documented (James 2008: Bloom D.E., 2011; Vasaundhra Thakur, Kartik Roy, Hans Bloom Quist & Cal Clark, 2012: & World Bank, 2013).

Strides in socio-economic development has in turn helped to achieve the demographic goals, and most of the states in southern, western, and some states in northern region have now reached replacement level of fertility. In most other Indian states, this process is still underway. The increased level of socio-economic and infrastructure development in the country during the last three decades has brought about significant changes in the age structure of the country's population. Figure 2 graphically depicts the changed scenario.

For instance, the proportion of children in the age-group 0-14 has declined drastically in all four southern states. The decline however was slightly lower in Tamil Nadu than in other states like Karnataka, Kerala and Andhra Pradesh. On the other hand, rapid decline of TFR has caused a negative change in youth population (age group 15-29) in both Tamil Nadu and Kerala. The decline in the proportion of youth population in the total was relatively high at - 5.7 in Kerala and - 2.1 percentage points in Tamil Nadu.

Figure 1: Fertility Decline across Southern states of India

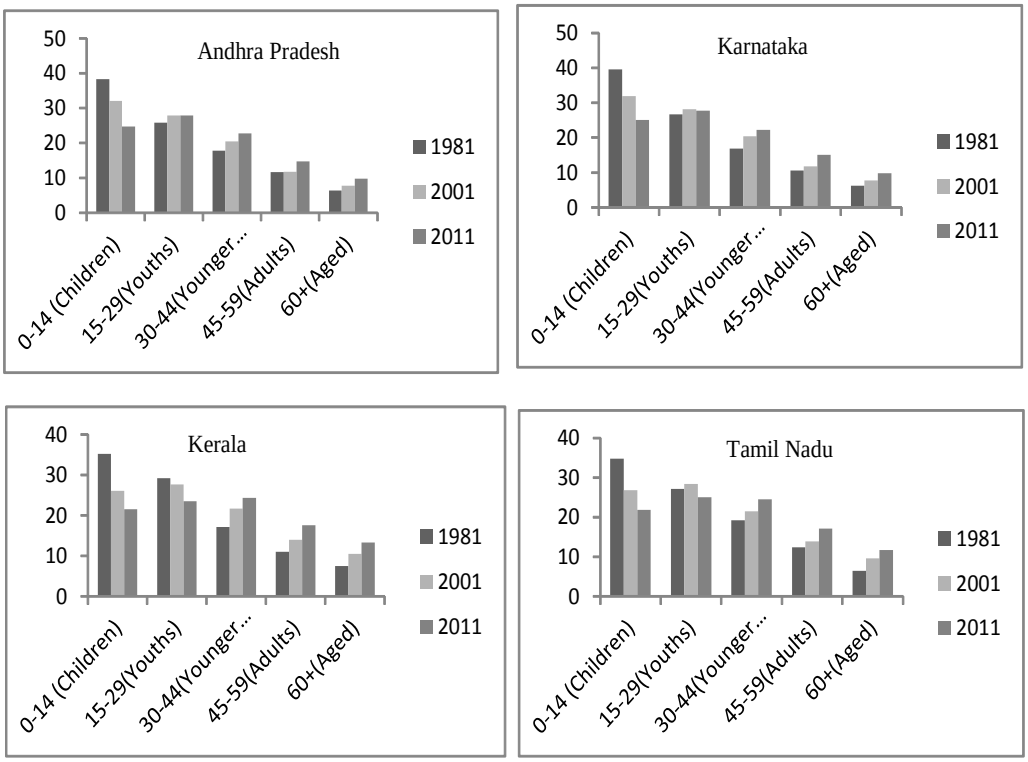


In contrast, there was an increase in growth rate of youth population during the same period in Andhra Pradesh and Karnataka (2.1 and 1 percentage points respectively). Strangely, change in the proportion of younger adults was positive though it varied by degrees across the states (See Fig.2). However, the increase in proportion was almost identical at 5 percentage points in all the southern states with the exception of Kerala were the increase registered was 7.2 percentage points. The proportion of adults (45-59) in the total population was the highest in Kerala (6.6 per cent) followed by Tamil Nadu (4.7 per cent), Karnataka (4.5 per cent) and Andhra Pradesh (3.1 per cent).

The higher proportion of working population in a given region/area is a sure sign of economic development. Kerala and Tamil Nadu witnessed rapid economic development mainly due to the higher proportion of workers in the total during the last two decades, but its benefits were partly negated by the higher proportion of elderly in the total. This is because demographic transition took place in this region earlier than in other regions. The state of Kerala achieved the replacement level fertility by the year 1998, followed by Tamil Nadu (2000), Andhra Pradesh (2002) and Karnataka (2006). It is evident

that these factors have influenced the process of population change as well as in development scenario across the southern states.

Figure 2: Age Structure Shift across Southern States of India (1981-2011)



Fertility and Changing Age Structure of Children in South India

Table 2 tabulates the decadal changes in TFR and consequent changes in the size of child population in southern states. In the last three decades, the highest decrease in the number of children in the total was observed in Karnataka (-14.2 per cent) and Andhra Pradesh (-13.3 per cent) followed in Kerala (-12.5 percent) and Tamil Nadu (-12.2 per cent). It is clear therefore that there was a close relationship between TFR and the reduction of child population in the respective states. Fertility decline during the last three decades was highest in Andhra Pradesh (- 2.1), however, it was marginal in case of Kerala (minus 1.1), but, TFR decline in Karnataka and Tamil Nadu was almost identical with - 1.6 and - 1.7 respectively during the same period. In this sequence, it is important note here that due to onset of early demographic transition in these states, Kerala and Tamil Nadu have the distinction of being at the top in achieving the health and demographic goals not only in southern states but also in the country as a whole.

Further investigation has been done to examine the role of fertility and its consequence on the changing size child population in the last three decades (from 1981-2011). In this regard, Table 2 illustrate that, the TFR decline during the decade 1981-1991 was identical in Tamil Nadu and Andhra Pradesh with -1.3 percentage points. Similarly, TFR decline with - 0.8 percentage points was observed in Karnataka and Kerala. However, here it is interesting to note that the absolute decline of TFR in

southern states was highest in the decade 1981-1991 as compared to the subsequent decades of 1991-2001 and 2001-201, but its influence in reduction of child population was different across southern states at different points of time. For instance, TFR decline in the decade 1981-1991, was impressive in all the southern states, but the reduction in the percentage of child population, during the same decade (excepting Kerala) was lower than in subsequent decades.

Similarly, the role of fertility and the reduction child population were not similar across southern states. For instance, in decade 1981-1991, a slight decline of TFR (-0.8) in Kerala and Tamil Nadu had resulted for highest reduction in the percentage of child population (-5.48 and – 4 per cent respectively). A similar observation was reported in Andhra Pradesh. A decline of - 1.3 percentage points in TFR Andhra had resulted in a significant reduction in the percentage of child population (- 2.39 percentage points). On the other hand, a decline of - 0.8 in TFR had resulted in the reduction of - 3.58 percentage points of children in Karnataka.

Further, in order to examine the role of fertility and the reduction in child population in south India, an attempt was made to trace the major changes during the subsequent decades. This has thrown up several interesting findings. (See Table 2 for more information). In the decade 1991-2001 a decline of - 0.4 percentage points of TFR in Andhra Pradesh and Karnataka had resulted in the reduction of - 3.8 and - 4.12 percentage points of children. At the same time, surprisingly a mere 0.1 percentage point decline of TFR had resulted in the reduction of the size of child population in Tamil Nadu and Kerala at – 4.12 and - 3.62 percentage points respectively. The role of fertility and consequent changes in children were more or less same in Tamil Nadu and Kerala in the decade 2001-2011. However, in contrast, Andhra Pradesh witnessed a relatively high reduction in the size of child population - 3.8 percentage points in the decade 1991-2001 to - 7.1 percentage points by the decade 2001-2011. Similarly there was substantial decrease in the size of child population in Karnataka (from - 4.12 percentage points in decade 1991-2001 to - 6.5 percentage points in the decade 2001-2011).

Table 2: TFR Decline and Age Structure Change in Southern States of India (Children)

States	TFR Decline				Total Reduction of 0-14 age Population			
	In 30 years	Decadal Change			In 30 years	Decadal Change		
	(1981-2011)	1981-1991	1991-2001	2001-2011	(1981-2011)	1981-1991	1991-2001	2001-2011
Andhra Pradesh	-2.1	-1.3	-0.4	-0.4	-13.3	-2.39	-3.8	-7.1
Karnataka	-1.6	-0.8	-0.4	-0.4	-14.2	-3.58	-4.12	-6.5
Kerala	-1.1	-0.8	-0.1	-0.2	-12.5	-5.48	-3.62	-3.4
Tamil Nadu	-1.7	-1.3	-0.1	-0.3	-12.2	-4	-4	-4.2

Source: (1) Census of India, series-1, paper 5 of 1984, Registrar General, Government of India

(2) Technical Group of Population Projections, Registrar General and Census Commissioner of India, 2001-2026.

Fertility and Changing Age Structure of Elderly in South India

As illustrated in figure 1, in the last three decades the TFR decline was comparatively high in Andhra Pradesh (- 2.1); conversely, the state also witnessed a marginal increase (2.7 percentage points) of elderly population. At the same time, a decline of - 1.6 percentage points in TFR resulted in an increase of 3 percentage points of elderly population in Karnataka. Interestingly, though the absolute decline of TFR in Kerala was very low (- 1.1 per cent), its effects on changing the size of elderly population was quite high at 4.8 percentage points, and was the highest among southern states, followed by Tamil Nadu with 4.7 percentage points (Refer Table 3). As mentioned in the previous discussion, the absolute decline of TFR during the decade 1981-1991 was the highest as compared to the following decades. However, the increase in the size of elderly in the total population was not proportionate; it means the impact of fertility decline (highest decline) on elderly in the decade 1981-1991 was not proportionate across all the southern states. In contrast, the steady decline of TFR in the subsequent decades had resulted in a remarkable increase in the size of elderly population in the total.

Coming to the next decade, i.e., 1991-2001, it can be seen that a mere decline of - 0.1 percentage points of TFR both in Kerala and Tamil Nadu had caused a significant increase of elderly population. On the other hand TFR decline was comparatively high with - 0.4 percentage points in both Andhra Pradesh and Karnataka, but increased proportion of elderly was not significant like Kerala and Tamil Nadu. Increased proportion was just 0.38 and 0.79 percentage points respectively for Andhra Pradesh and Karnataka.

However the role of fertility decline in changing the age structure across south Indian states during the subsequent decades of 1991-2001 and 2001-2011 was quite noticeable. In the decade 1981-1991 the increased proportion of elderly in both Kerala and Tamil Nadu was the highest among south Indian states with 1.68 and 2.15 percentage points respectively. However, the states of Karnataka and Andhra Pradesh had also shown increased trend of elderly during the same period. But, the increased extent in term of quantity was much lower than in Kerala and Tamil Nadu. This trend continued even in the following decade of 2001-2011.

Table 3: TFR Decline and Age Structure Change in Southern States of India

(Elderly-Age 60 plus)

States	TFR Decline				Total Increase of Age 60 + Population			
	In 30 years	Decadal Change			In 30 years	Decadal Change		
	(1981-2011)	1981-1991	1991-2001	2001-2011	(1981-2011)	1981-1991	1991-2001	2001-2011
Andhra Pradesh	-2.1	-1.3	-0.4	-0.4	2.7	0.38	1.02	1.3
Karnataka	-1.6	-0.8	-0.4	-0.4	3	0.79	0.81	1.4
Kerala	-1.1	-0.8	-0.1	-0.2	4.8	1.32	1.68	1.8
Tamil Nadu	-1.7	-1.3	-0.1	-0.3	4.7	0.95	2.15	1.6

Source: (1) Census of India, series-1, paper 5 of 1984, Registrar General, Government of India

(2) Technical Group of Population Projections, Registrar General and Census Commissioner of India, 2001-2026.

There has been a substantial decrease in the size of child population in Karnataka and Andhra Pradesh in decade 2001-2011 also. It indicates that the demographic transition through fertility decline has indeed helped to achieve socio-economic development which in turn has resulted in age structure change in south India. It may however be noted that fertility-decline had not caused any significant change in the size/percentage of elderly population in both Karnataka and Andhra Pradesh during the period under review. The northern region of Karnataka, the backward region of Rayala Seema and the north-eastern coastal regions of Andhra Pradesh still have considerable disparity in socio-economic development.

Moreover, the progress achieved by Karnataka and Andhra Pradesh in of socio-economic development was not on par with Kerala and Tamil Nadu, and hence the higher mortality rate in Andhra Pradesh than in other southern states. And further, the mortality pattern in Karnataka and Andhra Pradesh is radically different from the pattern in of Tamil Nadu and Kerala. Considerable variation in mortality rate is evident across states (please refer table 1). The average life expectancy (2001-2006) at birth was 65 years in Andhra Pradesh, which is lowest among southern states. On the other hand, life expectancy at birth in Kerala was the highest at 75 years, followed by Tamil Nadu at69.8 years. Life expectancy in Karnataka was slightly higher (66.4) than that of Andhra Pradesh. Hence, it is clear from the whole exercise that the demographic shift has caused major changes in the age structure, and that its impact on age structure change is ultimately dependent on the level of socio-economic development.

Role of Fertility in Changing Age Structure of Youth population in South India

Demographic change and consequent fertility-decline had resulted in significant increase/decrease in the size of youth population in India during the decades under review. However, due to several reasons, the changing age structure has resulted in both increase and decrease in the percentage of youth in the southern states of India. In the last three decades of fertility decline, while Karnataka and Andhra Pradesh registered an increase in the share of youth population, interestingly, the trend was reverse in Kerala and Tamil Nadu. Table 4 provides detailed information on the situation. Increase in the share of youth population in Andhra Pradesh in the last thirty years (1981-2011) was 2.1 percentage points and it was just one percentage point in Karnataka. On the other hand, corresponding figures for Kerala and Tamil Nadu was - 5.7 and - 2.1 percentage points respectively. However, migration due to un-employment and under employment could be cited as reasons for the reduction of youth population in the total in Tamil Nadu and Kerala. Though these states are at the top in terms of GDP growth, ensuring 100 per cent literacy and also have achieved the expected demographic goals, unfortunately, these states have not been able to provide employment to the productive youth (Narayana & Harikurup, 2000). As a result, the percentage of youth population in the total in both Tamil Nadu and Kerala has declined significantly. Increase in percentage of youth in Andhra Pradesh (1.05 percentage points) during the decades of 1981-1991 and 1991-2001 was identical.

However, this proportion was less than one per cent in Karnataka in both the decades. Interestingly, this position was entirely different in Tamil Nadu and Kerala, where the change in the proportion of youth increased at 1.02 per cent in decade 1981-1991, but declined to - 2.62 percent in

the decade 1991-2001 and further to - 4.1 percent in the decade 2001-2011. On the other hand, decrease in youth population in Tamil Nadu in percentage terms was – 0.05 in the decade 1991-2001, which further declined to – 3.4 points in the decade 2001-2011.

These variations find reflection in the pattern of employment. For example, according to National Sample Survey of 61st round, un-employment rate per 100 youths (rural) was the highest in Kerala (54), followed by Tamil Nadu (35), Andhra Pradesh (25) and Karnataka (18). Similarly urban un-employment situation is acute compared to rural unemployment. There were 463 un-employed youths per every 100 youths in Kerala, followed by Tamil Nadu (104). However, the situation was comparatively better in of Karnataka and Andhra Pradesh, where at least for every 100 youths there were five persons in employment.

As already mentioned in the earlier section, despite the acclaimed success of economic development, the states of Kerala and Tamil Nadu seem to have failed in providing employments to their working-age population. The reasons for this failure are several.

Table 4: Decadal Change in TFR and Its effects in age structure change in southern states of India (youth population)

State	TFR Decline				Total Increase/Decrease of Youth			
	In 30 years	Decadal Change			in 30 years	Decadal Change (+/-)		
	(1981-2011)	1981-1991	1991-2001	2001-2011	(1981-2011)	(1981-1991)	(1991-2001)	2001-2011
Andhra Pradesh	-2.1	-1.3	-0.4	-.04	2.1	1.05	1.05	0
Karnataka	-1.6	-0.8	-0.4	-0.4	1	0.63	0.77	-0.4
Kerala	-1.1	-0.8	-0.1	-.0.2	-5.7	1.02	-2.62	-4.1
Tamil Nadu	-1.7	-1.3	-0.1	-0.3	-2.1	1.35	-0.05	-3.4

Source: Calculated by the Author using the census data.

According to the population projections made for the years 2001-2006 by the census commission of India, in the decade 1991-2001, the net migration rate in both Kerala and Tamil Nadu was - 0.08 per cent, while it was - 0.03 and - 0.04 per cent respectively for Andhra Pradesh and Karnataka. Therefore, it is safe to assume that out-migration is one of prime reasons for the negative growth in the proportion of youth population in the total in both Tamil Nadu and Kerala.

It is evident from the above description that there was a continuous trend of decrease in the size of child population in the selected states during the study period. But, in the later stage (during 1991-2011) due to fertility-decline, the percentage of both youth and elder population showed marked increase in entire south India. But, in percentage terms, the increase in the size of youth and elderly population in Andhra Pradesh and Karnataka was relatively low as compared to Kerala and Tamil Nadu. Interestingly, increase in the size youth and working population in Andhra Pradesh was significant and was the highest across south Indian states under the study period. In view of this, one can say that if the trend continues, certainly it would a boom for Andhra Pradesh as the large proportion of youth and working population will be a potential source of sustainable growth of the state's economy in the coming decades.

Summary and Policy Implications

The role of fertility-decline in changing age structure was varied across southern states and across the decades under review. The role of TFR in changing the size of child population was very impressive in Karnataka and Andhra Pradesh. During the study period, increase in the proportion of elderly population was the highest at 5.8 percentage points in Kerala, followed by Tamil Nadu at 5.2 percentage points. But, the increase in the proportion of elderly population was comparatively low in Andhra Pradesh and Karnataka at 3.4 and 3.6 percentage points respectively. Similarly, the increase in the proportion of youth population was relatively high in both Karnataka and Andhra Pradesh compared to Kerala and Tamil Nadu. Interestingly, both Kerala and Tamil Nadu are exceptions to this trend; the increase in the proportion of youth in these states was 4.1 and - 3.4 percentage points respectively. Hence it indicates that Andhra Pradesh would be the leader among southern states in the matter of finding the 'window of opportunity' in the coming decades. Based on the observations, the study strongly recommends that there is a need to go for separate policy prescriptions in order to provide education, health and employment for the welfare and well-being for different segment of population such as children, elderly and youth.

In general, fertility decline has played a crucial role in changing the age structure of population in south India; it has also enabled the states to make rapid strides in the health and education sectors. However, one cannot rule out the possibility of a period of turbulence in economic growth due to the increase in the proportion of elderly population. Also, the rising proportion of elderly population in some of the states poses a significant challenge – the need to provide better medical care and social security measures to the elderly population in the society. Increased old-age dependency-rate demands more social expenditure on geriatric care especially in Tamil Nadu and Kerala. Higher dependency of elderly and lower dependency of children in Tamil Nadu and Kerala and lower proportion of elderly and higher dependency of children in Karnataka and Andhra Pradesh have drawn attention to the need to make separate policy prescriptions with regard to the health issues of different section of population such as women, children and elderly.

Finally, the increase in youth population in Andhra Pradesh and Karnataka is a good sign of economic development. However, the respective state governments need to make concerted efforts to provide employment opportunities to this burgeoning section of youth and working-age population. In the absence of suitable employment opportunities, the demographic dividend, i.e., the preponderance of youth and working-age population in these states can cause serious strains both economically and socially and disturb peace and harmony. Increasing unemployment and under employment among youth can increase crime rate and heighten social tension and negatively impact human welfare. One needs to be conscious that the demographic dividend can become a demographic nightmare if we fail to harness this force for creative purposes.

References

Bhat, P N M (1996). Contours of Fertility Decline in India: A District Level Study Based on the 1991 Census. *Discussion paper series No.13*. Thiruvananthapuram: Centre for Development Studies.

Bloom, D E and J G Williamson (1997). Demographic Transition and Economic Miracles in Emerging Asia. *Working Paper No. 6268*. Cambridge: M.A. NBER.

———— (2011). Population Aging: Factors, Challenges and Response. Program on the Global Demography of Aging. *Working Paper Series No. 71*. Available from: http://www.hsph.harvard.edu/pgda/working.htm.

IIPS (2004). *National Family Health Survey (NFHS-1)*. Mumbai: IIPS.

———— *National Family Health Survey (NFHS-3)*. Mumbai: IIPS.

James, K S (2011). India's Demographic Change: Opportunities and Challenges. *Science Journal*, 333 (6042): 576-80.

———— (2008). Glorifying Malthus: Current Debate on Demographic Dividend in India. *Economic and Political Weekly,* 43 (25): 63-69.

Kinsella *et al* (2005). Global Aging: The Challenges of Success. *Population Bulletin,* 60 (1): 8-12. New York: Population Reference Bureau.

Malgavkar, P D and V A Panadiker (1982). *Population and Development*. New Delhi: Somaiya Publications Pvt Ltd.

Navaneetham (2002). Age Structure Transition and Economic Growth: Evidence from South and South East Asia. *Working Paper No. 337*. Kerala: Centre for Development Studies.

Pathak, K B *et al* (1993). *Social Development and Dynamics of Population in Bihar*. New Delhi: B R Publishing Corporation.

Narayana, D and K K Harikurup (2000). Decentralization of the Health Care Sector in Kerala: Some Issues. *Working Paper No. 298*. Thiruvanthapuram: Centre for Development Studies. Availbale from http://www.cds.edu/download_files/wp298.pdf.

Rajan, Irudaya and Sabu Aliyar (2005). Fertility Change in Kerala. In Guilmoto, Z and S Irudaya Rajan (eds), *Fertility Transition in South India*. New Delhi: Sage Publications. Pp 137-167.

Ramachandran P and P Ramesh (2005). Fertility Trends and Diffrentials in Andhra Pradesh. In Guilmoto, Z and S Irudaya Rajan (eds), *Fertility Transition in South India*. New Delhi: Sage Publications. Pp 137-167.

Roy, Kartik, Hans Bloom Quist and Cal Clark (2012). *Economic Development in China, India and East Asia: Managing Change in the Twenty First Century*. United Kingdom: Edward Elgar Publishers.

Sekher, T V, K N M Raju and Sivakumar (2005). Fertility Transition in Karnataka. In Guilmoto, Z and S Irudaya Rajan (eds), *Fertility Transition in South India*. New Delhi: Sage Publications. Pp 137-167.

Thakur, Vasundhra (2012). The Demographic Dividend in India: Gift or Curse? A State Level Analysis on Differing Age Structure and Its Implications for India's Economic Growth Prospects. *Working Paper Series 2012, No. 12-128*.

United States of America (2002). World Development Report 2003. In *Sustainable Development in a Dynamic World: Transforming Institutions, Growth, and Quality of Life.* Washington DC: World Bank; Oxford University Press.

———— (1974). *Report of the United Nations*. World Population Conference, New York, 1975, Pp 7.

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INSTITUTE FOR SOCIAL AND ECONOMIC CHANGE
Dr V K R V Rao Road, Nagarabhavi P.O., Bangalore - 560 072, India
Phone: 0091-80-23215468, 23215519, 23215592; Fax: 0091-80-23217008
E-mail: lekha@isec.ac.in; Web: www.isec.ac.in