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DEMOGRAPHIC CHANGES IN KERALA AND THE EMERGING CHALLENGES: AN ASSESSMENT

BAISHALI GOSWAMI

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Baishali Goswami

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Centre for Socio-economic and Environmental Studies


Khadi Federation Building, NH By-pass
Padivattom, Kochi-682024
Kerala, India.


91-484-2805107, 2805108


csesindia@gmail.com


www.csesindia.org

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Abstract

Given the early onset, the demographic transition in Kerala is now at the matured stage with fertility below the replacement level, life expectancy at birth above 75 years, decadal growth rate of population at 5 percent during 2001-2011 with negative growth in two districts. The demographic advantage has created certain unique challenges that need focused attention as the strategies adopted by the state now will determine the future course of transition. The present study aims to synthesize the current trajectory of the transition in the state in light of the existing trends experienced worldwide with regard to advanced mortality and fertility transitions. Findings suggest that Kerala is yet to confirm the onset of advanced stages of mortality and fertility transitions in line with the global experiences. Despite a long history of mortality transition coupled with an advanced epidemiological transition, there remains untapped potential in the state to postpone the age-specific mortality from degenerative diseases from the age group of 70+ further to the advanced age group of 80+. To address the gap the study recommends further refinement in strategies targeting interventions to address the intra-group differentials instead of considering 'elderly' as a group and maintaining an age-sex disaggregated database across major killer diseases in the advanced age groups. With regard to fertility transition, after the achievement of replacement level as early as in 1988, TFR in Kerala is hovering around 1.7 to 1.9 children per woman showing limited signs of rapid decline in the post-replacement transitional phase. A strong sense of 'familism'- a family-centred welfare system, a family-based production system and a family-oriented

value system may have postponed the onset or full experience of the advanced fertility transition and the associated societal changes, known as second demographic transition, in the state. Following the changes in fertility and mortality Kerala is increasingly becoming an ageing society. There has been a drastic decline in the share of the young workforce (aged 20-34 years) between 1991 and 2011 within working age population and the trend will continue in the coming years as well. Void in young workers facilitated migration of young labourers from other states. The future pace of transition, therefore, will be determined by how fast the in-migrants are integrated with the current level of human development of the state.

Key words: Kerala, demographic transition, age -structure, fertility, mortality, second demographic transition, advanced epidemiological transition, familism.

About the author:

Baishali Goswami is an Associate Fellow with the Centre for Socio-economic & Environmental Studies, Kochi. She is an interdisciplinary researcher with international experience in gender, migration, disability and education. Dr. Goswami has a PhD in Development Studies from the Institute for Social and Economic Change (ISEC), India. She did her Masters in Population Studies from International Institute for Population Sciences and Masters in Economics from North Bengal University. She is also the co-founder of Centre for Migration and Inclusive Development, a non-profit with a focus on inclusion of migrant workers in India.

Demographic Changes in Kerala and the Emerging Challenges: An Assessment

Context

Demographic transition is a smooth change from high mortality and fertility to low mortality and fertility. Demographic transition in Kerala has occupied a unique position in the development literature and debates on demographic transition both with regard to its onset and the unconventional trajectory it has followed over time challenging the existing theories on the same. It took place in the state under poor economic development and in absence of much economic growth (Krishnan, 1976; Zachariah, 1984; Bhat and Rajan, 1990a). The mortality transition in the state started at the beginning of the 20th century when there was hardly any access to modern medicine and treatment whereas fertility transition started in the sixties when fertility reduction policies and strategies were in general, absent in any of the states in India (Rajan and James, 2007). The current demographic indicators of Kerala suggest that the state is much ahead of the rest of India by at least 25 years.

Just like the onset, the transitional process in the state is also unique in terms of its trajectory. The total fertility rate (TFR), though experienced rapid decline in the seventies to achieve the replacement level within less than two decades, hovered in the range of 2.0-1.7 children per woman afterwards for over three decades showing limited signs so far to decline further. But in the Western countries and more recently in some of the Asian countries, achievement of the replacement level of TFR sooner followed by ultra-low fertility (TFR at or below 1.3) levels with

associated attitudinal changes with regard to marriage, family and childbearing, marking onset of a new era of demographic transition, known as second demographic transition (SDT) in the literature.

Similarly, mortality transition with an associated change in the disease pattern from communicable diseases to chronic degenerative diseases has shifted the mortality to older ages which is reflected through the gains in life expectancies at adult age and sex groups. On an average, a Keralite live up to his/ her mid-seventies. However, with such a long history of mortality transition in Kerala, theoretically there should be further postponement of death to the oldest age groups (ages more than 80) following additional reduction in deaths from degenerative diseases from adult ages to older ages. This stage is known as the 'Age of Delayed Degenerative Diseases' and referred as the final stage of epidemiological transition (Olshansky and Ault, 1986). But the recent exploration of mortality transition in the state indicated only a slow progress towards this advanced stage of epidemiological transition in the state (Thomas and James, 2014).

With this backdrop, the present paper aims to examine the current trajectory of the demographic transition in the state to synthesise the recent stage of the transitional process and to explore whether it is conforming to or deviating from the existing trends experienced worldwide with regard to advanced mortality and fertility transitions. To present the transitional process, the paper uses data from Population Census and Sample Registration System. The study also included an extensive desk review to

substantiate the arguments related to advanced stages of transition.

Demographic Transition in Kerala: A historical overview

Classic demographic transition theory emphasised economic development like shift from traditional agrarian economy to an industrialised one and modernisation, should precede the demographic changes (Notestien, 1945). Similarly, the neoclassical demand theories highlighted the role of economic parameters through variables such as quality (instead of quantity) of children, in terms of investment in health and longevity; schooling and higher education, and the overriding value of human time, especially allocation of mother's time to raise quality children (Schultz, 1981) to mark the onset of demographic transition. Contrary to the existing hypotheses, the transitional process in Kerala started with much higher levels of poverty, undernourishment, and low per-capita income compared with the national average (James, 2011). The major point of departure triggering the transition in the state was the prevalence of high social development, especially high rates of female literacy, amidst poor economic indicators (James, 1999). This has led to a new model, known as "Kerala model of development" governed by an alternative hypothesis that social development can trigger fertility transition.

While searching for the plausible factors behind the unique nature of demographic transition in Kerala, a set of historical factors had been identified as the catalyst for social change. Firstly, the matrilineal system, an upper-caste phenomenon, was identified as a critical factor in giving women a unique position in the Kerala society in

terms of empowerment (Dyson and Moore, 1983; Jeffry, 2004). Secondly, the spread of modern formal education system and modern health care system, played a key role in the growth of literacy, better health and hygiene, which in turn paved the way for low mortality, adoption of small family norm among the educated population (Nair, 2010). By the end of 19th century, all the villages in Travancore and Cochin region had a primary school (Kerala Development Report, 2005). Thus, historical factors set the stage for the early onset of the demographic transition in the state.

Combined with these historical factors, certain structural changes in the political-economic policies and development strategies, exclusive to the state, contributed abundantly to the changing demographic scenario. As identified in the social justice theory, land reforms creating a large middle-class of owner-cultivators, increased wages of agricultural labourers along with fixing a minimum wage in agriculture and a pension scheme for agricultural labour were found to be conducive for social change (Ratcliffe, 1977). All these have contributed effectively towards the reduction of income and wealth disparities in the state. Elevated level of organisation among the poorer section i.e., landless agricultural labourers (James, 1997) was also cited as a facilitating factor for the rapid demographic changes in the state. It was also pointed out that high degree of politicization in the state led to effective enforcement of anti-child labour legislations that encouraged even the wage-dependent poor workers to opt for a small family (Basu, 1986).

Besides, huge public investments in education, expansion and spread of health facilities and better accessibility to the PHCs through wide network of public transport (Bhat and Rajan, 1990b), interventions like Universal Immunisation Programme for children and pregnant women, Universal Literacy Campaign, extension of family welfare services etc. also played a major role in the demographic achievements of the state (Nair, 1974; Zachariah, 1984; Bhat & Rajan, 1990a; Kerala Development Report, 2005). High Female literacy and resulting improvement in health status of the people reflected through the low levels of infant mortality, emerged as an influential variable to trigger fertility decline in Kerala (Krishnan, 1976; Bhat & Rajan, 1990b).

There are also arguments in favour of poverty induced factors facilitating demographic change in the Kerala society (Mencher, 1980; Basu, 1986). While Anthropological work like that of Mencher (1980) maintained that agricultural labourers opt to reduce their number of dependents to cope with their economic distress, a section of the asset less poor wage-workers were attracted by the larger amount of incentives offered following the acceptance of family planning measures to control the number of children (Basu, 1986).

In summary, a wide range of historical and socio-political factors played key role to trigger and facilitate the demographic changes in the state. While all these factors set the stage for the ensuing change, the highly politicized aspect of Kerala society prompted the successive democratically-elected governments in Kerala to continue their investments in the social capitals like health and

education ensuring a rapid pace and universal social change cutting across social and economic classes (Kerala Development Report, 2005). Consequently, Kerala recorded the highest level of human development among the Indian states paving the onset of early demographic transition in the state, through higher acceptance of contraception, along with higher age-at-marriage, and lower fertility in Kerala.

Change in Population Growth and Age-structure

As per Census 2011, Kerala accounts for 2.76 percent of India's population and occupies the 12th position among states. Following early onset of mortality transition, Kerala registered a higher growth rate in population than the country average in 1971. (Table 1). However, the declining trend in fertility in the state led to an eventual decline in population growth rate. The growth rate of population in India surpassed that of Kerala during in 1981. Decadal growth rate of the state's population were merely nine percent and five percent in 2001 and 2011 as against the national growth rate of 22 per cent and 18 per cent respectively. Two districts of the state viz., Pathanamthitta and Idukki recorded negative growth in population during 2001-2011. The declining trend or at least is slowing down of increasing growth rate is evident across all religious groups in the state (Rajan, 2015).

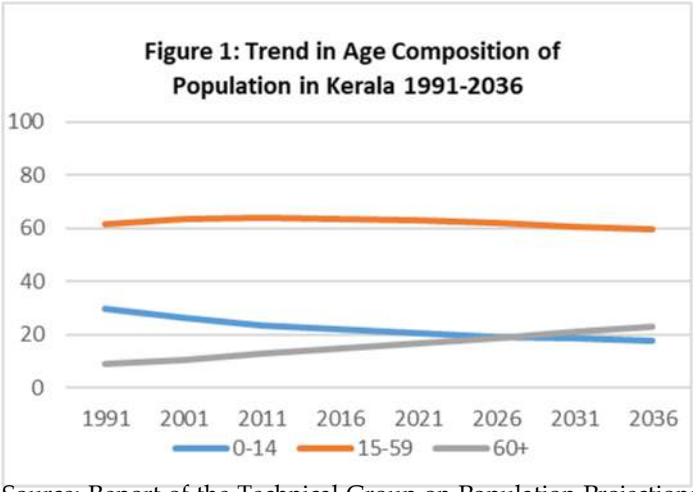
Table 1: Population Size and Decadal Growth Rate in Kerala and India, 1971-2011

	Kerala		India	
Year	Population	Decadal growth rate (%)	Population	Decadal growth rate(%)
1971	21347375	26.29	548159652	24.80
1981	25453680	19.24	683329097	24.66
1991	29098518	14.32	846427039	23.87
2001	31841374	9.43	1028737436	21.54
2011	33387677	4.86	1210193422	17.64

Source: Census Reports

The change in fertility and mortality rate has brought significant changes in the age composition of the population (Figure 1) with declining share of child population (0-14 age group) and increasing share of elderly (60+ age) population. With improvements in mortality and fertility, Kerala experienced a leap in working age population, known as "demographic dividend" or "window of opportunity" in demographic literature. Growing population in the state was initially adjusted with outmigration and emigration of workers from the state. The rate of out-migration (both internal and international) from the state has been steadily increasing particularly since 1961. Eventually, there was a turn-around in the Kerala economy from 1987-88 onwards from slow to high growth path (Kannan, 2005; Chakraborty, 2005). Even though the role of remittances in the revival of the economy (Kannan & Hari, 2002) is well acknowledged, there are studies highlighting positive impact of the share

of the working age population and its growth rate to explain the high growth trajectory experienced by the state (Rajan & James 2007; James 2008).



Source: Report of the Technical Group on Population Projections, July,2020

However, though the share of the working age group in the total population in the state increased from 54 per cent in 1991 to 60 per cent in 2011, the share of the young workforce (aged 20-34 years) in working age population has come down significantly (Ajith Kumar, 2020). As evident from Table 2 the share of young workforce has come down from 50 per cent in 1991 to 39 per cent in 2011 and census-based population projections indicated consistent downward movement in the upcoming years as well. This phenomenon indicates that the window of opportunity will be getting over in the ensuing years.

Table 2: Percentage Distribution of Working Age Population (20-64 years),Kerala,1991-2036

Age Group	Share in Working age population				
	1991	2011	2021	2031	2036
20-34	50.3	38.6	36.3	34.3	33.2
35-49	31.1	36.0	34.5	34.5	34.9
50-64	18.6	25.4	29.1	31.2	31.9
Total	100.0	100.0	100.0	100.0	100.0
20-64 ('000)	15660	20055	21643	22083	21925

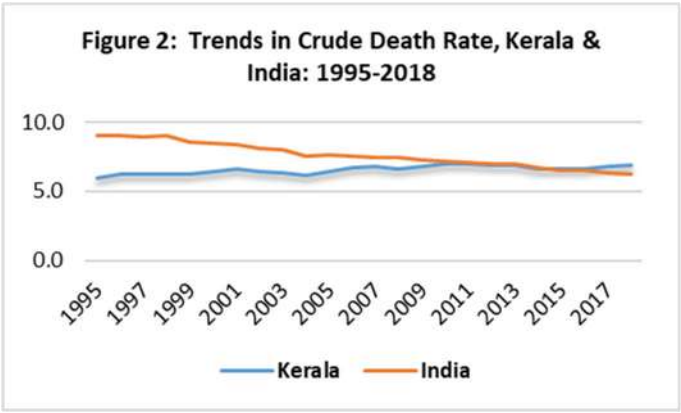
Source: Rajan and Aliyar (2004), for 1991; Report of the Technical Group on Population Projections, July, 2020 for 2011-36

Kerala is becoming an ageing society with nearly 13 percent of its population aged 60 and above in 2011. Currently the state has the highest percentage of aged population among the Indian states (GoK, 2019) and the proportion is comparable with Sri Lanka (14.9), the country with highest proportion of aged persons in South Asia (UN, 2017).

Mortality Transition and Gain in Life expectancy

The state started experiencing declining mortality in the early 20th century and it continued throughout the past century. Studies point out that a major reduction in mortality and resultant increase in life expectancy occurred between 1951 and 1970 (Thomas & James, 2014). The gap between crude death rate (CDR) of Kerala and India narrowed down over time and now both are almost at the same level (Figure 2). In Kerala, CDR experienced marginal

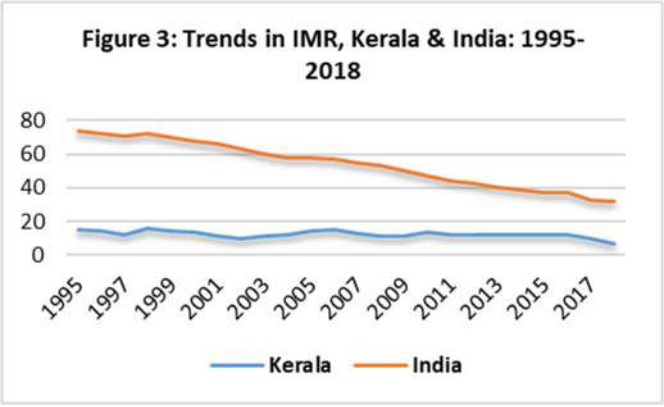
increase in the recent period which also is the consequence of demographic transition that has altered the age structure of the population of the state. Kumar (2010) points out that the increase in CDR in the state can be attributed to the faster increase in elderly population rather than deterioration in medical services.



Source: SRS for various years

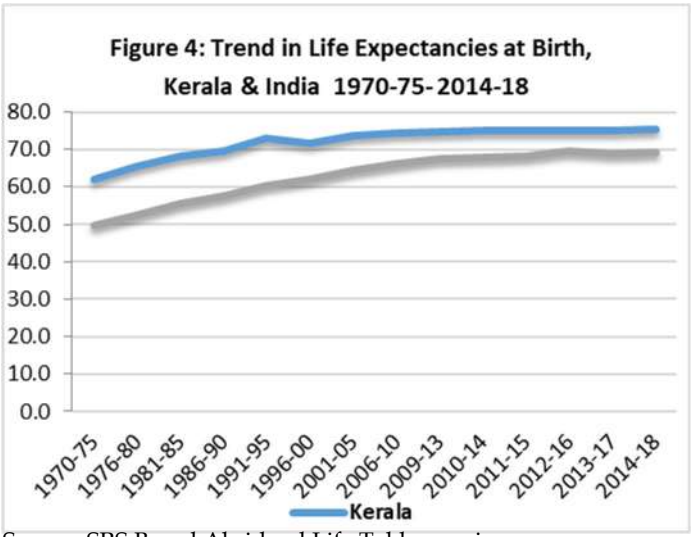
With declining mortality, the state experienced one of the lowest infant mortalities for over a long period of time. Figure 3 shows that though the IMR at the national level is falling consistently, Kerala is still much ahead of the national average. The state has also achieved the global SDG target of reducing the neonatal mortality rate (NNMR) to 12 per 1000 live births and under-5 mortality rate (U5MR) of 25 per 1000 live births. Currently NNMR and U5MR are 5 and 10 respectively (SRS, 2018) in the state with no significant gender and rural-urban differential, another major demographic achievement of the state. The corresponding rates in the country are 23 and 36 respectively (ibid). Kerala's infant mortality rates are comparable with those of the developed countries like the United States of America (5.8), Russia (6.8) and some of the countries in Asia with low

IMR like Qatar, Kuwait and Sri Lanka (IMR ranging between 6 to 8 children per 1000 live births) (CIA, 2020). This small Indian state may now thrive for the lowest IMR in the world as experienced by its Asian neighbours like Japan and South Korea (2-3 infant deaths/1000 live births).



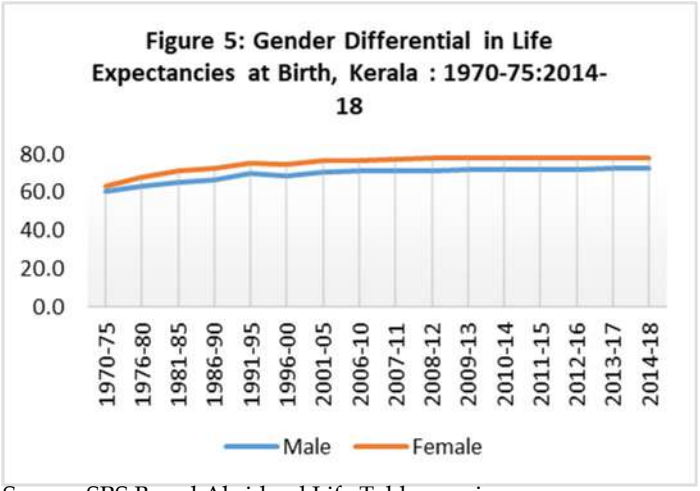
Source: SRS for various years

Figure 4 presents the trend in life expectancies at birth for Kerala and India. A close examination of SRS based abridged life tables clarifies that the level of life expectancy at birth Kerala experienced during 1970-75 was achieved by the country only during 1998-2002. Hence, Kerala was more than 25 years ahead of the rest of the country in terms of longevity. Over time, the gap in life expectancy at birth between Kerala and India has narrowed down substantially and currently a Keralite is expected to live on an average 75 years as against the national average of 69 years (ORGI, 2020). Life expectancy at birth continues to be the highest in Kerala among the major states in India.



Source: SRS Based Abridged Life Tables, various years

However, a gender disaggregated analysis of life expectancies at birth in the state indicates a clear gender differential in longevity favouring women. While females in the state are expected to live by the age of late seventies (78 years), males are expected to live up to early seventies (73 years) resulting in a gap of five years in longevity



Source: SRS Based Abridged Life Tables, various years

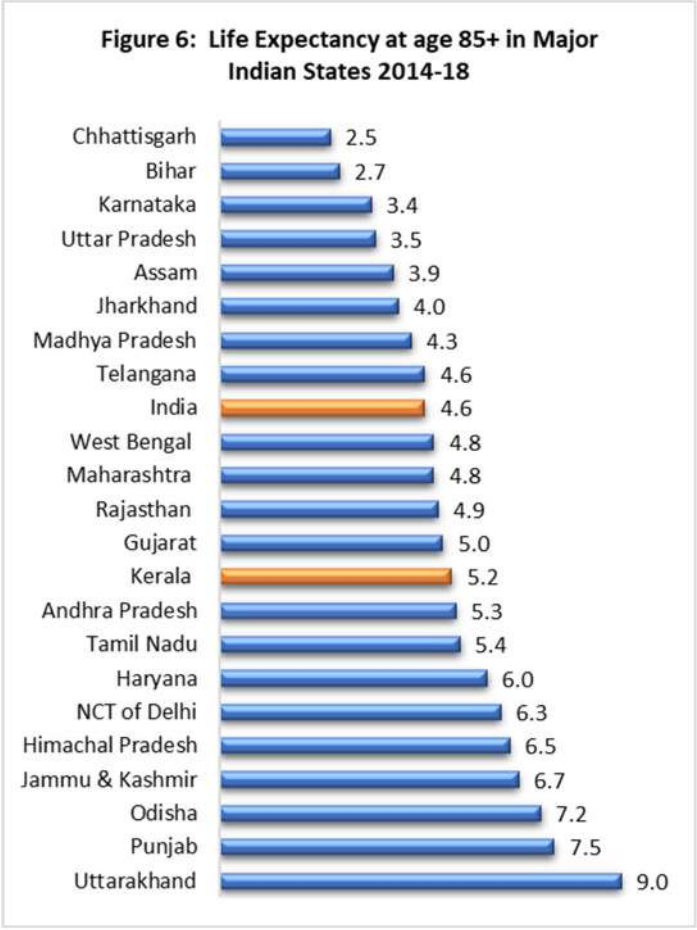
between female and male (Figure 5). This implies that there will always be more women in old age compared to men. This trend in longevity has contributed to the feminization of ageing process in the state.

With mortality transition, an epidemiological transition always sets in marking a change in disease pattern from communicable diseases to non-communicable degenerative diseases such as heart disease, cancer, stroke etc. This eventually tend to redistribute deaths from young ages towards the older ages (age 70 and above) (Omran, 1971, 1983). This was often believed as the third and final stage of mortality transition. Disease burden trends in the States of India between 1990 and 2016 identified Kerala as the state experiencing highest level of epidemiological transition in terms of burden of non-communicable diseases (NCD), followed closely by Goa and Tamil Nadu (ICMR, PHFI, IHME 2017). The disease profile of the state also has undergone obvious changes from communicable to non-communicable degenerative diseases with the latter accounting for three-fourths of the total burden of diseases in the state (ibid) and the longevity has reached above 70 years.

Hence the changes in mortality along with the change in disease pattern and the resulting gain in longevity confirms that the state has reached the tail end of classic mortality transition after which the gain in life expectancies will move only at a very slow pace (Olshansky & Ault, 1986). However, the mortality experiences in many developed countries have already established a 'fourth stage' known as 'age of delayed degenerative diseases' with distinctive features like rapidly declining age-specific mortality rates concentrated mostly in advanced ages (80

and above) irrespective of gender, with underlying causes of death i.e., degenerative chronic diseases showing little change (Olshansky & Ault, 1986). Studies across the globe have confirmed the existence of this fourth stage with deaths from degenerative diseases postponed to oldest ages (Hazra, Dregan,, Jackson & Gulliford 2015; Hazra & Gulliford, 2017) .

But mortality experience in Kerala is yet to confirm the onset of this advanced stage of transition despite a long and impressive history of mortality transition as well as an advanced epidemiological transition. Surprisingly, among the major Indian states, Kerala is lagging behind in terms of life expectancy at age 85 and above (oldest old age group) and states which are yet to achieve the kind of epidemiological transition Kerala is experiencing, have shown better performance in terms of this indicator (Figure 6). However, advantage in adult mortality of north-western states against the southern states was traced by Bhat (as cited in Saikia, Jasilionis, Ram, & Vladimir, 2011) in his seminal work on mortality trends and patterns in India. Recent attempts by Saikia et al. (2010, 2011) and Chaurasia (2010) also indicated a less clear regional pattern of adult mortality in India. One major explanation for this trend was rooted in the data constraints on adult mortality. Given the deplorable registration system in India, often the retrospective demographic and health surveys, especially data from the Sample Registration System (SRS) serves as the reasonable alternative for reliable mortality statistics (Saikia, et al., 2011). However, this source also has some unavoidable limitations, especially while estimating for adult mortality.



Source: SRS Based Abridged Life Table, 2014-18.

The existing literature on mortality, though accepted the reliability of the survey data, especially SRS, to estimate infant and child mortalities, genuine concerns have been raised regarding the accuracy of the adult mortality estimates based on survey data. Unlike child mortality, adult death being a rare event, requires a big sample size in order to get robust mortality estimates (Bhat, 1987; Saikia et al., 2010, 2011). SRS age distributions show significantly lower proportions at old ages (Bhat 1987), more so for

females (Bhat, 1995), a discrepancy that had been attributed to sampling and other errors. Saikia et al. (2010) also observed that unlike child death where the information is provided by mother or guardians, the event of adult death may remain unreported due to lack of informants or may be reported multiple times increasing the chances of duplication and bias. All these complicates the adult mortality estimates in India. The studies in mortality, however, unanimously concluded a near stagnation in adult mortality (also in child mortality) and relatively smaller gains in longevity in the recent period (Chaurasia, 2010) more specifically since the nineties (Saikia et al., 2011) in overall Indian context. In order to understand the regional dimension of the mortality trends much detailed efforts are needed.

It is also probably worth noting in this context that an examination of life expectancy at age 70 of the major Indian states from the same source revealed a gap of two years in longevity between the northern states of Punjab and Jammu and Kashmir (longevity 15 years) and Kerala (longevity of 13 years). While Delhi, Uttarakhand and Himachal Pradesh revealed similar longevity as that of Kerala, no other southern or eastern states are found to have such levels. But the gap in longevity increases at age 85 and above (Table 3). Even eastern state of Odisha, north-western state of Haryana and southern states of Tamil Nadu and Andhra Pradesh exhibit better longevity at age 85 and above as compared to Kerala (Figure 6).

Table 3: States with Higher Longevity Compared to Kerala both at age 70 and 85+

States	LE at 70	Difference with Kerala	LE at 85+	Difference with Kerala
Himachal Pradesh	13.3	0.3	6.5	1.3
Jammu & Kashmir	14.8	1.8	6.7	1.5
Delhi	13.8	0.8	6.3	1.1
Punjab	14.9	1.9	7.5	2.3
Uttarak-hand	13.4	0.4	9.0	3.8
Kerala	**13.0**	**0.0**	**5.2**	**0.0**

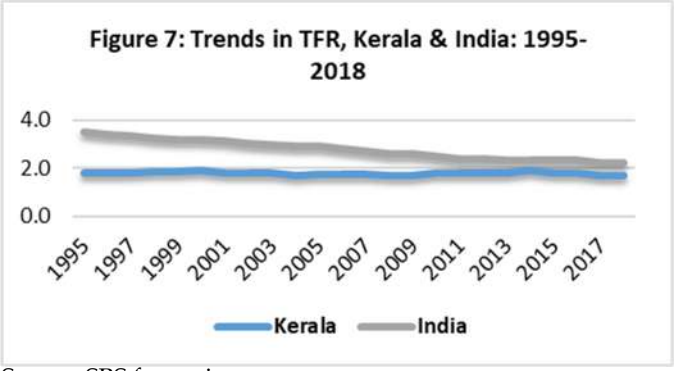
Assuming uniform pattern of under enumeration of older people in different states, it can be safely asserted that in states experiencing much lower level of epidemiological transition, those who manage to survive at age 70 often are the healthiest lot of old people and a good proportion of them may also survive in the age groups above 80. This is not the case for Kerala where people on an average remain alive up to their seventies irrespective of their health status and only a section of them who are the heathiest make progression to the older ages above 80. Probably this phenomenon partly explains why states like Haryana or Odisha indicate a better longevity at age 85 and above.

For Kerala, the increment in life expectancy at birth during 1970-75 to 2001-05, when compared with the model mortality improvement schedules, found to follow the fast trajectory and the probability of survival up to age 70 was also the highest among the Indian states (Chaurasia, 2010). A further increment in life expectancy, particularly among the older females was documented by Thomas and James

(2014), which they believe can serve as the point of initiation for the advanced stage of mortality transition, at least among females.

Fertility Transition and Below Replacement Fertility

Fertility transition started in the state during the sixties and from 1971 onwards, when the total fertility rate (TFR) was 4.1 children per woman, it experienced consistent decline which was much earlier compared to the other states in India. Nearly seventy percent of fertility decline during the seventies have been attributed to the serious implementation of family planning measures in the state (Zachariah et al., 1994). The state achieved the replacement level of fertility of 2.1 children per woman in 1988. As fertility declined at a faster rate in Kerala compared to that in India, the gap between India and Kerala steadily widened till the early 1990s and the gap has been slowly narrowing down as the progress towards lesser number of children has started for almost all Indian states. TFR in Kerala and India are 1.7 and 2.2 respectively (SRS 2018). While there is no urban-rural differential in TFR in Kerala, at the national level TFR reached below replacement level for urban areas with 1.7 children per woman but it is slightly above the replacement level (2.4 children per woman) in the rural areas (SRS 2018). Figure 7 presents the trend in total fertility rate (TFR) for Kerala and India during 1995-2018.



Source: SRS for various years

The declining trend in fertility is observed among all social and religious groups in the state. As per Census 2011 data on religious communities, TFR among Muslim women in Malappuram, a district, with highest decadal population growth rate, also is as low as 2.2 which is much lower than the corresponding figures in the north Indian states (Rajan, 2015). Out of 14 districts in the state, the Hindus achieved replacement level fertility in all the districts while Muslims achieved the same in eight districts with remaining six being in the range of 2.1 to 3.0 children per woman (Ghosh, 2019). This is indeed commendable given the fact that fertility even among the Hindus is yet to reach the replacement level in significant number of districts in the states of north-central India which include Rajasthan, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, and Jharkhand. Moreover, none of the districts in Bihar have attained such low levels of fertility even for the Hindu population (ibid).

The unique feature of fertility transition in Kerala is the experience of sub-replacement level of fertility for relatively longer period. TFR in Kerala is found to remain stable in the range of 1.7-1.9 children per woman for nearly

three decades and unlike many European countries (Billari & Kohler, 2004; Kohler, Billari & Ortega, 2006) or more recently in some Asian countries (Westley, Choe & Retherford, 2010), it has not gone further down to the lowest-low levels (TFR at or below 1.3). However, states like Himachal Pradesh, Jammu and Kashmir, Odisha and West Bengal, where the declining trend in fertility was set in with a considerable time lag as compared to Kerala, TFR in the urban areas have achieved the lowest-low levels (ranging between 1.1-1.3 children per woman) (SRS 2018). Similarly, southern states of Tamil Nadu Andhra Pradesh and Telengana, though achieved the replacement level fertility after Kerala, have now exhibited a lower TFR compared to Kerala. Even Karnataka where the demographic transition has been described as 'slow in pace and low in scale' (Sekher, Raju & Sivakumar, 2001) is at par with Kerala in terms of their TFR despite achieving the replacement level much later (ibid).

Discussion

Demographic transition in the Kerala society is in the matured stage with certain inevitable changes in the mortality, fertility and age structure of the population, believed to be the final outcomes of the demographic transition process. Being the forerunner in transition process, even under much unfavourable circumstances, Kerala is currently facing certain challenges which are yet to be visible in the national scenario. One among this is the age structure transition following which Kerala society is increasingly becoming an ageing society. The decline in the young workforce, caused due to the demographic transition, triggered increasing demand for young workers

within the state, especially for physical labour. Hence the wage rate experienced manifold increase and now it is one of the highest in India. Scarcity of semi-skilled/unskilled workers coupled with higher wage, sustained opportunities for work, and relatively better treatment of migrant workers in the state have made Kerala an attractive destination for labourers from other states. A moderate estimation maintains the presence of 3.5-4 million intestate migrants in Kerala (Rajan, Peter, Mishra & Narendran, 2018). Hence, following demographic changes, in-migration of labourers has become an all-pervasive phenomenon in the state. This will eventually pave the way for a 'multicultural society', an outcome of advanced demographic transition. The future pace of transition, therefore, will be determined by how fast the immigrants are integrated with the current level of human development of the state (Lesthaeghe 2014; Rajan et al., 2018).

To conclude the mortality transition in the state, it seems that there remains untapped scope to postpone the age-specific mortality rates from degenerative diseases further to the advanced age groups. Kerala, since its formation, could effectively prevent the infectious and communicable diseases through cost-effective appropriate medical technologies and successful implementation of various health policies, altered the maternal and child health scenario and eventually triggered mortality transition. But to sustain this gain in mortality the state now needs to focus on the health problems of adulthood that are much harder to prevent. As rightly pointed out by Saikia (2011), India needs to learn from international

experiences where failure to grapple with man-made and degenerative diseases led to long-term stagnation or reversal in the trend of adult death. In that context, Kerala, the state with the highest proportion of elderly among the major Indian states and the pioneer of epidemiological and health transition in the country need to consider such experiences with far more seriousness.

Improved survival in the advanced age groups is often considered as a function of medical advancements and improved public health intervention targeting elderly (Olshansky & Ault, 1986). Though the state has already started recognising the unique health needs of 'elderly' as a group, it may need further targeted interventions to address the intra-group differentials in mortality to postpone the death rates at advanced ages. This also calls for age-sex disaggregated data across major killer diseases in the advanced age groups. This would not only provide a better understanding of the transitional process but also throw light on the changing disease pattern or emergence of new major killers, if any, in the 'oldest' age groups.

Being at the final stage of demographic transition, a near convergence of demographic indicators, cutting across all social class is expected. However, there are certain tribal pockets in the state like Attapady in Palakkad where the maternal as well as infant and child mortality rates are still much above the state average indicating marginalisation of this group in the land of high human development. The state should strive to address the needs of tribal population and other marginalised groups in an inclusive manner to ensure that no one is left behind.

Below replacement fertility in Western countries and more recently in several east and south-east Asian countries has brought about a new era of demographic transition, referred as second demographic transition (SDT) in the literature. The distinctive features of the SDT are greater distrust towards institutions reflected through clear postponement of marriage and childbearing with fertility falling far below the replacement level, rising divorce rates and disruption of nuclear families giving rise to a plethora of different living arrangements and an increase in pre-marital cohabitation (Lesthaeghe, 1983; Leete, 1994; Surkyn & Lesthaeghe, 2004; Van de Kaa, 1987,2002). These changes, stemming from the demand of more egalitarian gender roles, are more pronounced among men and women with more schooling and employment outside agriculture and other domestic industries and less employment security (Lesthaeghe, 2010). In the Asian context cohabitation being socially uncommon and marriage and child bearing being intimately related, it is predominantly the change in marriage trends that has governed the post-replacement fertility trends (Jones, 2007, 2010; Jones & Gubhaju, 2009; Retherford, Ogawa & Matusukara, 2001).

However, contrary to the western experience as well as the experience of some of the Asian countries, Kerala has exhibited a sluggish nature of fertility transition in post-replacement level of fertility decline with TFR hovering around 1.7 to 1.9 children per woman for more than three decades. Though analysing all the major indicators of SDT is beyond the scope of the paper, it has been seen that in Kerala, postponement of parenthood

within the marital union, as identified by increasing use of spacing methods to delay the first birth is increasing, albeit at a slow pace (James &Goswami 2012). This phenomenon, to a limited extent, indicates changing value system around childbearing which is one of the major preconditions of SDT. But according to National Family Health Survey (2015-16), median age at first marriage among women in 25 -49 age group is 21.5 years and percentage of never married women in the same age range is merely four percent. Divorce rate also has not increased to any considerable extent indicating that unlike the other Asian countries, institutions of marriage and family still have relevance in the post-transitional Kerala society.

To sum up the demographic transition in Kerala, fertility is nearly stagnant at below replacement level and life expectancy is higher than 70 years for quite a long time. This signifies that the state has completed the classic demographic transition and entered the post-transitional phase. Declining growth rate of population with two districts exhibiting negative growth rate during 2001-11 and the increasing labour migration following the age-structure transition are the two major post-transitional phenomenon that fall in line with propositions of SDT, as outlined by Lesthaeghe (2014). However, the continued and sustained importance of marriage and family in the post-transitional Kerala society indicates that a strong sense of 'familism', as discussed by Caldwell and Schindlmayr (2003) and Lesthaeghe (2010) to explain the fertility experience of Southern European countries has its relevance in the Kerala society as well. A key factor like 'familism'- a family-centred welfare system, a family-based

production system and a family-oriented value system (Bettio & Paola, 1998) may postpone the onset or full experience of SDT in the state.

Conclusion

From the discussion, it is pretty clear that just like the unconventional onset, the trajectory of demographic transition, even in the advanced stage, in Kerala may not just replicate the already established routes of mortality and fertility decline experienced in many European and Asian countries. Instead, the future course of transition may follow a path suiting its own socio-economic and cultural context. The socio-economic implications of age-structure transition, especially in terms of rapid ageing and in-migration of labourers from other states of India are quite visible. Hence the future pace and trajectory of the transitional process will be determined by how effectively the Kerala society can address the needs of growing ageing population as well as the specific needs of the migrant labourers from other states experiencing much lower levels of human development. To realise any further meaningful change in the demographic scenario, adult mortality needs to be pushed further and for that it is necessary to have a disaggregated understanding of the disease profile of elderly with advancement of age. Similarly, the post replacement level fertility transition broadly confirms the strong relevance of institutions of marriage and family in Kerala. However, following an impressive history of educational advancement, especially among women, it may not be wrong to expect a change in the value system in tandem with that of SDT, favouring more egalitarian gender roles and subsequent changes in the institutions of

marriage and childbearing in post-transitional Kerala society. Below replacement or an ultra-low fertility (TFR at or below 1.3) and the resulting consequences of rapid ageing or negative growth rate of population have their own demographic repercussions. The state needs to recognize this at the earliest to create a conducive environment of non-family-based support systems as well so that the present level of TFR can be sustained. Nevertheless, it also needs to be accepted here that the available large-scale surveys are not specifically meant for understanding the change in 'value-system' that trigger the changes in the demographic parameters in the society. Hence It is necessary to go beyond the large-scale surveys to understand the dynamics of marriage and family formation to unveil the future trend of fertility transition in the state.

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CSES

Centre for Socio-economic & Environmental Studies
Khadi Federation Building, N.H. By-Pass, Padivattom, Kochi - 682 024
Tel: 91-484-2805107, 2805108
Email:csesindia@gmail.com
www.csesindia.org