IARIW 2025

IARIW 2025

Monday, March 24 & Tuesday, March 25

Empowering Women to Address Inequality Among Older People: Challenges for the 'Silver Economy'

Suresh Chand Aggarwal

(Institute for Human Development, New Delhi)

sureshchag@yahoo.com

Bishwanath Goldar

(Non-Resident Senior Fellow, Institute of Economic Growth, Delhi)

Paper prepared for the IARIW-Hitotsubashi University Conference "Population Ageing: Implications for Economic Measurement and Economic Performance"
March 24-25, 2025
Session 5: Poverty in Old Age (parallel session 2)
Time: Monday, March 24, 2025 [15:45-17:15 JST]

Empowering Women to address inequality among older people: Challenges for the 'Silver economy'

Suresh Chand Aggarwal[1]
Bishwanath Goldar[2]

1. The Context

There is a growing realization and concern that many countries in the World, both developed and developing, are facing the challenges of a 'silver' economy, in which both the number and the share of older people is increasing at a rapid pace (Liebig and Sebastian 2003; Niti Aayog 2024). The recognition to the challenges of ageing is however not very recent. In 1990, the UN had designated 1 October as the International Day of Older Persons to draw attention towards older persons and ageing. Concerned about the ageing problem, UN recently adopted 2020-30 as the 'Decade of Healthy Ageing' and acknowledged that because of the vast adverse impacts of ageing, a whole-of-society approach is needed to face these challenges. Ageing implies financial insecurity, and cost of health care burden and has economic and social security challenges.

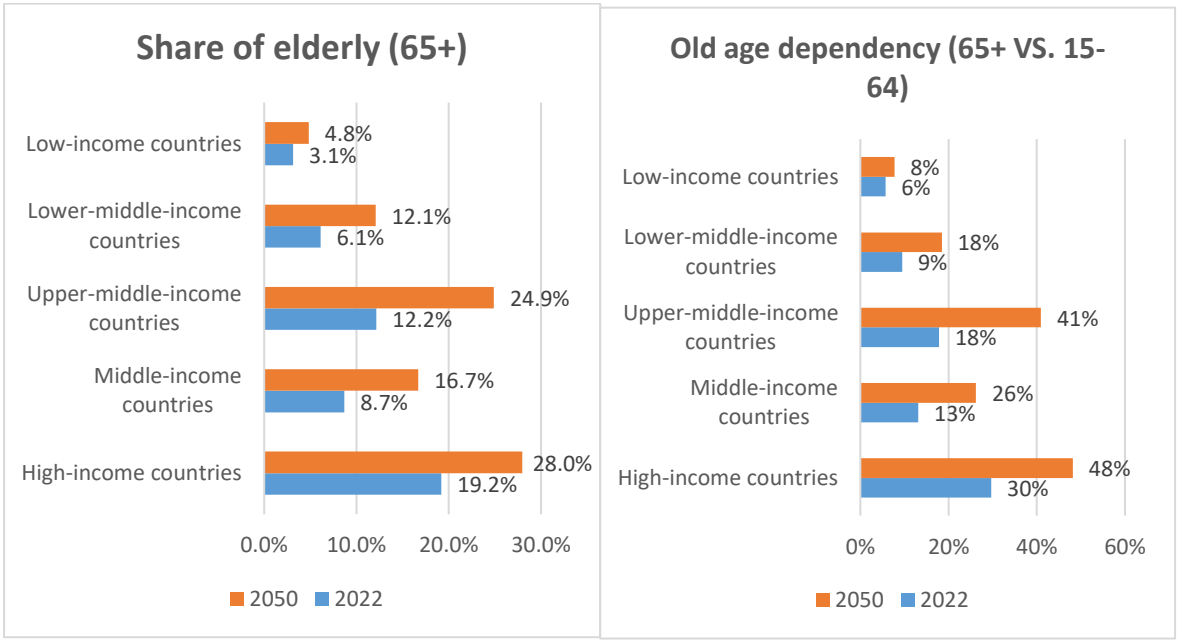
While globally, there were 783 million older (65+ years)[3] persons in 2022 (9.8 percent of the total), the numbers are expected to be more than 1600 million by 2050 (16.5 percent of the total). Simultaneously, the number of very old (75+ years) is expected to be more than double from 3.6 percent in 2022 to 8 percent in 2050 (from 290 million to 775 million). So, while the number of elderly (65+) is bound to increase by more than 100%, the increase would be much faster at 167% and 192% respectively for very old (75+) and 80+ old persons. It is also evident from the available data from UN that the female elder population (65+) would also become almost double in 2050 - from 427 million in 2022 to 853 million in 2050. As a result of the change in the age composition due to different fertility rates and life expectancy in different regions of the World, the share of elderly population in total population and the dependency rate of the elderly on working age population[4] are bound to increase across the world-irrespective of the income status and geographical boundaries.

The status of the elderly in 2022 and 2050 - the share and the dependency rates for different regions based on income are presented in Figure 1. It is evident that in both 2022 and 2050, the share of elderly is highest in the high-income countries and lowest in low income countries but the share will increase across all income countries. However, the

[1] Visiting Professor, Institute for Human Development, New Delhi
[2] Non-Resident Senior Fellow, Institute of Economic Growth, Delhi
[3] ILO describes persons with age 65+ as older persons
[4] Dependency ratio is Population of 65+ age vs. population of 15-64 age

extent of increase is relatively less in both the low-income countries and the high-income countries, possibly due to the theory of demographic transition, and the increase in middle income countries-both lower and upper middle income is quite similar, where the share of the elderly is expected to double in these countries. Almost a similar picture emerges for the old age dependency ratio- it is highest in the high-income countries and low in low income countries. So, the burden of elderly population is and will be more on the high-income countries than on low income countries but the burden will keep on growing and may become unmanageable even in high-income countries with almost half of the elder population compared to the working age population.

Figure 1: Share of elderly (65+) and the old age dependency ratio (65+) for different income-based countries



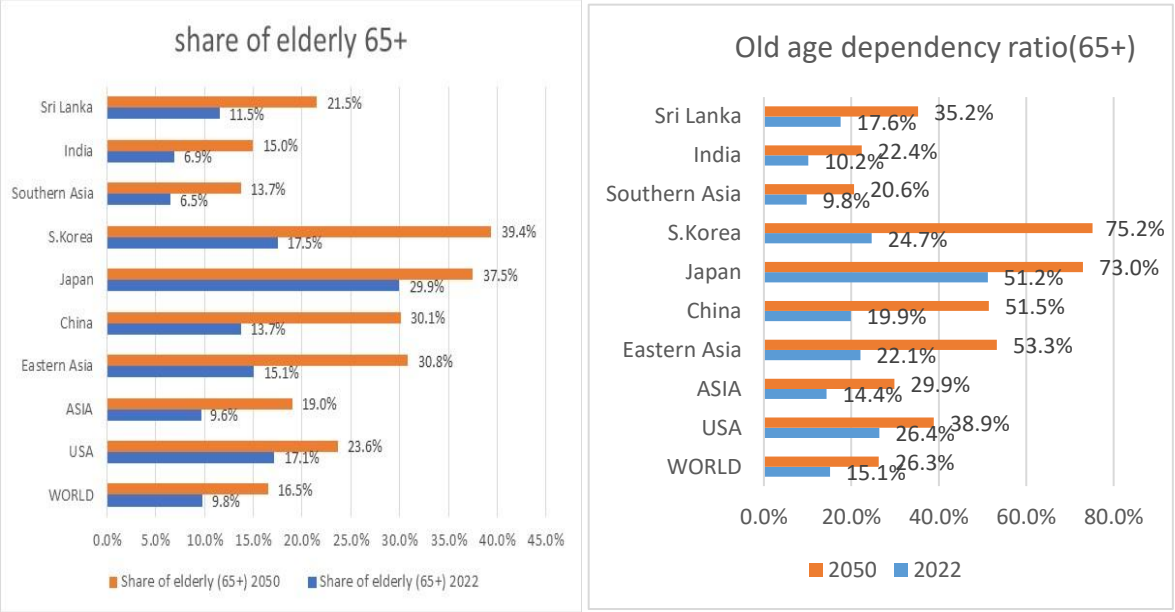
Source: Authors Computations from World Population Prospects (2022), UN Population Division

Based on the picture emanating from other regions and some selected countries (Figure 2), we may conclude that the concerns about the rising population of the elderly are everywhere around the globe. The share of elderly and the old age dependency ratio is higher than the World average and is expected to continue the trend. In Asia, eastern Asia being richer, has higher share of the elderly as compared to south east Asia. As observed earlier in the case of high-income countries, the richer countries like USA, Japan, and South Korea have both the share of elderly as well as the dependency ratio higher than the other selected countries with lower level of income, e.g. China, Sri Lanka, and India. So, these countries – USA (23.6%), Japan (37.5 percent), Republic of Korea (39.4 percent), China (30.1 percent), Sri Lanka (21.5 percent), and India (15%) are all expected to experience large proportions of elderly (65+) by 2050[5] and face the challenges of ageing population.

[5] All computations are from World population Prospects 2022. UN, available at https://population.un.org/wpp/

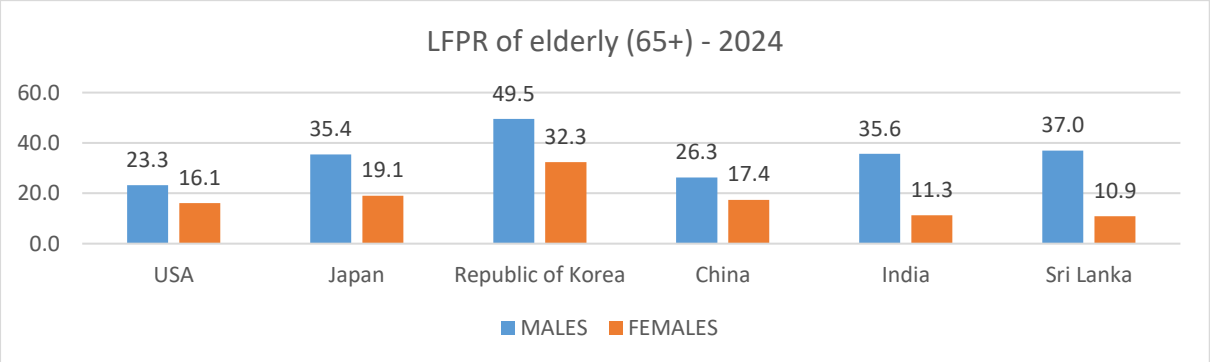
Some of the main challenges which the elderly generally face in any country are the economic dependence on others due to lack of financial security, need for health care, problem of living alone, and lack of proper social security. The challenges are faced more by women due to the low-income security, relative poverty, more likelihood of being widow because of longer life expectancy, more dependent on family members or others, likely to be less literate, lower access to medical and financial services, etc. The economic dependence of women also arises because of their lower work participation rate. Figure 3 depicts that elderly females in all the selected countries face inequalities in work participation and have lower labour force participation rates than the males of their age. It means that elder females are not as economically active in the labour market as elder men are, thus aggravating their economic deprivation.

Figure 2: Share of elderly (65+), and the old age dependency ratio (65+) for selected regions and countries



Source: Computations from World Population Prospects (2022), UN Population Division

Figure 3: LFPR of the elderly (65+) males and females in selected countries in 2024



Source: ILO-LFPR, (2024)

It is in this context that the paper focuses on the status of elderly[6] in India, especially of the elderly women. It aims to understand the kind and the extent of the discrimination or deprivation, which Indian elderly females face. An effort has been made to capture some of the discrimination that exist in different regions[7] (States and Union Territories (UTs)) of India by identifying different indicators and combining them into a 'Gender Deprivation Index'. The index may help us in better understanding of the underlying deprivations that exist between elderly males and females, and thus in formulating appropriate policies by which the older women could be empowered.

The need for another index is felt because of the fact that though many indices do exist which try to capture (i) gender equality-Gender equality index by EU or the Gender Development Index and the Gender Empowerment Measure initially and Gender inequality index later on by UNDP, or (ii) gender gap-Global Gender gap by WEF, or (iii) gender empowerment- Women empowerment index (WEI) by UNICEF, HT WEI in India by Bansal (2017)[8], Gender Vulnerability Index (GVI) and the recent Patriarchy Index[9], but the focus of all these have been to measure different aspects of women's status and position to assess the loss of achievement in general, and the target has not been the gender inequality of the 'elderly women'. Since the elderly women face many inequalities, therefore, the challenges to them is even greater. Therefore, the current efforts at measuring the deprivation of elderly women would be different from the other known indices.

2. Status of Elderly in India

India had 10.5 percent of its population (149 million) as older citizens (aged 60+) in 2022, which is projected to increase to 14.9 percent (235 million) by 2036, and 20.8 percent (347 million) by 2050[10]. The share of the very old people (aged 75+) is estimated to increase even faster, from 2.3 percent in 2025 to 5.2 percent in 2050. As a result, the old age dependency ratio is projected to increase to 31.5 in 2050 from 17.6 in 2025. 25% of the elderly report poor health with chronic diseases (75%), some disability (40%), some mental health issues

[6] While internationally, the elders are defined as persons with age 65 and above, in India people with age 60 and above are considered elder. The main reason is that most people in India retire from work at the age of 60.

[7] India is a federal country, which is geographically divided into many units for administrative purposes. The major units of administration are called 'States' and are administered by own elected State governments. The smaller units are known as 'Union Territories' and generally controlled and administered by the Central Government but in few cases are administered by their own elected bodies.

[8] The HT WEI by Bansal (2017) is based on 8 indicators and the data is mainly taken from NFHS-IV (2015-16).

[9] The patriarchy index (Singh et.al. 2021) has tried to capture gender inequality across states and has used five domains-male domination, generational domination, patrilocality, son preference, and socio-economic domination. Few indicators in each domain were selected.

[10] Estimates obtained from UN population Projections.

(20%), hearing loss (43%), etc. Besides health, the elderly also faces financial & economic problems- financial dependence, and social problems too.

In India, older adults are not a homogenous group. There are gender, class, caste, and regional differences. The elderly females in India score lower than males on several crucial parameters – higher dependency ratio in 2021 (16.7 vs.14.8%), low workforce participation rate (20% vs.49%), high economic dependence (90% vs. 49%), low level of education (8% vs. 36%), lower access to health (75% vs. 96%), low access to digital devices (33 percent vs. 48 percent), lower level of health insurance (17% vs.20%), and lower access to old age government pension scheme(21% to 24%) . Relatively high life expectancy at birth as well as at age 60 for females (71.4 vs. 68.6 years at birth, and 19.2 Vs. 18.3 at age 60) also makes them vulnerable to be widows (50% vs. 17%) due to early death of the spouse. Lack of social and financial security, poor physical health and the stigma around widowhood increases their vulnerability. A typical elder woman thus faces low income, has poor health, is more likely to be widowed, living alone[11], and is mainly dependent on family- either the husband or the children for support. Elderly women thus lose out at every stage.

There is however, a large interstate variation in absolute levels and growth (and hence share) of the elderly population in India, mainly because of the varying stages and pace of demographic transition across states, and in availability and access to education, health and social security, and the inequality is likely to further widen in future.

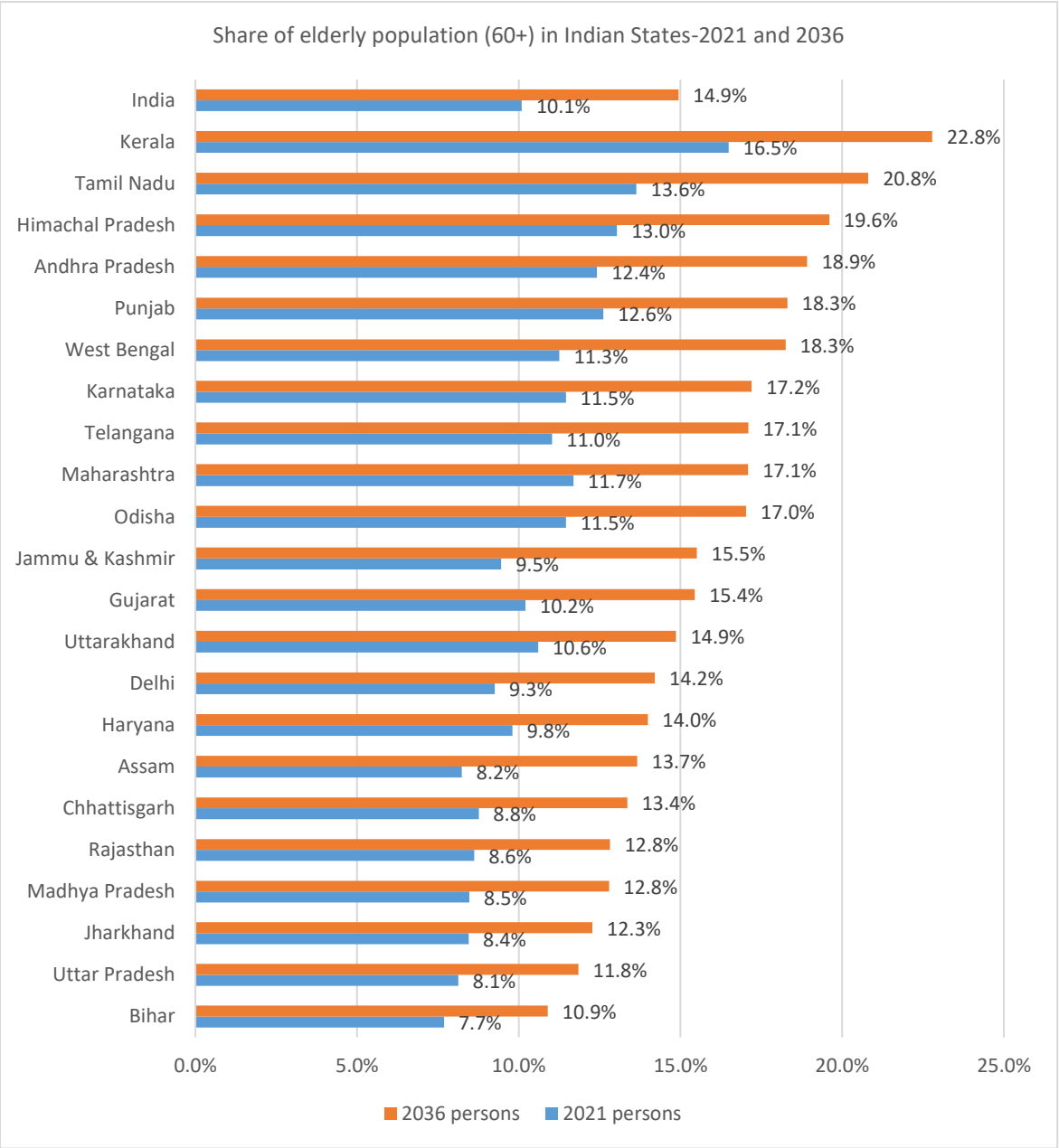
2.1 Share of elderly in India

A distinguishing feature of ageing in India is the significant interstate variation in the share of the elderly population. At the national level, the share of the elderly population is projected[12] to increase from 10.1 percent in 2021 to almost 15 percent in 2036 (Figure 4). Most of the states reporting a higher share of the elderly population than the national average in 2021 are Kerala, Tamil Nadu, Himachal Pradesh, Andhra Pradesh and Punjab, and the inequality is expected to widen significantly by 2036. While many Indian states reporting higher fertility rates and lagging in demographic transition, such as Bihar, Uttar Pradesh, Jharkhand, Madhya Pradesh and Rajasthan are expected to see an increase in the share of the elderly population between 2021 and 2036, but the increase in the share will be smaller and the level of elderly population will remain lower than the Indian average.

[11] 6.6% of elderly females live alone in 2017 as compared to 1.6% of males

[12] Estimates based on Population Projections for India and States -2011-2036, Report of The Technical Group on Population Projections (2020), MOHFW, GOI

Figure 4: Share of elderly population (60+) in Indian States-2021 and 2036

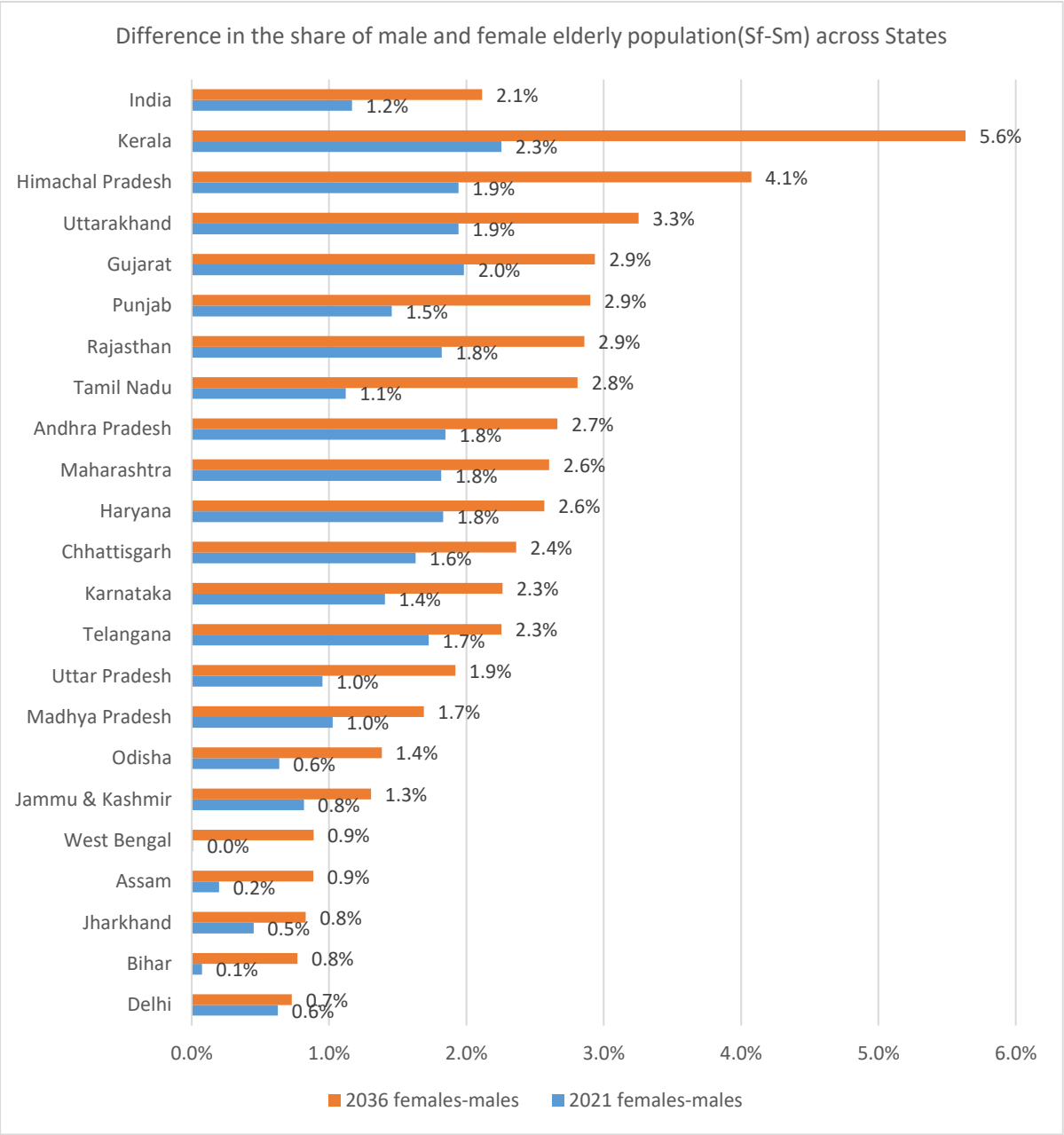


Source: Authors Computations based on Population Projections for India and States -2011-2036, Report of The Technical Group on Population Projections (2020), MOHFW, GOI

However, we also notice (Figure 5) that the share of elderly varies between genders and is higher for females than males, and the inequality is significant in few of the states. The inequality is also expected to widen from 1.2% in 2021 to 2.1% by 2036 making females more vulnerable- both socially and financially. The difference in the share will grow faster in few of the states with higher life expectancy of women and lower growth in population.

As a result of higher share of elderly females, the old age dependency ratio of females is observed to be higher than males and the inequality between the two is also expected to increase (Figure 7).

Figure 5: Difference in the share of female and male elderly population across States



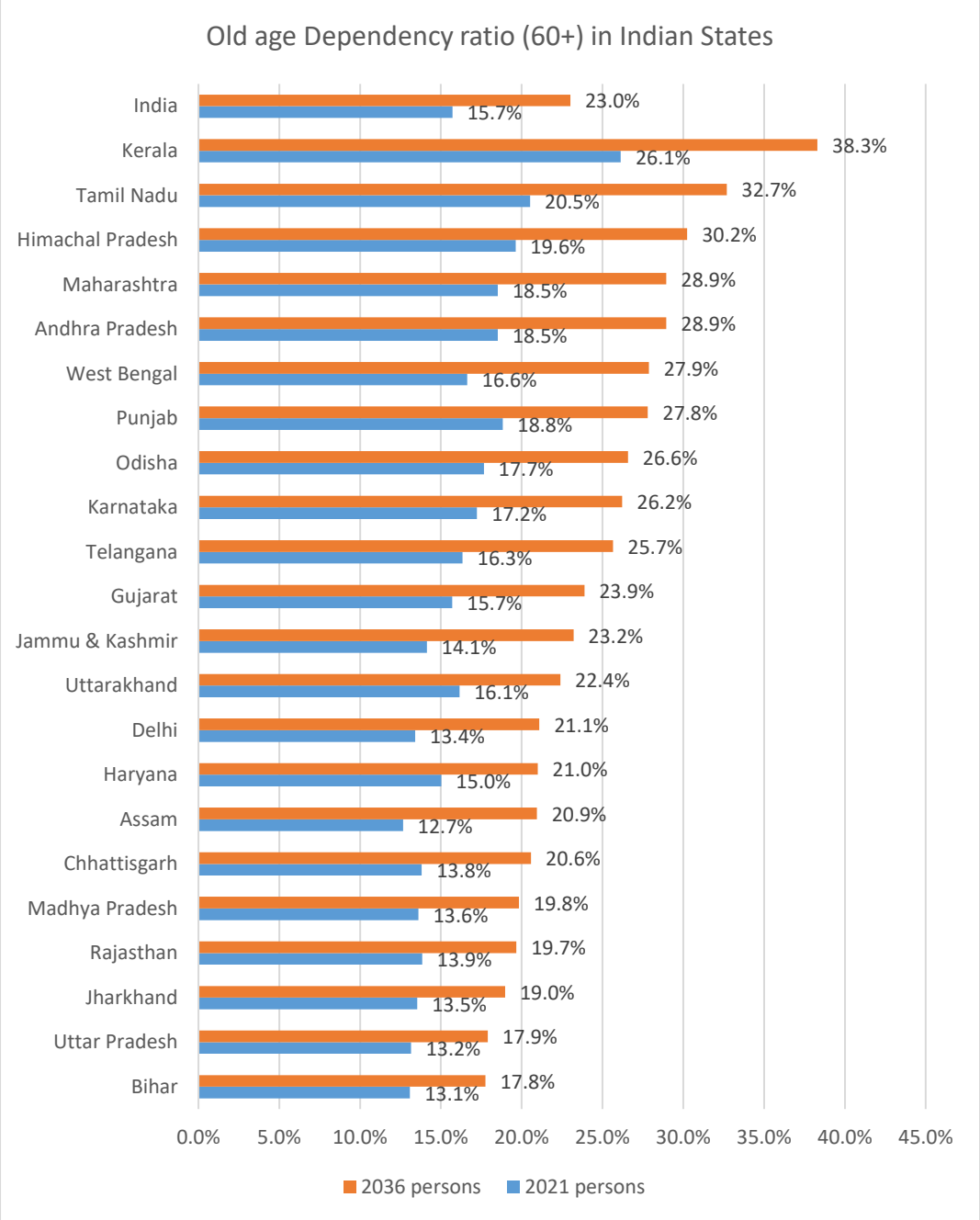
Source: Authors Computations based on Population Projections for India and States -2011-2036, Report of The Technical Group on Population Projections (2020), MOHFW, GOI

2.2 Old-age dependency ratio

The old-age dependency ratio of a population represents the number of persons aged 60+ years per 100 persons in the 15–59 years (or working-age) group. The higher the ratio, the greater the old age-related dependency, reflecting higher levels of demand for care from immediate family and society. It also increases the social and economic dependence of the elderly on the working young population. Population projections indicate that in 2021, there were about 16 older persons per 100 working-age persons in India, with significant variations across regions (Figure 6). We find that the state with high share of elderly in total

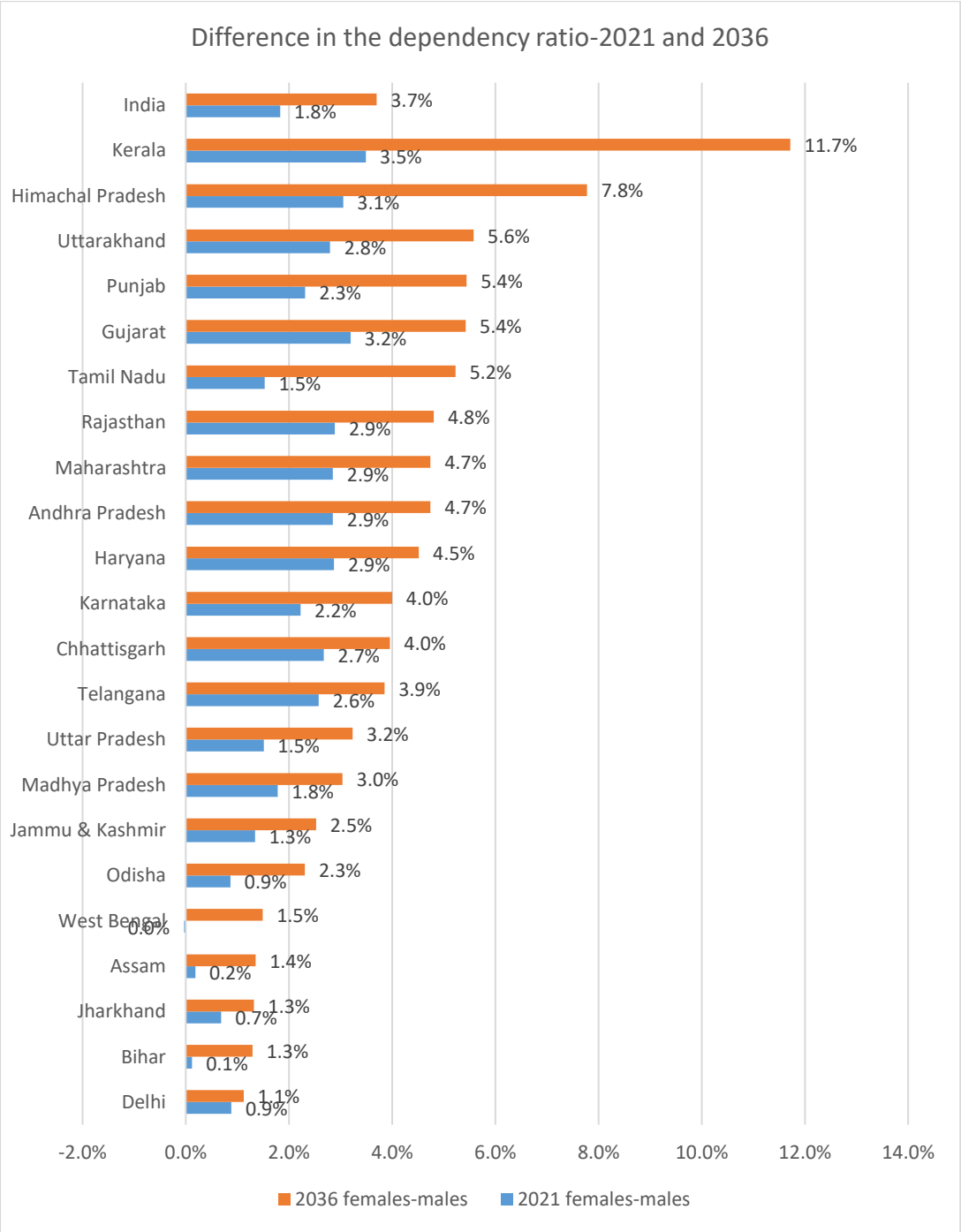
population has higher old age dependency ratio and the correlation between the two is very high- almost 0.99. The states with high old age dependency ratio are Kerala, Tamil Nadu, Himachal and Maharashtra, and the other extreme are Bihar, Uttar Pradesh, Jharkhand, and Rajasthan. It is observed from Figure 7 that the old age dependency is higher among elder females and the inequality at the all India level is likely to further increase from 1.8 percentage points in 2021 to 3.7 percentage points in 2036.

Figure 6: Old age dependency ratio- 2021 and 2036



Source: Authors Computations based on Population Projections for India and States -2011-2036, Report of The Technical Group on Population Projections (2020), MOHFW, GOI

Figure 7: Difference in the Old age dependency ratio between females and males- 2021 and 2036



Source: Authors Computations based on Population Projections for India and States -2011-2036, Report of The Technical Group on Population Projections (2020), MOHFW, GOI

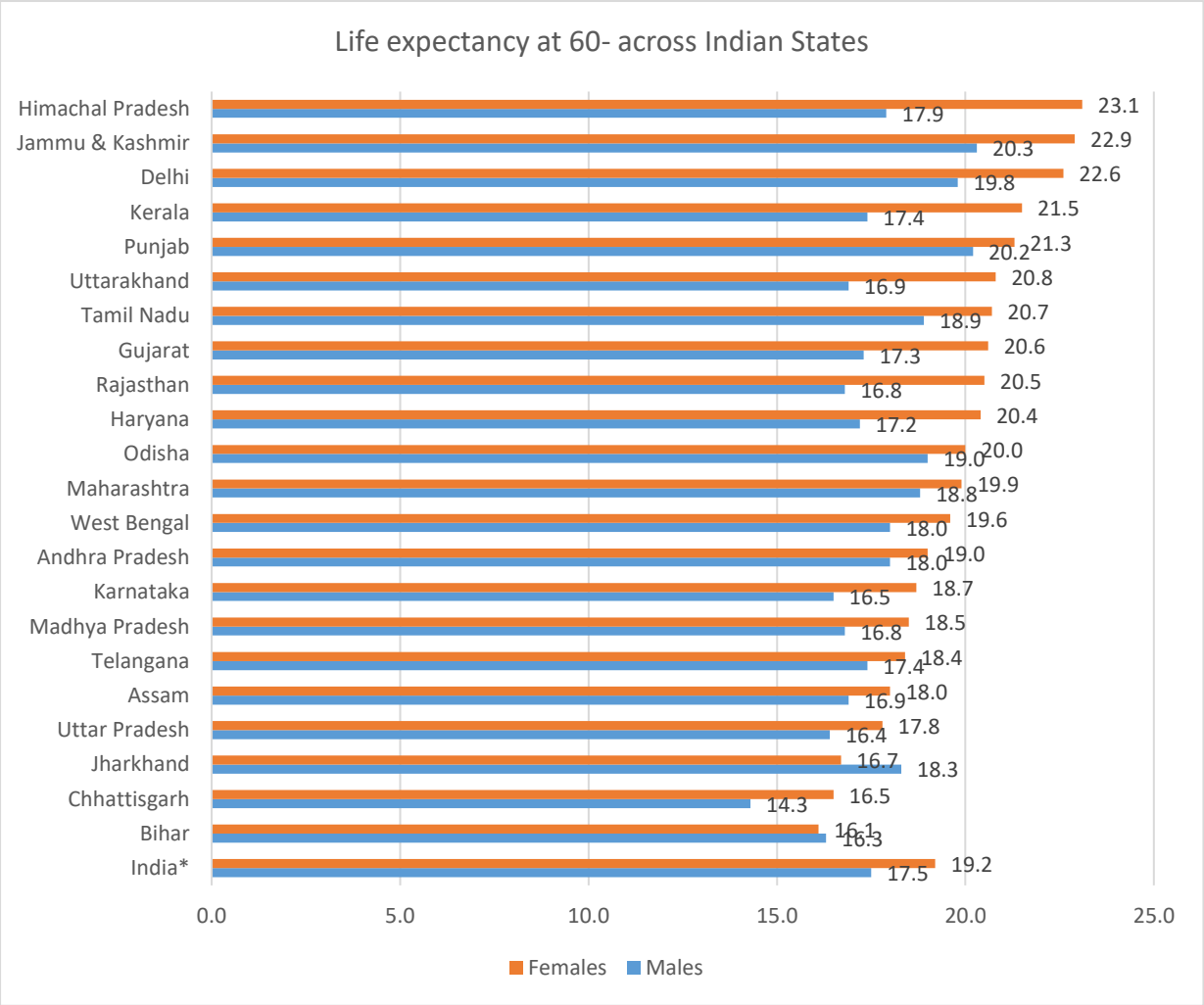
The share of elderly in total population and the old age dependency rate however, depends on the life expectancy of the persons. Higher is the life expectancy, longer a person will live and will need support from family and society. Since the life expectancy is gradually improving over the years in all the countries and in the states of India, it poses a challenge of an ageing population. However, the gender-wise composition of population also is

affected by the current and expected sex ratio of the population. We first give a brief view of life expectancy and sex ratio in Indian states and then explore the challenges of an ageing female population.

2.3 Life expectancy at age 60 for females and males

Life expectancy at 60 years (75 years) reflects the average number of years that a person of 60 years / 75 years could expect to live, based on the sex and age-specific death rates prevailing at the time (in the specific year that he/she attained 60 years/ 75 years of age), in the country or state of his/her residence. In India, the lifetables are prepared by the Office of The Registrar General & Census Commissioner, India, Ministry of Home Affairs, Government of India, New Delhi and the latest one is available for the period of 2016-2020.

Figure 8: Life expectancy at age 60 for females and males in India -2016-20



Source: Authors computations from SRS Based Abridged Life Tables-2016-20, Office of The Registrar General & Census Commissioner, India, Ministry of Home Affairs Government of India New Delhi

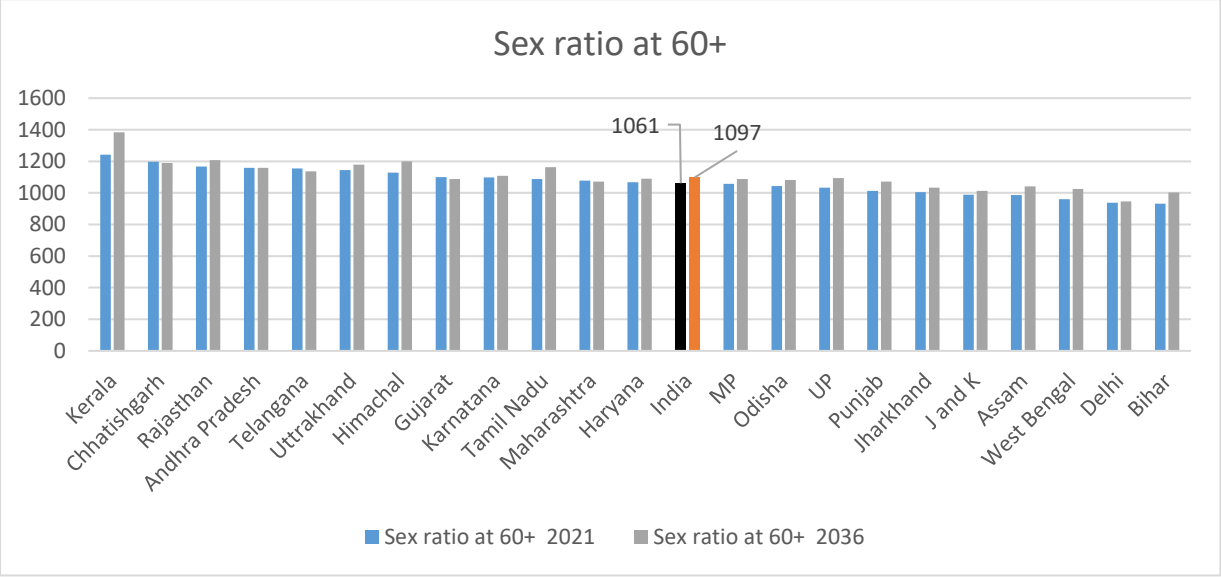
It is evident that life expectancy (LE60) at 60 is higher for females than males and it varies among states. It is estimated to be very high for females in the States of Himachal Pradesh,

Jammu & Kashmir, Delhi and Kerala, and relatively low in Bihar, Chhattisgarh, Jharkhand and Uttar Pradesh.

2.4 Sex ratio at 60+ in 2021 and 2036

Another demographic characteristic which reflects the status of elder population is the sex ratio of the total population of age 60 and above. It is the per thousand distribution of the total population of all ages 60 and above of females to males. Any ratio above 1000 shows that there are more females than males and their dependence on males tend to increase. The sex ratio is expected to increase in India from 1061 in 2021 to 1097 in 2036 (Figure 9) and it is above the overall Indian average for 12 of the 22 states. It indicates that the share and the number of elder women is bound to increase by 2036 and could pose different challenges for them.

Figure 9: Sex ratio at 60+ for India and States



Source: Authors Computations based on Population Projections for India and States -2011-2036, Report of The Technical Group on Population Projections (2020), MOHFW, GOI

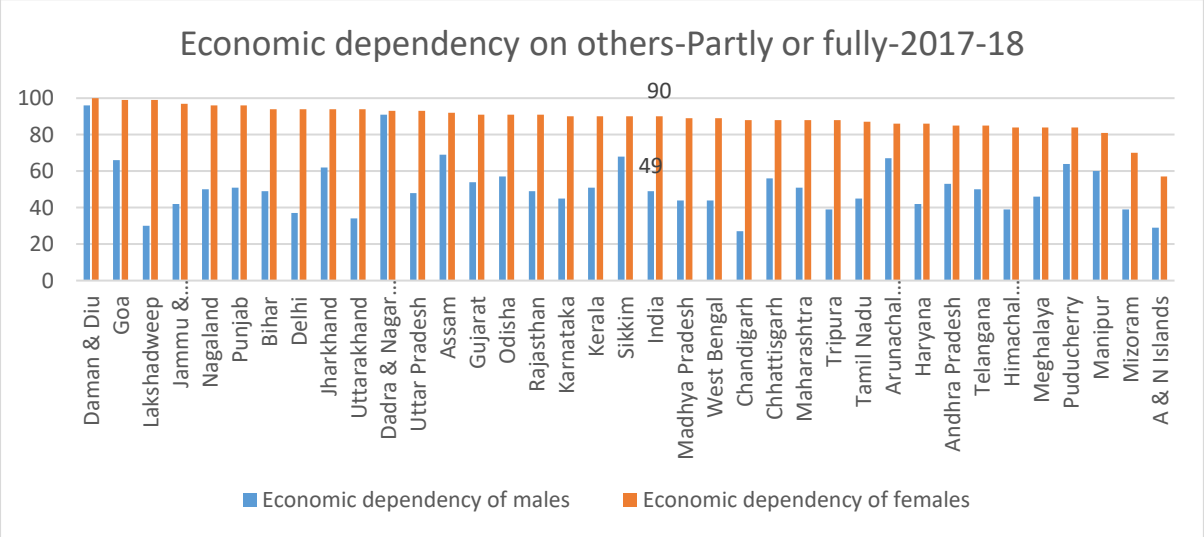
We thus observe that there are inter- state variations in the demographic characteristics of the elderly persons in India. The share of the elderly females in total elder population, and their dependency ratio are expected to increase in 2036, possibly also due to higher life expectancy. The threat of an emerging 'silver economy' for India, are thus real.

2.5 Challenges of increasing elderly population: rising inequalities in economic dependency and access to health care

The increase in elderly population would worsen the existing inequalities which prevail for elderly females in the economic and health status, unless appropriate corrective actions are taken. The elderly women in India still lack economic independence and adequate access to

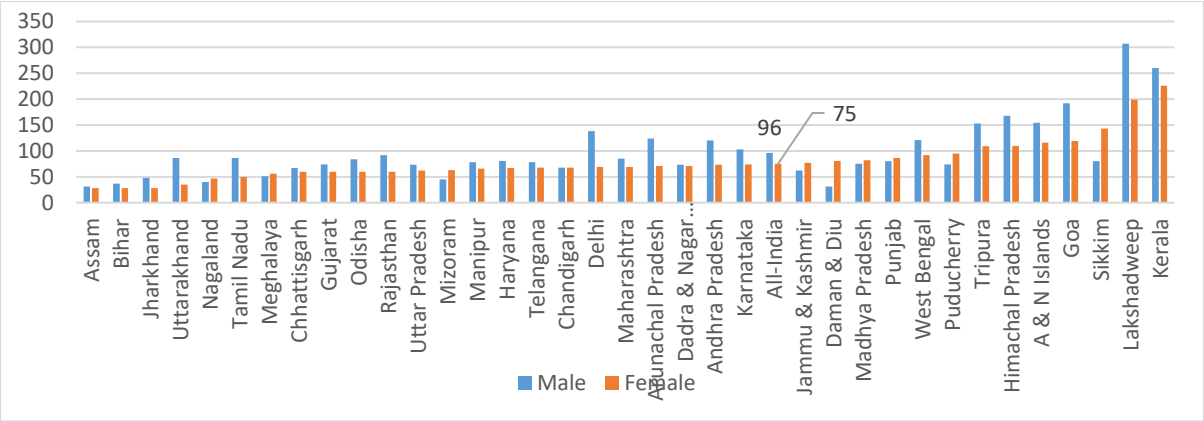
health care and increase in their share will further aggravate their economic dependence on others and put extra health burden. The current status on both these counts could be viewed in Figure 10 and Figure 11. It is evident that the females have to heavily depend on others for their financial requirements, as well as have lower access to health care, measured by inpatient medical treatment during the last 365 days, across all the States/UTs of India. Economic dependency of females is highest in the states/UTs of Daman &Diu, Goa, Lakshadweep, Jammu & Kashmir, Punjab, Bihar, Delhi and it is lowest among Andhra, Telangana, Himachal, etc. The access to health is lowest to females in Assam, Bihar and Jharkhand, and is highest in Kerala. Thus, elderly females in all the states/UTs will have to face the challenges of high economic dependence on others and low access to health services.

Figure 10: Economic Dependency of the elderly males and females on others-2017-18



Source: Authors' computations from LASSI report (2020)

Figure11: Access to health - % of persons treated as inpatient during last 365 days-2017-18



Source: Authors' computations from LASSI report (2020)

3. Gender deprivation and its challenges in India

The demographic differences observed between the elderly males and females in section 2 may be mainly due to the natural advantage which women generally enjoy in terms of higher life expectancy, which in turn may finally lead to their higher share in population and higher dependency ratio. However, the natural advantage to females of longer life may turn into a disaster/disadvantage if they get discriminated in other aspects of life- economic, social, education, health, etc. all of which could finally affect them adversely. These discriminations have negative consequences for elderly females and force them to be a burden on the family and the society. In this section we explore some of the discriminations which affect the economic, social, educational, and health[13] status of the elder females and are a challenge to any 'silver' economy. Some representative indicators have been identified for each of the dimension/pillar and the status of males and females is measured and the results are summarized in Table 1.

Economic deprivation: It may be noticed from the table that a very low proportion of elderly females in India seek work (Work force participation rate-WPR) - only one-fifth as compared to almost half for males. Most of them are employed in the informal sectors and as self -employed workers. They also face discrimination in the earnings received and get almost half of the earnings of males. As a result of the lack of employment, and earning disadvantage, ninety percent of the elderly females are economically dependent - may be partial or fully on others. Thus, the economic condition of elderly females remains very inferior to the males and make them vulnerable and dependent. One of the key reasons for precarious economic situation of elderly females in India could be that the WFPR of females even during the working life (15-59 years) is very low-only 38.5% vs. 80.2% for males in 2022-23 and women have to spend a large part of their day-time on unpaid family work and family care due to Indian societal norms where women have to bear most of this responsibility.

Inequality in social status and social security: We find that the elder females again are at a disadvantage as compared to elderly males on many of the social security indicators. Due to longevity of life, the females live longer and more of them have to live alone - 7% as compared to 2% of males, due to early death of the spouse, if married. The amount of total pension received from all sources-employers, private and government- is almost 25% lower for elderly females. However, the share of females who availed government health insurance as a social security, is just slightly less at 19% vs. 20% for males.

[13] Though women in general and elderly in particular face discrimination on many other facets of life, but it may not be possible to include all of them at one place. In the current paper, the focus is only on the four important aspects of life which impact everyday life.

Inequalities in educational status: The three indicators selected for the educational status of the elderly shows that it is very poor for females. Not only have they spent a smaller number of years in formal education, but, based on the educational distribution, the elderly females with middle and higher level of education have less than half the share (only 16% vs. 36% for males) among total elder females, and just more than one fifth the share (8% vs. 36% for males) among elderly employed. Elderly females are thus less educated because of discrimination in access to education at the young age and face the stigma of being less educated at home and at work.

Discrimination in health status: Though the elderly females experience a similar level of illness and physical mobility, they get less access to the health facilities for treatment as in-patient during the last 365 days. They also have to experience the higher burden of widowhood because of early death of the husband. 50% of elderly females live as widow contrary to only 17% of the elderly males. A large share of this gender gap in health status can be attributed to gender discrimination driven by the patriarchal structure of our society.

Table 1: Summary of the indicator's values for elderly males and females

	All India - value of the indicators	Males	Females
1	**Economic Status**		
i	Workforce Participation Rate (WPR)	49	20
ii	Share of Self employed	80	74
iii	Share of Informal employment	96	95
iv	Earnings (Rs.)	326	160
v	Economic dependency-Partial or full on others	49	90
2	**Social Status and social security**		
i	Living alone	2	7
ii	Total Pension from all sources (Rs.)	15722	12761
iii	% of Government health insurance availed	20	19
3	**Educational Status**		
i	Years in Formal Education	9	8
ii	Education -Middle and above level of education	38	16
iii	Education of employed - Middle and above level of education	36	8
4	**Health Status**		
i	% of widow	17	50
ii	Access to Health services	96	75
iii	Physical Mobility	94	91
iv	% of aged persons reporting illness	28	28

Source: Authors computations.

The data source and the reference year of each indicator is mentioned in Appendix Table A.1

It is thus clear that elderly females in India experience different kinds of disadvantages which affect their personal and social life. Some of these discriminations happen to them because of the denial of equal opportunities and neglect by the people around them, including the Governments and proper interventions may reduce, if not eliminate altogether, the gender inequality among the elderly. However, these discriminations are not uniform across all regions of India because of their economic, social, and cultural differences. We investigate these differences among the different regions of India in the next section. Instead of discussing each parameter and indicator separately we combine them together into an index-gender deprivation index (GDI).

4. Constructing a composite Gender Deprivation Index (GDI): Methodology and data

4.1 Methodology

In this section we describe the methodology that has been used to construct the gender deprivation index (GDI). The relevant data sources have also been described in the section. The limitations of the GDI are also stated in the section.

Constructing a composite index to summarize and make an inter-temporal or an inter-regional comparison of the performance of an underlying phenomenon has a long history and is still growing. Bandura (2008) has listed one hundred seventy-eight different composite indices for measuring country performance, each differing in scope, and/or methodology.

OECD (2008) however, has substantially standardized the methodology of constructing a composite index through its Handbook and has outlined the necessary steps which are required to construct a composite index. The OECD Handbook (2008) clearly outlines that a composite index measures multi-dimensional concepts, which are difficult to be measured by a single indicator. It points out that the composite index may many times conceal the multidimensional behaviour and significance of the underlying indicators, so it should be used with caution. The handbook has suggested various steps and alternative methodologies in the construction of a composite index. The composite indices which are now available for inter-country and inter-regional comparisons generally follow these guidelines. However, in practice the method of aggregation and of assigning the weights differs among different indices. But broadly two methods of assigning of weights are used- the equal weights to all indicators or weights based on some criterion used, mostly PCA.

While linear aggregation is used at the indicator level by the three indices of Human Development Index (HDI), Human Poverty Index (HPI), and Inclusive Development Index (IDI), and at the dimension level by HPI and IDI, but geometric aggregation has been used by

HDI (UNDP) for aggregation of dimensions. While few of the studies in India[14] (Mundle, 2016) have used the average of the average method for aggregation, the recent indices[15] for Indian states by Niti Aayog, GOI, have generally assigned weights[16] at the dimension levels and have broadly given equal weights at the indicator levels. In SDG index (2019), however, equal weight has been assigned to each indicator within a Goal and then a simple average of the score on each goal is taken to find the composite score for each State.

In a recent study related to the deprivation index, the Niti Aayog (2025)[17] has estimated 'The Deprivation Index' for states and has used the arithmetic average of the normalized values of the indicators for sub-indices and the final composite score is computed by taking the arithmetic mean of all the major indices. On the other hand, Basu and Das (2021) have used a variant of the PCA known as Geographically Weighted Principal Component Analysis (GWPCA) to estimate the weights of the normalized indicators for the computation of the deprivation index. Dhongde and Haveman (2017) have used the Alkire and Foster (2011) (A-F) methodology to find a multi-dimensional deprivation index in the US. The A-F (2011) methodology to identify a multi-dimensional poor (or deprived) is mainly based on a dual identification method in which a person is first identified to be poor(deprived) within a dimension and then across different dimensions[18]. According to A-F (2011, section 5) taking average of averages for an index is appropriate when the dimensions have been chosen to be of "equal importance". Atkinson et al (2002) also observe that equal weighting has an intuitive appeal: "the interpretation of the set of indicators is greatly eased where the individual components have degrees of importance that, while not necessarily exactly equal, are not grossly different" (2002, p. 25). The choice of dimensional weights may be seen as a value judgement which may be open to public debate and scrutiny. In constructing a healthy ageing index, Malik, Singh and Pattanaik (2022) have used the Min-max normalization and have taken a simple average of all the indicators. In another study on 'Multidimensional deprivations among social groups in rural India: A state level analysis', Sahoo, Mondal and Kumar (2023) have used Z-score to standardize the indicators and then used the PCA at the indicator level and for the composite index.

Following the OECD (2008) guidelines, the present study has thus performed the following steps:

14 Economic Freedom Index (Debroy, Bhandari, Aiyar 2013), Governance Performance Index (Mundle *et. al.*, 2016), State Competitiveness Report (IFC, 2015), Ease of doing Business index (World Bank, 2015), etc.
15 e.g., 'Health Index', 'School Education Quality Index'
16 No explanation has been given for the basis of the weights.
17 Fiscal health Index (2025)
18 There could be different possible identification cutoffs across the dimensions-it may be the union, or intersection, or some fixed set of dimensions 'k' out of total 'd'.

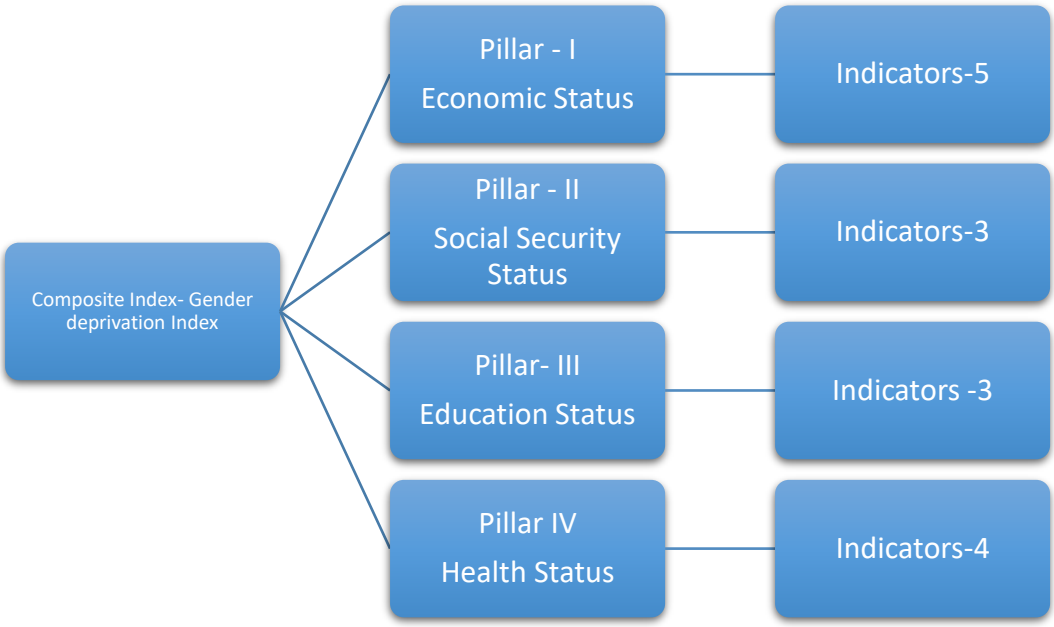
(i) A conceptual framework- selection of pillars, and indicators

From the review of the literature, we find that different indices on deprivation in general have emerged from the literature which encompass different social and economic dimensions and have helped in providing some initial ideas about the underlying indicators which could reflect some light on gender deprivation.

Based on the perspective of different studies, the current study has included four broad pillars in the Gender deprivation index (GDI). The rationale in choosing the indicators which encompass these pillars, is based on the objective to cover a wide range of important aspects of the economic life, social life, the education and health status of the elderly people and is also being representative of the underlying pillars of gender deprivation index[19].

The four pillars are represented by a total of 15 indicators (Pillars and indicators are listed in Appendix Table A.1). The GDI thus finally have four pillars, and 15 indicators.

Figure 12: Broad GDI framework



(ii) Selection of the states

The GDI is constructed and presented for thirty-four States and Union-Territories of the Indian Union. The choice of the Indian states is motivated by the availability of the data on

19 The choice of an indicator however, is subjective and is based on the judgement of the author about its relevance. It is possible that with change in the set of sub-pillars and the indicators, the final composite value and hence the ranking of the States may change.

the selected indicators. The data relates to the latest year for which the gender-wise indicator values are available.

(iii) Normalization of the data

Data aggregation across many indicators in the construction of a composite index requires that the quantitative values of the indicators which may be measured in different units, are converted into common scores by monotonic transformation without changing the order and scale, to make them comparable across the board. To facilitate the conversion, OECD (2008) has listed few normalization procedures among which the most commonly used methods are the use of Z-scores and of Min-Max scale. The conversion into Z-scores reduces all the values to a mean of 0 and standard deviation of 1. Since the transformation gives some negative values for the indices, therefore these values are difficult to interpret directly and requires that these values are once again scaled to a positive scale of 0-100[20]. We have followed to directly use the Min-Max scale procedure, which preserves the order and the relative distance between the scores.

In the deprivation index, most of the indicators display a 'negative' scale where a lower value may be preferred over the higher value. However, some of the indicators may satisfy the 'positive' scale where more is better, i.e., a higher number denotes higher level of 'performance', e.g., in the case of better access to health, or higher level of education for women or higher WPR. For both class of these variables, different transformations are required and are as follows:

For the variables with a positive scale, i.e., where a higher value is better, the formula used for normalization is:

$$\frac{(indicator's\ actual\ score - sample\ minimum)}{(sample\ max - sample\ min)} * 100$$

Where, the indicator connotes a negative scale, i.e., a lower value is better, then the formula used is:

$$[1 - \{\frac{(indicator's\ actual\ score - sample\ minimum)}{(sample\ max - sample\ min)}\}]$$

However, any required transformation of the indicators from levels to growth by using log transformation, or from level to ratios, etc. must be done before the normalization procedure is applied for aggregation of the variables. Accordingly, in the current exercise the transformation of the indicators[21] has been done where necessary before the normalization.

20 If we use the Min-Max transformation to the Z scores to scale from 0 to 100, then we get the same scores as obtained by directly applying the min-max scale transformation.

21 For percentage wage differential we have used log of wages received by females and males.

(iv) The weightage scheme and aggregation procedure

As mentioned earlier, most of the existing studies have used either (i) a linear averaging method for aggregation of different levels of disaggregation- average of averages or (ii) have used the statistical technique of Principal Component Analysis (PCA) for identifying the indicators or for finding the appropriate weight in the composite index. Following the observations by Atkinson et al (2002) that equal weighting has an intuitive appeal and its use by some of the recent studies, we have preferred to use the simple averaging method.

(v) Construction of the GDI

Following the four standard steps, we have finally constructed the 'Gender Deprivation index' and the States are ranked over the four pillars and the composite index to explore the source of differences in the pillars and in the composite ranking.

Following the statistical methodology of clustering based on mean values, the states are classified into 'front-runner', 'achievers', and 'aspirants', such that the top six best performing states have been classified as front runners, the bottom seven as 'aspirants' and the remaining twenty-one in the middle one as 'achievers.' It shows that most of the States will have to take significant policy initiatives to improve the deprivation of elderly females and reduce the gap with elderly males.

4.2 Data and sources

It was thought to be prudent to rely on a single source of data for any given indicator, which provides values for all States and UTs, so as to avoid discrepancies, confusion, and possible error. Only the secondary sources of data are used for all the indicators in the GDI and the reference source and year for an indicator is generally same for all the States[22]. Only the national level reports have been used and the reports from the states, their Statistical abstracts and other reports have not been used because of lack of uniformity in their definitions, coverage, and the reference periods.

The main data sources used during the analysis are the Longitudinal Ageing Study in India (LASI) (2020), 75th round of National Statistical Office (NSO) surveys by Ministry of Statistics and Programme Implementation (MOSPI), Government of India (GOI) on Education and Health (2017-18), and Periodic Labour Force Survey (PLFS) by MOSPI, GOI (2022-23) and few current reports namely 'Elderly in India' by NSO, MOSPI, GOI (2021), 'Senior Care Reform in India' by Niti Aayog (2024) and 'Ageing in India' by Help Age India (2024).

22 The exact details about all the data sources and the reference years are provided with the list of indicators in Appendix Table A.1

The available data sources have been used to identify and measure the inequalities between elderly males and females and the deprivation of elderly women on different indicators.

4.3 Limitations of the GDI

Though all due care and precautions have been taken during the construction of the GDI for the Indian States, yet it might suffer from some limitations.

(i) The conceptual framework and the choice of the indicators included in the Index, though decided by the underlying economic reasoning is still subjective. Any other researcher will tend to choose a different conceptual framework and the set of pillars and indicators. Thus, the score of each state and its ranking is amenable to this choice.

(ii) While the latest available values of the indicators have been used, but with the availability of the more recent data on these indicators, the index could be revised and updated.

(iii) The choice of the method of aggregation used for the computation of the composite index may also affect the final outcome of the index. Instead of using simple average, as the present paper has used, if PCA is used then obviously the weighted score of each pillar and the final composite score could be different.

(iv) The index is based on the simple methodology of finding the normalised values of each indicator and then taking the simple average of first the indicators and then the pillars. So, what may happen is that a State which may have a low level of status on any of the indicator but the difference in the status of males and females on the indicator is low, then the state will score a high normalized score. So, because of the contradiction between the overall status of a state on an individual indicator and the difference between the status of the genders, it may score high and thus rank higher. It seems to have happened in the case of some of the states. So, a rich state (like a rich family) may score poorly on the gender deprivation index (GDI) because of high degree of discrimination between males and females (of family), as compared to a relatively poor state (or family) with more equality between genders. The overall value and rank on GDI may not really reflect the underlying picture of the state and we must view the index only from the perspective of gender equality.

It is hoped that despite these limitations, some of which are encountered by any researcher computing a composite index, the index would be useful and is a contribution to the literature on the subject.

4.4 The Gender Deprivation Index- the Results

The results of the combined GDI score are presented in Appendix Table A.2, in which the rank of the states on each of the four pillars and the combined GDI rank is also summarized.

The states are ranked by their combined GDI score and state with rank one is the state with the highest GDI score indicating that the state has low level of discrimination against elderly females or the inequality level between females and males is low. The classification into 'Front runner state', the 'Achiever state' and the 'Aspirant state' is part of Table 2.

A close examination of Table 2 reveals that five of the six of the 'front runner' states belong to the North-east[23] part of India all of which may be economically not rich but have a long tradition of a matriarchy society and relatively strong female empowerment. The GDI score in these states vary from a minimum of 63.2 for Tripura to 68.5 in Sikkim. The maximum discrimination seems to take place on the health indicators. The state of Goa is relatively a small state but relatively richer, more liberal and educated. So, there is relative equality in the economic and social status, but the education and health status of women still seems to be poor. A state can thus attain the status of being an 'achiever' only if the society in general has liberal attitude towards women and give them equal access and opportunities in different spheres of life, especially in employment, education and health.

On the other hand, some of the states that are part of the 'achievers states' category belongs to mostly the North and Central India and some are from East India. Many of the states are still relatively more feudal in values, and the status of women in general is still very low due to high levels of discrimination. These states are Bihar, Rajasthan, Uttar Pradesh, Jammu & Kashmir, Haryana, Himachal Pradesh, Uttarakhand, Punjab, Chandigarh and Delhi. Though some of these states are relatively rich but high level of discrimination against women do exist in all walks of life in these states because of rigid social norms and prejudices. The state of Bihar is an example of it. It is a major state in the East and a surprise performer on GDI as an achiever. IT generally ranks at the bottom in the country on all economic and social indicators. Its high score on GDI is an indication that a State may have overall worst indicator values but when both sexes suffer from poor indicators then the difference between the indicator values for males and females is relatively small. It is thus necessary not to be blinded by the overall rank of a State but also look at the individual pillars and indicators.

The other states of Telangana, Kerala, Karnataka, Andhra Pradesh, and Tamil Nadu though belong to the South of India, which generally has better status of women as compared to north of India, face lot of inequalities in the status of elderly women and need to empower elder women by adopting suitable policies. Maharashtra and Gujarat, belonging to the West India, are few of the rich states of India but still have low GDI. They score almost uniformly on all the four pillars and show consistently low equality between males and females. It thus, shows that economic prosperity alone is not the guarantee of empowerment of women and conscious and concerted efforts are needed to basically change the societal norms and attitude towards women.

[23] Please refer to Appendix Table A.3 for the List of States as per the directions

The bottom category of seven 'aspirants states' has a mix of the states all of which generally have poor ranking and score on all the four pillars. Some of these states/UTs are also rich like Delhi, Chandigarh, and Himachal Pradesh but suffer from lot of deprivation for elderly females. These states need to identify the indicators on which they are laggards and find out the best practices being adopted in other better performing states and elsewhere and adopt them after suitably changing them as per their own requirements.

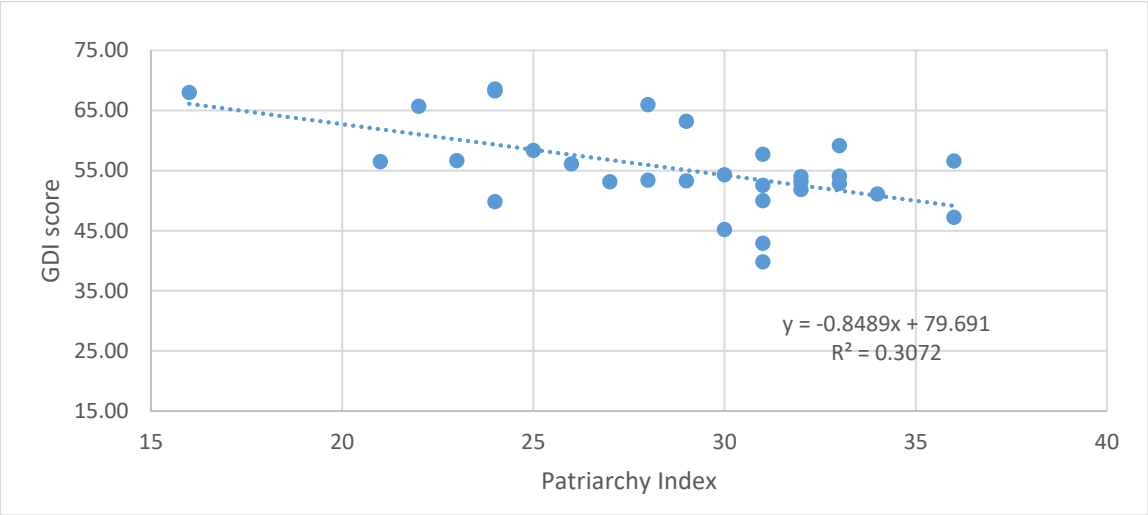
Table 2: Classification of States/UTs on the basis of rank on GDI

Front runner States	**Achievers States**	**Aspirants States**
Sikkim	Bihar	Puducherry
Goa	A & N Islands	Haryana
Meghalaya	Telangana	Himachal Pradesh
Arunachal Pradesh	Assam	Uttarakhand
Mizoram	Kerala	Chandigarh
Tripura	Rajasthan	Delhi
	Nagaland	Lakshadweep
	Manipur	
	Chhattisgarh	
	Punjab	
	Maharashtra	
	Odisha	
	Karnataka	
	Madhya Pradesh	
	Andhra Pradesh	
	Gujarat	
	West Bengal	
	Jharkhand	
	Uttar Pradesh	
	Jammu & Kashmir	
	Tamil Nadu	

Source: Based on cluster analysis of the scores in Table A.2

To verify the validity of the GDI, we tried to find the relationship between GDI and the Patriarchy Index recently constructed by Singh et. al. (2021). Since, the patriarchy index has tried to capture gender inequality across states, we expect that states with high gender inequality (high patriarchy index score) will score less on GDI, as low GDI means high gender deprivation and vice versa. So, a negative correlation is expected between the two indices. As expected, we find a significant negative relationship of 0-0.849 between the two indices, as shown in the figure below. It shows that the states with low patriarchy index are generally also the ones which have low deprivation of elderly females.

Figure 13: Relationship between Gender Deprivation Index and the Patriarchy index



Source: Authors computations

5. Schemes for Elder care in India and the Challenges

Recognizing the need of the elderly for comprehensive care, many initiatives have been taken in India by the Government, the private sector, and the NGOs in different spheres, especially the health, social and economic domains. Many Ministries of the Government[24], NGOs, and the Private sector are working in Senior care and are aimed to improve the life of the elderly. The schemes and programs vary from health, insurance, housing, social care to food security.

The Government of India (GOI) has been conscious of the increasing ageing of the population and its responsibility towards the welfare of the elderly population. In 1995, the Indira Gandhi Old Age Pension Scheme (IGNOAPS) was launched to provide financial security to seniors living below the poverty line by providing financial assistance in the form of pension. Under the scheme, a monthly pension of `200/- is given to the elderly aged 60-79 years belonging to the BPL category. Since then many schemes and programs have been launched. In 2019, the National Action Plan[25] for senior citizens was started and Atal Vayo Abhyudaya Yojana (AVYAY) scheme was launched. The scheme targets the four basic needs of senior citizens- financial security, food, health care, and human interaction/life of dignity. Basic amenities, shelter, food, entertainment opportunities, etc., are provided free of cost to needy senior citizens.

[24] Please refer to Annexure 5 and 6 of Niti Aayog (2024) for comprehensive details about the schemes, programs of different Ministries and Departments of Government of India, and by NGOs, Private sector, etc

[25] The Ministry of Social Justice and Empowerment (MoSJE) is the nodal ministry responsible for the welfare of senior people in India. It collaborates with other Ministries, as well as with the other agencies in the private sector and the NGOs working for the elderly.

Some of the selected policies and programs adopted in India are as follows:

Atal Pension Yojana (APY)- The scheme was launched on 9th May 2015, to create a universal social security system for all Indians, especially the poor, the underprivileged, and the workers in the unorganized sector. It assures a pension at the age of 60 if a person contributes to it earlier when young-18-40 years.

State Action Plan for Senior Citizens (SAPS- rC)- The scheme was launched in 2019 and under the scheme funds as Grant-in-aid are provided to States/UTs for State-specific activities for the welfare of senior citizens.

Scheme for Awareness Generation and Capacity Building for the welfare of Senior Citizens- the scheme focused on Components like the National Helpline for Senior Citizens, research, awareness, sensitization, etc., for the welfare of senior citizens, spreading awareness and sensitizing the youth and other sections of the society towards the issues related to the elderly.

Some economic incentives are also given to the seniors in the form of higher interest rates on saving deposits, income tax rebates, tax exemptions on some expenditure – on insurance, some illnesses, etc. The scheme for 'reverse mortgage' of the property by seniors was launched in 2007. The Maintenance and Welfare of Parents and Senior Citizens Act, 2007 was enacted under which elder parents can claim maintenance from their children. In 2016, NALSA (Legal Services to Senior Citizens) Scheme was started to help the elderly.

Beside the GOI, many NGOs and the private sector have been working for the welfare of the elderly. Part of the corporate social responsibility (CSR) funds are also spent on the causes. HelpAge India, VridhCare, Age Well Foundation, Elder Care Tata Trust, All India Senior Citizens Confederation, Antara, Care24 are some of the leading service providers who are working for the welfare of the elderly.

However, despite all the attention and help for elderly care, some issues and challenges[26] still face the elderly. Some of these are: inadequate infrastructure to provide health care at home, dependence on the private sector for most of the senior care, limited trained manpower, absence of focus on geriatric health care, inadequate funding including insurance for elderly health care expenses, limited social security system, loss of family support due to increase in nuclear families, inadequate friendly infrastructure for elderly, lack of financial support and old age pension, lack of financial awareness and planning, and insufficient digital access and literacy.

Overall, the public health facilities are completely inadequate and in 2017-18, the elders had to incur four times out of pocket expenditure on private hospitalisation expenditure as compared to public health expenditure (Rs.32 thousand as compared to just Rs. 8 thousand), thus spending 80% of total hospitalisation expenditure on private health in their

[26] Niti Aayog (2024)

last inpatient visit to hospital from their own pocket. We find inequalities even in out of pocket hospitalisation expenditure and the expenditure is obviously more by elders (60+) than middle aged (45-59), more in urban areas than rural, more by males than females, more by currently married than by widows or divorced/separated, more by educated, and more by rich than poor. The trend is similar for out-patient care also. As expected, the trend of out of pocket expenditure is different across the states [27].

It is thus clear that medical infrastructure has to be stepped up by the States if the burden of private health expenditure is to be reduced on elder and the inherent discriminations could be overcome.

6. Conclusion and Policy recommendations

Despite the recognition of the need to take care of the elderly in India and the initiatives taken during the last thirty years, there is a wide gap in the needs of the elderly and the availability of the socio-economic security and health care. So, despite the efforts by all- the Government, the private sector and NGOs, there is still much to be desired. One may notice from the GDI and its pillars that lot of gender inequalities exist in elder care in the states/UTs and not much attention has been given to it. No special efforts seems to have been made towards the elder care of the females so as to narrow the gender gap. The gap therefore is very wide between the status of elderly care for males and females, especially in some of the Indian states. The challenge before the Indian economy is to fill the two gaps for the welfare of the elderly. Meeting the challenges would definitely burden the economy's resources, but the economy has to be prepared for it, and governments- both the Central and States need policies to adequately provide suitable amenities to bridge the gaps. The laggard states, especially need strong attention from policy-makers to address the needs of the elderly, especially women and meet the potential future challenges of population ageing and gender inequalities in elder care across these states.

The results of the study could help the states in identifying the important indicators on which there are large inequalities between status of elderly males and females. It would also help to identify the leaders and the laggard states on a particular indicator and help the laggard states to learn from the leaders. The learnings could help a state in framing policies aimed at women's empowerment towards leading an independent and a healthy life. The policies could focus on elderly female empowerment through the (i) creation of alternative employment opportunities for the elderly females where their experience and expertise could be adequately utilized-teaching, training, consulting, free lancing, writing, etc. The females are to be encouraged and incentivized to work- may be from home, to improve their economic status and be independent, (ii) provision of a comprehensive pension for elderly females, especially working in the unorganized and informal sector and the widows,

[27] Status of out of pocket expenditure in States is given in Appendix Figure A.1

(iii) provision of a comprehensive and universal health insurance plan suitable for the elderly females, which cover most of their health needs, e.g. home care, institutional care, assisted living, long-term care, inpatient and outpatient costs, etc. It will reduce their out of pocket expenditure on health, (iv) encourage women to stay in communities and be surrounded by family, friends and others and participate in physical activities and Yoga for their physical and mental well-being which will reduce loneliness and help in accessing care and support services, (v) encourage women to improve financial and digital literacy even if they are not educated to help them in accessing many of the needed services, (vi) create sufficient age friendly elder care infrastructure, especially medical infrastructure with trained manpower so that the elders may have better mobility and access to health. These policies in the long term would definitely meet the challenges of female elder care and empower elder females to live a more independent and a healthy life.

References

Alkire, S. and Foster, J. (2011), "Counting and Multidimensional Poverty Measurement", *Journal of Public Economics*, Vol. 95, No. 7–8, pp. 476–487.

Atkinson, A.B., Cantillion, B., Marlier, E., Nolan, B., 2002. Social Indicators. The EU and Social Inclusion. Oxford. Oxford University Press.

Bandura, Romina (2008). A Survey of Composite Indices Measuring Country Performance: 2008 Update, *A UNDP/ODS working paper*, Feb.

Bansal, Samarth (2017). 'Indian states and women: where are they empowered, where are they not,' *Hindustan Times*. Retrieved from https:// www. hindu stant imes. com/ inter activ es/ women- empow erment- index/.

Basu, Tirthankar and Arijit Das (2021). Formulation of deprivation index for identification of regional pattern of deprivation in rural India, *Socio-Economic Planning Sciences*, https://doi.org/10.1016/j.seps.2020.100924)

Debroy, B., Bhandari L. and Aiyar S. S. A. (2013). *Economic Freedom of the States of India 2011*, Academic Foundation, New Delhi.

Dhongde, Shatakshee, and Robert haveman (2017). Multi-Dimensional Deprivation in the U.S., Social Indicators Research 133(2), September 2017, DOI: 10.1007/s11205-016-1379-1

HelpAge India (2024). Ageing in India: Exploring Preparedness & Response to Care Challenges, A report by HelpAge India.

IFC (2015). *India State Competitiveness Report*, Institute for Competitiveness, New Delhi.

International Institute for Population Sciences (IIPS), NPHCE, MoHFW, Harvard T. H. Chan School of Public Health (HSPH) and the University of Southern California (USC) 2020. *Longitudinal Ageing Study in India (LASI) Wave 1, 2017-18, India Report***,** International Institute for Population Sciences, Mumbai.

Liebig, Phoebe S and Irudaya Rajan Sabestian (2003). An Ageing India: Perspectives, Prospects and Policies, Research Gate, DOI: 10.1300/J031v15n02_01

Malik, Manzoor Ahmad, S.P. Singh, and Falguni Pattanaik (2022). Economics of Healthy Aging in India: A Multidimensional Perspective, **IZA Journal of Labor Policy**. https://doi.org/10.2478/izajolp-2022-0004

Mundle, Sudipto, Samik Chowdhury, and Satadru Sikdar (2016). Governance Performance of Indian States 2001-02 and 2011-12, *NIPFP working paper No. 164*, National Institute of Public Finance and Policy, New Delhi.

Niti Aayog (2019). *Sustainable Development Goals: India*, Niti Aayog, Government of India, Delhi.

Niti Aayog (2019a). *Healthy States Progressive India: Health Index*, June, Niti Aayog, Government of India, Delhi.

Niti Aayog (2019b). *School Education Quality Index,* Niti Aayog, Government of India, Delhi.

Niti Aayog (2024). Senior Care Reform in India: Reimagining the Senior Care Paradigm: A Position Paper, Government of India, Sansad Marg, New Delhi.

Niti Aayog (2025). Fiscal Health Index, Annual Report for the Financial Year 2023, NITI Aayog, Government of India, Sansad Marg, New Delhi-110001, India

NSO (2020). Health in India. NSS 75th round, Report No. 586, NSO, MOSPI, GOI, New Delhi
NSO (2020). Household Social Consumption on Education in India. Report No. 585, NSS 75th round, NSO, MOSPI, GOI, New Delhi

NSO (2021). *Elderly in India*, National Statistical Office, Ministry of Statistics & Programme Implementation, Government of India, New Delhi.

OECD (2008). *Handbook on Constructing Composite Indicators: Methodology and User Guide*, OECD.

NSSO (2023). *Periodic Labour Force Survey, July2022- June23*, NSSO, MOSPI, GOI, New Delhi

Sahoo, Priyabrata, Soumyabrata Mondal and Vinay Kumar (2023). Multidimensional deprivations among social groups in rural India: A state level analysis, *Geo Journal,* https://doi.org/10.1007/s10708-023-10961-z

Singh, Abhishek, Praveen Chokhandre, Ajeet Kumar Singh, Kathryn M. Barker, Kaushalendra Kumar, Lotus McDougal, K. S. James and Anita Raj (2021), Development of the India Patriarchy Index: Validation and Testing of Temporal and Spatial Patterning, Social Indicators Research (2022), https://doi.org/10.1007/s11205-021-02752-1

SRS Based Abridged Life Tables-2016-20, Office of The Registrar General & Census Commissioner, India, Ministry of Home Affairs Government of India New Delhi

UN 2022: World population Prospects 2022. UN, available at https://population.Un.org/wpp/

World Bank (2015). Doing Business 2015: Going Beyond Efficiency. Washington, DC: World Bank. DOI: 10.1596/978-1-4648-0351-2.

Appendix Table A.1: List of indicators used in the GDI and the data source

S. No.	Parameter	Indicators used	Reference year	Source of Data
Pillar I	Economic status	Economic dependence	2017-18	Table A70, Health in India, 75th round, MOSPI, NSO, GOI
		WFPR	2022-23	PLFS 2022-23, MOSPI, NSO, GOI
		Share of self-employed	2022-23	PLFS 2022-23, MOSPI, NSO, GOI
		Formal-Informal	2022-23	PLFS 2022-23, MOSPI, NSO, GOI
		Earnings Differential (%)	2022-23	PLFS 2022-23, MOSPI, NSO, GOI
Pillar-2	Social security	Living alone	2017-18	Table A73, Health in India, NSS 75th round, 2017-18, NSO, Government of India, MOSPI, July 2020
		Total Pension received	2017-18	Computed from data of LASI, Wave I, India Report, 2020, NPHCE and IIPS, MOHFW, GOI
		Govt Medical Insurance availed	2017-18	Computed from data of LASI, Wave I, India Report, 2020, NPHCE and IIPS, MOHFW, GOI
Pillar -3	Education	Years in Formal education	2017-18	Table 5.3: Elderly in India, 2021 (Source: NSS 75th Round (July 2017-June 2018): Household Social Consumption on Education in India)
		share with general education above Secondary level	2022-23	PLFS 2022-23, MOSPI, NSO, GOI
		elder persons employed with education above secondary education	2022-23	PLFS 2022-23, MOSPI, NSO, GOI
Pillar-4	Health	share of widows	2022-23	PLFS 2022-23, MOSPI, NSO, GOI
		share of physically mobile persons	2017-18	Elderly in India, 2021 -Source: NSS 75th Round (July 2017 – June 2018)- Social Consumption in India: Health
		% reporting ill	2017-18	Elderly in India, 2021 -Source: NSS 75th Round (July 2017 – June 2018)- Social Consumption in India: Health
		% who have access to health	2017-18	Elderly in India, 2021 -Source: NSS 75th Round (July 2017 – June 2018)- Social Consumption in India: Health

Appendix Table A.2: Overall GDI score and rank on GDI and four pillars for States/UT

State/UTs	GDI score	GDI Index	Rank on ES	Rank on SS	Rank on Ed. S	Rank on HS
Sikkim	68.5%	1	10	6	1	3
Goa	68.2%	2	1	3	12	29
Meghalaya	68.0%	3	5	1	2	30
Arunachal Pradesh	65.9%	4	3	9	3	6
Mizoram	65.7%	5	4	22	5	1
Tripura	63.2%	6	6	7	4	19
Bihar	59.1%	7	27	5	17	2
A & N Islands	59.0%	8	21	2	15	23
Telangana	58.3%	9	2	21	16	21
Assam	57.7%	10	14	14	10	14
Kerala	56.7%	11	7	11	8	28
Rajasthan	56.6%	12	16	17	14	18
Nagaland	56.5%	13	13	18	25	7
Manipur	56.1%	14	11	12	28	4
Chhattisgarh	54.3%	15	15	28	7	20
Punjab	54.1%	16	18	32	13	11
Maharashtra	54.0%	17	17	16	26	15
Odisha	53.4%	18	20	26	22	8
Karnataka	53.3%	19	19	31	9	17
Madhya Pradesh	53.2%	20	33	23	11	9
Andhra Pradesh	53.1%	21	9	10	18	32
Gujarat	52.9%	22	22	20	21	22
West Bengal	52.5%	23	25	8	19	27
Jharkhand	51.9%	24	24	27	20	13
Uttar Pradesh	51.1%	25	30	19	27	5
Jammu & Kashmir	50.0%	26	31	25	24	12
Tamil Nadu	49.8%	27	8	34	23	26
Puducherry	48.0%	28	12	24	6	34
Haryana	47.2%	29	26	13	32	10
Himachal Pradesh	45.2%	30	23	29	29	25
Uttarakhand	42.9%	31	28	30	31	24
Chandigarh	40.5%	32	34	15	33	16
Delhi	39.8%	33	29	33	30	31
Lakshadweep	34.4%	34	32	4	34	33

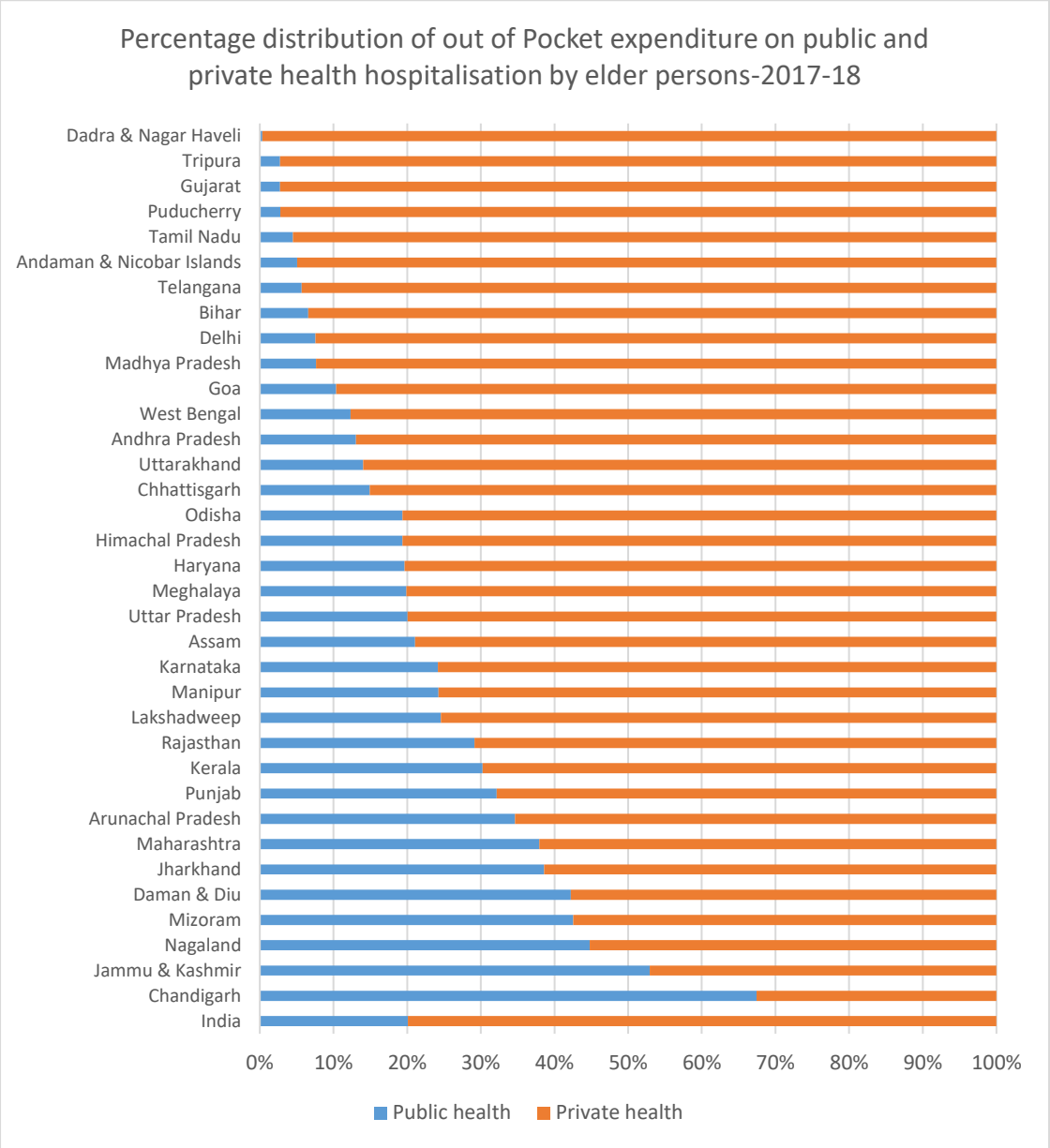
Source: Authors computations

Note: ES is economic status, SS is social status, Ed. S is educational status, and HS is health status

Appendix Table A.3: India and its States and UTs by directions

India	UTs
North	
Chandigarh	UT
Delhi	UT
Haryana	
Himachal Pradesh	
Jammu & Kashmir	UT
Punjab	
Rajasthan	
Uttarakhand	
Ladakh	UT
Uttar Pradesh	
Central	
Chhattisgarh	
Madhya Pradesh	
East	
Bihar	
Jharkhand	
Odisha	
West Bengal	
Northeast	
Arunachal Pradesh	
Assam	
Manipur	
Mizoram	
Nagaland	
Tripura	
Meghalaya	
West	
Dadra & Nagar Haveli, Daman & Diu	UT
Goa	
Gujarat	
Maharashtra	
South	
Andaman & Nicobar Islands	UT
Andhra Pradesh	
Karnataka	
Kerala	
Lakshadweep	UT
Puducherry	UT
Tamil Nadu	
Telangana	

Appendix Figure A.1: Percentage distribution of out of Pocket expenditure on public and private health hospitalisation on the last inpatient visit by elder persons-2017-18



Source: Authors computations from LASI (2020)

We observe that due to differences in access to inpatient medical care (as well as in out-patient care) between states, the elders have to spend from more than 90 percent on private health even in major states of Gujarat, Tamil Nadu, Telangana, Bihar, Delhi and Madhya Pradesh (Appendix Figure A.1). On the other extreme are states with better hospital infrastructure because of which out of pocket expenditure on private health care is relatively less than 70%. Some of these major states are Jharkhand, Maharashtra, Punjab and Kerala. States have to improve their medical infrastructure so that the financial burden on elders, especially women could be reduced.