Discovering the factors for the impoverishment of the middle class in Greece

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Abstract

Afterwards 2009, Greece confront a sovereign debt crisis. The harsh austerity that is imposed to the country has as a result a severe recession. During this period, the Greek households have lost approximately 30 per cent of their disposable income and the unemployment rate has been dramatically increased and reached 27 per cent of the labour force (Giakoumatos and Karamesini, 2016).All the social classes are suffered by the impoverishment of the Greek society, however the middle class has been decimated during the economic crisis (Karamessini and Giakoumatos 2016). In this analysis, we focus on the investigation of the social mobility from the middle class to the lower class since the beginning of the crisis. We deploy generalized linear models to extended the model of Giakoumatos and Loukas (2017) by including interactions between the independent variables. As as dependent variable we use a dummy variable that takes 1 if a household belong to the of the middle class based the thresholds of 2014 and in the lower class based to the thresholdsof 2008 (before the recession). The empirical analysis provides the statistically significant demographic and social factors that affect this type of social mobility.

Keywords: Social Class, Disposal Income, Social Mobility, Logistic and Multinomial Models.

1 Introduction

The economic crisis of 2008 has as a result that the Greece entered into a recessionary period during which the country lost 26 per cent of its gross domestic

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product (GDP). Concerning the effect of the crisis to the Greek households and their members, the disposable income has been reduced by about 30 per cent and the private consumption by 35 per cent. In addition, the unemployment rate has been reached 27 per cent of the labour force. The main side effect of the recession in the Greek economy is that the risk of poverty or social has been increased to 36 per cent of the population, and 'anchored' poverty, according to the 2009 poverty line, 48 per cent (Karamessini and Giakoumatos 2016a, 2016b, 2016c).

In the Table 1, the main indicators concerning the poverty are presented. The rate of household under the Risk of poverty from 20% at 2008 was increased to 23.1% at 2012 and 2013 and then the trend was reversed and it was reduced to 21.4 % at 2015. (Figure 1).

Table 1: Poverty Indicators for Greece

	2008	2009	2010	2011	2012	2013	2014	2015
Risk of Poverty	20.0%	19.7%	20.1%	21.4%	23.1%	23.1 %	22.1 %	21.4 %
households at risk-of-poverty	832,975	845,000	868,597	901,194	914,873	914,873	888,452	860,117
poverty threshold €	6,480.00	6,897.00	7,178.00	6,591.00	5,708.00	5,023.00	4,608.00	4,512.00
mean annual income €	12,764.00	13,505.00	13,974.00	12,637.00	10,676.00	9,303.00	8,879.00	8,796.00

However, if we examine the trend in poverty threshold and the mean income during the period 2008-2015, it is easy to verify that this index is constantly decreased and the trend is negative (Figure 2). These different trends in poverty rate and poverty threshold and mean incomes mean that during that economic standards and economic status of the society have been dramatically changed, i.e. people that are considered "no-poor" based on the economic results for 2015 they are under the poverty line if we apply the economic standards of 2009. These dramatical changes in the economic standards of the households have affect all the society and all the social classes in Greece. Lately, a lot of researchers and international organizations focus on the results of the economic crisis on the middle class (Karamessini and Giakoumatos 2017, 2016a, 2016b, 2016c), mainly because of the fact that this class has a major role in the economy and the society of a country. Recent literature on the middle classes often discusses their shrinking or squeezing as part of an increased polarization of the income distribution in countries that had witnessed rising inequalities well before the 2008 global financial crisis (Bigot et al. 2011).

In this framework, this paper focuses on the middle class of Greece and it provides a first attempt to investigate the characteristics of the people that belong to the middle class in 2015 but if we apply the "anchored" results of 2009 they belong to

the lower class. These people are considered in our analysis as the part of the middle class that it lost the economic standards of the middle class and downgraded to the lower class. For our analysis we use the data of the EU Survey on Income and Living Conditions and applying statistical methods and building an econometric model we try to investigate the characteristics of the people that were downgraded to the lower class.
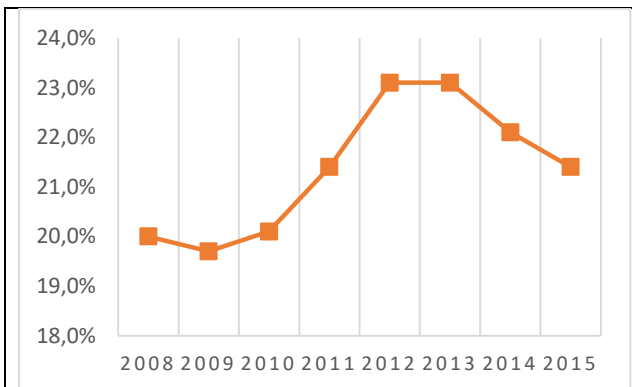

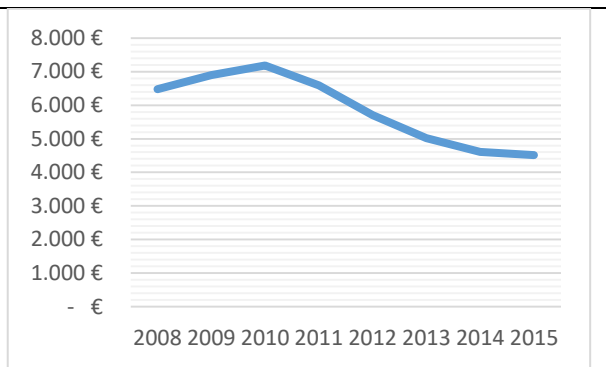Figure 1. Percent of Households at Risk of Povertyin Greece for the period 2008-2015 (source: ELSTAT).

Figure 2. Poverty Threshold in Greece for the period 2008-2015 (source: ELSTAT).

2 Methodology

In the literature, the middle class(es) is defined using economic or sociological approach. The economic approach identifies classes through the position of people in the income distributions, while the sociological approach through their position in the social relations of production and division of labour, on which depends control over resources, power and social status (Atkinson and Brandolini 2011; Dallinger 2013, Goldthorpe 2012). In this paper, we adopt the economic approach and we define the social classes based on households' income distribution (Karamessini and Giakoumatos2017, 2016a, 2016b, 2016c). Therefore, the lower class is constituted by the members of the households with disposal income less than 60% of median income, the middle class by the people with income between the 60% and 200% of median income and the upper class by the people with income more than 200% of median income (Karamessini and Giakoumatos 2017, 2016a, 2016b, 2016c).

Table 2: Social classes in Greek Population

Social Class	2015 %	2015 (bounds 2009) %
Lower	20.2	42.2
Middle	69.2	55.7
Upper	10.6	2.1
Total	100	100

(source: Own elaboration using EU-SILC data).

Applying the above bounds of the social classes to the data of the EU Survey on Income and Living Conditions for 2015, we can see that almost 70% belong to the middle class when the lower and the upper class are 20% and 10% (see Table 2). However, if to the same data we apply the class bounds of 2009, the percent of the lower class is expanded to 42.2% and the upper class is reduced to 2.1%.Based on these results, it is obvious that a serious impoverishment took place during the crisis.
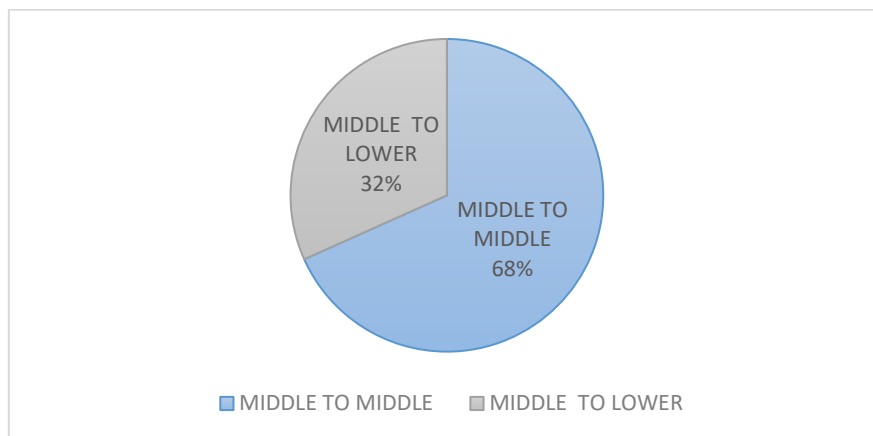

Figure 3: Mobility of Middle class for 2015 (source: authors elaboration).

Focusing on the middle class, the members of the middle social class are divided into two categories, the people that belong to the middle class based on the bounds of 2015 and also belong to the middle class with the bounds of 2009, and people who belong to middle class with bounds of 2015 and belong to the lower class with 2009 bounds. Figure 3 provides the distribution of this categorical variable. There 68% of people of the middle class remain to the middle class (variable value 0) when 32% of the middle class people (bounds 2015) are categorized as lower class if we apply the bounds 2009 (variable value 1).

Based on the above results, the one third of the middle class of 2015 could be considered as lower class with the standards of 2009. Using this categorization of the people of the middle class we try to investigate the characteristics of this

people. For this reason, we apply a logistic model (Dobsonand Barnett2008; McCullaghand Nelder1989) that is a standard approach in case that the dependent variable is a categorical variable with two values (o and 1). The general form of the logistic model is presented below in formula (1)

$$\ln\left(\frac{\pi}{1-\pi}\right) = b_0 + b_1 x_1 + ... + b_k x_k \qquad (1)$$

Where π is the probability of social mobility if the middle class people to the lower class, $x_1, x_2, ..., x_k$ are the independent or explanatory variables and $b_0, b_1, b_2, ..., b_k$ are the coefficients of the model.

The above model can be written as

$$\frac{\pi}{1-\pi} = e^{b_0} \cdot e^{b_1 x_1} \cdot ... \cdot e^{b_k x_k} \qquad (2)$$

where, $\frac{\pi}{1-\pi}$ is the odds ratio. The latter formula of the logistic regression has the advantage that the explanation of the coefficient is more natural and straightforward (Dobson and Barnett 2008; McCullagh and Nelder 1989)

In the above framework of the logistic model, we use use as dependent variable the variable that indicates the class mobility. This variable take two values, 0 if the person remains to middle class and 1 if the person moves to lower class.

As independent variables, a series of demographic variables is used such as the gender, the country of birth, the economic status, the education level and age group. Table 3 bellow presents the intendent variables and their values.

Table 3: Independent variables for the logistic model

Independent Variable	Categories - Values
Gender	Male
	Female
Country of Birth	Ellas (Greece)
	EU
	Other
Economic status	Employee working full-time
	Employee working part-time
	Self-employed working full-time
	Self-employed working part-time
	Unemployed
	Other inactive person
	In retirement
Education	Primary or less
	Secondary

	Post-secondary
	Bachelor
	Master or PhD
Age group	16 thru 24
	25 thru 34
	35 thru 44
	45 thru 54
	55 thru 64
	65+

In the logistic model, we also include an interaction term between the education level and the economic status. This interaction is chosen because as the literature indicates these two variables have great influence to the social mobility.

The results of the applied logistic model are presented in Table 4 in the Appendix. The table presents the coefficient (betas) for the logistic model, the statistical significance of the variables (p-value) and the exponential of the betas that are used to make inference for the odds ratios (model (Dobson and Barnett 2008; McCullagh and Nelder 1989). The main results of the logistic model are the following

- It is more probable for men to move to lower class than women.
- The people that was born in Greece is less probable to move to lower class than the people from EU countries and the latter suffer less that people born in countries out of the EU.
- The full time employees are less probable to move to lower class. The second more probable category for social movement to the lower class is the people in retirement (note that the low pensions -less than 1000 euros- did not reduced during the recession period). The unemployed people and the inactive people are in the worse position in comparison to all the other categories of the economic status.
- The education is a shield against the impoverishment. People with more advanced education are less probable to move to lower class.
- Finally, the young people suffer more than the older people. People with age group 35-44 are the most probable to move to lower class when the opposite happen for the people with age 55+.
- Concerning the interaction between education and economic status, the results indicates that the interaction terms are statistically significant and reinforce the direction of the social movement as described above for the two categorical variables.

3 Conclusion

Our analysis focused on the social mobility from the middle class to the lower class. The results of the applied logistic model examine the demographic

characteristics of the people in the middle class that they suffer more and the people that surf less from the recession in the Greek economy. In detail, the results reveal that the immigrants, the low educated people, the unemployed or the part time employees and the young people have suffered more from the economic crisis and the corresponding recession. In the future, we will examine if these characteristics are also the the same for social mobility from middle to the upper class. This hypothesis could be examined by applying a multinomial model. Another direction of our research would be to compute and examine the social transition probability tables.

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APPENDIX

Table 4: Results of the Logit Model

Variable	Categories	B	P-value	Exp(B)
Gender	Male			
	Female	-.116	0.000	. 890
Country of Birth	Ellas			
	EU	.441	0.000	1.554
	Other	1.068	0.000	2.909
Economic status	Employee working full-time			
	Employee working part-time	.-0,43	0.104	0,958
	Self-employed working full-time	1,022	0.000	2.778
	Self-employed working part-time	.688	0.000	1.991
	Unemployed	0,852	0.000	2.396
	Other inactive person	.974	0.000	2.691
	In retirement	.681	0.000	2.008
Education	Primary or less			
	Secondary	-.519	0.000	.595
	Post-secondary	-.584	0.000	.558
	Bachelor	-1.430	0.000	.239
	Master or PhD	-1.927	0.000	.146
Age group	16 thru 24			
	25 thru 34	.136	.000	1.145
	35 thru 44	.293	0.000	1.341
	45 thru 54	.031	.004	1.031
	55 thru 64	-.321	0.000	.726
	65+	-.384	0.000	.681
Econ_Status * Education	Employee working full-time *Primary or less			
	Employee working part-time * Secondary	1,087	0.000	2,965
	Employee working part-time * Post-secondary	,445	0.000	1,561
	Employee working part-time * Bachelor	1,139	0.000	3,123
	Employee working part-time * Master or PhD	1,878	0.000	6,540

Variable	Categories	B	P-value	Exp(B)
	Self-employed working full-time * Secondary	-,270	0.000	,763
	Self-employed working full-time * Post-secondary	-,995	0.000	,370
	Self-employed working full-time * Bachelor	-,203	0.000	,816
	Self-employed working full-time * Master or PhD	-,257	0.000	,774
	Self-employed working part-time * Secondary	,263	0.000	1,301
	Self-employed working part-time * Post-secondary	-,531	0.000	,588
	Self-employed working part-time * Bachelor	1,047	0.000	2,849
	Self-employed working part-time * Master or PhD	,399	0.000	1,491
	Unemployed * Secondary	,294	0.000	1,342
	Unemployed * Post-secondary	,665	0.000	1,945
	Unemployed * Bachelor	1,104	0.000	3,015
	Unemployed * Master or PhD	-,052	0.000	,950
	Other inactive person * Secondary	-,353	0.000	,703
	Other inactive person * Post-secondary	,680	0.000	1,974
	Other inactive person * Bachelor	,962	0.000	2,616
	Other inactive person * Education(4)	-,274	0.000	,761
	In retirement * Secondary	-,177	0.000	,838
	In retirement * Post-secondary	-,063	0.000	,939
	In retirement * Bachelor	-1,746	0.000	,174
	In retirement * Master or PhD	1,047	0.000	2,849
	Constant	-.836	0.000	.434