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## The differential impact of the financial crisis on Health in Ireland and Greece: A quasi-experimental approach

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### Abstract

**Objectives**—Greece and Ireland suffered an economic recession of similar magnitude, but whether their health has deteriorated as a result has not yet been well established.

**Study design**—Based on five waves (2006-2010) of the European Union Statistics of Income and Living Conditions (EU-SILC) survey we implemented a difference-in-differences (DID) approach that compared trends in self-rated health in Greece and Ireland before and after the crisis with trends in a control population (Poland) that did not experience a recession and had health trends comparable to both countries before the crisis.

**Methods**—Logistic regression using a difference-in-differences (DID) approach.

**Results**—A simple examination of trends suggests that there was no significant change in health in Greece or Ireland following the onset of the financial crisis. However, DID estimates that incorporated a control population suggest an increase in the prevalence of poor-self rated health in Greece (OR=1.216; CI=1.11 - 1.32). Effects were most pronounced for older individuals and those living in high-density areas, but effects in Greece were overwhelmingly consistent in different population sub-groups. In contrast, DID estimates revealed no effect of the financial crisis in Ireland (OR=0.97; CI=0.81-1.16).

**Conclusions**—Contradicting results from a simple comparison of single-country trends, DID estimates suggest that the financial crisis has led to deterioration of population health trends in Greece but not in Ireland, where policies may have prevented a worsening of health as a result of the recent economic crisis.

### Keywords

Economics; Health Policy; Public Health; Self-Rated Health; Crisis

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Competing interests: None.

## Introduction

One question that has attracted considerable attention among both policy makers and the public is how the recent financial crisis has affected population health. It has been argued that the combination of high unemployment rates, rising job insecurity and severe cuts in government social welfare and healthcare spending may have resulted in an emerging public health crisis.<sup>1-4</sup> In support of this view, several recent studies suggest that the crisis may have led to increases in adverse health outcomes, and in particular suicides, in different European countries.<sup>1, 5-10</sup> Critiques, however, argue that some of these variations may reflect random fluctuations rather than true worsening of population health attributable to the crisis.<sup>11-13</sup> A crucial limitation, however, is that most recent studies are based on single-country comparisons of trends before and after the crisis, without exploiting geographical variation by means of a control group. In a single-country comparison, it is difficult to distinguish autonomous trends in population health in one place from those attributable to the financial crisis. In addition, few studies have explicitly investigated whether the impact of the financial crisis differed across countries with vastly different policy responses.

Greece and Ireland are among the countries in Europe suffering most dramatically from the recent economic collapse. In Ireland, unemployment increased from 4.7% in 2007 to 13.9% in 2010, while in Greece it increased from 8.3% to 12.6% over the same period.<sup>14</sup> There are compelling reasons to expect that these changes may have led to worsening health outcomes, for instance, due to increased numbers of Europeans experiencing financial hardship, involuntary job-loss or diminished access to healthcare.<sup>15-18</sup> However, studies suggest that the impact of economic recessions on health may depend on the particular institutional and policy context. Using data for OECD-countries from 1960 to 1997, for example, Gerdtham and Rhum found that economic downturns were associated with reduced mortality, but this effect was more pronounced in countries with weak social insurance systems.<sup>19</sup> Similarly, a study based on European data for the years 1970 to 2007 found that increased unemployment was associated with an increase in suicides, but this association was weaker when expenditures in active labor market programs were higher.<sup>20</sup> While it may be too early to assess the impact of policy responses to the crisis, Greece and Ireland offer two interesting policy counterfactuals. For example, the average unemployment replacement rate (the percentage of previous earnings which is replaced by related benefits) for an average worker who is a single-earner in a marriage with two children in 2010 was 43% in Greece as opposed to 70% in Ireland. On the other hand, employment protection, as measured by the procedures and costs involved in dismissing and hiring workers, was substantially stricter in Greece than in Ireland.<sup>21</sup> Differences between the two countries provide a unique opportunity to assess how the health impact of the recent financial crisis depends on geographical and institutional variation.

Based on individual-level data from the European Union Statistics of Income and Living Conditions (EU-SILC), we used a difference-in-difference approach to examine how the recent financial crisis influenced population health in Greece and Ireland, two countries with contrasting institutional arrangements. We contrasted results from a comparison of trends before and after the onset of the crisis in Greece and Ireland, with an analysis that explicitly

incorporates a control population that did not suffer a recession of the same magnitude as that experienced by Greece and Ireland, but had similar health trends as Ireland and Greece prior to the Global Financial crisis. While it is not easy to identify a control population, we identified Poland as the only country in the European Union (EU) which did not experience a recession throughout the study period. Although in Poland the annual growth rate of gross domestic product (GDP) dropped from 5% in 2008 to 1.6% in 2009, it remained positive throughout this period and improved again in 2010 (3.9%). Domestic demand only dropped by half a percentage point between 2008 and 2009 and immediately increased by 4.5 percent in the next year. Compared to many other European countries, the labour market effects were substantially smaller in Poland.<sup>14</sup> For example, although unemployment increased from 7.1 to 8.2 percent between 2008 and 2009, according to the OECD Poland has been the best performing OECD country since the year 2007,<sup>22</sup> with substantially smaller impacts than those suffered in both Greece and Ireland. At least part of Poland's relatively strong economic performance can be explained by the steady inflow of substantial funds from the European Union, domestic stimulus packages, exchange-rate depreciation as well as comparatively solid public finances.<sup>22</sup> In an earlier and preliminary analysis on the early effects of the crisis in Greece, we showed that by comparing health trends to those in a control population it is possible to assess whether a potential deterioration of health may indeed be attributable to the financial crisis.<sup>23</sup> We further exploit this approach and extend the years assessed to compare the health effects of the crisis in Greece and Ireland.

## Methods

### Sample

Data for this study came from the European Union Statistics of Income and Living Conditions (EU-SILC).<sup>24</sup> EU-SILC provides nationally representative and comparable individual-level data on living conditions, health and socio-demographic characteristics of the population living in private households aged 16 years and above. In Ireland and Greece, the survey is based on a stratified probability sample of households. In Poland, a stratified multi-stage sampling of addresses was used. In 2010, the average household response rate was 84% in Greece, 80% in Ireland and 85% in Poland.<sup>25</sup> We selected individuals aged 18 and above, as our focus was on the effects of the crisis in adult age. Data covered the years 2006-2010 in Greece and Poland and 2006-2009 in Ireland.

We chose self-rated health as the key health outcome of interest as it is plausibly more sensitive to short-term shocks than other health outcomes such as disability or the onset of chronic conditions. In EU-SILC, self-rated health was measured using a 5-point scale with answer categories ranging from 'very bad' to 'very good'. We distinguished between respondents who stated that their health was 'bad' or 'very bad' from those who reported that their health was 'fair', 'good' or 'very good'.

### Statistical analysis

We first estimated the odds of reporting poor self-rated health before (2006-2008 for Greece and 2006-2007 for Ireland) and during the crisis (2009-2010 for Greece and 2008-2009 for Ireland). To distinguish potential effects of the financial crisis on health from autonomous

trends, we then used a DID approach that incorporates a control group which was not exposed to a recession in the same period but had similar health-trends in the time preceding the recession. Conditional on similar trends before the exposure to the financial crisis, this approach assumes that the health trends (rather than levels) would have been similar in the treatment groups (Greece and Ireland) and the control group in the absence of the crisis. We used Poland as the control group since the latter was the only country in the European Union (EU) which did not experience a recession throughout the study period. Based on data for the years preceding the crisis, we tested the validity of the common trend assumption between Poland and Greece as well as Poland and Ireland. This assumption was formally tested by comparing trends in self-rated health before the crisis in Poland and Greece (2006-2008) and Poland and Ireland (2006-2007). For the DID estimator to be valid, there should be no differences in health trends prior to the crisis. Differences in levels between countries do not compromise the validity of this approach. Whereas the common trend assumption generally assumes that the pre-treatment trends in the treatment and control group move in a similar direction, this assumption can be relaxed by the inclusion of group-specific trends allowing both groups to follow different trends.<sup>26</sup> Given that the latter approach is regarded as more robust<sup>26</sup> we included country-specific linear trends as additional controls, but found the results substantially similar.

To implement the DID approach, we used a logistic regression to compare differences in the odds of reporting poor self-rated health before and during the financial crisis in Ireland and Greece with the same odds in the comparison population (Poland), and subtracted the difference between the two groups. The DID estimate, defined as the difference between the treatment country (Greece or Ireland) and the comparison country, is captured by the interaction between the years of the financial crisis (2008-2009 in Ireland and 2009-2010 in Greece) and the respective treatment country.

In all models, we controlled for potential confounders including sex, age in 10-year age-groups, marital status (categorized as married, never married, divorced or widowed), degree of urbanization (categories in three groups based on densely, intermediate and thinly populated areas), and educational level measured based on six categories of the International Classification of Educational Degrees (ISCED).<sup>27</sup> Marital status and the degree of urbanization may be both confounders as well as mediators as they could have been directly affected by the crisis. However, excluding these variables from the models yielded similar results. We estimated models separately by age group, sex, educational level and degree of urbanization to assess differential effects of the financial crisis on the health of these groups.

Analyses were conducted in Stata/SE 10 using appropriate sampling weights.

## Results

Summary statistics for the three countries are presented in Table 1. The three countries differed with regard to their health and socio-demographic characteristics. 11% of Greek adults and 4% of Irish adults reported being in poor health, compared to 18% of Polish respondents. Respondents in Greece and Ireland were older than those in Poland, and Irish respondents were less likely to be married than their Greek or Polish counterparts. 23% if

Irish respondents had a tertiary education, compared to 17% in Greece and 13% in Poland. These differences stress the need for a DID approach that controls for differences in levels, shifting focus towards comparisons in trends in self-rated health.

Figure 1 shows that before the onset of the crisis in 2009, trends in the prevalence of poor self-rated health were very similar between Greece and Poland, the control population. The prevalence of reporting poor health decreased modestly between 2006 and 2008 in both countries. Trends started to diverge in 2009 as the prevalence of poor health increased in Greece while continuing to decline in Poland. Trends in the years preceding the crisis were similar between Ireland and Poland as the prevalence of poor health declined modestly in both countries between 2006 and 2007. In contrast to Greece, however, there was no apparent change in self-rated health levels in Ireland after the crisis.

Table 2 shows results from a naïve model that compares trends in self-rated health before and after the financial crisis in Greece and Ireland. Results from this comparison suggest that there has been no significant change in the odds of reporting poor health in Greece or Ireland following the onset of the financial crisis in each country. Odds ratios comparing the odds of poor health between 2006-2008 and 2009-2010 were 1.06 (95% confidence interval [CI] 0.98, 1.15) in Greece. In Ireland, the odds ratio of poor health between 2006-2007 and 2008-2009 was 0.92 (95% CI 0.78, 1.09).

Before implementing the DID approach, we tested the validity of the common trend assumption by assessing whether trends in self-rated health in Greece and Ireland differed from those in Poland prior to the financial crisis (Table 3). We estimated a 'placebo' DID estimate expressed as the interaction between county and year in the period before the crisis. Odds ratios for the financial crisis year, which corresponds to the estimate of trends in self-rated health between 2006 and 2008 in Greece, suggest that the odds of poor self-rated health declined by 7% (OR[Odds Ratio]=0.93, 95% CI 0.88, 0.98). In line with the common trend assumption, there was no evidence of a significantly different trend in Greece in comparison to Poland (OR for interaction=1.01, 95% CI 0.88, 1.15). Similarly, trends in poor health between 2006 and 2007 in Ireland did not differ from those in Poland (OR for interaction=0.89, 95% CI 0.69, 1.14). These results suggest that trends in self-rated health in Greece and Ireland were not significantly different from those in Poland, suggesting a similar decline in the odds of poor self-rated health in both countries prior to the financial crisis and supporting the validity of the common trend assumption.

Table 4 shows DID estimates examining the impact of the financial crisis in Greece and Ireland relative to the control population, expressed as the interaction between country and financial crisis year. Results provide evidence of a statistically significant negative effect of the financial crisis on self-rated health trends in Greece. While Poland witnessed a continuing decline in the odds of poor health after the financial crisis, trends were significantly less favorable in Greece as indicated by the DID estimate that compared health between 2006-2008 and 2009-2010, (OR=1.22, 95% CI 1.11, 1.33) or between 2006 and 2010 (OR=1.28, 95% CI 1.12, 1.47). In contrast, there was no evidence that the financial crisis influenced health trends in Ireland. DID estimates were 0.98 (95% CI 0.82, 1.17) for a comparison of health between 2006-2008 and 2009-2010 with respect to the control

population, and 0.98 (95% CI 0.78, 1.23) for DID estimates that compared health trends between 2006 and 2009.

DID-estimates for different population sub-groups in each country are summarized in Figure 2. In Greece, effects were slightly more pronounced among those aged 65+, men, those with only primary or secondary education, and those living in more densely populated areas. However, the financial crisis had a negative effect on the health of all population sub-groups, without significant differences in magnitude across groups. In contrast, in Ireland, there was no significant effect of the financial crisis on trends in self-rated health in any specific sub-group.

## Discussion

Our aim was to assess whether the onset of the financial crisis was associated with an increase in poor self-rated health in Greece and Ireland, and to examine whether specific population groups were particularly vulnerable to the health effects of the crisis. A comparison of trends in self-rated health within each country without a control population revealed no evidence of significant changes in the prevalence of poor health. In contrast, using a DID approach that explicitly incorporates a control population, we found that the financial crisis did lead to worsening trends in self-rated in Greece, while it had no health effects in Ireland. Our results highlight the importance of incorporating a control population, and raise questions about differences between Ireland and Greece in social safety nets that may explain why the health effects of crisis differed between the two countries.

## Explanation of results

Results for Greece confirm those from our previous study using preliminary data until 2009.<sup>23</sup> Incorporating recent data for 2010, our findings further suggest that the health effects of the recession have remained and may have strengthened. Contrary to previous studies comparing within-country trends in self-rated health in Greece,<sup>1, 28</sup> we found no evidence of an increased prevalence of poor health in Greece despite the steep decrease in economic output in Greece between 2008 and 2009 (8%). However, health trends in Greece worsened relative to the control population. These discrepancies between a DID and a naïve comparison of trends caution on the interpretation of single-country trends without explicitly incorporating a control group. Most likely, such comparisons may underestimate the impact of the crisis, particularly in a context of health improvements and secular mortality declines in most high-income countries during recent decades.

Our disaggregation of effects suggests that older Greeks were at least as vulnerable as their younger counterparts to experience a decline in health as a result of the crisis, despite their lack of labour market attachment. Earlier studies have raised the possibility that the health effects of economic downturns are not specific to the working population, but in fact may be particularly relevant for the older population.<sup>29</sup> Because most individuals aged 65+ in Greece are out of the labour market, this suggests that the effect of economic downturns may not only reflect the impact of job loss or other labour market related mechanisms but also changes in pollution and decreases in the quality, quantity and nature of health care inputs.<sup>29</sup>

We found that Greeks with only secondary or less education experienced a substantial health decline relative to the control population. Recent evidence from the US suggests that the impact of economic recessions on labour market outcomes is born disproportionately by men, black and Hispanic workers, youth, and lower educated workers, partly due to the demographic composition of workers across industries and occupations which are differentially affected by economic downturns.<sup>30</sup> Less educated individuals may not only be more likely to lose their job during difficult economic times,<sup>30</sup> but they may also face larger job uncertainty, and more difficulties in meeting mortgage or other debt payments. Our findings also suggest that individuals living in thinly populated areas are less vulnerable to the effects of the crisis than those living in urban and more populated areas. A possible explanation of this finding refers to the lower costs of living as well as community and social support potentially available to those living in smaller villages and rural areas,<sup>31</sup> where individuals may more easily rely on family and friends in times of hardship than individuals living in urban areas.

A striking finding from our paper is that despite experiencing a financial crisis of similar magnitude, Ireland did not suffer a significant change in health after the financial crisis. This finding raises the question of whether specific features of the Irish context may have protected their population from declines in population health. One explanation may be the different austerity policy response between the two countries. Compared to Greece, cuts in the healthcare budget in Ireland have been less dramatic until 2010 and have had a smaller effect on the access to and quality of health services due to substantial investments in the years prior to the crisis.<sup>32, 33</sup> On the other hand, it is uncertain whether recent budget cuts would be a plausible explanation for immediate overall population health decline as they have been very recently implemented, and would most likely have an effect over the medium- to long-term.

Another possible explanation for the stronger health effects of the crisis in Greece as compared to Ireland might be attributable to the more generous social safety nets in the latter. While provisions for unemployment benefits, disability benefits and other forms of social assistance are considered ungenerous in Ireland, they are generally more generous than in Greece. For example, the average unemployment replacement rate for a single-earner in a marriage with two children in 2010 was 43% in Greece as opposed to 70% in Ireland. Most dramatically, replacement rates for long-term (5-year) unemployment was 4% in Greece as opposed to 85% in Ireland.<sup>34</sup> Labour markets also differ greatly with substantially higher levels of employment protection in Greece than Ireland.<sup>35</sup> These higher levels of employment protection may have protected the employed population in Greece from losing their jobs, but at the same time it may have prevented new entrants from accessing the labour market.

## Conclusion

Our results highlight the importance of incorporating a control population in assessing the impact of the recent financial crisis on health. A single-country analysis of trends without a control group can yield biased estimates of the effect of the financial crisis on health. Based on a difference-in-difference approach, our estimates suggest that the financial crisis has led

to deterioration of health-trends in Greece but not in Ireland. A possible explanation for this differential effect may be differences in the generosity of unemployment benefits and employment protection. Although speculative, higher unemployment replacement rates and a more flexible labour market in Ireland may have prevented a general deterioration in population health. On the other hand, although we found no short-term effects of the financial crisis on health in Ireland, the long-term effects may well be different. While the two countries still face severe financial problems, and as the effects of recessions on health may appear with a significant lag, [36] there is need for urgent policy responses to prevent further deterioration in population health in the years to come.

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## Appendix Table 1

### Overview of macroeconomic and demographic indicators in Greece, Ireland and Poland before the financial crisis<sup>a</sup>

Indicator	Poland	Ireland	Greece
<b>GDP &amp; inflation</b>			
GDP per capita (PPP)	15.057	44.969	27.743
Real GDP growth (%)	6.8	5.0	3.5
Inflation (all items) (%)	2.4	4.9	2.9
<b>Economic structure (share of real value added as % of GDP)</b>			
Agriculture, forestry, fishing	4.3	1.5	3.5
Industry	24.4	21.7	12.7
Finance, insurance, real estate, business	17.9	27.1	22.8
<b>Expenditure (% of GDP)</b>			
Public expenditure on health	4.5	6.0	5.9
Private expenditure on health	1.9	1.9	3.9
Public social expenditure	19.7	16.7	21.6
Public expenditure on pensions	10.6	3.6	12.1
<b>Employment</b>			
Civilian labour force: males % of population 15-64	61.1	57.0	55.1
Civilian labour force: females % of population 15-64	54.2	43.0	44.9
Unemployment rate: total labour force (%)	9.6	4.7	8.3
Long-term unemployment: total unemployed (%)	45.9	29.5	50.0
Strictness of employment protection (index)	2.23	1.27	2.80
<b>Population &amp; health</b>			
Total population (in thousands)	38.116	4.357	11.193
Life expectancy at birth	75.4	79.7	79.5



<sup>a</sup> All data refer to the year 2007 and are derived from the Organization of Economic Cooperation and Development (OECD) Country statistical profiles: Key tables of OECD countries, URL: [http://www.oecd-ilibrary.org/economics/country-statistical-profiles-key-tables-from-oecd\\_20752288](http://www.oecd-ilibrary.org/economics/country-statistical-profiles-key-tables-from-oecd_20752288).

## Appendix Table 2

### Difference-in-differences (DID) ordered logit regression-based Odds Ratio (OR) and 95% Confidence Interval (95% CI): change in self-rated health after the financial crisis in Greece and Ireland relative to Poland (control population)<sup>a</sup>

	Greece				Ireland			
	2006/07/08 vs. 2009/10		2006 vs. 2010		2006/07 vs. 2008/09		2006 vs. 2009	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
DID estimate (dummy for country of treatment × crisis year(s))	1.330	(1.258 - 1.407)	1.494	(1.370 - 1.630)	1.168	(1.073 - 1.272)	1.302	(1.171 - 1.447)
Dummy for country of treatment	0.107	(0.103 - 0.111)	0.102	(0.096 - 0.109)	0.151	(0.142 - 0.161)	0.147	(0.137 - 0.158)
Dummy for crisis year(s)	0.847	(0.828 - 0.866)	0.751	(0.726 - 0.777)	0.874	(0.853 - 0.895)	0.890	(0.795 - 0.851)
Observations	215,904		88,304		160,437		83,106	

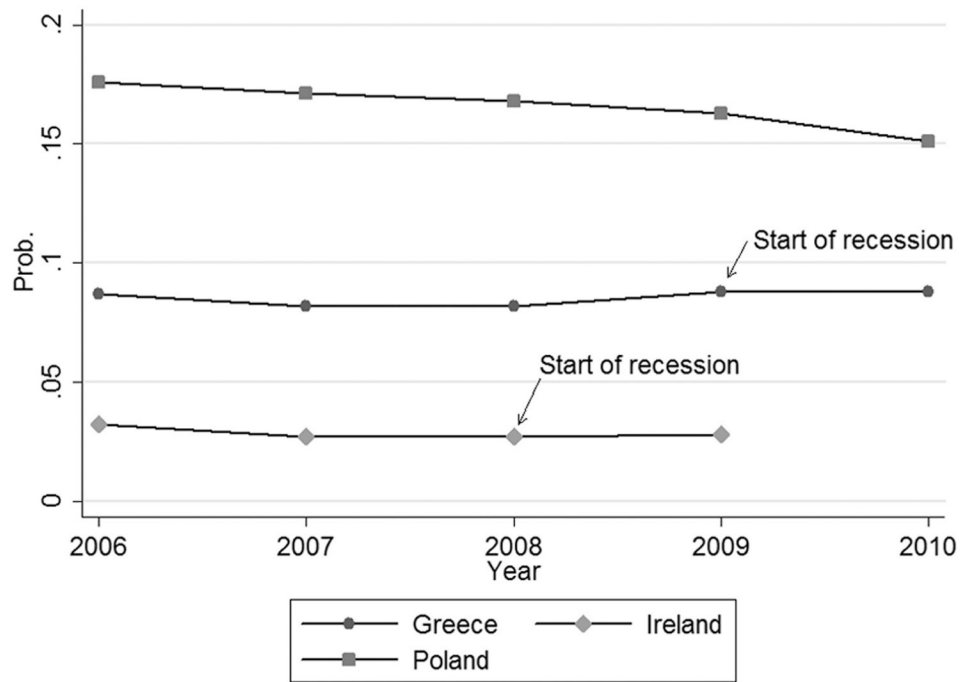
<sup>a</sup> All models include controls for sex, age, education, marital status and degree of urbanization.

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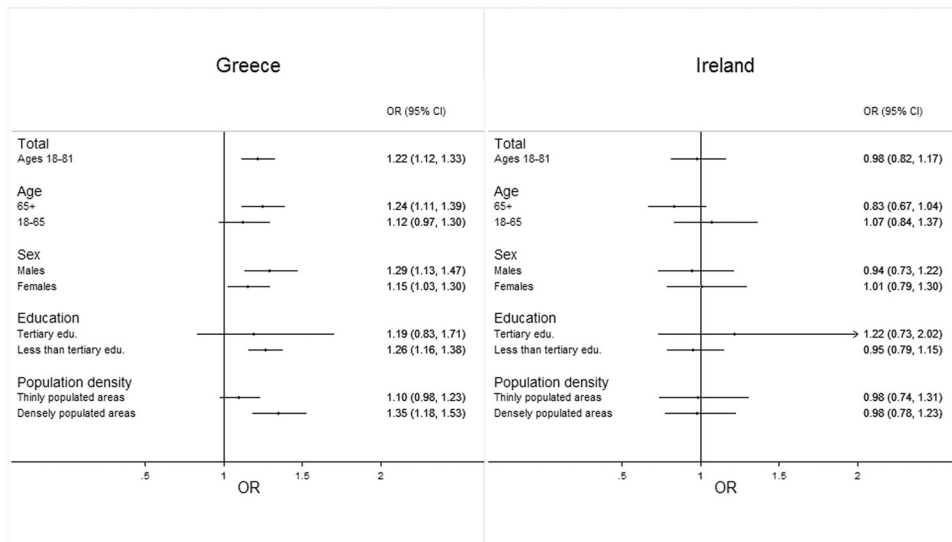
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**Figure 1. Probability of reporting poor self-rated health in Greece, Ireland and Poland (2006-2010)<sup>a</sup>**

<sup>a</sup>Adjusted by age and sex.



**Figure 2. Odds ratio (OR) for the effect of financial crisis on health (DID estimates) by sub-groups<sup>a</sup>**

<sup>a</sup>Difference-in-difference logistic regression-based odds ratios: trends in poor self-rated health after the financial crisis in Greece (2006/07/08 vs. 2009/10) and Ireland (2006/07 vs. 2008/09) relative to Poland separately for different groups. Odds ratios are from a logistic regression that controls for age, sex, marital status, degree of urbanization and educational level.

Table 1

## Summary statistics, EU-SILC data, ages 18+, 2004-2010

	Greece		Ireland		Poland	
	Obs.	%	Obs.	%	Obs.	%
N	80,216		52,964		201,458	
Bad or very bad self-rated health	8,616	10.7	2,007	3.8	35,031	18.3
Age						
18-24	7,315	9.1	5,830	11.0	28,210	14.0
25-29	5,953	7.4	2,892	5.5	17,190	8.5
30-34	6,328	7.9	3,069	5.8	15,947	7.9
35-39	6,746	8.4	3,818	7.2	15,070	7.5
40-44	6,926	8.6	4,741	9.0	15,700	7.8
45-49	6,617	8.2	4,836	9.1	18,606	9.2
50-54	6,504	8.1	4,671	8.8	20,697	10.3
55-59	6,108	7.6	4,651	8.8	18,861	9.4
60-64	5,871	7.3	4,258	8.0	13,521	6.7
over 65	21,848	27.2	14,198	26.8	37,656	18.7
Male sex	38,462	47.9	25,175	47.5	95,092	47.2
Married	50,987	63.6	28,483	53.8	118,096	61.8
Urbanization						
Densely populated area	28,204	36.9	15,771	33.4	70,484	35.0
Intermediate area	7,439	9.7	13,592	28.8	29,759	14.8
Thinly populated area	40,813	53.4	17,795	37.7	101,215	50.2
Educational level						
Pre-primary	2,918	3.8	-		4,209	2.2
Primary	26,335	34.0	14,881	28.7	36,636	19.2
Lower secondary	8,679	11.2	9,258	17.8	7,922	4.2
Upper secondary	22,897	29.6	11,735	22.6	109,849	57.6
Post-secondary (non-tertiary)	3,198	4.1	3,897	7.5	7,174	3.8
Tertiary education	13,449	17.4	12,140	23.4	24,789	13.0

**Table 2**  
**Odds Ratio (OR) and 95% Confidence Intervals (95% CI): Comparison of health levels before and after the crisis in Greece and Ireland<sup>a</sup>**

	Greece		Ireland	
	2006/07/08 vs. 2009/10	2006 vs. 2010	2006/07 vs. 2008/09	2006 vs. 2009
	OR	95% CI	OR	95% CI
Dummy for crisis years	1.060	(0.978 - 1.149)	1.010	(0.887 - 1.154)
Observations	62,126	26,137	0.9220	(0.779 - 1.091)
			34,688	20,317

<sup>a</sup> All models include controls for sex, age, education, marital status and degree of urbanization.

**Table 3**  
**Test of the common trend assumption: Difference-in-Differences (DID) logistic regression-based Odds ratios (ORs) and 95% Confidence Interval (95% CI) before the financial crisis (2006–2008)<sup>a</sup>**

	Greece				Ireland			
	2006/07/08 vs. 2009/10		2006 vs. 2010		2006 vs. 2010		2006 vs. 2007	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
DID estimate (country of treatment × crisis year(s))	1.011	(0.885 - 1.156)	1.024	(0.909 - 1.153)	0.890	(0.693 - 1.142)	0.890	(0.693 - 1.142)
Dummy for country of treatment	0.300	(0.274 - 0.330)	0.300	(0.280 - 0.321)	0.123	(0.106 - 0.142)	0.123	(0.106 - 0.142)
Dummy for crisis year(s)	0.933	(0.885 - 0.983)	0.950	(0.907 - 0.996)	0.964	(0.916 - 1.014)	0.964	(0.916 - 1.014)
Observations	215,904		130,635		84,495		84,495	

<sup>a</sup> All models include controls for sex, age, education, marital status and degree of urbanization.



**Table 4**  
**Difference-in-differences (DID) logit regression-based Odds Ratio (OR) and 95% Confidence Interval (95% CI): change in self-rated health after the financial crisis in Greece and Ireland relative to Poland (control population)<sup>a</sup>**

	Greece				Ireland			
	2006/07/08 vs. 2009/10		2006 vs. 2010		2006/07 vs. 2008/09		2006 vs. 2009	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
DID estimate (dummy for country of treatment × crisis year(s))	1.216	(1.115 - 1.327)	1.282	(1.119 - 1.469)	0.977	(0.817 - 1.168)	0.981	(0.780 - 1.233)
Dummy for country of treatment	0.298	(0.282 - 0.315)	0.301	(0.274 - 0.330)	0.115	(0.102 - 0.130)	0.122	(0.105 - 0.141)
Dummy for crisis years	0.870	(0.838 - 0.902)	0.793	(0.749 - 0.839)	0.928	(0.894 - 0.965)	0.890	(0.843 - 0.940)
Observations	215,904		88,304		160,437		83,106	

<sup>a</sup> All models include controls for sex, age, education, marital status and degree of urbanization.