# Trends in Economic Vulnerability in the Republic of Ireland

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*Abstract*: In this paper we evaluate trends in levels of economic vulnerability in Ireland during the period 1994-2001. We also document changes in the consequences of such vulnerability for social exclusion and in the social demographic factors with which it is associated. Over time there was a sharp decline in economic vulnerability. Furthermore, the degree of differentiation between the vulnerable and non-vulnerable classes in relation to both economic exclusion and social exclusion, more broadly conceived, remained relatively constant. Ireland is characterised by levels of socio-economic inequality that place it at the more unequal end of the European spectrum. However, the dramatic reductions in levels of vulnerability across the socio-economic spectrum demonstrate that the fruits of the economic boom have been distributed relatively widely.

## I INTRODUCTION

At the centre of recent debates relating to changes in Irish society has been the claim that, despite a period of unprecedented growth and government expenditure, the least privileged groups have lost out. The theme of polarisation during a time of plenty has been prominent in accounts of the 'Celtic Tiger'. The predominant sociological view seems to have been that the recent Irish experience of growth fuelled economic inequality. Economic developments in the period running from 1994-2001, which is the focus of our attention, led Blanchard (2002, p. 61) to conclude: "I do not know the rules by which miracles are officially defined, but this seems to come close". However, from the radical sociological perspective the benefits of economic growth are largely illusory and a focus on conventional economic indicators such as GDP conceals a picture of increased inequality and marginalisation.[1]

[1] See Allen (2000), O'Hearn, (2000 and 2003), Kirby (2002).

Primarily, this argument is put in terms of increasing income inequalities and widening differentials in living standards, but assertions relating to wider social exclusion and declining quality of life for the least privileged, particularly in relation to neighbourhood environment, social cohesion and economic stress, are evident in sociological commentaries such as those of Keohane and Kuhling (2004) and are pervasive in media discussions of these issues.[2] In a number of cases, as with Allen (2002) and O'Hearn (2003), this view is associated with the claim that the impact of the Celtic Tiger has involved increased casualisation or flexibilisation, involving the growth in unskilled and atypical employment, including part-time, temporary and short-term contract employment. Taken together this set of changes are claimed to have significantly increased insecurity.[3]

One clear message from a range of earlier work at The Economic and Social Research Institute has been that, particularly during a period of sustained economic growth, income poverty cannot serve as a sufficient indicator of even economic well-being and certainly not of any wider conception of social exclusion. A variety of studies has shown that in the Irish case a significant proportion of those found below relative income poverty lines are not experiencing life-style deprivation (Nolan *et al.* 2002, Whelan *et al.* 2003).[4] During the period under consideration, Layte *et al.* (2004) show that, while relative income measures showed poverty to be rising steadily, real income measures and consistent poverty measures incorporating a deprivation component pointed in the opposite direction. In this paper we build on that analysis by focusing on trends in what we term "economic vulnerability" during the boom, using an approach to identifying the vulnerable class that employs latent class analysis.

[2] In this paper our attention is focused on groups that can be studied using data from large representative household surveys such as the Living in Ireland Survey. Other smaller and undoubtedly vulnerable groups such as the Travelling community and homeless persons cannot be studied using household surveys of this sort and need to be investigated using alternative methods.

[3] In contrast O'Connell (2000) and O'Connell and Russell (forthcoming) conclude that there has been a substantial increase in higher-level jobs accompanied by some increase at the lower end of the occupational hierarchy. They also show that while part-time work has increased substantially since the early 1990s, the involuntary component of such work showed a significant decline as did the numbers on fixed term contracts.

[4] For reviews of the international literature on the relationship between income poverty and life-style see Perry (2002) and Nolan and Whelan (2005).

## II  PERSPECTIVES ON SOCIAL EXCLUSION

In recent years general agreement has emerged that, despite the continuing vagueness of the term 'social exclusion', its main value lies in drawing attention to issues of dynamics and multidimensionality (Berghman, 1995; Room, 1999; Sen, 2000). However, one of the difficulties in extending the notion of social exclusion to encompass multidimensional deprivation is that, as Sen (2000, p. 9) emphasises, by indiscriminate use it can be extended to describe every kind of deprivation: "… the language of exclusion is so versatile and adaptable that there may be a temptation to dress up every type of deprivation as exclusion". In providing a context for the manner in which we will use the terms 'economic vulnerability' and 'social exclusion', it is necessary to distinguish between two rather distinct senses in which the latter term has been used.

As De Haan (1998, p. 14) notes, the concept of social exclusion when employed in its more restricted economic life-chances notion comes close to that of relative deprivation as employed by Townsend (1979), for whom poverty involves exclusion from ordinary living patterns through lack of resources. While social exclusion can refer to a state or situation, it places particular emphasis on the processes or mechanisms by which exclusion comes about. This concern is captured in Paugam's (1996) focus on precarity and spirals of precariousness. As De Haan (1998, p. 15) observes, perhaps closest to the notion of social exclusion employed in this sense are notions of vulnerability. Following Chambers (1989, p. 1), we can define vulnerability as not necessarily involving current deprivation either in income or consumption terms but rather insecurity and exposure to risk and shock. Vulnerability in this sense can also incorporate people's perceptions of their situation.[5] One objective of developing such a measure is that it should serve as a point-in-time indicator of the risk of exposure to persistent disadvantage that is best captured in panel surveys.[6] This dynamic objective is combined with a concern to go beyond measures based on single indicators.[7]

An alternative conception of social exclusion involves a focus on wider restriction of access to commodities and services, such as health and housing, necessary for full participation in the society. For the purposes of this paper we will restrict our use of the term 'social exclusion' to this latter sense, and

[5] An appropriate measure of vulnerability would also allow us to address the concerns relating to increased marginalisation and insecurity raised by authors such as Allen, O'Hearn and Kirby.

[6] The relationship between point in time vulnerability and poverty and deprivation will be explored in a later paper.

[7] See also the World Bank (2000) discussion of vulnerability which encompasses both dynamics and multidimensionality.

will explore the relationship between such exclusion and the more narrowly conceived phenomenon of economic vulnerability.

In what follows we shall seek to identify a class of economically vulnerable individuals and establish the extent to which overall levels and profiles of vulnerability have varied over time. We will also consider how economic vulnerability is associated with social exclusion in the broader sense that encompasses factors such as housing, health and neighbourhood. Finally, we will examine the socio-economic factors associated with economic vulnerability and the manner in which such influences have varied over time. Our analysis of trends will thus document changes in the levels, consequences and antecedents of economic vulnerability and provide a basis for assessing the extent to which the empirical evidence supports the hypothesis of increased polarisation.

## III  DATA AND MEASURES

### 3.1 The 1994 and 2001 Waves of the Living in Ireland Survey

The Living in Ireland Surveys form the Irish component of the European Community Household Panel (ECHP) survey. This was an EU-wide project, co-ordinated by Eurostat, to conduct harmonised longitudinal surveys dealing with the social situation, financial circumstances and living standards of a panel of households to be followed over several years, in the various member states. The first wave of the Living in Ireland Survey was conducted in 1994, and the same individuals and households were subsequently followed each year where possible. The wave conducted in 2001 was the eighth and final wave of the survey, since the ECHP was discontinued from that point.

The total number of households successfully interviewed in 1994 was 4,048, representing 57 per cent of the valid sample. A total of 14,585 persons were members of the completed households. Of these, 10,418 were eligible for personal interview, and 9,904 eligible respondents completed the full individual questionnaire. The sample from the Wave 1 (1994) Living in Ireland survey was followed in subsequent years and re-interviewed. The follow-up rules for the survey meant that new households might be included in each wave where a sample person from Wave 1 moved to another household. All individuals in the Wave 1 sample were to be followed in subsequent waves and household and individual interviews were to be conducted, as long as the person still lived in a private or collective household within the EU.

The 2001 dataset includes 9,131 individuals, 4,820 of whom were followed from 1994 and 4,311 who joined the sample since then – most of them being added when the sample was supplemented in 2000. The response rate at the

household level was 78 per cent, a lower completion rate than had been achieved throughout the 1990s. However, where the household participated in the survey, 93 per cent of adult household members were successfully interviewed resulting in 6,521 personal interviews.

### 3.2  Indicators of Economic Vulnerability

The measure of vulnerability we develop is based on three dimensions: economic exclusion, basic deprivation, and subjective economic strain. Full details of the measures employed for each dimension are provided in an Appendix, and here we simply set them out. For economic exclusion we use relative income poverty thresholds and distinguish between those below 50 per cent of equivalent household disposable income, those between the 50 per cent and 60 per cent lines, those between the 60 per cent and 70 per cent lines and those above the 70 per cent line. For basic deprivation we use the index incorporated in the National Anti-Poverty Strategy (NAPS) consistent poverty measure as described in for example Whelan *et al*. (2003). Subjective economic strain is indicated by being a member of a household that reports experiencing difficulty or great difficulty in making ends meet.[8] We have not included factors such as unemployment and lack of educational qualifications as indicators of economic exclusion, but rather view them as factors that influence the risk of vulnerability.[9]

### 3.3  Indicators of Social Exclusion

These include measures relating to secondary deprivation; housing deterioration; neighbourhood environment; physical health; and psychological distress, which once again are described in detail in the Appendix.

### 3.4  Latent Class Analysis of Economic Vulnerability

Despite the emphasis in the literature on both multidimensionality and vulnerability, little methodological progress has been made in identifying such vulnerability on the basis of multiple indicators. A successful implementation of a measurement strategy would involve first being able to employ multiple indicators to fulfil the multidimensionality condition. Ideally, however, it should also incorporate a dynamic perspective. We wish not simply to

[8] Our approach involves measuring vulnerability at the micro or individual level. The IMF, the UN and the World Bank have also developed a range of approaches to measuring vulnerability at the macro level. Such approaches must confront the usual issues relating to the aggregation of such indicators. The development of such measures has been closely connected to the debate relating to the consequences of globalisation. See World Bank (2000), UN (2003).

[9] An alternative would be to develop a measure of vulnerability based on such indicators and explore the relationship between vulnerability and the outcomes we consider,

document those who are experiencing a specific deprivation at a particular point in time but rather to identify those who are vulnerable to such deprivation. From a policy perspective this allows us to think in terms of options that may prevent such vulnerability being translated in actual negative outcomes. In the longer run, it allows us to study the processes involved in the differential routes that lead from vulnerable status to positive or negative outcomes. The focus is very clearly on process rather than simply point in time outcomes.[10]

The approach we adopt in analysing economic vulnerability involves an analysis of manifest indicators in order to identify underlying or latent vulnerability. We achieve this objective by the application of latent class analysis, which can be used as a tool to gain deeper understanding of the observed relationships between dichotomous (or polytomous) indicators. It can be thought of as a log-linear model where there are more dimensions in the estimated table than in the observed table. Such models generate tables of expected frequencies that can be compared to the observed frequencies using goodness of fit tests.

The basic idea underlying such analysis is long established and very simple (Lazarsfeld, 1950; Lazarsfeld and Henry, 1968). The associations between a set of categorical variables, regarded as indicators of an unobserved typology, are accounted for by membership of a small number of latent classes. As Moisio (2005) notes, implicit in the notion of multidimensional measurement of exclusion is the assumption that there is no one 'true' indicator of the underlying concept.[11] Instead, we have a sample of indicators that tap different aspects of a complex phenomenon. Latent class analysis assumes that each individual is a member of one and only one of N latent classes and that, conditional on latent class membership, the manifest variables are mutually independent of each other. Conditional independence is a version of the familiar idea that the correlation between two variables may be a result of their common dependence on a third variable. In estimating latent class models the logic is identical but the explanatory variable is unobserved and must be identified statistically. The axiom of local independence can be seen as the defining characteristic of latent class analysis. It assumes causality running from the latent variable to the manifest indicators.

Our focus is on the three key indicators of economic vulnerability described above. We distinguish between those below 50 per cent median

[10] This perspective views poverty as a structural position rather than simply a consequence of behavioural choice. For further discussion of this issue see Somers and Block (2005, pp. 275-276).
[11] For other recent applications of latent class analysis to the issue of multidimensional deprivation see Dewilde (2004) and Perez-Mayo (2005).

income, between 50-60 per cent, between 60 to 70 per cent and above 70 per cent. For ease of communication we report our results in terms of the conditional probabilities of being below each of the three median-based income lines. Our deprivation outcome is a dichotomous variable and we report the conditional probability of lacking at least one basic deprivation item. The economic strain variable, which also takes a dichotomous form, distinguishes those households that have "great difficulty" or "difficulty" in making ends meet from all others. Since we have information relating to two points in time, the distribution of observed values that we seek to explain take the form of a 4x2x2 table.

Given three dichotomous variables the latent class model for variables A, B, C is

$$\pi_{ijkt}^{ABCX} = \pi_t^X \; \pi_{it}^{\bar{A}X} \; \pi_{jt}^{\bar{B}X} \; \pi_{kt}^{\bar{C}X}$$

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

Conditional independence can also be represented as a log-linear model

$$F_{ijkt}^{ABCX} = \eta \tau_i^A \; \tau_j^B \; \tau_k^C \; \tau_t^X \; \tau_{it}^{AX} \; \tau_{jt}^{BX} \tau_{kt}^{CX}$$

In this case the cell frequencies in the complete fitted table are represented as the product of a set of parameters corresponding to the fitted marginals of the conditional independence model. We use the $\ell$EM Programme to estimate the relevant model (Vermunt, 1997).[12]

Since our objective is to identify an overall economically vulnerable class that can be contrasted with the remainder of the population we develop models with two latent classes.[13] For each model we report the likelihood ratio chi-square test ($G^2$), which is the most widely used goodness of fit test. Another common estimate of model fit is the percentage of cases misclassified.[14] The findings relating to three such models are set out in Table 1. The first model, which we use as a benchmark for the performance of the remaining models,

[12] The parameters of the model are estimated by an iterative procedure using the EM algorithm (Dempster *et al.*, 1977).

[13] Al alternative approach would be to use a wider range of indicators and compare the results for models with varying numbers of latent classes.

[14] This indicator is equal to the index of dissimilarity, which shows the proportion of cases that should be moved so that the estimated and observed frequency tables would be identical, multiplied by 100.

allows for an association between time and our manifest indicators but assumes independence between the indicators. Not surprisingly, this model provides a poor fit to the data and misclassifies 20 per cent of the cases. The second model is a latent class model that allows the size of the underlying class to vary over time but forces the relationship between the latent variable and the manifest indicators to remain constant. This model reduces the independence model $G^2$ by 83 per cent but misclassifies 7 per cent of the cases. The final latent class model allows both the size of the class and the relationship between the manifest variable and the observed indicators to vary across time. This model reduces the independence model $G^2$ by 98 per cent and misclassifies only 1 per cent of the cases. It is clear that the preferred model must allow for both variation across time in the size of the latent class and in the relationship of the latent variables to the manifest indicators.[15]

Table 1: *Latent Class Model Fits*

|  | $G^2$ | *Degrees of Freedom* | *Percentage of Cases Misclassified* |
|---|---|---|---|
| Independence Model | 6,981.1 | 20 | 19.5 |
| Heterogeneous Latent Class Size | 1,215.1 | 18 | 7.2 |
| Heterogeneous Latent Class Size and Conditional Probabilities | 169.7 | 8 | 1.3 |

In Table 2, for the final two-class model, we show the size of the economically vulnerable class and the conditional probabilities, given latent class membership, for both 1994 and 2001. In 1994, 31 per cent of individuals were located in the vulnerable class, but by 2001 this had fallen to 11 per cent. Thus a rather substantial reduction in economic vulnerability took place over the period. In light of this change, we proceed to examine the manner in which individuals located in the vulnerable class are distinguished from others and the manner in which this changed over time. This requires that we direct our attention to the conditional probabilities relating to each of our indicators. These are the probabilities after we have specified the latent class to which an individual belongs. In 1994, 13 per cent of the economically vulnerable group fell below the 50 per cent poverty line, compared to 3 per cent of the remaining respondents. For the 60 per cent line the corresponding figures are 33 per cent

[15] Elsewhere we shall seek to take advantage of the panel nature of the LIIS to model the dynamics of economic vulnerability. For comparable analysis relating to the income and deprivation measures see Whelan and Maître (2006).

and 7 per cent, and for the 70 per cent line 55 per cent and 13 per cent. There is, therefore, a strikingly clear pattern of differentiation between the underlying classes in terms of their risks of income poverty. However, even this degree of differentiation is modest in comparison with what we observe in relation to basic deprivation. Thus 80 per cent of the vulnerable class report the enforced absence of a basic item compared to 6 per cent of remaining respondents. Differentiation in terms of economic strain is almost as sharp, with 77 per cent of the vulnerable reporting such strain compared to 10 per cent of the non-excluded. Overall, the two groups display sharply differentiated profiles across the three indicators of a scale that amply justifies referring to the disadvantaged class as economically excluded.

Table 2: *Vulnerability to Economic Exclusion in 1994 and 2001*

| | 1994 0.312 | | 2001 0.111 | |
|---|---|---|---|---|
| *Vulnerable Class Size* | | | | |
| | *Vulnerable to Economic Exclusion* | | *Vulnerable to Economic Exclusion* | |
| | *No* | *Yes* | *No* | *Yes* |
| Conditional Probabilities (Odds Ratio) | | | | |
| *Income* | | | | |
| <50% of Median | 0.029 | 0.130 | 0.092 | 0.397 |
| (Odds Ratio) | | 5.0 | | 6.5 |
| <60% of Median | 0.072 | 0.334 | 0.176 | 0.522 |
| (Odds Ratio) | | 6.5 | | 5.1 |
| <70 % of Median | 0.134 | 0.554 | 0.245 | 0.633 |
| (Odds Ratio) | | 8.0 | | 5.3 |
| *Deprivation* | 0.064 | 0.803 | 0.028 | 0.609 |
| (Odds Ratio) | | 59.6 | | 54.1 |
| *Economic Strain* | 0.099 | 0.766 | 0.028 | 0.636 |
| (Odds Ratio) | | 29.8 | | 60.6 |

Given that the size of the vulnerable class and the conditional probability profiles changed over time, the question arises as to whether the extent of inequality between vulnerable and non-vulnerable classes widened or narrowed over time. From Table 2 we can also see the manner in which the income profiles for both groups changed significantly over time, while the

contrast between them remained extremely sharp. By 2001, 40 per cent of the vulnerable group were below the 50 per cent line compared to the 9 per cent of the remaining individuals. This involved a substantial increase for both groups over the 1994 figures. In order to summarise these changes in conditional probabilities, we report the relevant odds ratios, which show the odds of being below rather than above the 50 per cent income line conditional on being a member of the vulnerable rather the non-vulnerable class. The odds ratio index has the advantage that it is not affected by the marginal distribution of the two variables for which we are calculating the association. It thus provides an appropriate measure for summarising changing levels of association over time.

At the 50 per cent line the odds ratio shows a modest increase, from 5.0 to 6.5. For the 60 per cent lines the respective conditional probabilities are 0.52 and 0.17. Once again we observe an absolute increase, but in this case we observed a slight reduction in the odds ratio from 6.5 to 5.1. Thus the sharpest upward trend was observed for the non-vulnerable group. At the 70 per cent line the respective conditional probabilities are 0.63 and 0.24; again involving a significant reduction in each case but, as with the 60 per cent line, we observe a reduction in the relevant odds ratio – in this case from 8.0 to 5.3. Thus, while there was a general trend towards increased numbers below the relevant income lines for both vulnerable and non-vulnerable groups, there was no evidence of increased disparities between the two groups in risk of income poverty.

In the case of basic deprivation the probability for the vulnerable group declines from 0.80 to 0.61 and for the remainder from 0.06 to 0.03. The contrast between the groups is quite striking at both points in time, and involves a much sharper polarisation than in the case of income poverty. However, once again such differentiation remains relatively constant over time, with the relevant odds ratio showing a modest decline from 59.6 to 54.1. For economic strain we again observe a decline in the conditional probabilities, with the 1994 rates being 0.099 and 0.766 compared to 0.028 and 0.636. Thus in this case the decline is particularly sharp for the non-vulnerable group, and this is reflected in the rise in the relevant odds ratio from 29.8 to 60.6.

While over time there was no evidence of increasing polarisation between the economically vulnerable and others in terms of income poverty and basic deprivation, the contrast between the groups in terms of exposure to subjective economic strain did become sharper. The reduction in basic deprivation levels experienced by the vulnerable group was not proportionately reflected in the reported extent of economic subjective strain, perhaps reflecting the influence of increased expectations.

## IV  THE RELATIONSHIP BETWEEN ECONOMIC EXCLUSION AND WIDER SOCIAL EXCLUSION

Thus far we have focused our attention on what we have labelled "economic exclusion". One of the main virtues of the social exclusion perspective is in drawing attention to issues of multidimensionality. Here, having given theoretical priority to economic exclusion, we now seek to establish how such vulnerability is associated with other dimensions of social exclusion. These additional elements include the dimensions other than basic deprivation revealed in our earlier analyses of life-style deprivation (see for example Whelan *et al*., 2003). These comprise secondary deprivation, housing deterioration and neighbourhood environment and physical and mental health. Given the evidence in relation to declining economic vulnerability, we would expect to observe similar overall trends for these factors. However, the question remains as to whether the disparities between the smaller economically vulnerable class and the rest of the population have widened over time. This question can be reformulated as seeking to establish whether the capacity of the vulnerable group to cope with such vulnerability has declined over time.[16]

In order to answer this question we present a set of logistic regressions in Table 3. The dependent variables are the five dimensions of social exclusion, and the three independent variables capture respectively the trend over time for the non-vulnerable group, the impact of economic vulnerability and the differential impact of such vulnerability. The coefficients reported are odds ratios. From Table 3 it is clear that in every case there was a significant downward trend in exclusion for the non-vulnerable group, with the reduction being sharpest for secondary deprivation and least for psychological distress. For each of the dimensions we observe a significant impact of economic vulnerability in 1994, with the relevant odds ranging from close to nine to one for secondary deprivation to two and a half to one for health.

Of particular interest for our present purposes are the coefficients showing the interaction between time and economic vulnerability. For basic deprivation and housing facilities the odds ratios are just above one and there is no evidence of an increasing impact of economic vulnerability over time. For the environmental dimension the value of the odds ratio is higher but does not reach statistical significance at the 1 per cent level. For psychological distress the interaction term is less than one, indicating a reduction in inequalities,

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[16] Our preference is for such a formulation that keeps vulnerability and coping capacity as separate measures rather than ones that see vulnerability as involving both risk and differential coping capacity. Of course both may combine to influence vulnerability in relation to other outcomes. See World Bank (2000).

Table 3: *Logistic Regression of the Impact of Economic Vulnerability on Dimensions of Social Exclusion*

|  | Secondary Deprivation Odds Ratios | Housing Facilities Odds Ratios | Environment Odds Ratios | Health Odds Ratios | Psychological Distress Odds Ratios |
|---|---|---|---|---|---|
| 2001 | 0.30*** | 0.59*** | 0.52*** | 0.60*** | 0.74*** |
| Economic Vulnerability | 8.77*** | 4.02*** | 3.05*** | 2.55*** | 3.30*** |
| Economic Vulnerability*2001 | 1.10 | 1.10 | 1.25 | 2.25*** | 0.80 |

P<.001 *** P < .01 **

but once again not at a statistically significant level. The only evidence of increasing polarisation relates to health status , where the odds ratio for the interaction term has a value of 2.25 indicating that the disparity between the vulnerable and non-vulnerable groups rose from 2.55 to 5.74. However, since the overall trend in relation to health problems was downward, the absolute differences between the economically vulnerable and others was a good deal less in 2001 than 1994. We shall see that this finding in relation to health is consistent with the evidence relating to the changing age profile of the economically vulnerable.

Considering our results to date, it is striking that the association between each of the outcomes and economic exclusion is remarkably stable across outcomes and over time. The only qualification to the latter conclusion relates to secondary deprivation, where the association at both points in time is rather higher than for the other aspects of social exclusion. Thus, in every case economic exclusion signals higher levels of social exclusion, but the degree of association is in each instance a good deal more modest than in relation to income poverty, basic deprivation and economic strain. Overall there is no evidence that, as absolute levels of economic vulnerability declined sharply, wider disparities emerged between the economically vulnerable and the rest of the population, either in terms of the elements making up the vulnerability profile or the wider dimensions of social exclusion.

## V  TRENDS IN THE SOCIO-ECONOMIC FACTORS ASSOCIATED WITH ECONOMIC VULNERABILITY

In this section we examine the socio-economic factors associated with economic vulnerability and the extent to which they have changed over time.

We have shown earlier that by 2001 overall levels of economic vulnerability had fallen to almost one-third of their 1994 levels. However, the crucial question that remains to be answered relates to the extent to which such improvement was distributed equally across socio-economic groups. Thus, even if the disparities between the vulnerable and non-vulnerable remained constant, it could still be true that the reduction in the risk of being vulnerable was uneven across socio-economic groups, leading to a form of polarisation involving sharper socio-economic distinctions between the two groups. One example of such polarisation would be the increased concentration of the economically vulnerable in urban public sector housing.

In order to address these issues we proceed to examine the relationship of a range of characteristics of the household reference person to economic vulnerability and the extent to which their impact has changed over time.

### 5.1 Socio-Economic Variables

Highest Educational Qualification

We distinguish between No Qualifications beyond Primary level, Intermediate/Junior Certificate, Leaving Certificate and Third Level.

Present and Recent Employment Status

Employment status is likely to be one of the best predictors of economic vulnerability, but knowing someone is presently employed may miss much of the variation within this group based on their past employment record. The present variable distinguishes six categories. The currently unemployed are divided between those who were unemployed for more than six months in the previous calendar year and those unemployed less than six months. The currently employed are divided into those who experienced unemployment in the previous calendar year, those who did so in the past five years before interview, and those with no unemployment experience. Lastly, we have a category for those currently defining themselves as inactive. The reference category contains those currently in employment who have not experienced unemployment in the past five years.

Social Class Position

We use an eight class modified version of the Erikson-Goldthorpe (EGP) social class schema. This schema defines class positions in terms of employment status and regulation of employment. The first dimension distinguishes between employers, self-employed and employee positions. The second distinguishes between employees on the basis of whether such regulation occurs via a 'labour contract', involving a relatively short term and

specific exchange of effort for money, or a 'service' relationship. The crucial dimensions along which work is differentiated are the degree of asset specificity involved and ease or difficulty of measuring performance (Goldthorpe, 2000, p. 13). In response to such variation employers offer different forms of employment relations. The 'service' relationship, as observed in the kind of contract typical for professional staff, involves important prospective rewards such as salary increments, pension rights and, above all, career opportunities (Erikson and Goldthorpe, 1992, p. 41).

In comparison with the most widely used version of the Erikson-Goldthorpe schema we combine self-employed with and without employees (IVa & IVb) and we put farmers and agricultural workers together (VIIb & IVc). On the other hand we have distinguished lower-grade technicians and supervisors of manual workers (V) from skilled manual workers (VI) and within the non-skilled manual class we have distinguished between semi-skilled (VIIa (i)) and unskilled manual workers (VIIa (i)). These modifications are consistent with our interest in the dichotomy between vulnerable and non-vulnerable classes rather than the full range of socio-economic differentiation. The classes distinguished are as follows.

| | |
|---|---|
| I+II | Service Class |
| IIIa + IIIb | Higher Routine Non-Manual Class |
| IVa + IVb & | Self-Employed |
| VIIb + IVc | Farmers & Agricultural Worker |
| V | Lower Grade Technicians and Supervisors |
| VI | Skilled Manual |
| VIIa (i) | Semi-skilled Manual |
| VIIa (ii) | Unskilled Manual |

Socio-Demographic Characteristics

Earlier analysis suggested that the most important distinctions are likely to be between lone parent households with children under 18 years in the household, female-headed households, households with three or more children, households where the reference person is separated and households where the reference person is aged 65 years or more.

Location and Tenure

Again previous research suggests that it is necessary to distinguish between combinations of urban-rural location and the tenure. In particular we need to identify local-authority tenants broken down by urban-rural location and all remaining households similarly differentiated. Urban is defined as comprising towns and cities with a population of 1,500 or above.

*5.2  A Descriptive Analysis of Trends over Time*

In Table 4 we show the breakdown of the economically vulnerable in 1994 and 2001 by our key socio-economic variables. In 1994 we observe a sharp variation in the risk of vulnerability by highest educational qualification of the household reference person. Over 40 per cent of those with no qualifications were economically vulnerable at that point. In 2001 vulnerability levels continue to be sharply differentiated by education but in every case the absolute levels decline sharply. Thus by 2001 18 per cent of those with no qualifications were vulnerable.

Variation in vulnerability levels by past and present employment status is even more striking. In 1994 almost three-quarters of those in households where the reference person was currently unemployed and had been so for more than six months in the previous calendar year were found to be economically vulnerable. For the currently unemployed who had been unemployed for less than six months in 1993 the figure fell to just less than one in two. The lowest levels of 18 per cent was observed for those in employment who had no experience of unemployment in the previous five years. By 2001 the range of differentiation extended from over 50 per cent for those most exposed to unemployment to 7 per cent for those most insulated from it.

Variation in risk by social class was also systematic in 1994, with levels of vulnerability ranging from 13 per cent in the case of the professional and managerial class to 55 per cent in the case of the non-skilled manual class. The rate for the higher-level routine white-collar workers was only slightly higher than for the service class. For the self-employed classes and the technical/ supervisory group the risk level rose to approximately one in four. Finally, for the semi-skilled and skilled manual it was in the region of two out of four. By 2001 vulnerability levels had fallen for all social classes, and the rate ranged from less than 4 per cent for the professional managerial group to almost 20 per cent for the unskilled manual.

In Table 5 we look at variation by socio-demographic group. In 1994 over four in ten individuals in households with a female reference person were economically vulnerable compared to just over one in four with a male reference person. In 2001 the corresponding figures were one in seven and one in ten. Being in a household where the reference person was a lone parent or separated or divorced is also associated with particular high levels of vulnerability. In 1994 in each case almost two-thirds of each of these groups was economically vulnerable. By 2001 this had fallen to one out of four for the lone parent case and to three out of ten for the separation/divorce situation. Larger families with more than two children were also significantly disadvantaged with almost one in two being vulnerable in 1994. They

Table 4: *Percentage Economically Vulnerable by Socio-Economic
Characteristics of Reference Person by Year*

|  | % Vulnerable 1994 | % Vulnerable 2001 |
|---|---|---|
| *Education* | | |
| No Qualifications | 42.9 | 18.4 |
| Intermediate Certificate | 27.9 | 9.7 |
| Leaving Certificate | 19.3 | 8.6 |
| Third Level | 11.5 | 3.5 |
| | | |
| *Employment Status* | | |
| Unemployed > 6 Months | 73.5 | 52.2 |
| Unemployed <6 Months | 47.6 | 27.1 |
| In Employment & experienced unemployment in | | |
| previous calendar year | 40.2 | 18.7 |
| Inactive | 39.6 | 17.6 |
| In Employment & experienced unemployment in | | |
| past five years | 24.9 | 7.7 |
| In Employment experienced no unemployment | 18.1 | 7.0 |
| | | |
| *Social Class* | | |
| Service | 13.1 | 3.6 |
| Routine non-manual higher | 16.8 | 9.7 |
| Self-employed | 27.3 | 9.7 |
| Agricultural /farmers | 25.2 | 16.7 |
| Technical/supervisory | 22.2 | 7.2 |
| Skilled manual | 37.2 | 11.3 |
| Semi-skilled manual/routine non-manual lower | 40.9 | 13.6 |
| Unskilled manual | 55.0 | 19.2 |

remained relatively disadvantaged over time but their absolute level of
vulnerability fell to one in six. Finally, we consider the impact of older
reference persons. However, in order to capture the most important change
over time, it is necessary to distinguish those in the farming social class from
all others. In the non-farming group the older reference person households
were somewhat less likely to be economically vulnerable in 1994; with the
respective levels being just less than one in four and almost one in three. Over
time these fell to one in twelve and one in ten respectively. Among farmers
there was very little difference by age in 1994 with just over one in five of the
over 65 years age group and one in four of all others being vulnerable.
However, while in line with the remaining trends, the level for the younger
group fell to one in thirteen, for older farmers it rose to two out of five.
Reference persons in such households would include those currently in
farming and those retired from farming.

Table 5: *Percentage Economically Vulnerable by Socio-Demographic Characteristics of Reference Person by Year*

|  | *% Vulnerable 1994* | *% Vulnerable 2001* |
|---|---|---|
| Female | 43.0 | 14.6 |
| Male | 28.1 | 9.5 |
| | | |
| Lone Parent | 63.9 | 23.5 |
| Other | 28.1 | 9.9 |
| | | |
| Separated/Divorced | 65.4 | 29.9 |
| Other | 29.7 | 10.2 |
| | | |
| More than two children | 44.4 | 16.3 |
| Other | 27.9 | 9.7 |
| | | |
| Non-Farming | | |
| Over 65 years | 22.6 | 8.4 |
| Under 65 years | 32.6 | 10.3 |
| | | |
| Farmers | | |
| Over 65 years | 21.6 | 39.9 |
| Under 65 years | 24.4 | 7.7 |

In Table 6 we look at the joint impact of location and housing tenure. In 1994 we observe a substantial contrast between local authority tenants and all others and a further differentiation within the former group by urban-rural location. One in four non-local authority tenants were economically vulnerable. Among rural local authority tenants this rose to over six out of ten and the figure peaked for their urban counterparts at almost three in four. While overall trends were sharply downwards for all groups by 2001, significant differentiation had emerged within the non-local authority groups, with the rural group being one and a half times as likely to be economically vulnerable (the respective figures being 7 and 11 per cent). A similar effect was observed for local authority tenants but in this case it produced a reversal in the absolute positions of the groups. Thus by 2001 over two out of five of those in rural locations were vulnerable compared to just over one in three of their urban counterparts.

Table 6: *Percentage Economically Vulnerable by Location/Tenure by Year*

|  | *% Vulnerable 1994* | *% Vulnerable 2001* |
|---|---|---|
| *Location/Tenure* | | |
| Urban Non LAT | 24.3 | 6.6 |
| Rural Non-LAT | 25.6 | 11.1 |
| Rural LAT | 62.0 | 41.6 |
| Urban LAT | 73.5 | 35.2 |

*5.3  A Multivariate Analysis of Trends in Economic Vulnerability*

In this section we look at the impact of the full set of variables we have identified to date in order to allow us to measure the net effect of each variable on vulnerability and, in particular, to allow us to assess the extent to which their impact has changed over time. In Table 7 we report the multiplicative coefficients (odds ratios) from a logistic regression in which economic vulnerability is the dichotomous variable. We do so by using a multivariate logistic regression in which the dichotomous independent variable is economic vulnerability.[17] Where no interaction with time is reported no significant change in the impact of these variables was observed over time.

Focusing first on education, we find that, controlling for all other factors, the odds on being economically vulnerable declines with education. Thus in 1994 the odds for those with no qualifications was almost three times higher than for those with Third Level education, while the intermediate groups enjoyed lesser advantages. However, what is of particular interest is that, as shown by the significant interaction terms, the relative advantage enjoyed by the Third Level group over all other groups increased substantially over time. Thus, by 2001 the Third Level group enjoyed net advantages over the group without qualifications, the Intermediate Certificate group and the Leaving Certificate of twelve to one, six to one and five to one respectively. This change reflects the fact that while vulnerability rates fell for all education groups, it declined particularly sharply for the Third Level group. What has occurred is better described as involving the insulation of the most educated from risk of vulnerability rather than a process of polarisation.

Current and previous labour market status continue to be powerful predictors of vulnerability even when we control for a range of other factors. At the extremes, the odds of being economically vulnerable were nine times

[17] These estimates are based on employing the ℓEM modal class procedure for the identification of the dependent variable. Each observation is assigned to that latent class for which, given the manifest scores, the estimated classification probability is largest.

higher for the currently unemployed who had been unemployed for more than six months in the previous calendar year than for employees with no previous experience of unemployment. While the former group is particularly disadvantaged, the remaining groups all experience significantly higher odds of vulnerability in comparison with the employee group who have not at any stage being exposed to unemployment. The extent of such disadvantage ranged from almost four to one for the short-term unemployed to a rather modest effect for those in employment but with some exposure to unemployment in the past five years.

However, while labour market status is a powerful predictor of vulnerability, its impact remained relatively constant over time. The exception relates to the short-term unemployed whose position deteriorated over time, as reflected in an increase in the relevant odds ratio from just over four to one to almost eight to one. It is necessary to keep in mind that the size of this group declined dramatically over time and that those who are currently in the group are likely to differ significantly from the earlier group in terms of a variety of unmeasured characteristics that are likely to increase the probability of being economically vulnerable. Overall the findings in relation to labour market status provide little support for the hypothesis of polarisation over time.

The next stratification factor on which we focus is social class. The net impact of social class is a good deal more modest than the gross effects discussed to date. This reflects the fact that, other than for the self-employed, its impact is to a significant extent mediated by labour market experience. This, although the unskilled manual group remains most at risk, the advantages enjoyed by the professional and managerial or service class over the remaining classes shows relatively little variation, as the risk rates for the employee classes most exposed to unemployment converge on those of the self-employed. Crucially, once again, we find very little variation over time.

Focusing on our range of socio-demographic factors, we find that in 1994, with the exception of individuals located in households where the reference person was over 65 years, they each had the net effect of raising the odds on being vulnerable. Thus for female headed households, lone parent, the separated/divorced and larger families the odds ratios ranged from 1.5:1 to 2.7:1. At that point the older respondents had a significantly lower risk than the others. Over time the net odds ratios for the separated/divorced increased significantly. As divorce became more widespread, it may be that the socio-economic composition of this group also altered. By 2001 the odds ratio for the former had increased from 1.4:1 to 4:4:1. However, no such trend was observed for large families or female headed households and the trend for lone parents was in the opposite direction. In each case it should be kept in mind that these

Table 7: *A Multivariate Analysis of Trends in Socio-economic Factors Associated with Economic Vulnerability: Odds Ratios on Being Vulnerable*

|  | *B* | *p* |
|---|---|---|
| *Education* | | |
| No Qualifications | 2.859 | *** |
| Intermediate Certificate | 1.672 | *** |
| Leaving Certificate | 1.164 | ns |
| Ref: Third Level | 1.000 | |
| | | |
| *Employment Status* | | |
| Unemployed > 6 Months | 8.821 | *** |
| Unemployed <6 Months | 3.820 | *** |
| Employee & Unemployed in 2000 | 3.176 | *** |
| Inactive | 2.439 | *** |
| Employee & Unemployed in past 5 years | 1.308 | * |
| Ref: Employee –no unemployment | 1.000 | |
| | | |
| *Social Class* | | |
| Ref: Service Class | 1.000 | |
| Higher Routine Non-manual Class | 1.379 | ** |
| Petty Bourgeoisie | 1.814 | *** |
| Farmers & Agricultural Worker | 1.772 | *** |
| Lower Grade Technicians and Supervisors | 1.127 | NS |
| Skilled Manual | 1.865 | *** |
| Semi-skilled Manual | 1.720 | *** |
| Unskilled Manual | 2.230 | *** |
| | | |
| *Socio-Demographic Factors* | | |
| Female | 1.466 | *** |
| Separated/Divorced | 1.433 | *** |
| Lone Parent | 2.697 | *** |
| Number of Children > 2 | 1.643 | *** |
| Age 65 years or over | 0.401 | *** |
| | | |
| *Location/Tenure* | | |
| Urban Non LAT | 1.000 | |
| Rural Non-LAT | 1.279 | *** |
| Rural LAT | 2.197 | *** |
| Urban LAT | 3.399 | *** |
| | | |
| *Year 2001* | 0.051 | *** |
| | | |
| *Interactions with Year* | | |
| | | |
| *Education*2001* | | |
| No Qualifications | 4.285 | ** |
| Intermediate Certificate | 3.902 | ** |

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Table 7: *A Multivariate Analysis of Trends in Socio-economic Factors Associated with Economic Vulnerability: Odds Ratios on Being Vulnerable (contd.)*

|  | *B* | *p* |
|---|---|---|
| Leaving Certificate | 4.998 | *** |
| | | |
| *Employment Status*2001* | | |
| Short-term unemployed | 1.880 | * |
| | | |
| *Socio-Demographic Factors*2001* | | |
| Separated/Divorced | 3.043 | *** |
| Lone Parent | 0.352 | *** |
| Over 65 years | 1.522 | * |
| | | |
| *Location/Tenure*2001* | | |
| Rural LAT | 3.593 | *** |
| Urban LAT | 1.484 | * |
| | | |
| Age | 1.590 | * |
| | | |
| *Age By Farmer*2001* | | |
| Farmers Aged 65 years | 11.420 | *** |
| | | |
| *Fit Statistics* | | |
| | | |
| Reduction in Log Likelihood | 55,45.0 | |
| df | 34 | |
| Nagelkerke R$^2$ | 0.399 | |

are net trend controlling for the role of other factors in the equation. Where the reference person was non-farming group and aged 65 years and over, there was a slight decline in their relative situation but they continued to enjoy an advantage over all others. However, for farmers in this age group there was a dramatic shift in their relative risk of vulnerability. As we have seen earlier, this group was quite exceptional, in that, over time their absolute level of vulnerability displayed only a modest decline. As a consequence their relative position declined quite dramatically as their odds ratio went from  0.4:1 to close to 7:1.

Finally, we look at the impact of location and tenure. In 1994 both urban and rural local authority tenants displayed significantly higher rates of vulnerability than other tenures, even when allowing for the impact of a range of other factors. At that point, the greatest disadvantage was borne by the urban group, with the respective odds ratios being two and three and a half to one in comparison with urban non-local authority tenants. However, while

over time there was a deterioration in the relative situation of both groups, this was particularly true for the rural local authority tenants. As a consequence by 2001 their respective odds ratios were approximately eight to one and five to one, and the balance of advantage between them was reversed. In both cases it should be kept in mind that the number of respondents living in such households declined over time. In the rural case the fall was from 3 to 2 per cent and in the urban from 11 to 7 per cent. In both cases we might expect that exit was selective in terms of characteristics likely to be associated with economic vulnerability.

## VI  CONCLUSIONS

In this paper we have sought to assess trends in levels and patterns of economic exclusion during an unprecedented period of economic growth in Ireland. Our most striking finding is that economic vulnerability, as we have defined and measured it, declined sharply over the period under examination. In 1994 the society was divided on an approximately two-thirds versus one-third basis into two sharply differentiated groups. The economically vulnerable were characterised by a substantially higher risk of income poverty but, more particularly, strikingly higher risks of basic deprivation and economic strain. By 2001 the size of the vulnerable class had fallen to one-ninth of the population and although the risk of income poverty had increased for that group both deprivation and economic strain levels had declined substantially even within the vulnerable class. Only in the case of economic strain was increased differentiation between the vulnerable and non-vulnerable observed. The sharp decline in absolute levels of economic exclusion and the absence of any uniform pattern of increased differentiation present a challenge to advocates of any straightforward thesis of economic polarisation.

Extending our analysis to encompass a broader conception of social exclusion, we found that economic vulnerability was indeed related to this broad range of deprivations. However, the extent of differentiation between the vulnerable and non-vulnerable classes was also a good deal less sharp in relation to these dimensions. Over time the patterns of association between economic exclusion and the various dimensions of social exclusion remained relatively constant. Overall, we find very little evidence to support the thesis of increasing disparities between the economically vulnerable class and the rest of the population.

Polarisation could have taken the form of increased concentration of economic vulnerability among a narrower range of socio-economic groups. It is

clear that at both points in time the economically vulnerable continued to be sharply differentiated by traditional stratification factors such as educational qualifications and labour market status. However, the increase advantage enjoyed by those in third level education is the only evidence of accentuation of inequality.

In the context of the absolute gains enjoyed by even the most disadvantaged members of these socio-economic groups, it is difficult to see that the changes in relativities we have observed can be characterised as involving any substantial increase in the level of polarisation. However, the modest changes in relativities should not obscure the fact that at both points in time socio-economic disparities are of a very substantial scale and do mark Ireland out as being characterised by levels of inequality that place it at the more unequal end of the European spectrum (Whelan and Maître, 2005). Notwithstanding such inequalities, the dramatic reductions in levels of vulnerability and multiple deprivation across the socio-economic spectrum demonstrate beyond doubt that the gains from economic growth have been widespread.

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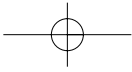
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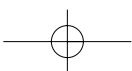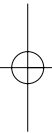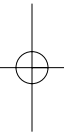
APPENDIX

INDICATORS OF ECONOMIC EXCLUSION

*Income poverty*: Income poverty is measured as the proportion of persons observed below 70 per cent of median equivalised household disposable income. The equivalisation scale used gives a value of 1 to the first adult in the household then a value of 0.66 per additional adult and a value of 0.33 per child.

*Basic deprivation*: Household reference persons were asked if they possessed or had access to a list of items and where the response was in the negative if it was because of lack of financial resources. Eight items have been identified as being part of a basic life-style deprivation indicator:

- Buying new, rather than second-hand clothes.
- Having a meal with meat, chicken or fish every second day, if you wanted to.
- Having a warm, waterproof overcoat.
- Having two pair of strong shoes.
- Having a roast or its equivalent once a week.

With a different question format the household reference persons were also asked if:

- In the last two weeks preceding the interview they had a day where they did not have a substantial meal due to a lack of money.
- They had to go without heating during the previous year due to lack of money.

Finally the household reference persons were also asked if the household had experienced debt problems arising from ordinary living expenses during the previous year.

The basic life-style deprivation indicator is constructed as the sum of deficits on these eight items and any score of at least one is considered as a manifest of deprivation on this particular dimension.

*Economic strain:* The subjective measure of economic strain we employ is based on the following question asked to the household reference person:

"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 economic strain variable is constructed as being those reporting either "great difficulty" or "difficulty".

*Indicators of Social Exclusion*
*Secondary deprivation*: On the same format as for the basic deprivation measure, 6 items have been identified that are:

- Having no car.
- Having no video recorder.
- Having no colour television.
- Having no microwave.
- Having no dishwasher.
- Having no telephone.

Absence on any of these six items due to lack of resources is reported as deficiency on this deprivation dimension.

*Housing deterioration*: The household reference persons were asked if their accommodations had any of the following problems:

- A leaking roof.
- Damp walls, floors etc…
- Rot in window frames or floors.

Any report on these three items was recorded as deficiency on the housing deterioration dimension.

*Neighbourhood environment*: The household reference persons were asked if their accommodation had any of the following problems:

- Shortage of space.
- Noise from neighbours.
- Not enough light.
- Pollution or dirt from industry or traffic.
- Vandalism or crime in the area.

In each case a problem was recorded as involving a unit increase on the neighbourhood environment deprivation dimension.

*Physical health*: Each individual interviewed was asked about their health with the following question:

"How good would you say your health is?" Six answers were available ranging from "very good" to "very bad". Our analysis compares those reporting their health from "very good" to "fair" versus those having "bad" or "very bad" health.

*Psychological distress*: The Living in Ireland Survey includes a General Health Questionnaire (GHQ) designed to detect minor psychiatric disorders. The GHQ contains twelve items where the respondents were asked about their *present* mental and emotional condition "over the last few weeks" in comparison to their *normal* condition. Respondents reporting at least three problems on these items are considered as suffering from psychological distress.