

Effect of Catastrophic Expenditure of Elderly Healthcare on the Household

By

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TO WHOMSOEVER MAY CONCERN

This is to certify that **Dr. Sakshi Kushwaha** student of MBA Hospital and Health Management (MBA-HM) from The IIHMR University, Jaipur has undergone internship training at **The IIHMR University, Jaipur** from **4th February, 2016** to **16th May, 2016**.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical. The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.



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Abstract

Effect of catastrophic expenditure of elderly healthcare on the household

Submitted By - Dr. Sakshi Kushwaha

Submitted To – Dr. Monika Chaudhary

This shift in the demographic pattern has resulted in the increase of geriatric population. The proportion of the population aged 60 years and above is expected to increase to 20 per cent (315 million) by the year 2050. Old age is characterised by irreversible physical and cognitive changes and the person becomes vulnerable to various disease, syndromes, and sickness. Sickness not only results in suffering and death but also has an associated cost and thus creates a huge out of pocket expenditure on the households. The poor understanding of elderly life under the dynamic economic and socio-cultural norms in the country has led to a weak care and support for them.

Studies revealed that individuals aged 65 years and above has per capita health expenditures that were nearly 1.5 times the per capita expenditures of those between 60 and 64 years of age. The research is aimed at understanding the impact of expenditure made on elderly population's inpatient healthcare on the households of India, belonging to various income groups. And also to examine whether there has been a change in the pattern of expenditures on inpatient care of elderly over a period of ten years of healthcare reforms.

Data was analysed from 60th round, schedule 25 of National Sample Survey and 71st round, schedule 25 of National Sample Survey. Households with geriatric individuals who have undergone hospitalization in last 365 days prior to start of the surveys were selected. Percentage expenditure on health was calculated for these households, which were divided on the basis of their total expenditure. Lorenz curves were plotted for Insured/non-insured, rural/urban and dependent/non-dependent households to show the income disparity among different quantiles.

Study revealed that the lower 40% of the population which has approximately 17.5% of the total annual expenditure spends about 49% and 50% of the total expenditure on health in 2004 and 2014 respectively. Thus the impact of catastrophic expenditures incurred on the unhealthy geriatric population is worst in the lowest quintile. The dependency on household income/saving increased by 13% for households with economically independent elderly whereas 27% for households having economically dependent elderly during the reference period. Also the unhealthy geriatric population does not seem to be benefitted by insurance schemes in the last ten years. This highlights the need of an effective insurance system and social security net for geriatric individual, to promote overall economic development of the households.

Keywords: Catastrophic expenditure, Income disparities, Lorenz curve.

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Dr. Sakshi Kushwaha

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1. Introduction:

1.1 An overview of the Geriatric population:

Elderly or geriatric population consists of ages nearing or surpassing the average life span of human beings. The social category of 'old age' is extremely broad and is referred to as population in their 'late adulthood', 'the late decades of life' or 'the Third Age'.(C. Degnen, 2007) "The geriatric population is defined as population aged 60 years and above." (Elango S., 1998).

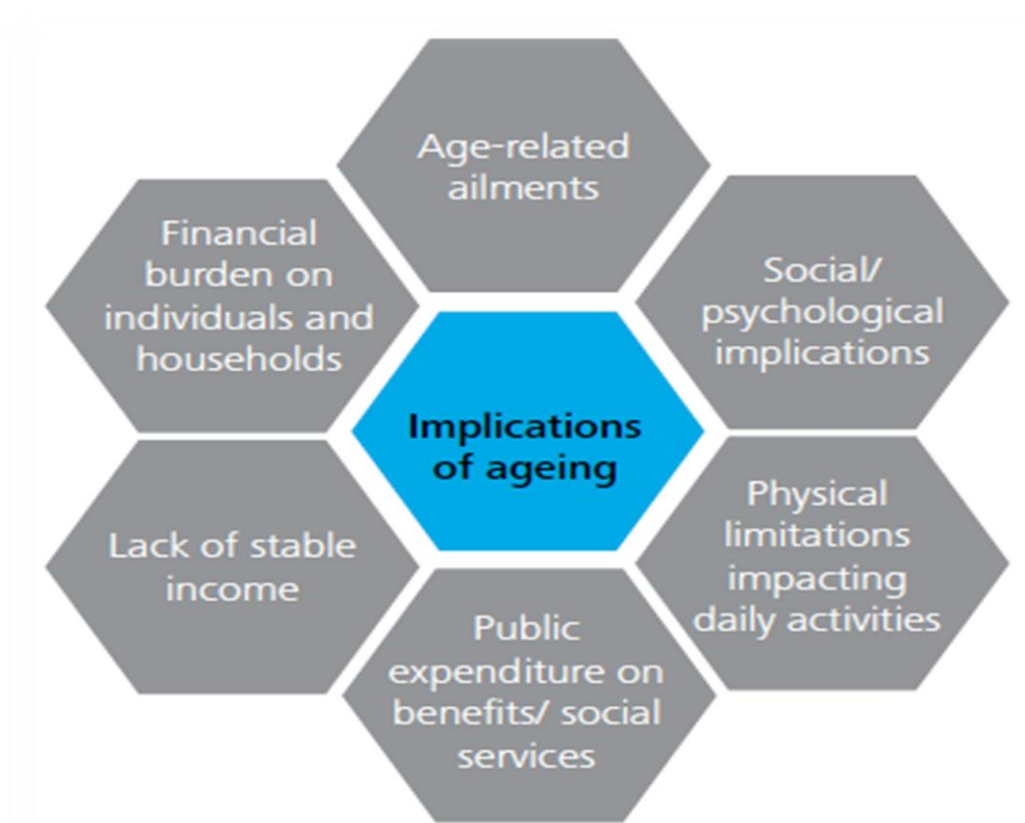
The population over 60 years of age has tripled in last 50 years in India. As per Census 2011 data, the total geriatric population of India was 10,38,49,040. "The proportion of the population aged 60 years and above was 7 per cent in 2009 (88 million) and is expected to increase to 20 per cent (315 million) by the year 2050. The oldest-old age segment (80 years and above) is the fastest-growing segment and by 2050, about 20 per cent of older persons will be 80 years and above. The coming decades therefore are characterised by ageing of the aged." (UNFPA, 2011). India can be thus considered "an ageing nation".

1.2 Implications of an Ageing population - the Nationwide Canvas:

This shift in the demographic pattern has important implications for the country as well as for elderly and their families as the need for the socio-economic support increases for older population.(UNFPA, 2011). The consequences could be age-related ailments, social implications such as loneliness and depression, or economic implications arising from a lack of stable income and inability to bear the cost of healthcare.(Deloitte, 2014) The poor understanding of elderly life under the dynamic economic and socio-cultural norms in the country has led to a weak care and support for them.(AB Dey, 2006)

Old age is characterised by irreversible physical and cognitive changes and the person becomes vulnerable to various disease, syndromes, and sickness. "Almost one-half (47 percent) of older Indians have at least one chronic disease such as asthma, angina, arthritis, depression, or diabetes."(Chatterji et al., 2008).Also the older population account for a higher proportion of hospitalized cases, including multiple admissions.(Sona et al, 2012)

Sickness not only results in suffering and death but also has an associated cost. In fact in most of the developing countries illness not only creates out-of-pocket expenditures for patients and their families (Uplekar et.al., 2001) but also affects the income generation, which as a result jeopardizes future economic welfare.(Gertler P & Gruber J, 2002)



Source: (UNFPA, 2011)

1.3 The catastrophe of expenditure on elderly healthcare:

The dependency ratio is an important indicator of the economic burden carried by each member of the household and is the ratio of the dependent population to that of the working age population. “Old age dependency is the ratio of persons aged 60 years and above to the working age population. Old age dependency ratio shows an increasing trend and is expected to increase by about 7 percentage points by 2016.”(UNFPA, 2011)It is also estimated that households with only elderly members incur a monthly per capita health expense that is 3.8 times that of households with no elderly members.(Mohanty et al, 2014) Studies also reveal that individuals aged 65 years and above had per capita health expenditures that were nearly 1.5 times the per capita expenditures of those between 60 and 64 years of age.(Mahal et al, 2002)It is obvious that the households having elderly members thus spend a disproportionate amount of their total monthly consumption on healthcare needs when compared to other households.

India has one of the world’s highest levels of out of pocket spending of around 89%(The World Bank, 2016).Under the stress and anxiety of disease, to get the ailment cured, most of the people have no choice but to pay the fees requested by health providers even if the cost is more than what they can afford.(Russell, 1996)Financial protection for health spending remains in the form of savings and insurance. But insurance is limited because of its low coverage of conditions and population; generally people end up paying for private out-of-pocket expenditure.(R Duggal, 2007) Households accept to compromise the future welfare of all its members for providing

health care to one of them, perceived as essential for their survival. “Thus future welfare is put at risk by incurring debts, selling off productive assets, or sacrificing investment in future productivity, for example by curtailing children’s education.”(Whitehead et al, 2001)

2. Rationale

The research is aimed at understanding the impact of expenditure made on elderly population’s inpatient healthcare on the households of India. The research will examine the various ways in which these expenditures are financed by the households and whether these expenditures are catastrophic in nature or not for various levels of income. The research will also examine whether there has been a change in the pattern of expenditures on inpatient care over a period of ten years of healthcare reforms. The research will examine the impact of inpatient expenditure on health for that individual who is non-productive for the household.

3.Objectives of the research

- i. To understand the availability of financial resources for the inpatient healthcare expenditures needed to be incurred on the elderly population in the country
- ii. To examine whether the inpatient healthcare expenditure on elderly population is catastrophic in nature for different income groups
- iii. To understand the source of finance for the inpatient healthcare expenditure on elderly population in India
- iv. To evaluate the difference in inpatient healthcare expenditure over a period of ten years for various income levels

4.Methodology

For the purpose of research, data was taken from 60th round, schedule 25 of National Sample Survey on “Morbidity, Health and condition of the aged” conducted in 2004 which covers 47,302 rural and 26,566 urban households; and 71st round, schedule 25 of National Sample Survey on “Social Consumption in India: Health” conducted in 2014 which covers 36,480 and 29,452 Rural and Urban households respectively. Our analysis covers 5,018 households (2,994 rural and 2,024 urban households) from 60th round and 7,650 households (3,908 rural and 3,742 urban households) from 71st round which include households which have one or more elderly (Above 60 years) family member/s and has undergone hospitalization in last 365 days prior to start of the surveys.

Following parameters were selected for desired households from different blocks of the questionnaire:

Unique ID

Sector

Annual household expenditure

Total expenditure on health

Total amount reimbursed from insurance

Major source of finance

Dependency of elderly member on family (Partially/fully dependent, non-dependent)

Using SPSS and Microsoft-Excel, percentage expenditure on health was calculated for both insured and non-insured households and further segregated by sector and dependency on family for 10 quantiles based on their annual expenditure. Tables were constructed and graphs were plotted. Using these graphs and tables, Lorenz curves were plotted for Insured/non-insured, rural/urban and dependent/non-dependent households to show the income disparity among different quantiles.

Annual household expenditure reflects the household's capacity to pay and therefore is taken as a proxy to Annual household income, as the data on the same was not recorded in the survey. On the basis of the annual household income the total number of households were divided in to 10 quantiles. The minimum and maximum value for each quantile in both the surveys is represented in table 1.

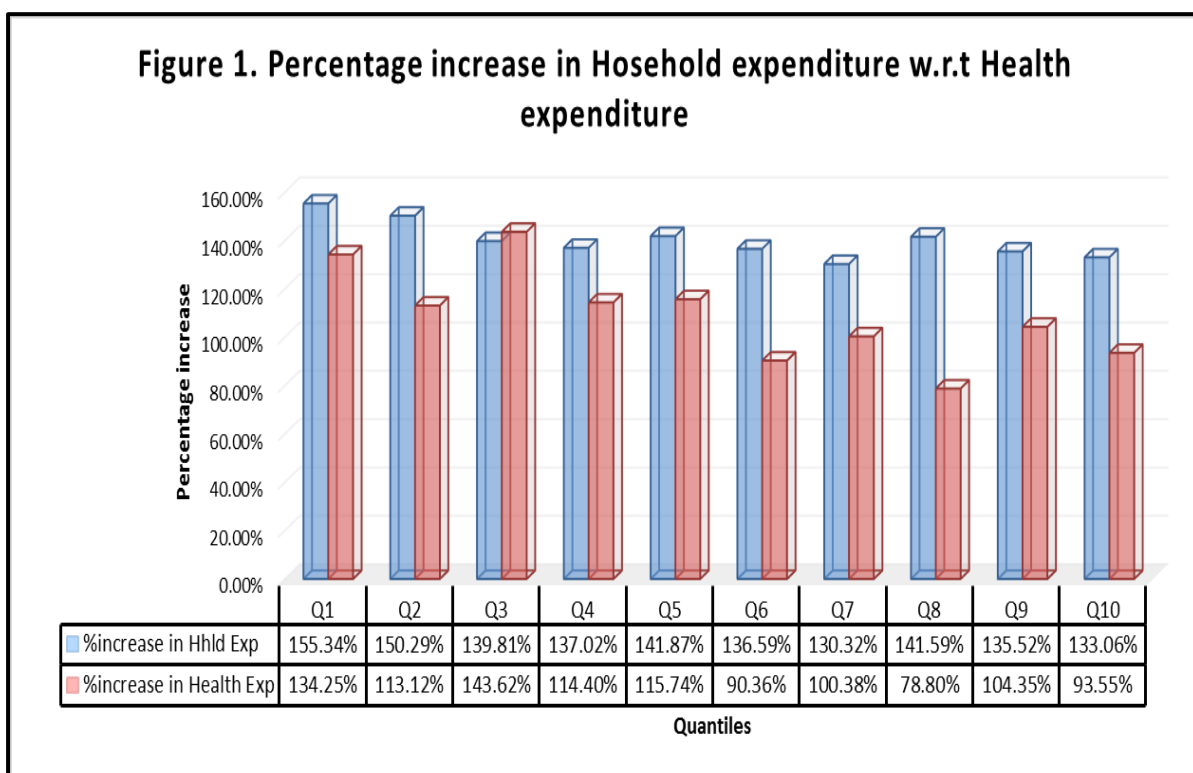
Table 1. Minimum and Maximum values of Annual Household Expenditure for Quantiles											
Year	Quantiles	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2004	Min	0	14760	22200	29364	36000	42000	48000	60000	72000	96000
	Max	14712	22200	29340	36000	42000	48000	60000	72000	96000	1044000
2014	Min	0	36000	54000	72000	84000	96000	120000	144000	180000	240000
	Max	36000	54000	72000	84000	96000	120000	144000	180000	240000	1800000

5.Findings

It was found out during the analysis of data that there is an increase in the number of urban households and decrease in the number of rural households having geriatric population across all the quantiles over the period of ten years. Table 2 clearly shows that the lowermost quantile (Q1) comprises of 82% of rural and 18% of urban households with geriatric individuals in 2004, which reduces to 74% of urban households and 26% of rural households, yet the population seems to be concentrated in urban areas as income levels increase. An evident decrease of 9% in the rural and 40% increase in the urban households with geriatric individuals has also been observed in the lowermost quantile (Q1) in the past ten years. Thus it is evident that incomes have increased at a faster rate in urban areas as compared to the rural areas.

Table 2. Percentage distribution of rural and urban geriatric households											
Quantiles		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Rural	2004	81.67%	82.27%	77.89%	81.47%	62.7%	58.76%	60.76%	35.06%	31.08%	24.80%
	2014	74.38%	69.02%	64.05%	53.33%	60.92%	55.29%	42.48%	37.52%	34.64%	19.22%
Urban	2004	18.33%	17.73%	22.11%	18.53%	37.3%	41.24%	39.24%	64.94%	68.92%	75.20%
	2014	25.62%	30.98%	35.95%	46.67%	39.08%	44.71%	57.52%	62.48%	65.36%	80.78%

The mean annual household expenditure and the mean annual expenditure on health of elderly during the reference period (2004 to 2014) was used to find out the percentage increase for both the variables across all quantiles and a graph was plotted for the same (Figure 1).

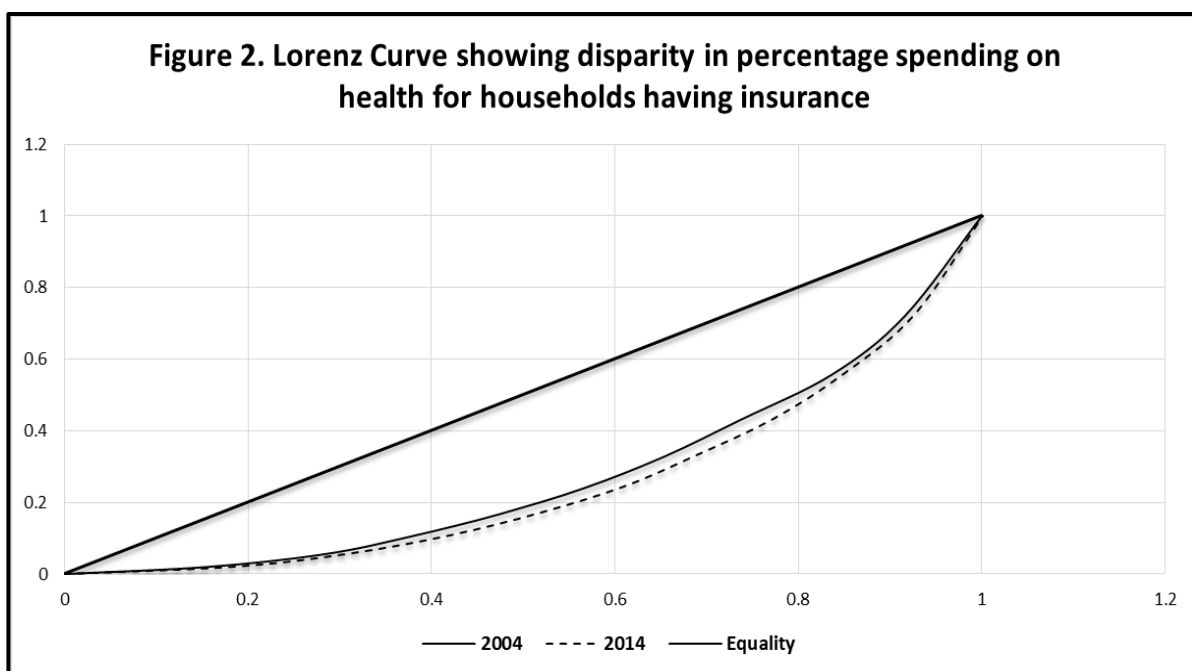


Though the annual expenditure of the households has increased significantly, a corresponding increment in the annual health expenditure of geriatric members of the household has also taken place. The lowermost quantile (Q1) shows maximum increase of 155% in the annual household expenditure from 2004 to 2014, however it also shows the second highest increment of 134% in annual health expenditure on elderly during the same preference period. Overall, an increase of 140% has been observed in the annual expenditure whereas an increase of 110% has been observed in the annual expenditure on health for households having elderly members during the period 2004 to 2014. Data was further analysed to calculate the percentage of annual expenditure done on health of geriatric individuals during the past ten years and has been represented in Table 3.

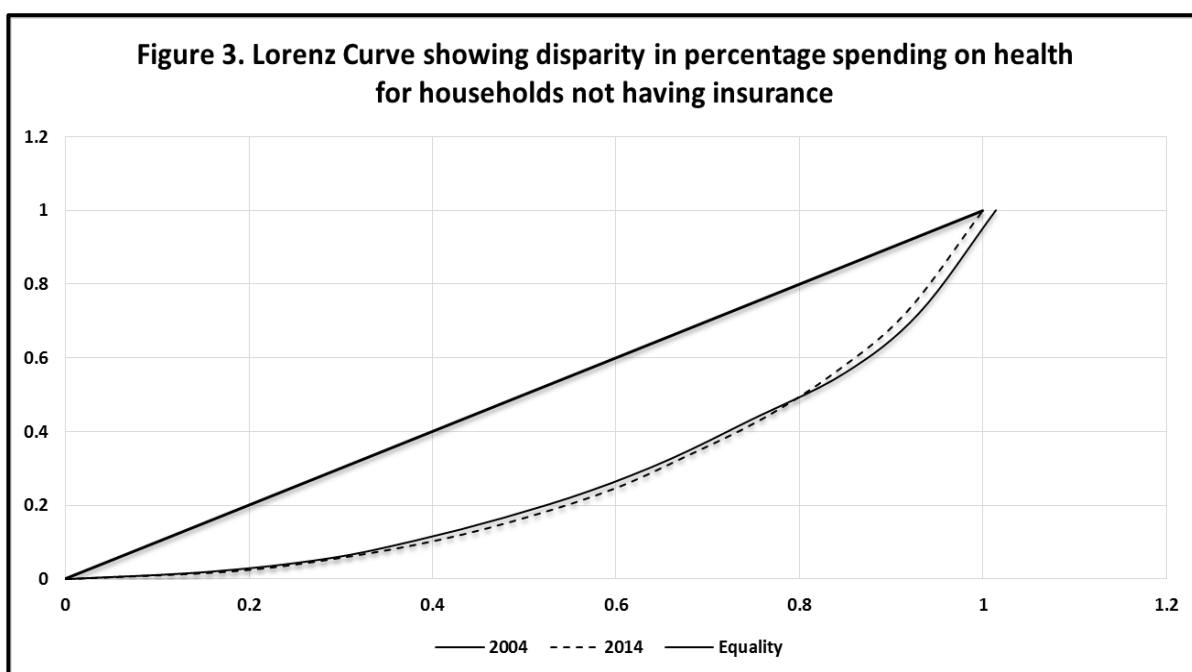
Table 3. Percentage Expenditure on Health in Households with Geriatric Individuals (Wo Insurance)											
Quantiles		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Mean	2004	53.59%	44.86%	33.41%	33.44%	32.43%	30.56%	30.08%	35.23%	28.17%	29.14%
	2014	57.21%	38.31%	34.19%	30.08%	28.64%	24.49%	26.37%	25.47%	24.21%	26.22%
Minimum	2004	0.00%	0.01%	0.11%	0.08%	0.06%	0.08%	0.04%	0.04%	0.04%	0.00%
	2014	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Maximum	2004	1175.00%	2584.19%	1655.56%	854.90%	819.31%	1039.58%	981.33%	2329.00%	1240.60%	1777.78%
	2014	2318.33%	1121.43%	1092.50%	684.87%	833.54%	619.96%	1139.02%	492.99%	304.17%	323.83%

The table clearly shows that the lowermost quantile (Q1), is facing the maximum brunt of catastrophic expenditure by spending the highest on healthcare of the elderly with a mean spending of 57% in 2014 and 54% of its total annual household expenditure in 2004. Although, the minimum expenditure done on healthcare for elderly remains the same for both the years i.e. 0%, a remarkable increase of 97% has been observed in the maximum expenditure done on healthcare for the same i.e. 1175% of their annual household expenditure on the healthcare of the elderly members in 2004 to 2318% in 2014. It becomes evident from Table 3 and Table 4 that in spite of a radical increase in the annual household expenditure, it is the lowermost quantile (Q1) of household which suffers the most with an increase of 130% on health expenditure and almost 100% increase in the range of healthcare spending on elderly. The figures are similar for households availing insurance facility.

To understand the disparity in percentage spending on health on the geriatric members of the household with respect to the number of households, Lorenz curves were plotted for both insured and non-insured households. The curve was plotted with cumulative percentage of households on x-axis and cumulative percentage of percentage expenditure on health. The line of equality represents the ideal situation where a change in percentage of household causes an equal change in percentage expenditure on health. The graph represents that an income disparity is observed over a period of years (2004 to 2014) in insured households with elderly members. The graph (Figure 2) depicts that in 2004, the lowermost quantile was accountable for 15% of the total expenditure on health which was increased to 19% in 2014. The major expenditure on health was accountable to the initial four quantiles (17% of the total annual expenditure) which was 47% in 2004 and increased to 52% in 2014.



The curve for non-insured households having elderly members has not quite improved in the past ten years and has been quite similar to the insured households. The lowermost quantile was accountable for 15% of the total expenditure on health in 2004 which increased to 18% in 2014. The major expenditure done on health was also similar to insured households. 48% of the total expenditure on health in 2004 and 51% in 2014 was accountable to the initial/lowermost four quantiles which has only 17% of the total annual expenditure. However, there is a slight improvement in the two higher most quantiles (Q9 and Q10) in 2014 as compared to 2004 as depicted by the shift of 2014 curve (dotted line) towards equality or ideal line.



To understand the situation further, graphs similar to Figure 1 were constructed for both rural and urban households as well as for the households with economically dependent and independent geriatric individuals.

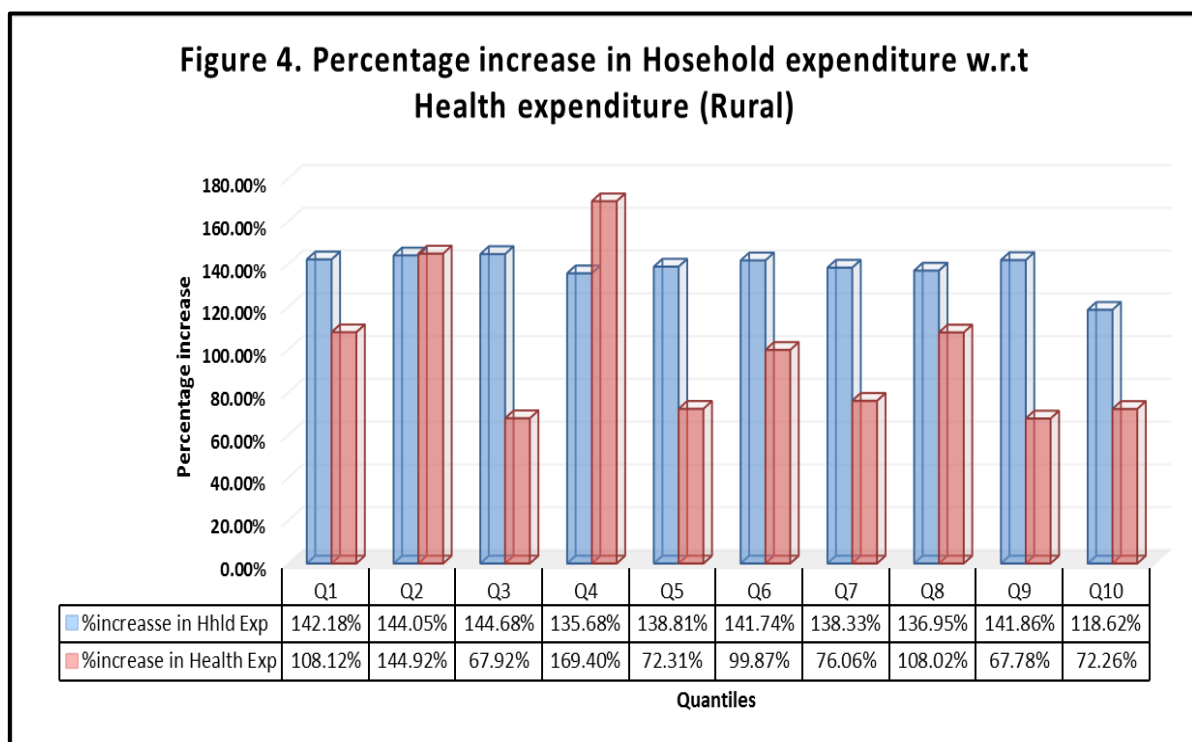
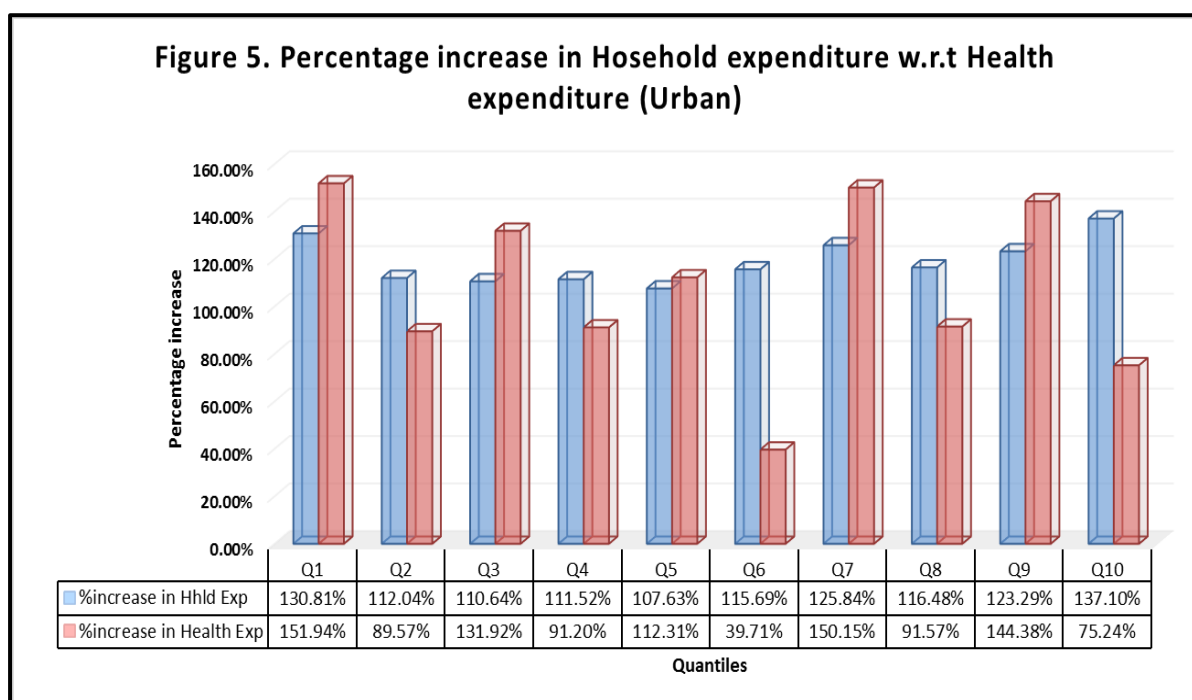
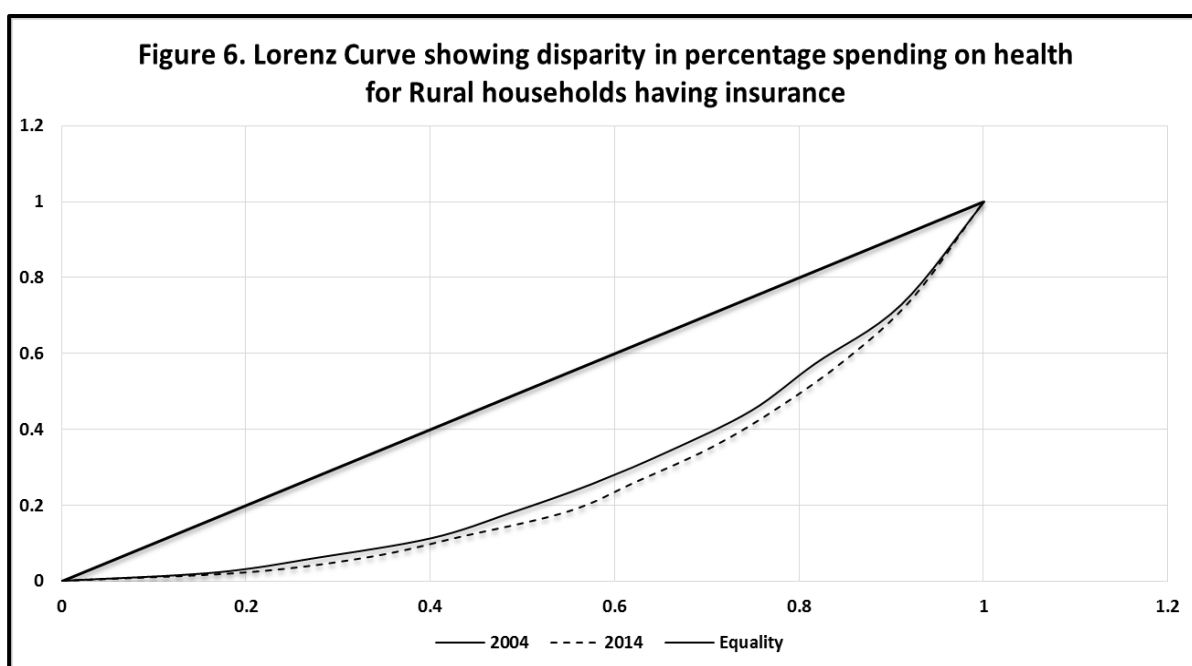


Figure 4 shows the annual household expenditure and annual expenditure on health of the elderly members along with their percentage increase from 2004 to 2014 for rural households. An increase in the annual household expenditure was also accompanied by a corresponding increase in the spending on the health of the elderly. Overall increment in household expenditure was found to be 138% whereas increment in health expenditure on geriatric members came out to be 99%. Similar data for urban population has been represented in Figure5, and was compared to Figure4.

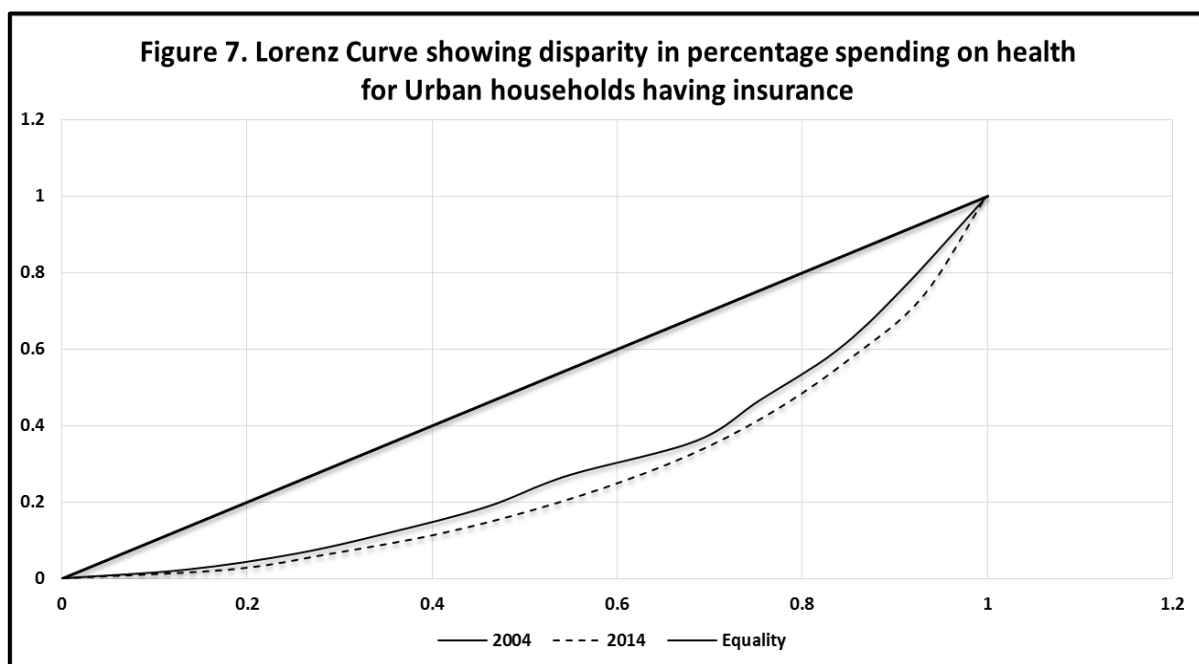


A comparative analysis for both the figures revealed a slight difference of 19% between rural and urban areas, with 138% increment in annual household expenditure for rural households compared to 119% for the households in urban areas. Increment in health spending was 109% for the rural as compared to 107% for the urban households. However, as per the analysis there is a similarity between both the tables in terms of burden due to health expenditure across all the quantiles. In both type of households, the lowermost quantiles(Q1) were the major sufferers with second highest increment in health spending on elderly. To understand the situation better, Lorenz curves were plotted for both insured and non-insured households residing in both the areas.

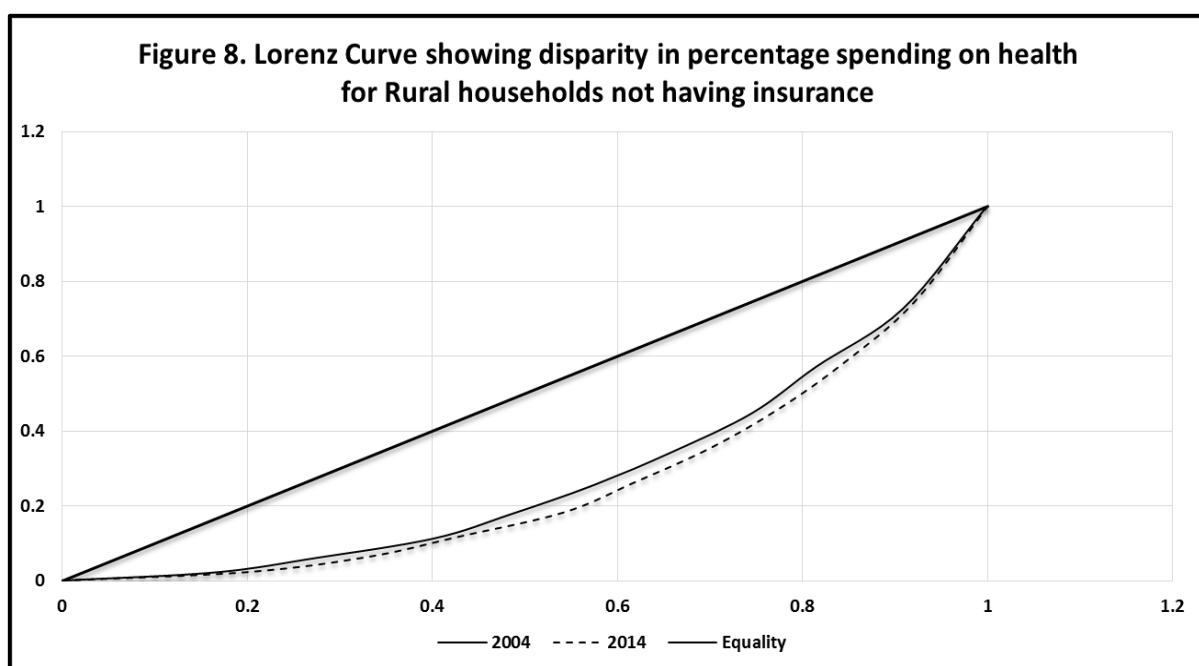
Lorenz curve representing disparity in percentage spending on health for insured rural household has been represented in Figure 6. It depicts that the lowermost quantile, which was accountable for 17% of the total expenditure on health in 2004 increased to 20% in 2014. The initial four quantiles (18% of total annual expenditure) were accountable for 49% of the total expenditure on health in 2004 which increased by 6% to 55% in 2014. A visible disparity has been observed during the reference period (2004 to 2014) among the middle quantiles. The situation of the lowermost/poorest quantile remains the same.



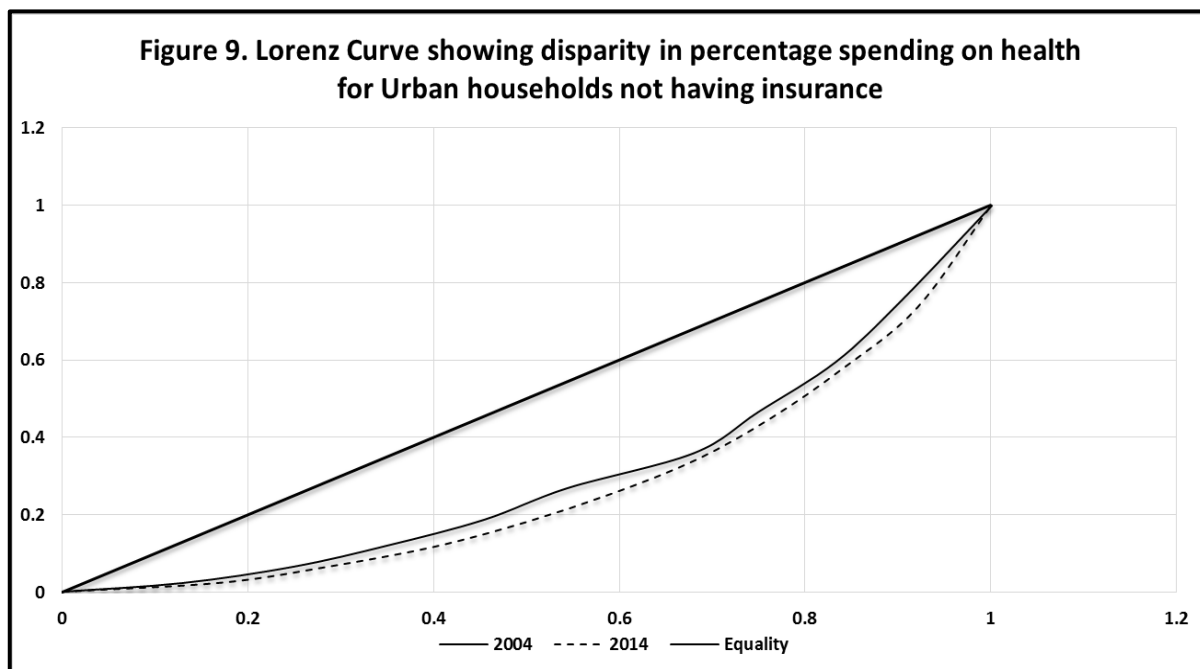
A similar graph (Figure 7) was plotted for the insured urban households and compared to Figure 6. The analysis revealed that the situation was slightly better in urban insured households than rural insured households where the lowermost quantile accounted for 13% of the total expenditure on health compared to 17% for rural in 2004 and 18% compared to 20% for rural in 2014. The initial four quantiles (18% of population) were accountable for 49% of the total expenditure on health in 2004 which increased by 6% to 55% in 2014. The situation in urban areas is similar to rural areas as far as Q1 is concerned. Its condition continues to remain the same. However, a visible disparity is observed starting from Q2 up till the last quantile during the reference period.



To understand the disparity among non-insured households, a curve was plotted for rural non-insured households (Figure 8). Disparity is observed third quantile onwards. The lowermost quantile which was accountable to 16% of the total expenditure on health in 2004 increased to 20% in 2014. The graph for non-insured rural households was found to be quite similar to insured rural households. Non-insured rural households showed that the initial 40% of the population having only 18% of the total annual expenditure was accountable for 49% of the total expenditure in 2004 and 54% in 2014 which is similar to values obtained for rural urban households.



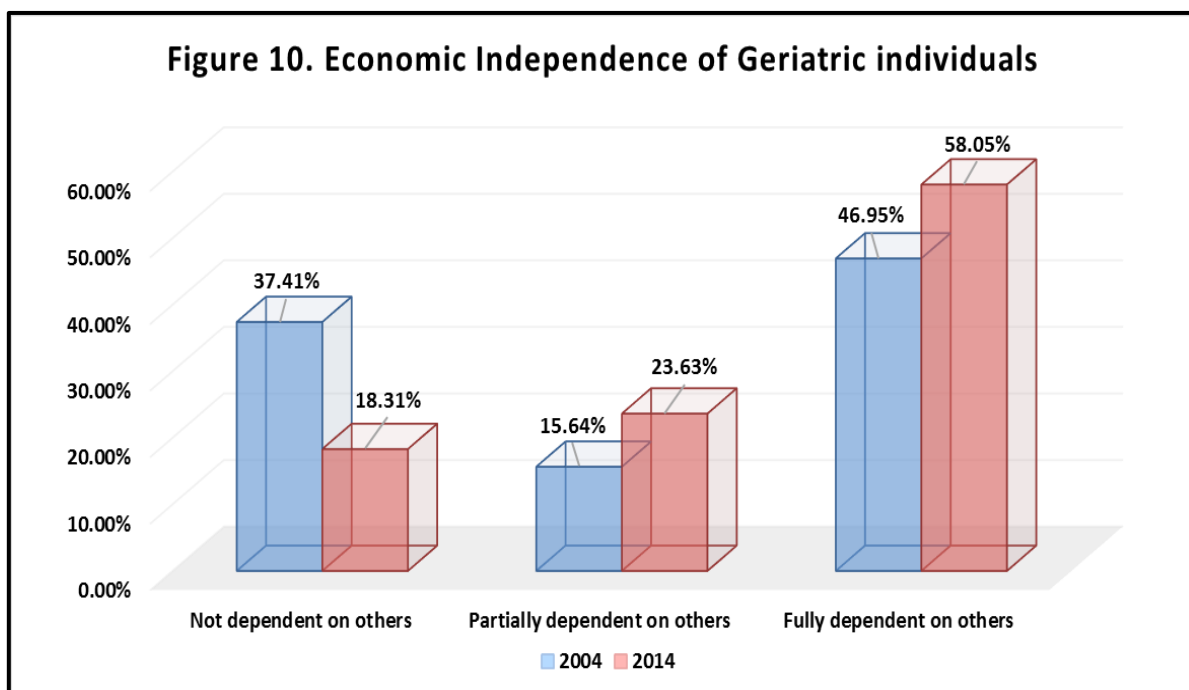
A similar plot (Figure 9) was drawn for urban non-insured households which showed results similar to those obtained for urban insured households. Q1 was responsible for 13% of the total expenditure on health in 2004 and 13% in 2014 and the lowest 40% of the population who spend 18% of the total annual expenditure accountable for 45% and 50% of total expenditure on health in 2004 and 2014 respectively.



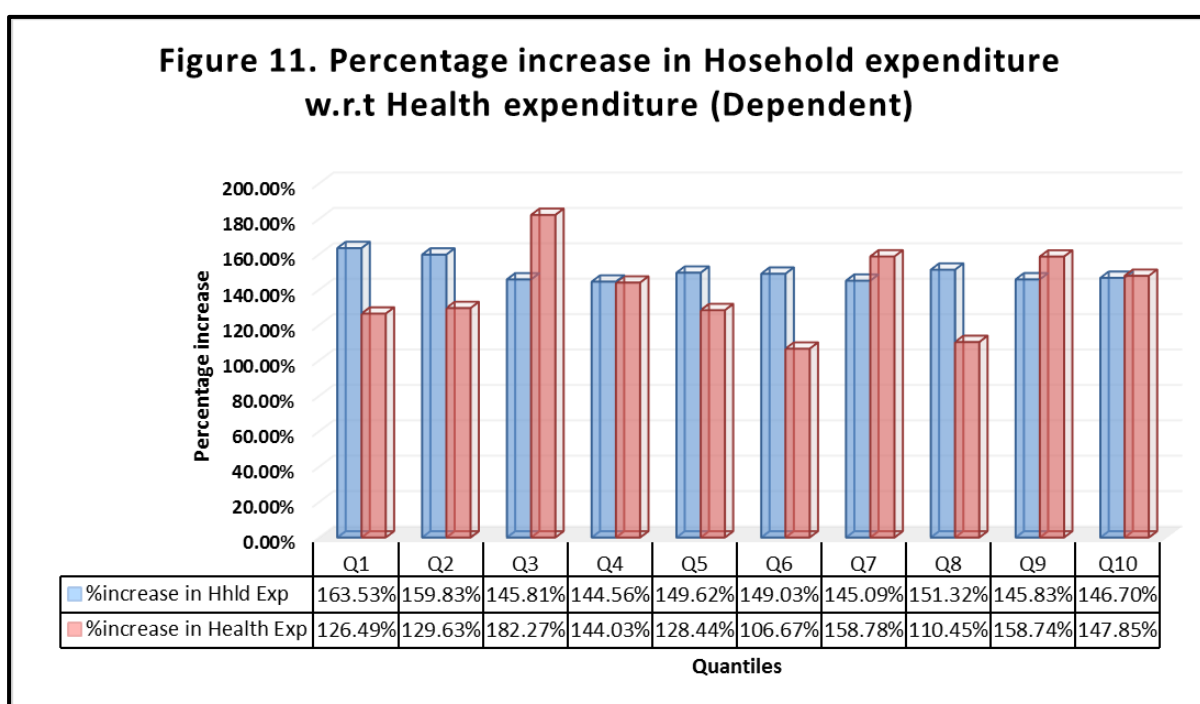
A detailed analysis of the curves is expressed in Table 4. It reveals that a difference was observed in case of rural and urban areas; however, no difference was observed in case of insured and non-insured households. The table clearly shows a difference between rural and urban areas. On an average the lowermost quantile of population which was accountable for 16.5% of the total expenditure in rural and 13% in urban areas in 2004 increased to 20% in rural and 17.5% in urban areas in 2014. The initial/lower 40% of the population did a major expenditure on health in both the areas. From 48% in rural and 45.5% in urban areas in 2004, the expenditure on health increased to 54.5% in rural and 51% in urban areas in 2014. Impact of insurance was negligible in both the areas.

Table 4. Percentage Expenditure on health with respect to population (Sector wise)								
Sector	Rural				Urban			
Population	Insured		Non-insured		Insured		Non-insured	
	2004	2014	2004	2014	2004	2014	2004	2014
10%	16.58%	20.16%	16.44%	19.88%	13.30%	18.15%	12.86%	16.99%
20%	27.71%	33.49%	27.48%	32.99%	25.29%	28.83%	24.85%	28.27%
30%	40.16%	43.52%	40.13%	42.84%	35.41%	40.63%	34.99%	39.87%
40%	48.56%	54.96%	48.49%	54.25%	45.86%	50.99%	45.43%	49.80%
50%	57.51%	62.40%	57.38%	61.76%	54.61%	60.80%	54.37%	59.33%
60%	66.16%	70.74%	65.98%	70.04%	68.47%	69.71%	67.97%	68.39%
70%	74.83%	78.00%	74.59%	77.50%	75.39%	77.89%	74.91%	76.41%
80%	81.71%	85.16%	81.47%	84.62%	83.72%	85.32%	83.27%	84.01%
90%	91.03%	92.32%	90.83%	92.09%	90.70%	92.99%	90.30%	92.07%
100%	100.10%	100.03%	99.88%	100.00%	100.03%	99.88%	100.10%	100.00%

For a better understanding of the situation among households having economically dependent and non-dependent geriatric individuals, a graph (Figure 10) was initially plotted to get a clear picture about the economic dependency of the geriatric members amongst the sample households. The graph evidently represents that there is a drastic decrease in households where elderly are not dependent on others economically. From 37% households in 2004, the percentage has decreased to 18% in 2014. Simultaneously, the figures have increased for Partially dependent on others by 51% and Fully dependent on others by 24% from 2004 to 2014.

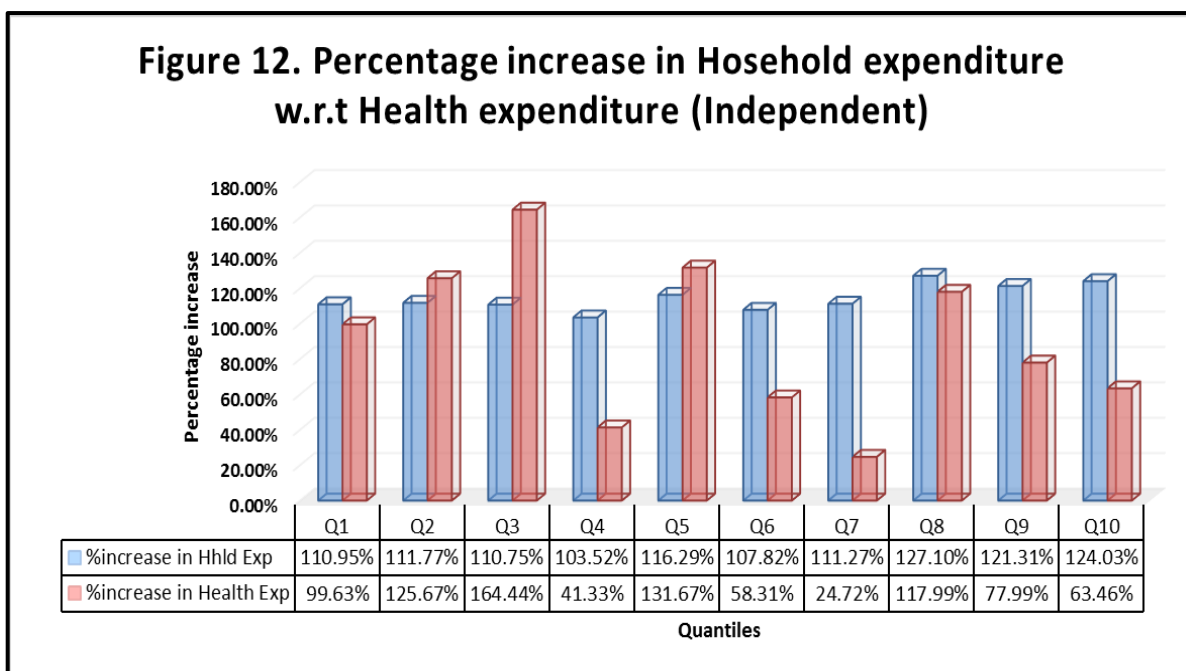


The percentage increase in the annual household expenditure and annual expenditure of households on health from 2004 to 2014 with economically dependent elderly has been described in Figure 11.



The graph shows unique results. Though Q1 has the maximum increment in terms of annual expenditure of 164%, it the third quantile (Q3) which has the maximum increment of 182% in terms of health spending while health spending increment for Q1 accounts to 126%. Overall and increment of 150% in annual expenditure and 139% in health spending has been observed for dependent households.

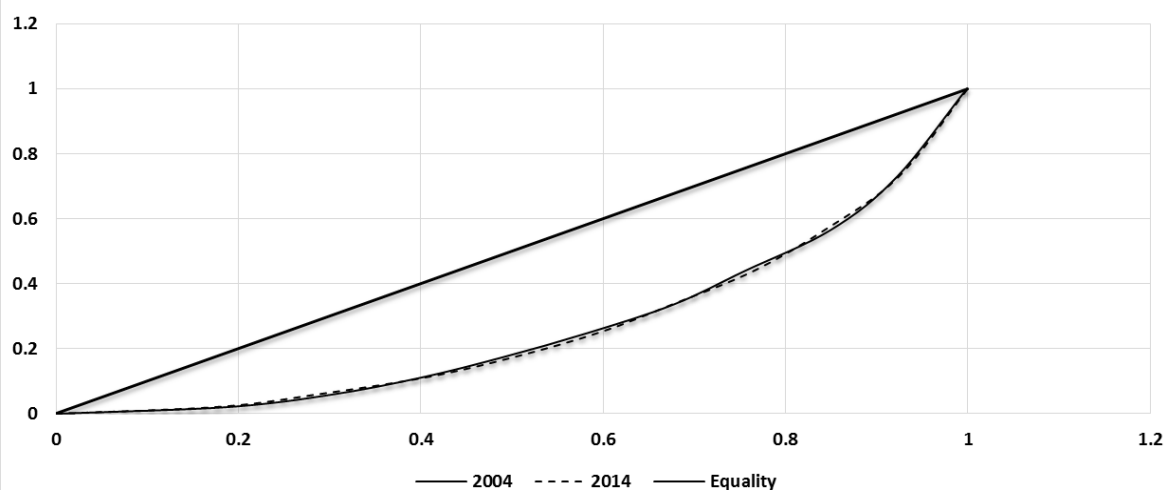
A similar graph (Figure 12) was plotted for non-dependent households and compared with Figure 11.



A comparative analysis of both the graphs shows similarity in terms that Q3 has the maximum expenditure on health for independent households. A remarkable difference was observed in both the tables. The overall increment in annual household expenditure was 114% for independent households compared to 150% for dependent households and 91% increment in expenditure on health as compared to 139% for dependent households during the same reference period 2004 to 2014.

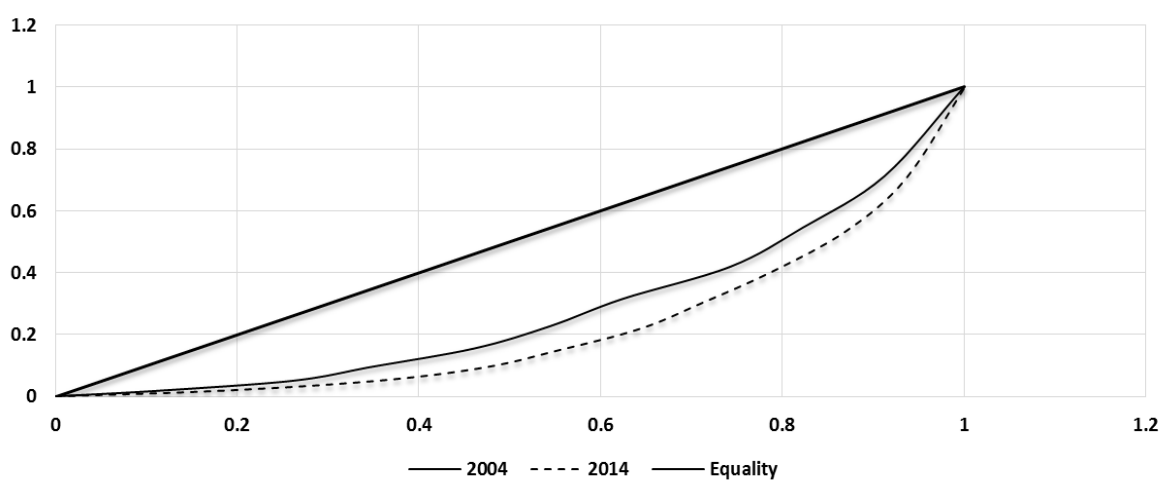
Lorenz curve (Figure 13) for insured dependent households with one or more elderly member does not show any variation during the reference period, however inequality is still present. Q1 is accountable for 18.8% of the total household expenditure in 2004 reduced negligibly to 18.2% in 2014. The lower 40% of the population is accounted for 49% of the total expenditure in 2004 which increased marginally to 50% in 2014.

Figure 13. Lorenz Curve showing disparity in percentage spending on health for Dependent households having insurance

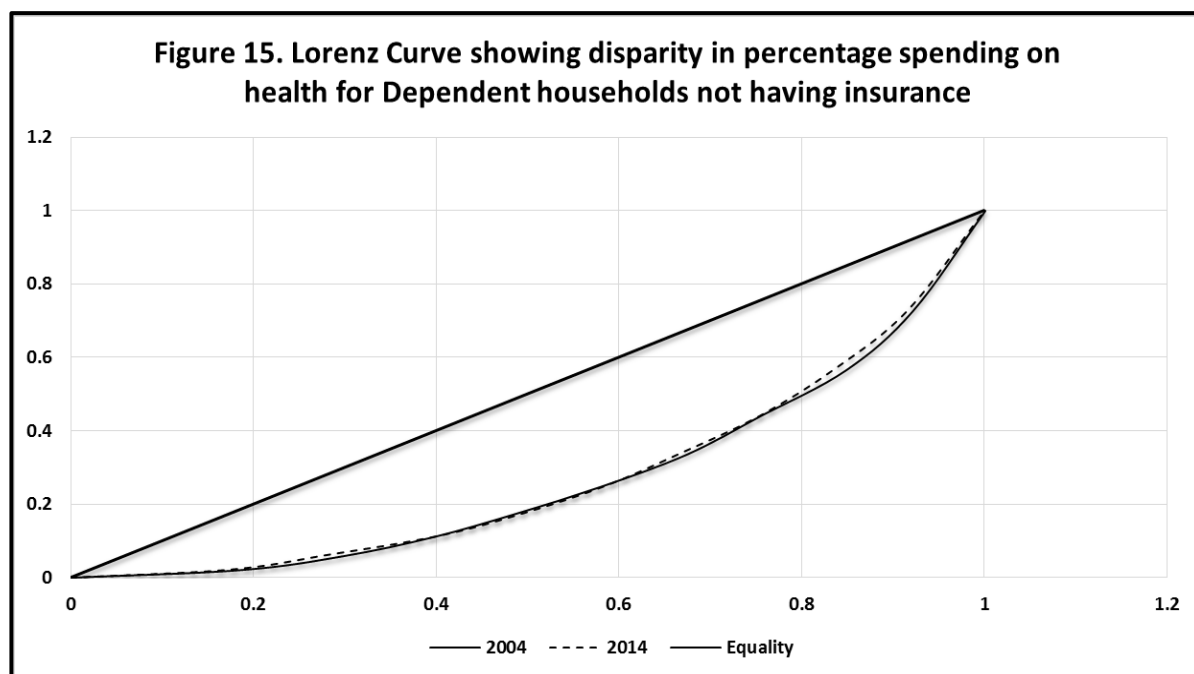


When compared to insured independent households (Figure 14), quite a significant difference was observed during the reference period. The situation of lowermost quantile seems to have worsened from 2004 to 2014. Q1 which was earlier accountable for just 11% of the total expenditure on health increased to 18% in 2014. The situation changes for independent households in terms that initial 30% (9% of annual expenditure) of the population which used to spend 35% of the total expenditure on health increased significantly to 47% in 2014. A significant disparity is observed from 2004 to 2014 from Q2 till the last quantile.

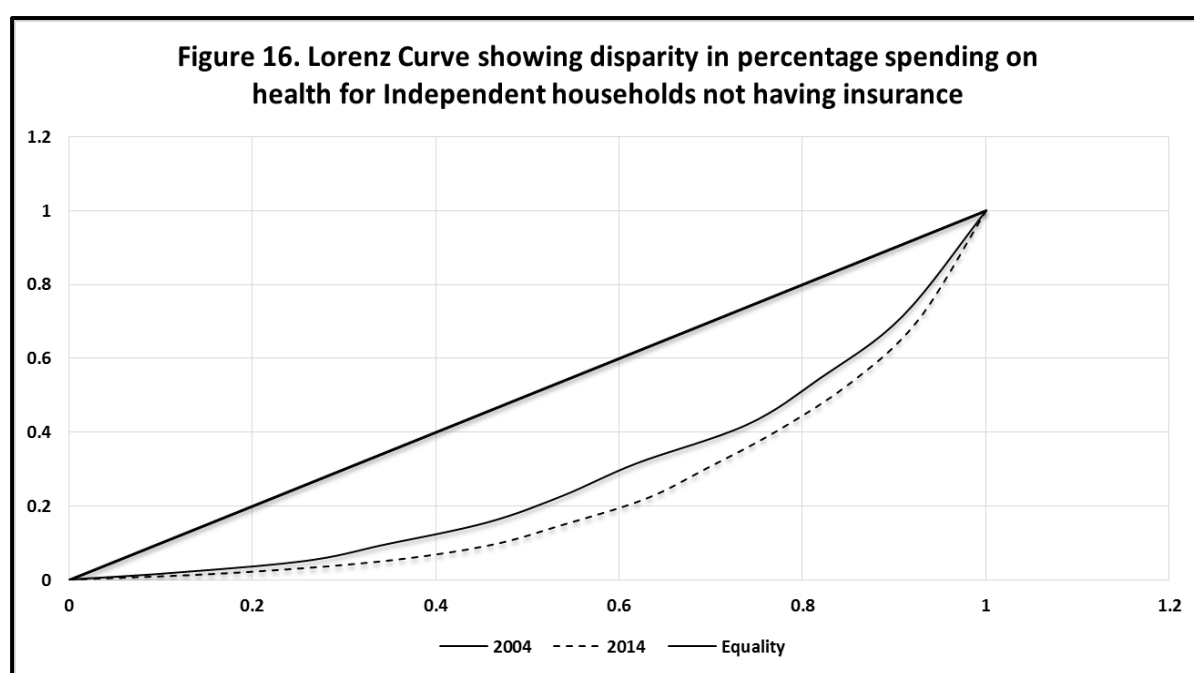
Figure 14. Lorenz Curve showing disparity in percentage spending on health for Independent households having insurance



Non-insured dependent households (Figure 15.) showed a slight betterment in case of Q1. In 2004, where q1 was accountable for 19% of the total household expenditure reduced to 17% in 2014. The values for lower 40% of the population (17% of the total annual expenditure) remain similar to insured dependent households at 49% in 2004 and 50% in 2014.



Non-insured independent households (Figure 16) also showed results similar to insured independent households. Where Q1 (1% of annual exp) was accountable for 11% of total expenditure in 2004 and increased to 17% in 2014. The population with 10% of the total expenditure spent 35% of the total expenditure on health in 2004 and 46% in 2014.



A detailed comparative analysis of the dependent and independent households is expressed in Table 5. The table shows that no significant difference was observed in case of insured and non-insured households. Their condition continues to remain the same with no or negligible impact of insurance on households. However, a significant difference is visible in case of dependent and independent households. The lowermost/poorest dependent geriatric quantile which has merely 2% of the total annual expenditure accounted for 18.5% of the total expenditure on health in 2004 showed a negligible decrease and reduced 17.8% in 2014. The lower 40% of the population which has approximately 17.5% of the total annual expenditure spends about 49% and 50% of the total expenditure on health in 2004 and 2014 respectively.

Table 5. Percentage Expenditure on health with respect to population (Dependency wise)								
Sector	Dependent				Independent			
Population	Insured		Non-insured		Insured		Non-insured	
	2004	2014	2004	2014	2004	2014	2004	2014
10%	18.87%	18.18%	18.63%	17.49%	11.21%	17.71%	11.00%	17.18%
20%	30.14%	29.14%	29.85%	27.99%	26.17%	35.00%	25.76%	33.90%
30%	39.92%	40.83%	39.73%	40.16%	34.85%	47.11%	34.62%	45.79%
40%	49.05%	50.45%	48.77%	49.60%	46.11%	55.24%	45.66%	53.81%
50%	58.34%	59.68%	58.17%	58.60%	54.40%	64.41%	53.81%	62.92%
60%	67.72%	67.78%	67.51%	66.69%	62.35%	71.22%	61.91%	69.68%
70%	75.55%	76.61%	75.48%	75.42%	74.28%	78.97%	73.99%	77.39%
80%	84.97%	84.46%	84.93%	83.61%	82.24%	87.11%	82.00%	85.46%
90%	92.16%	92.38%	92.24%	91.64%	91.21%	93.63%	90.92%	92.71%
100%	99.87%	99.97%	100.15%	100.03%	99.93%	100.09%	100.09%	100.09%

Situation of independent households seems to have hampered more as the poorest quantile which has 2% of the total annual expenditure spent 11% of the total expenditure on health in 2004 and increased significantly to 17.5% in 2014. The lower 30% of the population which has 9.5% of the total annual expenditure spent 34.7% of the total expenditure on health in 2004 and increased to 46.5% in 2014.

To fulfil our third objective, a table (Table6.) was constructed to identify the sources from where these geriatric households finance their health expenditure. In 2004, where more than 50% of the finance came from sources like contributions from family and friends, borrowings and other sources like mortgaging and selling of physical assets.

Table 6. Sources of finance											
Quantiles		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Income/ Savings	2004	43.03%	49.20%	55.38%	60.36%	61.0%	61.75%	72.31%	76.49%	76.69%	84.40%
	2014	61.96%	69.28%	72.16%	73.59%	76.34%	78.17%	80.92%	82.48%	86.93%	86.93%
Contributions	2004	28.49%	17.13%	12.35%	8.76%	9.8%	7.97%	7.37%	7.77%	6.37%	3.80%
	2014	14.25%	8.76%	6.80%	4.71%	4.18%	4.58%	3.66%	3.79%	2.88%	3.14%
Borrowings	2004	24.10%	31.67%	28.49%	27.89%	26.9%	6.37%	16.33%	13.94%	15.34%	10.40%
	2014	21.70%	20.13%	19.22%	20.52%	16.86%	15.95%	13.59%	12.29%	9.54%	7.97%
Other Sources	2004	4.38%	1.99%	3.78%	2.99%	2.4%	3.98%	4.18%	1.79%	1.59%	1.40%
	2014	2.09%	1.83%	1.83%	1.18%	2.61%	1.31%	1.83%	1.44%	0.65%	1.96%

In 2014, the major source of finance changed to household income or savings which was responsible for more than 62% of the total expenses needed. In 2004, the poorest quantile of population which accounts for only 1-2% of the total annual expenditure arranged its 57% of the expenses from sources like contributions, borrowing, selling of assets and mortgaging. As we go to higher quantiles, the dependency on such sources shows a gradual decrease in both 2004 and 2014 which implies that the households are not falling into debt trap. This shows that although the annual income has increased during the reference period of ten years, the burden on household income/savings has also increased significantly.

Table 7. Sources of Finance (Sector wise)				
	Rural		Urban	
	2004	2014	2004	2014
Income/ savings	57.25%	72.65%	74.11%	81.29%
Contributions	12.26%	6.14%	9.09%	5.18%
Borrowings	26.82%	19.34%	15.22%	12.05%
Others	3.67%	1.87%	1.58%	1.47%

On comparing sources of finance between rural and urban areas (Table 7), it was found out that dependency on household income/savings increased while dependency on other sources such as contribution from family and friends, borrowings, mortgaging and sale of assets decreased during the reference period (2004 to 2014). When compared to urban areas where the dependency on household has increased by 10%, the increment in rural areas was 27%.

Table 8. Sources of Finance (Dependency wise)				
	Dependent		Independent	
	2004	2014	2004	2014
Income/ savings	59.85%	76.12%	71.07%	80.23%
Contributions	12.00%	6.08%	9.27%	3.85%
Borrowings	25.02%	16.08%	17.31%	14.42%
Others	3.12%	1.71%	2.34%	1.50%

Comparing sources of finance for dependent and independent households, similar results were noted. Dependency on household income/saving increased by 13% for independent households whereas 27% for dependent households during the reference period. While the dependencies on other sources like contributions, borrowing, mortgaging and selling of assets decreased.

6. Conclusion:

The life span has increased but the population is spending more of unhealthy years rather than healthy years as the age increases. Burden of diseases will not only affect the health of the elderly individuals, but also the productivity and economic growth of the nation. “The evidence is compelling. India stands to lose \$4.58 trillion before 2030 due to NCDs and mental health conditions. Cardiovascular diseases, accounting for \$2.17 trillion and mental health conditions (\$1.03 trillion), will lead the way in economic loss.” (World Economic Forum, 2014). This implies that if the out of pocket expenditures are not reduced then it is likely to reduce the rate of growth of the economy because it will have its impact on the consumption multiplier. This grim situation carries both humanitarian as well as economic aspect.

Overall catastrophic expenditure on health may have slightly reduced over the period of time because of the relative increment in the income of the households; but the impact of catastrophic expenditures incurred on the unhealthy geriatric population is worst in the lowest quintile. It is observed as the income levels increase the impact of catastrophic expenditures is less. The cost of healthcare is supported by household income. Thus when catastrophic expenditure on the elderly population is high, it is more likely to be supported by household incomes. Thus the overall well-being of the household does not change. Increased income levels may not result in increase in nutritional levels, education or overall well-being of the household. Healthcare expenditure is likely to cut the other developmental expenditure. It results in negating the developmental effect of increase in income.

Unhealthy geriatric population does not seem to be benefitted by insurance schemes in the last ten years. This indicates the inefficiency of the existing insurance system in the country. In absence of a comprehensive and widely available health insurance system the cost of treatment of the economically non-productive elderly of the household, results in a high out of pocket expenditure pushing the households into debt trap and hence poverty. Community-based health insurance schemes shall be promoted to allow pooling of resources to cover the costs of unpredictable health-related events. Such schemes shall facilitate inclusion of the poorest households at an affordable premium.

The geriatric population in the higher income groups seems to be benefitted more by social security schemes over a period of ten years. Due to rapid changes in the socio-cultural norms and urbanization, the joint family system is breaking down and thus there is a significant increase in the number of independent elderly. Moreover the rural residents with no education also rely on borrowing to cope up with high healthcare expenditures indicating that in some cases, even the support provided by the family may not be sufficient to pay for the medical expenses. Thus the government should provide a social security net to the geriatric population, irrespective of the income group they belong because it will not only improve their condition but also it has a developmental impact on the overall household economy.

There is no significant rural-urban divide in terms of impact of increase in catastrophic expenditure on health care of geriatric population. The incomes have risen in urban areas more rapidly but because of the better availability of health facilities. The weakest

section of the society does not seem to be benefited by the interventions taken in last ten years. Providing healthcare services to extremely poor, particularly to those residing in the areas not otherwise served by government or non-governmental organizations has been a challenge. The policy-makers should promote more 'reach the poor programs' with the help of non-governmental organization or community based organizations.

A comprehensive system for the healthcare delivery for geriatric individuals is the need of the hour which can make the healthcare delivery more accessible and for them. A robust system for the development of the capacities aimed at providing an early screening, primary prevention and effective management at every level is a promising approach to deal with the increasing burden of diseases among elderly. The need of constant monitoring and evaluation of the interventions taken in this area cannot be ignored. Well-designed mechanisms for data collection, sharing and knowledge management will help in mapping the health situations of the geriatric group.

Collaboration amongst public, private sector and civil society should be promoted. To facilitate the development of geriatric care facilities across the country, public private partnership should be promoted in healthcare sector, with extra emphasis on the underprivileged sections. Also business models based on delivering high quality care at a low cost must be promoted. Schemes like free- drug distribution and free diagnostics for underprivileged and elderly shall be made a part of social security net.

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