ARE OUT-OF-POCKET PAYMENTS FOR HEALTHCARE RELATED TO FINANCIAL CATASTROPHE AND IMPOVERISHMENT IN GREECE AS CRISIS DEEPENS?

[1]IOANNIS KOSTAKIS, [2]ANNA SAITI, [3]DIMITRIS PAPARAS, [4]ALEXANDRA GKLIATI, [5]CHRISTOS STAMOPOULOS

Abstract - The aim of this paper is to measure the fairness of healthcare payments in the heart of economic crisis for Greek economy. National representative data was derived from Hellenic Statistical Observatory proportionally allocated to the regions based on NUTS Eurostat categorization for the period 2009-2015. Indices for financial catastrophe were developed capturing the intensity and incidence of it, allowing to capture the degree to which high out-of-pocket payments for healthcare occur among poor and non-poor households. Furthermore, measures of poverty impact were illustrated and analyzed. We find that both intensity and incidence of catastrophic out-of-pocket payments for healthcare services, in terms of total consumption as well as ability to pay, declined during 2011-2013 period but increased after that time again. We also find that incidence and intensity were concentrated among poorer households in 2009 for low thresholds, but after that year they became more concentrated among rich ones. Finally, we show that the poverty impact of out-of-pocket healthcare payments was primarily due to poor people who were becoming even poorer, rather than the non-poor being made poor. However, as crisis was being deepened, poverty impact was more severe even for richer households.

Keywords - Out-of-Pocket healthcare payments; catastrophic spending; poverty impact; financial catastrophe; Greece

I. INTRODUCTION

Older people are nowadays healthier than previous generations and therefore live longer. Previous research surveys (Bloom et al. 2010) have shown that by 2050 2 billion people will be over 65 years old while the total number of elderly people will outnumber the young ones globally. Regarding Europe, it has already reached that turning point and by 2030 50% of the population will be over 50 years old, while one quarter will be over 65. Greece also faces the problem of the "double aging process" (Hondroyiannis and Papapetrou, 2002), due to a sustained low fertility rate combined with emigration phenomenon and bio-medical factors, leading already to drastically age composition alteration. This huge change in the rate of population growth has increasingly attracted the attention of researchers and policymakers regarding the causes and consequences of this demographic challenge (Lundgren and Ljuslinder, 2011; Kim and Hong, 2015). In parallel to this long-term socio-demographic trend, Greece has been deeply impacted in the last decade by a severe economic and social crisis – the Great Recession initiated in 2009 – for which the national government had to ask for a €110 billion loan to the so-called Troika (i.e. European Union, International Monetary Fund).

That crisis has produced a number of changes in the Greek economy modifying the spread of household incomes, while inequality and poverty have increased even more (OECD, 2015). Against the previous literature, this article aims at investigating the existing age-groups and related income level and other demographic characteristics depending differences regarding the households' behavior. More specifically, the purpose of this article is to evaluate empirically the dynamic interrelation between a household's characteristics and monthly expenditure on non-food and healthcare services. There may be huge challenges and opportunities based on this new situation. For instance, a household's consumption will vary between age-groups while each generation does not behave the same as that of previous ones. Future generations need to adjust their consumption behavior (and saving behavior also) across the life cours.

The activity of decision-makers can be concretely supported by new evidence on our comprehension of the factors of a household's consumer behavior as economies are changing. Specific objectives of this analysis could lead to useful policy implications. Firstly, to develop a model capturing the range of a household's private consumption on healthcare services under investigation. Secondly, to identify the factors that affect the several consumption patterns within income, region and family structure groups of the population and to reverberate the ways that a population's socioeconomic characteristics mediate with preferences and priorities for consumption management. Last but not least, to conceive the factors that could lead households to financial catastrophe based on Xu et al. (2003)'s definition. Overall, the purpose of the study is to examine the impact of out-of-pocket payments on healthcare that represent an increasing factor of households economic quality based on several results from the World Bank. The more specific objectives are:

- To implement the already known measures that capture the incidence and intensity on financial catastrophe in health spending.
- To examine the relationship between the out-of-pocket payments on healthcare and the structure of Greek households.
- To address and analyze the issue of impoverishment among Greek families.
- To investigate the probability of suffering financial catastrophe and its relationship with the households' impoverishment in Greece.

II. DATA AND THEORETICAL FRAMEWORK

1.1 Data

This article uses data from four nationally representative household surveys from 2009 to 2015, covering 16,690 households across Greece. Hellenic Statistical Observatory (HSO) is the best source of Households' income and consumption information and is conducted every year since 2008. HSO collects data for all categories of household expenditure in addition to information on employment, educational and marital status and other socio-economic variables. Notwithstanding that demographic characteristics illustrate a very severe situation in Greece, the financial catastrophe is based on the so called catastrophic out-of-pocket healthcare payments (COOPs). More specifically, COOPs for healthcare can be attributed as those payments require a remarkable proportion that exceeds a pre-defined given critical limit of a households' resources (Xu et al., 2003; Van Doorlaen et al., 2006; O'Donnell et al., 2008).

III. FINDINGS

Table 1 presents the average gross and net of healthcare payments consumption by household characteristics for all periods of investigation. More specifically, a decomposition of the socioeconomic characteristics of our sample is illustrated and presented through all periods of time. That helps to understand the differences on consumption pattern as the crisis deepens in Greek society. The initial and easily understandable conclusion is that the reduction in both gross per capita consumption and on out-of-pocket for healthcare payments in its majority is due to the consecutive fiscal austerity measures, such as salary and pensions cuts in period of the crisis.

Table 1: Sources of Finance by Household Characteristics

Year	2009			2011			2013			2015		
Variables	[1]	[2]	[3]	[1]	[2]	[3]	[1]	[2]	[3]	[1]	[2]	[3]
Gender of the household head												
Male	11,456.1	578.2	10,877.9	9,674.1	508.2	9,165.9	8,056.6	438.9	7,617.7	7,829.9	483.6	7346.3
Female	13,045.0	791.6	12,253.4	10,008.5	571.3	9,437.1	9132.3	642.0	8,490.3	8,303.0	567.2	7735.8
Household head's age												
15-19	15,394.3	345.1	15,049.3	12,833.7	313.1	12,570.7	15,880.9	683.5	15,197.4	7,045.2	48	6,997.2
20-24	11,916.8	670.6	11,246.2	11,162.1	280.8	10,881.4	10,955.0	352.4	10,602.6	7,586.7	205.3	7,381.1
25-29	12.790.3	523.1	12,267.2	9,215.3	312.7	8,902.6	8,773.1	265.2	8,509.7	6,926.7	222.8	6,703.9
30-34	11,475.7	605.2	10,870.6	9,647.6	475.8	9,171.9	9,268.0	360.0	8,908.0	8,971.9	474.3	8,497.6
35-39	10,722.9	495.0	10,227.9	9,975.4	507.7	9,467.6	8,217.2	445.8	7,771.4	7,722.3	365.6	7,356.7
40-44	10,903.1	439.2	10,463.9	9,574.9	431.9	9,143.1	8,129.2	343.8	7,785.4	7,395.6	410.2	6,985.4
45-49	11,960.2	479.1	11,481.1	9,530.2	360.0	9,170.2	7,622.2	286.5	7,335.8	7,738.2	395.1	7,343.2
50-54	14,078.4	529.1	13,549.3	9,904.7	481.8	9,422.9	7679.1	315.5	7363.7	7,610.2	353.8	7,256.4
55-59	12,366.7	618.2	11,748.5	10,522.1	492.4	10,029.7	8,223.8	451.2	7,772.6	8,585.1	544.3	8,040.7
60-64	12,636.4	750.5	11,885.9	10,373.9	612.3	9,761.7	9,077.2	582.6	8,494.3	8,939.3	558.7	8,380.6
65+	10,486.6	837.1	9,649.5	9,077.4	693.7	8,383.7	8,287.8	763.6	7,524.3	7,994.5	769.3	7,225.2
Educational level												
Early childhood education	9,292.7	655.5	8,637.2	7,841.7	514.0	7,237.7	6,558.2	510.7	6,047.4	-	-	-
Primary education	9,035.4	523.8	8,511.6	7,686.7	477.7	7,209.0	6.713.2	457.5	6,255.7	6,639.6	554.3	6,085.2
Lower secondary education	10,386.6	514.8	9,871.5	8,937.5	427.1	8,510.5	6,828.3	364.6	6463.6	6,374.1	362.5	6,011.6
Upper secondary education	11,962.2	631.2	11,331.0	9,702.4	467.5	9,235.0	8098.9	409.5	7689.4	7,405.2	423.3	6,981.9
Post-secondary education (non tertiary)	15,335.9	799.0	14,556.9	11,566.7	615.0	10,951.7	10,191.4	766.0	9425.4	8,586.0	250.0	8,004.0
Tertiary education first stage	16,087.9	700.4	15,387.5	13,346.7	678.5	12,668.2	11795.4	565.7	11229.7	10,673.3	561.3	10,112.0
Tertiary education second stage	24,652.7	509.8	24,142.9	18,527.1	1,163.9	17,363.2	17,954.5	1,071.9	16882.6	13,329.2	797.0	12,532.3
Employment status												
Working	11,892.0	519.2	11,372.8	9,752.2	428.4	9,323.8	8,104.1	366.9	7,732.2	8,370.3	451.9	7,918.4
Unemployed	11,057.0	749.1	10,307.9	9,710.1	698.8	9,011.3	8,482.1	677.0	7,8053.1	5,478.7	268.7	5,210.0
Retirement	13,594.8	467.2	13,127.7	13,257.0	212.4	13,044.7	12,825.1	313.9	12,511.2	8,135.6	671.3	7,464.2
Inactive	11,722.8	953.4	10,769.5	9,066.9	634.2	8,432.7	8,062.9	599.2	7,463.7	7,839.5	515.8	7,323.7

Areas												
Densely populated	12,544.5	624.6	11,919.9	10,112.7	519.9	9,592.8	8,949.1	515.0	8,434.1	8,383.8	464.8	7,917.0
Intermediate	10,006.6	544.8	9,461.8	11,053.2	502.7	10,550.5	7,677.4	417.7	7,259.7	8,465.4	552.7	7,912.7
Sparsely populated	9,142.4	602	8,540.4	8,863.4	523.1	8,340.3	6,694.9	418.9	6,276.0	6,854.5	516.4	6,338.1
Insurance												
Yes	12,368.5	712.2	8,143.3	10,346.1	539.2	9,806.9	8,703.4	473.2	8,230.1	8,270.4	488.3	7,782.0
No	8,853.5	587.9	11,780.6	7,427.3	443.4	7,028.9	6,787.5	505.3	6,282.2	6,775.5	574.1	6,201.4
Marital status												
Unmarried	15,726.6	774.0	14,952.6	12,757.0	572.1	12,184.9	13,222.5	530.0	12,692.5	10,192.8	501.8	9,691.0
Married	11,281.5	566.2	10,715.3	9,495.4	502.3	8,993.1	7,624.7	431.4	7,193.3	7,449.2	462.7	6,986.4
Widower	12,715.9	848.8	11,867.1	9,894.5	603.3	9,291.2	9,549.3	732.1	8,817.3	8,768.4	824.5	7,944.0
Divorce	-	-	-	-	-	-	-	-	-	10,132.2	607.8	9,535.4
Poverty status												
Poor	5,641.0	410.1	5,230.9	5,125.1	243.0	4,882.1	3,973.4	236.6	3736.8	3602.0	225.8	3376.1
Non poor	14,199.1	694.3	13,504.9	12,292.8	672.1	11,260.7	10,524.6	607.7	9916.9	9730.7	6220.3	9110.4

Notes: 1: Per capita consumption (gross); 2: Out-of-pocket payments for healthcare; 3: Per capita consumption net of healthcare payments

As it can be noted, socio-economic characteristics seem to play an important role in the distribution of annual gross consumption and especially on the out-of-pocket healthcare payments within households. More specifically, we split the samples based on gender, age group, marital and employment status, educational level, areas of living, insurance status and poverty index per household keeper in order to deepen our analysis on the volatility of annual households' consumption and out-of-pocket payments for healthcare in Greek societies. First, the fact that the head of the household is male or female seems to create discrepancies in consumption pattern with women having higher level of expenditure both on general consumption and healthcare payments. In addition, different age groups, as expected, have different preferences and thus different levels of consumption. Both gross and net per capita consumption follow a u-function, indicating that age-consumption relationship is not linear. However, the most important and expected characteristic is the increasing trend of out-of-pocket payments on healthcare as age rises too. Retired-consumers spend much more money for his/her healthcare than younger ones. Differences in consumption and healthcare payments are also presented as educational level changes. Consumers with higher educational level spend more money as their income is also higher. They seem also to spend more money for their healthcare services as out-of-pocket payments are also higher than people with lower educational level. Different employment and marital status seem also to have different preferences and consuming behavior as Table 1 shows. Last but not least, as expected, there exists a big discrepancy on consuming behavior between poor and non poor households. Poor housekeepers spent 5,642 Euro on average in 2009 and 3,602 Euro in 2015, whilst non poor 14,199 Euro and 9,730 in 2009 and 2015 respectively. These numbers also show the big economic issues that poor households face as the crisis deepens in Greece.

Table 2 presents the intensity, the prevalence and the distribution of catastrophic healthcare payments in the four periods at different threshold levels as a percentage of total consumption and non-food expenditure per household.

Table 2. Incidence (headcount) and intensity (gap) of catastrophic out-of-pocket payments in Greece, 2009-2015

2009						
Threshold level Zcat	5%	10%	15%	25%	30%	40%
a. Share of ability to pay						
Headcount (H)	35.0	15.3	7.5	1.9	1.0	0.3
Overshoot (O)	2.3	1.1	0.6	0.1	0.1	0.0
Mean positive Overshoot (MPO)	6.5	7.0	9.1	9.8	10.0	4.8
Concentration index (C_E)	-0.022	-0.019	-0.057	-0.080	-0.077	0.225
Rank-weighted headcount (H_W)	35.800	15.634	7.949	2.087	1.107	0.229
Concentration index (C_O)	-0.038	-0.048	-0.037	0.010	0.102	0.177
Rank-weighted overshoot (O_W)	2.369	1.148	0.577	0.147	0.067	0.017
b. Share of non –food consumption						
Headcount (H)	41.4	21.0	11.3	3.8	2.2	0.7
Overshoot (O)	3.3	1.8	1.0	0.3	0.2	0.1
Mean positive Overshoot (MPO)	7.9	8.6	9.0	8.9	8.4	8.0
Concentration index (C_E)	-0.040	-0.079	-0.124	-0.145	-0.191	-0.043

Rank-weighted headcount (H_W)	43.021	22.643	12.693	4.343	2.663	0.727
Concentration index (C_O)	-0.095	-0.120	-0.133	-0.148	-0.131	-0.033
Rank-weighted overshoot (O_W)	3.587	2.009	1.154	0.384	0.213	0.058
2011						
Threshold level Zcat	5%	10%	15%	25%	30%	40%
a. Share of ability to pay						
Headcount (H)	30.2	13.1	6.0	1.3	0.6	0.2
Overshoot (O)	1.9	0.9	0.4	0.1	0.1	0.0
Mean positive Overshoot (MPO)	6.3	6.7	6.9	7.9	10.8	11.9
Concentration index (C_E)	0.131	0.181	0.183	0.310	0.326	0.741
Rank-weighted headcount (H_W)	23.275	10.755	4.902	0.920	0.379	0.059
Concentration index (C_O)	0.187	0.229	0.277	0.532	0.681	0.812
Rank-weighted overshoot (O_W)	1.549	0.674	0.301	0.049	0.019	0.005
b. Share of non –food consumption						
Headcount (H)	37.7	18.8	9.6	2.7	1.4	0.4
Overshoot (O)	2.8	1.4	0.8	0.2	0.1	0.0
Mean positive Overshoot (MPO)	7.4	7.7	8.1	8.2	9.2	9.7
Concentration index (C_E)	0.093	0.100	0.089	0.091	0.136	0.233
Rank-weighted headcount (H_W)	34.215	16.912	8.175	2.472	1.180	0.341
Concentration index (C_O)	0.111	0.123	0.137	0.243	0.341	0.687
Rank-weighted overshoot (O_W)	2.471	1.270	0.666	0.170	0.082	0.014
2013						
Threshold level Zcat	5%	10%	15%	25%	30%	40%
a. Share of ability to pay						
Headcount (H)	36.6	17.6	8.8	1.7	0.8	0.1
Overshoot (O)	2.5	1.2	0.5	0.1	0.0	0.0
Mean positive Overshoot (MPO)	6.7	6.7	6.0	5.3	3.8	4.5
Concentration index (C_E)	0.060	0.078	0.129	0.186	0.109	0.561
Rank-weighted headcount (H_W)	34.378	16.198	7.694	1.418	0.681	0.033
Concentration index (C_O)	0.091	0.124	0.175	0.236	0.405	0.523
Rank-weighted overshoot (O_W)	2.237	1.037	0.439	0.071	0.017	0.002
b. Share of non –food consumption						
Headcount (H)	45.0	23.9	14.0	4.9	2.4	0.4
Overshoot (O)	3.8	2.1	1.2	0.3	0.2	0.0
Mean positive Overshoot (MPO)	8.4	8.9	8.7	6.7	6.4	5.2
Concentration index (C_E)	0.013	0.015	0.029	-0.079	-0.078	0.255
Rank-weighted headcount (H_W)	44.377	23.589	13.558	5.288	2.575	0.282
Concentration index (C_O)	0.0005	0.000	-0.019	-0.045	-0.035	0.276
Rank-weighted overshoot (O_W)	3.779	2.136	1.233	0.343	0.157	0.014
2015						
Threshold level Zcat	5%	10%	15%	25%	30%	40%
a. Share of ability to pay						
Headcount (H)	37.5	18.6	10.0	2.6	1.4	0.4
Overshoot (O)	2.8	1.4	0.7	0.2	0.1	0.00
Mean positive Overshoot (MPO)	7.4	7.7	7.3	7.6	7.5	5.3
Concentration index (C_E)	0.097	0.102	0.129	0.282	0.402	0.611
Rank-weighted headcount (H_W)	33.851	16.695	8.695	1.886	0.812	0.156
Concentration index (C_O)	0.142	0.184	0.259	0.429	0.549	0.715
Rank-weighted overshoot (O_W)	2.379	1.163	0.542	0.114	0.046	0.006
b. Share of non –food consumption						
Headcount (H)	44.5	25.6	15.3	5.3	3.2	1.0
Overshoot (O)	4.1	2.4	1.4	0.5	0.3	0.1
Mean positive Overshoot (MPO)	9.2	9.3	9.2	8.8	8.1	6.8
Concentration index (C_E)	0.076	0.066	0.058	0.095	0.096	0.359
Rank-weighted headcount (H_W)	41.077	23.953	24.405	4.806	2.900	0.660

Concentration index (C_O)	0.0889	0.097	0.122	0.211	0.911	0.502
Rank-weighted overshoot (O_W)	3.719	2.164	1.236	0.370	0.179	0.035

Table 2 provides the catastrophic payments headcount defined at 5, 10, 25, 25, 30 and 40% of ability to pay and non-food expenditures. At almost all threshold levels, there exists an initial decrease of headcount index from 2009 to 2013 and an opposite trend after that year till 2015. For example, at the 10% threshold, 15.3% of the population are encountering catastrophic healthcare payments in 2009, while the corresponding percentage in 2015 was 18.6%. That seems an increase in population who face the problem of financial catastrophe. Based on non-food expenditures, more than one-fifth of the population encountered catastrophic healthcare payments in 2009 whilst it reached one-fourth in 2015 respectively. At the 25% of non-food expenditure threshold, 3.8% of the Greek households is exceeding the threshold in 2009, 2.7% in 2011, 4.0% in 2013 and 5.3% in 2015. Similarly, the intensity of the catastrophic health payments as reflected by the mean positive overshoot shows a U-shape trend. For instance, at the 10% threshold level of ability to pay expenditure, MPO decreased from 8.6% inn 2009 to 7.7% in 2011 while it became 8.9% and 9.3% in 2013 and 2015, respectively. Another notable characteristic of the intensity of the catastrophic healthcare payments is that it increases as threshold levels increase but with a decreasing return reaching at a turning point of 25% in its majority. An exception existed only in 2011 when the trend of MPO was monotonically increasing.

Table 2 also presents the estimated concentration index for all periods of research. The year of 2009 is the only period when concentration index is negative at the lower threshold levels, while in all other years it is positive at different thresholds. This suggests that in the starting point of economic crisis poor people seem to mostly suffer from catastrophic healthcare payments while after that period the issue of catastrophic healthcare payments is less common among poor households, as the better-off households are more likely to cross the threshold levels based on the concentration indices. Generally, the trend in the concentration index is mixed highly depending on the threshold level. It started with a pressure on poor households' incomes, then there existed a decreasing trend in concentration index showing a drop in inequality among households and then (after 2011) an upward trend again of inequality. For a better understanding, at the 10% (25%) of total expenditure threshold, the concentration index decreased from 0.18% (0.31%) in 2011 to 0.078% (0.18%) in 2013 whiles it reached at 0.10% (0.28%) in 2015. These findings indicate that the burden of catastrophic healthcare payments is more evenly distributed among poor and rich households in the period 2011-2013 but after then there exists an increased concentration of the catastrophic healthcare payments among better-off households. More generally, we could say that the Table 2 shows that at the lower thresholds, the incidence of catastrophic healthcare costs is more concentrated among poor households at the start of economic crisis in Greece. Thereafter, at the highest thresholds the better off are more likely to overshoot the threshold by a larger amount in all years or investigation. Apart from 2009, when concentration index is negative for lower thresholds, since the concentration indices in all other period are all positive with also an upward trend, the rank-weighted indices tend to be lower than the initial ones indicating thus that less of a problem of catastrophe has been concentrated amongst the poor. That means that a greater intensity of overshoots amongst the rich household. The story is somewhat similar but with a little higher percentages as it was expected in terms of non-food consumption analysis. After the outbreak of the economic crisis in Greece the incidence of catastrophe is always more concentrated amongst poor households and for all thresholds. In general, both analyses give us very similar results in term of rank-weighted welfare measures indicating that the financial catastrophe due to high out-of-pocket expenditure has decreased over the period of the question.

Table 3 depicts the impoverishment impact of out-of-pocket healthcare payments at poverty measures over time in Greece. For this table analysis we considered candidate for the poverty line the 60% of the median equivalence national households' income (Eurostat database). The difficulty here that we faced is that we needed to include the element of out-of-pocket healthcare payments and deduct it from gross total consumption in order to arrive at the post-payment poverty line. That helps us to investigate the parameters that lead non-poor households to be poor or remain marginally non-poor highlighting the role health spending play on poverty issues.

Table 3. Measures of Poverty Based on Consumption Gross & Net of Spending on Healthcare and inequality indices

	2009		2011		2013		2015	
Poverty line	Gross of health payments	Net of health payments	Gross of health payments	Net of health payments	Gross of health payments	Net of health payments	Gross of health payments	Net of health payments
Poverty headcount	25.4	29.2	32.5	35.8	30.2	34.3	24.8	28.9

Poverty gap	398.4	492.0	539.3	611.2	379.7	442.5	280.7	328.5
Normalized poverty gap	5.8	7.1	8.2	9.3	7.6	8.8	6.2	7.3
Normalized mean positive poverty gap	22.6	24.4	25.2	25.9	25.1	25.7	25.1	25.2
Gini coefficient	0.3131	0.3161	0.2989	0.2940	0.3357	0.3340	0.3294	0.3266
Concentration index	0.2978		0.4257		0.379		0.4134	
Kalwani index	-0.0153		0.1268		0.0621		0.0839	

Table 3 shows that out-of-pocket payments increased the headcount ratio by 3.8, 3.3 and 4.1 percentage points in 2009, 2011, 2013 and 2015 respectively. However, the poverty gap comparisons are most meaningful when normalized poverty gap that represents the distance between the poverty line and the income value for incomes that are below the poverty line while for income above it is zero. As we can see, out-of-pocket healthcare payments increased the normalized gap by only 1.3, 0.9, 1.2 and 1.1 percentage points in 2009, 2011, 2013 and 2013, respectively. Furthermore, normalized mean positive poverty gaps show even a lower increase due to the out-of-pocket healthcare spending among households. Also, two very interesting indices of inequality are presented in the previous table which are Gini index and Kalwani ones. Both of them are derived from the Lorenz curve showing the cumulative proportion of the total population (Gini) and the progressivity of the healthcare spending system (Kalwani). Gini index is equal on average around 0.31 and Kalwani is negative in 2009 and positive in all other periods. These results confirm the previous results, indicating that inequality was higher for poor households in 2009 while after that year the healthcare spending system seems to become more progressive but with a decreasing trend leading finally to a more proportional financial system.

CONCLUDING REMARKS

In general, progressivity of the healthcare spending system appears to have improved, whilst inequality decreased only for a small period of time. More specifically, almost all indices of inequality seem to follow a non-lineal U-shaped pattern. Both the incidence and intensity of catastrophic payments fell during the period 2011-2013 and increased for the following period 2013-2015. Furthermore, incidence and intensity became less concentrated amongst the poor. On the other hand, the incidence and intensity of the poverty impact of out-of-pocket payments peaked in 2011 and then followed by a decreased trend. We also found that, in the case of Greek economy, most of the poverty impact is due to the poor getting even poorer. Only in 2011, the results seem to be more severe for every household despite its income level. One more very interesting finding is that these estimates of poverty impact in crisis period cannot be due in principle to changing prices, because 2009-2015 period is characterized as a period of stability or even deflation. Nevertheless, several issues might arise from the foregoing that should be taken into consideration. Our empirical illustration has focused its interest mainly on out-of-pocket payments. A deeper analysis including all healthcare payments could provide us with more detailed information about the impact of healthcare spending system in households' economy. Also, while looking at the distribution of household payments for healthcare we assume that these payments are involuntary, undeliberate and non-discretionary. However, with some exceptions, payments for healthcare do not result from a planned choice by patients but they are usually driven by anticipated, unforeseen and unwanted health shocks. Following this assumption, we are compelled to make another debatable assumption; in the absence of health shock that necessitated the health expenditure, households would have enjoyed a higher level of consumption incurring then a penalty for households' utility level. Despite these limitations, this study seems to have important policy implications for Greece. What is more important in this study is that empirical findings support the idea that Greek households have already faced severe pressure on their budgets. As salary cuts continue and population aging is extended, dynamic sequences will be activating leading financial catastrophe to be a wide economic problem in Greek society. Psychological distress of current economic situation is certainly a dominant parameter of this sequence. A continuous fiscal consolidation plan in the country should take into consideration that both economic and psychological problems will become much more severe. Budget conservation strategies should be based, not only on macroeconomic targets but also and mostly on households' main needs for living at normal standards as other European consumers do. Furthermore, policymakers should take into account the already existing dynamic issue of population ageing. Greece has one of the lowest fertility levels among European economies. That

means that elderly people will be the largest proportion of population pie in future years. Moreover, in a macroeconomic analysis, the continuous salary cuts and pensions along with the double ageing process will lead to severe pressure on public economics. More generally, government intervention is required to correct market failure and mainly to provide health and social protection for the poorer households. The information provided by our study is important as a tool not only for a management decision for the study area but it may also help the considerable debate for the existence of some components of total consumer economic value and its utility in the decision making process.

REFERENCES

[1] Bender, K.A. (2012). An analysis of well-being in retirement: The role of pensions, health, and "voluntariness" of retirement. Journal of Socio-Economics, 41(4), 424–433. http://dx.doi.org/10.1016/j.socec.2011.05.010.

[2] Bloom, D.E., Canning, D., & Fink, G. (2010). Implications of population ageing for economic growth. Oxford Review of Economic Policy, 26(4), 583–612.

[3] Holzmann, R. (1988). Ageing and Social Security Costs. European Journal of Population, 3, 411–437.

[4] Hondroyiannis, G., & Papapetrou, E. (2002). Demographic transition and economic growth : Empirical evidence from Greece. Journal of Policy Modeling, 23(70), 169-188.

[5] Kim, S. Y., & Hong, G.S. (2015). Catastrophic Health Expenditures and Life Satisfaction: A Case in South Korea. Journal of Family and Economic Issues, 36(3), 369-382.

[6] Lundgren, A.S., & Ljuslinder, K. (2011). Problematic Demography: Representations of Population Ageing in the Swedish Daily Press. Journal of Population Ageing, 4(3), 165–183.

[7] McGregor, S. (2001). Neoliberalism and health care. International Journal of Consumer Studies, 25(2), 82–89. http://doi.org/10.1111/j.1470-6431.2001.00183.x

[8] O'Donnell, O., Doorslaer, E., Rannan-Eliya, R.P., Somanathan, A., Adhikari, S.R., Akkazieva, B., Harbianto, D., Garg, C.C., Hanvoravongchai, P., Herrin, A.N., Huq, M.N., Ibragimova, S., karan, A., Kwon, S., Leung, G.M., Lu, J.R., Ohkusa, Y., Pande, B.R., Racelis, R., Tin, K., Tisayaticom, K., Trinsantoro, L., Wan, Q., Yang, B.M., & Zhao, Y. (2008). Who pays for health care in Asia? Journal of Health Economics, 27(2), 460–475. http://doi.org/10.1016/j.jhealeco.2007.08.005

[9] OECD Health statistics (2015). Definition, sources, and methods. Paris: OECD Publishing, Retrieved from http://www.oecd.org/health/healthdata.

[10] Van Doorslaer, E., O'Donnell, O., Rannan-Eliy, R.P., Than, A.S., Adhikary, S.R., Garg, C.C., Harbianto, D. Herrin, A.N., Huq, M.N., Ibragimova, S., Karan, Lee, T.J., Leung, G.M., Lu, J.F.L., Ng, C.W., Pande, B., Asadin, C., & Zhao, Y. (2007). Catastrophic payments for health care in Asia. Health Economics, 16(11), 1159–1184. doi:10.1002/hec.1209.

[11] Xu, K., Evans, D.B., Kawabata, K., Zeramdini, R., Klavus, J., & Murray, C.J. (2003). Household catastrophic health expenditure:a multicountry analysis. Lancet, 362(9378), 111–117. doi:10.1016/S0140-6736(03)13861-5.

★★★