Polarization or "Squeezed Middle" in the Great Recession?: A Comparative European Analysis of the Distribution of Economic Stress

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Abstract

This paper analyses variation in the impact of the Great Recession on economic stress across income classes for a range of advanced European countries. Our analysis shows Iceland, Ireland and Greece to be quite distinctive in terms of increases in economic stress. Between 2008 and 2012 these countries moved from being predictably located within anticipated welfare regimes to becoming clear outliers. For this set of counties, each of which was exposed to different but severe forms of economic shock, trends in income class polarisation versus middle class squeeze were variable. Each exhibited substantial increases in levels of economic stress. However, changes in the pattern of income class differentiation were somewhat different. In Iceland a form of middle class squeeze was observed. For Ireland the pattern of change involved a contrast between the income poor and the lower middle class and the two highest classes. In this case income clas polarization did not exclude middle class squeeze. Greece came closest to fitting the polarization profile. Changes in the distribution of household equivalent income had no effect on stress levels once the impact of material deprivation was taken into account. Changes in levels of material deprivation played a significant role in accounting for changing stress levels but only for the three lowest income classes. These findings bring out the extent to which the impact of the Great Recession on the distribution of economic stress across classes varied even among the hardest-hit countries. They also serve to highlight the advantages of a multidimensional approach that goes beyond reliance on income in seeking to understand the impact of such shocks.

Key words: ‘middle class squeeze’, polarization, income class, Great Recession, economic stress

The "Squeezed Middle" in the Great Recession: A Comparative European Analysis of the Distribution of Economic Stress

Introduction

The Great Recession has accentuated pre-existing concerns relating to income inequality (Piketty, 2014) and the negative impact of such inequality (Wilkinson and Pickett, 2009).[i] However, it is far from clear that the literature relating to long-term trends in inequality is sufficient to enable us to understand the impact of the recent economic crisis and the manner in which it has varied. Thus Eichengreen (2015:470) notes, "Piketty dismisses the crisis as a blip; he devoted just one page (297) to hypothesizing that inequality caused lower and middle class incomes in the United States to take on additional debt in order to support the continued growth of their living standards-debt that heightened the fragility of the financial system". Similarly, it would seem unwise to assume that the subjective impact of the economic crisis can be understood as involving the impact of increasing income inequality on social psychological mechanism relating to factors such as status attainment and social capital

Atkinson et al (2011: 49) in a comprehensive analysis of the relationship between economic crisis and income inequality conclude that there is no hard and fast pattern and that crises differ greatly from other in their causes and outcomes and that as far as inequality is concerned "this time may be different". Focusing specifically on the impact of the Great Recession Jenkins et al.'s (2013) comparative analysis of the impact of the Great Recession showed that the initial distributional effects varied widely across countries, reflecting not only differences in the nature of the macroeconomic downturn but also in the manner in which cash transfers and direct taxes cushioned household net incomes from the full consequences of reductions in market incomes.

In countries most severely affected by the Great Recession considerable debate has emerged as to where the heaviest burden has fallen. In Ireland, for example, despite modest changes in conventional measures of income inequality and poverty, claims relating to increased class polarization have been made by a variety of social critics who have argued that "austerity" policies have involved the imposition of additional sacrifices on the most vulnerable. However, at the same time increasing debt levels, negative equity, public sector redundancies and pay cuts and difficulties experienced by the self-employed have resulted in notions of 'middle class squeeze', coming to have considerable resonance in popular and political debate (Whelan and Maître, 2014, Whelan et al, 2015). The term originates in the US where it refers to the relative decline in earnings for middling groups and the reliance on credit to maintain established living standards (Kus, 2013). The European context is different in crucial respects. Debt levels are higher in the US and show considerable variation across EU countries, However, as Kus (2015: 212) observes, in the context of increased consumer demand and aggressive and less regulated credit markets, household debt levels have increased substantially in advanced European countries over the past two decades and notes that in 2010 the respective average levels of credit in the US and the EU were 126 and 99 per cent of income. [ii]

In that context, understanding the potential impact of the Great Recession on levels of requires that our research agenda goes beyond a focus on its effects on household incomes, which may not tell the whole story. The impact of the economic crisis, particularly on households made vulnerable by increased debt levels and affected by declining asset values (notably property) that accompanied it, is not likely to be fully captured by focusing purely on how incomes were affected.

In what follows we examine whether increases in economic stress were felt most by those in the middle versus lower down the income distribution and whether the evolution of economic

stress simply reflected what happened to household income and material deprivation or requires that we allow a role for other factors and the extent to which this varies across the income distribution. Our findings bring out the distinctive features of the impact of the Crisis in three of the hardest-hit countries – Iceland, Ireland and Greece – each of which was exposed to different but severe forms of economic shock[iii] and reinforce the importance of complementing income with other household-level indicators in seeking to capture the effects of such large-scale economic disruption. [iv]

Data and Measures

Our analysis is based on data from the 2008 and 2012 waves of the European Union Statistics on Income and Living Conditions (EU-SILC). We have included sixteen economically advanced European countries, where we consider issues of income class polarization v middle class squeeze to be of most relevance, comprising the original EU-15 (excluding Luxembourg) together with Iceland and Norway. For the purposes of our current analyses we focus on individuals residing in households where the Household Reference Person (HRP) is aged 65 or below. [v]

Incomes and "Income Classes"

We employ the conventional measure of household disposable income adjusted for household size, employing the OECD equivalence scale which gives a value of 1 for the first adult, 0.66 for each additional adult and 0.33 for each additional child. We also adjust for inflation over the period: for most countries the income measure in EU-SILC refers to the previous calendar year, so the increase in consumer prices from 2007 to 2011 was taken. (For the UK the income information refers to the current year so the increase in prices from 2008 to 2012 was used).

As Gornick and Jäntti observe (2013: 9), what economists refer to as the ‘‘middle class’’ might be more accurately described as those that fall in the ‘‘middle’’ of the income

distribution. Within this income-based framework 'class classifications' have been developed in two ways. The first involves aggregating income bands into deciles or quintiles, in which case the size of classes remain constant over time. An alternative approach establishes class groups involving intervals defined by percentages of median household income (Atkinson and Brandolini 2013: 82), which is the approach we adopt here. The number of categories identified and the labels attached to them is to some extent arbitrary. We first distinguish households with incomes below 60% of median equivalized income—the most widely-used relative poverty threshold in an EU context – as "the income poor". As Atkinson and Brandolini (2013) note, one may either accept ''the premise that middle class living standards begin when poverty ends", or instead take a more conservative approach and fix a level so as ''to ensure that the lower endpoint of the middle class represents an income significantly above the poverty level,'' as suggested by Horrigan and Haugen (1988: 5). Favouring the latter, we take those between 60% and 75% of the median to be "precarious" or on the ''margins'' of poverty (consistent with the finding from the analysis of income dynamics over time (e.g. Jenkins, 2011) that there is considerable movement between this category and the income poor from year to year). The middle class can then be said to be those not in or on the margins of poverty, between 75% and 166% of the median; within this we distinguish a ''lower middle class'' between 75–125% of the median and an ''upper middle class'' between 125% and 166% of the median. Those whose incomes are at least 167% of the median will be taken as the affluent class.[vi]

Economic Stress

Our key dependent variable is a measure of economic stress. It is based on a set of items that are intended to capture debt problems but also capacity to cope with financial demands. Overall we understand the outcome to reflect debt problems directly associated with objective financial circumstances but also with the capacity to adjust to such circumstances and reference groups.

While there is an agreement that debt levels have substantially increased, there has been less consensus on how over-indebtedness and its consequences should be defined and measured. Furthermore, it is widely recognized that the concept of over-indebtedness is multidimensional and therefore no single indicator can encapsulate it. The models employed for measuring consumer over-indebtedness include objective and subjective versions (Ferreira, 2000; Finlay, 2006; Betti et al., 2007). The former is based on the notion of unsustainable spending behaviour (consumption/income ratio) or unsustainable level of debt (debt/asset ratio) or inability to service debt (debt payment/income ratio). However, there is no established methodology for determining the critical level of these ratios. Furthermore, Betti et al. (2007) argue that even if a critical level of indebtedness can be established, it is likely to fluctuate widely through the life course of an individual. The subjective approach classifies as over-indebted all those who judge themselves to be unable to repay their debts without reducing their other expenditure below their normal minimal levels. The implication is that the debt has become unsustainable. One difficulty with this measure is that tolerance for debt may vary across countries, time socio-economic groups and individuals and therefore may be an unstable indicator if used in isolation.

As Russell (2013: 695-697) note, a consortium of researchers appointed by the European Commission to develop a common operational definition of over-indebtedness proposed a mix of objective and subjective model indicators (Davydoff et al. (2008: pp. 55–56). They included payment commitments that push the household below the poverty threshold, structural arrears on at least one financial commitment, a burden of monthly commitment payments considered to be heavy for the household, limited payment capacity, and illiquidity. Drawing on the items available in EU-SILC our proposed indicator of economic stress includes items relating to structural arrears, burden of housing costs, illiquidity in terms of inability to meet with unexpected expenses and adds items relating to debt experiences in the past 12 months and experiencing difficulty in making ends meet.

The full set of items is as follows

1 Households were defined as having a structural problem with arrears where they were unable to avoid arrears relating to mortgage or rent, or utility bills or hire purchase instalments (in the past 12 months). Those households experiencing such problems were given values of 1 while the remainder were scored as 0.

2. Focusing on illiquidity, Individuals in households indicating that they were unable to cope with unexpected expenses were scored 1 while all others were scored 0.

3. Respondents indicating that housing costs were a ‘‘heavy burden’’ or ‘‘somewhat of a burden’’ were scored as 1 while the remaining category was assigned a value of 0.

4. A further indicator of debt was captured by the question ‘‘Has the household had to go into debt within the last 12 months to meet ordinary living expenses such as mortgage repayments, rent, food and Christmas or back-to-school expenses?’’ A positive answer was scored as 1 while a negative one was assigned a value of 0.

5. Respondents indicating that the household had ‘‘great difficulty’’ or ‘‘difficulty’’ in making ends meet have been given a value of 1 while the remaining categories have been scored as zero.

The average reliability of this measure across all sixteen countries employing Cronbach’s alpha was 0.69 on 2008 and 0.71 in 2012. It displays both satisfactory levels of reliability and extremely modest variation across countries/.

In creating the economic stress and material deprivation indices, following Desai and Shah (1988), each item is weighted by its prevalence weight in the population. Less frequently experienced stresses (or deprivation) are allocated a proportionately greater weight. These

weights are allowed to vary across time in order to best capture the latent stress variable and material deprivation variable. The weighted items are then added and this produces a continuous variable which has then been 'normalized' to produce scores ranging from 0 to 1. A score of zero means that the individual is not stressed (or deprived) on any of the items while a score of 1 means that the individual is stressed (or deprived) on all items while intermediate scores reflect the pattern of stress (or deprivation) responses and the prevalence weights at each point in time.

Material Deprivation

The measure of material deprivation we use is constructed from the responses to questions about absence of the following items due to lack of resources:

- one week's annual holiday away from home;
- a meal with meat, chicken, fish or vegetarian equivalent every second day;
- keeping the home adequately warm;
- a personal computer; and
- a personal car.

The material deprivation items take the classic Mack & Lansley (1985) form. So they relate to the enforced absence of items. So the wordings include reference to "ability to pay", "capacity to afford", "cannot afford". The aim is to capture, as far as possible, objective deprivation rather than differences in taste. Such deprivation will be affected not only be current income but by wider command over resources.

Reflecting the limitations of the material deprivation items in EU-SILC relating to the more advanced European countries, the average level of reliability in both 2008 and 2012 is somewhat lower than for the economic stress at 0.55. While the reliability of the deprivation measure is lower than we would ideally like, variation across time and country was modest.

The approach we have adopted to the measurement of these outcomes differs in important respects from that adopted in constructing the official EU measure of material deprivation. In particular, we have sought as far as it is possible to distinguish between subjective measures of economic stress and objective measures of material deprivation, which are combined in the EU material deprivation indices. Also since our focus is on comparatively advance European countries we have excluded items such as a colour TV and a washing machine, included in the EU indicator, where deprivation levels are extremely low for most of the countries we are analysing.[vii]

Welfare Regimes

The focus of our analysis is on individual country stress levels. However, to reduce the complexity of our analysis and the communication of our results we employ a welfare regime typology for descriptive rather than explanatory purposes. Our initial analysis provides a detailed account of cross-national differences in economic stress in both 2008 and 2012 and identifies a set of countries experiencing distinctive increases in stress levels. Rather than using welfare regimes as an explanatory variable, we are seeking to establish the extent to which countries experiencing particularly severe increases in level of stress also displayed changes in the pattern of income class effects that distinguish them from the remaining countries in their respective welfare regimes.[viii] This requires analysis of both specific countries and the remaining members of their welfare regimes treated as aggregates.

- The *social democratic regime* comprising Sweden, Denmark, Iceland, Finland, Norway and The Netherlands
- The *corporatist regime* comprising Germany, Austria, Belgium and France.
- The *liberal regime* comprising Ireland and the UK
- The *southern European regime* comprising Greece, Italy, Portugal and Spain.[ix]

Income, Material Deprivation and Stress Levels by Country and Welfare Regime in 2008 and 2012

We commence our analysis by focusing in Table 1 on changing levels of household income by what we have defined as "income classes", broken down by countries clustered within welfare regimes. We see that in 2008 the variation in mean equivalised disposable income across countries and welfare regimes was very much in line with expectations, The range across countries is from €56,000 for Iceland down to under €12,000 in Portugal, while across regimes it goes from €30,000 for the social democratic regime down to €17,000 for the southern European one, with the liberal and conservative regimes in between.

Focusing on change between 2008 and 2012, by far the largest reduction in income was observed for Iceland where equivalised household income fell by over 40%. (This was accompanied by inflation in excess of 40% over the period, by far the highest of the countries covered here). The next largest proportionate fall in income was for Greece with a 30% reduction, followed by Ireland where the decline was 20%. Six other countries experienced some income reductions, the largest ranging from 13% to 10% were observed in the UK, Spain and Portugal. In 2008 Iceland, Ireland and Greece fitted predictably into their respective welfare regimes, but by 2012 Iceland had clearly become a deviant case while Greece showed the largest decline in the southern European regime and the income positions of Ireland and the UK had been reversed although the gap was modest.

Table 1: Mean Household Equivalent Income (€) Adjusted for Inflation by Country, Welfare Regime and Year of Survey

	Mean Household Equivalent Income		
	2008	2012	2012– 2008
Norway	38,903	42,983	4,080
Sweden	24,504	27,029	2,525
Netherlands	24,479	23,270	-1,209
Finland	25,374	25,910	536
Denmark	29,881	30,455	574
Iceland	55,975	21,720	-34,255
Social Democratic Regime	29,953	28,242	-1,711
Austria	23,375	24,651	1,276
Germany	23,143	22,392	-751
France	24,098	24,108	10
Belgium	23,374	22,836	-627
Corporatist Welfare Regime	23,493	23,752	-560
UK	27,009	23,564	-3,445
Ireland	27,685	22,282	-5,403
Liberal	27,274	23,112	-4,162
Portugal	11,336	10,187	-1,149
Spain	16,256	14,350	-1,906
Italy	19,856	18,309	-1,547
Greece	15,211	10,754	-4,457
Southern European Regime	17,166	14,955	2,211
Country Eta^2	0.146	0.180	
N	273,228	263,584	

In Table 2 we show the comparable breakdown by country and welfare regime for material deprivation. In 2008 the lowest level of material deprivation of 0.017 was observed in Iceland and the highest of 0.219 in Portugal. In regime terms the social democratic regime had the lowest mean level, followed by the corporatist and liberal regimes with the southern

European regime having the highest levels. Ten countries experienced increases in material deprivation between 2008 and 2012, including Iceland, Ireland and Greece. Within the southern European regime Italy had experienced much lower income reductions than Greece

Table 2: Mean Material Deprivation by Country, Welfare Regime and Year of Survey

	Material Deprivation		
	2008	2012	2012 - 2008
Norway	0.032	0.028	-0.004
Sweden	0.033	0.031	-0.002
Netherlands	0.043	0.052	0.009
Finland	0.059	0.052	-0.007
Denmark	0.043	0.053	0.010
Iceland	0.017	0.036	0.019
Social Democratic Regime	0.041	0.044	0.003
Austria	0.109	0.076	-0.033
Germany	0.097	0.085	-0.012
France	0.097	0.082	-0.015
Belgium	0.087	0.090	0.003
Corporatist Welfare Regime	0.097	0.083	-0.014
UK	0.084	0.126	0.042
Ireland	0.095	0.135	0.040
Liberal	0.088	0.130	0.042
Portugal	0.219	0.170	-0.049
Spain	0.107	0.121	0.014
Italy	0.116	0.158	0.042
Greece	0.161	0.200	0.039
Southern European Regime	0.130	0.153	0.023
Country Eta^2	0.066	0.082	
N	272,357	260,023	

but its increases in material deprivation was nearly as great, whereas. Spain had a more modest increase. Portugal represents something of an outlier in that while its income level fell

so too did its scale of deprivation. Within the social democratic regime, apart from Iceland, the largest increases were observed for the Netherlands and Denmark. The UK displayed a sharper increase in deprivation that the reduction in its income level might have suggested with a level of increase comparable to that in Ireland and Greece. For the remaining countries observed increases were of a modest scale. The main impact of change in regime terms was to widen the gap between the southern European regime and all others.

In Table 3 we turn to mean levels of economic stress. The pattern of mean stress levels across countries in 2008, at the beginning of the crisis, was generally in line with what one would expect on the basis of the mean income and deprivation patterns at that time. The lowest average level of stress of 0.110 was in the social democratic countries; there was considerable variability within this cluster but all countries in this regime, other than Finland, had lower scores than the other countries in our analysis. The next lowest mean stress level was for the corporatist cluster, with an average of 0.174 and only modest variation across its members, followed by the liberal regime with an average value was 0.206. The highest stress level of 0.282 was observed in the southern European regime, with Italy and Greece at the upper end but within cluster variance being extremely modest. Overall, stress levels for the corporatist regime were almost sixty per cent higher than for the social democratic cluster, for the liberal they were twice as high, and for the southern European group almost three times as high.

By 2012, the average stress level for the social democratic regime had increased marginally due to increases in Denmark, the Netherlands and most particularly Iceland, where the mean value almost doubled over this short period so it becomes a clear outlier. For the corporatist regime the mean stress score declined marginally. For the liberal regime the average value increased by 0.042 which was entirely due to an increase of 0.124 in Ireland, since the UK registered a marginal decrease despite the reduction in its income level and increases in its deprivation level. As a consequence by 2012 the mean Irish stress level was almost twice that

for the UK. All of the southern European countries experienced increases in stress levels. For countries other than Greece these ranged from a perhaps surprising low of 0.014 for Portugal

Table 3: Mean Stress by Country, Welfare Regime and Year of Survey			
	Normalized Stress		
	2008	2012	2012 - 2008
Norway	0.077	0.068	-0.009
Sweden	0.102	0.091	-0.011
Netherlands	0.092	0.105	0.013
Finland	0.152	0.144	-0.008
Denmark	0.095	0.123	0.028
Iceland	0.138	0.250	0.112
Social Democratic Regime	0.110	0.122	0.012
Austria	0.146	0.129	-0.017
Germany	0.157	0.140	-0.017
France	0.201	0.203	0.002
Belgium	0.180	0.198	0.018
Corporatist Welfare Regime	0.174	0.170	-0.004
UK	0.194	0.186	-0.008
Ireland	0.225	0.349	0.124
Liberal	0.206	0.248	0,042
Portugal	0.242	0.256	0.014
Spain	0.272	0.303	0.031
Italy	0.299	0.323	0.024
Greece	0.281	0.430	0.149
Southern European Regime	0.282	0.320	0.038
Country Eta^2	0.076	0.082	
N	269,376	257,669	

to 0.031 for Spain. For Greece in contrast the increase was 0.149. This produces a stress level of 0.430 higher than in any of the remaining countries. Average welfare regime scores remain in line

with expectations. Iceland, Ireland and Greece, each of which experienced different forms of extreme crisis, exhibited distinctive increases in stress levels with the consequence that Ireland and Greece became the countries with the two highest stress levels while the level for Iceland rises to equal that of Portugal.

Income Classes by Welfare Regimes and Year

For most of the countries we are examining, changes over time in stress levels are extremely modest, so the main challenge lies in understanding how the situation for Iceland, Ireland and Greece has changed relative to the other countries in their regimes. As the starting point of that analysis, in Tables 4A and 4B we set out the distributions of income class for 2008 and 2012 for Iceland, Ireland and Greece and for the social democratic, liberal and southern European welfare regimes excluding these countries. From Table 4A we observe that in 2008 systematic variation was observed in the distribution of individuals across categories of the income class typology by welfare regime, but very little variation between our three key countries and the remainder of the countries in their welfare regimes. The percentage income poor ranged from 9% in Iceland to 15% in Ireland and 19% in Greece. Very little variation was observed for the precarious and upper middle classes. However, the lower middle class contained half the sample in Iceland compared to about one-third in Ireland and Greece, balanced by the affluent class containing about 13% in Iceland compared to 17% in Ireland and 20% in Greece, The major contrast was between the social democratic counties and all others at both ends of the income class distribution.

The key question for our present purposes is the extent to which changes over time in the income class distribution can account for corresponding changes in stress levels. By 2012 the percentage poor had increased from 19% to 23% in Greece, but only modestly in Ireland and had declined slightly in Iceland. The rather minimal extent of the change is captured in the final row of Table 4B where we report the index of dissimilarity, capturing the percentage of

cases that would be required to shift income classes in order to produce identical distributions in both years. The highest figure of 5% relates to Greece. For Iceland it is 4% while for the remaining units it is below 3%. Similar results were observed for remaining countries in each of the welfare regimes, This shows clearly that changes in the distribution of income classes between 2008 and 2012 were extremely modest and can consequently play little role in explaining temporal variations in stress levels.[x]

Table 4A: Income Class Distributions for Within Welfare Regime Contrasts 2008						
	Iceland	Other Social Democratic	Ireland	UK	Greece	Other Southern European
	%	%	%	%	%	%
Income Class						
Poor	9.2	10.9	14.7	16.7	19.1	18.1
Precarious class	10.6	10.4	13.0	10.8	10.0	10.5
Lower middle	49.6	48.1	37.4	34.9	33.5	35.2
Upper middle	18.0	19.5	18.0	17.8	17.4	18.0
Affluent	12.6	11.1	16.8	19.8	20.1	18.2
Total	100.0	100.0	100.0	100	100	100
N	7,554	83,363	11,034	17,157	12,649	72,316

Table 4B : Income Class Distributions within Welfare Regime Contrasts 2012						
	Iceland	Other Social Democratic	Ireland	UK	Greece	Other Southern European
	%	%	%	%	%	%
Income Class						
Poor	7.7	11.5	16.1	15,4	23.4	20.5
Precarious class	11.1	10.9	11.6	12.4	11.0	10.3
Lower middle	50.1	46.8	37.8	36.1	31.9	33.8
Upper middle	20.8	19.9	17.9	16.9	16.8	17.2
Affluent	10.2	10.9	16.6	19.1	17.0	18.3
Total	100.0	100.0	100	100	100	100
N	7,601	78,587	10,260	18,830	10,042	71,626
Dissimilarity Index 2008-2012	4.1	1.5	1.7	2.9	5.3	2.4

The Great Recession could however mediate the changing impact of income class on economic stress through changes in the average levels of household income and material

deprivation associated with income classes, as opposed to changes in the distribution of individuals across these classes. In Tables 5A, B and C we provide details of such changes contrasting in turn Iceland, Ireland and Greece and the remaining countries in their respective welfare regimes. In Table 5A we focus on the contrast between Iceland and the remaining countries in its Social Democratic regime. In proportionate terms the reductions in income were quite similar across the income classes so mean income relativities remained relatively stable, with the differential between the affluent class and the poor class decreasing modestly from 5.6 to 1 to 5.3 to 1. The contrast with the remaining social democratic countries is striking with modest increases being observed for each class.

Deprivation levels rose significantly in Iceland for the three lowest income classes and rather modestly for the two upper classes. For the remaining social democratic countries increases in deprivation are negligible except for the income poor class.

Table 5A: Household Equivalent Income and Material Deprivation by Year of Survey: Social Democratic Regime

	Household Equivalent Income				Material Deprivation			
	IS		Other SD		IS		Other SD	
	2008	2012	2008	2012	2008	2012	2008	2012
Income Class								
Poor	21,838	8,199	10,717	11,260	0.060	0.095	0.140	0.150
Precarious class	32,160	13,131	16,260	17,520	0.035	0.077	0.102	0.096
Lower middle	46,627	18,965	24,439	26,097	0.014	0.036	0.032	0.032
Upper middle	67,011	27,384	34,524	36,674	0.002	0.009	0.011	0.009
Affluent	121,713	43,358	56,223	56,470	0.000	0.005	0.004	0.004
Total	55,975	21,720	27,596	28,873	0.017	0.036	0.044	0.045
Eta^2	0.502	0.734	0.374	0.518	0.059	0.070	0.143	0.165
N	7,553	7,601	83,363	78,112	7,553	7,495	82,986	78,588

Comparing Ireland and UK in Table 5B we find that for both the reductions in income levels in proportionate terms were quite similar across the income classes. As far as material deprivation is concerned, in the Irish case we observe an increase in levels of deprivation for all income classes in a curvilinear rather than a strictly hierarchical pattern, with the largest increases for the lower middle class and the precarious class. In the UK, on the other hand the

largest increases occurred in the two lowest income classes followed by a gradual tapering off and finally a very modest reduction in the affluent class.

Table 5B: Household Equivalent Income and Material Deprivation by Year of Survey: Liberal Regime								
	Household Equivalent Income				Material Deprivation			
	IE		UK		IE		UK	
	2008	2012	2008	2012	2008	2012	2008	2012
Income Class								
Poor	10,923	8,536	9,350	8,344	0.204	0.236	0.204	0.277
Precarious class	15,639	12,891	14,448	12,853	0.200	0.243	0.157	0.237
Lower middle	23,035	18,724	21,298	18,674	0.089	0.145	0.066	0.116
Upper middle	33,372	*27*,537	30,508	27,258	0.030	0.058	0.031	0.048
Affluent	55,983	44,620	55,738	48,806	0.004	0.024	0.020	0.016
Total	28,537	22,283	27,009	23,564	0.095	0.135	0.084	0.126
Eta^2	0.529	0.638	0.284	0.503	0.191	0.207	0.175	0.225
N	11,021	10,261	17,157	18,832	11,033	10,204	17,080	16,272

In Table 5C we see that for Greece the largest income fall of 31% was observed for the income poor class while for the remaining classes it ranges between 23% and 26%. For the other southern European countries, the largest proportionate decline, of 15%, was for the income poor class while for the remaining classes the figure went from 9% to 11%. In both cases the largest declines were for the income poor, but the scale of that decline was very much greater for Greece. [xi]

Table 5C: Household Equivalent Income and Material Deprivation by Year of Survey: Southern European Regime								
	Household Equivalent Income				Material Deprivation			
	EL		Other SE		EL		Other SE	
	2008	2012	2008	2012	2008	2012	2008	2012
Income Class								
Poor	5,287	3,664	6,155	5,217	0.304	0.411	0.250	0,275
Precarious class	8,376	6,371	10,099	8,993	0.268	0.311	0.181	0.213
Lower middle	12,314	9,512	14,748	13,251	0.166	0.162	0.126	0.142
Upper middle	17,612	13,589	21,433	19,320	0.085	0.080	0.064	0.077
Affluent	30,794	22,866	34,468	31,506	0.031	0.028	0.026	0.039
Total	15,211	10,754	17,492	15,544	0.161	0.200	0.125	0.147
Eta^2	0.560	0.628	0.616	0.584	0.224	0.361	0.160	0.191
N	12,648	10,042	75,820	71,626	12,648	10,042	75,817	71,619

Material deprivation, increases for Greece were concentrated in the bottom two income class categories while for the remaining southern European countries, increases in deprivation were lower but again concentrated in the lower income classes.

We will return to the issue of the extent to which changes over time in the distribution of income and material deprivation across income classes can help to account for the changing relationship of income class to economic stress in the three countries most severely affected by the economic crisis.

Economic Stress Contrasts within Welfare Regimes by Income Class and Year

We now shift our attention to the differential impact of income class on economic stress over time. In Tables 6A, B and C we set out the results of OLS regressions for stress by income class by year for Iceland, Ireland and Greece and in case provide a comparison with the remaining counties in their respective welfare regimes.

For Iceland in 2008 there was a clear hierarchical pattern of income class effects with the stress level for the poorest income class being 0.218 higher than for the most affluent income class. At that point in time a relatively similar pattern was observed for the remaining social democratic countries with the gap between the affluent and income poor classes being 0.230 and a similar pattern of differentiation to that observed for Iceland being found for the remaining classes. In 2012 stress levels increased for all classes in Iceland, however, changes over time in the magnitude of class effects did not display a hierarchical pattern. The largest increase of 0.143 was for the lower middle class category while the next highest increments of approximately 0.100 are in the adjacent categories producing a clear curvilinear pattern with the coefficient for the income poor category increasing by 0.088.[1] For the remaining social democratic countries little change was observed over time with the largest increase of 0.012 being associated with the income poor category. As a consequence, over time the gaps in stress levels between Iceland and the remaining social democratic countries were

[1] These calculations include the difference of 0.027 in the constants as do subsequent calculations relating to Tables 6 B & C

dominated by changes in relation to the former and reflected the curvilinear pattern of income class effects noted above.

Table 6A: OLS Regressions Stress by Income Class and Time for Social Democratic Regime(SD) 2012				
	(i)	(ii)	(iii)	(iv)
	2012	2008	2012	2008
	IS	IS	Other SD	Other SD
Income Class				
Poor	0.279 ***	0.218 ***	0.242 ***	0.230***
Precarious class	0.274 ***	0.208 ***	0.188 **	0.191***
Lower middle	0.214***	0.098 ***	0.081 ***	0.077***
Upper middle	0.099 ***	0.025 ***	0.017 ***	0.020 ***
Affluent (Constant)	0.070	0.043	0.021	0.022
R^2	0.077	0.094	0.127	0.122
N	7,185	7,142	76.228	82.624
P *< .1. ** P,.01 *** P < .001				

As can be seen in Table 6B, in 2008 Ireland exhibited a hierarchical pattern of income class effects stronger than in the social democratic countries with differences of 0.309 and 0.329 respectively between the income poor and precarious classes and the most affluent group with a gradual decline for the remaining categories. At that point the coefficient for the income poor in the UK was identical to that for Ireland. However, for the remaining income categories the effects are somewhat weaker although a clear hierarchical pattern was observed. Over time in Ireland stress levels increased for all income class categories. For the income poor group the increase was 0.150 which was higher than for the precarious class where the increases was 0.097 and slightly lower than for the lower middle class category where an increase of 0,157was observed.. For the remaining two higher income classes there was an average additional increase of 0.080. Thus the Irish pattern of change was rather different to that relating to Iceland. There was an across the board an increase in stress levels but one that was accompanied by a form of income class differentiation that contrast the income poor and lower middle class with the upper middle and affluent classes with respective average increases in stress levels of 0.154 and 0.084. The precarious class

constitutes something of an exception with an observed increase of 0.097 higher than for the two upper classes but a good deal less than for the lower middle class. Thus in the Irish case we observe both polarization in relation to the income poor and lower middle class squeeze. In contrast, very little change was observed in the UK with modest reductions being observed for the two lower classes and the affluent classes and increases for the two middle classes. So as stress became more pervasive in Ireland, changes in both countries contributed to sharpening of the differences in income class profiles between the two countries.

Table 6B: OLS Regressions Stress by Income Class and Time for Liberal Regime 2012				
	(i)	(ii)	(iii)	(iv)
	2012	2008	2012	2008
	IE	IE	UK	UK
Poor	0.385 ***	0.309 ***	0.284 ***	0.309 ***
Precarious class	0.352***	0.329 ***	0.249 ***	0.263 ***
Lower middle	0.262 ***	0.179 ***	0.168 ***	0.124 ***
Upper middle	0.087 ***	0.068 ***	0.071 ***	0.054 ***
Affluent (constant)	0.132	0.058	0.048 ***	0.060
R^2	0.172	0.159	0.167	0.170
N	10,218	10,923	16,512	16,113
P *< .1. ** P,.01 *** P < .001				

From Table 6C, in 2008 stress levels in Greece were somewhat higher than in Ireland and broadly comparable to those in other southern European countries. The stress score for the lowest income group was 0.426 which was 0.331 higher than for the most affluent group with the effect displaying a gradual decline across income categories such that the gap between the two upper middle and affluent classes being 0.102. For the remaining southern European countries the stress level of the income poor was 0.428 with the gap between this class and the affluent class was 0.306 and a similar pattern of hierarchical differentiation to that in Greece was observed for the remaining classes. Over time in Greece stress levels increased for all classes with a pattern of class differentiation closer to the Irish case than the Icelandic one but with a clearer hierarchical element across the three lowest income

categories. For the two highest income classes the average increase was approximately 0.100 before then increasing steadily to an average of 0.156 for the three lowest classes with the highest value of 0.185 being observed for the income poor class. While the distribution of class differences in stress for the remaining southern European countries was broadly similar to that for Greece in 2008, increases over time were a good deal more modest for the former. In fact, for the top three income categories there was almost no increase. For the precarious class the increase was 0.052 and for the income poor category 0.046. The combined effect of these changes meant that the pattern of class differences between Greece and the remaining southern European countries was compressed with the major contrast being that of the income poor class with a coefficient of 0.137 and the remaining classes with an average change of 0.100.

Table 6C: OLS Regression Stress by Income Class and Time for Southern European (SE) 2012

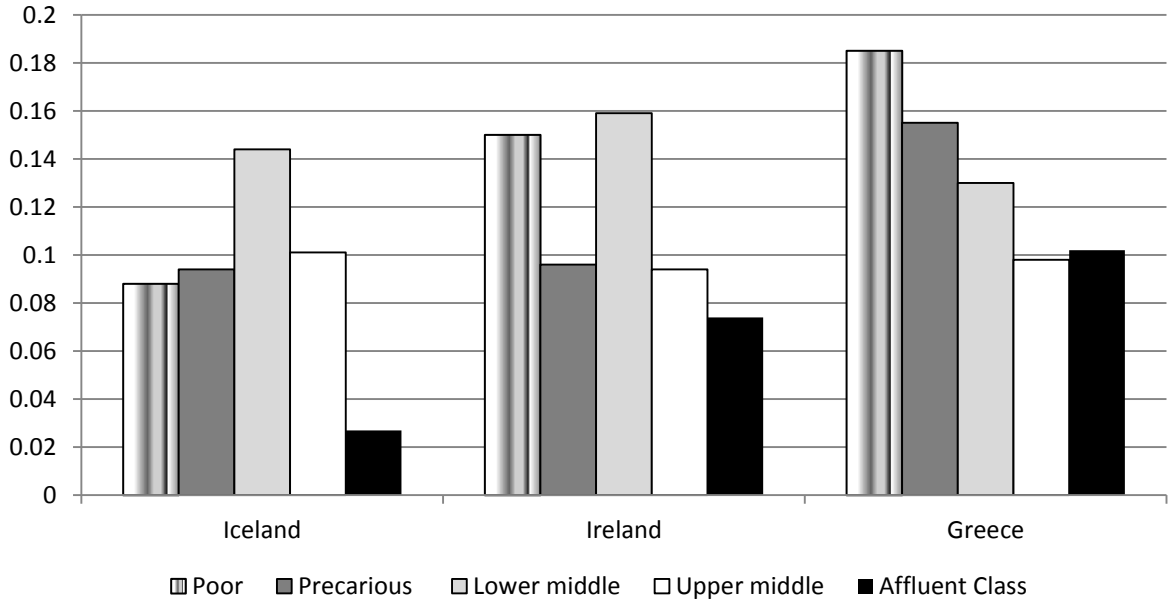
	(i)	(ii)	(iii)	(iv)
	2012	2008	2012	2008
	EL	EL	Other SE	Other SE
Income Class				
Poor	0.414 ***	0.331 ****	0.351 ***	0.306 ***
Precarious class	0.348 ***	0.295 ***	0.303 ***	0.252 ***
Lower middle	0.255 ***	0.227 ***	0.189 ***	0.175 ***
Upper middle	0.098 ***	0.102 ***	0.085 ***	0.089 ***
Affluent	0.197	0.095	0.123	0.122
R^2	0.231	0.182	0.181	0.132
N	10,041	12,648	67,617	75,789
P *< .1. ** P,.01 *** P < .001				

In Figure 1 we summarize the changing pattern of income class effects across all three countries. In each case the absolute level of stress increased for the affluent class with the level of change from 0.027 for Iceland to 0.074 for Ireland and 0.102 for Greece. However, with the exception of the upper middle class in Greece, in relation to all the remaining classes the relative position of the affluent class improved. Similarly, in all three countries the advantage enjoyed by the upper middle class over the lower middle class increases over time.

These effects contribute to a significant degree of class polarization. However, the overlall picture is complicated by other effects.

Greece provides the clearest picture of income class polarization with a significant contrast between the bottom three and top two classes and a clear pattern of hierarchical differentiation within the former. Iceland provides a striking contrast with clear evidence of lower middle class squeeze relative to all other classes and a fairly uniform deterioration in their position relative to the affluent class being observed for the remaining classes. The Irish case provides a mixed picture. As in Iceland we find evidence of lower middle class squeeze but also as in Greece an increasing disparity between the income poor and all classes other than the lower middle class. However, while changing circumstances and policy responses exacerbated the position of the income poor, the additional stresses experienced by the precarious class were no greater than for the upper middle class.

Figure 1: Changing Income Class Effects on Economic Stress between 2008 and 2012



Multivariate Analysis of Changing Effects of Income Class over Time within Welfare Regimes

In Table 7 we set out the results from a set of nested OLS models for Iceland, Ireland and Greece. Equations (i) include a set of dummies comprising a set of two way interactions to allow the impact of income class to vary across time within each country. It thus reproduces the results set out in tables 6A, B and C and provides significance tests for change over time. However, our major focus at this point is on equations (ii) which introduce a control for material deprivation and equations (iii) which add household equivalent income. The key issue we address is the extent to which changes in the mean levels of deprivation and income associated with income classes help to account for the changing impact of income class on economic stress between 2008 and 2012.

Focusing on Iceland first, we can see that in 2008 controlling for material deprivation reduces the impact of income class for the income poor category with the coefficient declining from 0.218 to 0.156 and for the precarious category with the respective figures being 0.208 and 0.174. However, it has little effect for the higher income classes. More importantly, from the point of view of our current analysis, this pattern is repeated in relation to changes over time with the coefficients for the interaction between the time of survey and the three lowest income categories declining respectively from 0.061 to 0.032, 0.067 to 0.026 and 0.117 to 0.096 while the reduction for the upper middle class is minimal. Thus in Iceland material deprivation plays a major role in explaining the relationship between income class and stress and the manner in which it changes over time predominantly for the lower income classes. Introducing the log of household equivalent income produces further significant reductions in

the impact of income class in 2008. The combined impact of material deprivation and income leads the upper middle class coefficient to become insignificant while the coefficients for the remaining classes are halved or more. However, crucially, income has no net influence on the changing impact of income class over time.

Focusing on Ireland, we find that controlling for material deprivation substantially reduces the income class effects in 2008 for all income categories. For the two lowest income categories it produces a reduction from 0.309 to 0.128 and 0.329 to 0.149 respectively while for the two highest income categories the respective changes are from 0.178 to 0.101 and from 0.068 to 0.044. In addition, as was the case for Iceland controlling for material deprivation also reduces the coefficients for changing impact over time for the three lower classes, where such effects had been significant, with the respective coefficients for 2008 and 2012 being 0.076, 0.022, 0.085 and 0.062, 0.001 and 0.051. So in the Irish case, as in Iceland, the changing distribution of material deprivation plays a role in accounting for the changing relationship between income class and economic stress primarily for the lower income classes. As in the Icelandic case, adding household income in equation (iii) reduces the income class effects in 2008, although the reductions are more modest than in the former case. However, it plays no role in explaining the manner in which income class effects change over time.

In the Greek case we once again find that material deprivation substantially reduces the 2008 income class coefficients; almost halving those for the two lowest income classes and reducing those for the third and fourth highest income groups respectively by approximately 50% and 25%. In addition, in line with the Icelandic and Irish cases, it results in significant reductions in the interactions effects capturing change over time for the two lowest income categories with the coefficients for 2008 and 2012 being respectively 0.083 and 0.053 and 0.020 and 0.033. However, it has no effect for the higher income categories. As in the Irish

case, adding equivalent income in equation (iii) produces further modest reductions in the income class coefficients for 2008 but plays no further part in accounting for the changing impact of class between 2008 and 2012.

Overall, then, material deprivation plays an important role in accounting for income class effects in 2008 and for changing effects for the three lowest income classes in Iceland and Ireland and the two lowest income classes in Ireland and Greece. In all three countries, adding income to the analysis provides further explanatory power in relation to the magnitude of income class effects but adds nothing to our ability to account for change in class effects between 2008 and 2012. Clearly factors other than deprivation, such as the scale and type of financial commitments, play an important role in explaining changing stress levels for the upper middle and affluent classes. This finding is in line with rather different pattern of changing income class effects that we have observed for the respective outcomes. Thus despite significant absolute increases in economic stress for the upper middle and affluent classes, with a few exceptions, not only did their relative position improve relative to the remaining classes improve but unlike the latter their deteriorating position was not a consequence of increased levels of material deprivation. In contrast the relative position of the lower middle class deteriorated relative to the upper middle and affluent classes in in all three countries and was in significant part accounted for by corresponding increases in material deprivation. Increased stress levels for the precarious and upper middle classes were similar in Iceland and Ireland but with income changes playing a significantly more important role in relation to the former in both countries. For the income poor the decline in their relative position occurred only in relation to the affluent class. In Ireland it was observed in relation to the precarious, upper middle and affluent classes and finally in Greece in relation to all the remaining classes.

Table 7: OLS Economic Stress by Income Class by Time of Survey for Iceland, Ireland & Greece									
	Iceland			Ireland			Greece		
	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)
2012	0.028 ***	0.024 ***	-0.024 *	0.073 ***	0.055 ***	0.049 ***	0.102 ***	0.104 ***	0.090 ***
Poor	0.218 ***	0.156 ***	0.074 ***	0.309 ***	0.128 ***	0.089 ***	0.331 ***	0.174 ***	0.092 ***
Precarious	0.208 ***	0.174 ***	0.114 ***	0.329 ***	0.149 ***	0.100 ***	0.295 ***	0.159 ***	0.103 ***
Lower middle	0.096 ***	0.083 ***	0.040 ***	0.178 ***	0.101 ***	0.079 ***	0.227***	0.149 ** *	0.110 ***
Upper middle	0.025 ***	0.023 ***	-0.001 ns	0.068 ***	0.044 ***	0.033 ***	0.102 ***	0.071 ***	0.049 ***
Poor*2012	0.061 ***	0.032 ***	0.029 ***	0.076 ***	0.062 ***	0.064 ***	0.083 ***	0.020 *	0.015 ***
Precarious*2012	0.067* **	0.026 ***	0.030 ***	0.022 ***	0.001 ns	0.027 ***	0.053 ***	0.033 ***	0.027 ***
Lower middle*2012	0.117 ***	0.096 ***	0.100 ***	0.085 **	0.051 ***	0.053 ***	0.028 ***	0.029 ***	0.030 ***
Upper middle*2012	0.074 ***	0.071 ***	0.075 ***	0.020 ns	0.013 ns	0.009 ns	-0.004 ns	-0.003 ns	-0.002 ns
Material Deprivation		1.027 ***	1.019 ***		0.920 ***	0.952 ***		0.576 ***	0.568 ***
Log of equivalent income			-0.049 ***			-0.025 ***			-0.048 ***
Constant	0.043	0.042	0.608	0.058	0.054	0.192	0.095	0.077	0.565
R^2	0.122	0.221	0.223	0.199	0.400	0.400	0.255	0.380	0.382
N	14,263	14,263	14,263	21,101	21,101	21,101	22,690	22,690	22,690

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Conclusions

In this paper we have set out to analyse the impact of the Great Recession on economic stress across a range of advanced European countries and the role that household income and material deprivation play in mediating such stress. Having allocated individuals to different income class groups our particular focus was the extent to which changes in income class

effects over time were consistent with interpretations in terms of class polarization or alternatively “middle class squeeze”.

By 2012 Iceland, Ireland and Greece, which previously fitted predictably into their respective welfare regimes, had become clear outliers in relation to economic stress. All three counties exhibited substantial increases in levels of economic stress associated with the Great Recession. However, in each case the changes in the pattern of income class differentiation were somewhat different. In the case of Iceland while all classes experienced significant increases in stress levels, a form of middle class squeeze was observed, with the most substantial increase being observed for the lower middle class, followed by the upper middle class. This occurred despite the fact that increases in material deprivation were concentrated in the lower classes.

For Ireland the pattern of change over time involved a clear contrast between the income poor and the lower middle classes and the upper middle class and affluent classes. Thus a form of class polarization coexists with the fact that exposure to significantly higher relative risk of economic stress extended into the lower middle class. In this case income class polarization does not exclude lower middle class squeeze and is consistent with the pattern of change relating to deprivation. The situation of the precarious class which saw its relative position deteriorate significantly less than was the case for the income poor and the lower middle is a distinctive feature of the Irish pattern and requires further exploration. Finally, in the case of Greece we observe an unambiguous case of income class polarization involving a contrast between the three lowest and the two highest income classes. This outcome is consistent with the class distribution of changes in material deprivation.

In order to enhance our understanding of these changes we focused on corresponding changes in income class distributions and changes in levels of household income and material deprivation across income class categories. The former turned out to be extremely modest

and can have played little role in the pattern of change over time. Changing levels of material deprivation did play an important role in accounting for increased stress levels. However, this was the case only in relation to the bottom three classes with other factor clearly playing a more important role at the upper end of the income hierarchy. Thus alongside significant examples of lower middle class squeeze we observe significant examples of the ability of the upper middle class and affluent classes ability to preserve and indeed enhance their relative advantage. In addition the absolute increases in relative stress experienced by the latter appear to be of a qualitatively different character in that unlike the situation for the three lower classes they cannot be accounted for by change in levels of material deprivation. However, it does not necessarily follow that the consequences in terms of social cohesion are less and this is an issue which requires significant additional exploration.

These findings bring out the extent to which the impact of the Great Recession varied even among the hardest-hit countries, and even more so between them and the countries where it represented a less dramatic, though still very substantial, macroeconomic shock. They also serve to highlight the advantages of going beyond reliance on income – in aggregate and at the micro household level – in monitoring and seeking to understand the impact of such a shock. Incorporating both direct measures of deprivation and subjective assessments of degree of economic stress clearly add substantially to our ability to capture these effects more comprehensively. While this is now more widely recognised in terms of aggregate indicators – for example in the European Union context – such an approach is also required at the micro level to capture more fully how different groups and households are faring.

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[i] See also Salverda *et al* (2014)

[ii] The corresponding figures for consumer credit were 24% and 13% and for housing loans 98% and 17%. Figures for the EU exclude Croatia (source European Credit Research Institute)

[iii] For an in-depth discussion of the common and distinctive factors contributing to economic crisis in these countries, including financial liberalization, inadequate regulation, introduction of the euro and ideological shifts see Eichengreen (2015)

[iv] For detailed discussion of the value of employing a multidimensional approach see Nolan and Whelan (2011) and Akire et al (2014).

[v] We also excluded individuals in households where disposable household income is reported to be zero or negative.

[vi] For further discussion of classification issues see Bigot et al (2012)

[vii] For a detailed discussion of the limitations of the EU material deprivation measure see Maître et al (2014)

[viii] For a detailed discussion of different use of the welfare regime approach see van Kersbergen and Vis (2015).

[ix] For a detailed discussion of the basis for distinguishing these regimes see Whelan and Maître (2010)

[x] Further analysis available from the authors confirms this conclusion. Using a slightly different classification and Luxembourg Income Study data Bigot et al (2012) find considerable variability across the counties included in our analysis regarding stability in the size of the middle classes.

[xi] Evidence does exist that in many countries the long-term trend involved a slower increase in income levels for the middle classes relative to the upper classes (Bigot et al 2012, OECD, 2011)