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Title of the Poster : Indices for Measuring Socioeconomic Inequality in Longevity: Theory and an Application to India

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Introduction

- Specific initiatives have been taken across the globe in measuring life span as well as socioeconomic inequalities in life span of individuals.
- However, there is limited scholarship on socioeconomic inequalities in longevity in developing countries in general and India in particular.
- We have developed two indices – index of representation in longevity and index of socioeconomic inequality in longevity – for examining socioeconomic inequality (SI) in longevity.
- The paper includes caste, religion, gender, occupation, economic-classes and geographic regions to investigate the SI.

Data and Methods

- The present work is based on data taken from 2004-05 and 2011-12 rounds of India Human Development Survey (IHDS).
- For estimating socioeconomic inequality in longevity in India in 2004-05 and 2011-12, we have focused on the individuals who were above 65 years of age during the 2004-05 and 2011-12 surveys, respectively.
- We have categorized individuals into socioeconomic groups based on different socioeconomic characteristics, such as, caste, religion, gender, occupation, economic classes and geographic region. Caste is categorized into Other Castes (OC).
- Index of Representation in Longevity: *IRL (i) = SL (i)/α (i)*, where *IRL (i)* is the index of representation in longevity for group i, where the groups have been formed based on the basis of socioeconomic characteristics; *SL (i)* is the share of group i in longevity (number of 65+ individuals in group i / total number of 65+ individuals in the population) and; *α(i)* is the share of population of group i in the total population.
- Index of Socioeconomic Inequality in Longevity Index (ISIL): $ISIL = \frac{1}{2\bar{P}} \sum_{j=1}^{m} \alpha_j |\bar{P} - P_j|$; j = 1, 2,…, m; where, Where, m is the total number of socioeconomic groups in the population; $\bar{P}$ is the average longevity in the population (proportion of the individuals in the population having age more than 65 years); P_j is the average longevity in the jth group (proportion of individuals within group j having age more than 65 years); and α_j is the proportion of the jth group in the population.
- The paper calculates ISIL separately for groups formed by – caste; religion; gender; occupation; economic classes and; and geographic regions.

Results

- Other Castes/ Upper Castes (OC) are overrepresented in both 2004 and 2012 in both rural as well as urban areas.
- The Other Backward castes (OBCs) are marginally overrepresented and slightly underrepresented in rural and urban areas, respectively, in 2004 as well as 2012.
- The Scheduled Castes (SCs) and Scheduled Tribes (STs) are severely underrepresented (with STs the worst) in almost all cases with the representation of STs decreasing from 0.75 in 2004 to 0.69 in 2012 (at the all-India level) which is the least among all the caste categories.
- The representation of OCs in rural areas, although remaining highest among the caste groups has seen a decrease from 1.25 in 2004 to 1.20 in 2012; whereas, it has increased in the urban areas.
- The maximum representation in longevity is of Christians at the all-India level. Although overrepresented, their representation has observed a decrease from 1.40 in 2004 to 1.18 in 2012.
- The other overrepresented groups are Sikhs and Hindus.
- Muslims are seriously underrepresented (0.71) in longevity in both the years.
- The representation of males in longevity has gone down from 1.01 in 2004 to 0.97 in 2012 at the all-India level. On the contrary, female representation in longevity, had gone up from 0.99 in 2004 to 1.03 to 2012.
- Maximum socioeconomic inequality in longevity is observed when the groups are constructed based on occupation, be it 2004 or 2012.
- In 2012, about 15 percent longevity opportunities need to be shifted from the better off groups (groups where average longevity is higher than the average longevity for the whole population) to the worse off groups where average longevity is lower than the average longevity for the whole population) to bring equality in longevity in the society at the all India level.
- Followed by occupation, second and third highest socioeconomic inequalities in longevity in both 2004 as well as 2012 are observed in the case of geographic regions and caste, respectively.
- Also, the lowest socioeconomic inequality in longevity is observed in the case of gender followed by economic classes. Further, barring the case of economic class and geographic regions, the socioeconomic inequality in longevity based on all other socioeconomic characteristics is higher in urban areas compared to that of rural areas.

Table: Index of socio-economic inequality in longevity (ISIL, percent) among the elderly: All India, Rural and Urban.

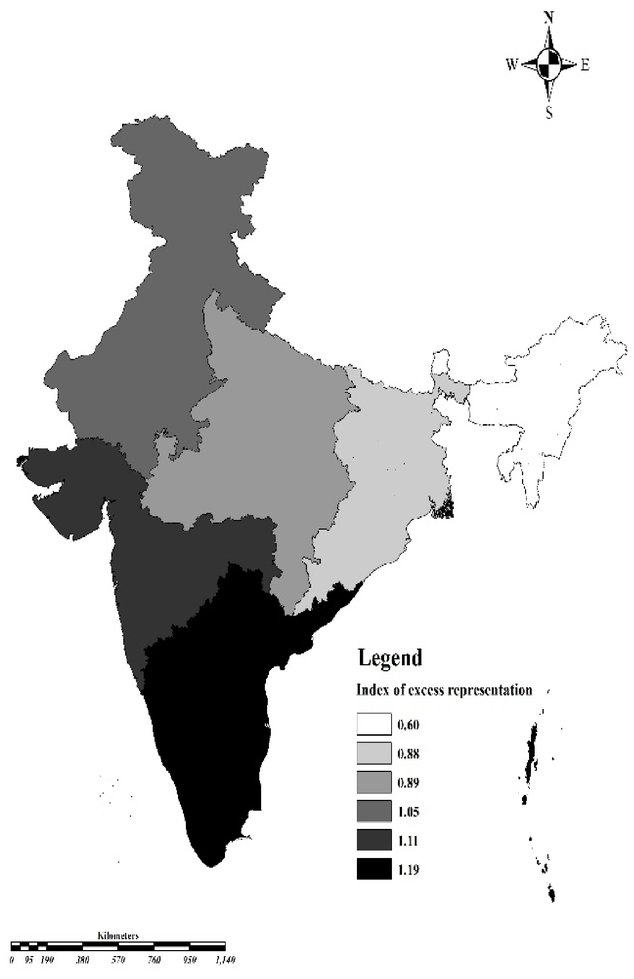
Socio-economic characteristics	2004-05			2011-12		
	India	Rural	Urban	India	Rural	Urban
Caste	5.8	6.8	5.7	5.2	5.6	5.9
Religion	4.1	2.7	4.1	3.9	3.6	4.1
Gender	0.7	1.5	2.1	1.5	0.5	4.1
Occupation	14.1	12.8	14.5	14.9	13.2	16.5
Economic class	1.2	3.3	2.7	1.0	2.5	2.3
Region	6.6	8.3	6.0	5.4	7.0	6.4

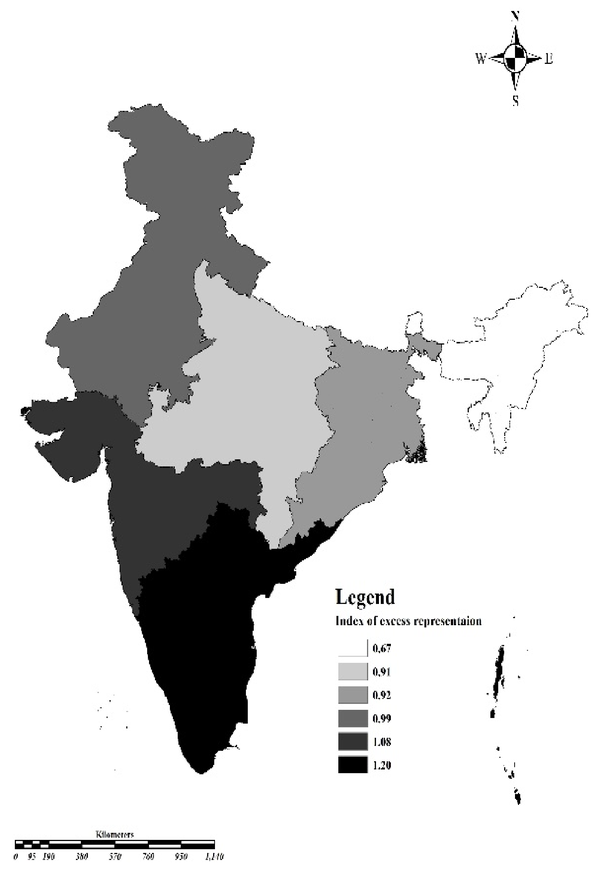
Note: Authors' computation based upon IHDS 2004-05 and 2011-12.

Conclusions and Discussion

- Given the scarce nature of scholarship on socioeconomic inequalities in longevity in developing countries in general and India in particular, we have used data from the two rounds (2004-05 and 2011-12) of the nationally representative India Human Development Survey, and have critically and comprehensively examined the socioeconomic inequality in longevity in India and its various geographic regions.
- The analysis has been performed first, at the all-India level and then separately for rural and urban areas.
- We have included caste, religion, gender, occupation, economic classes and geographic regions to investigate the socioeconomic inequalities in longevity.
- Also, we have developed and estimated two indices for the examination, namely – index of representation in longevity (IRL) and index of socioeconomic inequality in longevity (ISIL). The index of representation in longevity and the index of socioeconomic inequality in longevity ISIL have been estimated for caste, religion, gender, occupation, economic classes and geographic regions.
- Our findings support the general conclusions (of earlier studies, for example, Dreze and Sen 2013) that, first, though India has shown impressive economic growth in the last two decades, the economic growth has not converted into desirable improvement in the health conditions of the population in the country; and second, India suffers from serious socioeconomic inequalities in economic, demographic and health outcomes with different socioeconomic groups being at different levels of economic, demographic and health conditions.
- The result that among the caste groups, the "OCs" have overrepresentation in longevity, whereas, the "SCs" and "STs" have severe underrepresentation in longevity is in line with the existing narrative on caste based disparity (with OCs in advantageous and SCs as well as STs at a disadvantageous position) in various economic, demographic and social indicators of welfare in India (Deshpande, 2011 and the references therein).
- Also, among the religious groups, "Muslims" having severe underrepresentation in longevity is again in line with the existing discourse on the economic, demographic and social condition of Muslims in India on one hand and the rampant religion based inequalities in economic, demographic and social indicators in India on the other (Bhan et al. 2016; Dreze and Sen 2013; Government of India 2006).
- We also find that groups, such as, agricultural and non-agricultural laborers, petty traders, lower economic classes etc. are substantially underrepresented in longevity. This again fits with the existing literature (for example, see Motiram and Singh 2012) on the demographic, social and economic condition of these groups in India.
- One of the most glaring socioeconomic inequalities in longevity is observed in the case of geographic regions where the demographically, economically and socially advanced regions of south and west have overrepresentation in longevity, whereas, the demographically, economically and socially disadvantaged regions of central, east and north east have underrepresentation in longevity. The above finding is also in line with the existing scholarship on the increasing nature of region based inequality in health, social and economic outcomes in India (Chakravarty and Dehejia, 2018; Pathak and Singh, 2009; Singh, 2011).
- Our results based on the summary indicator – Index of Socio-economic Inequality in longevity – further supports the finding that India suffers from substantial socioeconomic inequality in longevity. The socioeconomic inequality in longevity is maximum when the groups are formed based on occupation categories. About 15% longevity opportunities (in 2012) need to be shifted from the better off groups to the worse off groups to bring equality in longevity in the Indian society. Also, the socioeconomic inequality based on the above index has increased over time.
- Our study suffers from a few limitations, such as, we have used a cutoff of 65 years to identify longevity, the results might vary if a different threshold is chosen but the variation is not expected to be significant because whatever threshold or cutoff will be chosen it will be applied uniformly across all socioeconomic groups; also, as the duration of time between the two surveys (2004-05 and 2011-12) is not very large, it limits the predictive power in the trends presented in the paper. One important aspect which can be taken as the first agenda for future research is to examine why there are so enormous differences in longevity by factors like caste etc. – which are factors beyond the control of an individual and get assigned automatically at birth.

Index of representation in longevity by six geographic regions based on IHDS: 2004-05 and 2011-12





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