Social Class Variation in Risk:
A Comparative Analysis of the Dynamics of Economic Vulnerability

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Abstract: A joint concern with multidimensionality and dynamics is a defining feature of the pervasive use of the terminology of social exclusion in the European Union. The notion of social exclusion focuses attention on economic vulnerability in the sense of exposure to risk and uncertainty. Sociological concern with these issues has been associated with the thesis that risk and uncertainty have become more pervasive and extend substantially beyond the working class. This paper combines features of recent approaches to statistical modelling of poverty dynamics and multidimensional deprivation in order to develop our understanding of the dynamics of economic vulnerability. An analysis involving nine countries and covering the first five waves of the European Community Household Panel shows that, across nations and time, it is possible to identify an economically vulnerable class. This class is characterised by heightened risk of falling below a critical resource level, exposure to material deprivation and experience of subjective economic stress. Cross-national differentials in persistence of vulnerability are wider than in the case of income poverty and less affected by measurement error. Economic vulnerability profiles vary across welfare regimes in a manner broadly consistent with our expectations. Variation in the impact of social class within and across countries provides no support for the argument that its role in structuring such risk has become much less important. Our findings suggest that it is possible to accept the importance of the emergence of new forms of social risk and acknowledge the significance of efforts to develop welfare states policies involving a shift of opportunities and decision making on to individuals without accepting the "death of social class" thesis.

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Introduction

Atkinson (1998) identifies a concern with dynamics and multidimensionality as a key factor underlying the pervasive use of the terminology of social exclusion in the European Union (EU). This concern is also reflected in Berghman's (1995) understanding of social exclusion as involving a social process in which the creation and reinforcement of inequalities leads to a state of deprivation and hardship from which it is difficult to escape. Paugam's (1996) focus on spirals of precariousness also involves this joint emphasis.

The notion of social exclusion, as De Haan (1998) observes, goes beyond a concern with current deprivation and focuses attention on vulnerability in the sense of exposure to insecurity and risk. It can also, as Chambers (1989) notes, incorporate people's perceptions of their situation. One of our objectives is to operationalise the concept of individual economic vulnerability understood as 'heightened risk of multidimensional deprivation'. This conception of social exclusion is narrower than those that build notions of social isolation or an undermining of social cohesion into their definitions.[1] However, it is consistent with the fact that, as Kronauer (1998), notes, the development of the concept of social exclusion was directly related to the re-emergence of large scale unemployment and has no meaning outside of the history of the achievements of the welfare state. It presupposes a shared understanding of what it is to be included.[2]

More recently, globalisation has been seen as associated with increased but much more widely diffused levels of risk. This pattern is also thought to arise from the erosion of security deriving from traditional career patterns based on full-time employment over the life cycle. Intensified global competition and the overriding

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[1] For a comparison of alternative conceptions see Whelan and Maître (2005a).
[2] In fact despite the emphasis on social isolation in the literature the evidence connecting it to other aspects of social exclusion is extremely weak (Gallie et al 2003)

significance of competitiveness are thought to undermine the buffering capacity of the welfare state. The threat, if not the reality, of unemployment and resulting poverty are considered to have become more pervasive and to extend substantially beyond the working class (Beck, 1992, 2000 a & b, Castells, 2000). Inequality and poverty rather than being differentially distributed between social classes vary between phases in the average work life. 'Temporalisation and biographisation' of poverty are seen to be features of the emergence of the 'the risk society' in which relationship breakdowns and transitional crises are prevalent. Poverty is seen increasingly as both individualised and transitory and is 'democratised' (Leisering and Liebfried, 1999). The extension of employment insecurity and instability and potential poverty across the socio-economic spectrum involves 'capitalism *without* classes' (Beck 1992: 88), and inequality of income becomes detached from its old moorings in class categories (Beck 2000a).

In responding sceptically to the central claims of the latter thesis, recent critiques by Goldthorpe (2007a) and Atkinson (2007a) address a range of issues relating to the extent and consequences of flexibility and non-standard forms of work and their relationship to class position, the downward spiral of the capacity of welfare states to intervene, the scale and consequences of social mobility and reliance on caricatured versions of traditional class relationships.[3] However, progress in resolving such disagreements is hampered by the absence, as Goldthorpe (2007a: 106) observes, of even a broad consensus on how those socially excluded/vulnerable/at risk are to be enumerated. In this paper we take advantage of the opportunity provided by the availability of the European Community Household Panel (ECHP) to go beyond analysis of income poverty dynamics and provide an assessment of the relationship between social class and persistent experience of 'economic vulnerability'. In pursuing this objective, we combine features of recent approaches to explicit statistical modelling of poverty and deprivation dynamics[4] and multidimensional social exclusion[5].

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[3] See also the exchange between Atkinson (2007b) and Beck (2007).
[4] See Rendtel *et al* (1998), Breen and Moisio (2004), Moisio (2004) and Whelan and Maître (2006)
[5] De Wilde (2004), Moisio (2005) and Whelan and Maître (2005b).

In Section 2 we describe the ECHP data. Section 3 deals with the application of latent class models to cross-sectional data to identify those experiencing economic vulnerability. In Section 4 we consider previous studies modelling income poverty and deprivation dynamics. Section 5 extends our analysis to the formal modelling of economic vulnerability dynamics. In Section 6 we examine cross-national variation in economic vulnerability. Section 7 focuses on variation in economic vulnerability by social class. Finally, in Section 8 we draw our conclusions together.

Data and Measures

The results presented in this paper are based on the ECHP User Data Base (UDB) containing data from waves one to five (1994 to 1998).[6] Our analysis of dynamics uses a balanced panel of survivors who remained in the sample from 1994 to 1998. A focus on the first five waves enables us to avoid difficulties arising from sparse cell numbers and reduces problems arising from selective attrition.[7] The data required for our analysis is available for only nine countries, Denmark, the Netherlands, Belgium, France, Italy, Ireland, Spain, Portugal, Greece. For these countries the total number of individual respondents in the first wave was 139,358 with 95,213 being available for analysis across the five waves from 1994–1998.

Our income measure is the total annual equivalised household disposable income of the year prior to that in which data collection took place.[8] Our analysis distinguishes four income categories; those below 50% of median income, those between 50% and 60%, those between 60% and 70% and those above 70%. Following standard procedures, the individual is chosen as the unit of analysis.

Whelan *et al* (2001) identify thirteen household indicators of Current Life Style Deprivation. In each case the measures represent enforced absence of widely desired items. Full details are set out in Appendix A. The items include consumer durables such as a car, a video recorder and a dishwasher. This set of items has been shown to be that most closely related to the ECHP measure of equivalent household income.

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[6] For a discussion of the quality of the ECHP data see Wirz and Meyer (2002).
[7] Analyses of attrition in the ECHP by Watson (2003) and Behr *et al* (2006) suggest that for the period we are concerned the type of attrition observed will not affect our conclusions.
[8] We use the modified OECD equivalence scale.

An index based on a simple addition of these items gives a Cronbach alpha reliability coefficient of 0.80. We use a version of this measure in which each individual item is weighted by the proportion of households possessing that item in each country. The weights determine the importance of an item within a country and produce measures of relative deprivation within each country.

In each country the cut off point for deprivation is aligned with that relating to the income poverty threshold in that country. The threshold is simply the level at which an identical percentage of individuals defined as income poor at the 70% of median household equivalent disposable are also deprived. If in Denmark we have identified 18% of individuals as income poor at 70% of median income, the deprivation threshold is the CLSD score above which 18% of individuals are found. In principle, it is possible that the dichotomous income and deprivation measures could identify the same set of individuals and our findings are not influenced by the absolute numbers respectively poor and deprived.

Economic vulnerability has generally been conceptualized not only in terms of objective risk of deprivation individuals' but also subjective sense of insecurity. The measure of economic stress that we employ is based on the following question asked of all household reference persons in the ECHP:

Thinking now of your household's total income, from all sources and from all household members, would you say that your household is able to make ends meet?

Respondents were offered six response categories ranging from 'with great difficulty' to 'very easily'. The dichotomous subjective economic stress variable distinguishes as those reporting either 'great difficulty' or 'difficulty' from all others.

Latent Class Analysis of Economic Vulnerability

Our cross-sectional analysis is based on the set of 4x2x2 tables formed by cross-classifying the four-category income variable, the dichotomous CLSD measure of

material deprivation and the dichotomous subjective economic stress variable. Our objective is to identify a group that is vulnerable to economic exclusion in the sense of being distinctive in their risk of falling below a critical resource level, exposure to deprivation and experience of economic stress.

The underlying assumption of latent class analysis is that each individual is a member of one and only one such class and that, conditional on such membership, the manifest variables are mutually independent of each other. Given three variables the latent class model for variables A, B, C is

$$\pi_{ijkt}^{ABCX} = \pi_t^X \, \pi_{it}^{\overline{AX}} \, \pi_{jt}^{\overline{BX}} \, \pi_{kt}^{\overline{CX}} \tag{1}$$

where π_t^X denotes the probability of being in latent class t=1…T of latent variable X; $\pi_{it}^{\overline{AX}}$ denotes the conditional probability of obtaining the ith response to item A, from members of class t, I=1…I; and $\pi_{jt}^{\overline{BX}}$, $\pi_{kt}^{\overline{CX}}$ denote the corresponding probabilities for items B and C respectively.

The sample of countries available to us does not allow us to carry out a systematic statistical analysis in welfare regime terms. However, we can usefully structure our discussion in such terms. We have allocated countries to regimes as follows:

Social-democratic: Denmark, The Netherlands.
Corporatist: Belgium, France.
Liberal: Ireland.
Southern: Italy, Spain, Portugal, and Greece.[9]

The key features of different regimes can be delineated very briefly.[10] The social democratic regime assigns the welfare state a substantial redistributive role, seeking to

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[9] This largely follows Ferrera (1996).

guarantee adequate economic resources independently of market or familial reliance. The corporatist regime views welfare primarily as a mediator of group-based mutual aid and risk pooling, with rights to benefits depending on being already inserted in the labour market. The liberal regime acknowledges the primacy of the market and confines the state to a residual welfare role, social benefits typically being subject to a means test and targeted on those failing in the market. The Southern countries constitute a distinctive welfare regime with family support systems playing a crucial role and the benefit system being uneven and minimalist in nature.[11]

We anticipate that variation in levels of inequality between regimes and differences in extent of regulation of the labour market, and the associated insider-outsider divisions, within and between regimes will influence levels of economic vulnerability. Gallie and Paugam (2000:353) concluded that 'high-security' employment centred systems within the corporatist group were highly successful in providing financial protection. We expect to observe generally high levels of economic vulnerability in Southern regime countries. However, rigid labour markets in Spain and Italy involving sharp insider-outsider divisions which operate particularly to the disadvantage of younger workers, combined with high levels of intergenerational co-residence, are likely to differentiate these countries from Portugal and Greece. Since our key variables are measured at the household level, disadvantaged younger people within such households will not be identified as vulnerable.[12] This is likely to be especially true in Italy where labour market regulation is particularly associated with difficulty in entering employment rather than the Spanish case where insecurity of employment is a stronger feature.[13]

Table I sets out the fit statistics for a two-class latent class model of economic vulnerability for all five waves of the ECHP for each of the nine countries included in our analysis. Given the large sample sizes ranging from 21,424 in wave one in Italy to 5,272 in Denmark in wave 5, any highly parsimonious model is unlikely to fit according to conventional statistical criteria. Nevertheless it does well across all nine

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[10] See the extended discussions in, for example, Esping-Andersen (1990), Goodin et al. (1999) and Bison and Esping-Andersen (2000).
[11] See Ferrera, (1996); Bonoli, (1997); Arts and Gelissen, (2002)
[12] See Gallie and Paugam (2000: 13-18), Iacovou (2004).
[13] See Tohara and Malo (2000) and Ianelli and Soro-Bonamatí (2003)

countries and five observation points in accounting for the patterns of association between the three indicators. The G^2 goodness of fit statistic ranges from 7.7 in wave 1 in Denmark to 107.0 in wave 2 in Italy with 10 degrees of freedom. Focusing on Δ - the proportion of cases misclassified- we find that the level of misclassification ranges from 0.002 in the Netherlands in wave 4 to 0.019 in Ireland in wave 5. No systematic tendency for goodness of fit to vary across waves is observed. The indices of fit for the independence model provide a benchmark for strength of the association between the indicators that requires explanation. The latent class model, which uses six additional degrees of freedom, reduces the independence G^2 by at least 98 % in 44 of the 45 cases. While some improvement in statistical fit could be achieved by increasing the number of classes it would be on a very modest scale.

Table I: *Fit Statistics for Cross-sectional Economic Vulnerability Two Class Latent Class Models*

	1994		1995		1996		1997		1998	
	G^2	Δ	G^2	Δ	G^2	Δ	G^2	Δ	G^2	Δ
Denmark	7.66	0.004	41.69	0.009	17.2	0.007	13.25	0.006	24.77	0.007
Netherlands	15.73	0.005	19.92	0.006	8.00	0.004	6.13	0.002	9.00	0.003
Belgium	42.11	0.009	5.65	0.005	31.53	0.007	24.95	0.008	12.82	0.005
France	13.89	0.004	24.56	0.007	10.38	0.004	41.08	0.009	31.03	0.007
Ireland	30.18	0.008	23.91	0.008	37.7	0.012	33.05	0.011	73.34	0.019
Italy	41.70	0.010	107.03	0.017	74.43	0.014	51.72	0.011	85.54	0.014
Spain	71.03	0.014	75.96	0.012	64.22	0.014	92.18	0.016	68.23	0.012
Portugal	64.17	0.012	69.89	0.015	94.12	0.018	17.97	0.006	8.95	0.006
Greece	38.16	0.012	12.36	0.005	47.33	0.011	58.56	0.016	42.11	0.015

In Table II we set out details of the size of the economically vulnerable class for each country for all waves. Focusing on the first wave, we find that the lowest levels of economic vulnerability ranging between 18% and 24% are observed in the social democratic and corporatist countries. The higher level in Denmark rather than the Netherlands is in line with our knowledge of the degree of labour market flexibility in the former. Similarly, the higher level in France rather than Belgium is consistent with the operation of a 'high-security' employment centred system in the latter. As we would expect, the Irish level of 32% is substantially higher. The average level of vulnerability in the Southern regime countries is similar to the Irish outcome but there is considerable internal variation with the rate varying from a low of 25% in Italy to 38% in Greece. Thus, the mean level is in line with between regime variations in

inequality while the lower levels characterising Spain, and Italy, are consistent with the dualistic patterns of labour market regulation in those societies and the interaction of such regulation with of family support systems.

Little systematic variation is observed across time. The one exception relates to Ireland where there is a steady decline in the level of vulnerability from 32% in wave 1 to 23% in wave 5. This finding is entirely consistent with the exceptional economic changes affecting the country during that period with the level of unemployment declining from 15% in 1994 to 8% in 1998. For the remaining countries, the largest percentage difference between the first and the fifth waves is 3% and the overall average involves a reduction of 2%. Such variation clearly plays a minor role in structuring vulnerability dynamics.

Table II: *Estimated Levels of Economic Vulnerability in ECHP Waves 1 to 5 by Country*

Economic Vulnerability Rates (per cent)					
	1994	1995	1996	1997	1998
Denmark	21.1	21.9	26.3	17.4	21.4
Netherlands	17.5	17.4	16.3	15.5	15.2
Belgium	18.7	19.2	22.2	21.6	19.2
France	24.3	24.7	24.6	22.3	21.0
Ireland	31.6	30.8	28.0	26.2	22.6
Italy	24.9	23.7	23.6	21.6	26.0
Spain	29.6	27.8	28.3	29.9	29.4
Portugal	32.5	29.5	31.4	29.2	29.2
Greece	37.8	38.2	40.5	41.7	38.2

The general distribution of level of economic vulnerability across countries is consistent with our expectations. In Table III we document the manner in which the economically vulnerable class is distinguished from the remainder of the population in terms of the probabilities, conditional on membership or non-membership of the economically vulnerable class, of relative income poverty, being above the deprivation threshold and reporting subjective economic stress. Variation across waves in such multidimensional differentiation is modest.

The key differentiating variable is the risk of being above the deprivation threshold. The non-vulnerable are largely insulated from such risk with the observed conditional probabilities ranging from zero to 0.10. For the vulnerable class the risk level does not fall below 0.74 and peaks at 0.94. A distinctive, but somewhat less sharp pattern of differentiation, is observed in relation to subjective economic stress. Membership of the vulnerable class was associated with a probability exceeding 0.60 of reporting such stress in seven of the nine countries; being highest in the liberal and Southern welfare regimes. For the non-economically vulnerable the conditional probability did not exceed 0.06 in five of the nine countries or 0.21 in eight out of nine of the observations. In every case a substantial differential was observed between the vulnerable and the non-vulnerable classes but a clear tendency towards higher levels of stress among the non-vulnerable in the Southern regime countries was reflected in narrower within country differentials. For income poverty levels, a relatively uniform but much less sharp pattern of differentiation was observed. For convenience we have reported the conditional probabilities of being below respectively the 70%, 60% and 50% relative income poverty lines. Perhaps reflecting the impact of active labour market policies, distinctively low levels of income poverty are observed for the economically vulnerable in Denmark. For the remaining eight countries the conditional probability of being below the 70% median income poverty line ranges from 0.57 to 0.66. For the non-vulnerable the risk level across all nine countries runs from 0.12 to 0.18. At the 60% line the corresponding figures for the vulnerable run from 0.36 to 0.52 and for the non-vulnerable from 0.04 to 0.11. Finally at the 50% line the respective ranges go from 0.13 to 0.38 and 0.02 to 0.08. Thus, while economic vulnerability is clearly characterised by heightened probability of income poverty, the primary differentiating factor is material deprivation followed by experience of subjective economic stress.[14]

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[14] For further details see Whelan and Maître (2005b).

Table III: *Probabilities of Being Income Poor, Deprived and Experiencing Economic Stress Conditional on Membership of the Economically Vulnerable (EV) Class and the Non Economically (NEV) Class*

Class Type	DK NEV	DK EV	NL NEV	NL EV	BE NEV	BE EV	FR NEV	FR EV	IE NEV	IE EV	IT NEV	IT EV	EL NEV	EL EV	ES NEV	ES EV	PT NEV	PT EV
Income																		
<70%	0.14	0.33	0.12	0.61	0.18	0.57	0.14	0.59	0.12	0.58	0.15	0.66	0.14	0.57	0.13	0.59	0.16	0.57
<60%	0.08	0.18	0.04	0.36	0.11	0.42	0.08	0.42	0.06	0.41	0.10	0.52	0.09	0.46	0.08	0.46	0.11	0.47
<50%	0.04	0.07	0.02	0.20	0.06	0.25	0.05	0.26	0.02	0.13	0.06	0.38	0.06	0.36	0.05	0.31	0.08	0.36
Deprivation	0.00	0.87	0.05	0.94	0.10	0.92	0.06	0.81	0.03	0.76	0.10	0.81	0.05	0.74	0.07	0.75	0.06	0.81
Economic Stress	0.06	0.43	0.02	0.65	0.03	0.56	0.05	0.64	0.13	0.70	0.05	0.70	0.31	0.94	0.20	0.81	0.21	0.73

In order to conduct the dynamic analysis that follows individuals are allocated to a latent class on the basis of the modal assignment rule with each observation in a cell being assigned to the class with the largest conditional probability.[15] The estimated classification error employing this procedure ranges from 3.2% in Denmark in wave 1 to 12.3% in Greece in wave 5. It exceeds 10% for only four of our 45 observations and shows modest variation across waves. The proportionate improvement over an approach that assigns all observations to the largest latent class ranges from 0.85 in Denmark in wave 1 to 0.62 in Spain in wave 5.[16] .

Modelling Income Poverty and Deprivation Dynamics

Descriptive accounts of income poverty dynamics provide a consistent picture. High mobility is observed into and out of poverty. Far fewer people live in persistent poverty than are poor at any given time and a much larger part of the population experiences poverty at some point in time than cross-sectional figures suggest. On the other hand, incidence of poverty tends to be concentrated in the same section of the population.[17] However, as Breen and Moisio (2004) stress, such accounts lack parsimony in that they imply a saturated structural model, and do not take measurement error into account.

Breen and Moisio (2004) and Moisio (2004) addressed these issue by combining structural models of the underlying dynamics and measurement error models. The former ranged in complexity from a simple Markov model to a time-heterogeneous mover-stayer model that allows for error in measurement of the movers' states. The simple Markov chain model assumes that the state occupied at time t depends only on

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[15] Thus, suppose there are three observed categorical variables A, B, and C, the conditional probability that someone belongs to latent class t given that this person is at level i of A, level j of B, and level k of

C is given by the following expression: $\pi_{tijk}^{X \backslash ABC} = \dfrac{\pi_t^X \pi_{it}^{A \backslash X} \pi_{jt}^{B \backslash X} \pi_{kt}^{C \backslash X}}{\sum_{t=1}^{T} \pi_t^X \pi_{it}^{A \backslash X} \pi_{jt}^{B \backslash X} \pi_{kt}^{C \backslash X}}$

The percentage of cases misclassified is calculated as: $100 \times \sum_j \left[\left(1 - \hat{\pi}_j \right) \cdot n_j / N \right]$ where n_j is the number of respondents giving response pattern j, $\hat{\pi}_j$ is the estimated modal latent class probability given response pattern j, and N is the total sample size. As Chan and Goldthorpe (2007: 16) note the percentage of cases misclassified by latent class models should be understood in terms of measurement error and not as a measure of goodness of fit.

[16] See Mc Cutcheon (1987: 36–37) for a discussion of these indices.

[17] Breen and Moisio (2004), Whelan *et al* (2004) and Whelan and Maitre (2006) for details.

that occupied at time t-1. A mixed Markov model allows for more than one chain. The best known of such models is a mover-stayer where the transition probabilities in the second chain relating to the stayers are assumed to be either one or zero. The model assumes two underlying groups – one stable between successive years and another involving individuals who move in and out of income poverty according to a simple Markov change process. The final structural model applied by Breen and Moisio (2004) is a mover-stayer model in which the movers' chain is allowed to be heterogeneous over time. The model is specified as follows

$$F_{ijklm} = N\sum_{s=1}^{s} \pi_s \delta_{si} \tau_{s,j|i} \tau_{s,k|j} \tau_{s,l|k} \tau_{s,m|l} \qquad (2)$$

This specifies several Markov processes or chains (indicated by s=1,...,S). The expected frequency is now a sum over these processes, and the new parameter, π_s, indicates the proportions of the sample in each of the S chains. The simple Markov model arises when S=1, but for S >1 the membership of the different chains is defined by latent classes. Another important special case of this model arises when S=2 and, for one of the processes, $\tau_{j|i} = 1$ if state j = state i, 0 otherwise, and similarly for all the other transition probabilities. This is the classic mover-stayer model that specifies that there are two non-mover groups, one never in poverty and one always in poverty and an additional group of movers whose pattern of transitions follow a simple Markov chain in which the state occupied at time t depends only on the state occupied at time t-1. The time heterogeneous version allows the poverty transition probabilities of the mover group to vary over time.

Measurement error is captured by assuming that to each observation of the states there corresponds a latent variable that measures the true distribution over the state. Stayers are assumed to be measured without error. Reliabilities for the movers are constrained to be constant over time. The model is written as

$$F_{ijklm} = N\sum_{a=1}^{A}\sum_{b=1}^{B}\sum_{c=1}^{C}\sum_{d=1}^{D}\sum_{e=1}^{E} \delta_a \rho_{i|a} \delta_b \rho_{j|b} \delta_c \rho_{k|c} \delta_d \rho_{l|d} \delta_e \rho_{m|e} \qquad (3)$$

The latent variables are denoted a=1,...,A, b=1,...,B, c=1,...,C, d=1,…,D and e=1,…E. The distribution of each latent variable is given by δ and the relationship between the observed variables *I, J, K,L* and *M* and their latent counterparts, *A, B, C,D* and *E* is described by the conditional response probabilities ρ. The closer the response probability matrix is to an identity matrix (i.e. $\rho_{manifest|latent}$ =1 when the latent and manifest states are the same, 0 otherwise) the smaller is the measurement error of the variable. These ρ parameters can thus be interpreted as measures of reliability.

Finally this measurement model can be combined with the time heterogeneous mover-stayer model. The final model is specified as

$$F_{ijklm} = N \sum_{s=1}^{S} \sum_{a=1}^{A} \sum_{b=1}^{B} \sum_{c=1}^{C} \sum_{d=1}^{D} \sum_{e=1}^{E} \pi_s \delta_{sa} \tau_{s,b|a} \tau_{s,c|b} \tau_{s,d|c} \tau_{s,e|d} \rho_{s,i|a} \rho_{s,j|b} \rho_{s,k|c} \rho_{s,l|d} \rho_{s,m|e} \qquad (4)$$

This final model allows us to simultaneously estimate the structural and measurement components of the partially heterogeneous mover–stayer model that constrains reliabilities to be constant across time. Applying this model to ECHP data, Breen and Moisio (2004) concluded that mobility in poverty dynamics was overestimated by between 25 % and 50 %.

Modelling Economic Vulnerability

In Table IV we display the fit statistics for the application of the above model to the five waves of data deriving from the modal allocation of individuals to the vulnerable or non-vulnerable classes. While the models do not provide a strict statistical fit, they account for between 98.1 % and 99.2% of the independence model deviance with the G^2 ranging between 55.0 for Belgium and 413.9 for Spain. The proportion of cases misclassified varies between 0.019 for Belgium and 0.044 cent for Spain. The comparable range for earlier analysis by Whelan and Maître (2006:314) was 0.017 to 0.030 for income poverty and 0.012 to 0.038 for deprivation. Thus our preferred model provides a broadly satisfactory account of the dynamics of economic vulnerability.

Table IV: *Fit Statistics for the time-heterogeneous mover-stayer model and percentage reduction in G^2 from the independence model*

	G^2	Δ	r G^2
Denmark	75.0	0.022	99.2
Netherlands	164.9	0.022	98.7
Belgium	55.0	0.019	99.2
France	294.2	0.034	98.5
Ireland	178.7	0.031	98.6
Italy	383.5	0.033	98.4
Spain	413.9	0.044	98.1
Portugal	337.2	0.041	98.7
Greece	276.4	0.043	98.6

In Table V we display cross-national variation in the reliability rates for movers. The modal response probabilities in the diagonals provide separate estimates of reliability for the vulnerable and non-vulnerable classes. Earlier findings showed a pronounced asymmetrical reliability pattern whereby errors levels were much higher for the poor leading to substantial overestimates of poverty mobility exits. This asymmetry was even more pronounced in relation to deprivation. While the pattern of reliability for economic vulnerability is also asymmetrical, in six out of the nine cases the difference is negligible and the lowest level of reliability for the vulnerable class is 0.84. The average level of reliability for vulnerability is 0.91 and for non-vulnerability 0.95.

Table V: *Reliability Rates for Movers by Country*

		Observed	
		Not Vulnerable	Vulnerable
	Latent		
Denmark			
	Not Vulnerable	1.00	0.00
	Vulnerable	0.01	0.99
Netherlands			
	Not Vulnerable	0.96	0.04
	Vulnerable	0.06	0.94
Belgium			
	Not Vulnerable	0.93	0.07
	Vulnerable	0.11	0.89
France			
	Not Vulnerable	0.95	0.05
	Vulnerable	0.14	0.86
Ireland			
	Not Vulnerable	0.93	0.07
	Vulnerable	0.09	0.91
Italy			
	Not Vulnerable	0.93	0.07

	Vulnerable	0.09	0.91
Spain			
	Not Vulnerable	0.94	0.06
	Vulnerable	0.16	0.84
Portugal			
	Not Vulnerable	0.96	0.04
	Vulnerable	0.10	0.90
Greece			
	Not Vulnerable	0.96	0.04
	Vulnerable	0.05	0.95
Average			
	Not Vulnerable	0.95	0.05
	Vulnerable	0.09	0.91

In Table VI we set out the size of the mover/stayer classes and the proportions economically vulnerable in wave 1. The degree of variation is substantially sharper than in the case of income poverty.[18] The highest proportion of stayers is observed in the Netherlands and Belgium where approximately three in four fall into this category. This figure falls to close to six out of ten for Denmark, France and Ireland before declining further to one in two for Italy, Spain and Portugal. Finally the lowest level of four out of ten is observed for Greece.

From Column 4 of Table VI we see the proportion vulnerable in the first wave is in every case substantially higher for movers. The relevant figure ranges from a low of 0.30 in Denmark to a high of 0.57 for Portugal. With the exception of Ireland, the figure for the Northern European countries lies in the narrow range running from 0.30 to 0.37. Ireland in contrast displays a much higher rate of 0.47. Countries with the highest levels of movers also exhibit the highest probability of being vulnerable, conditional on being a mover. Substantially higher levels of vulnerability among their mover segments, which are almost three times higher than for any other country, also contribute significantly to the distinctively higher overall levels of vulnerability in Greece and Portugal. In order to illustrate the combined impact of such effects in the section that follows we consider cross-national variation in economic vulnerability profiles.

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[18] See Whelan and Maître (2006)

Table VI: *Class size of movers/stayers and initial proportion economically vulnerable by country*

		Class Size	Proportion Vulnerable in Wave 1
Denmark			
	Mover	0.40	0.30
	Stayer	0.60	0.08
Netherlands			
	Mover	0.24	0.37
	Stayer	0.76	0.05
Belgium			
	Mover	0.28	0.37
	Stayer	0.72	0.07
France			
	Mover	0.37	0.33
	Stayer	0.63	0.10
Ireland			
	Mover	0.41	0.47
	Stayer	0.59	0.11
Italy			
	Mover	0.48	0.38
	Stayer	0.52	0.08
Spain			
	Mover	0.51	0.48
	Stayer	0.49	0.12
Portugal			
	Mover	0.49	0.57
	Stayer	0.51	0.28
Greece			
	Mover	0.58	0.44
	Stayer	0.42	0.28
Average			
	Mover	0.42	0.41
	Stayer	0.59	0.13

Cross-national Variation in Latent Economic Vulnerability Persistence

We follow Fouarge and Layte (2005) in constructing profiles that allow us to examine both the persistence and recurrence of latent economic vulnerability by distinguishing between:

- The persistently non-vulnerable – never vulnerable during the transient period
- The transient vulnerable – vulnerable only once during the accounting period.

- The recurrent vulnerable – vulnerable more than once but never longer than two consecutive years.

- The persistently vulnerable – for a consecutive period of at least three years.

From Table VII we can see that overall over 60% of individuals are found in the persistently non-vulnerable category; 10 % are equally divided between the transient and recurrent categories and 19% are found in the persistently vulnerable group. Compared to earlier findings relating to income poverty and deprivation, this involves a greater concentration of observations in the intermediate categories with corresponding lower levels of both types of persistence. For social democratic and corporatist countries it is the number persistently vulnerable that is lower than in the income poverty case. In contrast, for the Southern regime countries it is the number persistently non-vulnerable that is lower. The foregoing pattern produces sharper contrasts between countries than in the case of income poverty.

Table VII: *Latent Vulnerability Profiles by Country*

	Persistently Non-Vulnerable	Transient	Recurrent	Persistently Vulnerable
Denmark	65.9	10.9	11.3	11.9
Netherlands	76.6	6.5	6.1	10.8
Belgium	75.1	6.0	6.7	12.2
France	66.5	9.5	7.2	16.9
Ireland	60.2	9.5	8.7	21.5
Italy	66.2	7.9	9.5	16.3
Spain	56.6	8.2	11.8	23.5
Portugal	50.9	11.3	10.2	27.6
Greece	45.4	13.8	14.7	26.2
Average	62.6	9.3	9.6	18.5

The Netherlands and Belgium display by far the highest levels of persistent non-vulnerability with three quarters of respondents falling into this category; while 11 to 12% are found in the persistently vulnerable category. While Denmark has a lower level of persistent non-vulnerability it differs from the Netherlands and Belgium only in being almost twice as likely to be found in the transient and recurrent categories; a finding that is consistent with its active labour market policies. The social democratic welfare countries and the corporatist case closest to a "high-security" employment centered system display the lowest levels of economic vulnerability. In France, Italy

and Ireland approximately two-thirds of the respondents are located in the persistently non-vulnerable category. However, the levels of persistent vulnerability are somewhat higher than for all of the foregoing countries with rates of respectively 17, 16 and 22%. In the Spanish case a lower level of persistent non-vulnerability and a corresponding increase in the level of persistent vulnerability is observed; the respective figures being 57% and 24%. However, a less potent version of the factors operating in the Italian case contributes to maintaining a clear differentiation between it and the Portuguese and Greek cases. For the latter cases, the level of persistent non-vulnerability declines to 51% and 46%, respectively, and the scale of persistent vulnerability increases to 28% and 26%. These findings are broadly in line with the expectations we outlined earlier on the basis of the welfare and employment regimes literature.

A summary picture of cross-national variation in economic vulnerability and income poverty is provided in Table VIII where we display the odds ratios for persistent non-poverty and persistent non-vulnerability with the Netherlands as the reference category. For income poverty the range of odds ratios runs from 0.73 in Denmark to 2.65 in Spain. For economic vulnerability, rather than Denmark being the country most insulated from risk, it is the Netherlands followed by Belgium. The change arises because the numbers in the transient and recurrent categories in Denmark are significantly higher than for income poverty. Thus while Danish active labour market problems are particularly successful in preventing income poverty persistence, they are somewhat less effective in comparison with the Netherlands and Belgium in ensuring that individuals are insulated from more broadly defined economic vulnerability. The contrast between the latter countries and the reminder is sharper than in the case of income poverty with the value of the odds ratio varying from 1.00 in the Netherlands to 3.94 in Greece. Three clusters of values emerge with the Netherlands and Belgium at the low end of the continuum, Denmark (because of the high numbers in transient and recurrent categories), France, Italy and Ireland occupying an intermediate position with values ranging between 1.65 and 2.16 and Spain, Portugal and Greece at the opposite end of the continuum with respective values of 2.51, 3.16 and 3.94.

Table VIII: Cross-National Comparisons of being Persistently Non-Income Poor and Persistently Non Economically Vulnerable for Latent Outcomes with the Netherlands as the Reference Category

	Odds Ratios	
	Income Poverty	Economic Vulnerability
Netherlands	1.00	1.00
Denmark	0.73	1.69
Belgium	1.41	1.09
France	1.27	1.65
Ireland	1.88	2.16
Italy	1.52	1.67
Spain	2.65	2.51
Portugal	2.33	3.16
Greece	2.37	3.94

The Distribution of Economic Vulnerability by Social Class

In analyzing the relationship between social class position and economic vulnerability, we make use of an aggregated version of the European Socio-economic Classification (ESeC). The schema following Goldthorpe (2007b) is based on an understanding of forms of employment relationship as viable responses to the weaker or stronger presence of monitoring and asset specificity problems in different work situations.[19] As Goldthorpe (2002:213), observes, one of the primary objectives of schemas such as of ESeC is to bring out the constraints and opportunities typical of different class positions particularly as they bear "on individuals *security, stability and prospects* as a precondition of constructing explanations of empirical regularities". The latent profile of economic vulnerability provides a particularly appropriate outcome indicator in examining the impact of social class defined in this manner.

We are not in a position to examine trends over time in the impact of social class. However, by using an outcome measure that captures both multidimensional and dynamic aspects and by providing cross-national comparison we hope to add to the evidence base in an area that, as Goldthorpe (2007b) notes, has been characterized by a discrepancy between the strength of the claims made and the degree of systematic investigation. Clearly a failure to observe systematic variation by social class in

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[19] See Rose and Harrison (2007) for a detailed discussion of the rationale underlying the development of ESeC and details of the operationalisation procedures.

exposure to persistent economic vulnerability would seriously undermine claims for the continuing importance of class based explanations of variation in life-chances.

Our analysis employs a six-category aggregated version of the ESeC. For our present purposes, we assign the social class of the household reference person to all household members. Where a couple are jointly responsible for the accommodation we use a dominance procedure to decide between them.

The six classes with which we operate are

- Employers, higher grade professional, administrative & managerial occupations (ESeC Classe 1 & 2).
- Intermediate occupations - Higher grade white collar workers (ESeC Class 3).
- Lower supervisory & lower technician occupations (ESeC Class 6).
- Small employer and self employed occupations (ESeC Classes 4 & 5).
- Lower services, sales & clerical occupations & lower technical occupations (ESeC Classes 7 &8).
- Routine occupations (ESeC Class 9).[20]

From Table IX it is clear that, notwithstanding arguments relating to the diversification of risk, in every country, location in the professional managerial class proves to be an enormously effective buffer against economic vulnerability. The number persistently non-vulnerable ranges from a high of 89% in the Netherlands and Spain to a low of 77% in Denmark. Variation in levels of persistent vulnerability is even more modest with the relevant figure going from 3% in Spain to 7% in Ireland. Thus any decline in the favoured position of the professional- managerial class can only have been from an extremely elevated starting positions.

Those in intermediate occupations occupy the next most favourable position with the numbers persistently non- vulnerable ranging from 82% in the Netherlands to 61% in Denmark with the corresponding figures for persistent vulnerability running from 6%

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[20] Those who could not be allocated a class position on the basis of their current or previous occupation of the household reference person were excluded from the analysis.

in Spain to 18% in Denmark. Levels for the self –employed vary substantially across country while their relative position is in each case inferior to the higher white-collar groups and close to that of the lower supervisory/technician/services category. Levels of persistent non-vulnerability vary from 69% in Belgium to 33% in Greece for the self–employed and for the lower supervisory group from 75% in Belgium to 51% in Greece. While a broadly similar pattern of relativities is observed in relation to persistent vulnerability, the relative position of the self-employed is much less favourable in France, Portugal and Greece while in Ireland the opposite is the case.

Substantial variation across countries is also observed for the lower services/technical class and for routine occupations. For the former the level of persistent non-vulnerability ranges from 71% in Belgium to 32% in Greece and for persistent vulnerability from 13% in Denmark to 39% in Portugal. Unlike the case for the higher social classes, the levels vary fairly systematically across welfare regimes. A similar pattern is observed for the routine occupation where the level of persistent non-vulnerability runs from 64% in Belgium to 30% in Greece and the scale of persistent vulnerability from 19% in the Netherlands to 40 % in Spain.

Thus in all countries patterns of persistent economic vulnerability vary across social classes in a manner largely consistent with the expectations of advocates of the continuing relevance of class analysis. Variations in class differences across countries are extremely modest for the most favoured social classes but become substantially sharper in the lower reaches of the class structure.

Table IX: Economic vulnerability profile by ESeC by Country

	Large emp, Hi prof + lo prof	Intermediate occupations	Small emp & self emp. (inc. ag)	Lo supervis/ technician	Lo services + Lo technical	Routine occupations
Denmark						
Persistent non-EV	77.2	60.5	60.3	70.2	54.1	44.6
Transient EV	8.5	13.6	12.7	8.1	16.3	11.8
Recurrent EV	8.2	8.3	12.9	10.1	16.8	23.0
Persistent EV	6.1	17.6	14.0	11.6	12.8	20.6
Netherlands						
Persistent non-EV	89.0	81.9	65.0	74.3	66.1	60.7

Transient EV	4.2	6.9	6.8	10.9	7.5	10.0
Recurrent EV	3.5	4.2	6.0	7.3	9.8	10.2
Persistent EV	3.2	7.0	22.1	7.4	16.5	19.0
Belgium						
Persistent non-EV	83.4	74.8	68.6	75.1	70.5	64.2
Transient EV	5.1	4.1	6.8	7.8	7.6	7.8
Recurrent EV	4.8	6.1	10.2	6.6	8.1	8.0
Persistent EV	6.7	15.0	14.4	10.5	13.8	20.0
France						
Persistent non-EV	84.9	69.2	56.5	64.2	48.5	42.7
Transient EV	6.5	11.1	11.1	8.9	11.2	11.2
Recurrent EV	3.7	6.6	9.5	7.4	10.8	11.2
Persistent EV	5.0	13.0	22.9	19.4	29.5	34.8
Ireland						
Persistent non-EV	84.4	71.6	63.6	59.6	46.6	38.6
Transient EV	5.9	8.9	15.1	5.1	11.5	10.7
Recurrent EV	2.9	8.6	9.6	7.5	11.5	13.5
Persistent EV	6.8	10.9	11.8	27.7	30.5	37.2
Italy						
Persistent non-EV	85.8	72.3	63.8	62.9	53.5	51.3
Transient EV	4.8	7.3	9.1	9.2	8.7	10.1
Recurrent EV	5.0	9.0	10.9	10.4	9.9	14.4
Persistent EV	4.4	11.5	16.2	17.6	27.9	24.3
Spain						
Persistent non-EV	89.3	78.0	50.4	57.2	41.4	34.3
Transient EV	4.5	7.7	9.4	10.6	8.1	9.6
Recurrent EV	3.3	8.3	14.2	10.4	15.9	16.5
Persistent EV	2.9	6.0	26.0	21.8	34.5	39.7
Portugal						
Persistent non-EV	86.5	77.8	48.1	55.0	35.6	34.4
Transient EV	5.6	7.2	11.5	13.3	13.6	13.4
Recurrent EV	4.4	4.6	9.9	12.8	11.7	17.1
Persistent EV	3.4	10.4	30.5	18.9	39.0	35.1
Greece						
Persistent non-EV	83.2	61.7	33.2	50.6	32.2	30.0
Transient EV	8.6	17.6	14.7	20.4	15.8	12.9
Recurrent EV	4.3	12.4	17.4	15.2	18.9	18.6
Persistent EV	3.9	8.2	34.8	13.8	33.1	38.5

Conclusions

In this paper we have sought to implement an approach to social exclusion that captures both multidimensional and dynamics aspects of social exclusion. Such vulnerability varies across welfare regimes in a manner broadly consistent with our expectations. Variation in vulnerability levels across waves was extremely modest.

Descriptive accounts of the dynamics of income poverty and deprivation involve significant overestimation of the level of exits from such states. Our analysis of economic vulnerability dynamics shows that problems associated with measurement error are substantially less in this latter case. The size of the stayer class varied across welfare regimes broadly in line with our expectations. Vulnerability rates in wave one for both movers and stayers were higher for both liberal and Southern welfare regimes. Consequently levels of persistent vulnerability varied systematically by welfare regime; with a degree of internal variation that was consistent with the influence of insider-outsider labour market arrangements and the mediating role of family support systems.

Sociological interest in vulnerability has been associated with the argument that one of the consequences of globalization has been that exposure to risk has become more pervasive and less structured in class terms. While we are not in a position to examine trends over time in class effects, the fact that in every country the higher social classes enjoy very high levels of protection from persistent economic vulnerability argues against the emergence of a more pervasive distribution of risk. Systematic variation in vulnerability levels was observed across countries and social classes. However, the latter was concentrated among classes at the lower end of the hierarchy; indicating strict limits to cross-national convergence in risk levels associated with globalization.

Our findings suggest that it is possible to accept the importance of the emergence of new forms of social risk and acknowledge the significance of efforts to develop welfare states policies involving a shift of opportunities and decision making on to

individuals without accepting the "death of social class" thesis.[21] A more fruitful approach would be to consider the manner in which new and old social risks interact, as in the case of social class and the life cycle,[22] thus providing us with a further opportunity to answer the question posed by Atkinson (2007a: 360) of the extent to which the 'slayers' of class are themselves 'riddled with class processes'.

Appendix A: Measuring Current Life-Style Deprivations (CLSD)

The items included in the scale cover a range of what we term Current Life-Style Deprivations (CLSD). In each case we attempt to capture enforced absence of widely desired items.

Respondents were asked about some items in the format employed by Mack and Lansley (1985): for each household it was established if the item was possessed/availed of, and if not a follow-up question asked if this was due to inability to afford the item. The following six items took this form:

- A car or van.
- A colour TV.
- A video recorder.
- A microwave.
- A dishwasher.
- A telephone.

A household was considered to be deprived only if absence is stated to be due to lack of resources.

For some items the absence and affordability elements were incorporated in one question, as follows: "There are some things many people cannot afford even if they would like them. Can I just check whether your household can afford these if you want them". The following six items were administered in this fashion:

- Keeping your home adequately warm.

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[21] For a detailed discussion of the distinction between new and old social risks see Esping Andersen *et al* (2002) and Taylor-Gooby (2004).
[22] For a detailed discussion of such approaches see Dewilde (2003)

- Paying for a week's annual holiday away from home.

- Replacing any worn-out furniture.

- Buying new, rather than second hand clothes.

- Eating meat, chicken or fish every second day, if you wanted to.

- Having friends or family for a drink or meal at least once a month.

The final item relates to arrears; we consider a household as experiencing deprivation if it was unable to pay scheduled mortgage payments, utility bills or hire purchase instalments during the past twelve months.

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2007	201	Validating the European Socio-economic Classification: Cross-Sectional and Dynamic Analysis of Income Poverty and Lifestyle Deprivation *Dorothy Watson, Christopher T. Whelan* and *Bertrand Maître*
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